



**AMBER VALLEY
BOROUGH COUNCIL**

Remediation Statement.

Environmental Protection Act 1990.

**Crays Hill Recreation Ground, Crays Hill, Leabrooks,
Derbyshire.**

Environmental Protection Act 1990, Section 78H(7).

**Remediation Statement for Crays Hill Recreation Ground,
Crays Hill, Leabrooks, Derbyshire.**

Prepared by Amber Valley Borough Council.

**The Contaminated Land (England) Regulations 2000 SI2000/227,
The Contaminated Land (England) (Amendment) Regulations 2001
SI2001/663.**

This Remediation Statement has been prepared by Amber Valley Borough Council (AVBC) in relation to Contaminated Land identified under section 78B of the Environmental Protection Act 1990 (the 1990 Act).

The location and extent of the Contaminated Land to which this Remediation Statement relates (the Land) are set out in Schedule 1.

AVBC as the enforcing authority for the Land, is precluded by section 78H(5)(c) of the 1990 Act from serving a Remediation Notice, and has therefore prepared this Remediation Statement in accordance with section 78H(7).

The things which are expected to be done by way of remediation and the time period within which each of these things are expected to be done are set out in Schedule 2.

Particulars of the substances and the Significant Harm by reason of which the Land is Contaminated Land are set out in Schedule 3.

The current use of the land is public accessible open space. The former uses of the site include a colliery yard, storage facility, and landfill for inert and domestic wastes.

The name and address of the person who is expected to do each of the things set out in Schedule 2 of the Remediation Statement by section 78H(7)(b) are:

Amber Valley Borough Council.
Environmental Services.
PO Box 17.
Town Hall.
Ripley.
Derbyshire.
DE5 3TU.

Any communications should be directed to the Contact Name given below.

Signature and Position of Person Issuing the Statement on Behalf of AVBC:

Signed.....**Printed**.....

Position...Director of Environmental Services.....**Date**.....13th July 2005.....

The Contact Name for the Purposes of this Remediation Statement is:

Name.....Darren Hurst.....**Position**..... Scientific Officer.....

Schedule 1.

Location and Extent of Contaminated Land to which this Remediation Statement Relates.

The location and extent of the Contaminated Land to which this Remediation Statement relates is known as the Crays Hill Recreation Ground (National Grid Reference for the site centre SK417 530), Crays Hill, Leabrooks, Derbyshire. The boundary of the site that this Remediation Statement relates to is the same as the boundary that the Determination, dated 02nd November 2004, relates to; see Figure 1, area Determined is yellow, Remediation Statement Boundary is blue.

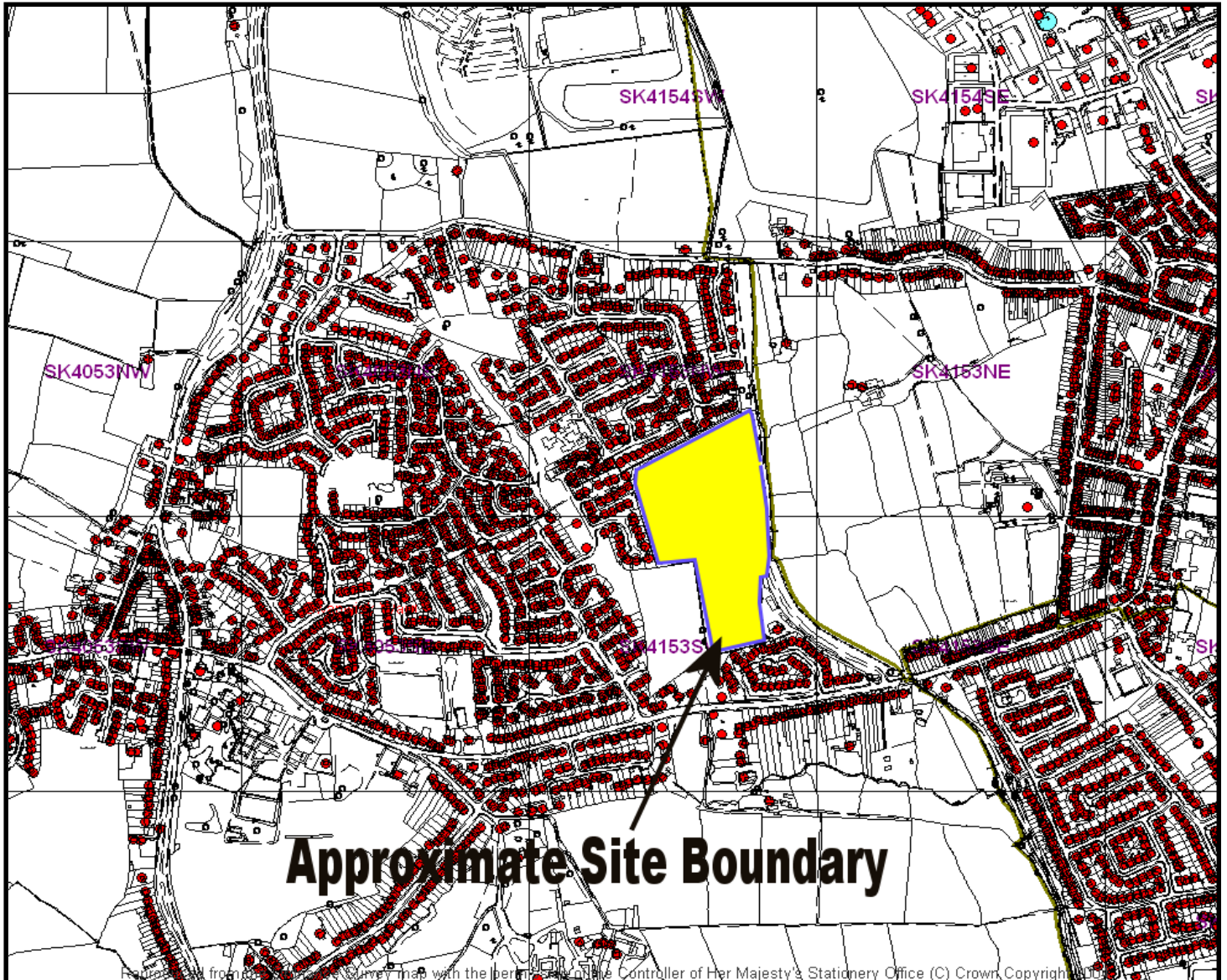


Figure 1. Site Location Plan

A more detailed plan is included in appendix 1.

Schedule 2.

Remediation Requirements and Periods section 78H(7)(a) & (c).

Remediation Actions.

No Assessment Actions are required. Sufficient information to characterise the Pollutant Linkage, decide on Remedial Objectives; and establish the technical specification and design of the Remedial Treatment Actions, was provided by the following investigations:

- **Phase I Desk Study/Spike survey (February 2000)** - Ground Solutions Group Limited.
- **Phase II Survey (September 2000)** - Ground Solutions Group Limited.
- **Phase III Investigation (February 2001)** - Ground Solutions Group Limited.
- **Site Characterisation, (March 2004)** - GeoDyne Limited.
- **Landfill Gas Detailed Quantitative Risk Assessment (August 2004)** - GeoDyne Limited.

As detailed in the Determination, dated 2nd November 2004.

Remedial Treatment Actions.

The Remedial Treatment Actions listed below have been considered appropriate to break the Significant Pollutant Linkage upon which the Determination was based, in the area defined in Schedule 1; considering Best Practical Technique (BPT) as specified by paragraph C19 of the Statutory Guidance Circular 02/2000.

1. The following Remedial Treatment Action is required to ensure that the Pollutant Linkage to offsite residencies is broken.

Installation of a Virtual Curtain at the site has been commissioned. The system involves the installation of vent nodes along the boundary of the site. The nodes will intercept the migration path of the methane to the nearby residencies. The nodes will create a low resistance route to atmosphere, and therefore significantly reduce the lateral migration of methane beyond the system. The Virtual Curtain will effectively remove the Pathway component of the Significant Pollutant Linkage.

The system involves the installation of vent nodes along the northern and western boundary of the site. The western boundary will have steel vent stacks terminating at 4m above ground level, at 24m centres. The northern boundary will have bunker vents constructed at 6m centres. The vent nodes will feed into a collection and dilution duct laid 1.0m below ground level, which connects the vent nodes to the nearest vent stacks, via ventilation pipes.

Methane will pass via the vent nodes into the collection and dilution duct, on to the ventilation pipes before dispersing to atmosphere via the vent stacks (see Fig. 2).

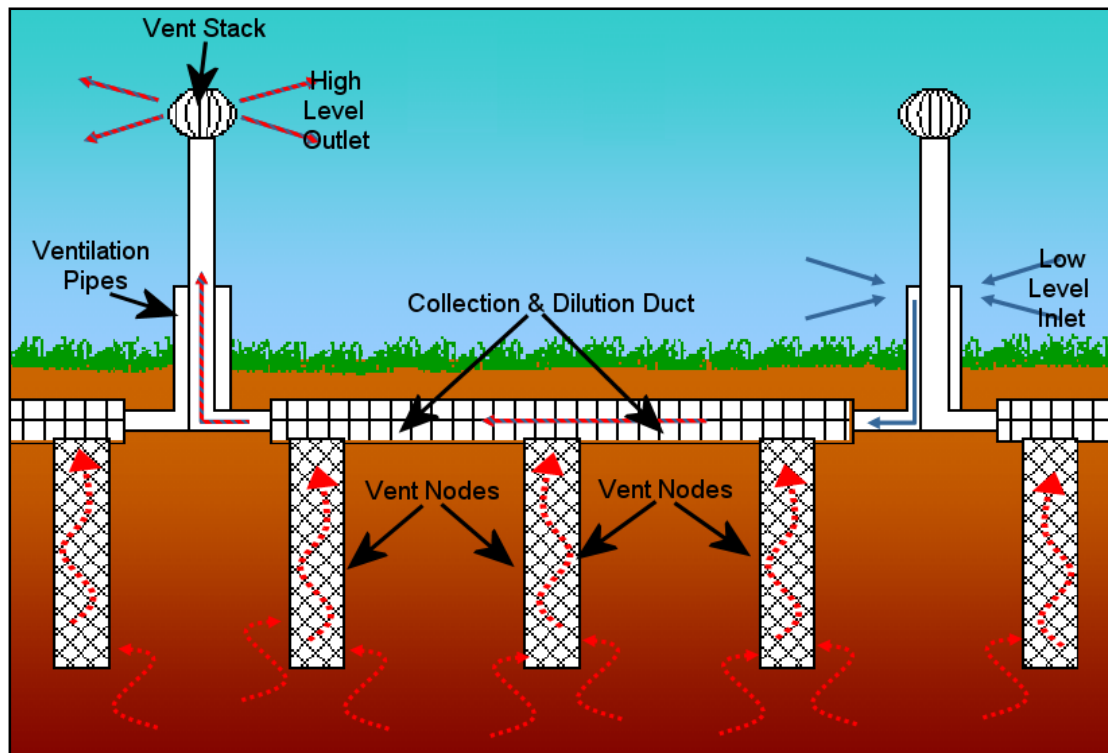


Figure 2. Simplified Diagram of the Virtual Curtain System

The Virtual Curtain will be installed by:

- I. Excavation of a shallow trench (approximately 1.0 bgl) along the northern and western boundary of the site.
- II. Any waste material unearthed to be stockpiled and sent to an appropriately licensed waste management facility.
- III. A 360° Excavator fitted with a hydraulic vibrating hammer will be used to create a void in the base of the shallow trench. On the western boundary this will be at 2.0m (approximately) centres. Two shallow trenches (offset 10m & 5m from boundary) and therefore rows of vent nodes will be constructed along the northern boundary, with 3.0m centres offset on each row, creating an effective 1.5m (approximately) centres.
- IV. A vent node will be lowered into each void, to an average depth of 4m.
- V. The vent nodes will then be connected via the placing of a geo-cellular vent boxes, connected and wrapped to form collection and dilution ducts.
- VI. The geo-cellular collection and dilution duct will be laid to form 24m (average) sections.
- VII. On the western boundary:
- VIII. Combined inlet/outlet Vent stacks will be installed at (approximately) 24m centres and connected to the collection and dilution duct by 150mm diameter twin-wall collector pipes.
- IX. On the northern Boundary:
 - X. The collection and dilution duct will be connected, via 150mm diameter twin-wall collector pipes, to ground-level vents.
 - XI. Air inlet to the northern boundary system will be via bunker air inlets installed within the embankment and connected via 225mm diameter pipes.
 - XII. All trenches will then be back filled, cowls fitted to stacks and vent pipes painted.

The installation of the Virtual Curtain will commence and be completed between April 2005 and the end of June 2005.

Monitoring Actions.

The Monitoring Actions listed below have been considered appropriate to provide validation of the break in the Significant Pollutant Linkage upon which the Determination was based, in the area defined in Schedule 1; considering Best Practical Technique (BPT) as specified by paragraph C19, and Quality Assurance (QA) as required by C25 of the Statutory Guidance Circular 02/2000. The Monitoring Action will also provide a mechanism for reviewing the need for additional assessment or remediation.

2. The following Monitoring Action is required to ensure that Remedial Treatment Actions have been successful and the Pollutant Linkage to offsite residencies has been broken.

A series of ten boreholes will be constructed to provide monitoring wells; five monitoring wells will be sited along the base of the embankment on the northern boundary, with the remaining five along the western boundary (see appendix 2).

Monitoring will be conducted by using a hand held (GA45+) gas monitoring device. The Substance identified in the Significant Pollutant Linkage (methane) will be monitored, along with carbon dioxide, oxygen and gas flow; during monthly monitoring visits. The monitoring period is planned for an initial 12 month duration, with monthly reports being assessed and supplied to AVBC.

To ensure Quality Assurance, in accordance with C25 of the Statutory Guidance Circular 02/2000, calibration records for the GA25+ will be included in the reports. The Monitoring Action will be conducted with due regard to the following guidance:

BS 10175:2001 ***Investigation of Potentially Contaminated Sites – Code of Practice.*** BSI.

BS 5930:1999 ***Code of Practice for Site Investigation.*** BSI.

P5-065/TR ***Technical Aspects of Site Investigation and Procedures for Soil Sampling Strategies.*** Environment Agency.

At the end of the 12 month monitoring period a report will be supplied to AVBC which will interpret and assess the findings of the monitoring in accordance with CIRIA 152 *Risk Assessment for Methane and other Ground Gasses*. Recommendations for further assessment, monitoring or remediation will also be made.

The Monitoring Action will be undertaken by:

GeoDyne Limited
Church Lane
Thrumpton
Nottinghamshire
NG11 0AX

Any communications should be directed to the Contact Name given on Page 1.

Responsibility for ensuring this Monitoring Action will be undertaken as described will remain with the person identified as expected to do each of the things set out in

Schedule 2 of the Remediation Statement by section 78H(7)(b), on the first page of this Remediation Statement.

The installation of the Monitoring Wells will commence and be completed between April 2005 and the end of June 2005. Monitoring will commence by July 2005.

Schedule 3.

Particulars of Significant Harm, and Particulars of Substances.

Table 1. Particulars of Significant Harm, and Particulars of Substances.

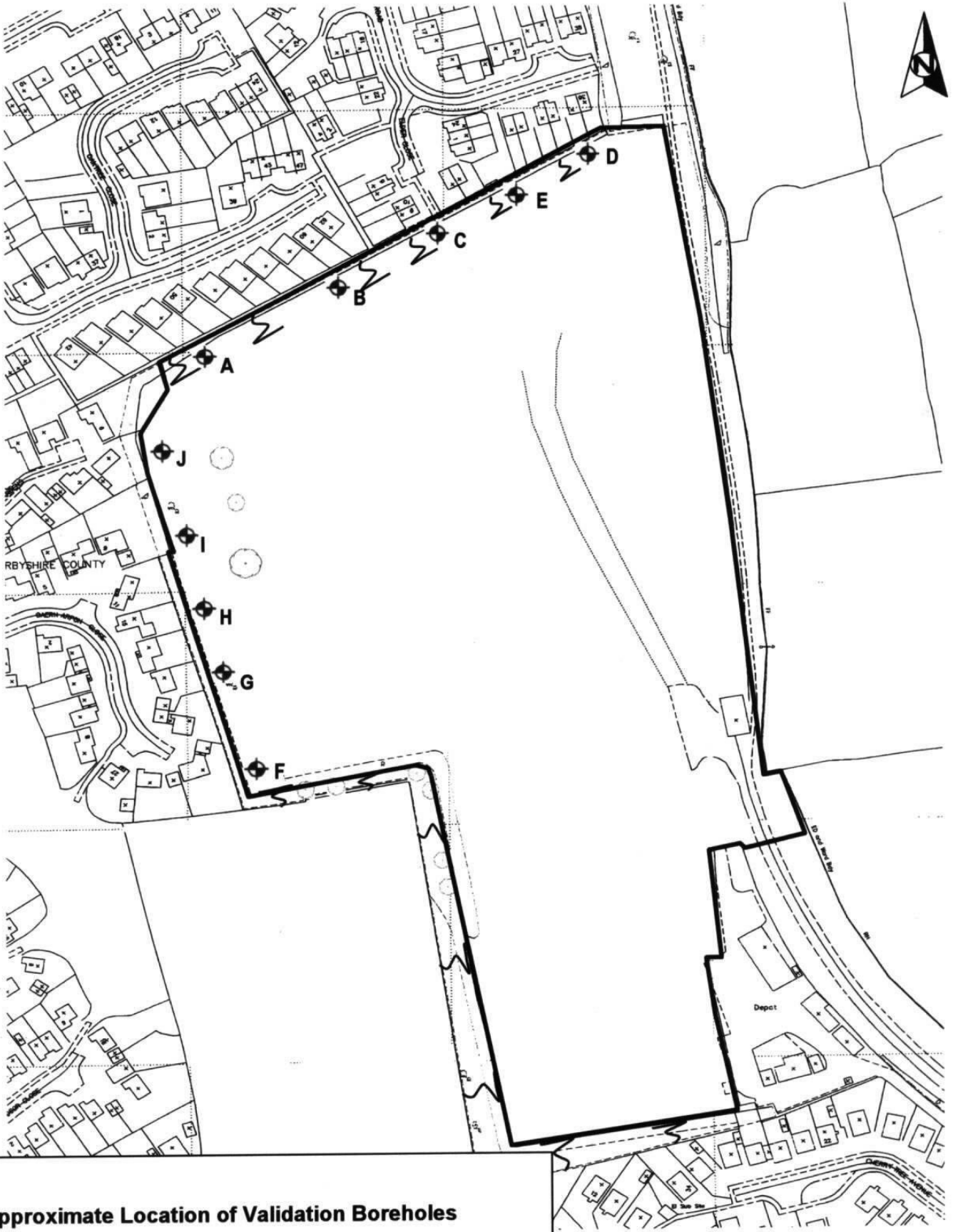
<u>Substance</u>	<u>Source Location</u>	<u>Pathway</u>	<u>Receptor</u>	<u>Receptor Location</u>	<u>Description of Significant Harm</u>
Methane (originating from landfilled materials)	As described in Schedule 1; The location and extent of the Source is known as the Crays Hill Recreation Ground (National Grid Reference for the site centre SK417 530), Crays Hill, Leabrooks, Derbyshire	Subsurface migration, to confined spaces in nearby residencies via, shallow made ground/fill material. Deep migration via coal measures is limited by the presences of mudstones.	Human beings.	Residencies to the north and west of the site source site boundary.	Using CIRIA R152, an unacceptable event frequency, has been identified, which satisfies the conditions of identifying a <i>significant possibility of significant harm</i> , as set out in Table B, Chapter A, Part 3, for <i>human health effects, particularly by way of explosion or fire</i> , of the <i>Statutory Guidance</i> .

Appendix 1

Detailed Location Plan.

Appendix 2

Monitoring Wells Location Plan.



KEY



Approximate Location of Validation Boreholes