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1. Introduction

GHD was engaged by Telstra Corporation Ltd (Telstra) through United Group Services (United) to undertake a Phase 1 and 2 Contamination Assessment of two adjacent sites located at 8 O’Connell Street and 83-89 Marius Street, Tamworth, NSW (Figure 1, Appendix A).

The legal descriptions of the sites include Lot 1, DP 70023 (8 O’Connell Street) and Lot 1, DP 803644 (83 – 89 Marius Street). The site at 8 O’Connell Street is currently being used as an egress point and carpark for 83 – 89 Marius Street, a Telstra Line Depot. Operations underway at the Line Depot include administration, planning and storing maintenance equipment. The combined area of the sites is approximately 1.29 hectares (ha).

This assessment was carried out as part of Telstra’s program of divestment of surplus land. GHD understand that Telstra proposes to divest the site for either residential or commercial development.

1.1 Objectives

The objectives of the Phase 1 and 2 assessments were to:

- Establish historical site usage and site characteristics;
- Assess the presence of historical or current potentially contaminating land uses at the site;
- Assess the soil across the site (limited Phase 2) for the presence of potential contaminants which may be present, based on the results of the Phase 1 assessment; and
- Prepare a Phase 1 and 2 Contamination Assessment Report (this report).

1.2 Scope of Works

The scope of work undertaken by GHD as part of this investigation included Phase 1 and Phase 2 contamination assessments.

The Phase 1 assessment included:

- Desktop review of site geology, hydrogeology (including groundwater bore search) and topography information;
- Review of available historical aerial photographs, land title information, Section 149(2 and 5) certificates, Council records and WorkCover NSW Dangerous Goods records;
- A site inspection including:
  - observations of site conditions,
  - visual identification of areas of potential surface contamination and filled or excavated areas, and
  - identification of neighbouring land-uses; and
Interviews with Peter Blom and Ray Warhurst.

The Phase 2 assessment included:

- Hand augering and soil sampling at twenty boreholes (BH1 through BH20) across the site;
- Laboratory analysis of twenty soil samples for concentrations of total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene and xylene (BTEX), and 8 heavy metals, analysis of six soil samples (including four composite samples) for polycyclic aromatic hydrocarbons (PAH), analysis of five composite soil samples for polychlorinated biphenyls (PCB) and organochlorine pesticides (OCP), analysis of 10 soil samples for pH and analysis of three soil samples for asbestos;
- Interpretation of results; and
- Completion of this report.

1.3 Limitations

Works were undertaken in accordance with GHD’s proposal dated 30 August 2006 (GHD ref:72742). Additional limitations included:

- Investigations of the quality of the groundwater at the site were not undertaken because previous investigations indicated that it is unlikely to be an issue; and
- Soil sampling and analysis was limited to surficial soils at twenty select locations.

Further limitations of the work are outlined in Section 8.
2. Phase 1 Assessment

2.1 Site Characterisation

2.1.1 Site Location and Description

Site characteristics including location information and the legal description are presented in Table 1, below.

Table 1 Site Characteristics

<table>
<thead>
<tr>
<th>Civic Address</th>
<th>8 O’Connell Street and 83 – 89 Marius Street, Tamworth (Figure 1, Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>Telstra Corporation Limited</td>
</tr>
<tr>
<td>Occupier</td>
<td>Telstra Corporation Limited</td>
</tr>
<tr>
<td>Property Legal Description</td>
<td>Lot 1, DP 70023 and Lot 1, DP 803644, Tamworth Parish, County of Inglis</td>
</tr>
<tr>
<td>Area</td>
<td>The site encompasses an area of approximately 1.29 ha and is an irregular shape (Figure 2, Appendix A)</td>
</tr>
<tr>
<td>Surrounding Land Use</td>
<td>Northeast: Marius Street, commercial and residential properties</td>
</tr>
<tr>
<td></td>
<td>Southeast: Marius Street, O’Connell Street, commercial and residential properties</td>
</tr>
<tr>
<td></td>
<td>Southwest: O’Connell Street and commercial properties</td>
</tr>
<tr>
<td></td>
<td>Northwest: Industrial, commercial and residential properties</td>
</tr>
<tr>
<td>Topography</td>
<td>The Tamworth 1:250,000 topographic map (GeoScience Australia, 2003) indicates that the site has an elevation of approximately 375 m Australian Height Datum (AHD). The site slopes gently south towards the Peel River, which is located approximately 400 m from the site</td>
</tr>
<tr>
<td>Vegetation and Surface Water</td>
<td>The site was covered in asphalt, with vegetation along Marius Street in healthy condition. No standing water was observed on the surface of the site.</td>
</tr>
<tr>
<td>Zoning</td>
<td>Lot 1, DP 70023 is zoned 3(a) – Business and Lot 1, DP 803644 is zoned 4 – Industrial under the Tamworth City Council Local Environment Plan of 1996. The surrounding area to the north and east is zoned 2(a) – Residential and the remaining area to the south and west is zoned 3(a) – Business</td>
</tr>
</tbody>
</table>

2.1.2 Geology

The Tamworth-Hastings 1:250,000 Metallogenic Series Sheets SH/56 13-14 and SI/56 1-2 indicate that the geology of the site is made up of the Parry Group from the Devonian-Carboniferous period, which includes Namoi Formation, Talcumba.
Sandstone, Tangaratta Formation, Mandowa Mudstone, Keepit Conglomerate, Goonoo Goonoo Mudstone and Baldwin Formation.

2.1.3 Hydrogeology

Typically, groundwater follows surface topography and local drainage patterns and flows from higher elevations towards lower elevations. The surface topography of the Site suggests that the groundwater flow direction is towards the Peel River located approximately 400 m south of the Site.

A groundwater well search completed by the Department of Natural Resources (DNR) of their bore database indicated that there are ten bores located within 1 km radius of the site. Table 2, below, presents a summary of the information provided by DNR. Search documentation is provided in Appendix B.

Table 2 Summary of Groundwater Database Search

<table>
<thead>
<tr>
<th>Bore ID</th>
<th>Approximate distance/direction from site (m)</th>
<th>Authorised Purpose</th>
<th>Maximum Depth Drilled (mbgs)</th>
<th>Lithology (drillers log)</th>
<th>Surface Water Level (mbgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW021787</td>
<td>1 km southeast</td>
<td>Investigation</td>
<td>10.70</td>
<td>Clay/gravel</td>
<td>8.20</td>
</tr>
<tr>
<td>GW037801</td>
<td>400 m south (opposite side of Peel River)</td>
<td>Test bore</td>
<td>12.80</td>
<td>Clay/gravel</td>
<td>N/A</td>
</tr>
<tr>
<td>GW037810</td>
<td>500 m south (opposite side of Peel River)</td>
<td>Test bore</td>
<td>14.00</td>
<td>Clay/sand</td>
<td>4.50</td>
</tr>
<tr>
<td>GW037811</td>
<td>500 m south (opposite side of Peel River)</td>
<td>Recreation</td>
<td>13.40</td>
<td>Clay/gravel</td>
<td>5.00</td>
</tr>
<tr>
<td>GW037866</td>
<td>400 m southwest (opposite side of Peel River)</td>
<td>Recreation</td>
<td>14.00</td>
<td>Gravel/boulders</td>
<td>4.20</td>
</tr>
<tr>
<td>GW037867</td>
<td>200 m south</td>
<td>Recreation</td>
<td>15.50</td>
<td>Clay/sand</td>
<td>5.10</td>
</tr>
<tr>
<td>GW052834</td>
<td>500 m north</td>
<td>Irrigation</td>
<td>34.50</td>
<td>Clay</td>
<td>24.50</td>
</tr>
<tr>
<td>GW057928</td>
<td>500 m north</td>
<td>Industrial</td>
<td>38.00</td>
<td>Shale/basalt</td>
<td>26.20</td>
</tr>
<tr>
<td>GW902407</td>
<td>480 m northwest</td>
<td>Domestic</td>
<td>36.30</td>
<td>Shale</td>
<td>N/A</td>
</tr>
<tr>
<td>GW965054</td>
<td>450 m northeast</td>
<td>Domestic</td>
<td>22.86</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A - Information not available
2.1.4 Topography
The area slopes gently to the south east. The site has been levelled with stormwater pits located across the site. It is expected that any surface water on the site would either pond on site or be collected in the stormwater pits.

2.1.5 Flood Potential
The location of the Site and the surrounding topography suggest that it is unlikely that the site and surrounding area would be subject to a major flood event, although localised stormwater flooding may be possible.

2.2 Site History
GHD undertook a review of historical data for the Site including review of previous investigations, historical title certificates, aerial photographs, NSW WorkCover records and NSW DEC records. The following section outlines the results of the historical review.

2.2.1 Previous Investigations
Information provided by Telstra via electronic communication included the following extracts from a valuation report (report details were not provided by Telstra to GHD):

- Structures at the site include:
  - Administration Building - Single storey brick structure with a concrete floor and metal deck roof erected in approximately 1982.
  - Store/Workshop - Single storey steel framed metal clad building with a concrete floor and pressed metal skillion roof. It was erected in approximately 1982;
  - Divisional Store - Single storey steel framed building with a concrete floor and galvanised iron roof and cladding. It was erected in approximately 1950;
  - M.V.R.S. Building - Single storey iron clad building with concrete floor, skillion iron roof and roller door;
  - Machinery Store - Single storey skillion structure erected in approximately 1980 with a steel frame and pressed metal roof and cladding; and
  - Training Room - Demountable building roofed and clad with aluminum.
- Other improvements include a washbay facility with an iron roof of 4 m by 8 m with concrete paving.
- The site also has extensive concrete and bitumen paving, kerb and guttering, retaining walls, flood lighting and man proof fencing.
- A visual site inspection (during valuation) did not reveal any obvious pollution or contamination but from information provided by a Mr. Michael Rumble (GHD infers that Mr. Rumble represents United KFPW, a subsidiary of United Group Services Pty Ltd) based on the valuation works/survey carried out on site, sections of the subject property have been found to be contaminated and require remediation.
An underground petrol storage tank is still in the ground between the Administrative Building and the Store/Workshop. This tank was reportedly filled with water in about 1982 when the bowser was removed and the Store/Workshop built.

Works have reportedly been carried out to ascertain the extent of contamination on the site with the view to have it remediated to make the site suitable for proposed residential land use, however, Tamworth City Council does not have any Development Application on record and Mr. Michael Rumble is reportedly not aware of any such proposal.

Telstra also provided portions of a Stage 1 and 2 Environmental Site Assessment that was conducted at 89 Marius Street, Tamworth, NSW by CH2M Hill in 2001. A review of the portions of the report that were provided to GHD may be summarised as follows.


The Executive Summary stated that:

- CH2M Hill conducted a Stage 1 Preliminary Site Investigation (PSI) and a Stage 2 Detailed Site Investigation (DSI) at the site to evaluate the site’s suitability for residential land use;
- Following Stage 1 desktop works, intrusive works were conducted at the site with a solid flight auger to maximum 3 m depth. Soil samples were collected and analysed from 25 stratified random grid or targeted locations across the site at 0.1-0.2 m, 0.4-0.5 m and 0.8-1.1 m depths. The site locations are shown on Figure 2 in Appendix A;
- Soil samples were analysed for concentrations of metals, total petroleum hydrocarbons (TPH), benzene, ethylbenzene, toluene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP) and/or polychlorinated biphenols (PCB);
- No fill was encountered during fieldwork. The site is underlain by sandy gravel and gravelly silt to 0.3-1.1 m followed by silty clay;
- Analytical results for all parameters in all samples analysed were less than HILs for residential land use with minimal access to soil or NSW EPA Guidelines for Assessing Service Station Sites (1994);
- No visual or olfactory observations of hydrocarbon impact were noted in four boreholes advanced in the vicinity of the UST up to 3 m below ground level. CH2M Hill considers it unlikely that the surrounding soils have been significantly impacted by the contents of the decommissioned petrol UST, however, the report states that there may be a small quantity of soil adjacent and below the tank that has been impacted from leaks or spills from the tank that could not be assessed during fieldwork;
- CH2M Hill considers the risk to groundwater from potential UST leaks or spills is small;
- No surface hydrocarbon staining or cracks were observed in concrete in the vicinity of the washbay. CH2M Hill considers it unlikely that the soils in the vicinity of the washbay have been significantly impacted; and
– The soils assessed during the work were considered suitable for residential land use with minimal access to soils. However, CH2M Hill considers that further works are required to remove the UST, washbay and associated infrastructure and assess the soils directly below these structures for hydrocarbon impact.

- The report Conclusions (Section 13) contained information similar to that presented in the Executive Summary;
- The report Recommendations (Section 14) contained similar information to that presented in the Executive Summary plus the following:
  - CH2M Hill recommends that a Remedial Action Plan (RAP) is prepared to decommission the washbay; and
  - The RAP should address issues including:
    - Sampling/testing the contents of the tank,
    - Removal and disposal of the UST and associated structures,
    - Excavation and stockpiling of all material from around the UST and washbay,
    - Assessment of soil situated around the UST and washbay locations, and
    - Validation and backfilling of excavations.

2.2.2 Certificate of Title Review

A historical title search was carried out on 24 October 2006 for the site by Advance Legal Search Pty Limited. Results of the historical title search are presented in Appendix B and summarised in Table 3, below.

Table 3 Summary of Historical Title Search Results

<table>
<thead>
<tr>
<th>Year</th>
<th>Proprietor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lot 1 DP 70023 (8 O’Connell Street)</strong></td>
<td></td>
</tr>
<tr>
<td>2002 – to present</td>
<td>Telstra Corporation Limited</td>
</tr>
<tr>
<td>1987 – 2002</td>
<td>Australian Telecommunications Commission</td>
</tr>
<tr>
<td>1900 - 1987</td>
<td>Private individuals</td>
</tr>
<tr>
<td>1900</td>
<td>Purchased/granted from Crown</td>
</tr>
<tr>
<td><strong>Lot 1 DP 803644 (83-89 Marius Street)</strong></td>
<td></td>
</tr>
<tr>
<td>2001 – Present</td>
<td>Telstra Corporation Limited</td>
</tr>
<tr>
<td>1990 – 2001</td>
<td>Australian and Overseas Telecommunications Corporation Limited</td>
</tr>
<tr>
<td>1952 – 1990</td>
<td>The Commonwealth of Australia</td>
</tr>
<tr>
<td>1951 – 1952</td>
<td>The Council of the City of Tamworth</td>
</tr>
</tbody>
</table>
Year | Proprietor
---|---
1854 – 1951 | Private individuals and trusts
1854 | Purchased/granted from Crown

### 2.2.3 Historical Aerial Photographs

Historical aerial photographs of the Site and surrounding area (obtained from the NSW Department of Lands) were reviewed for 1953, 1965, 1989, 1998 and 2004. Historical aerial photographs are presented in Appendix C and summarised in Table 4, below.

**Table 4  Review of Historical Aerial Photographs**

<table>
<thead>
<tr>
<th>Photograph</th>
<th>Observations</th>
</tr>
</thead>
</table>
| 11/11/1953 | **Site Observations**  
Run: 3  
Film: NSW48 5077  
15,500 ft | The Site is a vacant (cleared) block with scattered vegetation along the northeast and northwest perimeters. |
| 29/07/1965 | **Site Observations**  
Run: 3  
Film: NSW1368-5097  
7,400 m | The site appears to be divided. A large presumed Store/Workshop building and storage area is situated on the southeast side of the site. The northwest side of the site is vacant with the exception of a single building towards the southeast side of the site. The vegetation from the previous photo has been cleared. |
| 08/07/1989 | **Site Observations**  
Run: 3  
Film: NSW3667  
4435 m | The site has undergone extensive development with four buildings present on site. These buildings appear to be in the same configuration as the Administration Building, Store/Workshop and Divisional Store buildings observed during the site inspection. Much of the remaining site surface appears to be paved and gardens have been established along the northeast boundary, adjacent to Marius Street. |
| | **Site Surrounds Observations**  
The surrounding land use appears relatively similar to 1965 with the exception of additional dwellings along northwest of the site and larger buildings located southwest of the site. |
Photograph Observations

<table>
<thead>
<tr>
<th>Date</th>
<th>Run</th>
<th>Film</th>
<th>Site Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/08/1998</td>
<td>3</td>
<td>NSW4442</td>
<td>The site appears relatively unchanged from 1989. The demountable training room and an outdoor storage area are situated in the same configuration as observed during the site inspection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Site Surrounds Observations</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The surrounding land use appears relatively unchanged from 1989 with the exception of additional buildings located northwest and southwest of the site.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Run</th>
<th>Film</th>
<th>Site Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>17/09/2004</td>
<td>2</td>
<td>NSW4871</td>
<td>The site appears largely unchanged from 1998.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Site Surrounds Observations</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The surrounding land use appears largely unchanged from 1998.</td>
</tr>
</tbody>
</table>

### 2.2.4 Permits, Licences, Approvals and Trade Waste Agreements

#### POEO Act 1997

A search of the EPA online public register on 24 October 2006 indicated that there are no licences pertaining to the Site, under Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act) (DEC, 2005a).

#### Workcover NSW


According to Workcover NSW, no dangerous goods have been registered for either site. Copies of the Workcover NSW reply letters are provided in Appendix B.

#### Council Records

Tamworth Regional Council provided GHD with:

- A copy of the Local Environmental Plan (1996) zoning applicable to the site (Appendix B) which confirmed that the site is situated in Zone 3a Business and Zone 4 Industrial; and
- Copies of the Section 149 (2) Planning Certificates for the site (Appendix B).

The Section 149(2) certificates for both addresses of the site (ie 8 O’Connell Street and 89 Marius Street) indicate the following:

- The land has not been proclaimed to be a mine subsidence district;
- The land is not affected by any road widening or road realignment proposal;
- There are no environmental planning instruments applying to the land which provide for the acquisition of the land by a public authority;
The subject is not identified as being bushfire prone land; and

Consideration of the former Tamworth City Council’s adopted policy on contaminated land which restricts development of land in special circumstances is warranted, as is the application of provisions under relevant State legislation.

2.2.5 Product Spill, Loss or Discharge History

No information regarding product spill, loss or discharges at the site was found during the Phase 1 assessment.

2.2.6 Present and Past Industrial Processes

No present or past industrial or manufacturing processes have reportedly occurred on the site.

2.3 Site Inspection

A site inspection was conducted by GHD on 12 October 2006. Photographs taken at the site are included in Appendix D. The site currently operates as an administration and planning centre for telecommunication maintenance operations and storage of maintenance materials.

At the time of the site inspection, buildings covered approximately 20% of the site with the remaining portion of the site covered by asphalt paving, kerb and guttering, retaining walls, flood lighting, grassed and garden area and man proof fencing.

Services provided to the site include underground potable water, sewerage and stormwater services. Electrical and telephone service were available from overhead lines present along Marius Street.

Structures observed on the 83-89 Marius Street site included:

- An administration building – Single story brick structure with a concrete floor and metal roof reportedly constructed in approximately 1982. The building is fitted out as offices and covers approximately 820m²;
- A store/workshop – Single story steel framed metal clad building with concrete floor and metal roof. The building has office and storage space. It was reportedly constructed in approximately 1982 and covers approximately 250m²;
- A divisional store building – Single story steel framed building with a concrete floor and galvanised iron roof and cladding. The building has office and storage space. It was reportedly constructed in approximately 1950 and covers approximately 330m²;
- A building known as the M.V.R.S Building – Single story iron clad building with concrete floor, skillion roof and roller door covering approximately 50m²;
- A machinery store shed – Single story shed skillion structure reportedly constructed in approximately 1980 with a steel frame, metal roof and cladding. The building covers approximately 50m²;
- A training room – Demountable building roofed and clad with aluminium and covering approximately 70m²; and
A roofed carwash facility, approximately 4 metres by 8 metres with concrete paving and a catch basin in the centre of the concrete floor.

A covered steel garbage bin labelled ‘asbestos waste’ was observed on the northern side of the site between the metal classroom and air cylinder storage bund.

No hazardous materials were encountered during the site inspection, however a filler valve for an Underground Storage Tank (UST) was observed between the brick office building and the metal warehouse.

During the site inspection no signs of contamination or standing water were observed and vegetation appeared to be in good condition.

### 2.4 Interviews

On 12 October 2006, GHD conducted an interview with Peter Blom, an employee of Telstra who was present onsite during the site inspection. The following summarises Peter’s statements during this interview:

- An UST was situated between the Metal Office Building and the Metal Warehouse.
  - Peter could not recall the removal of the UST;
- There is no history of chemical use or storage on the former line yard and depot site; and
- The site is used for operations planning and administration and storage of equipment and maintenance supplies and that no maintenance or servicing of vehicles is carried out on site.

On 3 May 2007, GHD conducted an interview with Ray Warhurst – Telstra Team Manager. Ray has worked at the site for approximately 25 years. The following summarises Ray’s statements during this interview:

- Two bowsers were removed in circa 1988;
- Telephone poles were stored at the site between early 1990’s to circa 2000;
- A wash bay on the site was decommissioned in 2001;
- Asbestos bins observed on the site during the site inspection were used to store asbestos from the removal of electrical pits in the field;
- A mechanic (ie servicing vehicles) ceased operation in the eastern shed circa 1990;
- Ray had no memory of the UST supposedly situated at the site being removed (ie excavated) from the site; and
- An old hall was located in the centre of the site circa 1975.
3. Results of Phase 1 Assessment

3.1 Sensitive Receptors
The nearest surface water receptor is the Peel River, located approximately 400 m south to southwest (i.e., downgradient) of the site. The only other sensitive receptor identified as proximal to the site included:

- One groundwater bore located approximately 200 m in an inferred downgradient direction (south) of the site.

3.2 Areas of Potential Environmental Concern
Areas of potential environmental concern (APEC), their associated potential contaminants of concern (PCOC) and related analytical parameters identified at the site, are summarised in Table 5, below and shown on Figure 2.

Table 5 Outcomes of Desk-top Review

<table>
<thead>
<tr>
<th>APEC</th>
<th>Rationale/Details</th>
<th>PCOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground Storage Tank and</td>
<td>A UST appears to be situated in-ground between the store/workshop and the divisional store</td>
<td>Petrol or diesel - Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX) and lead</td>
</tr>
<tr>
<td>associated piping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washbay facility and catch</td>
<td>The Phase 1 desktop review identified that a decommissioned carwash facility</td>
<td>Material washed from vehicles, petrol and diesel residue, waste oil - TPH, PAH, BTEX, metals, organochlorine pesticides (OCP), perchlorinated biphenyls (PCB)</td>
</tr>
<tr>
<td>basin (drainage)</td>
<td>(washbay) exists onsite.</td>
<td></td>
</tr>
<tr>
<td>Potential asbestos waste</td>
<td>A bin labelled ‘asbestos waste’ was present onsite, suggesting that asbestos containing materials (ACM) may have historically been stored or used onsite</td>
<td>ACM – Asbestos</td>
</tr>
<tr>
<td>Fill material across the site</td>
<td>Although previous investigations did not encounter fill material, GHD was unable to review a complete copy of the Phase 1&amp;2 PSI conducted by CH2M Hill in 2001. As such, GHD infers that an assessment across the site for fill material is prudent</td>
<td>TPH, PAH, BTEX, metals, OCP, PCB, asbestos</td>
</tr>
<tr>
<td>Pole storage area</td>
<td>Treated poles were stored on site for approximately six years. Contaminants may have leached from these poles.</td>
<td>TPH, BTEX, OCP, metals</td>
</tr>
</tbody>
</table>
3.3 Interpretation and Recommendations

Based on the results of the Phase 1 investigation and giving consideration to the limitations outlined in Sections 1.3 and 8, there is:

- moderate potential for contamination from historical land use;
- low potential for contamination from current land use; and
- low potential for contamination from current neighbouring land use.

Although the potential for site contamination is considered to be low to moderate, GHD recommended that intrusive investigations be undertaken to address the APECs outlined in Table 4, above. The site history assessment has not indicated any significant potential sources of groundwater contamination and as such it is considered unlikely that groundwater would be significantly impacted. To assess whether there are any contamination issues in soil at specific areas of the site, a limited Phase 2 intrusive investigation was recommended.

Intrusive investigations recommended by GHD included completing twenty intrusive hand auger sampling locations at the site, collection of soil samples and submission of samples for selected analysis of TPH, BTEX, PAH, metals, OCP, PCB, pH and asbestos. These recommendations are outlined in Table 6, below.

<table>
<thead>
<tr>
<th>Description</th>
<th>Rationale</th>
<th>Analytical Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand auger boreholes at 20 locations across the site</td>
<td>UST and associated piping</td>
<td>TPH, BTEX, metals*, pH, PAH, OCP/PCB and Asbestos</td>
</tr>
<tr>
<td></td>
<td>Washbay and catch basin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potential ACM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potential fill material</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pole storage area</td>
<td></td>
</tr>
</tbody>
</table>

* Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Nickel (Ni), Zinc (Zn), Mercury (Hg).
4. Phase 2 Assessment

4.1 Overview
The purpose of the Phase 2 assessment was to undertake intrusive investigations to identify the degree and extent of contamination (if any) that may be present on the site. The investigations included:

- Preparation of a site specific Occupational Health and Safety Plan;
- Coring asphalt/concrete (Northwest Concrete Sawing and Drilling) prior to hand augering at each location;
- Hand auguring 20 boreholes (BH1 through BH20) at the site to 0.5 m depth and/or refusal. After sampling each location, soil was placed back in the borehole, sand was added to backfill the hole to surface, and concrete was placed over top to reseal the surface;
- Soil sampling during hand auguring;
- Submission of selected soil samples for selected analysis of potential contaminants of concern to ALS Laboratory Group (ALS), Sydney; and
- Interpretation and reporting.

4.2 Basis For Contamination Assessment

4.2.1 Relevant Guidelines
The guidelines used to assess the soil contamination status of the site included:

- NSW DEC (2006) “Guidelines for the NSW Site Auditor Scheme”;
- ANZECC / NHMRC (1992) “Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites”; and

4.2.2 Soil Investigation Thresholds
The NEPM includes a range of Soil Investigation Levels including Ecological Investigation Levels (EILs) largely similar to the Environmental Investigation Thresholds (EITs) listed in the Australian and New Zealand Guidelines for The Assessment and Management of Contaminated Sites (ANZECC/NHMRC 1992). Health Investigation Levels (HILs) are generally the same as the Health-based Soil Investigation Levels (HBSILs) listed in the Guidelines for the NSW Site Auditor Scheme (NSW DEC, 1998). However, the criteria in these guidelines are restricted to non-volatile and semi-volatile substances and do not include all the potential contaminants that may be at the site. Therefore, the substances not included in these...
guidelines, the Threshold Concentrations (TC) from the “Guidelines for Assessing Service Station Sites” (1994) have been used.

Essentially both EILs and HILs are default values designed to protect the environmental and human receptors respectively. ANZECC/NHMRC recommends that generally where EITs are exceeded, an investigation should take place, but it is stressed that the values are intended as a guide only and site specific factors need to be taken into account when assessing data. It is stated that “in general terms the guideline values will protect the most sensitive receptor”, and of the receptors considered, the most sensitive and hence most stringent guidelines are for the protection of plant life.

The NEPM also uses the ANZECC / NHMRC 1992 definition of Investigation Level as the concentration above which further appropriate investigation and evaluation will be required. The EILs are based on consideration of phytoxicity and soil survey data, and supported by the “ANZECC B” EITs. It is acknowledged that future ecologically based guidelines will be developed at a regional level and related to land use, and that specific circumstances may warrant the use of more pertinent regional values.

The basis on which the HILs (or HBSILs) have been set should be assessed for relevance to the situation under consideration. HILs are provided for a range of different exposure settings or land uses:

- **“A”** Standard Residential with garden/accessible soil (includes children day-care centres, kindergartens, pre-schools and primary schools).
- **“D”** Residential with minimal opportunities for soil access.
- **“E”** Parks, recreational open space and playing fields (including secondary schools).
- **“F”** Commercial/industrial (includes shops, offices, factories and industrial sites).

Because the site is currently used for commercial purposes, the investigation level considered appropriate for this assessment is Setting F for Commercial/Industrial land use. However, as future potential land use may also include residential land use, investigation level Setting A for Standard Residential land use has also been considered. EILs were used as a guide for potential environmental impacts, although they are not necessarily relevant to existing commercial/industrial or proposed residential land uses.

It is stated in the NEPM [Schedule B(7a)] that the HILs provide “a trigger to assist in judging whether a detailed investigation of a site is necessary”. It is also stated “the levels should not be interpreted rigidly” and “the proposed land use, distribution of contaminants and the frequency distribution of elevated levels will all be very important in interpreting the results for a site”. Separate health and environmental investigation levels have been established to take into account the different sensitivities of humans and other components of the environment. The HILs are typically higher than, or in rare cases (eg lead) equal to or less than, the EILs. Site specific decisions need to be made to determine whether health or environmental levels (or both) should apply.
The methodology used when assessing contamination levels in soils at the site was to use the EILs and HILs as a cut off point to classify soils either as:

- Soils not contaminated, which pose no risk to the environment or human health and warrant no further action, i.e. concentrations less than or equal to the EILs.
- Soils containing elevated concentrations of contaminants, which may pose a risk to the environment (in particular plant species) but pose no risk to human health under the proposed land use scenario, i.e. concentrations greater than the EILs and less than HIL A and/or HIL F. These soils may warrant some form of remediation or management subject to further assessment giving consideration to environmental and health risks and proposed land use.
- Soils significantly contaminated which pose a risk to both the environment and human health, i.e. concentrations greater than or equal to HIL A and/or HIL F. Soils in this category would likely require remediation or management to permit the proposed land use, or would require a Site Specific, Risk Based Assessment to further determine potential risk to human health and the environment for current land use (ie commercial/industrial).

The methodology used to develop Ecological Investigation Levels (EILs) and Health Investigation Levels (HILs) for this site was in accordance with EPA recommendations and comprised the following (in order of preference).

**Ecological Investigation/Threshold Concentration (EIL or TC)**

- NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme, Provisional Phytotoxicity – Based investigation Levels;
- ANZECC (1992), Guidelines for the Assessment and Management of Contaminated Sites, Environmental Investigation Thresholds; and

**Health Investigation Levels/Threshold Concentration (HIL or TC)**

- NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme incorporating the National Environmental Health Forum (1996), Soil Series No. 1, Health Based Soil Investigation Levels, Exposure Setting F: Commercial/Industrial; and

Table 7, below, provides a summary of the investigation levels that were used to assess contamination levels.
Table 7  Health Based and Ecological Based Investigation Levels

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Ecological Investigation Levels (EILs)</th>
<th>Exposure Setting A - Health Based Investigation Levels (HILs)</th>
<th>Exposure Setting F - Health Based Investigation Levels (HILs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heavy Metals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>20</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Cadmium</td>
<td>3</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Chromium (e)</td>
<td>400</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Copper</td>
<td>100</td>
<td>1000</td>
<td>5000</td>
</tr>
<tr>
<td>Lead</td>
<td>600</td>
<td>300</td>
<td>1500</td>
</tr>
<tr>
<td>Nickel</td>
<td>60</td>
<td>600</td>
<td>3000</td>
</tr>
<tr>
<td>Mercury</td>
<td>1</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>Zinc</td>
<td>200</td>
<td>7000</td>
<td>35,000</td>
</tr>
<tr>
<td><strong>TPH/BTEX</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C6-C9</td>
<td>-</td>
<td>65(b)(f)</td>
<td>65(b)(f)</td>
</tr>
<tr>
<td>C10-C36</td>
<td>-</td>
<td>1000(b)(f)</td>
<td>1000(b)(f)</td>
</tr>
<tr>
<td>Benzene</td>
<td>1(b)(c)(f)</td>
<td>1(b)(c)(f)</td>
<td>1(b)(c)(f)</td>
</tr>
<tr>
<td>Toluene</td>
<td>1.4(b)(d)(f)</td>
<td>130(b)(f)</td>
<td>130(b)(f)</td>
</tr>
<tr>
<td>Ethyl Benzene</td>
<td>3.1(b)(d)(f)</td>
<td>50(b)(f)</td>
<td>50(b)(f)</td>
</tr>
<tr>
<td>Total Xylenes</td>
<td>14(b)(d)(f)</td>
<td>25(b)(f)</td>
<td>25(b)(f)</td>
</tr>
<tr>
<td><strong>PAH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total PAHs</td>
<td>-</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td><strong>OC Pesticides</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aldrin + Dieldrin</td>
<td>-</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Chlordane</td>
<td>-</td>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>Heptachlor</td>
<td>-</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>DDT + DDD + DDE</td>
<td>-</td>
<td>200</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Total PCBs</strong></td>
<td>-</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Notes: All units in mg/kg unless otherwise noted.

(a) Health Based Soil Investigation Levels from Guidelines for the NSW Site Auditor Scheme (1998) or NEPM (1999) Schedule B(1) Health Investigation Levels.

(b) EPA (1994) Guidelines for Assessing Service Station Sites (1994), threshold concentrations for sensitive land use.

(c) A lower benzene concentration may be needed to protect groundwater.
(d) Netherlands MPC to protect terrestrial organisms in soil.

(e) Analysis in these investigations was presumed to be for Total Chromium, but is likely to be present the more common trivalent form.

(f) Values from EPA (1994) Guidelines for Assessing Service Station Sites (1994) used without multiplication, as per EPA advice to Auditors by letter dated 9 August 2000.

4.3 Methodology

GHD completed the following fieldwork at the site:

- On 5 May 2007, prior to any intrusive investigations, the location of the known underground utilities at the site were identified for GHD by a Telstra representative;
- On 5 May 2007, twenty auger boreholes (BH1–BH20) were excavated using a hand auger. The sample locations were recorded on the site plan and are shown on Figure 3, Appendix A. Prior to excavation of boreholes BH5, BH7, BH9 and BH10 to BH20 the overlying concrete or asphalt was cored by Northwest Concrete Sawing and Drilling;
- Soil samples were collected from 0 – 0.5 m depth in each borehole (BH1 – BH20), at 0.1 m depth and the maximum depth of the borehole;
- Samples were collected into appropriate laboratory supplied sample containers. Samples placed in jars were clearly labelled with sample number, sample location, and date. Sample containers were then transferred to a chilled esky with chain-of-custody documentation for sample preservation and tracking prior to and during shipment to the analytical laboratory;
- A second sample was collected in a sealable plastic bag and labelled. This sample was analysed for volatile organic compounds (VOC) using a photo-ionisation detector (PID);
- Selected samples were submitted to ALS for selected analysis of concentrations of TPH, BTEX, PAH, metals, asbestos, pH, OCP and PCB. Analysis of PAH, OCP and PCB parameters were conducted on four part composite samples (i.e., COMP1, COMP2, COMP3, COMP4, COMP5). The samples were composited by ALS. ALS forwarded the asbestos samples to Envirolab Services Pty Ltd (Envirolab) for analysis;
- QA samples were collected at a rate of 1 QA sample collected for every 10 field samples collected. Details regarding GHD’s QA/QC program undertaken during the investigation are outlined in Section 4.4, below; and
- Immediately upon completion of each auger borehole, excavated soil was backfilled into the borehole. The following day boreholes were reinstated with sand and sealed with concrete by Northwest Concrete Sawing and Drilling.

All fieldwork was completed in accordance with GHD’s standard Field Operating Procedures (FOP), which are available upon request. The locations of each borehole are shown on Figure 3 in Appendix A and the analytical parameters selected for each borehole location are outlined in Table 8, below.
<table>
<thead>
<tr>
<th>Location</th>
<th>Analytical Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH1</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH2</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>BH3</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH4</td>
<td>TPH, BTEX, Metals, Asbestos</td>
</tr>
<tr>
<td>BH5</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH6</td>
<td>TPH, BTEX, Metals, Asbestos</td>
</tr>
<tr>
<td>BH7</td>
<td>TPH, BTEX, Metals, Asbestos</td>
</tr>
<tr>
<td>BH8</td>
<td>TPH, BTEX, PAH, Metals, pH</td>
</tr>
<tr>
<td>BH9</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>BH10</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH11</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>BH12</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH13</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>BH14</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH15</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>BH16</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH17</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>BH18</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH19</td>
<td>TPH, BTEX, Metals, pH</td>
</tr>
<tr>
<td>BH20</td>
<td>TPH, BTEX, Metals,</td>
</tr>
<tr>
<td>COMP1 (BH16, BH17, BH19 and BH20)</td>
<td>OCP, PCB, PAH</td>
</tr>
<tr>
<td>COMP2 (BH1, BH2, BH3 and BH4)</td>
<td>OCP, PCB, PAH</td>
</tr>
<tr>
<td>COMP3 (BH11, BH12, BH13 and BH14)</td>
<td>OCP, PCB, PAH</td>
</tr>
<tr>
<td>COMP4 (BH5, BH6, BH7 and BH15)</td>
<td>OCP, PCB, PAH</td>
</tr>
<tr>
<td>COMP5 (BH8, BH9, BH10 and BH16)</td>
<td>OCP, PCB</td>
</tr>
</tbody>
</table>
4.4 Quality Assurance / Quality Control (QA/QC)

4.4.1 Field QA/QC

All fieldwork was conducted in general accordance with GHD’s standard Field Operating Procedures (FOP). The FOP ensures that all environmental samples were collected by a set of uniform and systematic methods.

The FOP describes many field activities including:

- Implemented decontamination procedures;
- Sample identification procedures;
- Information requirements for bore hole logs;
- Chain of custody information requirements;
- Sample duplicate frequency; and
- Field equipment calibration requirements.

Field quality control procedures used during the project comprised:

**Blind duplicates**: Two blind duplicates (i.e., BH8-3 and BH18-2) were prepared in the field by duplicating the original sample (i.e., BH8-2 and BH18-1 respectively) and placing two equivalent portions into two separate containers. The blind duplicate samples were submitted to ALS with a unique sample identifier that does not allow recognition of the sample as a duplicate sample. Duplicate samples were analysed for the identical set of parameters requested for the corresponding original sample. For the blind duplicate sample pair, relative percentage difference (RPD) were calculated, using:

\[
\text{RPD}(\%) = \frac{|C_o - C_d|}{C_o + C_d} \times 200
\]

Where:  
\(C_o\) = Analyte concentration of the original sample  
\(C_d\) = Analyte concentration of the duplicate sample

Blind duplicates provide an indication of the analytical precision of the project laboratory, but may also be affected by factors such as sampling methodology or inherent heterogeneity of the sample medium.

Duplicate samples were collected and analysed for TPH/BTEX and metals for Quality Control purposes at a nominal rate of approximately 1 in 10 samples.

4.4.2 Laboratory QA/QC

ALS undertook analyses utilising their own internal procedures and test methods (for which they are NATA accredited) and in accordance with their own quality assurance system which forms part of their NATA accreditation.
Laboratory quality control procedures used during the project, comprised spiked blanks, method blanks and duplicate sub-samples. A laboratory duplicate provides data on the analytical precision (repeatability) of an analytical batch.
5. Results of Phase 2 ESA

5.1 Observations

5.1.1 Stratigraphy
The lithology of the soil samples is outlined in Table A, Appendix E. The stratigraphy observed in the boreholes was as follows:

- BH1 to BH4, BH6 and BH8 – Silt, some gravel, fine to coarse grained, brown, damp; and
- BH5, BH7 and BH9 to BH20 – Asphalt/concrete, underlain with gravel, fine grained, trace sand and silt, damp, brown.

5.1.2 Volatile Organic Compounds
Volatile organic compound readings for all soil samples collected ranged from 2 ppm to 4.5 ppm. GHD notes that these concentrations are relatively low and do not generally indicate the presence of significant concentrations of volatile compounds. Despite these readings, a strong hydrocarbon odour was noted by GHD field personnel during augering and sampling at BH18.

5.2 Analytical Laboratory Results
A summary of the laboratory analytical results and site assessment criteria are presented in Tables B-F in Appendix E. Detailed laboratory analytical reports and chain of custody documents are provided in Appendix F.

The pH of the soil samples analysed ranged from 8.4 to 9.7.

The laboratory analytical results indicated that all soils contained concentrations of BTEX, OCP and PCB less than the applicable criteria.

One soil sample collected at 0.1 m depth from BH3-1 contained concentrations of arsenic (108 mg/kg) and chromium (119 mg/kg) greater than the applicable EIL (20 mg/kg and 100 mg/kg respectively) and HIL A (50 mg/kg and 100 mg/kg respectively) criteria. However, these concentrations are less than the HIL F criteria. All other soil samples analysed for concentrations of metals contained concentrations of metals less than the applicable criteria.

Concentrations of benzo(a)pyrene in soil composite COMP1 (1.3 mg/kg) exceeded the HIL A criteria of 1 mg/kg, but was less than the HIL F criteria. All other soil samples analysed for concentrations of PAH contained concentrations of PAHs (including benzo(a)pyrene) less than the relevant guidelines for PAH’s.

One soil samples collected from 0.15 m depth at BH18 contained concentrations of Total TPH (3090 mg/kg) greater than the threshold for HIL A and HIL F of 1000 mg/kg.

The analytical laboratory results are also presented on Figure 4 in Appendix A.

No asbestos fibres were identified.
5.3 QA/QC Results

5.3.1 GHD Results

The RPD results for the original sample and its duplicate pair were within the accepted RPD percentage of 30-50% based on guidelines provided in AS 4482.1 (1997). However, the RPD for soil sample BH18-1 and its duplicate pair BH18-2 for concentrations of Total TPH had a RPD of 59% and hence exceeded the range considered acceptable. Despite this slight exceedance, the results are considered to be reliable because:

- All other parameters for sample BH18-1 and its duplicate pair BH18-2 were well within the acceptable range (i.e., the next highest RPD was 16%), as were the RPDs for all other samples and parameters;
- The heterogeneous gravel stratigraphy may have caused the variable result; and
- The relatively high concentration of Total TPH in the sample and duplicate may have caused the variable result.

5.3.2 Laboratory Results

The NATA certified laboratory analytical results refer to a quality control program, which comprised analysing spikes, method blanks and duplicate samples. Generally the reported results indicate that the laboratory achieved levels of performance within their recommended control limits during the period when the samples from this program were analysed.
6. Conclusions and Recommendations

On behalf of Telstra, GHD completed Phase 1 and 2 Environmental Site Assessments (ESA) at 8 O’Connell Street and 83 – 89 Marius Street, Tamworth. The site consists of Lot 1, DP 70023 (8 O’Connell Street) and Lot 1, DP 803644 (83 – 89 Marius Street), and is located on the north side of a commercial/industrial area of Tamworth. It is GHD’s understanding that the site has been identified as surplus to Telstra’s requirements and they propose to divest the site for either residential or commercial development.

The Phase 1 ESA indicated that there is moderate potential for contamination from previous land use, low potential for contamination from current land use and low potential for contamination from neighbouring land use. The main areas of potential concern were the UST, washbay, asbestos waste storage area, the pole storage area and fill material. The site history assessment has not indicated any significant potential sources of groundwater contamination and as such it is considered unlikely that groundwater would be significantly impacted. However, a groundwater assessment at the site would be necessary to confirm this inference.

To assess whether there were any contamination issues in soil at specific areas of the site, a limited Phase 2 intrusive investigation was undertaken. The Phase 2 ESA included conducting a site inspection and excavating twenty intrusive hand auger boreholes at the site, collection of soil samples and submission of samples for selected laboratory analysis of concentrations of TPH, BTEX, PAH, metals, pH, OCP/PCBs and asbestos.

One soil sample from BH18 contained concentrations of TPH greater than the selected HIL F criteria for commercial/industrial land use. All other soil samples analysed contained concentrations of selected contaminants less than the selected HIL F and/or less than the laboratory detection limit.

In addition to the one exceedance of HIL F, three samples exceeded the EIL’s and/or HIL A criteria.

To ensure the site is suitable for its current commercial land use the contaminated soil at BH18 needs to be remediated and validated. Further investigations and/or remediation is also required if it is proposed to develop the site for residential land use.

In addition to the remediation of the area at BH18, it is recommended that:

- The contents of the UST, the UST and the wash bay pit be removed and disposed at a suitably licensed facility;
- Excavated material classified and disposed of at a suitably licensed facility; and
- The excavations validated and reinstated with clean fill.

This will address some of the data gaps identified although the condition of the soil beneath the existing structures, and groundwater quality at the site will remain uncertain.
These conclusions present a brief summary of the information described in this report and should be read in the context of the more detailed information presented in the preceding sections of this report, including the scope of the investigations discussed in Section 1.2 and the limitations outlined in Sections 1.3 and 8.
7. References


CH2MILL (2001). Telstra Tamworth Line Depot, 89 Marius Street, Tamworth, NSW Stage 1 and 2 Environmental Site Assessment. CH2MILL, North Sydney.

Contaminated Land Management Act, 1997.


NEPC, 1999, National Environmental Protection (Assessment of Site Contamination) Measure (the NEPM), National Environmental Protection Council.

NSW Environmental Protection Authority (EPA), 1994, Contaminated Sites: Guidelines for Assessing Service Station Sites.
8. Limitations

This report has been prepared by GHD Pty Ltd in response to specific briefs issued by Telstra Corporation Limited (Telstra) and proposals/variations for services presented by GHD to Telstra and agreed to by Telstra. This report is intended for the sole use of the client. It has been prepared in accordance with the Terms of Engagement for the commission and on the basis of specific instructions and information provided by the client.

GHD accepts no responsibility for other use of the data. No warranties, expressed or implied, are offered to any third parties and no liability will be accepted for use of this report by any third party.

It should be noted, that in gathering facts for the study, GHD relied on verbal information supplied by client, on site records, and on visual inspection of the site, which may not have been independently verified. Evidence of soil contamination is not always obvious by visual inspection and environmental issues may not have manifested themselves at the time of inspection.

An understanding of the site conditions depends on the integration of many pieces of information, some regional, some site specific, some structure-specific and some experienced based. Hence this report should not be altered, amended or abbreviated, issued in part and issued incomplete in any way without prior checking and approval by GHD. GHD accepts no responsibility for any circumstances that arise from the issue of this report that has been modified other than by GHD.

The advice tendered in this report is based on information obtained from a restricted site inspection and sample collection at discrete locations across the site and may not fully represent the conditions that may be encountered across the site at other than these locations. It is emphasised that the actual characteristics of the sub-surface and surface materials may vary significantly between adjacent test points and sample intervals and at locations other than where observations, explorations and investigations have been made.

It should be noted that because of the inherent uncertainties in sub-surface evaluations, changed or anticipated sub-surface conditions may occur. GHD does not accept responsibility for the consequences of significant variations in the conditions.

The contents and conclusion of this report may be inappropriate for any third party in the context of that third party’s particular purposes and circumstances. Any party other than those above should obtain its own independent information or advice and no responsibility is accepted and no duty of care is assumed by GHD Pty Ltd to any third party who may use or rely on the whole or any part of the content of this document.

This document does not purport to provide legal advice and any conclusions or recommendations herein must not be relied upon as a substitute for such advice.

The work conducted by GHD under this commission has been to the standard that would normally be expected of professional environmental consulting firm practising in this field in the State of New South Wales. However, although strenuous effort has
been made to identify and assess all significant environmental issues required by this brief we cannot guarantee that other issues outside of the scope of work undertaken by GHD do not remain.
Appendix A

Figures
Site Location

Telstra
8 O'Connell Street & 83-89 Marius Street, Tamworth, NSW

Source: Map reproduced with permission of UBD. Copyright Universal Publishers Pty Ltd DG08/06

Figure 1
Figure 3

Telstra Corporation Ltd
Phase 1 & 2 Contamination Assessment

Soil Sample Locations

Source: CH2M Hill

LOT 1 DP 803644
LOT 1 DP 803644

Location of old bowsers

KEY

Approximate CH2MHill Soil Sample Locations
Approximate Soil Sample Locations

0 15 30m
Approximate Scale

2/115 West High Street Coffs Harbour NSW 2450 T 61 2 6650 5600 F 61 2 6652 6021 W www.ghd.com.au

CLIENTS PEOPLE PERFORMANCE

24 May 2007

job no 22-13035
file ref 2213035_LTN_04.cdr

Figure 3
Soil Sample Results

Source: CH2MHI

Telstra Corporation Ltd
Phase 1 & 2 Contamination Assessment

Figure 4

Soil Sample Results

Figure 4

Telstra Corporation Ltd
Phase 1 & 2 Contamination Assessment

Soil Sample Results

Figure 4
Appendix B

External Party Information

Groundwater Bore Search
Historical Title Search Results
NSW WorkCover Letters
Planning Certificates
Tamworth LEP Zoning
DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW021787

Licence 90BL013905
Work Type : Bore
Work Status : Test Hole
Construct. Method : Cable Tool
Owner Type : Private

Commenced Date : Final Depth :
Completion Date :01-Jan-1963 Drilled Depth : 10.70 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA 905 - PEEL VALLEY
GW Zone 902 - PEEL CATCHMENT MISCELLANEOUS FR

Standing Water Level :
Salinity :
Yield :

(Unknown)

Site Details
Site Chosen By

Form A : INGLIS
Licensed : INGLIS

County : TAMWORTH
Licensed : TAMWORTH

Region : BARWON
River Basin : NAMOI RIVER
Area / District :

Elevation :
Elevation Source : (Unknown)

GS Map : 9033D1
AMG Zone : 56

Parish : TAMWORTH
Portion/Lot DP : L2 (SEC 4)

CMA Map :
Grid Zone :
Scale :

Northing : 6558257.9
Eastin : 302457.4

Latitude (S) : ±1° 5' 34"
Longitude (E) : ±150° 55' 44"

Coordiante Source :

Construction
Negative depths indicate Above Ground Level;

H-Hole; P-Pipe; OD-Outside Diameter; ID-Inside Diameter; C-Completed; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Water Bearing Zones

<table>
<thead>
<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (m)</th>
<th>WBZ Type</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/s)</th>
<th>Hole Depth (m)</th>
<th>Duration (hr)</th>
<th>Salinity (mg/L)</th>
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Drillers Log

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<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (m)</th>
<th>Driller's Description</th>
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<td>1.22</td>
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<td>Gravel Bubble</td>
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<td>2.22</td>
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<td>Clay Red Soft Tight</td>
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<td>3.87</td>
<td>7.32</td>
<td>3.45</td>
<td>Gravel</td>
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<td>7.32</td>
<td>8.23</td>
<td>0.91</td>
<td>Clay</td>
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<td>8.23</td>
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<td>Gravel Water Bearing</td>
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<td>8.84</td>
<td>10.06</td>
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<td>Clay</td>
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<tr>
<td>10.06</td>
<td>10.67</td>
<td>0.61</td>
<td>Shale</td>
</tr>
</tbody>
</table>

Geological Material
Gravel
Clay
Sand
Gravel Water Bearing
Clay
Shale

Comments

Pumping Tests - Summaries
Pumping Test Type : Single-Rate Pumping Test
Date : 01-Jan-1963
Duration (hr) : 4.30
Yield (L/s) : Intake Depth (m) : (Unknown)
Test Method : (Unknown)
To Measure Water Level : To Measure Discharge : Tested By

Pumping Tests - Readings
Pumping Test Type : Single-Rate Pumping Test
Date : 01-Jan-1963
Time (mins) : 4.30
Yield (L/s) : Intake Depth (m) : (Unknown)
Test Method : (Unknown)
To Measure Water Level : To Measure Discharge : Tested By

Remarks
LOT 4 SECTION 4 TAMWORTH

*** End of GW021787 ***

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Licence 90BL100321

Work Type: Bore
Work Status: (Test Hole)
Construct. Method: (Unknown)
Owner Type: Local Govt

Commenced Date: Final Depth: 0.00
Completion Date: 01-Nov-1974 Drilled Depth: 12.80 m

Contractor Name: 
Driller: 
Assistant Driller's Name: 

Property: - N/A
GWMA #005 - PEEL VALLEY
GW Zone: -

Standing Water Level: 
Salinity: (Unknown)

Site Details

Site Chosen By: County
Form A: PARRY
Licensed: PARRY

Parish: CALALA

Region: 60 - BARWON
River Basin: #19 - NAMOI RIVER
Area / District: 
Elevation: (Unknown)
Elevation Source: (Unknown)

GS Map: 0033D1
AMG Zone: 56
Coordinate Source: GD.PR. MAP

Construction

Negative depths indicate Above Ground Level;
H: Hole; P: Pipe; OD: Outside Diameter; ID: Inside Diameter; C: Casing; SL: Slot Length; A: Aperture; GS: Gravel size; Q: Quantity; PL: Placement of Gravel Pack; PC: Pressure Cemented; S: Sump; CE: Centralisers

Water Bearing Zones

<table>
<thead>
<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (m)</th>
<th>WBZ Type</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/a)</th>
<th>Hole Depth (m)</th>
<th>Duration (hr)</th>
<th>Salinity (mg/L)</th>
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</thead>
<tbody>
<tr>
<td></td>
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</table>

(No Water Bearing Zone Details Found)

Drillers Log

<table>
<thead>
<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (m)</th>
<th>Driller's Description</th>
<th>Geological Material</th>
<th>Comments</th>
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<tbody>
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<td>0.60 Soil</td>
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<tr>
<td>0.60</td>
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<td>1.53 Clay Sandy</td>
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<td>2.13</td>
<td>5.18</td>
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<td>3.05 Clay Sand Gravel</td>
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<td>5.18</td>
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<td>5.48</td>
<td>6.09</td>
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<td>0.62 Clay Stones</td>
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<tr>
<td>6.09</td>
<td>7.01</td>
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<td>0.92 Clay Gravel</td>
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<td>7.01</td>
<td>7.31</td>
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<td>0.30 Wood Black</td>
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<td>0.61 Shale</td>
<td>Shale</td>
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Pumping Tests - Summaries

Pumping Test Type: Single-Rate Pumping Test
Date: 01-Nov-1974
Duration (hr): 3.79
Yield (L/a): To Measure Water Level
Intake Depth (m): Test Method (Unknown)

Pumping Tests - Readings

(No Pumping Test Reading Details Found)

Remarks

FARM 25 TAMWORTH FLATS SECTION

*** End of GW037801 ***
DEPARTMENT OF NATURAL RESOURCES  
Work Summary  

GW037810  

Licence #:90BL100320  
License Status: Cancelled  

Authorized Purpose(s): TEST BORE  
Intended Purpose(s): G/WATER XPLOR

Work Type: Bore  
Work Status: Test Hole  
Construct. Method: (Unknown)  

Owner Type: Local Govt  

Commenced Date: 01-Oct-1974  
Final Depth: 0.00  
Drilled Depth: 14.00 m  

Contractor Name: 
Driller: 
Assistant Driller’s Name:  

Property: - N/A  
GWMA: -  

GW Zone: -  

Standing Water Level: 
Salinity: Good  

Yield:  

Site Details  

Site Chosen By:  
County Form A: PARRY  
Parish: CALALA  

Licensed: PARRY  
CMA Map: 

Region #90 - BARWON  
River Basin #49 - NAMOI RIVER  
Area / District:  

Elevation: 
Elevation Source (Unknown)  
GS Map: 0033D1  
AMG Zone: S6  

Coordinate Source: GD, PR, MAP  

Construction  

Negative depths indicate Above Ground Level;  

H: Hole; P: Pipe; CO: Outside Diameter; ID: Inside Diameter; C: Cemented; SL: Slot Length; A: Aperture; GS: Graphite Size; Q: Quantity; PL: Placement of Gravel Pack; PC: Pressure Cements; S: Sump; CE: Centralisers  

H P Component Type From (m) To (m) OD (mm) ID (mm) Interval Details  
1 Backfill 0.00 14.00 0  
1 Casing Threaded Steel 0.60 5.90 205 (Unknown)  
1 Opening Screen 5.90 6.30 205 1 Johnson; RL: 0mm; A: 3.48mm  
1 Opening Screen 6.50 8.50 205 2 Johnson; RL: 0mm; A: 5.08mm  
1 Antiflex (Unknown) 0.00 9.70 355 (Unknown) GB: 1mm  

Water Bearing Zones  

From (m) To (m) Thickness (m) W.B.Z. Type S.W.L. (m) D.D.L. (m) Yield (L/s) Hole Depth (m) Duration (hr)  
3.50 4.50 1.95 Unconsolidated 9.93  
4.50 4.90  

Drillers Log  

From (m) To (m) Thickness (m) Driller’s Description 

Geological Material 

Comments  

0.00 3.40 3.04 Clay Dark Brown  
1.04 4.57 1.53 Clay Light Brown  
4.48 5.48 0.93 Sand Clay Water Supply  
5.68 6.09 0.41 Sand Fine Water Supply  
6.09 7.01 0.92 Sand Coarse Water Supply  
7.01 8.01 2.74 Gravel Large Water Supply  
9.75 11.19 2.44 Clay  
9.75 12.19 2.44 Boulders Large Basalt  
12.19 14.02 1.85 Shale  

Pumping Tests - Summaries  

Pumping Test Type Single-Use Pumping Test  
Date: 1 Jan-1974  
Duration (hr): 12.00  
S.W.L. (m): 4.20  
D.D.L. (m): 7.50  
Yield (L/s): 8.73  
Intake Depth (m): 7.00  
Test Method: 7.00 Turbine Pump, shaft d  
To Measure Water Level:  
To Measure Discharge:  
Tested By:  

Pumping Tests - Readings  

Pumping Test Type (No Pumping Test Reading Details Found)  

Remarks  

BORQ LINSAT, CASING AND SCN WDRN FARM 21 TAMWORTH FLATS SECTION  

*** End of GW037810 ***
Licence :50BL100318
Licence Status : Active
Authorised Purpose(s) : RECREATION (GROUNDWATER)
Intended Purpose(s) : IRRIGATION

Work Type : Bore
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type : Local Govt

Commenced Date : Final Depth : 13.40 m
Completion Date : Drilled Depth : 13.40 m

Contractor Name : 
Driller : 
Assistant Driller's Name : 

Property : 
GWMA : bore 5 - PEEL VALLEY
GW Zone : bore 1 - PEEL ALLUVIUM

Standing Water Level : 
Salinity : Good
Yield : 

Site Details

Site Chosen By : 
County : 
Form A : PARRY
Parish : CALALA
Licensed : PARRY
CMA Map : 
Grid Zone : Scale : 

Region : 90 - BARKWEN
River Basin : 419 - NAMOI RIVER
Area / District : 
Elevation : 
Elevation Source : (Unknown)

GS Map : bore 033D1
AMG Zone : 56
Coordinate Source : G.D.F.R. MAP

Construction


Drillers Log

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<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (mm)</th>
<th>WRC Type</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/s)</th>
<th>Hole Depth (m)</th>
<th>Duration (hr)</th>
<th>Salinity (mg/L)</th>
<th>Geological Material</th>
<th>Comments</th>
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<td>Good</td>
<td>Soil</td>
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Water Bearing Zones

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<th>To (m)</th>
<th>Thickness (mm)</th>
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<th>Gravel</th>
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<th>Shale</th>
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<td>0.60 Onion</td>
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Pumping Tests - Summaries

<table>
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<tr>
<th>Pumping Test Type</th>
<th>Date</th>
<th>Duration (hr)</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/s)</th>
<th>Intake Depth (m)</th>
<th>Method</th>
<th>To Measure Water Level</th>
<th>To Measure Discharge</th>
<th>Tested By</th>
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<td>Single-Rate Pumping Test</td>
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Pumping Tests - Readings

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<th>Date</th>
<th>Time (mins)</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/s)</th>
<th>Intake Depth (m)</th>
<th>Method</th>
<th>To Measure Water Level</th>
<th>To Measure Discharge</th>
<th>Tested By</th>
</tr>
</thead>
</table>

Remarks

LOW CARBON GALVANISED STEEL AT TEST BORE V103519 (CONVERTED) FARM 23 TAMWORTH FLATS SECTION

*** End of GW037811 ***

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DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW037866

Licence: #08BL100317
Licence Status: Active
Authorised Purpose(s): RECREATION (GROUNDWATER)
Intended Purpose(s): IRRIGATION

Work Type: Bore
Work Status: (Unknown)
Construct. Method: (Unknown)
Owner Type: Local Govt

Commenced Date: Final Depth: 14.00 m
Completion Date: 01-Nov-1974 Drilled Depth: 14.00 m

Contractor Name:
Driller:
Assistant Driller's Name:

Property: - N/A
GWMA: #005 - PEEV VALLEY
GW Zone: #001 - PEEV ALLUVIUM

Standing Water Level: (Unknown)
Salinity: (Unknown)
Yield: (Unknown)

Site Details
Site Chosen By
County
Form A: PARRY
Licensed: PARRY
Parish
CALALA
CMA Map: #0035-1N
Grid Zone: #56/1
Region: #00 - BARWON
River Basin: #49 - NAMOI RIVER
Area / District:
Elevation:
Elevation Source: (Unknown)

GS Map: #0033D1
AMG Zone: #56
Coordinate Source: #GD.PR.MAP

Construction
Hole Depth: Negative depths indicate Above Ground Level:
Hole: P-1; P-2; OD: Outside Diameter; ID: Inside Diameter; C: Cemented; SL: Slot Length; A: Aperature; G: Grain Size; Q: Quantity; PL: Placement of Gravel Pack; P: Pressure Cemented; S: Sump; C: Centraliser

Bore Component Type
From (m) To (m) OD (mm) ID (mm) Interval Details
1 Casing Threaded Steel -0.30 5.70 203 (Unknown)
1 Casing Threaded Steel 8.80 9.10 203 Sealed on Bottom
1 Casing Drilled 5.10 11.90 112 (Unknown)
1 Opening Screen 5.70 8.70 203 1 Johnson, SL: 8mm, A: 8mm
1 Annulus (Unknown) 0.00 10.30 355 (Unknown)

Water Bearing Zones

<table>
<thead>
<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (m)</th>
<th>WBZ Type</th>
</tr>
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<tbody>
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<td>4.20</td>
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<td>4.20 Unconsolidated</td>
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</table>

S.W.L. (m) D.D.L. (m) Yield (L/s) Hole Depth (m) Duration (hr) Salinity (mg/L) (Unknown)
3.80 8.73

Drillers Log
From (m) To (m) Driller Description
0.00 0.60 Topsoil
0.60 0.91 0.31 Sand
0.91 4.26 3.35 Clay
4.26 4.28 3.35 Gravel Some Small
4.28 5.18 0.92 Gravel Large Dirty Water Supply
5.18 8.53 3.35 Gravel Large Water Supply
8.53 8.55 3.35 Boulders Some
8.55 10.36 1.83 Boulders
10.36 12.49 2.13 Boulders Very Large
12.49 14.62 1.53 Shale Yellow

Geological Material Comments
Topsoil Sand
Clay Gravel
Gravel Boulders
Boulders Boulders
Shale

Pumping Tests - Summaries
Pumping Test Type: Single-Stage Pumping Test Date: 01-Nov-1974 Duration (hr): 12.00 S.W.L. (m) D.D.L. (m) Yield (L/s) Intake Depth (m) Test Method
3.80 7.50 8.73

To Measure Water Level To Measure Discharge Tested By
8.00 Turbine Pump, shaft d

Pumping Tests - Readings
(No Pumping Test Reading Details Found)

Remarks
LOW CARBON GAVANISED STEEL AT TEST BORE V#0032 (CONVERTED) FARM 26 TAMWORTH PLATS SECTION

*** End of GW037866 ***

Warning to Clients: This raw data has been supplied by the Department of Natural Resources (DNR) by drillers, licensees and other sources. The DNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.
# DEPARTMENT OF NATURAL RESOURCES
## Work Summary

<table>
<thead>
<tr>
<th>Licence</th>
<th>9OBL100328</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Type</td>
<td>Bore</td>
</tr>
<tr>
<td>Work Status</td>
<td>(Unknown)</td>
</tr>
<tr>
<td>Construct. Method</td>
<td>(Unknown)</td>
</tr>
<tr>
<td>Owner Type</td>
<td>Local Govt</td>
</tr>
<tr>
<td>Commenced Date</td>
<td>Final Depth</td>
</tr>
<tr>
<td>Completion Date</td>
<td>Drilled Depth</td>
</tr>
<tr>
<td>Contractor Name</td>
<td></td>
</tr>
<tr>
<td>Driller</td>
<td></td>
</tr>
<tr>
<td>Assistant Driller’s Name</td>
<td></td>
</tr>
</tbody>
</table>

**Property:** N/A

GWMA: 2005 - PEEL VALLEY

GW Zone: -

## Site Details

**Site Chosen By**

<table>
<thead>
<tr>
<th>County</th>
<th>Form A: JNGLIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parish</td>
<td>TAMWORTH</td>
</tr>
<tr>
<td>Licensed</td>
<td>JNGLIS</td>
</tr>
<tr>
<td>Portion/Lot DP</td>
<td>SEC 68</td>
</tr>
<tr>
<td>Region:</td>
<td>BARWON</td>
</tr>
<tr>
<td>River Basin:</td>
<td>NAMOI RIVER</td>
</tr>
<tr>
<td>Area / District</td>
<td></td>
</tr>
</tbody>
</table>

**Elevation**

<table>
<thead>
<tr>
<th>Elevation Source</th>
<th>Northing: 559075.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid Zone</td>
<td>Longitude: 150° 55' 20”</td>
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</tbody>
</table>

## Construction

**GS Map:** 0033D1

**AMG Zone:** 56

**GS Map:** 0033D1

**AMG Zone:** 56

## Water Bearing Zones

<table>
<thead>
<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (m)</th>
<th>WRZ Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>2.74</td>
<td>2.74 Clay</td>
<td></td>
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<tr>
<td>2.74</td>
<td>3.35</td>
<td>0.61 Clay Sandy</td>
<td></td>
</tr>
<tr>
<td>3.35</td>
<td>5.18</td>
<td>1.83 Clay Dark Brown</td>
<td></td>
</tr>
<tr>
<td>3.35</td>
<td>5.18</td>
<td>1.83 Same Stoney</td>
<td></td>
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<tr>
<td>5.18</td>
<td>6.09</td>
<td>0.91 Sand Gravel Water Supply</td>
<td></td>
</tr>
<tr>
<td>6.09</td>
<td>8.53</td>
<td>2.44 Sand Coarse Water Supply</td>
<td></td>
</tr>
<tr>
<td>6.09</td>
<td>8.53</td>
<td>2.44 Gravel</td>
<td></td>
</tr>
<tr>
<td>6.09</td>
<td>8.53</td>
<td>2.44 Stones Some Large</td>
<td></td>
</tr>
<tr>
<td>8.53</td>
<td>12.49</td>
<td>3.96 Clay</td>
<td></td>
</tr>
<tr>
<td>8.53</td>
<td>12.49</td>
<td>3.96 Boulders Large Basalt</td>
<td></td>
</tr>
<tr>
<td>12.49</td>
<td>14.93</td>
<td>2.44 Shale Soft</td>
<td></td>
</tr>
<tr>
<td>14.93</td>
<td>15.54</td>
<td>0.61 Slate</td>
<td></td>
</tr>
</tbody>
</table>

**Geological Material**

- Clay
- Sand
- Gravel
- Stones
- Boulders
- Shale

**Comments**

- Clay
- Sand
- Gravel
- Stones
- Boulders
- Shale

## Driller’s Log

### Pumping Tests - Summaries

<table>
<thead>
<tr>
<th>Pumping Test Type</th>
<th>Date</th>
<th>Duration (hr)</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/hr)</th>
<th>Intake Depth (m)</th>
<th>Test Method</th>
<th>To Measure Water Level</th>
<th>To Measure Discharge</th>
<th>Tested By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-rate Pumping Test</td>
<td>01 Jan 1974</td>
<td>12.00</td>
<td>3.60</td>
<td>6.60</td>
<td>12.12</td>
<td>7.00</td>
<td>Turbine Pump, shaft d</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

### Pumping Tests - Readings

<table>
<thead>
<tr>
<th>Pumping Test Type</th>
<th>Date</th>
<th>Time (mins)</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/hr)</th>
<th>Intake Depth (m)</th>
<th>Test Method</th>
<th>To Measure Water Level</th>
<th>To Measure Discharge</th>
<th>Tested By</th>
</tr>
</thead>
<tbody>
<tr>
<td>(No Pumping Test Reading Details Found)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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## Remarks

LOW CARBON GALVANISED STEEL SITED N'TH OF RUWY ADJ MAJOR BEND AT TEST BORE V100328 (CONVERTED)

*** End of GW037867 ***

Warning To Client: This raw data has been supplied to the Department of Natural Resources (DNR) by Drillers, Licensed and other sources. The DNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.
DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW052834

Licence #:90BL115058
Work Type: Bore
Work Status: (Unknown)
Construct. Method: Cable Tool
Owner Type: Private
Commenced Date: 01-Aug-1980
Final Depth: 34.50 m
Completion Date: 01-Aug-1980
Drilled Depth: 34.50 m
Contractor Name: FRANCIS, David William
Driller #:1429
Assitant Driller's Name: 
Property: - N/A
GWMA #:005 - PEEL VALLEY
GW Zone: 
Standing Water Level: 7001-10000 ppm
Salinity: 
Yield: 

Site Details
Site Chosen By
County
Form A: INGLIS
Licensed: INGLIS
Parish
TAMWORTH
CMA Map: 9035-1N
Grid Zone: 56/1
Northing: 6560050
Easting: 301725
TAMWORTH
Scale: 1:25,000
Latitude (S): 31° 4' 35"
Longitude (E): 150° 55' 18"
GS Map: 3033D1
AMG Zone: 56
Coordinate Source: 5GD, ACC.MAP

Construction
Component Type From (m) To (m) OD (mm) ID (mm) Interval Details
1 1 Casing Corrugated Galvanised Iron 3.40 22.50 160
1 1 Casing F.V.C. 3.40 160 Driven into Hole

Water Bearing Zones
From (m) To (m) Thickness (m) WBZ Type
24.50 34.00 9.50 Pretested
S.W.L. (m) D.D.L. (m) Yield (L/s) Hole Depth (m) Duration (hr) Salinity (mg/L)
17.00 1.25

Drillers Log
From (m) To (m) Thickness (m) Drillers Description
0.00 0.60 0.60 Topsoil
0.60 7.50 6.90 Clay Sandy
7.50 22.00 14.50 Clay Zone Shale
22.00 34.00 12.00 Shale Water Supply
34.00 34.50 0.50 Basalt Rich

Geological Material
Topsoil
Clay
Clay Zone Shale
Shale Water Supply
Basalt

Comments

Pumping Tests - Summaries
Pumping Test Type Date Duration (hr) S.W.L. (m) D.D.L. (m) Yield (L/s) Intake Depth (m) Test Method
Single Rate Pumping Test 07-Aug-1980 17.00 28.00 1.25 Baller
To Measure Water Level To Measure Discharge Tested By

Pumping Tests - Readings
Pumping Test Type Date Time (mins) S.W.L. (m) D.D.L. (m) Yield (L/s) Intake Depth (m) Test Method

(No Pumping Test Reading Details Found)

Remarks

*** End of GW052834 ***

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DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW057928
\[Converted From HYDSYS\]

Licence: s00L125593

Work Type: Bore
Work Status: (Unknown)
Construct. Method: Rotary Air
Owner Type: Private

Commenced Date: Final Depth: 38.00 m
Completion Date: Drilled Depth: 38.00 m

Contractor Name: Driller: s5477
MANNION, Leonard George

Property: - N/A
GWMA: s005 - PEEL VALLEY

GS Map: s0033D1
AMG Zone: s56

Site Details

Site Chosen By: County: Form A: INGLIS
Licensed: INGLIS
Parish: TAMWORTH
CMA Map: s9035-1N
Grid Zone: s56/1

Region: s0 - BARWON
River Basin: s19 - NAMOI RIVER
Area / District: Northing: s560055
Elevation Source: (Unknown)
Easton: 300910

GS Map: s0033D1
AMG Zone: s56

Construction

Negative depths indicate Above Ground Level;


<table>
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<tr>
<th>H</th>
<th>P</th>
<th>Component Type</th>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (mm)</th>
<th>WRZ Type</th>
<th>S.W.L. (m)</th>
<th>D.D.L. (m)</th>
<th>Yield (L/h)</th>
<th>Hole Depth (m)</th>
<th>Duration (hr)</th>
<th>Salinity (mg/L)</th>
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<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>Casing</td>
<td>0.00</td>
<td>26.20</td>
<td>26.50</td>
<td>0.30 Fractured</td>
<td>15.20</td>
<td>1.25</td>
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Drillers Log

<table>
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<tr>
<th>From (m)</th>
<th>To (m)</th>
<th>Thickness (mm)</th>
<th>Driller's Description</th>
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<tbody>
<tr>
<td>0.05</td>
<td>1.00</td>
<td></td>
<td>1.00 Soil</td>
</tr>
<tr>
<td>1.00</td>
<td>1.60</td>
<td></td>
<td>1.60 Shale Yellow</td>
</tr>
<tr>
<td>1.60</td>
<td>2.60</td>
<td></td>
<td>2.60 Shale Hard</td>
</tr>
<tr>
<td>2.60</td>
<td>3.50</td>
<td></td>
<td>0.30 Basalt Water Supply</td>
</tr>
<tr>
<td>3.50</td>
<td>3.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.60</td>
<td>3.80</td>
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</tr>
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</table>

Geological Material: Soil, Shale, Basalt

Comments:

Water Bearing Zones

<table>
<thead>
<tr>
<th>Water Bearing Zones</th>
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</thead>
<tbody>
<tr>
<td>From (m)</td>
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<tr>
<td>26.20</td>
</tr>
</tbody>
</table>

Pumping Tests - Summaries

Pumping Test Type: Single-Rate Pumping Test
Date: 30-Mar-1983
Duration (hr): 6.00
S.W.L. (m): 15.20
D.D.L. (m): 25.90
Yield (L/h): 1.25
Intake Depth (m): 35.00
Test Method: Turbine Pump, Subene

To Measure Water Level: Yes
To Measure Discharge: Yes
Tested By: Yes

Pumping Tests - Readings

(No Pumping Test Reading Details Found)

Remarks

*** End of GW057928 ***

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DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW902407

Licence #0BL150073

Work Type: Bore
Work Status: (Unknown)
Construct. Method: Rotary
Owner Type: Private

Commenced Date: Final Depth:
Completion Date: Drilled Depth: 36.30 m

Contractor Name: Unknown UNKNOWN
Driller: Standing Water Level:
Assistant Driller’s Name: Salinity: (Unknown)

Property: - N/A
GWMA: -
GW Zone: -
Yield:

Site Details

Site Chosen By
County Form A: INGLIS
Parish TAMWORTH
Licensed: INGLIS
CMA Map: TAMWORTH
Region: #0 - BARWON
Grid Zone:
River Basin:
Area / District:

Elevation:
0.00
Elevation Source:
0.00 (Unknown)

GS Map:
AMG Zone: 56
Coordinate Source:

Construction
Negative depths indicate Above Ground Level;

Hole Depth HoleID:

I 1 Casing PVC:
0.00 5.48 150
1 1 Casing Steel:
5.48 42.70

Water Bearing Zones

From (m) To (m) Thickness (m) WBZ Type S.W.L (m) D.D.L (m) Yield (L/hr) Hole Depth (m) Duration (hr) Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m) To (m) Thickness Driller’s Description Geology Material Comments

10.00 15.20 5.20 Shale - water at 17.7 Shale
15.20 18.30 3.10 Shale - water at 17.7 Hard Bands
18.30 36.30 18.00 Hard rock - some water

Pumping Tests - Summaries

Pumping Test Type Date Duration (hr) S.W.L. (m) D.D.L. (m) Yield (L/hr) Intake Depth (m) Test Method To Measure Water Level To Measure Discharge Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type Date Time (mins) S.W.L. (m) D.D.L. (m) Yield (L/hr) Intake Depth (m) Test Method To Measure Water Level To Measure Discharge Tested By

(No Pumping Test Reading Details Found)

Remarks

Form A Remarks:
Only pump periodically during summer and winter. Demo purpose only.

*** End of GW902407 ***

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DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW965054

Licence #90BL250216

Work Type: Bore
Work Status: (Unknown)
Construct. Method: (Unknown)
Owner Type: 

Commenced Date: 
Completion Date: 30-May-1995

Contractor Name: 
Driller: ecott, g
Assistant Driller's Name: 

Property: - LOT 2 DP 519841
GWMA: -
GW Zone: -

Standing Water Level: 13.70 m
Salinity: 
Yield: 

Site Details

Site Chosen By: 
County: 
Parish: TAMWORTH
Portion/Lot DP: 2 519841

Region: #90 - BARWON
River Basin: 
Area / District: 

Elevation: 
Elevation Source: 
GS Map: 
AMG Zone: 56
Coordinate Source: 

Construction

Hole: P-Pipe; OD: Outside Diameter; ID: Inside Diameter; C: Cemented; SL: Slot; L: Length; A: Aperture; G: Grain Size; Q: Quantity; PL: Placement of Gravel Pack; PC: Pressure Cemented; S: Sump; C: Centrals

Hole Component Type From (m) To (m) OD (mm) ID (mm) Interval Details
1 Casing PVC Class 6 0.00 22.86 122 (Unknown)

Water Bearing Zones

From (m) To (m) Thickness (m) WBZ Type S.W.L. (m) D.D.L. (m) Yield (L/s) Hole Depth (m) Duration (hr) Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m) To (m) Thickness (m) Driller's Description Geological Material Comments

Pumping Tests - Summaries

Pumping Test Type Date Duration (hr) S.W.L. (m) D.D.L. (m) Yield (L/s) Intake Depth (m) Test Method To Measure Water Level To Measure Discharge Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type Date Time (m/s) S.W.L. (m) D.D.L. (m) Yield (L/s) Intake Depth (m) Test Method To Measure Water Level To Measure Discharge Tested By

(No Pumping Test Reading Details Found)

Remarks

*** End of GW965054 ***

*** End of Report ***

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ADVANCE LEGAL SEARCH PTY LIMITED
(ACN 077 067 068)
ABN 49 077 067 068

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

24 October 2006

GHD Pty Ltd
Level 1, Coal Services Building,
1 Civic Ave,
SINGLETON NSW 2330

Attention: Adam Playne

RE: 83 – 89 Marius Street,
Tamworth

Note 1: Folio Identifier 1/70023
Note 2: Folio Identifier 1/803644

Note 1:

Current Search

Folio Identifier 1/70023 (title attached)
DP 70023 (plan attached)
Dated 17 October 2006
Registered Proprietor:
TELSTRA CORPORATION LIMITED
Title Tree
Lot 1 DP 70023

Folio Identifier 1/70023
Certificate of Title Volume 13232 Folio 39
Certificate of Title Volume 2617 Folio 244
PA 20023
Conveyance BK 1056 No. 113
Conveyance BK 1051 No. 874

*****
## Summary of Proprietor(s)
Lot 1 DP 70023

<table>
<thead>
<tr>
<th>Year</th>
<th>Proprietor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 – today</td>
<td>Telstra Corporation Limited</td>
</tr>
<tr>
<td>1988 – 2002</td>
<td>Australian Telecommunications Commission</td>
</tr>
<tr>
<td></td>
<td><em>(Lot 1 DP 70023 being part Allotments 1 &amp; 2 Section 29 Parish Tamworth- CT Vol 132,32 Fol 39)</em></td>
</tr>
<tr>
<td>1987 – 1988</td>
<td>Australian telecommunications Commission</td>
</tr>
<tr>
<td>1977 – 1987</td>
<td>Desmond Laurie Keech, estate agent</td>
</tr>
<tr>
<td></td>
<td><em>(Part Allotments 1 &amp; 2 section 29 Parish Tamworth- Area 32 Perches- CT Vol 2617 Fol 244)</em></td>
</tr>
<tr>
<td>1976 – 1977</td>
<td>Desmond Laurie Keech, estate agent</td>
</tr>
<tr>
<td>1974 – 1974</td>
<td>Public Trustee</td>
</tr>
<tr>
<td>1952 – 1974</td>
<td>Minnie Maud Burden, married woman</td>
</tr>
<tr>
<td>1944 – 1952</td>
<td>Thomas Marker, farmer</td>
</tr>
<tr>
<td>1934 – 1944</td>
<td>Lilian Margaret Hinds, wife of labourer</td>
</tr>
<tr>
<td>1930 – 1934</td>
<td>George Robert Patterson, contractor</td>
</tr>
<tr>
<td>1915 – 1930</td>
<td>John Patterson, contractor</td>
</tr>
<tr>
<td></td>
<td><em>(Part Allotments 1 &amp; 2 Section 29 Town of Tamworth- Area 32 Perches)</em></td>
</tr>
<tr>
<td>1915 – 1915</td>
<td>John Patterson, road contractor</td>
</tr>
<tr>
<td>1915 – 1915</td>
<td>Ida Woolcock, wife of plumber</td>
</tr>
<tr>
<td>1900 – 1915</td>
<td>Alexander John Johnston, trustee (auctioneer) Annie Woolcock, (estate)</td>
</tr>
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Note 2:

Current Search

Folio Identifier 1/803644 (title attached)
DP 803644 (plan attached)
Dated 17 October 2006
Registered Proprietor:
TELSTRA CORPORATION LIMITED

Title Tree
Lot 1 DP 803644

Folio Identifier 1/803644

PA 62020
Conveyance BK 2227 No. 770
Conveyance BK 2200 No. 690
Conveyance BK 1821 No. 680
Conveyance BK 1752 No. 70
Conveyance BK 788 No. 495

****
**Summary of Proprietor(s)**  
**Lot 1 DP 803644**

<table>
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<tr>
<th>Year</th>
<th>Proprietor</th>
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<tr>
<td>2001 – today</td>
<td>Telstra Corporation Limited</td>
</tr>
<tr>
<td>1990 – 2001</td>
<td>Australian &amp; Overseas Telecommunications Corporation Limited</td>
</tr>
<tr>
<td><strong>(Lots 3 to 8 Section 29 Town of Tamworth- Area 3 Acres)</strong></td>
<td></td>
</tr>
<tr>
<td>1952 – 1990</td>
<td>The Commonwealth of Australia</td>
</tr>
<tr>
<td>1951 – 1952</td>
<td>The Council of the City of Tamworth</td>
</tr>
<tr>
<td>1950 – 1951</td>
<td>Susan Mary Maguire, widow</td>
</tr>
<tr>
<td>1938 – 1950</td>
<td>William Richard Burns, trustee</td>
</tr>
<tr>
<td></td>
<td>Thomas Dominic Mangon, trustee</td>
</tr>
<tr>
<td></td>
<td>William Thomas Power, trustee</td>
</tr>
<tr>
<td></td>
<td>(trust for the central northern rugby football league)</td>
</tr>
<tr>
<td>1936 – 1938</td>
<td>Joseph Charles Maguire, trustee/publican</td>
</tr>
<tr>
<td></td>
<td>William Richard Burns, trustee/saddler</td>
</tr>
<tr>
<td></td>
<td>Thomas Dominic Mangon, trustee/ironmonger</td>
</tr>
<tr>
<td></td>
<td>(trust for the central northern rugby football league)</td>
</tr>
<tr>
<td>1905 – 1936</td>
<td>Hope Fielder, farmer</td>
</tr>
<tr>
<td>1882 – 1905</td>
<td>George Judah Cohen, merchant (trustee)</td>
</tr>
<tr>
<td></td>
<td>Benjamin Wolfe Levy, merchant (trustee)</td>
</tr>
<tr>
<td>1854 – 1882</td>
<td>Lewis Wolfe Levy, esquire (grantee)</td>
</tr>
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</table>

*****
SEARCH DATE
17/10/2006 1:15PM

FOLIO: 1/803644

First Title(s): OLD SYSTEM
Prior Title(s): PA62020

<table>
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<tr>
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<th>Number</th>
<th>Type of Instrument</th>
<th>C.T. Issue</th>
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<td>14/11/1990</td>
<td>PA62020</td>
<td>PRIMARY APPLICATION</td>
<td>FOLIO CREATED</td>
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<tr>
<td>20/11/1992</td>
<td>E917127</td>
<td>TRANSFER</td>
<td>EDITION 2</td>
</tr>
<tr>
<td>5/4/2001</td>
<td>7525950</td>
<td>CHANGE OF NAME</td>
<td>EDITION 3</td>
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*** END OF SEARCH ***
FOLIO: 1/803644

SEARCH DATE TIME EDITION NO DATE

LAND
LOT 1 IN DEPOSITED PLAN 803644
AT TAMWORTH
LOCAL GOVERNMENT AREA: TAMWORTH REGIONAL
PARISH OF TAMWORTH COUNTY OF INGLIS
TITLE DIAGRAM: DP803644

FIRST SCHEDULE
TELSTRA CORPORATION LIMITED (CN 7525950)

SECOND SCHEDULE (0 NOTIFICATIONS)
NIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

GHD - Tamworth ALSF
PRINTED ON 17/10/2006

* ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF TITLE WARNING. THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER. ADVANCE LEGAL SEARCH PTY LTD CERTIFIES THAT THE INFORMATION CONTAINED IN THIS DOCUMENT HAS BEEN PROVIDED ELECTRONICALLY BY THE REGISTRAR-GENERAL IN ACCORDANCE WITH SECTION 50B(2) OF THE REAL PROPERTY ACT, 1900.
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

<table>
<thead>
<tr>
<th>D. P. 326207</th>
<th>40'235</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLOT B</td>
<td></td>
</tr>
<tr>
<td>SEC. 29</td>
<td>809.4 m²</td>
</tr>
</tbody>
</table>

O'CONNELL ST 2015

REDUCTION RATIO 1:500

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 70023 in the City of Tamworth Parish of Tamworth and County of Inglis being part of Allotments Land 2 of Section 29 separately granted to William Gordon Breton on 11-5-1854, EXCEPTING THEREFROM all mines of coal reserved by the Crown Grant.

FIRST SCHEDULE

DESMOND LAURIK-KISHON of Tamworth, Estate Agent.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
### FIRST SCHEDULE (continued)

**REGISTERED PROPRIETOR**

Australian Telecommunications Commission by Transfer 9536037 Registered 25-6-1987

**CANCELLED**

SEE AUTO FOLIO

### SECOND SCHEDULE (continued)

<table>
<thead>
<tr>
<th>INSTRUMENT</th>
<th>NATURE</th>
<th>NUMBER</th>
<th>PARTICULARS</th>
<th>REGISTERED</th>
<th>Signature of Registrar General</th>
<th>CANCELLATION</th>
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**NOTE:** ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.
FIRST TITLE(S): SEE PRIOR TITLE(S)
PRIORITY TITLE(S): VOL 13232 FOL 39

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<th>Type of Instrument</th>
<th>C.T. Issue</th>
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<td>------</td>
<td>TITLE AUTOMATION PROJECT</td>
<td>LOT RECORDED</td>
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<td>18/11/1988</td>
<td>------</td>
<td>CONVERTED TO COMPUTER FOLIO</td>
<td>FOLIO CREATED</td>
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<tr>
<td>19/2/2002</td>
<td>8367053</td>
<td>CHANGE OF NAME</td>
<td>EDITION 1</td>
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*** END OF SEARCH ***
FOLIO: 1/70023

SEARCH DATE       TIME            EDITION NO  DATE
-----------------  -------          --------    -------
17/10/2006        1:12 PM         1           19/2/2002

LAND

LOT 1 IN DEPOSITED PLAN 70023
LOCAL GOVERNMENT AREA: TAMWORTH REGIONAL
PARISH OF TAMWORTH COUNTY OF INGLIS
TITLE DIAGRAM: DP70023

FIRST SCHEDULE

TELSRA CORPORATION LIMITED {CN 8367053)

SECOND SCHEDULE (1 NOTIFICATION)

1. RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***
CHANGE OF NAI
7525950Q
New South Wales
Real Property Act 1900

(A) TORRENS TITLE
SEE ANNEXURE "A"

(B) REGISTERED DEALING
If applicable

(C) LODGED BY
LTO Box | Name, Address or DX and Telephone
---------|-----------------------------------------
CORRS CHAMBERS WESTGARTH
DX 133 SYDNEY
Reference (optional): 3430693 ADS

(D) REGISTERED PROPRIETOR
Whose name is to be changed; show the name as it currently appears on the Torrens Title
AUSTRALIAN AND OVERSEAS TELECOMMUNICATIONS CORPORATION LIMITED
ABN 33 051 775 556

(E) NEW NAME
Of the above registered proprietor in full
TELSTRA CORPORATION LIMITED
ABN 33 051 775 556

(F) The registered proprietor referred to above, apply to have its new name recorded in the Register in respect of the above land/registered-dealing.

(G) STATUTORY DECLARATION BY THE APPLICANT
SEE ANNEXURE "B"
I [new name] solemnly and sincerely declare that
1. I am identical with the registered proprietor referred to above;
2. on at
   in the State of I married
3.

I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900, and I certify this application to be correct for the purposes of the Real Property Act 1900.

Made and subscribed at SYDNEY in the state of NSW on 21 March 2001 in the presence of

Signature of witness: Signature of applicant:

Name of witness: Peter A Johnston
Address of witness: 10/25 AYR ROAD CHISWICK NSW 2046
Qualification of witness: Justice of the Peace in NSW 3/4/01

All handwriting must be in block capitals.

Page 1 of 1

Checked by (LTO use):
THIS IS THE ANNEXURE MARKED "A"
REFERRED TO IN THE CHANGE OF NAME FORM
DATED MARCH, 2001

Folio Identifier 1/635662
Folio Identifier 1/828885
Folio Identifier 372/809941
Folio Identifier 1/601585
Folio Identifier 1/601586
Folio Identifier 1/601580
Folio Identifier 1/601579
Folio Identifier 2/771325
Folio Identifier 44/815644
Folio Identifier 1/601320
Folio Identifier 1/811303
Folio Identifier 52/597849
Folio Identifier 1/601587
Folio Identifier 1/534984
Folio Identifier 1/621732
Folio Identifier 1/700955
Folio Identifier 3/815082
Folio Identifier 1/803644

S/11047902

2064
STATUTORY DECLARATION

1. **Steven Leonard Smith** of Level 17, 233 Castlereagh Street, Sydney in the State of New South Wales do hereby solemnly and sincerely declare:

1. I am the attorney, appointed under Power of Attorney Registered No. 733 Book 3887.

2. Telstra Corporation Limited is the registered proprietor of various properties in New South Wales set out in Annexure “A” ("Properties").

3. The registered proprietor recorded on each certificate of title to the Properties is the Australian and Overseas Telecommunications Corporation Limited.

4. Telstra Corporation Limited was formerly known as the Australian and Overseas Telecommunications Corporation Limited.

5. By virtue of section 6 of the *Telecommunications Amendment Act 1988* the Australian Telecommunications Commission was preserved and continued in existence under the name of the Australian Telecommunications Corporation.

6. By virtue of section 8 of the *Overseas Telecommunications Act 1946* the Overseas Telecommunications Commission (Australia) was created.

7. By virtue of the *OTC (Conversion into Public Company) Act 1988* the name of the Overseas Telecommunications Commission (Australia) was changed to OTC Limited.

8. By virtue of section 11 of the *Australian and Overseas Telecommunications Corporation Act 1991* the Australian Telecommunications Corporation and OTC Limited were succeeded at law by the Australian and Overseas Telecommunications Corporation Limited ("AOTC").

AND I MAKE this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1900.

DECLARED at Sydney in the said State this 21st day of March 2001.

Before me:

[Signature]

A Justice of the Peace/Solicitor
[Stamp: 19880453]

[Address: N/A]
10 May 2007

Attention: Mr Ben Luffman
GHD
PO Box 1340
COFFS HARBOUR NSW 2450

Dear Ben

RE SITE: 83-89 Marius Street, Tamworth

I refer to your search request of 2 May 2007 requesting information on licences to Keep Dangerous Goods for the above site.

A search of the Storcd Chemical Information Database (SCID) and the microfiche records held by WorkCover has not located any records pertaining to the above-mentioned premises.

If you have any further queries, please contact Dangerous Goods Licensing staff on (02) 4321 5500.

Ian Gough
Team Leader
Dangerous Goods
21 November 2006

Attention: Mr Brett McLennan
GHD Pty Ltd
352 King St
NEWCASTLE NSW 2300

Dear Mr McLennan

RE SITE: 8 O'Connell St North Tamworth

I refer to your search request of 21 November 2006 requesting information on licences to Keep Dangerous Goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover has not located any records pertaining to the above-mentioned premises.

If you have any further queries, please contact Dangerous Goods Licensing staff on (02) 4321 5500.

[Signature]

Dearne Smith
Senior Licensing Officer
Dangerous Goods

WorkCover. Watching out for you.

WorkCover NSW  ABN 77 682 742 966  92-100 Donnison Street Gosford NSW 2250  Locked Bag 2906 Lisarow NSW 2252
Telephone 02 4321 5000  Facsimile 02 4325 4145  WorkCover Assistance Service 13 10 50
DX 731 Sydney  Website www.workcover.nsw.gov.au
Receipt No: 216151
Date: 13 November 2006
Applicants Ref: 2213035

PLANNING CERTIFICATE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Applicant: GHD Pty Ltd
Level 1,
Coal Services – Attention: Adam Plagne
1 Civic Avenue
SINGLETON NSW 2330

Owner (as recorded by Council):
Telstra Corporation Limited
Transfield Services
Locked Bag 12368
A’beckett Street Post Office
MELBOURNE VIC 8006

Land: PMS 03121 8 O’Connell Street NORTH TAMWORTH NSW 2340
Lot 1 Sec 29 DP 70023

This certificate is provided pursuant to Section 149(2) of the Act. At the date of this certificate, the subject
land is affected by the following matters.

Zoning and land use under relevant LEPs

3(a) Business
Tamworth Local Environmental Plan 1996, as amended.
The Plan was gazetted on 4 April, 1996.

1. The extract from the relevant local environmental plan is the development control table for the zone. It
sets out the zone objectives and development which is allowed without development consent; development only allowed with development consent; and development which is prohibited; as it
relates to the land the subject of this certificate.

2. The relevant local environmental plan identifies certain land upon which heritage items or
archaeological sites are situated. A specific clause of the Plan requires Council take into consideration
the likely affect of any development on the heritage significance of any items in the locality.

3. No draft local environmental planning instruments apply to the subject land.

4. The erection of a dwelling-house on the land is not prohibited by a development standard relating to
the minimum area on which a dwelling-house may be erected.

Names of relevant State Environmental Planning Policies

The following State Environmental Planning Policies apply to the subject land. Copies may be obtained
from the NSW Government web-site.

5. State Environmental Planning Policy No. 1 - Development Standards.
6. State Environmental Planning Policy No. 4 - Development Without Consent.
7. State Environmental Planning Policy No. 8 - Surplus Public Land
8. State Environmental Planning Policy No. 9 - Group Homes
9. State Environmental Planning Policy No. 11 - Traffic Generating Developments

All correspondence should be addressed to the General Manager:
Telephone: 6767 5555 PO Box 555 (DX 6125) trc@tamworth.nsw.gov.au
Facsimile: 6767 5499 Tamworth NSW 2340 www.tamworth.nsw.gov.au
10. State Environmental Planning Policy No. 15 - Rural Landsharing Communities
11. State Environmental Planning Policy No. 21 - Caravan Parks
12. State Environmental Planning Policy No. 22 - Shops and Commercial Premises
13. State Environmental Planning Policy No. 32 - Urban Consolidation (Redevelopment of Urban Land)
14. State Environmental Planning Policy No. 34 - Major Employment Generating Industrial Development
15. State Environmental Planning Policy No. 45 - Permissibility of Mining
16. State Environmental Planning Policy No 48 - Major Putrescible Landfill Sites
17. State Environmental Planning Policy No.50 - Canal Estate Development
18. State Environmental Planning Policy No.55 - Remediation of Land
19. State Environmental Planning Policy No. 64 - Advertising and Signage
20. State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
21. State Environmental Planning Policy Seniors Living 2004
22. State Environmental Planning Policy (ARTC Rail Infrastructure) 2004
23. State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
24. State Environmental Planning Policy (State Significant Development) 2005
25. Draft State Environmental Planning Policy - Subdivision
26. Draft State Environmental Planning Policy - Sewerage Works
27. Draft State Environmental Planning Policy - Development Standards

Names of relevant Regional Environmental Plans

28. The Council has not been notified of any regional environmental plans or draft regional environmental plans applying to the land.

Names of relevant Development Control Plans

30. Tamworth Development Control Plan No. 2 - Guidelines for Commercial and Retail Development.
31. Tamworth Development Control Plan No. 3 - Outdoor Advertising Guidelines.
32. Tamworth Development Control Plan No. 4 - Guidelines for Industrial Development.
33. Tamworth Development Control Plan No. 5 - Residential Housing Guidelines.
34. Tamworth Development Control Plan No. 9 - Guidelines for Outdoor Lighting.
35. Tamworth Development Control Plan No. 12 - Guidelines for Dual Occupancy and "Granny Flat" Development.
38. Tamworth Regional Development Control Plan No.1 - Telecommunications and Radio-Communications.

Declared State significant development

39. Development to which State Environmental Planning Policy No. 34 – Major Employment Generating Development and State Environmental Planning Policy No. 48 - Major Putrescible Landfill Sites apply is State significant development.

Coastal Protection

40. The land is not affected by the operation of Section 38 or 39 of the Coastal Protection Act.

Mine subsidence

41. The land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act 1981.

Road widening and road realignment

42. The land is not affected by any road widening or road realignment proposal under:-
   (1) section 262 of the Local Government Act, 1919;
   (2) an environmental planning instrument; or
   (3) any resolution of Council.
Council and other public authority policies on hazard risk restrictions

43. Council has not been notified by any other public authority that it requires Council to notify of a policy it has adopted which restricts the development of the land because of a hazard or risk.

44. Council has not adopted a policy to restrict the development of the land by reason of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence or any other risk unless it has been identified within this certificate.

Land reserved for acquisition

45. There are no environmental planning instruments applying to the land which provide for the acquisition of the land by a public authority, as referred to in Section 27 of the Act.

Contributions plans

46. The Tamworth Urban Section 94 Contributions Plan came into force on 1 August 2005. This Plan seeks contributions toward a range of public facilities to cater for the demand generated from the projected increase in population associated with development.

Matters arising under the Contaminated Land Management Act 1997

47. The former Tamworth City Council adopted by resolution a policy on contaminated land which restricts the development of the land in particular circumstances. The policy is implemented when zoning or land use changes are proposed on land which has previously been used for certain purposes or land which has been remediated for a specific use. Consideration of council's adopted policy and the application of provisions under relevant State legislation is warranted.

Bushfire Prone Land

48. The subject land is not identified as being "bushfire prone land" on the Bushfire Prone Land Map, certified by the NSW Rural Fire Service.

Additional information provided pursuant to Section 149(5)

49. For information regarding buildings and structures on the land, please obtain a Building Certificate under Section 149A of the Environmental Planning and Assessment Act 1979.

50. Some land within the Tamworth Regional Council area is subject to aircraft noise associated with Tamworth Airport. Council has maps which indicate the land that is subject to noise exposure from aircraft and which contain information as to the likely level of noise and related matters. If you consider that the subject land is, or is likely to be affected by aircraft noise, or if you wish to ascertain whether the subject land might be affected by aircraft noise, please contact the Environment and Planning Services Department of Council.

51. Some land within the Tamworth Regional Council area is subject to flooding. Council has prepared a Floodplain Management Study in relation to the former Tamworth City Council local government area with accompanying flood maps which provide the best available information on flooding. If you consider that the subject land is, or is likely to be affected, or if you wish to ascertain whether it could be affected, please contact the Environment and Planning Services Department of Council.
Tamworth Regional Council

ATTACHMENT TO PLANNING CERTIFICATE

Attached to this Certificate is an extract of the Tamworth Local Environmental Plan 1996 which sets out the zone objectives and developments which is allowed without development consent; development allowed only with development consent; and development which is prohibited; as it relates to the land, the subject of this certificate.

The attachment is provided for information purposes only. It should be noted that the land, the subject of this certificate may also be subject to other specific restrictions of the Tamworth Environmental Plan 1996 comprised in the following clauses:

Clause 31 – Development near zone boundaries

Clause 33 – Activities of Public Authorities

Clause 34 – How the Plan Covenants, Agreements, other Acts, etc

Clause 35 – Subdivision Controls

Clause 37 – Temporary Use of Land

Clause 41 – Advertising

Clause 42 – Servicing Provisions when Developing Land

Clause 46 – Development if the Vicinity of Heritage items

Clause 50 – Exempt Development

Clause 51 – Complying Development

Copies of the Tamworth Local Environment Plan 1996 can be obtained by contacting the Customer Service Counter at Council or by phoning (02) 67554 555.
1. **Objectives of the zone**

   (1) The general objectives of this zone is to provide for low intensity commercial and retail facilities which are unlikely to prejudice the viability of the central business district of the City of Tamworth.

   (2) The specific objectives of this zone are:

   (a) To ensure that the size and functions of both retail and commercial facilities are established in accordance with the Council's preference for a balance of retail and commercial centres for the City and;

   (b) To restrict development generally to the provision of services required either by the travelling public or which serve the local community and are limited in scale.

   (c) Development for the purposes of the following are not consistent with the objectives of the zone:

       * agriculture, dual occupancies, home activities and industries.

2. **Development allowed without development consent**

   Development for the purposes of:

   * houses and flats
   * labour accommodation
   * mixed uses

3. **Development allowed only with development consent**

   Any development included in Item 2 or 4.

4. **Development which is prohibited**

   Development for the purposes of:

   * multi-storey building
   * hotels
   * institutions
   * factories
   * warehousing and ancillary to development permitted in the zone
   * extractive industries
   * tea shops
   * bowling alleys
   * hazardous storage establishments
   * wholesale depots
   * major commercial premises
   * major retail premises
   * mines
   * offensive nuisance
   * offensive storage establishments
   * general industrial buildings
   * run-down commercial buildings
   *钥匙
   * stockyards and yards.
Can the use of major commercial premises or major retail premises within Zone No. 3(a) be varied?

20. (1) This clause applies to buildings or places within Zone No. 3(a) that were lawfully being used for the purpose of major commercial premises or major retail premises, or both, immediately before this plan commenced.

(2) Nothing in this plan prevents consent from being granted for the use of a building or place to which clause 2 applies for business, commercial, supermarket, department store, hotel purpose or for any combination of those purposes after the consent is granted.

31. The amount of the gross floor area of the building or place that will be able to be lawfully used for any one or more of these purposes will not exceed the floor area of the building or place that was lawfully being so used immediately before this plan commenced.

32. The improvement to the floor space ratio of the building or place that will be able to be lawfully used for any one or more of these purposes after the consent is granted for this purpose is calculated in accordance with the floor space ratios that are hereinafter stated.

What floor space ratios apply in this plan?

21. The floor space ratios of the building created:

(1) Buildings on land in Zone No. 3(a) is not to exceed 4:1.

(2) Buildings on land within Zone No. 3(b) is not to exceed 2:1.

22. (2) S Diary of Amendment No. 2 dated 17th Dec 2020

(GG Notice)
PLANNING CERTIFICATE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Applicant:  Owner (as recorded by Council):
Ghd  Telstra Corporation Limited
Level 1 Coal Services  Transfield Services
CIVIC AVENUE SINGLETON NSW 2330  Locked Bag 12368

Land:  A'beckett Street Post Office
PMS 03121 89 Marius Street NORTH TAMWORTH NSW 2340
Lot 1 DP 803644  MELBOURNE VIC 8006

This certificate is provided pursuant to Section 149(2) of the Act. At the date of this certificate, the subject land is affected by the following matters.

Zoning and land use under relevant LEPs

4 Industrial
Tamworth Local Environmental Plan 1996, as amended.
The Plan was gazetted on 4 April, 1996.

1. The extract from the relevant local environmental plan is the development control table for the zone. It sets out the zone objectives and development which is allowed without development consent; development only allowed with development consent; and development which is prohibited; as it relates to the land the subject of this certificate.

2. The relevant local environmental plan identifies certain land upon which heritage items or archaeological sites are situated. A specific clause of the Plan requires Council take into consideration the likely affect of any development on the heritage significance of any items in the locality.

3. The land to which this certificate applies maybe subject to clauses 52 and 53 of Tamworth Local Environmental Plan 1996 which specifies requirements for development of brothels and restricted premises. A copy of clauses 52 and 53 is attached, as is the map to Amendment No 14.

4. No draft local environmental planning instruments apply to the subject land.

5. The erection of a dwelling-house on the land is not prohibited by a development standard relating to the minimum area on which a dwelling-house may be erected.

Names of relevant State Environmental Planning Policies

The following State Environmental Planning Policies apply to the subject land. Copies may be obtained from the NSW Government web-site.

7. State Environmental Planning Policy No. 4 - Development Without Consent.
8. State Environmental Planning Policy No. 8 - Surplus Public Land
9. State Environmental Planning Policy No. 11 - Traffic Generating Developments
10. State Environmental Planning Policy No. 15 - Rural Landsharing Communities
11. State Environmental Planning Policy No. 30 - Intensive Agriculture
12. State Environmental Planning Policy No. 32 – Urban Consolidation (Redevelopment of Urban Land)
13. State Environmental Planning Policy No. 34 - Major Employment Generating Industrial Development
15. State Environmental Planning Policy No. 45 - Permissibility of Mining
16. State Environmental Planning Policy No 48 - Major Putrescible Landfill Sites
17. State Environmental Planning Policy No.50 - Canal Estate Development
18. State Environmental Planning Policy No.55 - Remediation of Land
19. State Environmental Planning Policy No. 64 - Advertising and Signage
20. State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
21. State Environmental Planning Policy (Seniors Living) 2004
22. State Environmental Planning Policy (ARTC Rail Infrastructure) 2004
23. State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
24. State Environmental Planning Policy (State Significant Development) 2005
25. Draft State Environmental Planning Policy - Subdivision
26. Draft State Environmental Planning Policy - Sewerage Works
27. Draft State Environmental Planning Policy - Development Standards

Names of relevant Regional Environmental Plans

28. The Council has not been notified of any regional environmental plans or draft regional environmental plans applying to the land.

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32. Tamworth Development Control Plan No. 5 - Residential Housing Guidelines.
33. Tamworth Development Control Plan No. 9 - Guidelines for Outdoor Lighting.
34. Tamworth Development Control Plan No. 12 - Guidelines for Dual Occupancy and "Granny Flat" Development.
35. Tamworth Development Control Plan No. 13 - Regulation of Brothels and Restricted Premises.
38. Tamworth Regional Development Control Plan No.1 – Telecommunications and Radio-Communications.

Declared State significant development

40. Development to which State Environmental Planning Policy No. 34 – Major Employment Generating Development and State Environmental Planning Policy No. 48 - Major Putrescible Landfill Sites apply is State significant development.

Coastal Protection

41. The land is not affected by the operation of Section 38 or 39 of the Coastal Protection Act.

Mine subsidence

42. The land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act 1961.

Road widening and road realignment

43. The land is not affected by any road widening or road realignment proposal under: -
   (1) section 282 of the Local Government Act, 1919;
   (2) an environmental planning instrument; or
   (3) any resolution of Council.
Council and other public authority policies on hazard risk restrictions

44. Council has not been notified by any other public authority that it requires Council to notify of a policy it has adopted which restricts the development of the land because of a hazard or risk.

45. Tamworth Development Control Plan No. 18 - Interim Floodplain Management Policy 1993 applies to the subject land and may restrict the development of the land by reason of the likelihood of flooding. The principle purpose of the plan is to provide guidelines and more detailed provisions than are contained in Tamworth Local Environmental Plan 1996 which must be taken into consideration by the Council when assessing applications to carry out development on land identified as being flood liable. The Plan has been prepared in accordance with the NSW Government's Floodplain Development Manual published in February 1987. In accordance with the principles contained in the Manual, each application for development on such land will be considered on merit having regard to the planning considerations contained in Section 79C(1) of the Environmental Planning and Assessment Act 1979.

Land reserved for acquisition

46. There are no environmental planning instruments applying to the land which provide for the acquisition of the land by a public authority, as referred to in Section 27 of the Act.

Contributions plans

47. The Tamworth Urban Section 94 Contributions Plan came into force on 1 August 2005. This Plan seeks contributions toward a range of public facilities to cater for the demand generated from the projected increase in population associated with development.

Matters arising under the Contaminated Land Management Act 1997

48. The former Tamworth City Council adopted by resolution a policy on contaminated land which restricts the development of the land in particular circumstances. The policy is implemented when zoning or land use changes are proposed on land which has previously been used for certain purposes or land which has been remediated for a specific use. Consideration of council's adopted policy and the application of provisions under relevant State legislation is warranted.

Bushfire Prone Land

49. The subject land is not identified as being "bushfire prone land" on the Bushfire Prone Land Map, certified by the NSW Rural Fire Service.

Additional information provided pursuant to Section 149(5)

50. For information regarding buildings and structures on the land, please obtain a Building Certificate under Section 149A of the Environmental Planning and Assessment Act 1979.

51. Some land within the Tamworth Regional Council area is subject to aircraft noise associated with Tamworth Airport. Council has maps which indicate the land that is subject to noise exposure from aircraft and which contain information as to the likely level of noise and related matters. If you consider that the subject land is, or is likely to be affected by aircraft noise, or if you wish to ascertain whether the subject land might be affected by aircraft noise, please contact the Environment and Planning Services Department of Council.

[Diagram]

Directors

Alison McGaffin

Director Environment, Planning & Economic Development
Tamworth Regional Council

ATTACHMENT TO PLANNING CERTIFICATE

Attached to this Certificate is an extract of the Tamworth Local Environmental Plan 1996 which sets out the zone objectives and developments which is allowed without development consent; development allowed only with development consent; and development which is prohibited; as it relates to the land, the subject of this certificate.

The attachment is provided for information purposes only. It should be noted that the land, the subject of this certificate may also be subject to other specific restrictions of the Tamworth Environmental Plan 1996 comprised in the following clauses:

Clause 31 – Development near zone boundaries

Clause 33 – Activities of Public Authorities

Clause 34 – How the Plan Covenants, Agreements, other Acts, etc

Clause 35 – Subdivision Controls

Clause 37 – Temporary Use of Land

Clause 41 – Advertising

Clause 42 – Servicing Provisions when Developing Land

Clause 46 – Development if the Vicinity of Heritage items

Clause 50 – Exempt Development

Clause 51 – Complying Development

Copies of the Tamworth Local Environment Plan 1996 can be obtained by contacting the Customer Service Counter at Council or by phoning (02) 67554 555.
1. Objectives of the Zone

The general objectives of the zone are:

(a) To identify a portion land within the City of Taunton open to development for industrial purposes.

(b) To reserve and provide for the diverse nature and functioning of industrial waterfront, waterway, industrial activities, and similar uses.

(c) To provide an adequate area of property suitable and accessible (to facilitate economic industrial development.

(d) To ensure that the land area included in the zone will be zoned for industrial purposes.

(e) To ensure that the land area included in the zone is zoned for industrial purposes.

(f) To ensure that the land area included in the zone is zoned for industrial purposes.

(g) To ensure that the land area included in the zone is zoned for industrial purposes.

(h) To ensure that the land area included in the zone is zoned for industrial purposes.

(i) To ensure that the land area included in the zone is zoned for industrial purposes.

(j) To ensure that the land area included in the zone is zoned for industrial purposes.

2. Development allowed without development consent:

(a) Development for the purpose of:

(i) Light industrial uses

(ii) Commercial uses

(iii) Storage or warehouse uses

(b) Development only with development consent:

(i) Any development not included in the above.

(c) Development which is prohibited:

(i) Development in the purpose of:

(ii) Industrial uses

(iii) Agricultural uses

(iv) Residential uses

(v) Commercial uses

(vi) Storage or warehouse uses

(vii) Public utilities

(viii) Parking or vehicle uses

(ix) Landfill or waste disposal

(x) Any other uses not specifically permitted by the purpose of the zone.
CLAUSE 52

What are the restrictions on the location of a brothel?
(Amendment No. 14 of 13/07/01)

52. Notwithstanding any other provision of this plan, the Council must not grant consent to development for the purposes of a brothel unless it is satisfied that the boundary of the site of the proposed brothel will be at least 150 metres by road from any of the following:

(a) any existing dwelling,

(b) any residential zone,

(c) any place of public worship,
(d) any place designed for and utilised by children, such as any child care centre, community facility, educational establishment, entertainment facility, recreation area or recreation facility,

(e) any other brothel.

CLAUSE 53

What are the restrictions on the location of restricted premises?
(Amendment No. 14 of 13/07/01)

53. Notwithstanding any other provision of this plan, the Council must not grant consent to development for the purpose of restricted premises unless the Council is satisfied that:

(a) there will be no external advertising other than the name of the premises, and

(b) there will be access to the premises via a public road, and

(c) the boundary of the site of the restricted premises will be at least 150 metres by road from any other restricted premises, and

(d) the boundary of the site of the restricted premises will be at least 150 metres by road from any existing dwelling.
New South Wales Consolidated Regulations

TAMWORTH LOCAL ENVIRONMENTAL PLAN 1996 - REG 8

What zones apply in this plan?

8 What zones apply in this plan?

For the purposes of this plan, land to which this plan applies is within a zone specified below if the land is shown on the map in the manner specified below in relation to the zone:

Zone No 1 (a) Rural—coloured light brown,

Zone No 1 (c) Flood-Liable—coloured light brown, edged scarlet and lettered “1 (c)

Zone No 1 (d) Rural-Residential—coloured light brown, edged scarlet and lettered “1 (d)

Zone No 1 (e) Future Investigation—coloured light brown, edged scarlet and lettered “1 (e)

Zone No 1 (h) Rural Small Holdings—coloured light brown, edged scarlet and lettered “1 (h)

Zone No 2 Residential—coloured light scarlet

Zone No 3 (a1) Central Business—coloured medium blue,

Zone No 3 (a) Business—coloured light blue, \( \text{DP} 70023 \)

Zone No 3 (b) Special Business (Airport)—coloured pale blue and lettered “3 (b) (Airport)”,

Zone No 4 Industrial—coloured grey, \( \text{Lot} 1 \) \( \text{DP} 803644 \)

Zone No 6 Recreation—coloured green,

Zone No 7 Environment Protection—coloured orange,

Zone No 9 (b) Proposed Car Park—coloured yellow,

Zone No 9 (c) Proposed Sub-Arterial Road—a broken red band.
Appendix C

Historical Aerial Photographs
1995 Aerial Photograph

--- Site boundary ---
2004 Aerial Photograph

-------- Site boundary --------
Appendix D

Photographs
Photographs

Photograph 1: Asbestos storage area

Photograph 2: BH3

Photograph 3: BH18

Photograph 4: Driller

Photograph 5: Telegraph pole storage area

Photograph 6: UST cap

Photograph 7: Washbay

Photograph 8: Approximate location of old bowsers
Appendix E

Summary Tables of Results
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1 Ecological Investigation Level (Interim Urban) (NEPM 1999)
2 Health Investigation Level "A" (Standard Residential) (NEPM, 1999)
3 Health Investigation Level "F" (Commercial/Industrial) (NEPM, 1999)
4 Cr(VI) Guideline Values
ND = Not Detected
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1 Health Investigation Level "A" (Standard Residential) (NEPM, 1999)
2 Health Investigation Level "F" (Commercial/Industrial) (NEPM, 1999)
**Client:** Telstra - Marius St and O'Connell St, Tamworth, NSW  
**Title:** Table D - Soil Analytical Results - TPH  
**Job No:** 2213035

### NB: Results expressed in mg/kg dry weight unless otherwise specified

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1 Guidelines for Assessing Service Station Sites (NSW EPA, 1994)  
2 A lower benzene concentration may be needed to protect groundwater.  
3 Netherlands MPC for the protection of terrestrial organisms in soil  
4 Total xylene  
5 nd - non detect
### Table E - Soil Analytical Results - OCP and PCB

- **Job No:** 2213035

#### NB: Results expressed in mg/kg (ppm) dry weight unless otherwise specified

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<th>beta-BHC</th>
<th>gamma-BHC</th>
<th>delta-BHC</th>
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<th>Aldrin</th>
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<th>Heptachlor - cis</th>
<th>Chlordane - trans</th>
<th>Chlordane - cis</th>
<th>Dieldrin</th>
<th>DDE</th>
<th>Endrin</th>
<th>beta-Endosulfan</th>
<th>DDT</th>
<th>Endrin aldehyde</th>
<th>Endrin sulfoxide</th>
<th>DDT</th>
<th>Endrin ketone</th>
<th>Methoxychlor</th>
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1. Health Investigation Level "A" (Standard Residential) (NEPM, 1999)
2. Health Investigation Level "F" (Commercial/Industrial) (NEPM, 1999)
3. Total of Aldrin and Dieldrin
4. Total of Trans-chlordane and cis-chlordane
5. Total of DDT, DDD and DDE

---

100 Exceeds HIL "A"
500 Exceeds HIL "F"
### Table F - RPD

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<th>C&lt;sub&gt;15&lt;/sub&gt; - C&lt;sub&gt;28&lt;/sub&gt; Fraction</th>
<th>Total Detected TPH (C&lt;sub&gt;10&lt;/sub&gt; - C&lt;sub&gt;28&lt;/sub&gt;)</th>
<th>Benzene</th>
<th>Toluene</th>
<th>Chlorobenzene</th>
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Appendix F

Laboratory Analytical Certificates
CERTIFICATE OF ANALYSIS  11062

Client: Australian Laboratory Services Pty Ltd
277 Woodpark Rd
Smithfield
NSW  2164

Attention: Victor Kedicioglu

Sample log in details:
Your Reference: ES0705876
No. of samples: 3 Soils
Date samples received: 10/05/07
Date completed instructions received: 10/05/07

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:
Date results requested by: 14/05/07
Date of Preliminary Report: Not issued
Issue Date: 11/05/07
NATA accreditation number 2901. This document shall not be reproduced except in full.
This document is issued in accordance with NATA’s accreditation requirements.
Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Joshua Lim
Chemist

Envirolab Reference:  11062
Revision No:  R 00
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<td>AS4964-2004</td>
<td>Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.</td>
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Report Comments:

Asbestos analysed by: Joshua Lim

INS: Insufficient sample for this test  NT: Not tested  PQL: Practical Quantitation Limit
RPD: Relative Percent Difference  NA: Test not required  LCS: Laboratory Control Sample
NR: Not requested  \(<\): Less than  \(>\): Greater than

Quality Control Definitions
Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:
Duplicates: \(<5\times\text{PQL} - \text{any RPD is acceptable}; \quad >5\times\text{PQL} - 0-50\% \text{ RPD is acceptable.}
Matrix Spikes and LCS: Generally 70-130\% for inorganics/metals; 60-140\% for organics and 10-140\% for SVOC and speciated phenols is acceptable.
Surrogates: Generally 60-140\% is acceptable.
**CERTIFICATE OF ANALYSIS**

<table>
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<th>GHD SERVICES PTY LTD</th>
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<tr>
<td>Contact</td>
<td>MR BEN LUFFMAN</td>
</tr>
<tr>
<td>Address</td>
<td>COFFS HARBOUR SYDNEY NSW AUSTRALIA 2450</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:ben_luffman@ghd.com.au">ben_luffman@ghd.com.au</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>6650 5600</td>
</tr>
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| Laboratory            | Environmental Division Sydney |
| Contact               | Victor Kedicioglu |
| Address               | 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| E-mail                | Victor.Kedicioglu@alsenviro.com |
| Telephone             | 61-2-8784 8555 |
| Facsimile             | 61-2-8784 8500 |
| Quote number          | EN/005/07 |

**Page**: 1 of 14  
**Work Order**: ES0705876  
**Date issued**: 15 May 2007  
**Date received**: 4 May 2007  
**No. of samples**: Received: 32  
**Analysed**: 27

---

**ALSE - Excellence in Analytical Testing**

NATA Accredited Laboratory 825  
This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

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<thead>
<tr>
<th>Signatory</th>
<th>Position</th>
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<tr>
<td>Ankit Joshi</td>
<td>Spectroscopist</td>
<td>Inorganics - NATA 825 (10911 - Sydney)</td>
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<td>EDWANDY FADJAR</td>
<td>Senior Organic Chemist</td>
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<td>Pabi Subba</td>
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This document is issued in accordance with NATA's accreditation requirements.  
Accredited for compliance with ISO/IEC 17025.
This report for the ALSE reference ES0705876 supersedes any previous reports with this reference. Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- Analytical Results for Samples Submitted
- Surrogate Recovery Data

The analytical procedures used by ALS Environmental 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 herein. Reference methods from which ALSE methods are based are provided in parenthesis.

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insufficient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits). Where LOR of reported result differ from standard LOR, this may be due to high moisture, reduced sample amount or matrix interference. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number, LOR = Limit of Reporting. * Indicates failed Surrogate Recoveries.
## Analytical Results

### Sample Details
- **Client**: GHD SERVICES PTY LTD
- **Work Order**: ES0705876
- **Sample Matrix Type / Description**: SOIL
- **Sample Date / Time**: 3 May 2007 14:30
- **Laboratory Sample ID**: ES0705876-001

### Analyte Details

<table>
<thead>
<tr>
<th>Analyte Description</th>
<th>CAS number</th>
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<tbody>
<tr>
<td><strong>EA002: pH (Soils)</strong></td>
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</table>
| pH Value            | 0.1        | pH Unit | 8.4 of 3 of 14
|                     |            |       |       |
| **EA055: Moisture Content** | | | |
| Moisture Content (dried @ 103°C) | | % | 9.0 2.5 4.0 11.5 5.1 |
| **EG005T: Total Metals by ICP-AES** | | | |
| Arsenic             | 7440-38-2  | 5 mg/kg | <5 19 108 6 <5 |
|                     | 7440-43-9  | 1 mg/kg | <1 <1 <1 <1 |
|                     | 7440-47-3  | 2 mg/kg | 11 28 119 20 3 |
|                     | 7440-50-8  | 5 mg/kg | 28 41 93 29 <5 |
|                     | 7439-92-1  | 5 mg/kg | 12 7 12 27 <5 |
|                     | 7440-02-0  | 2 mg/kg | 10 8 9 17 3 |
|                     | 7440-66-6  | 5 mg/kg | 59 38 68 96 6 |
| **EG035T: Total Mercury by FIMS** | | | |
| Mercury             | 7439-97-6  | 0.1 mg/kg | <0.1 <0.1 <0.1 <0.1 |
| **EP080/071: Total Petroleum Hydrocarbons** | | | |
| C6 - C9 Fraction    | 10 mg/kg   | <10 | <10 | <10 | <10 | <10 |
|                     | 50 mg/kg   | <50 | <50 | <50 | <50 | <50 |
| C15 - C28 Fraction  | 100 mg/kg  | <100 | <100 | <100 | <100 | <100 |
|                     | 100 mg/kg  | <100 | <100 | <100 | <100 | <100 |
| **EP080: BTEX**     |            |     |     |
| Benzene             | 71-43-2    | 0.2 mg/kg | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
|                     | 108-88-3   | 0.5 mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene        | 100-41-4   | 0.5 mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| meta- & para-Xylene | 108-38-3   | 0.5 mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
|                     | 106-42-3   |       |     |     |     |     |     |
| ortho-Xylene        | 95-47-6    | 0.5 mg/kg | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| **EP080S: TPH(V)/BTEX Surrogates** | | | |
| 1,2-Dichloroethane-D4 | 17060-07-0 | 0.1 % | 117 | 118 | 119 | 112 | 117 |
| Toluene-D8          | 2037-26-5  | 0.1 % | 120 | 121 | 121 | 113 | 110 |
| 4-Bromofluorobenzene| 460-00-4   | 0.1 % | 118 | 112 | 110 | 108 | 112 |
Analytical Results

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<tr>
<th>Laboratory Sample ID</th>
<th>BH6-1</th>
<th>BH7-1</th>
<th>BH8-2</th>
<th>BH8-3</th>
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### Analyte

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<th>ES0705876-008</th>
<th>ES0705876-009</th>
<th>ES0705876-010</th>
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<tr>
<td>pH (Soils)</td>
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<td>Cadmium</td>
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<td>Chromium</td>
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<td>Copper</td>
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<td>Nickel</td>
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<td>Zinc</td>
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### EG035: Total Mercury by FIMS

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<th>ES0705876-007</th>
<th>ES0705876-008</th>
<th>ES0705876-009</th>
<th>ES0705876-010</th>
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<tbody>
<tr>
<td>Mercury</td>
<td>7439-97-6</td>
<td>0.1 mg/kg</td>
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<td>&lt;0.1</td>
<td>&lt;0.1</td>
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### EP075(SIM)/B: Polynuclear Aromatic Hydrocarbons

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<th>Units</th>
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<th>ES0705876-007</th>
<th>ES0705876-008</th>
<th>ES0705876-009</th>
<th>ES0705876-010</th>
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<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Acenaphthylene</td>
<td>208-96-8</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Acenaphthene</td>
<td>83-32-9</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Fluorene</td>
<td>86-73-7</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Phenanthrene</td>
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<tr>
<td>Anthracene</td>
<td>120-12-7</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Fluoranthen</td>
<td>206-44-0</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Pyrene</td>
<td>129-90-0</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Benzen[a]anthracene</td>
<td>56-55-3</td>
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<tr>
<td>Chrysene</td>
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<tr>
<td>Benzo(b)fluoranthen</td>
<td>205-99-2</td>
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<td>Benzo(k)fluoranthen</td>
<td>207-08-9</td>
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<tr>
<td>Benzo(a)pyrene</td>
<td>50-32-8</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Indeno(1 2 3 cd)pyrene</td>
<td>193-39-5</td>
<td>0.5 mg/kg</td>
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<tr>
<td>Dibenz(a,h)anthracene</td>
<td>53-70-3</td>
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<td>Benzo(g,h,i)pyrpyrene</td>
<td>191-24-2</td>
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### EP080/071: Total Petroleum Hydrocarbons

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<th>ES0705876-006</th>
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<th>ES0705876-008</th>
<th>ES0705876-009</th>
<th>ES0705876-010</th>
</tr>
</thead>
<tbody>
<tr>
<td>C6 - C9 Fraction</td>
<td>10 mg/kg</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
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<tr>
<td>C10 - C14 Fraction</td>
<td>50 mg/kg</td>
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<td>&lt;50</td>
<td>&lt;50</td>
<td>&lt;50</td>
<td>&lt;50</td>
</tr>
<tr>
<td>C15 - C28 Fraction</td>
<td>100 mg/kg</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
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<tr>
<td>C29 - C36 Fraction</td>
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### EP080: BTEX

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<th>ES0705876-009</th>
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<tbody>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
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<td>&lt;0.2</td>
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## Analytical Results

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<tr>
<td>Toluene</td>
<td>108-88-3</td>
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<td>mg/kg</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>0.5</td>
<td>mg/kg</td>
</tr>
<tr>
<td>meta- &amp; para-Xylene</td>
<td>108-38-3</td>
<td>0.5</td>
<td>mg/kg</td>
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<tr>
<td>ortho-Xylene</td>
<td>95-47-6</td>
<td>0.5</td>
<td>mg/kg</td>
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<tr>
<td><strong>EP075(SIM): Phenolic Compound Surrogates</strong></td>
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<td>Phenol-d6</td>
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<td>2-Chlorophenol-D4</td>
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<td>2,4,6-Tribromophenol</td>
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<td><strong>EP075(SIM): PAH Surrogates</strong></td>
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<td>2-Fluorobiphenyl</td>
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<td>Anthracene-d10</td>
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<td>4-Terphenyl-d14</td>
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<td>1,2-Dichloroethane-D4</td>
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<td>Toluene-D8</td>
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<td>4-Bromofluorobenzene</td>
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## Analytical Results

**Client Sample ID:** ES0705876-011

### Analyte

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<tr>
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<td>5 mg/kg</td>
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<td>7440-43-9</td>
<td>1 mg/kg</td>
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<td></td>
<td>7440-47-3</td>
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<td>7440-50-8</td>
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<td>7439-92-1</td>
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<td>7440-02-0</td>
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### pH Value

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### Moisture Content (dried @ 103°C)

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### Total Mercury by FIMS

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### Total Petroleum Hydrocarbons

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<table>
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<table>
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### BTEX

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<th>Toluene</th>
<th>Ethylbenzene</th>
<th>meta- &amp; para-Xylene</th>
<th>ortho-Xylene</th>
<th>1,2-Dichloroethane-D4</th>
<th>Toluene-D8</th>
<th>4-Bromofluorobenzene</th>
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<tbody>
<tr>
<td>71-43-2</td>
<td>108-88-3</td>
<td>100-41-4</td>
<td>108-38-3</td>
<td>95-47-6</td>
<td>17060-07-0</td>
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## Analytical Results

**Client Sample ID:** ES0705876-016 - ES0705876-020

### Sample Matrix Type / Description
- SOIL

### Sample Date / Time
- 3 May 2007
- 14:30

### Laboratory Sample ID
- ES0705876-016 - ES0705876-020

### Analyte

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## Analytical Results

### Sample Matrix Type / Description:
- SOIL

### Sample Date / Time:
- 3 May 2007 14:30
- 3 May 2007 14:30

### Laboratory Sample ID:
- ES0705876-016
- ES0705876-017
- ES0705876-018
- ES0705876-019
- ES0705876-020

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### EP075(SIM)S: Phenolic Compound Surrogates

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### EP075(SIM)T: PAH Surrogates

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### EP080S: TPH(V)/BTEX Surrogates

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## Analytical Results

### Sample Information
- **Client:** GHD SERVICES PTY LTD
- **Client Sample ID:** ES0705876
- **Sample Date / Time:**
  - **SOIL:** 3 May 2007, 10:00
  - **SOIL:** 3 May 2007, 14:30
  - **SOIL:** 3 May 2007, 14:30

### Analytical Results Table

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### Analytical Results

#### Work Order: Analytical Results

**Client Sample ID:**

- **GHD SERVICES PTY LTD**
- **ER0705876**

**Sample Matrix Type / Description:**
- **SOIL**
- **3 May 2007 14:30**

**Laboratory Sample ID:**
- **ES0705876-021**
- **ES0705876-022**
- **ES0705876-023**
- **ES0705876-024**
- **ES0705876-025**

#### EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

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<th>Analyte</th>
<th>CAS number</th>
<th>LOR</th>
<th>Units</th>
<th>BH20-1</th>
<th>BH12-1</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td></td>
</tr>
<tr>
<td>Acenaphthylene</td>
<td>128-00-0</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<tr>
<td>Phenanthrene</td>
<td>85-01-8</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>0.6</td>
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<tr>
<td>Anthracene</td>
<td>120-12-7</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<tr>
<td>Pyrene</td>
<td>193-39-5</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<tr>
<td>Benzo(a)pyrene</td>
<td>50-32-8</td>
<td>0.5</td>
<td>mg/kg</td>
<td>1.3</td>
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<tr>
<td>Acenaphthylene</td>
<td>205-99-2</td>
<td>0.5</td>
<td>mg/kg</td>
<td>1.4</td>
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<tr>
<td>Indeno(1,2,3-cd)pyrene</td>
<td>571-43-3</td>
<td>0.5</td>
<td>mg/kg</td>
<td>0.5</td>
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<tr>
<td>Benzo(a)anthracene</td>
<td>56-55-3</td>
<td>0.5</td>
<td>mg/kg</td>
<td>0.5</td>
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<tr>
<td>Benzo(b)fluoranthene</td>
<td>207-08-9</td>
<td>0.5</td>
<td>mg/kg</td>
<td>0.7</td>
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<tr>
<td>Benz(a)anthracene</td>
<td>218-01-9</td>
<td>0.5</td>
<td>mg/kg</td>
<td>0.6</td>
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<tr>
<td>Benzo(k)fluoranthene</td>
<td>200-44-0</td>
<td>0.5</td>
<td>mg/kg</td>
<td>1.1</td>
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<tr>
<td>Benzo(a)pyrene</td>
<td>120-12-7</td>
<td>0.5</td>
<td>mg/kg</td>
<td>1.5</td>
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<td>Benzo(b)fluoranthene</td>
<td>208-96-8</td>
<td>0.5</td>
<td>mg/kg</td>
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<td>Benzo(a)anthracene</td>
<td>200-44-0</td>
<td>0.5</td>
<td>mg/kg</td>
<td>2.1</td>
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<tr>
<td>Benzo(a)anthracene</td>
<td>120-12-7</td>
<td>0.5</td>
<td>mg/kg</td>
<td>0.5</td>
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#### EP080/071: Total Petroleum Hydrocarbons

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<th>BH12-1</th>
<th>COMP 1</th>
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<th>COMP 3</th>
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<tbody>
<tr>
<td>EP080: BTEX</td>
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<tr>
<td>C6 - C9 Fraction</td>
<td>71-43-2</td>
<td>0.2</td>
<td>mg/kg</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<tr>
<td>C10 - C14 Fraction</td>
<td>108-88-3</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<tr>
<td>C15 - C28 Fraction</td>
<td>143-68-1</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<tr>
<td>C29 - C36 Fraction</td>
<td>135-40-5</td>
<td>0.5</td>
<td>mg/kg</td>
<td>&lt;0.5</td>
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#### EP066S: PCB Surrogate

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<th>Units</th>
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<th>BH12-1</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
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</thead>
<tbody>
<tr>
<td>Decachlorobiphenyl</td>
<td>2051-24-3</td>
<td>0.1</td>
<td>%</td>
<td>61.5</td>
<td>71.3</td>
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<tr>
<td>Dibromo-DDE</td>
<td>21655-73-2</td>
<td>0.1</td>
<td>%</td>
<td>99.1</td>
<td>101</td>
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</table>
| Organochlorine Pesticide Surrogate
| DEF                         | 78-48-8    | 0.1 | %     | 128    |

#### EP065T: Organophosphorus Pesticide Surrogate

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<tr>
<th>Analyte</th>
<th>CAS number</th>
<th>LOR</th>
<th>Units</th>
<th>BH20-1</th>
<th>BH12-1</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol-D6</td>
<td>13127-88-3</td>
<td>0.1</td>
<td>%</td>
<td>79.0</td>
<td>73.3</td>
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</tr>
<tr>
<td>2-Chlorophenol-D4</td>
<td>93951-73-6</td>
<td>0.1</td>
<td>%</td>
<td>76.6</td>
<td>71.7</td>
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A Campbell Brothers Limited Company
### Analytical Results

#### EP075(SIM)S: Phenolic Compound Surrogates

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<th>CAS number</th>
<th>LOR</th>
<th>Units</th>
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<th>BH12-1</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Tribromophenol</td>
<td>118-79-6</td>
<td>0.1</td>
<td>%</td>
<td>67.8</td>
<td>64.1</td>
<td>56.2</td>
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#### EP075(SIM)T: PAH Surrogates

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<th>BH12-1</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Fluorobiphenyl</td>
<td>321-60-8</td>
<td>0.1</td>
<td>%</td>
<td>66.4</td>
<td>80.9</td>
<td>76.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthracene-d10</td>
<td>1719-06-8</td>
<td>0.1</td>
<td>%</td>
<td>79.0</td>
<td>76.4</td>
<td>72.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Terphenyl-d14</td>
<td>1718-51-0</td>
<td>0.1</td>
<td>%</td>
<td>81.0</td>
<td>81.1</td>
<td>76.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### EP080S: TPH(V)/BTEX Surrogates

<table>
<thead>
<tr>
<th>Analyte</th>
<th>CAS number</th>
<th>LOR</th>
<th>Units</th>
<th>BH20-1</th>
<th>BH12-1</th>
<th>COMP 1</th>
<th>COMP 2</th>
<th>COMP 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dichloroethane-D4</td>
<td>17060-07-0</td>
<td>0.1</td>
<td>%</td>
<td>78.9</td>
<td>82.8</td>
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<td></td>
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<tr>
<td>Toluene-D8</td>
<td>2037-26-5</td>
<td>0.1</td>
<td>%</td>
<td>93.5</td>
<td>92.8</td>
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</tr>
<tr>
<td>4-Bromofluorobenzene</td>
<td>460-00-4</td>
<td>0.1</td>
<td>%</td>
<td>82.2</td>
<td>84.6</td>
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</table>
## Analytical Results

### Client Sample ID:

<table>
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<th>Units</th>
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<tbody>
<tr>
<td>EA055: Moisture Content</td>
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<tr>
<td>Moisture Content (dried @ 103°C)</td>
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<tr>
<td>EP066: Polychlorinated Biphenyls (PCB)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EP068A: Organochlorinate Pesticides (OC)</td>
<td></td>
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<tr>
<td>EP075(SIM):B Polynuclear Aromatic Hydrocarbons</td>
<td></td>
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</table>

#### moisture content

- **Soil Matrix Type/Description**: Sample Date / Time: 3 May 2007 10:00
- **Laboratory Sample ID**: ES0705876-026
- **Sample Date / Time**: 3 May 2007 10:00
- **Laboratory Sample ID**: ES0705876-027

**EA055: Moisture Content**

- **Measurement**: Moisture Content (dried @ 103°C)
- **Result**: 1.0 %
- **Units**: 13.2
- **Result**: 8.3

**EP066: Polychlorinated Biphenyls (PCB)**

- **Measurement**: Total Polychlorinated biphenyls
- **Result**: 0.10 mg/kg
- **Units**: <0.10
- **Result**: <0.10

**EP068A: Organochlorinate Pesticides (OC)**

- **alpha-BHC**: 319-84-6
- **Hexachlorobenzene (HCB)**: 118-74-1
- **beta-BHC**: 319-85-7
- **gamma-BHC**: 58-89-9
- **delta-BHC**: 319-86-8
- **Heptachlor**: 76-44-8
- **Aldrin**: 309-00-2
- **Heptachlor epoxide**: 1024-57-3
- **trans-Chlordane**: 5103-74-2
- **alpha-Endosulfan**: 959-98-8
- **cis-Chlordane**: 5103-71-9
- **Dieldrin**: 60-57-1
- **4.4'-DDE**: 72-55-9
- **Endrin**: 72-20-8
- **beta-Endosulfan**: 33213-65-9
- **4.4'-DDD**: 72-54-8
- **Endrin aldehyde**: 7421-93-4
- **Endosulfan sulfate**: 1031-07-8
- **4.4'-DDT**: 50-29-3
- **Endrin ketone**: 53494-70-5
- **Methoxychlor**: 72-43-5

**EP075(SIM):B Polynuclear Aromatic Hydrocarbons**

- **Naphthalene**: 91-20-3
- **Acenaphthylene**: 208-96-8
- **Acenaphthene**: 83-32-9
- **Fluorene**: 86-73-7
- **Phenanthrene**: 85-01-8
- **Anthracene**: 120-12-7
- **Fluoranthene**: 206-44-0
- **Pyrene**: 129-00-0
- **Benzo(a)anthracene**: 56-55-3
- **Chryssene**: 218-01-9
- **Benzo(b)fluoranthene**: 205-99-2

---

A Campbell Brothers Limited Company
### Analytical Results

**Client Sample ID:** ES0705876-026
**Laboratory Sample ID:** ES0705876-027

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<tr>
<td>Benzo(k)fluoranthene</td>
<td>207-08-9</td>
<td>0.5 mg/kg</td>
<td>&lt;0.5</td>
<td>---</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>50-32-8</td>
<td>0.5 mg/kg</td>
<td>&lt;0.5</td>
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</tr>
<tr>
<td>Indeno[1,2,3-cd]pyrene</td>
<td>193-39-5</td>
<td>0.5 mg/kg</td>
<td>&lt;0.5</td>
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</tr>
<tr>
<td>Dibenzo[a,h]anthracene</td>
<td>53-70-3</td>
<td>0.5 mg/kg</td>
<td>&lt;0.5</td>
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<tr>
<td>Benzo(g,h,i)perylene</td>
<td>191-24-2</td>
<td>0.5 mg/kg</td>
<td>&lt;0.5</td>
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<tr>
<td>EP066S: PCB Surrogate</td>
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<tr>
<td>Decachlorobiphenyl</td>
<td>2061-24-3</td>
<td>0.1 %</td>
<td>63.2</td>
<td>65.8</td>
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<tr>
<td>EP068S: Organochlorine Pesticide Surrogate</td>
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<tr>
<td>Dibromo-DDE</td>
<td>21655-73-2</td>
<td>0.1 %</td>
<td>92.1</td>
<td>98.4</td>
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<td>EP068T: Organophosphorus Pesticide Surrogate</td>
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<tr>
<td>DEF</td>
<td>78-48-8</td>
<td>0.1 %</td>
<td>104</td>
<td>93.9</td>
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<td>EP075(SIM):S: Phenolic Compound Surrogates</td>
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<tr>
<td>Phenol-d6</td>
<td>13127-88-3</td>
<td>0.1 %</td>
<td>72.8</td>
<td>---</td>
</tr>
<tr>
<td>2-Chlorophenol-D4</td>
<td>93951-73-6</td>
<td>0.1 %</td>
<td>71.3</td>
<td>---</td>
</tr>
<tr>
<td>2,4,6-Trichlorophenol</td>
<td>118-79-6</td>
<td>0.1 %</td>
<td>60.8</td>
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<td>EP075(SIM):T: PAH Surrogates</td>
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<tr>
<td>2-Fluorobiphenyl</td>
<td>321-60-8</td>
<td>0.1 %</td>
<td>80.7</td>
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</tr>
<tr>
<td>Anthracene-d10</td>
<td>1719-06-8</td>
<td>0.1 %</td>
<td>76.1</td>
<td>---</td>
</tr>
<tr>
<td>4-Terphenyl-d14</td>
<td>1718-51-0</td>
<td>0.1 %</td>
<td>82.2</td>
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</table>
## Surrogate Control Limits

**Matrix Type:** SOIL - Surrogate Control Limits

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<tr>
<th>Method name</th>
<th>Analyte name</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
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<tbody>
<tr>
<td>EP066: Polychlorinated Biphenyls (PCB)</td>
<td>Decachlorobiphenyl</td>
<td>10</td>
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<td>EP066S: PCB Surrogate</td>
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<tr>
<td>EP068: Pesticides by GCMS</td>
<td>Dibromo-DDE</td>
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<td>136</td>
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<td>EP068S: Organochlorine Pesticide Surrogate</td>
<td>DEF</td>
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<td>136</td>
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<td>EP075(SIM): PAH/Phenols (SIM)</td>
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<td>113</td>
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<tr>
<td>EP075(SIM)S: Phenolic Compound Surrogates</td>
<td>2-Chlorophenol-D4</td>
<td>23</td>
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<td></td>
<td>2,4,6-Tribromophenol</td>
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<td>2-Fluorobiphenyl</td>
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<td>4-Terphenyl-d14</td>
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<td>Toluene-D8</td>
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<td>4-Bromofluorobenzene</td>
<td>74</td>
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<td>Author</td>
<td>Reviewer</td>
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<tr>
<td>0</td>
<td>B Luffman</td>
<td>T Millen</td>
<td>M Armstrong</td>
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</table>

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