BORDER - TECH

GEOTECHNICAL ENGINEERING SERVICES

PRELIMINARY CONTAMINATION ASSESSMENT

FOR

CABARITA SERVICE STATION
LOT 22 ON DP 31208
THE COAST ROAD
CABARITA BEACH

CLIENT: CABARITA PROPERTY INVESTMENTS

JOB No: BT 14292
DATE: FEBRUARY 2005
PREPARED BY: DAVID BAYEL

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1.0 INTRODUCTION

1.1 Scope of Work

Border-Tech was commissioned by Nick Defteros of Cabarita Property Investments to undertake a pre-purchase preliminary contamination assessment at the Caltex Service Station on the Coast Road at Cabarita Beach.

Soil sampling was undertaken in February 2005 in order to assess the presence and distribution of contaminants, and to determine constraints associated with the removal of the tanks and future development of the site. Laboratory analysis of soil samples was conducted by Australian Laboratory Services, Brisbane. The assessment was conducted in accordance with "Service Station Sites: Assessment and Remediation" (EPA 2002).

1.2 Objectives

The assessment aimed to satisfy the following objectives:

- to determine the presence of contaminated soil within the site, in particular within the soil surrounding the underground storage tanks (UST's).
- to provide recommendations for additional site assessment and remedial actions if necessary.

2.0 SITE HISTORY

Mr Neil Johansen was contacted to gain information regarding the history of the subject site. Mr Johansen, who is the current owner of the property indicated that the site was partially filled and the existing service station constructed in 1985. Fill material consisted of locally sourced sand. Three new underground fuel storage tanks were installed at this time, consisting of a 42,000 L and two 20,000 L tanks. Mr Johansen also indicated that a previous investigation conducted when the service station was leased to Caltex did not reveal any soil contamination at the site.

3.0 SITE EVALUATION AND DESCRIPTION

The property is described as Lot 22 on DP 31208 the Coast Road, Cabarita Beach, NSW. The existing Caltex Service Station is positioned on the eastern portion of the site, which is approximately level with the Coast Road and has been previously filled prior to the construction of the service station by up to approximately 3.0 metres.

A concrete ramp that runs along the northern boundary links the upper and lower portions of the site. The lower portion of the site is currently used by Cabarita Auto Electrics for automotive electrical repairs.

A total of three UST's exist on the upper portion of the site between the service station building and the boundary with the Coast Road. The attached site plan displays the approximate building locations and the position of the UST's.

A site evaluation was conducted prior to recovering samples in order to assess the contamination potential of the site. Several oil drums, both empty and full are stored on a grassed area on the lower site, however inspections around the property did not reveal any further potential for localised contamination, and no discoloured soil or suspect odours were noted within the property.

4.0 SAMPLING AND ANALYSIS PLAN

Sampling was conducted as far as was practicable, in accordance with "Service Station Sites: Assessment and Remediation" (EPA 2002), and was undertaken on 9 February 2005. Due to the operational nature of the site, and array of underground services, borehole sampling around the UST's was limited to three locations. The site plan and sampling locations are displayed in Appendix 1.

4.1 UST Boreholes

Boreholes surrounding the UST's were drilled to a depth of 3.0m to allow for the recovery of samples at or below the depth of the tanks. A single sample was taken at BH 1 at a depth of 2.8 – 3.0m, whilst samples were recovered at 1.8 – 2.0m and 2.8 – 3.0m at BH 2 and BH 3. Samples were taken directly from spiral flight augers below the base of each tank. No fuel odours or soil discoloration was recorded at any depth within the boreholes.

The Soil profile within each borehole was logged according to AS 1726-1993 'Geotechnical Site Investigations'. Soil profiles at each sampling location are presented in the form of Borelogs and are displayed in Appendix 1.

4.2 Surface Samples

A total of four surface samples (0-200mm) were recovered from the grassed area on the lower portion of the site where the used oil drums are stored. An additional borehole (BH 4) was drilled to determine the depth of groundwater relative to the existing lower surface level, and investigate the potential for groundwater contamination. No fuel odours or soil discoloration was recorded within BH 4 or at any of the surface sampling points.

All sampling equipment was cleaned between each sample to avoid cross-contamination. Samples were sealed in solvent rinsed acid washed jars with Teflon-lined lids and stored on site below 4°C to prevent degradation.

Samples were assigned unique identification numbers and couriered to Australian Laboratory Services under chain of custody documentation on 11 February 2005. Table 4.1 displays sample and borehole numbers, sampling depths and analysis performed.

Table 4.2. Summary of Sampling and Analysis

Sample #	Location	Sample Depth	Analytes
59808	BH 1	2.8 – 3.0m	TPH, BTEX, Pb
59809	BH 2	1.8 – 2.0m	TPH, BTEX, Pb
59810	BH 2	2.8 – 3.0m	TPH, BTEX, Pb
59811	BH 3	1.8 – 2.0m	TPH, BTEX, Pb
59812	BH 3	2.8 – 3.0m	TPH, BTEX, Pb
59813	BH 5	0 – 200mm	TPH, BTEX, As, Cd, Cr, Cu, Pb, Zn
59814	BH 6	0 – 200mm	TPH, BTEX, As, Cd, Cr, Cu, Pb, Zn
59815	BH 7	0 – 200mm	TPH, BTEX, As, Cd, Cr, Cu, Pb, Zn
59816	BH 8	0 – 200mm	TPH, BTEX, As, Cd, Cr, Cu, Pb, Zn

5.0 RESULTS AND DISCUSSION

Australian Laboratory Services certificates of analysis and chain of custody documentation that was maintained throughout the sampling and analysis period is attached as Appendix 2.

5.1 UST Results

5.1.1 Total Petroleum Hydrocarbons (TPH)

The five samples recovered from boreholes surrounding the underground storage tanks recorded TPH levels below the analytical limit of reporting (LOR).

5.1.2 BTEX Compounds

BTEX compounds were found to be below the analytical limit of reporting (LOR) in all samples tested.

5.1.3 Lead (Pb)

Three samples recorded lead concentrations above the LOR, ranging from 5 to 19 mg/kg. These concentrations are within recognised background levels (<0.2 – 200 mg/kg) and well below the Health-based Soil Investigation Levels (HIL's) for residential (300 mg/kg) and commercial or industrial properties (1500 mg/kg).

5.2 Surface Sample Results

5.2.1 Total Petroleum Hydrocarbons (TPH)

The four surface samples recovered from the lower portion of the site recorded TPH concentrations below the analytical limit of reporting (LOR).

5.2.2 BTEX Compounds

All BTEX compounds were found to be below the LOR in the four surface samples analysed.

5.2.3 Metals

All samples recorded analyte levels within recognised background concentrations, and well below the respective HIL's for residential, commercial or industrial properties. Table 5.2 displays the metal concentrations recorded in the surface samples.

Table 5.2. Metal Concentrations Recorded in Surface Samples

Sample #	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
59813	<5	<1	<2	<5	7	12
59814	<5	<1	<2	15	79	56
59815	<5	<1	3	57	74	43
59816	<5	<1	<2	25	22	20

5.3 Groundwater

Groundwater was encountered at approximately 2.9 metres below the existing surface level at BH 4, which was positioned on the lower portion of the site. Saturated soils from this depth were assessed visually for any signs of contamination, however no discoloration was observed and no fuel odours were present, suggesting that the groundwater has not been affected by petroleum contaminants.

6.0 CONCLUSION

The investigation was limited due to the array of underground services and difficulties associated with drilling at an operational site, however the results of the preliminary investigation suggest that the soils within the site are not contaminated with petroleum products or metal contaminants. No fuel odours or discolored soil was observed throughout the site, and there was no other evidence to suggest the presence of contaminants.

7.0 REFERENCES

Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (1997). Environment Protection Authority, Chatswood, NSW. ISBN 0 7310 3892 4

NEPC (1999). *National Environment Protection (Assessment of Site Contamination) Measure 1999.* National Environment Protection Council Service Corporation. ISBN 0 642 32312 7

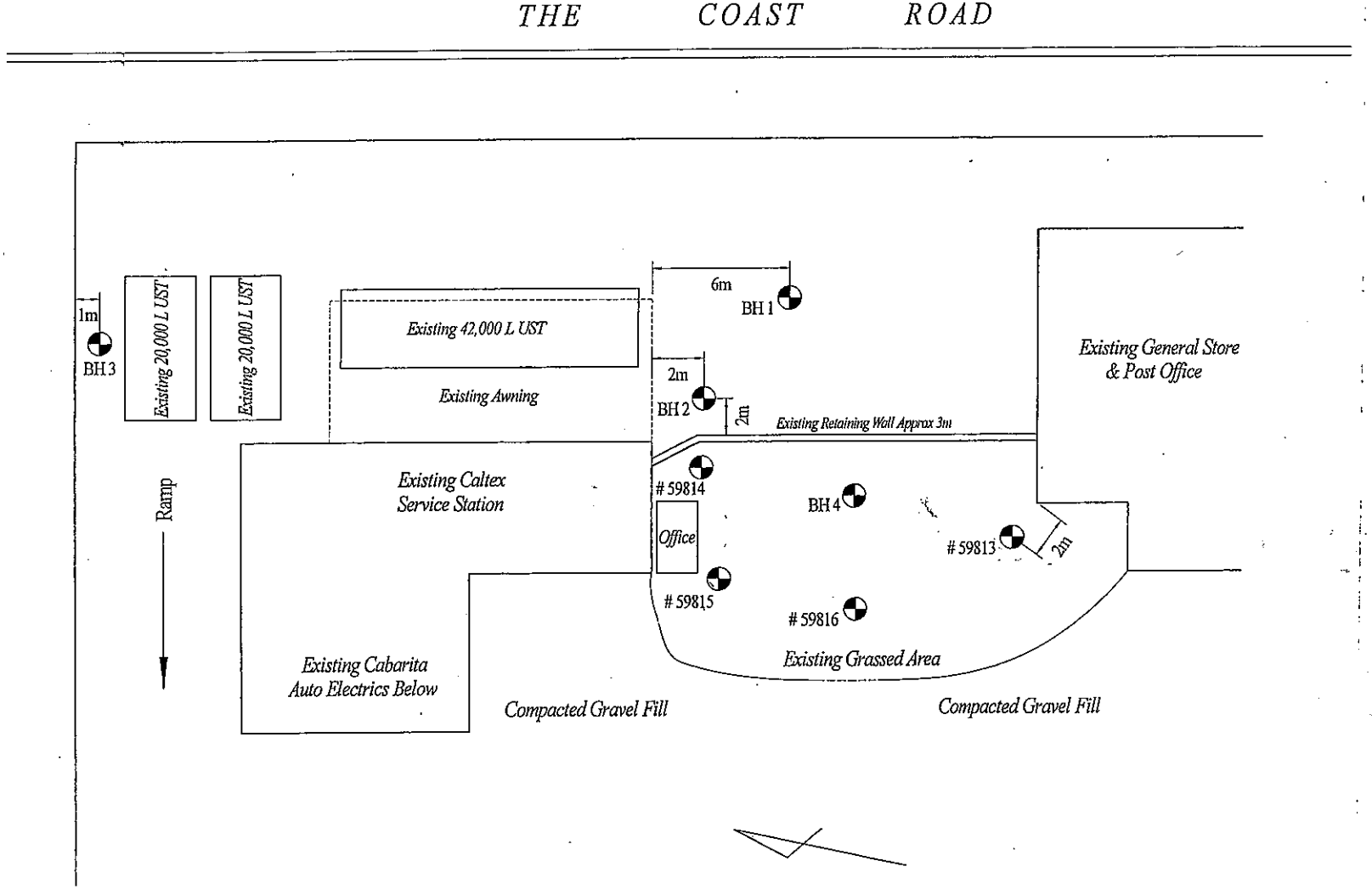
Service Station Sites: Assessment and Remediation (2002). Environment Protection Authority, Chatswood, NSW.

Should you require any further information or clarification please do not hesitate to contact the undersigned at this office.

Yours faithfully
For and on behalf of
BORDER - TECH

David Bayel
Environmental Scientist

Appendix 1. Site Plan and Borelogs



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Client

Cabarita Property Investments

Project

Contamination Assessment at
Cabarita Beach Service Station
Lot 22 on DP 31208
The Coast Road, Cabarita Beach

Job Number : BT 14292
Figure Number : 1 of 1

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Drawn By	D.B.
Scale	n/a
Do Not Scale - Printed Dimensions Only	