Remedial Validation Report
St Neots Mobile Home Park
Eynesbury
Cambridgeshire

Prepared for:

Huntingdonshire District Council
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Appendices *Records from Remedial Contractor (Wrekin)*
(All appendices saved as individual files on CD)

1 INTRODUCTION

On 16th February 2006, Environmental Protection Strategies Ltd (EPS) was appointed by Huntingdonshire District Council (HDC) as the Environmental Consultant to the Mobile Home Park, Eynesbury – Contaminated Land Remediation Strategy and Associated Works.

The principal roles of EPS within the project team were as follows:

- Undertake sufficient additional soil sampling and analysis to enable the Regulator to determine whether the site should be determined as Contaminated Land as defined within Part IIa of the Environmental Protection Act 1990
- Undertake a Remedial Options Appraisal and produce a Remediation Strategy & Implementation Plan
- Produce a full specification and supervision of the remedial work
- Implement an agreed validation strategy and produce a Remedial Validation Report

For the purposes of the validation sampling work described within the following report, the physical extent of the land to be investigated has been defined as the physical land within the boundaries of each of the 50 individual plots which make up St Neot's Mobile Home Park.

1.1 Previous Reports

The following previous reports have been produced prior to this Remedial Validation Report and should be referred to for details on environmental setting, site characterisation and basis and selection of remedial approach, which have not been reproduced within this report.

- *Environmental Assessment Report, St. Neots Mobile Home Park – 30th September 2005*
- *Additional Soil Sampling, St. Neots Mobile Home Park – 26th April 2006*
- *Remedial Options Appraisal, Remediation Strategy and Implementation Plan, St. Neots Mobile Home Park – 16th May 2006*
- *Method Statement, Remedial Validation, St. Neots Mobile Home Park – 20th December 2006*

The tasks agreed through the Remedial Validation Method Statement produced by EPS prior to commencement of the remedial works, along with the responsible party is outlined below:

Task	Description	Responsible Party
1	Provide appropriate certification demonstrating that cover materials meet the required quality standards will be provided by suppliers prior to all cover materials being imported to site	Wrekin
2	Once the remedial excavation has been completed at each plot, photographs to be taken by the remedial contractor (Wrekin) with a measuring staff to document the depth of excavation, prior to placement of cover materials	Wrekin

3	Upon completion of remedial works at each block of 5 plots, the depth of cover materials to be validated using a hand auger at a minimum of two locations at each plot.	EPS
4	Obtained two representative samples of cover material from each block of five plots to be submitted to an MCERT accredited laboratory for analysis of speciated Polycyclic Aromatic Hydrocarbons (PAH) and metals.	EPS
5	Maintain a record of all remedial works undertaken at each plot through the Wrekin internal Quality Assurance programme which is certified to ISO 9001	Wrekin
6	Collect copies of all certification provided by suppliers of cover materials, photographic records and copies of the Wrekin QA sheets which will be provided to Environmental Protection Strategies Ltd (EPS) for inclusion within the Remedial Validation Report	Wrekin
7	Produce a Remedial Validation Report for submission to all parties	EPS

1.2 Objectives

The principal objectives of this remedial validation work are as follows:

- To validate the 0.6m thickness of clean cover material provided to forty seven individual plots in St Neots Mobile Home Park installed by the remedial contractor (Wrekin).
- Validate clean cover material is of appropriate quality through sampling and laboratory analysis of selected soil samples.

1.3 Scope of Work

The following tasks were completed by EPS as part of this work:

Site Work:

- Drilling of 94 boreholes by hand auger within domestic garden areas to ascertain thickness of clean cover material and depth of membrane.
- Selection of representative samples of clean cover at a minimum rate of two samples from blocks of 5 plots.
- Laboratory analysis of selected soil samples for Metals and Polycyclic Aromatic Hydrocarbons (PAH).

Reporting:

- Data collection and interpretation
- Reporting

2 SUMMARY OF INVESTIGATIONS

The validation sampling work was undertaken over a number of site visits in accordance with progress made by Wrekin. Validation sampling visits were completed on 2nd February, 14th February, 27th February, 4th April, 3rd May and 22nd May 2007.

2.1 Sampling Locations

In accordance with the agreed Remedial Method Statement, two hand auger boreholes were drilled at each plot following installation of the clean cover in order to determine thickness of clean cover material and depth to the membrane. Locations were selected at each plot with the following considerations:

- To assess cover system thickness and quality in areas where exposure routes were considered to be currently most active / prominent – e.g. vegetable growing areas, flower beds, grassed areas etc
- To provide good coverage of the plot area
- To take due consideration of below ground services and amenities

Two soil samples (from 0-0.6m below ground level) were obtained from up to every five plots which also aimed to provide a representative coverage of the area.

The location of all sampling locations are shown on individual plot plans provided as Figure 1.

2.2 Sampling Methodology

All shallow soil samples were obtained in an identical manner in accordance with the sampling protocol agreed for previous work at the site with Mr Adrian Beeching, Senior Environmental Protection Officer of HDC, as follows:

- Make a sketch of the plot identifying basic plot configuration, including location of mobile home, ground cover type (i.e. concrete hard standing, paving, grass etc) and identify all previously agreed sampling locations.
- Ensure a safe drilling location at each location through inspection of service plans, identification of the entry points of mobile home services, testing for buried cables using a Cable Avoidance Tool (CAT).
- When validating cover thickness, drill down to the membrane using a hand auger and log final thickness of cover and depth of membrane.
- When soil sampling, drill to a depth of 600mm using a hand auger in increments of up to 200mm, placing all arising material within a plastic sample bag and mixing well.
- Brush and wipe down hand auger prior to drilling at next location.

2.3 Laboratory Analysis

All soil samples were submitted to Chemex Environmental International Ltd (Chemex) of Cottenham, Cambridge for analysis of Metals and PAH. Chemex hold full MCERTS accreditation

for the required testing. Samples were transported to the laboratory by the supervising EPS engineer.

Copies of chain of custody documentation are held by EPS and will be made available on request as can original signed laboratory reports.

3 SUMMARY OF FINDINGS

3.1 Nature of Cover Materials

Ground conditions varied depending on the proposed end land use, however details of cover materials are given below:

Cover Material	Description
Gravel	Almost half of the pots were surfaced with gravel, this consisted of a well sorted, coarse, angular gravel overlying a membrane
Topsoil	Imported topsoil consisted of a uniform silty clay loam in areas of grass cover and planting
Subsoil	Subsoil consisting of a well sorted, coarse yellow orange to orange brown sand was present beneath gravel and topsoil cover overlying a geotextile membrane

3.2 Thickness of Cover

With the exception of plots 21 and 36, all plots were noted to have at least 0.6m of clean cover material and in some cases this was exceeded by up to 0.2m. Boreholes from plots 21 and 36(HA2) showed there to be less than 0.6m of clean cover material, however in both of these locations clean topsoil extended to a hard subsurface obstruction and only sand and/or clean topsoil was encountered in the boreholes.

The presence of a geotextile membrane was noted below clean cover material in almost all the samples, however where it was not noted coincided with the presence of a hard subsurface obstruction at or around 0.6mbgl. In such cases it was assumed that the membrane was present but not able to be picked up with the hand auger.

Where hard sub-surface obstructions were encountered it was deemed to be an appropriate barrier from potentially contaminated soils that may lie below and fulfil the requirements of the cover system.

A full breakdown of the thicknesses of cover material encountered at each borehole location is provided as Table 1.

3.3 Quality of Cover

3.3.1 Metals

Of the 47 plots validated and the 94 boreholes taken, 22 samples were submitted for metals analysis, the results of this analysis are presented as Table 2.

None of the concentrations of metals exceeded relevant published Soil Guideline Values (SGVs) for metals. In the absence of SGVs reference was made to; 'Generic Assessment Criteria for Human Health Risk Assessment - Land Quality Management/Chartered Institute of Environmental Health (LQM/CIEH) 2007'. None of the reported metals concentrations for the 22 samples analysed were found to exceed the relevant Generic Assessment Criteria for residential gardens with plant uptake.

3.3.2 Polycyclic Aromatic Hydrocarbons (PAH)

Of the 47 plots validated and the 94 boreholes taken, 22 samples were submitted for PAH analysis, the results of this analysis are presented as Table 3.

The reported total concentrations of Polycyclic Aromatic Hydrocarbons (PAH) ranged from below laboratory detection limits (in a number of samples) to 6.86mg/kg (P15/HA1 0-0.6mbgl). The PAH compound benzo(a)pyrene (BAP) was found at a maximum concentration of 0.4mg/kg (also in P15/HA1 0-0.6m). This was shown to be below both the LQM/CIEH Generic Assessment Criteria figure of 1.12mg/kg and also the site-specific remedial target of 2.4mg/kg for residential land use with plant uptake as set by the regulator (Huntingdonshire District Council).

3.4 Contractor Records

Records relating waste management/transfer, imported materials and photographic record were collated and maintained by Wrekin, the Remedial Contractor throughout the duration of the project. Copies of this documentation were subsequently provided to EPS as part of the Project Health & Safety File upon completion of the work, relevant sections of which have been included as appendices to this report as follows:

Appendix A	Waste Carriers Licence
Appendix B	Waste Management Licences
Appendix C	Waste Acceptance Testing Criteria
Appendix D	Controlled Waste Transfer Notes
Appendix E	Imported Material Tests
Appendix F	Photographic Record

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4 CONCLUSIONS

It has been concluded through this validation soil sampling exercise that an appropriate cover system, in terms of thickness, nature and quality, has been installed by the remedial contractor at the St Neots Mobile Home Park, Eynesbury.

FIGURES

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Key

HA1 — Hand Augre Location (Sample Obtained)

HA1 — Hand Auger location (Not Sampled)

Fig: 1

Title: **Site Plan Showing Numbered Plots and Hand Auger Locations**

Project: St Neots Mobile Home Park

Client: HDC

Scale:	NTS
Drawn By:	RA
Job No:	UK06.0250b
Dwg No:	HDC/EMHP/0707/01
Date:	July 2007

Environmental Protection Strategies Ltd

TABLES

Table 1 – Plot Cover Thickness

Plot#/HA#	Thickness (mbgl)	Cover Materials
1/1	0-0.3	Topsoil with some very fine gravel
	0.3-0.57	Compacted soil with some carbonaceous material
	0.57-0.6	Clayey layer to hard base
1/2	0-0.3	Clean topsoil
	0.3-0.65	Yellow orange sand to membrane
2/1	0-0.3	Clean topsoil
	0.3-0.68	Yellow orange sand to membrane (wet at base)
2/2	0-0.08	Gravel to membrane
	0.08-0.68	Orange brown sand to membrane (wet at base)
3/1	0-0.2	Clean topsoil
	0.2-0.6	Orange yellow sand to membrane
3/2	0-0.2	Clean topsoil
	0.2-0.65	Orange yellow sand to membrane
4/1	0-0.06	Gravel to membrane
	0.06-0.66	Orange sand to membrane (wet at base)
4/2	0-0.05	Gravel to membrane
	0.05-0.61	Orange sand with orange streaks to membrane
5/1	0-0.05	Gravel to membrane
	0.05-0.65	Orange brown sand to membrane (wet at base)
5/2	0-0.1	Gravel to membrane
	0.1-0.7	Orange brown sand with orange streaks to membrane (wet at base)
6/1	0-0.05	Gravel to membrane
	0.05-0.65	Brown sand with orange and grey streaks to membrane (wet at base)
6/2	0-0.05	Gravel to membrane
	0.05-0.65	Brown sand with grey streaks to membrane
7/1	0-0.2	Clean topsoil
	0.2-0.65	Yellow orange sand to membrane
7/2	0-0.05	Gravel to membrane
	0.05-0.65	Yellow sand with grey streaks to membrane
8/1	0-0.05	Gravel to membrane
	0.05-0.75	Orange brown sand to membrane
8/2	0-0.05	Gravel to membrane
	0.05-0.65	Orange brown sand to membrane
9/1	0-0.1	Gravel to membrane
	0.1-0.7	Orange brown sand to membrane
9/2	0-0.12	Gravel to membrane with some soil dust on top
	0.12-0.6	Orange brown sand to membrane
10/1	0-0.3	Clean topsoil (wet)
	0.3-0.6	Yellow orange sand to membrane
10/2	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane

Table 1 – Plot Cover Thickness (continued)

Plot#/HA#	Thickness (mbgl)	Cover Materials
11/1	0-0.4	Clean topsoil
	0.4-0.6	Yellow orange sand to membrane
11/2	0-0.2	Clean topsoil
	0.2-0.75	Yellow orange sand to membrane
12/1	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
12/2	0-0.05	Gravel to membrane
	0.05-0.7	Yellow orange sand to membrane
13/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
13/2	0-0.3	Clean topsoil
	0.3-0.65	Yellow orange sand to membrane
14/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane (wet at base)
14/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
15/1	0-0.6	Clean topsoil to membrane
15/2	0-0.6	Clean topsoil with some carbonaceous material to membrane
16/1	0-0.6	Clean topsoil with some carbonaceous material to membrane
16/2	0-0.6	Clean topsoil to membrane
17/1	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
17/2	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
18/1	0-0.25	Clean topsoil
	0.25-0.6	Yellow orange sand to membrane
18/2	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
19/1	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
19/2	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
20/1	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
20/2	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
21/1	0-0.3	Clean topsoil to hard base
21/2	0-0.2	Clean topsoil
	0.2-0.5	Sand to hard base (wet at base)
22/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane

Table 1 – Plot Cover Thickness (continued)

Plot#/HA#	Thickness (mbgl)	Cover Materials
22/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
23/1	0-0.2	Clean topsoil with some small brick pieces & carbonaceous material
	0.2-0.6	Yellow orange sand to membrane
23/2	0-0.2	Clean topsoil with some small brick pieces & carbonaceous material
	0.2-0.6	Yellow orange sand to membrane
24/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
24/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
25/1	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
25/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
26/1	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
26/2	0-0.3	Clean topsoil with some small brick pieces & carbonaceous material
	0.3-0.6	Yellow orange sand to membrane
27/1	0-0.05	Gravel to membrane
	0.05-0.25	Clean topsoil
	0.25-0.65	Yellow orange sand to membrane
27/2	0-0.05	Gravel to membrane
	0.05-0.6	Yellow orange sand to membrane
28/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
28/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
29/1	0-0.1	Turf
	0.1-0.3m	Clean topsoil
	0.3-0.7	Yellow orange sand (wet at base)
29/2	0-0.06	Gravel to membrane
	0.06-0.66	Yellow orange sand to membrane and hard base
31/1	0-0.1	Gravel to membrane
	0.1-0.7	Yellow orange sand to membrane
31/2	0-0.07	Gravel to membrane
	0.07-0.72	Yellow orange sand to membrane
32/1	0-0.06	Gravel to membrane
	0.06-0.66	Yellow orange sand to membrane
32/2	0-0.06	Gravel to membrane
	0.06-0.66	Yellow orange sand to membrane (wet at base)

Table 1 – Plot Cover Thickness (continued)

Plot#/HA#	Thickness (mbgl)	Cover Materials
33/1	0-0.05	Gravel to membrane
	0.05-0.75	Yellow orange sand to membrane
33/2	0-0.15	Gravel to membrane
35/1	0-0.3	Clean topsoil
	0.3-0.65	Yellow orange sand to membrane
35/2	0-0.3	Clean topsoil
	0.3-0.65	Yellow orange sand to membrane
36/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
36/2	0-0.2	Clean topsoil
	0.2-0.55	Yellow orange sand to hard base
37/1	0-0.05	Gravel to membrane
	0.05-0.62	Yellow orange sand to hard base
37/2	0-0.07	Gravel to membrane
	0.07-0.67	Yellow orange sand to membrane
38/1	0-0.05	Gravel to membrane
	0.05-0.25	Clean topsoil
	0.25-0.7	Yellow orange sand to membrane
38/2	0-0.1	Gravel to membrane
	0.1-0.75	Yellow orange sand to membrane
39/1	0-0.05	Gravel to membrane
	0.05-0.25	Clean topsoil
	0.25-0.7	Yellow orange sand to membrane
39/2	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
40/1	0-0.1	Gravel to membrane
	0.1-0.75	Yellow orange sand to membrane
40/2	0-0.4	Clean topsoil
	0.4-0.8	Yellow orange sand to membrane
41/1	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
41/2	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane
42/1	0-0.2	Clean topsoil
	0.2-0.6	Orange sand to membrane (wet at base)
42/2	0-0.2	Clean topsoil
	0.2-0.6	Orange sand to membrane (wet at base)
43/1	0-0.1	Gravel to membrane
	0.1-0.7	Yellow orange sand to membrane

Table 1 – Plot Cover Thickness (continued)

Plot#/HA#	Thickness (mbgl)	Cover Materials
43/2	0-0.1	Turf
	0.1-0.3	Clean topsoil
	0.3-0.7	Yellow orange sand to membrane
44/1	0-0.3	Clean topsoil
	0.3-0.6	Orange yellow sand to membrane
44/2	0-0.1	Gravel to membrane
	0.1-0.6	Orange sand to membrane
45/1	0-0.1	Turf
	0.1-0.4	Clean topsoil
	0.4-0.8	Yellow brown sand to membrane
45/2	0-0.1	Turf
	0.1-0.4	Clean topsoil
	0.4-0.7	Yellow orange sand to hard base
46/1	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
46/2	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
47/1	0-0.3	Clean topsoil
	0.3-0.6	Yellow orange sand to membrane
47/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
48/1	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
48/2	0-0.2	Clean topsoil
	0.2-0.6	Yellow orange sand to membrane
49/1	0-0.6	Gravel to membrane
	0.06-0.61	Yellow orange sand to membrane
49/2	0-0.05	Gravel to membrane
	0.05-0.65	Yellow orange sand to membrane

Table 2 – Metals Results - SOIL (mg/kg)

Plot#/HA#	CLEA SGV*	1/1	3/1	5/1	7/1	10/1	11/2	14/2	15/2	16/2	22/1	23/2
Sample Depth (mbgl)		0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6
Arsenic	20	9.98	8.87	5.87	9.70	13.5	8.82	9.35	11.0	11.5	6.15	5.78
Cadmium	1	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	0.31	0.44	< 0.25	< 0.25
Chromium	130	12.9	12.6	7.82	13.0	19.9	14.4	15.5	23.2	24.7	8.30	8.81
Copper	111†	8.76	7.70	1.98	7.46	12.4	7.85	17.7	32.2	31.2	14.2	15.8
Lead	450	12.2	9.07	4.73	10.6	15.4	16.5	78.6	140	107	50.1	59.6
Mercury	8	0.11	0.14	< 0.10	0.11	< 0.10	< 0.10	0.17	0.36	0.29	0.15	0.24
Nickel	50	9.79	7.89	3.07	9.47	17.3	12.1	14.2	18.3	19.8	11.2	11.4
Selenium	35	< 1.01	< 1.01	< 0.99	< 1.00	< 1.00	< 0.99	< 1.00	< 0.99	< 1.01	< 1.01	< 1.00
Zinc	330†	26.8	21.4	11.3	24.6	33.9	28.2	82.4	184	154	55.3	69.2

Notes:
* = UK Soil Guideline Value for residential land use with plant uptake.
† = Generic Assessment Criteria for Human Health - Land Quality Management Chartered Institute of Environmental Health - Generic Assessment Criteria Value for Residential With Plant Uptake
A '<' symbol indicates that the analyte was not found above the minimum laboratory detection limit shown, which is specified by the sample preparation method

Table 2 (continued) – Metals Results - SOIL (mg/kg)

Plot#/HA#	CLEA SGV*	25/2	26/2	29/1	32/1	35/2	36/2	40/2	42/1	44/1	46/1	48/2
Sample Depth (mbgl)		0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6
Arsenic	20	6.07	8.08	11.3	5.17	10.1	9.17	8.77	11.3	11.2	7.77	8.83
Cadmium	1	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Chromium	130	11.9	16.1	17.8	7.54	14.0	12.6	11.3	16.5	16.8	13.6	16.0
Copper	111†	12.5	16.4	12.8	2.55	7.29	6.77	6.87	8.52	10.0	12.8	15.8
Lead	450	34.5	66.1	22.8	4.26	9.31	9.93	11.5	11.0	13.0	29.5	39.3
Mercury	8	0.25	0.16	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12	0.16
Nickel	50	10.1	12.7	14.2	4.78	11.8	11.0	9.81	14.1	14.7	10.8	12.7
Selenium	35	< 0.98	< 0.99	1.24	< 1.00	1.26	2.03	1.33	< 1.01	< 1.01	1.17	1.25
Zinc	330†	54.4	79.0	45.9	9.55	21.2	22.5	21.7	26.6	29.5	45.9	67.7

Notes:
* = UK Soil Guideline Value for residential land use with plant uptake.
† = Generic Assessment Criteria for Human Health - Land Quality Management Chartered Institute of Environmental Health - Generic Assessment Criteria Value for Residential With Plant Uptake
A '<' symbol indicates that the analyte was not found above the minimum laboratory detection limit shown, which is specified by the sample preparation

Table 3 - Polycyclic Aromatic Hydrocarbons (PAH) Results - SOIL (mg/kg)

Plot#/HA#	**1/2**	**3/2**	**5/1**	**7/1**	**10/1**	**11/2**	**14/2**	**15/1**	**16/2**	**22/1**	**23/2**
Sample Depth (mbgl)	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6
Naphthalene	-	-	-	-	-	-	-	-	0.062	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	0.1	0.31	0.26	0.44	0.082
Anthracene	-	-	-	-	-	-	-	-	-	0.055	-
Fluoranthene	-	-	-	-	0.19	0.12	0.29	0.86	0.7	0.83	0.22
Pyrene	-	-	-	-	0.17	0.1	0.22	0.58	0.46	0.66	0.17
Benzo[a]anthracene	-	-	-	-	-	-	-	0.31	0.23	0.33	0.1
Chrysene	-	-	-	-	0.1	-	-	0.43	0.34	0.39	0.15
Benzo[b]fluoranthene	-	-	-	-	-	-	-	1.1	1.1	0.39	0.26
Benzo[k]fluoranthene	-	-	-	-	-	-	-	0.68	0.69	0.33	0.16
Benzo[a]pyrene	-	-	-	-	-	-	-	0.4	-	0.15	-
Indeno[1,2,3cd]pyrene	-	-	-	-	-	-	-	0.81	0.85	0.28	0.16
Dibenz[a,h]anthracene	-	-	-	-	-	-	-	0.26	-	-	-
Benzo[g,h,i]perylene	-	-	-	-	-	-	-	0.72	0.72	0.24	0.14
Total PAH	-	-	-	-	**0.46**	**0.22**	**1.832**	**6.46**	**5.412**	**4.095**	**1.442**

Note: A '-' symbol indicates that the analyte was not found above the minimum laboratory detection limit, which is specified by the sample preparation method.

Table 3 (continued) - Polycyclic Aromatic Hydrocarbons (PAH) Results - SOIL (mg/kg)

Plot#/HA#	**25/2**	**26/2**	**29/1**	**32/1**	**35/2**	**36/2**	**40/2**	**42/1**	**44/1**	**46/1**	**48/2**
Sample Depth (mbgl)	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6
Naphthalene	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	0.029	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	0.22	0.14	0.043	-	-	-	-	-	-	0.38	0.12
Anthracene	0.023	0.028	-	-	-	-	-	-	-	0.08	-
Fluoranthene	0.39	0.37	0.13	-	-	-	0.042	-	-	0.68	0.27
Pyrene	0.28	0.27	0.12	-	0.034	0.039	0.044	-	-	0.56	0.26
Benzo[a]anthracene	0.16	0.18	0.066	-	-	-	-	-	-	0.32	0.12
Chrysene	0.19	0.22	0.088	-	-	0.027	-	-	-	0.36	0.17
Benzo[b]fluoranthene	0.26	0.26	0.14	-	-	-	-	-	-	0.31	0.22
Benzo[k]fluoranthene	0.23	0.22	0.091	-	-	-	-	-	-	0.41	0.23
Benzo[a]pyrene	0.096	0.18	-	-	-	-	-	-	-	0.27	0.18
Indeno[1,2,3cd]pyrene	0.16	0.18	-	-	-	-	-	-	-	0.21	0.18
Dibenz[a,h]anthracene	-	-	-	-	-	-	-	-	-	0.064	-
Benzo[g,h,i]perylene	0.14	0.15	0.073	-	-	-	-	-	-	0.19	0.18
Total PAH	**2.149**	**2.198**	**0.751**	-	**0.034**	**0.066**	**0.086**	-	-	**3.863**	**1.93**

Note: A '-' symbol indicates that the analyte was not found above the minimum laboratory detection limit, which is specified by the sample preparation method.

APPENDICES

RECORDS FROM REMEDIAL CONTRACTOR (WREKIN)

RECORDS FROM REMEDIAL CONTRACTOR (WREKIN)

APPENDIX A

WASTE CARRIERS LICENCE

RECORDS FROM REMEDIAL CONTRACTOR (WREKIN)

APPENDIX B

WASTE MANAGEMENT LICENCES

RECORDS FROM REMEDIAL CONTRACTOR (WREKIN)

APPENDIX C

WASTE ACCEPTANCE CRITERIA TESTING

RECORDS FROM REMEDIAL CONTRACTOR (WREKIN)

APPENDIX D

CONTROLLED WASTE TRANSFER NOTES

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APPENDIX E

IMPORTED MATERIAL TESTS

RECORDS FROM REMEDIAL CONTRACTOR (WREKIN)

APPENDIX F

PHOTOGRAPHIC RECORD

NOTICE TO INTERESTED PARTIES

The purpose of this report is to present the findings of a soil sampling investigation conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, Environmental Protection Strategies Ltd (EPS) makes the following statements.

No investigation method is capable of completely identifying all the contaminants that might be present in the soil or groundwater under a site. Where outlined in our report, we have examined the ground beneath a site by constructing a number of boreholes and/or trial pits to recover soil and/or groundwater samples. The locations of these excavations and sampling points are considered to be representative of the condition of the whole site subsurface. However, ground conditions are naturally variable and it may be possible that localised ground controls could influence the spread of contaminants within the site subsurface. For this reason it is possible that samples collected during the investigation may not represent the conditions across the entire site.

The investigation was carried out to assess the significance of contamination resulting from the use of the site as identified in this report. Unless EPS has otherwise indicated, no assessment of potential impact of any other previous uses has been made.

If third parties have been contracted / consulted during compilation of this report, the validity of any data they may have supplied, and which are included in the report, have been assessed as far as possible by EPS. However, EPS cannot guarantee the validity of these data.

The report has been prepared for the client(s) listed on the report title page and has been subject to standard internal EPS review procedures. EPS accepts no liability or responsibility for use of, or reliance upon, this report and or the information contained within it by third parties.