Eastwood&Partners
CONSULTING ENGINEERS

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REPORT

ON

A GROUND INVESTIGATION

OF LAND AT

WENTWORTH PARK

TANKERSLEY, BARNSLEY

27958

AUGUST 2005

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EXECUTIVE SUMMARY

1 This report presents the factual findings of a ground investigation, undertaken by Eastwood & Partners for Daimler Chrysler. The site encompasses the existing Daimler Chrysler facility at Wentworth Industrial Park, Tankersley, approximately 12 km north of Sheffield and 2km west of the M1 Motorway.

2 The site covers an area of around 54 hectares and includes a vehicle servicing facility, vehicle storage areas, woodland and greenbelt land.

3 The solid geology underlying the site comprises Coal Measures strata with several worked coal seams. The site contains two opencast sites that have been backfilled, as well as infilled quarries and areas of bell pits and mine shafts.

4 The ground investigation comprised 42 trial pits, 58 percussive dynamic samples, 43 rotary boreholes, gas/groundwater monitoring standpipes and geotechnical/chemical laboratory testing.

5 The ground investigation generally confirmed the anticipated ground conditions, based on previous desk study information.

6 With respect to a commercial/industrial end use, there appear to be only limited areas of the site that are affected by chemical contamination. A full geo-environmental assessment will be necessary prior to the commencement of any building works.

7 Further plot-specific ground investigation will be required to provide detailed information for design of individual buildings.

1.0 INTRODUCTION

This report presents the findings of a Phase 2 Geotechnical and Geo-Environmental Ground Investigation, undertaken by Eastwood & Partners, for Daimler Chrysler.

A Phase 1 walkover and desk study investigation has previously been undertaken for Daimler Chrysler by WSP Geotechnics (report 12040260 dated October 2003). That report identified potential risks to future development from the following:

Ground instability	Unconsolidated shallow coal and ironstone mineworkings Uncapped and unfilled bell pits, mine shafts and adits Poorly compacted opencast backfill Uncompacted quarry infill
Contamination	Past use of parts of the site for mining and opencasting Presence of large quantities of made ground materials Current use of the site for vehicle servicing and storage Presence of a fuel filling station

The WSP report concluded with recommendations for an intrusive site investigation, to include probe drilling into shallow coal seams to determine extent of mineworkings potentially requiring grouting and to locate mine entries to determine type of treatment required.

Eastwood & Partners used the information contained within the WSP report, supplemented by our own enquiries, to design a site-wide intrusive site investigation to provide information on the ground that would enable an assessment to be made of potential abnormal costs associated with ground instability and ground contamination. The investigation was not intended to provide detailed information for design of individual buildings, which would require plot-specific ground investigation. A factual ground investigation report only has been produced.

This report presents information on the current condition of the site, based on the above sources of information. The overall objectives of the investigation were thus:

- To detail geotechnical properties of the ground encountered.
- To identify potential chemical contaminants within the ground.

All information, comments and opinions given in this report are based on the ground conditions encountered during the site work, on the results of laboratory and field tests performed during the investigation and information gained from a geological and historical desk study. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata and water conditions between or below investigation points. It should be noted that groundwater levels vary due to seasonal or other effects and may at times differ to those measured during the investigation.

This report was prepared for the sole and exclusive use of Daimler Chrysler in response to particular instructions. Any other parties using the information contained in this report, unless given prior written approval to do so, do so at their own risk, and any duty of care to those parties is excluded.

2.0 THE SITE

2.1 Description

The site lies approximately 12 km north of Sheffield and 2km west of the M1 Motorway. The site is centred on approximate National Grid Reference 433660 399430. It has an area of around 54 ha, and the layout is shown on Drawing No. 27958/002.

In the north and east of the site is a large building of around 1 hectare in plan area and a number of smaller buildings together with extensive associated hardstanding.
The perimeter of the site in the south and west is predominantly rough ground which is partially covered with grass and small trees.

The southwestern part of the site, amounting to over 10 ha, slopes gently towards the southwestern boundary and is separated from the remainder of the site by a strip of woodland. The southwestern part of the site was formerly an opencast site, which has been restored. It is now grassed and currently within greenbelt land. A public footpath follows the boundary between the greenbelt and the remainder of the site.

The strip of woodland covers hummocky ground that is assumed to be from former bell pits and shallow mining.

Site boundaries are currently marked in part by palisade fencing, which surrounds the land to the northeast of the footpath. Open land to the southwest is unfenced. The footpath across the site is clearly well used and boundaries to the southwest are with roads with free access to the unfenced area.

Outside the site the northeast/southwest quadrants are now developed with mixed commercial and industrial use of little more than 20 years age. The northeast corner is now approached by modern housing development, which has extended the village of Pilley from a rural hamlet into a late 19th century mining community serving the former Wharncliffe Silkstone Colliery. This lies just beyond the northern part of the north east boundary and whose former existence is reflected in irregularity in that boundary.

2.2 Summary Of Previous Desk Study

The site is adjacent to the former Wharncliffe Silkstone Colliery, whose ancillary buildings, brickworks and associated clay pits lay partly or wholly within the site boundaries.

There is a strong possibility of shallow coal workings affecting the southwest parts of the developable area. The currently developed area is known to overlie former shallow ironstone workings and opencast coal workings. Opencast workings extend into developable areas. The north east corner of the site has been both mined in modern times and at shallow depth and subject to quarrying for brick clay.

Eastern parts of the site appear to contain fill of up to 4m deep, possibly greater over past clay pit workings. These should be generally capable of supporting foundation loads for single storey buildings and ground slabs, but piling may be needed in areas of deep fill or rapid change in fill thickness, or for buildings of more than one storey.

A strip across the central part of the site was opencast in 1945.

Elsewhere natural ground is anticipated as being of good bearing capacity following consolidation of any shallow mine workings.

Serious contamination of ground is not expected and limited confirmatory sampling and testing is recommended.

3.0 GROUND INVESTIGATION

3.1 Site Works

- Forty two trial pits (TP1 - TP42) were excavated to depths of between 0.9m and 4.5m below ground level (bgl).
- Fifty eight percussive dynamic samples (DS1 - DS58) were put down to depths of between 0.9m and 6.45m (bgl).
- Forty three rotary boreholes (BH1 to BH37 and SP1 to SP6) were drilled to depths of between 6m and 33m (bgl).
- Gas and groundwater monitoring installations were placed across the site to record groundwater levels and to enable ground gas monitoring.

The locations of all exploratory holes are shown on Drawing 27958/002 and the exploratory hole logs are presented in the Appendix.

3.2 Laboratory Testing

During the fieldwork, samples of soil were obtained for subsequent laboratory testing.

The majority of samples showed no evidence of particular contamination and were taken to indicate general levels of potential contamination. These samples were submitted for a standard suite of laboratory tests, based on past uses of the site. This general suite comprised arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, boron, zinc, pH, total and water soluble sulphate, phenols, total PAHs and asbestos identification.

Visual and olfactory evidence of particular contamination was noted in 7 exploratory holes:

DS1	Creosote odour below 1m
DS2	Slight creosote odour
DS17	Hydrocarbon odour 1.8m-2.8m and free product 2.8m-2.9m.
DS18	Hydrocarbon odour 0.04m-0.4m
DS21	Creosote odour 2.4m-3.0m
DS35	Visible hydrocarbon contamination 0.2m-0.52m
TP7	Creosote odour below 0.6m

These samples were submitted for target PAH and/or TPH testing in addition to the general suite noted above. The exploratory holes showing evidence of hydrocarbon contamination were all located in the vicinity of the fuelling point and the associated buried fuel tanks.

In total 68 samples of made ground and 5 samples of natural ground were tested. Five samples of clay were submitted for plasticity testing. The laboratory results are presented in the Appendix.

The samples were tested by Robertson Laboratory in North Wales. A list of the actual techniques used is detailed as part of the Certificate of Analysis. The soils were collected in 500ml plastic tubs and 250ml amber glass jars. Each was labelled with the sample position and depth and checked for any olfactory evidence of contamination.

3.3 Gas Monitoring

Thirteen ground gas monitoring installations were placed within the site, to specifically target areas of risk from ground gas. The installations are BH2, BH5, BH13, BH14, BH17, BH21, BH30, BH37, DS12, DS12, DS26, DS31, DS43, and DS49. The depths of installations vary from 2m to 24m.

Gas monitoring has been carried out on a single occasion and the results are presented in the Appendix.

4.0 GROUND CONDITIONS

4.1 Topsoil

Topsoil was encountered in all landscaped areas and comprised a firm dark to light brown clay with some brick and mudstone gravel.

4.2 Made Ground

The intrusive investigation encountered Made Ground across the site, which consisted of three main types.

Sub-Base

This was encountered below most hardstanding areas and also made up areas of hardstanding to the north and the west of the site. This comprised limestone, sandstone and mudstone gravel. This was very limited in horizontal extent and was encountered to a maximum depth of between 0.25m and 0.7m bgl.

Mixed Made Ground

This material probably represents predominantly re-worked natural ground associated with mining and development across the site. It typically comprised clay with variable quantities of mudstone gravel/cobbles, sandstone gravel/cobbles, sand, brick, concrete, metal, plastic with some wood and with a slight organic odour locally. This material was encountered to a depth of between 0.3mbgl to in excess of 5.5mbgl.

Opencast Backfill

Encountered within the former opencast areas, this backfill generally comprised a loose to medium dense mudstone gravel, with minor amounts of clay and occasional brick and tile. This material was encountered to a depth of between 0.65m bgl to in excess of 15.2m bgl.

The depths of made ground appear to match the records of opencast mining shown on the completion plans held by the Coal Authority. The positions of the opencast highwalls also appear to match those indicated on the completion plans, and are probably accurate to within 10m.

4.3 Coal Measures Strata

Beneath the Made Ground, the majority of pits and dynamic sample boreholes encountered stiff mottled clay, containing mudstone gravel. This clay commonly became very stiff and had increasing quantities of mudstone lithorelicts (a common weathering profile from clay to mudstone). Mudstone was encountered within some trial pits and dynamic sampling boreholes beneath the clay. Sandstone bands were also encountered locally.

4.4 Groundwater

Perched water was encountered within exploratory holes at a variety of depths.

Monitoring of standpipes installed on the site does not indicate a single site-wide groundwater table, but shows a number of perched levels and several standpipes that are dry.

4.5 Shallow Mineworkings

Several coal seams were encountered beneath the site and coal or suspected backfilled workings were encountered within the majority of rotary boreholes.

Three seams were encountered within the boundary of the site at depths above 30m bgl.

Flockton Thin Coal

The Flockton Thin is the youngest seam, which formerly outcropped around 140m to the west of the gate house, dipping at approximately 6^0 to the east.

Top and Bottom Fenton Coals

The Fenton seams are present around 14m below the Flockton Thin.

The 1962 workings in the Top Fenton in the northeastern part of the site were investigated with boreholes BH1, 2, 3, 4, 25, 26, 27, 28 and 29. Several of these boreholes proved evidence of workings, i.e. loss of flush, broken ground, clear voids and fill/timber. There is also evidence that the Bottom Fenton has also been worked in places. The basic outline of the workings shown on the mine abandonment plan appear to agree with the drilling records.

The 1951 workings in the Top Fenton in the southeastern part of the site were investigated with boreholes BH30, 31, 32, 34, 35, 36 and 37. Evidence of workings were only noted in BH30 and BH37, however in other holes it appears that workings may have locally undergone total collapse, leaving only a thin layer of coal.

The Top Fenton seam was also worked by opencasting in the centre of the site as shown on drawing 27958/002. The Fenton seams were also encountered at shallow depth to the west of this opencast site.

Parkgate Coal

The Parkgate Coal is present around 14m below the Fenton seams.

The Parkgate seam was encountered beneath the open cast workings and to the west of the site, the Parkgate seam was also worked as an open cast site to the west of the site. Evidence of workings within the Parkgate was encountered in boreholes between the two backfilled opencast sites.

4.6 Mine Entries

Several suspected shafts were identified from the mining records of the site and also several depressions within the wooded area were suspected to be mine shafts. These were investigated utilising a shaft treatment platform. Two possible shafts were identified SP5 and SP6, these shafts would have serviced the Parkgate seam and were to a depth of 14.6 and 15m respectively.

While undertaking site works it was noted that the area to the north of the western field of the site was under investigation by the Coal Authority for suspected shafts.

5.0 CONCLUSIONS

The ground investigation generally confirmed all of the identified concerns that the desk study had previously identified.

- Development of the site will be affected by the presence of shallow mineworkings, which will require consolidation by drilling and grouting.
- Development of the site will be affected by the presence of many untreated mine entries, which will require grouting and possibly capping with concrete.
- Development of the site will be affected by the presence of significant thicknesses of opencast backfill. There are some areas of thick fill that will require further investigation to allow a foundation solution to be formulated. The exact position of opencast highwalls will need to be determined so that buildings do not span across it.
- With respect to a commercial/industrial end use, there appear to be only limited areas of the site that are affected by chemical contamination. A full geo-environmental assessment will be necessary prior to the commencement of any building works.
- Ground gases were identified across the site and further consideration will be necessary prior to the commencement of any building works.

APPENDICES

Trial Pit Logs

Dynamic Sample Logs

Borehole Logs

SPT Summary Sheet

Chemical Testing Results

Geotechnical Testing Results

Gas Monitoring Results

Drawing No 27958/002

TRIAL PIT No	1

Depth		Strata description
From	To	
0.0	0.15	MADE GROUND: Firm clayey topsoil with some bricks and mudstone gravel.
0.15	1.2	MADE GROUND: Gravel of angular to sub-angular locally clayey mudstone shale with some brick, wood and occasional organics.
1.2	2.3	Stiff grey mottled orange very sandy CLAY with occasional sandstone cobbles and gravel becoming friable with depth.
2.3	2.8	Very stiff blue grey very gravelly CLAY. Gravel is of lithorelict mudstone locally iron stained with paleo roots.
2.8	4.6	Very weak grey shaley MUDSTONE with some clay becoming less clayey with depth.
4.6		Base of trial pit. Limit of excavator.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Slight seepage at 1.2m
Side stability:	Stable
Sampling:	0.05m, 0.5m, 1.5m, 2.4m
Pit dimensions:	
Machine:	JCB 3X
Weather:	
Other:	No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	2

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: Yellow brown gravel with some glass overlaying terram geomebrane.
0.3	1.0	Very stiff grey mottled orange very sandy CLAY with occasional sandstone cobbles and gravel becoming friable with depth.
1.05	1.6	Moderately strong grey stained orange SANDSTONE with some clay within discontinuities.
1.6	2.6	Weak grey shaley MUDSTONE with some clay becoming less clayey and more competent with depth. (recovered as gravel).
2.6		Base of trial pit. Refused on mudstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m, 0.6m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	3

Depth From	Depth To	Strata description
0.0	0.4	MADE GROUND: Firm dark brown clayey friable topsoil with many rootlets and rare brick.
0.4	1.3	Stiff grey mottled orange very sandy CLAY becoming friable with occasional sandstone cobbles and gravel.
1.3	2.3	Hard locally becoming weak grey very gravelly CLAY with some black staining locally becoming friable. Gravel is of weak lithorelict mudstone.
2.3	3.0	Weak grey shaley MUDSTONE. Recovered as gravel.
3.0	3.05	Strong sandstone.
3.05		Base of trial pit. Terminated on sandstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m, 1.0m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	4

Depth		Strata description
From	To	
0.0	0.35	MADE GROUND: Black tarmac Gravel (tarmac scalpings)
0.35	1.5	Stiff and friable grey mottled orange very sandy very gravelly CLAY with much shaley mudstone gravel.
1.5	2.1	Weak black shaley COAL (bituminous) recovered as gravel.
2.1	2.7	Firm grey very gravelly CLAY. Gravel is of weak grey lithorelict mudstone with some coal fragments.
2.7	3.4	Weak black shaley COAL.
3.4	4.1	Stiff, very friable grey very gravelly CLAY locally becoming weak mudstone. Gravel is of weak grey lithorelict mudstone with some coal fragments.
4. 0		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.3m, 2.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	5

Depth		Strata description
From	To	
0.0	0.15	Stiff dark brown clayey TOPSOIL with many rootlets and some shaley mudstone gravel. Gravel is of very friable.
0.15	0.55	Stiff orange brown sandy very gravelly CLAY with some roots. Gravel is of sandstone.
0.55	1.5	Moderately strong grey stained orange SANDSTONE with some clay within discontinuities. Recovered as cobbles. Very slow digging.
1.5		Base of trial pit. Terminated in sandstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.1m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	6

Depth		Strata description
From	To	
0.0	0.2	MADE GROUND: Black tarmac gravel (tarmac scalpings)
0.2	3.0	MADE GROUND: firm dark brown very gravelly clay with some traces of coal locally becoming stiff in lenses. Clay is locally yellow.
3.0	3.05	Strong grey LIMESTONE.
3.05		Base of trial pit. Refused in limestone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.5m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	7

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: Brown limestone gravel.
0.3	0.6	MADE GROUND: Gravel and cobbles of brick, mudstone concrete with some metal and plastic.
0.6	2.8	MADE GROUND: stiff black grey clay with much gravel of shaley mudstone and much organic material and some wood (paleo roots) (wood smells of creosote), coal and limestone cobbles with many bricks.
2.8	4.6	MADE GROUND: Red brown gravel of brick and mudstone with some coal.
4.6		Base of trial pit. Limit of excavator.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.5m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: Olfactory evidence of creosote contamination from 0.60m.

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TRIAL PIT LOG

TRIAL PIT No	8

Depth		Strata description
From	To	
0.0	0.2	MADE GROUND: Firm brown clayey topsoil with some brick fragments.
0.2	1.1	MADE GROUND: stiff black grey clay with much gravel of shaley mudstone and much organic material and some wood (paleo roots), roots, coal and limestone cobbles with many bricks. Slight organic smell.
1.1	4.4	MADE GROUND: Black gravel is of mudstone and coal.
4.4		Base of trial pit. Limit of excavator.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Moderate seepage @ 3.9m, appears to be from one side only.
Side stability: Partially stable.
Sampling: 0.1m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	9

Depth		Strata description
From	To	
0.0	0.35	MADE GROUND: Firm dark brown clayey topsoil with some bricks and mudstone gravel.
0.35	1.7	MADE GROUND: Stiff dark grey very gravelly clay. Gravel is of mudstone with some brick locally becoming slightly clayey gravel with some cobbles of mudstone with occasional coal and rare roots.
1.7	2.4	MADE GROUND: Dark grey gravel of mudstone with some clay, sandstone and mudstone cobbles, with some coal.
2.4		Base of trial pit. Terminated as unstable below 1.70m.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Unstable below 1.70m.
Sampling: 0.2m, 0.8m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	10

Depth		Strata description
From	To	
0.0	2.6	MADE GROUND: Stiff dark grey very gravelly clay. Gravel is of mudstone with some brick locally becoming slightly clayey gravel with some cobbles of mudstone and occasional coal with rare roots.
2.6		Base of trial pit. Pit sides unstable.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Partially stable.
Sampling: 0.3m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	11

Depth		Strata description
From	To	
0.0	0.1	MADE GROUND: Limestone gravel.
0.1	2.8	MADE GROUND: Stiff dark grey very gravelly clay. Gravel is of mudstone with some brick locally becoming slightly clayey gravel with some cobbles of mudstone, occasional coal and rare roots. Lenses of bricks at 2.40m possibly old building or shaft.
2.8		Base of trial pit. Terminated due to instability.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Unstable.
Sampling: 0.4m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

Typist	ARL	Checked	JCH	Logged	MB	Date Exc.	17.05.05	Job No	27958

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	12

Depth		Strata description
From	To	
0.0	1.25	MADE GROUND: Dark grey gravel of mudstone with some clay, sandstone and cobbles of sandstone and mudstone with some coal.
1.25		Base of trial pit. Pit terminated contamination only.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Unstable.
Sampling: 0.6m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	13

Depth		Strata description
From	To	
0.0	1.3	MADE GROUND: Stiff dark grey gravelly clay locally becoming orange. Gravel is of mudstone, coal with occasional roots and rare brick. Locally becoming clayey gravel with rare wood and china.
1.3	2.8	Stiff brown mottled orange friable CLAY with some mudstone gravel becoming more friable with depth.
2.8		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.4m, 1.6m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	14

Depth		Strata description
From	To	
0.0	1.0	MADE GROUND: Black gravel of mudstone and coal with some clay.
1.0	1.8	Stiff brown mottled orange very friable CLAY with some mudstone gravel becoming more friable and more gravelly with depth.
1.8	1.82	Weak shaley SILTSTONE/MUDSTONE.
1.82		Base of trial pit. Terminated on siltstone/mudstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	15

Depth		Strata description
From	To	
0.0	0.35	MADE GROUND: Stiff dark grey very gravelly clay. Gravel is of a mudstone with some brick locally becoming slightly clayey gravel with some cobbles of mudstone, occasional coal and rare roots.
0.35	2.2	Very stiff becoming friable brown mottled orange CLAY with some mudstone gravel, becoming more gravelly with depth.
2.2	2.3	Very weak shaley MUDSTONE/MARL.
2.3		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.3m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	16

Depth		Strata description
From	To	
0.0	2.6	MADE GROUND: Stiff dark brown very gravelly clay with many cobbles. Gravel and cobbles are of mudstone, coal and sandstone with rare sandstone boulders and bricks.
2.6	2.9	Firm brown mottled orange friable very gravelly CLAY. Gravel is of mudstone, becoming more friable with depth.
2.9		Base of trial pit. Terminated on weak orange shaley MUDSTONE.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.5m, 0.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

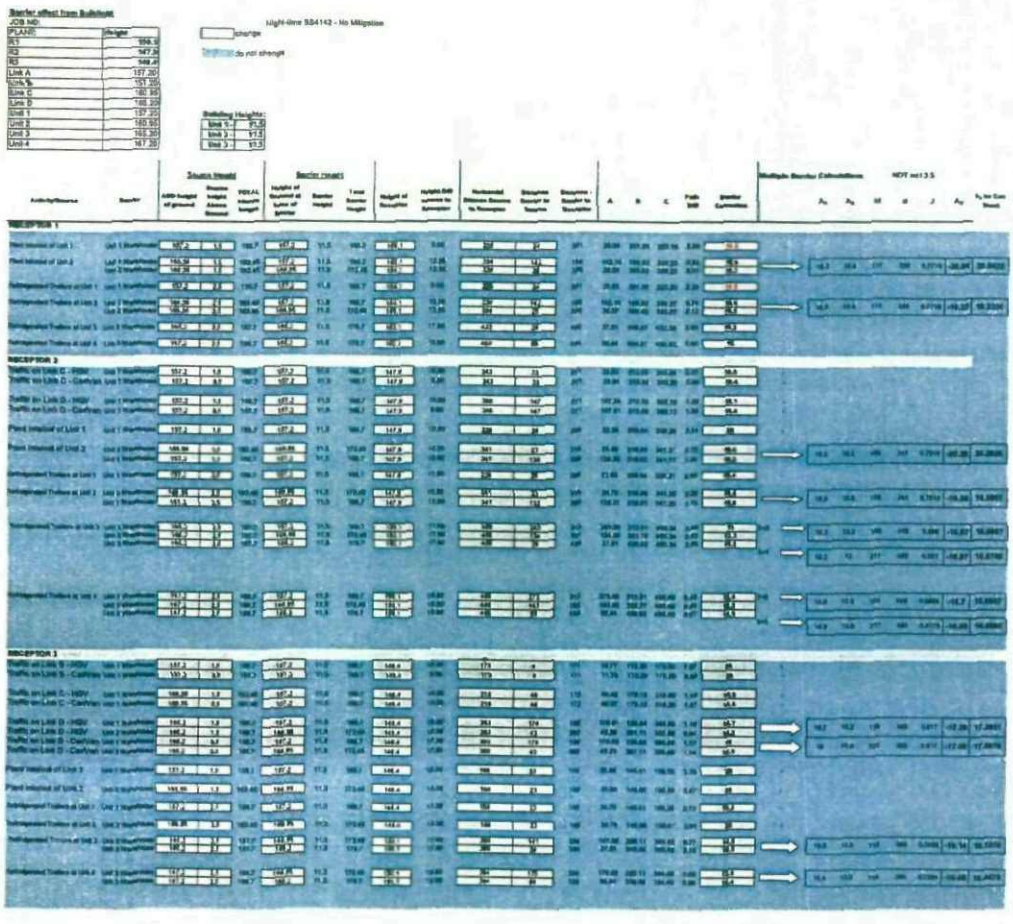
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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG



Barrier effect from Buildings

JOB NO:

PLANE	Height
R1	156.9
R2	147.3
R3	149.4
Link A	157.20
Link B	151.35
Link C	160.35
Link D	160.35
Unit 1	127.20
Unit 2	140.55
Unit 3	153.90
Unit 4	167.25

Light-line SS4142 - No Mitigation

charge

do not change

Building Heights:

Unit 1 -	FL0
Unit 2 -	11.7
Unit 3 -	11.7
Unit 4 -	11.7

Activity/Source	Barrier	Source Height: ABD height AP ground	Source height Above Ground	FDAL Absorb height	Barrier Height: Height of Ground at base of barrier	Barrier height	Top Barrier Height	Height of Receptor	Height RR system to Ground	Horizontal Distance Source to Receptor	Distance Source to Barrier	Distance Barrier to Receptor	A	B	C	Path Diff	Barrier Correction	Multiple Barrier Calculations: NOT incl 3.5 A_1	A_2	A_3	A_4	A_5	A_6	A_{bar} for Corr Sheet
RECEPTOR 1																								
Plant Internal of Unit 1	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	158.1	0.90	332	27	321	28.69	301.25	320.16	2.84	-10.5							
Plant Internal of Unit 2	Unit 1 Shunt/Internal	140.55	1.5	142.05	157.2	11.7	168.9	158.1	12.85	334	141	194	142.74	194.92	204.23	0.81	-10.5							
	Unit 2 Shunt/Internal	140.55	1.5	142.05	140.55	11.7	152.25	141.6	13.50	334	141	194	28.69	305.53	320.16	0.81	-10.5							
Submerged Trailers at Unit 1	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	158.1	9.60	286	27	277	25.65	261.55	277.20	2.24	-10.5							
Submerged Trailers at Unit 2	Unit 1 Shunt/Internal	140.55	1.5	142.05	157.2	11.7	168.9	158.1	13.35	287	141	146	142.74	145.92	204.23	0.71	-10.5							
	Unit 2 Shunt/Internal	140.55	1.5	142.05	140.55	11.7	152.25	141.6	13.35	287	141	146	28.69	305.53	320.16	0.71	-10.5							
Submerged Trailers at Unit 3	Unit 3 Shunt/Internal	140.55	1.5	142.05	140.55	11.7	152.25	141.6	17.85	422	34	388	37.65	348.87	402.58	0.90	-10.5							
Submerged Trailers at Unit 4	Unit 3 Shunt/Internal	153.90	1.5	155.4	140.55	11.7	152.25	141.6	19.80	462	35	427	38.44	394.81	440.82	0.90	-10.5							
RECEPTOR 2																								
Traffic on Link C - HGV	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	147.6	10.50	343	31	311	33.00	353.00	344.28	0.91	-10.5							
Traffic on Link C - Car/Van	Unit 1 Shunt/Internal	157.2	9.0	166.2	157.2	11.7	168.9	147.6	5.40	343	31	311	28.84	339.04	344.28	0.66	-10.5							
Traffic on Link D - HGV	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	147.6	10.50	368	147	221	147.24	210.76	362.58	1.48	-10.5							
Traffic on Link D - Car/Van	Unit 1 Shunt/Internal	157.2	9.0	166.2	157.2	11.7	168.9	147.6	5.60	368	147	221	147.81	210.69	368.13	1.39	-10.5							
Plant Internal of Unit 1	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	147.6	12.60	326	28	298	33.95	356.64	340.26	2.24	-10.5							
Plant Internal of Unit 2	Unit 2 Shunt/Internal	140.55	1.5	142.05	157.2	11.7	168.9	147.6	14.55	341	43	298	35.48	348.64	341.37	2.72	-10.5							
	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	147.6	13.50	347	138	209	134.35	218.65	344.77	3.46	-10.5							
Submerged Trailers at Unit 1	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	147.6	11.85	336	38	298	31.65	356.64	338.31	2.97	-10.5							
Submerged Trailers at Unit 2	Unit 2 Shunt/Internal	140.55	3.0	143.55	157.2	11.7	172.65	151.8	15.90	351	53	298	35.70	356.64	343.35	3.26	-10.5							
	Unit 1 Shunt/Internal	153.3	3.5	156.8	157.2	11.7	168.9	147.9	13.95	341	152	189	134.31	208.01	341.20	3.76	-10.5							
Submerged Trailers at Unit 3	Unit 3 Shunt/Internal	153.9	3.5	157.4	140.55	11.7	152.25	131.4	17.55	338	203	135	247.04	312.01	494.04	3.46	3.5							
	Unit 3 Shunt/Internal	140.7	3.5	144.2	153.9	11.7	165.6	144.1	17.55	438	303	135	354.28	353.72	642.56	3.45	3.5							
	Unit 3 Shunt/Internal	140.7	3.5	144.2	140.55	11.7	152.25	131.4	17.55	438	303	135	27.81	508.63	485.34	3.26	3.5							
Submerged Trailers at Unit 4	Unit 3 Shunt/Internal	153.9	3.5	157.4	153.9	11.7	165.6	144.1	19.80	438	303	135	354.28	353.72	642.56	3.45	3.5							
	Unit 4 Shunt/Internal	167.25	3.5	170.8	153.9	11.7	165.6	144.1	19.80	438	303	135	354.28	353.72	642.56	3.45	3.5							
	Unit 4 Shunt/Internal	167.25	3.5	170.8	167.25	11.7	179.7	158.1	19.80	438	303	135	27.81	508.63	485.34	3.26	3.5							
RECEPTOR 3																								
Traffic on Link C - HGV	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	149.4	10.50	274	-4	277	16.77	115.20	170.56	1.47	-10.5							
Traffic on Link C - Car/Van	Unit 1 Shunt/Internal	157.2	9.0	166.2	157.2	11.7	168.9	149.4	5.70	275	-3	277	11.75	119.09	173.28	0.98	-10.5							
Traffic on Link D - HGV	Unit 1 Shunt/Internal	156.30	1.5	153.80	157.2	11.7	168.9	148.2	10.50	314	46	268	19.48	178.13	218.89	1.47	-10.5							
Traffic on Link C - Car/Van	Unit 1 Shunt/Internal	156.30	9.0	161.80	157.2	11.7	168.9	149.4	5.70	316	48	272	14.05	179.33	218.89	1.47	-10.5							
Traffic on Link D - HGV	Unit 1 Shunt/Internal	140.3	1.5	138.1	157.2	11.7	168.9	148.4	10.50	363	374	185	318.91	126.64	344.35	1.16	-10.5							
	Unit 2 Shunt/Internal	140.3	1.5	138.1	140.55	11.7	152.25	143.1	10.50	363	374	185	43.89	391.71	402.60	0.94	-10.5							
Traffic on Link D - Car/Van	Unit 1 Shunt/Internal	140.2	5.7	145.9	157.2	11.7	168.9	148.2	5.70	365	378	187	319.69	126.64	346.69	1.01	-10.5							
	Unit 2 Shunt/Internal	140.2	5.7	145.9	140.55	11.7	152.25	143.1	5.70	365	378	187	43.89	391.71	404.69	1.04	-10.5							
Plant Internal of Unit 1	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	148.4	12.60	298	33	265	33.46	345.41	336.55	3.16	-10.5							
Plant Internal of Unit 2	Unit 2 Shunt/Internal	140.55	1.5	142.05	140.55	11.7	152.25	143.1	14.55	298	33	265	35.84	345.66	336.55	3.47	-10.5							
Submerged Trailers at Unit 1	Unit 1 Shunt/Internal	157.2	1.5	158.7	157.2	11.7	168.9	148.4	11.85	298	33	265	34.79	345.41	336.55	3.13	-10.5							
Submerged Trailers at Unit 2	Unit 2 Shunt/Internal	140.55	3.0	143.55	140.55	11.7	152.25	143.0	13.95	298	33	265	34.79	345.66	336.61	3.04	-10.5							
Submerged Trains at Unit 3	Unit 3 Shunt/Internal	153.9	3.5	157.4	140.55	11.7	152.25	131.4	17.55	298	33	265	34.79	345.66	336.61	3.04	-10.5							
	Unit 3 Shunt/Internal	140.7	3.5	144.2	153.9	11.7	165.6	144.1	17.55	298	33	265	37.65	348.87	402.58	0.90	-10.5							
Submerged Trailers at Unit 4	Unit 3 Shunt/Internal	153.9	3.5	157.4	153.9	11.7	165.6	144.1	19.80	298	33	265	37.65	348.87	402.58	0.90	-10.5							
	Unit 4 Shunt/Internal	167.25	3.5	170.8	153.9	11.7	165.6	144.1	19.80	298	33	265	37.65	348.87	402.58	0.90	-10.5							

TRIAL PIT No	17

Depth		Strata description
From	To	
0.0	0.5	MADE GROUND: Dark grey gravelly clay with some bricks and coal. Gravel is of mudstone.
0.5	2.4	MADE GROUND: Stiff to medium dense dark brown very gravelly clay. Gravel is of mudstone and sandstone with some sandstone and mudstone cobbles with rare boulders, boulders becoming more common with depth and many coal fragments.
2.4	2.7	Moderately strong MUDSTONE.
2.7		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m, 0.8m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	18

Depth		Strata description
From	To	
0.0	0.25	MADE GROUND: Yellow brown limestone gravel, (Type 1) overlying geo-membrane.
0.25	3.65	MADE GROUND: Stiff dark brown gravelly clay. Gravel is of sandstone and mudstone locally becoming clayey gravel with much coal becoming firm and black below 1.10m.
3.65	3.7	Moderately strong interbedded SANDSTONE/MUDSTONE.
3.7		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Slight ground water seepage at 3.65m.
Side stability: Stable.
Sampling: 0.4m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	19

Depth		Strata description
From	To	
0.0	0.15	MADE GROUND: Limestone gravel overlaying geo-membrane.
0.15	1.9	MADE GROUND: stiff dark brown gravelly clay. Gravel is of limestone and mudstone with some coal, rare metal, occasional brick cobbles and some wood. Becoming darker and firm below 0.90m with organic odour.
1.9	2.8	Firm becoming stiff yellow mottled grey very sandy CLAY locally becoming very clayey sand with some sandstone gravel and cobbles.
2.8	3.4	Weak grey mottled orange MUDSTONE locally clayey within discontinuities.
3.4		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	20

Depth		Strata description
From	To	
0.0	0.35	MADE GROUND: Brown clayey gravelly topsoil. Gravel is of medium to coarse limestone.
0.35	0.5	Stiff brown gravelly CLAY. Gravel is of weak brown lithorelict mudstone.
0.5	0.8	Moderately strong grey mottled orange sandy MUDSTONE.
0.8		Base of trial pit. Refused on mudstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.3m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	21

Depth		Strata description
From	To	
0.0	0.36	MADE GROUND: limestone gravel overlaying geo-membrane.
0.36	3.1	MADE GROUND: stiff dark brown gravelly clay. Gravel is of limestone and mudstone with some coal, rare metal, occasional brick cobbles and some wood. Becoming darker and firm below 0.90m with organic odour.
3.1	3.6	Stiff brown mottled grey gravelly CLAY. Gravel is of weak grey lithorelict mudstone.
3.6		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.6m, 3.3m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	22

Depth		Strata description
From	To	
0.0	0.2	MADE GROUND: brown gravelly clayey topsoil. Gravel is medium to coarse of limestone.
0.2	0.8	MADE GROUND: stiff dark brown gravelly clay. Gravel is of limestone and mudstone with some coal, rare metal, occasional brick cobbles and some wood. Becoming darker and firm below 0.90m with organic odour.
0.8	1.0	Stiff brown mottled grey gravelly CLAY. Gravel is of weak grey lithorelict mudstone.
1.0		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.4m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	23

Depth		Strata description
From	To	
0.0	0.4	MADE GROUND: dark brown clayey topsoil with many rootlets, some brick and coal fragments.
0.4	4.3	MADE GROUND: stiff dark brown gravelly clay. Gravel is of limestone and mudstone with some coal, rare metal, occasional brick cobbles and some wood with a small clay lens from 3.10m – 3.40m. Becoming darker and firm below 0.90m with organic odour. Becoming more gravelly with depth.
4.3		Base of trial pit. Terminated in clay.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 1.0m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	24

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: dark brown clayey topsoil with some brick and clay pipe.
0.3	1.7	Stiff brown mottled grey gravelly CLAY. Gravel is of weak grey lithorelict mudstone. Becoming friable with depth.
1.7	2.7	Very weak grey shaley MUDSTONE with clay within regular discontinuities and some black staining becoming more competent with depth.
2.7		Base of trial pit. Refused on mudstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

TRIAL PIT LOG

TRIAL PIT No	25

Depth		Strata description
From	To	
0.0	0.25	Firm dark brown clayey TOPSOIL with many rootlets and some roots.
0.25	1.1	Stiff brown mottled grey gravelly CLAY. Gravel is of weak grey lithorelict mudstone.
1.1	1.12	Weak grey shaley MUDSTONE.
1.12		Base of trial pit. Refused on mudstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.1m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	26

Depth		Strata description
From	To	
0.0	0.2	MADE GROUND: dark brown clayey topsoil with many rootlets and some mudstone gravel.
0.2	1.2	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal.
1.2	1.5	MADE GROUND: firm black very gravelly clay. Gravel is of coal.
1.5	1.7	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal.
1.7		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.1m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	27

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: dark brown clayey topsoil with many rootlets and some mudstone gravel.
0.3	1.1	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
1.1	2.5	MADE GROUND: firm black very gravelly clay. Gravel is of coal.
2.5	2.9	MADE GROUND: grey slightly clayey mudstone gravel.
2.9		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling:
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	28

Depth		Strata description
From	To	
0.0	0.2	MADE GROUND: dark brown clayey topsoil with many rootlets and some mudstone gravel.
0.2	0.6	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.6	1.1	MADE GROUND: stiff orange brown mottled grey clay with come coal fragments.
1.1		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.4m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	29

Depth		Strata description
From	To	
0.0	1.2	MADE GROUND: stiff brown mottled grey gravelly clay. Gravel is of weak grey mudstone with some coal and rare concrete.
1.2	1.3	Firm black very gravelly CLAY. Gravel is of coal.
1.3		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.4m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	30

Depth		Strata description
From	To	
0.0	0.9	MADE GROUND: stiff brown mottled grey gravelly clay. Gravel is of weak grey mudstone with some coal and rare concrete.
0.9	1.1	Firm black very gravelly CLAY. Gravel is of coal.
1.1		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry,
Side stability: Stable.
Sampling:
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	31

Depth		Strata description
From	To	
0.0	0.1	MADE GROUND: dark brown clayey topsoil with some coal.
0.1	0.8	MADE GROUND: stiff brown mottled grey gravelly clay. Gravel is of weak grey mudstone with some coal and rare concrete.
0.8	1.05	MADE GROUND: gravel with many cobbles of brick, mudstone, tile and plaster board with some coal.
1.05	2.1	MADE GROUND: stiff orange brown mottled grey clay with come coal fragments.
2.1	3.2	Weak grey mottled orange shaley MUDSTONE with some clay within discontinuities.
3.2		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.3m, 0.85m.
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	32

Depth		Strata description
From	To	
0.0	0.25	MADE GROUND: dark brown clayey gravel with many rootlets.
0.25	0.8	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal.
0.8		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	33

Depth		Strata description
From	To	
0.0	0.26	MADE GROUND: dark brown clayey gravel with many rootlets.
0.26	0.66	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.66	0.78	MADE GROUND: red brown shaley gravel.
0.78	0.9	MADE GROUND: stiff grey mottled brown with some black staining very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.9		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.78m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	34

Depth		Strata description
From	To	
0.0	0.8	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.8	2.8	MADE GROUND: grey clayey gravel. Gravel is of moderately strong shaley mudstone with occasional sandstone and occasional lenses of coal.
2.8		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Unstable below 0.80m
Sampling: 0.3m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	35

Depth		Strata description
From	To	
0.0	0.7	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.7	0.9	MADE GROUND: black coal gravel.
0.9		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling:
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	36

Depth		Strata description
From	To	
0.0	0.7	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.7	1.2	MADE GROUND: grey clayey gravel. Gravel is of moderately strong shaley mudstone with occasional sandstone and occasional lenses of coal.
1.2		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 1.0m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	37

Depth		Strata description
From	To	
0.0	0.75	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.75	1.0	MADE GROUND: grey clayey gravel. Gravel is of moderately strong shaley mudstone with occasional sandstone and occasional lenses of coal.
1.0		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.5m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	38

Depth		Strata description
From	To	
0.0	0.15	MADE GROUND: dark brown clayey topsoil with some mudstone gravel.
0.15	0.9	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.9		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.1m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	39

Depth		Strata description
From	To	
0.0	0.2	MADE GROUND: dark brown clayey topsoil with some mudstone gravel.
0.2	2.8	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel, mudstone boulders and cobbles and rare sandstone boulders.
2.8	2.8	MADE GROUND: moderately strong grey mudstone/marl possibly large boulders.
2.8		Base of trial pit. Refused on mudstone/marl.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.1m, 2.0m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	40

Depth		Strata description
From	To	
0.0	0.21	MADE GROUND: dark brown clayey topsoil with some mudstone gravel.
0.21	1.8	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
1.8	1.8	MADE GROUND: moderately strong grey mudstone/marl possibly large boulders.
1.8		Base of trial pit. Refused on mudstone/marl.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.5m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	41

Depth		Strata description
From	To	
0.0	0.8	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.8	1.0	Grey very clayey GRAVEL of weak grey mudstone.
1.0		Base of trial pit.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

TRIAL PIT No	42

Depth		Strata description
From	To	
0.0	0.6	MADE GROUND: stiff grey mottled brown very gravelly clay. Gravel is of weak grey or brown mudstone with some coal gravel.
0.6	1.3	MADE GROUND: grey slightly clayey mudstone gravel.
1.3		Base of trial pit. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 1.2m
Pit dimensions:
Machine: JCB 3X
Weather:
Other: No visible or olfactory evidence of contamination.

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TRIAL PIT LOG

Dynamic Sample No.	1

Depth		Strata description
From	To	
0.0	0.25	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.25	2.8	MADE GROUND: stiff very gravelly clay. Gravel is of mudstone with lenses of brick.
2.8	4.5	Stiff yellow mottled grey CLAY with some mudstone gravel.
4.5		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Between 1.00m and 2.80m, dry below 2.80m.
Side stability: Stable.
Sampling: 0.2m, 1.1m
Weather:
Contamination: Olfactory evidence of creosote contamination below 1m.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	2

Depth From	Depth To	Strata description
0.0	0.1	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.1	2.8	MADE GROUND: stiff very gravelly clay with some lenses of brick and cobbles of mudstone with rare wood.
2.8	4.4	MADE GROUND: gravel of weak black shale with coal fragments and some wood.
4.4	4.9	MADE GROUND: soft very gravelly clay.
4.9	5.1	Moderately strong grey mudstone.
5.1		Base of Excavation. Refused at 5.10.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	4.40m
Side stability:	Stable.
Sampling:	0.3m – 0.4m, 0.9m – 1.0m
Weather:	
Contamination:	Slight olfactory evidence of creosote contamination.
Other:	Possible backfilled workings 2.8m to 4.4m. See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	3

Depth From	Depth To	Strata description
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.3	MADE GROUND: compact black gravel of mudstone, clinker and limestone.
0.3	0.4	MADE GROUND: yellow sandstone gravel.
0.4	0.7	MADE GROUND: orange brown sandstone gravel and cobbles.
0.7	5.5	MADE GROUND: stiff grey very gravelly clay. Gravel is weak grey lithorelict mudstone with some cobbles of mudstone and rare brick.
5.5	6.45	Stiff locally hard yellow CLAY with much lithorelict mudstone gravel.
6.45		Base of Excavation. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: 0.50m – 1.70m
Side stability: Unstable.
Sampling: 1.7m – 1.8m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	4

Depth		Strata description
From	To	
0.0	0.05	MADE GROUND: tarmacadam.
0.05	0.3	MADE GROUND: compact black slightly clayey gravel with some coal.
0.3	1.8	Very stiff grey locally yellow gravelly CLAY. Gravel is of weak grey lithorelict mudstone. Becoming more gravelly with depth.
1.8	3.45	Weak grey shaley MUDSTONE.
3.45		Base of Excavation. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Slight seepage at 0.30m.
Side stability:	Stable.
Sampling:	0.1m – 0.15m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	5

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.3	0.7	MADE GROUND: stiff yellow clay with some coal and mudstone gravel.
0.7	1.05	MADE GROUND: black coal gravel with some brick gravel and cobbles.
1.05	3.4	Stiff locally firm yellow brown very gravelly CLAY. Gravel is of weak grey lithorelict mudstone with rare coal fragments. Becoming firm 2.20m – 2.70m
3.4	3.9	Weak black shaley MUDSTONE/COAL.
3.9	4.6	Stiff grey gravelly CLAY. Gravel is weak grey lithorelict mudstone.
4.6		Base of Excavation. Refused on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	3.40m – 3.90m
Side stability:	Stable.
Sampling:	0.1m – 0.2m, 0.2m – 1.4m.
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	6

Depth		Strata description
From	To	
0.0	0.25	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.25	1.4	MADE GROUND: stiff yellow brown very gravelly clay with some lenses of gravel. Gravel is of yellow sandstone and mudstone with occasional coal, with a lens of coal and brick gravel at 1.00m – 1.20m
1.4	2.65	MADE GROUND: black coal and brick gravel, locally clayey.
2.65	4.2	Firm locally soft yellow brown mottled grey CLAY with some weak yellow grey lithorelict mudstone gravel becoming stiff below 3.00m with occasional cobbles of mudstone.
4.2		Base of Excavation. Refused on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	3.00m.
Side stability:	Stable
Sampling:	0.4m – 0.5m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	7

Depth From	Depth To	Strata description
0.0	0.12	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.12	0.6	MADE GROUND: stiff grey gravelly clay with some ash and rare brick. Gravel is of weak grey lithorelict mudstone.
0.6	0.74	MADE GROUND: red sand.
0.74	4.55	Stiff grey very gravelly CLAY with some cobbles. Gravel and cobbles are of mudstone becoming soft and wet from 3.00m – 3.80m.
4.55		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	2.00m – 2.80m
Side stability:	Stable
Sampling:	0.2m – 0. 0m.
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	8

Depth		Strata description
From	To	
0.0	0.18	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.18	0.82	MADE GROUND: stiff grey gravelly clay with some ash, rare brick and a lens of sandstone gravel. Gravel is weak grey of mudstone.
0.82	2.45	Stiff grey very gravelly CLAY with some cobbles. Gravel and cobbles are of mudstone becoming soft and wet from 3.00m – 3.80m
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.05m – 0.15m. 1.3m – 1.5m.
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	9

Depth		Strata description
From	To	
0.0	0.1	MADE GROUND: tarmacadam.
0.1	0.65	MADE GROUND: black sandy gravel. Gravel is of mudstone with occasional concrete.
0.65	1.6	MADE GROUND: sandstone cobbles.
1.6	2.5	Stiff grey very gravelly CLAY with some cobbles. Gravel and cobbles are of mudstone.
2.5		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.4m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	10

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: firm dark brown clayey topsoil with many rootlets and some brick.
0.3	0.55	MADE GROUND: brown sandy gravel. Gravel is of mudstone and clinker with rare brick.
0.55	1.0	Moderately strong yellow SANDSTONE.
1.0	1.5	Weak grey slightly clayey MUDSTONE.
1.5		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.4m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	11

Depth		Strata description
From	To	
0.0	0.5	MADE GROUND: brown sandy gravel. Gravel is of mudstone and clinker with rare brick.
0.5	1.4	Medium dense yellow clayey SAND and COBBLES of sandstone.
1.4	1.7	Stiff yellow locally black gravelly CLAY. Gravel is of mudstone, sandstone and some coal.
1.7	2.0	Stiff yellow gravelly CLAY. Gavel is weak yellow lithorelict mudstone.
2.0	2.45	Weak grey mudstone.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.35m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	12

Depth From	Depth To	Strata description
0.0	0.06	MADE GROUND: tarmacadam.
0.06	0.25	MADE GROUND: medium dense black mudstone and limestone gravel.
0.25	0.8	Stiff yellow brown CLAY locally becoming very gravelly with occasional cobbles. Gravel and cobbles of sandstone.
0.8	2.52	COBBLES of moderately weak yellow sandstone lithorelics.
2.52	4.45	Very stiff to hard dark grey very gravelly CLAY. Gravel is weak grey lithorelict mudstone with some coal.
4.45		Base of Excavation.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Unstable 0.25m to 0.8m.
Sampling:	0.1m – 0.15m, 0.4m – 0.5m
Installation:	19mm diameter standpipe installed, 0.0-1.0m plain, 1.0-3.0m slotted
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results.

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	13

Depth From	Depth To	Strata description
0.0	3.5	MADE GROUND: stiff brown locally firm very gravelly clay with some cobbles. Gravel and cobbles are both of sandstone and mudstone with occasional brick and coal fragments.
3.5	4.5	Weak black shaley MUDSTONE with some coal and lenses of clay.
4.5	5.45	Stiff yellow mottled grey CLAY with some weak lithorelict mudstone gravel.
5.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.3m – 0.4m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	14

Depth		Strata description
From	To	
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	3.8	Stiff grey mottled brown and black very gravelly CLAY. Gravel composed of mudstone, sandstone and coal.
3.8	4.45	Weak black shaley MUDSTONE.
4.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.2m – 0.3m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	15

Depth		Strata description
From	To	
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	3.5	MADE GROUND: stiff yellow brown mottled black gravelly clay. Gravel is of sandstone with rare sandstone cobbles and rare brick, becoming more mottled with depth.
3.5	4.15	MADE GROUND: black clayey gravel. Gravel is of mudstone, sandstone, coal and brick.
4.15		Base of Excavation. Terminated on SPT refusal.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	3.50m – 4.00m
Side stability:	Stable.
Sampling:	0.9m – 1.0m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	16

Depth		Strata description
From	To	
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	1.97	MADE GROUND: stiff yellow brown mottled black gravelly clay. Gravel is of sandstone. Rare sandstone cobbles and rare brick, becoming more stained with depth.
1.97	6.0	MADE GROUND: stiff black gravelly clay. Gravel is of mudstone with some coal and rare brick cobbles. Becoming soft below 3.00m
6.0		Base of Excavation. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	1.30m – 1.55m
Side stability:	Unstable below 3.00m.
Sampling:	0.5m – 0.6m.
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	17

Depth From	Depth To	Strata description
0.0	0.7	MADE GROUND: yellow gravel.
0.7	1.0	Weak yellow SANDSTONE.
1.0	2.5	Stiff yellow very gravelly CLAY. Gravel is of moderately strong sandstone. Locally becoming clayey GRAVEL.
2.5	3.45	Soft becoming stiff by 2.80m grey mottled orange CLAY with some weak lithorelict mudstone gravel.
3.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: 2.00m – 2.80m.
Side stability: Partially stable.
Sampling: 1.8m, 2.3m.
Weather:
Contamination: Olfactory evidence of hydrocarbons contamination 1.80m – 2.80m visible hydrocarbon contamination (free fuel) 2.80m – 2.90m
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	18

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.3	MADE GROUND: black mudstone and limestone gravel.
0.3	0.4	MADE GROUND: loose white limestone gravel.
0.4	1.8	MADE GROUND: stiff orange mottled brown and black slightly gravelly clay with some coal and rare brick.
1.8	2.70	MADE GROUND: stiff red brown mottled black very gravelly clay with some clinker. Gravel is of mudstone and coal with occasional lenses of coal gravel.
2.7	4.45	Stiff yellow mottled orange CLAY. Becoming very stiff with some cobbles of sandstone.
4.45		Base of Excavation.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.3m – 0.4m
Weather:	
Contamination:	Olfactory hydrocarbon contamination 0.04m – 0.40m.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	19

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	2.45	Stiff yellow brown mottled grey CLAY with some weak lithorelict mudstone gavel becoming very stiff to hard below 1.50m
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.6m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	20

Depth		Strata description
From	To	
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	1.45	Moderately weak locally clayey SANDSTONE.
1.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m – 0.3m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	21

Depth		Strata description
From	To	
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.5	MADE GROUND: black mudstone and limestone gravel.
0.5	3.2	MADE GROUND: stiff black to dark brown gravelly clay. Gravel is of coal with some weak lithorelict mudstone with occasional brick.
3.2		Base of Excavation. Refused on Made Ground.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.6m – 0.7m, 2.4m
Weather:	
Contamination:	Olfactory evidence of creosote contamination 2.40m – 3.00m
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	22

Depth From	Depth To	Strata description
0.0	0.1	MADE GROUND: tarmacadam.
0.1	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	1.5	Stiff brown mottled orange gravelly CLAY. Gravel is of weak grey lithorelict mudstone and coal.
1.50	3.55	Very stiff grey locally gravelly CLAY with weak lithorelict mudstone and occasional bands of black shale and coal. Locally becoming mudstone.
3.55		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.7m – 0.8m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	23

Depth From	Depth To	Strata description
0.0	0.3	MADE GROUND: brown clayey topsoil with much clinker.
0.3	0.8	Stiff grey very gravelly CLAY with some coal. Gravel is of weak grey lithorelict mudstone.
0.8	1.15	Medium dense GRAVEL of yellow clayey sandstone.
1.15	2.45	Weak grey locally clayey MUDSTONE with occasional coal.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	No ground water, damp around cobble.
Side stability:	Stable.
Sampling:	0.15, 0.7m – 0.9m.
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DYNAMIC SAMPLE LOG

Dynamic Sample No.	24

Depth From	Depth To	Strata description
0.0	0.15	MADE GROUND: brown clayey topsoil with some brick.
0.15	0.5	MADE GROUND: stiff dark grey clay and weak grey lithorelict mudstone. Occasional brick and coal.
0.5	2.45	Stiff grey very gravelly CLAY with occasional black shale and rare red sandstone. Gravel is of weak grey lithorelict mudstone.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.05m – 1.0m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

Typist	ARL	Checked	JCH	Logged	MB	Date Exc.	26.05.05	Job No	27958

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	25

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: brown clayey topsoil with some brick.
0.3	0.73	Yellow clayey sandstone GRAVEL.
0.73	1.45	Stiff grey very gravelly CLAY with occasional black shale and rare red sandstone. Gravel is of weak grey lithorelict mudstone.
1.45	2.45	Very stiff orange mottled grey CLAY with some weak grey to orange lithorelict mudstone.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.15m – 0.2m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	26

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: tarmacadam.
0.3	0.45	MADE GROUND: black mudstone and limestone GRAVEL.
0.45	1.0	Stiff yellow mottled grey CLAY with some yellow and grey weak lithorelict mudstone gravel and occasional sandstone cobbles.
1.0	1.6	Medium dense sandstone GRAVEL.
1.6	2.0	Medium dense grey very clayey mudstone GRAVEL. Locally becoming gravelly clay.
2.0	3.45	Stiff grey very gravelly CLAY. Gravel if of weak grey lithorelict mudstone.
3.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	0.86m.
Side stability:	Stable.
Sampling:	0.5m – 0.6m
Installation:	19mm diameter standpipe installed, 0.0-1.0m plain, 1.0-3.0m slotted
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	27

Depth		Strata description
From	To	
0.0	0.09	MADE GROUND: brown gravelly topsoil
0.09	0.5	MADE GROUND: white limestone gravel.
0.5	0.9	MADE GROUND: stiff orange brown very sandy gravelly clay, locally becoming gravelly sand with occasional cobbles of sandstone with some brick.
0.9	2.45	Very stiff grey very gravelly CLAY. Gravel is of weak grey lithorelict mudstone becoming yellow below 2.30m
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Slight seepage.
Side stability:	Stable.
Sampling:	
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	28

Depth		Strata description
From	To	
0.0	0.05	MADE GROUND: tarmacadam.
0.05	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	1.15	Weak yellow mottled grey SANDSTONE locally becoming clayey. Recovered as gravel or cobbles.
1.15		Base of Excavation. Refused on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.2m – 0.3m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	29

Depth		Strata description
From	To	
0.0	0.06	MADE GROUND: tarmacadam.
0.06	0.4	MADE GROUND: black mudstone and limestone gravel.
0.4	2.45	Stiff yellow mottled grey gravelly CLAY with some cobbles of sandstone.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m – 0.3m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	30

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.55	MADE GROUND: black mudstone and limestone gravel.
0.55	2.45	Stiff orange brown mottled grey slightly gravelly CLAY with some some silt and occasional black shale. Gravel is of weak lithorelict mudstone. Becoming grey and hard with depth with more lithorelict mudstone gravel.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.3m – 0.4m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	31

Depth		Strata description
From	To	
0.0	0.05	MADE GROUND: firm brown clayey topsoil with some coal.
0.05	2.0	MADE GROUND: stiff brown mottled grey gravelly clay with some coal. Gravel is of weak grey mudstone locally orange mottled grey with some organics (grass) and occasional pockets of sand.
2.0		Base of Excavation. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.5m
Installation:	19mm diameter standpipe installed, 0.0-0.5m plain, 0.5-2.0m slotted
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	32

Depth		Strata description
From	To	
0.0	0.25	MADE GROUND: brown clayey topsoil with some brick.
0.25	0.5	MADE GROUND: black mudstone and limestone gravel.
0.5	1.0	MADE GROUND: stiff dark grey mottled black friable clay with some coal and rare brick with much coal at 0.90m – 1.00m.
1.0	2.45	Stiff pale brown becoming grey gravelly CLAY becoming friable and hard with depth. Gravel is of weak grey lithorelict mudstone.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.55m – 0.6m
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	33

Depth		Strata description
From	To	
0.0	0.3	MADE GROUND: brown clayey topsoil with some brick.
0.3	0.5	MADE GROUND: stiff orange brown mottled orange and black clay with some cobbles and coal.
0.5	0.9	Stiff brown mottled grey CLAY with some weak grey lithorelict mudstone becoming more gravelly, grey and friable with depth.
0.9	2.0	Weak grey locally mottled orange MUDSTONE.
2.0		Base of Excavation. Terminated.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.2m – 0.3m, 0.6m – 0.7m.
Weather:	
Contamination:	No visible or olfactory evidence of contamination.
Other:	See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	34

Depth		Strata description
From	To	
0.0	0.08	MADE GROUND: tarmacadam.
0.08	0.28	MADE GROUND: limestone gravel.
0.28	0.35	MADE GROUND: black mudstone and limestone gravel.
0.35	1.0	Weak grey mottled orange MUDSTONE.
1.00		Base of Excavation. Terminated at 1.00m

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.2m – 0.3m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	35

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.27	MADE GROUND: black mudstone and limestone gravel.
0.27	0.8	Moderately strong LIMESTONE/MARL, very fractured after top 150mm.
0.8		Base of Excavation.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater:	Dry.
Side stability:	Stable.
Sampling:	0.3m – 0.35m
Weather:	
Contamination:	Visible hydrocarbon contamination 0.20m – 0.52m.
Other:	See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	36

Depth		Strata description
From	To	
0.0	0.06	MADE GROUND: tarmacadam.
0.06	0.3	MADE GROUND: black mudstone and limestone gravel.
0.3	0.89	Stiff yellow mottled brown CLAY with some marl cobbles and some weak grey lithorelict mudstone gravel.
0.89	0.9	Strong black MUDSTONE.
0.9		Base of Excavation. Refused on mudstone.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling:
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	37

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.25	MADE GROUND: black mudstone and limestone gravel.
0.25	0.36	MADE GROUND: yellow sandstone cobbles.
0.36	2.0	MADE GROUND: stiff grey very gravelly CLAY. Gravel is of mudstone, with cobbles and occasional coal.
2.0		Base of Excavation.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0. 0m – 0.7m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	38

Depth		Strata description
From	To	
0.0	0.03	MADE GROUND: tarmacadam.
0.03	0.3	MADE GROUND: black mudstone and limestone gravel.
0.3	0.52	MADE GROUND: yellow sandstone cobbles.
0.52	2.0	MADE GROUND: black clayey shaley mudstone GRAVEL locally becoming firm clay.
2.0		Base of Excavation.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.1m – 0.2m.
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	39

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.3	MADE GROUND: black mudstone and limestone gravel.
0.3	2.45	MADE GROUND: black clayey shaley mudstone gravel, locally becoming firm clay with much coal in lenses.
2.45		Base of Excavation. Terminated on SPT.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling:
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Dynamic Sample No.	40

Depth		Strata description
From	To	
0.0	0.04	MADE GROUND: tarmacadam.
0.04	0.34	MADE GROUND: black mudstone and limestone gravel.
0.34	0.46	MADE GROUND: yellow sandstone cobble.
0.46	2.0	MADE GROUND: black clayey shaley mudstone gravel, locally becoming firm clay with rare brick.
2.0		Base of Excavation. Terminated in Made Ground.

P and V values where given refer to the unconfined compressive strength in kN/m^2 measured with a hand penetrometer (P) or hand vane (V)

Groundwater: Dry.
Side stability: Stable.
Sampling: 0.5m – 0.6m
Weather:
Contamination: No visible or olfactory evidence of contamination.
Other: See SPT summary sheet for SPT results

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WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

DYNAMIC SAMPLE LOG

Location:	Wentworth Way, Tankersley				
Borehole	Depth (m)	Test		Comments	SWL
		SPT ©	N		
1	1.00-1.45	1,3,3,4,6,58	18	S	
	2.00-2.45	7,8,16,15,10,6	47	S	
	3.00-3.45	5,6,8,10,11,13	42	S	
2	1.00-1.45	1,1,2,2,2,2,	8	S	
	2.00-2.45	6,7,6,7,6,7	28	S	
	3.00-3.45	8,10,12,14,18,18	62	S	
	4.00-4.45	6,4,4,4,4,5	17	S	
3	1.00-1.45	3,4,4,7,6,5	22	S	
	2.00-2.45	1,2,4,4,4,4	16	S	
	3.00-3.45	2,5,4,4,4,4	16	S	
	4.00-4.45	2,2,2,3,5,5	15	S	
	5.00-5.45	5,13,9,9,10,13	41	S	
4	1.00-1.45	3,3,3,4,4,6	17	S	
	2.00-2.45	3,4,4,5,5,7	21	S	
	3.00-3.45	7,8,8,10,8,12	38	S	
5	1.00-1.45	2,2,1,1,1,1,	4	S	
	2.00-2.45	0,1,0,1,0,1	2	S	
	3.00-3.45	1,1,1,1,2,8	12	S	
	4.00-4.45	1,4,6,10,25,47	88	S	
6	3.00-3.45	3,4,6,6,5,7	24	S	
	4.00-4.45	4,41,50+			
7	1.00-1.45	7,7,8,7,8,7	30	S	
	2.00-2.45	5,6,7,7,6,6	26	S	
	3.00-3.45	2,0,1,1,1,2	5	S	
	4.00-4.45	6,4,4,6,4,6	22	S	
8	1.00-1.45	4,4,4,4,5,5,	18	S	
	2.00-2.45	7,7,17,35,18,18	88	S	
9	1.00-1.45	3,2,3,4,6,6	19	S	
	2.00-2.45	8,8,16,18,22,22	78	S	
10	1.00-1.45	18,14,23,31,30,33	117	S	
11	1.00-1.45	13,12,13,7,7,7	34	S	
	2.00-2.45	5,2,9,8,10,14	41	S	

Location: **Wentworth Way, Tankersley**

Borehole	Depth (m)	Test		Comments	SWL
		SPT ©	N		
13	1.00-1.45	5,6,5,5,5,5	20	S	
	2.00-2.45	6,6,6,7,7,6	26	S	
	3.00-3.45	8,7,7,7,7,7	28	S	
	4.00-4.45	6,7,6,6,6,7	25	S	
	5.00-5.45	9,8,10,11,11,14	46	S	
14	1.00-1.45	3,4,4,4,3,5	16	S	
	2.00-2.45	1,1,2,2,4,4	12	S	
	3.00-3.45	8,8,11,11,14,18	54	S	
15	1.00-1.45	3,3,4,4,3,2	13	S	
	2.00-2.45	2,2,2,3,3,3	11	S	
	3.00-3.45	2,3,3,4,4,6	17	S	
	4.00-4.45	5,8,50+			
16	1.00-1.45	2,3,3,4,6,6	19	S	
	2.00-2.45	4,5,6,5,5,5	21	S	
	3.00-3.45	2,2,1,1,1,4	7	S	
17	1.00-1.45	4,8,10,11,12,12	45	S	
	2.00-2.45	6,3,2,1,2,1	6	S	
	3.00-3.45	6,9,9,10,10,10	39	S	
18	1.00-1.45	3,3,3,4,7,6	20	S	
	2.00-2.45	3,4,3,3,3,5	14	S	
	3.00-3.45	3,4,3,4,4,4	15	S	
	4.00-4.45	5,7,9,17,21,21	68	S	
19	1.00-1.45	3,3,3,4,4,5	16	S	
	2.00-2.50	10,13,14,20,24,24	82	S	
20	1.00-1.45	10,12,20,25,34,41	120	S	
21	1.00-1.45	2,2,2,2,3,2	9	S	
	2.00-2.45	4,4,4,4,5,7	20	S	
22	1.00-1.45	2,2,2,2,3,2	9	S	
	2.00-2.45	4,4,5,5,5,5	20	S	
	3.00-3.45	7,8,7,5,5,6	23	S	
23	1.00-1.45	2,8,9,8,8,8	33	S	
	2.00-2.45	3,4,5,5,9,9	28	S	
24	1.00-1.45	4,1,2,9,9,8,8	34	S	
	2.00-2.45	4,7,7,8,9,9	33	S	
25	1.00-1.45	3,4,5,4,4,5	18	S	
	2.00-2.45	8,8,9,10,11,13	43	S	
26	1.00-1.45	5,7,7,7,7,7	28	S	
	2.00-2.45	2,2,2,4,5,5	16	S	
	3.00-3.45	8,8,8,9,9,10	36	S	
27	1.00-1.45	3,5,9,12,12,14	47	S	
	2.00-2.45	4,9,9,12,12,13	46	S	

Location: **Wentworth Way, Tankersley**

Borehole	Depth (m)	Test		Comments	SWL
		SPT ©	N		
28	1.00-1.45	12,16,25,50+		S	
29	1.00-1.45	8,9,8,10,10,10	38	S	
30	1.00-1.45	3,6,8,8,10,10	36	S	
31	2.00-2.45	7,9,9,10,12,20	51	S	
39	2.00-2.45	4,5,4,4,5,6	19	S	

GEOCORE *Site Investigations Ltd*	**DS No: 41**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 5.40m		**Our ref:** AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND tarmac	0.05	50							
MADE GROUND grey sand with much ash and angular fine to medium coal fragments some fine to coarse clinker fragments occasional to rounded fine to coarse gravel.	0.30	250		J1				0.40-0.50	
MADE GROUND light brown sandy gravel comprising angular fine to coarse sandstone fragments with some light brown sand.	0.70	400							
MADE GROUND light grey/brown clay bound gravel comprising angular fine to coarse mudstone fragments with some grey brown very sandy clay and occasional angular fine to coarse sandstone and coal fragments.		4550							

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 41**	**Sheet No:** 2 of 2
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 5.40m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick-ness	Legend	Sample	Test		SPT	Sample Depth (m)	Depth-Water
					KN/m2	N100			
as previous	5.25	4550		D1				5.30-5.40	
Stiff grey highly weathered MUDSTONE	5.40	150							
Borehole terminated at 5.40m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*

DS No: 42

Sheet No: 1 of 1

Equipment & methods:
Hand auger to 1.00m;

Date: 06/06/05

Client ref: 27056

Our ref: AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND tarmac	0.50	50							
MADE GROUND grey sand with much ash and angular fine to medium coal fragments some angular fine to coarse clinker fragments and occasional angular to rounded fine to coarse gravel.	0.40	350							
MADE GROUND light brown sandy gravel comprising angular fine to coarse sandstone fragments with some light brown sand.	0.55	150		D1				0.60-0.70	
MADE GROUND dark grey sandy gravel comprising angular fine to coarse coal fragments with some dark grey sand and occasional grey very sandy clay inclusions.	1.00	450							
Borehole terminated at 1.00m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*

DS No: 43 | **Sheet No:** 1 of 1

Equipment & methods: Hand auger to 1.20m; Percussion window sampling to 4.45m

Date: 06/06/05 | **Client ref:** 27056 | **Our ref:** AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND tarmac	0.50	50							
MADE GROUND grey sand with much ash and fine to coarse coal fragments occasional fine to coarse clinker fragments and gravel.	0.45	400							
MADE GROUND light brown sandy gravel comprising angular fine to coarse sandstone fragments with some light brown sand.	0.60	150							
MADE GROUND brown and grey clay bound gravel comprising angular fine to coarse mudstone fragments with some orange brown very sandy clay and occasional angular fine to coarse sandstone and coal fragments.	1.00	400		J1				0.90-1.00	
MADE GROUND firm orange brown mottled grey very sandy clay.	1.35	350							
POSSIBLE MADE GROUND dark grey sandy gravel comprising angular fine to coarse coal fragments with some dark grey sand and occasional grey mottled orange brown very sandy clay inclusions/horizons (suspect this strata is a highly weathered coal horizon).	3.80	2450							
Stiff grey highly weathered MUDSTONE	4.45	650		D1			92	3.90-4.00 4.00-4.45	
Borehole terminated at 4.45m Borehole remained open and dry on completion. Instalations to 2.50m, 0.50 plain, 1.50 slotted.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 44**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.00m;		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND tarmac	0.05	50							
MADE GROUND grey sand with much ash and fine to medium coal fragments occasional angular fine to coarse gravel and clinker fragments.	0.30	250							
MADE GROUND light brown sandy gravel comprising angular fine to coarse sandstone fragments with some light brown sand.	0.60	300		J1				0.60-0.70	
MADE GROUND grey clay bound gravel comprising angular fine to coarse mudstone fragments with some grey very sandy clay and occasional angular fine to coarse coal fragments.	1.00	400							
Borehole terminated at 1.00m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 45**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 5.00m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND tarmac	0.05	50							
MADE GROUND grey sand with much ash and fine to medium coal fragments occasional angular fine to coarse gravel and clinker fragments.	0.30								
MADE GROUND light brown sandy gravel comprising angular fine to coarse sandstone fragments with some light brown sand.	0.70	400		J1				0.40-0.50	
MADE GROUND soft to firm slightly orange brown very sandy clay with much angular fine to coarse MUDSTONE and coal fragments with occasional dark grey sandy moist gravel horizons.	1.90	1200							
POSSIBLE MADE GROUND firm to stiff orange brown mottled grey and light brown sandy clay.	2.80	900							
Stiff grey highly weathered MUDSTONE with occasional dark grey coal horizons.	3.40	600		D1			50/15	2.90-3.00 3.00-3.45	
Borehole terminated at 3.40m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 46**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 3.35m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND grey becoming brown/grey sandy gravel comprising fine to coarse limestone fragments with some grey slightly clayey sand occasional fine to coarse dolomite, brick, coal, tarmac and clinker fragments.	0.35	350							
MADE GROUND stiff light brown mottled orange brown sandy clay with some angular fine to coarse sandstone, coal and mudstone fragments.	0.70	350							
MADE GROUND dark grey slightly clayey sand with much fine to coarse highly weathered coal fragments occasional orange brown mottled grey very sandy clay inclusions.	1.90	1200		J1				0.80-0.90	
Stiff light brown mottled grey and orange brown very highly weathered bedded MUDSTONE.	2.95	1050		D1				2.00	
Stiff grey mottled orange brown highly weathered MUDSTONE.	3.35	400					50/20	3.00-3.45	
Borehole terminated at 3.35m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 47**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.00m;		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND grey/brown sandy gravel comprising angular fine to coarse limestone with some grey/brown slightly clayey sand and occasional angular fine to coarse dolomite, brick, coal, tarmac and clinker fragments.	0.35	350		J1				0.50-0.60	
MADE GROUND stiff brown mottled light brown sandy clay with some angular fine to coarse coal sandstone and mudstone fragments.	0.65	300							
MADE GROUND soft light grey very sandy clay with much highly weathered angular fine to coarse sandstone fragments.	1.00	350							
Borehole terminated at 1.00m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 48**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 3.10m		**Our ref:** AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND grey/brown sandy gravel comprising angular fine to coarse limestone fragments with some grey/brown slightly clayey sand ash, fine to coarse clinker fragments with occasional dolomite, clinker, brick, coal and tarmac fragments.	0.40	400		J1				0.30-0.40	
MADE GROUND firm to stiff orange brown mottled dark grey sandy clay with much angular fine to medium mudstone fragments and occasional angular fine to medium coal fragments.	1.60	1200							
Firm light brown mottled orange brown very sandy CLAY with occasional dark grey coal horizons.	2.00	400							
Stiff grey highly weathered MUDSTONE	3.10	1100		D1			50/15	2.90-3.00 3.00-3.45	
Borehole terminated at 3.10m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 49**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 2.10m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark grey sandy gravel comprising angular fine to coarse limestone clinker fragments with some dark grey ashy sand.	0.30	300							
MADE GROUND dark grey clay bound gravel comprising angular fine to coarse mudstone and coal fragments with some grey very sandy clay.	0.85	550		J1				0.50-0.60	
Firm to stiff orange brown mottled grey sandy CLAY.	1.55	700							
Stiff light brown mottled orange brown mottled orange brown bedded very highly weathered MUDSTONE.	2.10	550							
Borehole terminated at 2.10m due to refusal. Borehole remained open and dry on completion. Installations to 2.00, 0.50 plain, 1.50 slotted									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 50**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.00m;		**Our ref:** AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark grey sandy gravel comprising angular fine to coarse limestone and clinker fragments with some grey/brown clayey sand.	0.20	200		J1				0.10-0.20	
Soft to firm orange brown mottled grey very sandy CLAY.	1.00	800		D1				0.90-1.00	
Borehole terminated at 1.00m Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 51**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 2.20m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark brown very clayey sand with occasional angular fine to coarse coal fragments.	0.35	350							
Stiff orange brown mottled grey sandy CLAY.	1.50	1150		J1 D1				0.50-0.60 1.00-1.10	
Stiff light brown mottled orange brown bedded very highly weathered MUDSTONE.	2.20	700							
Borehole terminated at 2.20m due to refusal. Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 52**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 2.80m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark brown very clayey sand with occasional angular fine to coarse coal fragments.	0.40	400		J1				0.30-0.40	
Firm to stiff orange brown mottled grey sandy CLAY with much angular fine to coarse mudstone fragments 1.60-1.90m.	1.90	1500							
Black highly weathered COAL.	2.20	300							
Light brown mottled grey bedded highly weathered MUDSTONE.	2.80	600							
Borehole terminated at 2.80m due to refusal. Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 53**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 2.50m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark grey very clayey sand with some angular fine to coarse coal fragments.	0.30	300		J1				0.20-0.30	
Stiff orange brown mottled grey sandy CLAY.	1.30	1000							
Stiff orange brown mottled light brown bedded very highly weathered MUDSTONE.	1.90	600							
stiff grey mottled orange brown bedded weathered MUDSTONE.	2.50	600		D1				2.30-2.40	
Borehole terminated at 2.50m due to refusal Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 54**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 1.80m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark grey very clayey sand with some angular fine to coarse coal fragments.	0.20	200							
Stiff orange brown mottled grey sandy CLAY with occasional angular fine to coarse sandstone and limestone fragments.		1600		J1				0.30-0.40	
	1.80								
Borehole terminated at 1.80m due to refusal on suspected top of rockhead. Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 55**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 2.30m		**Our ref:** AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark brown/grey very clayey sand with some angular fine to coarse coal fragments and occasional fine to medium brick fragments.	0.40	400		J1				0.30-0.40	
Stiff orange brown fissured grey sandy CLAY with occasional angular fine to coarse sandstone and mudstone fragments.	1.95	2500		D1				1.90-2.00	
Stiff brownish grey very highly weathered bedded MUDSTONE.	2.30	350							
Borehole terminated at 2.30m due to refusal Borehole remained open and dry on completion.									

Sample/test key
- D Disturbed sample
- U Undisturbed Sample
- B Bulk sample
- W Water sample
- V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 56**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.10m;		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark brown/grey very clayey sand with some angular fine to coarse coal fragments.	0.40	400							
Stiff orange brown mottled grey sandy CLAY with some angular fine to coarse sandstone and mudstone fragments.	0.85	450							
Stiff orange brown mottled grey highly weathered sand MUDSTONE.	1.10	250							
Borehole terminated at 1.10m due to refusal. Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 57**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 2.10m		**Our ref:** AR/05/38588
Location: Wentworth Way, Tankersley		

Main Description	Depth	Thick-ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark brown/grey very clayey sand with some angular fine to coarse coal fragments.	0.20	200		J1				0.30-0.40	
Stiff orange brown mottled grey sandy CLAY with much angular fine to medium mudstone fragments 1.30-1.90m.	1.90	1700		D1				0.90-1.00	
Stiff brown mottled grey highly weathered MUDSTONE.	2.10	200							
Borehole terminated at 2.10m due to refusal. Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

GEOCORE *Site Investigations Ltd*	**DS No: 58**	**Sheet No:** 1 of 1
Equipment & methods:	**Date:** 06/06/05	**Client ref:** 27056
Hand auger to 1.20m; Percussion window sampling to 1.65m		**Our ref:** AR/05/38588

Location: Wentworth Way, Tankersley

Main Description	Depth	Thick -ness	Legend	Sample	Test KN/m2	Test N100	SPT	Sample Depth (m)	Depth-Water
MADE GROUND dark brown/grey very clayey sand with some angular fine to coarse coal fragments.	0.30	300							
Stiff orange brown mottled grey sandy CLAY with much fine to coarse sandstone fragments.	1.20	900		J1				0.50-0.60	
Light brown highly weathered SANDSTONE.	1.65	450							
Borehole teminated at 1.65m due to refusal. Borehole remained open and dry on completion.									

Sample/test key
D Disturbed sample U Undisturbed Sample
B Bulk sample
W Water sample
V Vane test

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

BH/TP Number	Sample Number	Depth m	Description of Sample
TP13		1.60	Pale brown mottled grey slightly sandy silty CLAY.
TP38		2.00	Grey very gravelly sandy silty CLAY.
DS19		0.60	Pale brown mottled grey slightly sandy silty CLAY.
DS25		1.60	Pale brown mottled grey slightly sandy silty CLAY.
DS41		5.30	Grey weathered MUDSTONE.

Eastwood & Partners
Rec'd 21 JUN 2005

PSL
Professional Soils Laboratory

[redacted]

TANKERSLEY

Contract No PSL05/869

Client Ref: 27758

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

BH/TP Number	Sample Number	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m^3 Clause 7.2	Dry Density Mg/m^3 Clause 7.2	Particle Density Mg/m^3 Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
TP13		1.60	26				47	19	28	100	Intermediate plasticity CI.
TP38		2.00	13				42	19	23	60	Intermediate plasticity CI.
DS19		0.60	25				52	19	33	100	High plasticity CH.
DS25		1.60	20				51	19	32	100	High plasticity CH.
DS41		5.30	8.8				35	20	15	80	Intermediate plasticity CI.

SYMBOLS : NP : Non Plastic * : Liquid Limit and Plastic Limit Wet Sieved. Sheet 1 of 2.

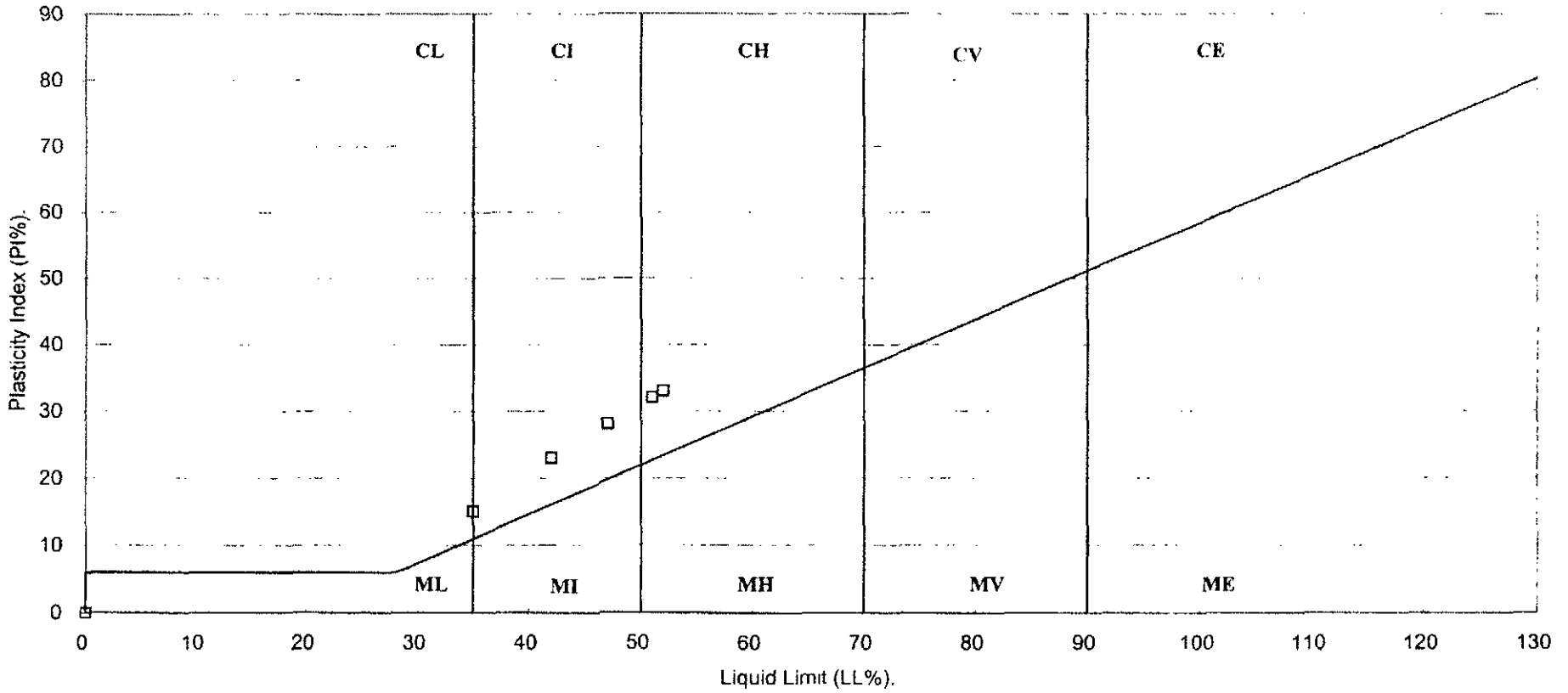
PSL
Professional Soils Laboratory

[redacted]

Client Ref: 27758

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL
Professional Soils Laboratory

[redacted]

TANKERSLEY

Contract No PSL05/869

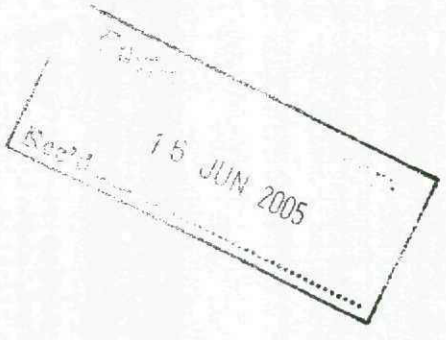
Client Ref: 27758

CMS MA

CERTIFICATE OF ANALYSIS

Date :	10/6/2005	Date rec'd :	24/5/2005
Certificate No :	24126	Our Ref :	771–215
Your Ref :	27958 Wentwoth Park, Tankersley		

All positive results for soil samples have been calculated on a dry weight basis where a loss on drying has been determined



For the attention of :

G M Seaman
Eastwood & Partners
St Andrews House
23 Kingfield Road
Sheffield
S11 9AS

[redacted]

Janet Hunt,
LABORATORY MANAGER

Robertson Laboratories, Llandudno, North Wales LL30 1SA, United Kingdom
Telephone 01492 581811 Facsimile 01492 592030

UKAS TESTING
0956

Robertson

FUGRO

ANALYSIS OF SOIL SAMPLES

Date rec'd : 24/5/2005
Our Ref. : 771-215
Your Ref. : 27958 Wentwoth Park, Tankersley
Cert Date : 10/6/2005

DETERMINAND	CLIENT ID. Depth (m) LAB ID.	TP1 0.05 342424	TP1 0.5 342425	TP2 0.2 342426	TP3 0.2 342427	TP3 1.0 342428	TP4 0.3 342429
! Arsenic (mg/Kg)		18	74	7	16	-	33
! Cadmium (mg/Kg)		<0.4	0.5	<0.4	0.5	-	1.4
! Chromium (mg/Kg)		23	10	12	28	-	128
! Copper (mg/Kg)		52	79	15	25	-	198
! Lead (mg/Kg)		52	37	8	45	-	118
! Mercury (mg/Kg)		<0.10	<0.10	<0.10	<0.10	-	<0.10
! Nickel (mg/Kg)		41	26	15	18	-	73
! Selenium (mg/Kg)		<3	<3	<3	<3	-	<3
! Water Soluble Boron (mg/Kg)		0.5	0.4	0.05	0.5	-	0.9
pH		-	-	-	-	-	-
Total Sulphate (% SO_4)		-	-	-	-	<0.05	-
Water Soluble Sulphate (g/L SO_4)		-	-	-	-	0.09	-
Monohydric Phenols (mg/Kg)		<1	-	<1	<1	-	<1
TPH (>C8-C36) (mg/Kg)		-	-	-	-	-	-
Asbestos Identification (%)		NI	-	-	NI	-	-
Loss on drying (%)							
Wt. loss on drying (% of wet)		24.0	18.8	4.9	19.0	18.6	8.6
Retained on 2mm sieve (% of dry)		33.2	57.3	68.1	13.2	0.0	75.8

QA data not reported.
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UKAS TESTING
0956

Robertson

FUGRO

ANALYSIS OF SOIL SAMPLES

Date rec'd : 24/5/2005
Our Ref. : 771-215
Your Ref. : 27958 Wentwoth Park, Tankersley
Cert Date : 10/6/2005

DETERMINAND	CLIENT ID. Depth (m) LAB ID.	TP5 0.1 342430	TP6 0.5 342431	TP7 0.5 342432	TP7 1 342433	TP8 0.1 342434
! Arsenic (mg/Kg)		18	34	6	-	23
! Cadmium (mg/Kg)		<0.4	0.4	0.4	-	1.1
! Chromium (mg/Kg)		20	12	9	-	21
! Copper (mg/Kg)		24	59	10	-	63
! Lead (mg/Kg)		64	39	39	-	113
! Mercury (mg/Kg)		<0.10	<0.10	<0.10	-	<0.10
! Nickel (mg/Kg)		14	38	11	-	32
! Selenium (mg/Kg)		<3	<3	<3	-	<3
! Water Soluble Boron (mg/Kg)		0.3	0.2	0.1	-	0.4
pH		-	-	-	6.9	-
Total Sulphate (% SO_4)		-	-	-	0.74	-
Water Soluble Sulphate (g/L SO_4)		-	-	-	2.1	-
Monohydric Phenols (mg/Kg)		<1	<1	<1	-	<1
TPH (>C8-C36) (mg/Kg)		-	22	-	20	-
Asbestos Identification (%)		-	-	NI	-	-
Loss on drying (%)						
Wt. loss on drying (% of wet)		15.3	12.4	8.4	8.6	18.6
Retained on 2mm sieve (% of dry)		22.8	55.5	61.8	63.6	36.9

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DETERMINAND	CLIENT ID. / Depth (m) / LAB ID.	TP9 0.2 342435	TP9 0.8 342436	TP11 0.4 342438	TP13 0.4 342440	TP15 0.3 342442
! Arsenic (mg/Kg)		17	110	63	75	19
! Cadmium (mg/Kg)		0.5	<0.4	<0.4	<0.4	0.5
! Chromium (mg/Kg)		14	8	16	8	12
! Copper (mg/Kg)		33	56	57	58	39
! Lead (mg/Kg)		55	51	41	40	34
! Mercury (mg/Kg)		<0.10	0.23	<0.10	0.23	<0.10
! Nickel (mg/Kg)		25	12	56	30	21
! Selenium (mg/Kg)		<3	<3	<3	<3	<3
! Water Soluble Boron (mg/Kg)		0.5	0.5	1.1	0.5	0.4
pH		-	3.8	5.8	4.5	4.6
Total Sulphate (% SO_4)		-	0.46	0.72	0.29	0.18
Water Soluble Sulphate (g/L SO_4)		-	0.20	0.28	0.14	0.14
Monohydric Phenols (mg/Kg)		<1	<1	-	-	-
TPH (>C8-C36) (mg/Kg)		-	-	-	-	-
Asbestos Identification (%)		NI	NI	-	-	NI
Loss on drying (%)						
Wt. loss on drying (% of wet)		14.9	11.9	6.5	12.4	13.6
Retained on 2mm sieve (% of dry)		38.0	50.5	84.0	57.7	40.8

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DETERMINAND	CLIENT ID. Depth (m) LAB ID.	TP16 0.5 342443	TP16 0.2 342444	TP17 0.8 342446	TP18 0.4 342447
! Arsenic (mg/Kg)		16	-	11	16
! Cadmium (mg/Kg)		<0.4	-	<0.4	<0.4
! Chromium (mg/Kg)		20	-	18	26
! Copper (mg/Kg)		35	-	38	49
! Lead (mg/Kg)		25	-	31	24
! Mercury (mg/Kg)		<0.10	-	<0.10	<0.10
! Nickel (mg/Kg)		35	-	39	38
! Selenium (mg/Kg)		<3	-	<3	<3
! Water Soluble Boron (mg/Kg)		0.4	-	0.3	0.10
pH		6.9	-	7.2	5.9
Total Sulphate (% SO_4)		0.24	-	<0.05	0.84
Water Soluble Sulphate (g/L SO_4)		1.1	-	0.07	3.6
Monohydric Phenols (mg/Kg)		-	-	-	-
TPH (>C8-C36) (mg/Kg)		-	-	-	-
Asbestos Identification (%)		-	-	NI	-
Loss on drying (%)					
Wt. loss on drying (% of wet)		15.3	11.9	12.2	12.2
Retained on 2mm sieve (% of dry)		31.2	46.4	42.8	40.8

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CLIENT ID	LAB ID	TPH (C8-C35) (mg/kg	Characterisation
TP6 Depth (m) 0.5	342431	------	No characteristic profile
TP7 Depth (m) 1	342433	------	No characteristic profile

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Cert Date : 10/6/2005

DETERMINAND	CLIENT ID. / Depth (m) / LAB ID.	TP16 / 0.2 / 342444
! VOC (Headspace) (µg/Kg)		
Dichloromethane		<24
! Chloroform		<4
! 1,1,1-Trichloroethane		<4
! Carbon tetrachloride		<4
! Benzene		<4
! 1,2-Dichloroethane		<6
! Trichloroethene		<6
Bromodichloromethane		<6
Dibromochloromethane		<6
1,1,2,2-Tetrachloroethane		<6
! Toluene		<4
! 1,1,2-Trichloro-1,2,2-trifluoroethane		<6
! Tetrachloroethene		<4
! Chlorobenzene		<6
! Ethylbenzene		<6
! M/p-Xylene		<10
! o-Xylene		<6
Hexachloro-1,3-butadiene		<10
! 1-Chloro-4-methylbenzene		<6
! 1-Chloro-2-methylbenzene		<6
! Isopropylbenzene		<6
Bromoform		<6
! Styrene		<6
1,2,3-Trichlorobenzene		<18
1,2,4-Trichlorobenzene		<12
! 1,2-Dichlorobenzene		<8
! 1,3-Dichlorobenzene		<6
! 1,4-Dichlorobenzene		<6
! a-Methylstyrene		<6
! 1,1-Dichloroethane		<6
! 1,1,2-Trichloroethane		<6
! 1,1-Dichloroethene		<4
! trans-1,2-Dichloroethene		<6
! cis-1,2-Dichloroethene		<6
MTBE		<6
Vinyl Chloride		<6
Trichloromonofluoromethane		<8
! 1,1-Dichloro-1-propene		<4
! 1,2-Dibromoethane		<6
! 1,2-Dichloropropane		<8
! 1,3-Dichloropropane		<6
! 2,2-Dichloropropane		<6

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Cert Date : 10/6/2005

DETERMINAND	CLIENT ID. / Depth (m) / LAB ID.	TP16 / 0.2 / 342444
! cis-1,3-Dichloro-1-propene		<6
! trans-1,3-Dichloro-1-propene		<6
! 1,1,1,2-Tetrachloroethane		<6
1,2,3-Trichloropropane		<6
! Bromobenzene		<6
! Dibromomethane		<6
! Dichlorodifluoromethane		<10
! Chloromethane		<6
! Bromomethane		<8
! n-Propylbenzene		<6
! 1,3,5-Trimethylbenzene		<6
! Tert-butylbenzene		<6
! 1,2,4-Trimethylbenzene		<6
! Bromochloromethane		<6
! Naphthalene		<30
Loss on drying (%)		
Wt. loss on drying (% of wet)		11.9
Retained on 2mm sieve (% of dry)		46.4

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Cert Date : 10/6/2005

CLIENT ID	DEPTH	LAB ID	
TP1	0.05	342424	Loam like soil with stones and other debris
TP1	0.5	342425	Sandy soil with stones and other debris
TP2	0.2	342426	Sandy soil with stones and other debris
TP3	0.2	342427	Loam like soil with stones and other debris
TP3	1.0	342428	Clay like soil with stones and other debris
TP4	0.3	342429	Loam like soil with stones and other debris
TP5	0.1	342430	Loam like soil with stones and other debris
TP6	0.5	342431	Loam like soil with stones and other debris
TP7	0.5	342432	Sandy soil with stones and other debris
TP7	1	342433	Loam like soil with stones and other debris
TP8	0.1	342434	Loam like soil with stones and other debris
TP9	0.2	342435	Loam like soil with stones and other debris
TP9	0.8	342436	Loam like soil with stones and other debris
TP11	0.4	342438	Loam like soil with stones and other debris
TP13	0.4	342440	Loam like soil with stones and other debris
TP15	0.3	342442	Loam like soil with stones and other debris
TP16	0.5	342443	Loam like soil with stones and other debris
TP16	0.2	342444	Loam like soil with stones and other debris
TP17	0.8	342446	Loam like soil with stones and other debris
TP18	0.4	342447	Loam like soil with stones and other debris

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Date rec'd : 24/5/2005
Our Ref. : 771-215
Your Ref. : 27958 Wentwoth Park, Tankersley
Cert Date : 10/6/2005

DETERMINAND	TECHNIQUE	METHOD REFERENCE
Soil Samples		
! Arsenic #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Asbestos Identification #	Characterisation (quantitation outside UKAS scope)	MDHS77 **
! Cadmium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Chromium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Copper #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Lead #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Loss on drying	Dried at 40°C	In house
! Mercury #	Aqua regia digest/Atomic fluorescence	ELSA/52 **
Monohydric Phenols	NaOH extraction/distillation/colorimetry	ELSA/35 **
! Nickel #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
pH	Hydrogen ion selective electrode	ELS/001 **
Sample Description	Visual Inspection	Not Applicable
! Selenium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Total Sulphate #	HCl digestion/ICP	ELSA/36 **
TPH (>C8-C36)	Pentane extraction/GC-FID	ELSA/75 **
TPH Characterisation	Characterisation by GC-FID	ELSA/45 **
! VOC (Headspace) !	Headspace GC-MS	ELSA/49 **
! Water Soluble Boron #	Aqueous extraction/ICP	ELSA/39 **
Water Soluble Sulphate #	2:1 water extract/ICP-AES	ELSA/43 **

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Date rec'd : 24/5/2005
Our Ref. : 771-215
Your Ref. : 27958 Wentwoth Park, Tankersley
Cert Date : 10/6/2005

** Denotes UKAS Accredited Method
I Denotes MCERTS Accredited
++ Denotes Subcontracted Analysis
Opinions and interpretations expressed herein are outside the scope of UKAS accrediation
All analysis carried out on 'as received' sample, except where otherwise indicated
# Denotes analysis carried out on sample oven-dried at 40°C for 16 hours minimum and then passed through a 2mm sieve – asbestos analysis is carried out on the dried sample prior to sieving .Where asbestos present all analysis is carried out on 'as received' sample
Asbestos determination is a qualitative method.

Abbreviations :

MEWAM	Methods for the Examination of Water and Associated Material
ADAS	Agricultural Developement and Advistory Service
SMEWW	Standard Methods for the Examination of Water and Wastewater
US	Sample was unsuitable for analysis
IS	Insufficient sample to carry out analysis
NI	No Asbestos Identified
NA	Not Applicable
NR	Not Recognised

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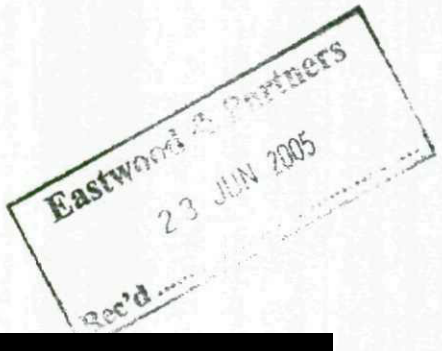
CERTIFICATE OF ANALYSIS

Date :	16/6/2005	Date rec'd :	28/5/2005
Certificate No :	24171	Our Ref :	771-220
Your Ref :	Wentworth Park, Tankersley		

All positive results for soil samples have been calculated on a dry weight basis where a loss on drying has been determined

For the attention of :

G M Seaman
Eastwood & Partners
St Andrews House
23 Kingfield Road
Sheffield
S11 9AS



[redacted]

Janet Hunt,
LABORATORY MANAGER

Robertson Laboratories, Llandudno, North Wales LL30 1SA, United Kingdom
Telephone 01492 581811 Facsimile 01492 592030

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ANALYSIS OF SOIL SAMPLES

TUGRO

Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	DS1 1.1m 342738	DS2 0.3-0.4m 342739	DS2 0.9-1.0m 342740	DS3 1.7-1.8m 342741	DS6 0.4-0.5m 342744
! Arsenic (mg/Kg)		-	7	-	6	8
! Cadmium (mg/Kg)		-	1.0	-	0.9	0.7
! Chromium (mg/Kg)		-	22	-	20	15
! Copper (mg/Kg)		-	36	-	34	25
! Lead (mg/Kg)		-	58	-	28	22
! Mercury (mg/Kg)		-	<0.10	-	<0.10	<0.10
! Nickel (mg/Kg)		-	48	-	45	28
! Selenium (mg/Kg)		-	<3	-	<3	<3
! Water Soluble Boron (mg/Kg)		-	0.4	-	0.4	0.2
! Zinc (mg/Kg)		-	125	-	102	61
pH		-	7.6	-	7.6	8.4
Total Sulphate (% SO_4)		-	0.20	-	0.10	0.06
Water Soluble Sulphate (g/L SO_4)		-	0.46	-	0.17	0.13
Monohydric Phenols (mg/Kg)		-	<1	-	<1	<1
Total PAHs (mg/Kg)		-	<20	-	<20	<20
Target PAHs (mg/Kg)						
Naphthalene		30	-	<1.0	-	-
Acenaphthylene		<1.0	-	<1.0	-	-
Acenaphthene		12	-	<1.0	-	-
Fluorene		13	-	<1.0	-	-
Phenanthrene		26	-	<1.0	-	-
Anthracene		7	-	<1.0	-	-
Fluoranthene		10	-	<1.0	-	-
Pyrene		7	-	<1.0	-	-
Benz(a)anthracene		2	-	<1.0	-	-
Chrysene		2	-	<1.0	-	-
Benz(b)fluoranthene		<1.0	-	<1.0	-	-
Benz(k)fluoranthene		<1.0	-	<1.0	-	-
Benz(a)pyrene		<1.0	-	<1.0	-	-
Indeno(1,2,3,c,d)pyrene		<1.0	-	<1.0	-	-
Dibenz(a,h)anthracene		<1.0	-	<1.0	-	-
Benzo(g,h,i)perylene		<1.0	-	<1.0	-	-
TPH (>C8-C36) (mg/Kg)		112	-	52	-	-
Asbestos Identification (%)		-	NI	-	-	NI
Loss on drying (%)						
Wt. loss on drying (% of wet)		15.8	14.1	12.1	10.2	9.0
Retained on 2mm sieve (% of dry)		48.8	31.6	58.9	60.5	58.0

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ANALYSIS OF SOIL SAMPLES

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Cert Date : 16/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	DS7 0.2-0.3m 342745	DS11 0.35m 342749	DS13 0.3-0.4m 342750	DS15 0.9-1.0m 342752	DS17 1.8m 342754
! Arsenic (mg/Kg)		9	13	27	6	-
! Cadmium (mg/Kg)		1.0	0.8	0.9	0.7	-
! Chromium (mg/Kg)		25	14	19	21	-
! Copper (mg/Kg)		39	37	46	38	-
! Lead (mg/Kg)		35	18	26	16	-
! Mercury (mg/Kg)		0.16	<0.10	<0.10	<0.10	-
! Nickel (mg/Kg)		58	31	40	35	-
! Selenium (mg/Kg)		<3	<3	<3	<3	-
! Water Soluble Boron (mg/Kg)		0.5	0.3	0.3	0.1	-
! Zinc (mg/Kg)		135	47	84	91	-
pH		8.1	8.4	8.0	7.0	-
Total Sulphate (% SO_4)		0.08	-	-	-	-
Water Soluble Sulphate (g/L SO_4)		<0.03	-	-	-	-
Monohydric Phenols (mg/Kg)		<1	<1	<1	<1	-
Total PAHs (mg/Kg)		474	165	<20	<20	-
Target PAHs (mg/Kg)						
Naphthalene		-	-	-	-	<1.0
Acenaphthylene		-	-	-	-	<1.0
Acenaphthene		-	-	-	-	<1.0
Fluorene		-	-	-	-	<1.0
Phenanthrene		-	-	-	-	<1.0
Anthracene		-	-	-	-	<1.0
Fluoranthene		-	-	-	-	<1.0
Pyrene		-	-	-	-	<1.0
Benz(a)anthracene		-	-	-	-	<1.0
Chrysene		-	-	-	-	<1.0
Benz(b)fluoranthene		-	-	-	-	<1.0
Benz(k)fluoranthene		-	-	-	-	<1.0
Benz(a)pyrene		-	-	-	-	<1.0
Indeno(1,2,3,c,d)pyrene		-	-	-	-	<1.0
Dibenz(a,h)anthracene		-	-	-	-	<1.0
Benzo(g,h,i)perylene		-	-	-	-	<1.0
TPH (>C8-C36) (mg/Kg)		-	-	-	-	3357
Asbestos Identification (%)		NI	NI	NI	NI	-
Loss on drying (%)						
Wt. loss on drying (% of wet)		9.0	10.3	11.2	10.7	7.2
Retained on 2mm sieve (% of dry)		71.5	53.9	42.5	40.8	74.2

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ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	DS17 2.3m 342755	DS18 0.3-0.4m 342756	DS20 0.2-0.3m 342757	DS21 2.4m 342759	DS22 0.7-0.8m 342760
! Arsenic (mg/Kg)		-	-	15	-	4
! Cadmium (mg/Kg)		-	-	0.6	-	0.7
! Chromium (mg/Kg)		-	-	14	-	16
! Copper (mg/Kg)		-	-	40	-	24
! Lead (mg/Kg)		-	-	6	-	12
! Mercury (mg/Kg)		-	-	<0.10	-	<0.10
! Nickel (mg/Kg)		-	-	39	-	32
! Selenium (mg/Kg)		-	-	<3	-	<3
! Water Soluble Boron (mg/Kg)		-	-	0.3	-	<0.1
! Zinc (mg/Kg)		-	-	28	-	77
pH		-	-	8.7	-	6.9
Total Sulphate (% SO_4)		-	-	-	-	0.08
Water Soluble Sulphate (g/L SO_4)		-	-	-	-	0.06
Monohydric Phenols (mg/Kg)		-	-	<1	-	<1
Total PAHs (mg/Kg)		-	-	49	-	<20
Target PAHs (mg/Kg)						
Naphthalene		<1.0	<1.0	-	31	-
Acenaphthylene		<1.0	<1.0	-	3	-
Acenaphthene		<1.0	<1.0	-	43	-
Fluorene		<1.0	<1.0	-	37	-
Phenanthrene		2	<1.0	-	67	-
Anthracene		<1.0	<1.0	-	35	-
Fluoranthene		<1.0	<1.0	-	22	-
Pyrene		<1.0	<1.0	-	14	-
Benz(a)anthracene		<1.0	<1.0	-	5	-
Chrysene		<1.0	<1.0	-	5	-
Benz(b)fluoranthene		<1.0	<1.0	-	2	-
Benz(k)fluoranthene		<1.0	<1.0	-	3	-
Benz(a)pyrene		<1.0	<1.0	-	3	-
Indeno(1,2,3,c,d)pyrene		<1.0	<1.0	-	1	-
Dibenz(a,h)anthracene		<1.0	<1.0	-	<1.0	-
Benzo(g,h,i)perylene		<1.0	<1.0	-	<1.0	-
TPH (>C8-C36) (mg/Kg)		7614	<10	-	3583	-
Asbestos Identification (%)		-	-	-	-	NI
Loss on drying (%)						
Wt. loss on drying (% of wet)		20.3	5.9	14.8	17.0	9.0
Retained on 2mm sieve (% of dry)		49.0	77.9	59.7	36.2	13.0

QA data not reported.
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UKAS TESTING
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FUGRO

ANALYSIS OF SOIL SAMPLES

Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	DS24 0.05-0.1m 342762	DS25 0.15-0.2m 342763	DS28 0.2-0.3m 342765	DS31 0.5m 342768	DS33 0.6-0.7m 342771
! Arsenic (mg/Kg)		15	17	18	17	4
! Cadmium (mg/Kg)		1.2	1.1	0.9	1.1	0.6
! Chromium (mg/Kg)		51	25	19	20	20
! Copper (mg/Kg)		46	39	57	36	30
! Lead (mg/Kg)		53	43	6	51	16
! Mercury (mg/Kg)		0.12	0.15	<0.10	0.12	<0.10
! Nickel (mg/Kg)		26	28	42	34	35
! Selenium (mg/Kg)		<3	<3	<3	<3	<3
! Water Soluble Boron (mg/Kg)		0.6	0.5	0.2	0.4	0.1
! Zinc (mg/Kg)		134	93	44	96	74
pH		7.0	6.5	8.8	7.7	6.9
Total Sulphate (% SO_4)		-	-	-	-	0.07
Water Soluble Sulphate (g/L SO_4)		-	-	-	-	0.03
Monohydric Phenols (mg/Kg)		<1	<1	<1	<1	<1
Total PAHs (mg/Kg)		<20	<20	<20	<20	<20
Target PAHs (mg/Kg)						
Naphthalene		-	-	-	-	-
Acenaphthylene		-	-	-	-	-
Acenaphthene		-	-	-	-	-
Fluorene		-	-	-	-	-
Phenanthrene		-	-	-	-	-
Anthracene		-	-	-	-	-
Fluoranthene		-	-	-	-	-
Pyrene		-	-	-	-	-
Benz(a)anthracene		-	-	-	-	-
Chrysene		-	-	-	-	-
Benz(b)fluoranthene		-	-	-	-	-
Benz(k)fluoranthene		-	-	-	-	-
Benz(a)pyrene		-	-	-	-	-
Indeno(1,2,3,c,d)pyrene		-	-	-	-	-
Dibenz(a,h)anthracene		-	-	-	-	-
Benzo(g,h,i)perylene		-	-	-	-	-
TPH (>C8-C36) (mg/Kg)		-	-	-	-	-
Asbestos Identification (%)		NI	NI	NI	NI	-
Loss on drying (%)						
Wt. loss on drying (% of wet)		16.7	21.5	11.6	17.9	14.0
Retained on 2mm sieve (% of dry)		43.8	16.2	56.7	30.2	0.0

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ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

CLIENT ID	LAB ID	TPH (C8-C35) (mg/kg	Characterisation
DS1 Depth 1.1m	342738	------	No characteristic profile
DS2 Depth 0.9-1.0m	342740	------	No characteristic profile
DS17 Depth 1.8m	342754	------	Heavily weathered diesel
DS17 Depth 2.3m	342755	------	Heavily weathered diesel
DS18 Depth 0.3-0.4m	342756	------	-
DS21 Depth 2.4m	342759	------	No characteristic profile

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ANALYSIS OF SOIL SAMPLES

Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

CLIENT ID	DEPTH	LAB ID	
DS1	1.1m	342738	Clay like soil with stones and other debris
DS2	0.3-0.4m	342739	Clay like soil with stones and other debris
DS2	0.9-1.0m	342740	Clay like soil with stones and other debris
DS3	1.7-1.8m	342741	Clay like soil with stones and other debris
DS6	0.4-0.5m	342744	Sandy soil with stones and other debris
DS7	0.2-0.3m	342745	Clay like soil with stones and other debris
DS11	0.35m	342749	Sandy soil with stones and other debris
DS13	0.3-0.4m	342750	Clay like soil with stones and other debris
DS15	0.9-1.0m	342752	Clay like soil with stones and other debris
DS17	1.8m	342754	Sandy soil with stones and other debris
DS17	2.3m	342755	Sandy soil with stones and other debris
DS18	0.3-0.4m	342756	Sandy soil with stones and other debris
DS20	0.2-0.3m	342757	Sandy soil with stones and other debris
DS21	2.4m	342759	Clay like soil with stones and other debris
DS22	0.7-0.8m	342760	Sandy soil with stones and other debris
DS24	0.05-0.1m	342762	Loam like soil with stones and other debris
DS25	0.15-0.2m	342763	Loam like soil with stones and other debris
DS28	0.2-0.3m	342765	Sandy soil with stones and other debris
DS31	0.5m	342768	Clay like soil with stones and other debris
DS33	0.6-0.7m	342771	Sandy soil with stones and other debris

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Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

Additional comments (I)

Sample Lab Id. 342738 Determinand Target PAHs
Poor agreement between duplicates for Napnthalene, possibly due to non-homogeneity in sample

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Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

DETERMINAND	TECHNIQUE	METHOD REFERENCE
Soil Samples		
! Arsenic #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Asbestos Identification #	Characterisation (quantitation outside UKAS scope)	MDHS77 **
! Cadmium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Chromium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Copper #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Lead #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Loss on drying	Dried at 40°C	In house
! Mercury #	Aqua regia digest/Atomic fluorescence	ELSA/52 **
Monohydric Phenols	NaOH extraction/distillation/colorimetry	ELSA/35 **
! Nickel #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
pH	Hydrogen ion selective electrode	ELS/001 **
Sample Description	Visual Inspection	Not Applicable
! Selenium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Target PAHs	Solvent extraction/GC-MS	ELSA/093 **
Total PAHs #	Solvent extraction/GC-MS	ELSA/50 **
Total Sulphate #	HCl digestion/ICP	ELSA/36 **
TPH (>C8-C36)	Pentane extraction/GC-FID	ELSA/75 **
TPH Characterisation	Characterisation by GC-FID	ELSA/45 **
! Water Soluble Boron #	Aqueous extraction/ICP	ELSA/39 **
Water Soluble Sulphate #	2:1 water extract/ICP-AES	ELSA/43 **
! Zinc #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **

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FUGRO

Date rec'd : 28/5/2005
Our Ref. : 771-220
Your Ref. : Wentworth Park, Tankersley
Cert Date : 16/6/2005

** Denotes UKAS Accredited Method
! Denotes MCERTS Accredited
++ Denotes Subcontracted Analysis
Opinions and interpretations expressed herein are outside the scope of UKAS accrediation
All analysis carried out on 'as received' sample, except where otherwise indicated
# Denotes analysis carried out on sample oven-dried at 40°C for 16 hours minimum and then passed through a 2mm sieve – asbestos analysis is carried out on the dried sample prior to sieving .Where asbestos present all analysis is carried out on 'as received' sample
Asbestos determination is a qualitative method.

Abbreviations :

MEWAM	Methods for the Examination of Water and *Associated Material*
ADAS	Agricultural Developement and Advistory Service
SMEWW	Standard Methods for the Examination of Water and Wastewater
US	Sample was unsuitable for analysis
IS	Insufficient sample to carry out analysis
NI	No Asbestos Identified
NA	Not Applicable
NR	Not Recognised

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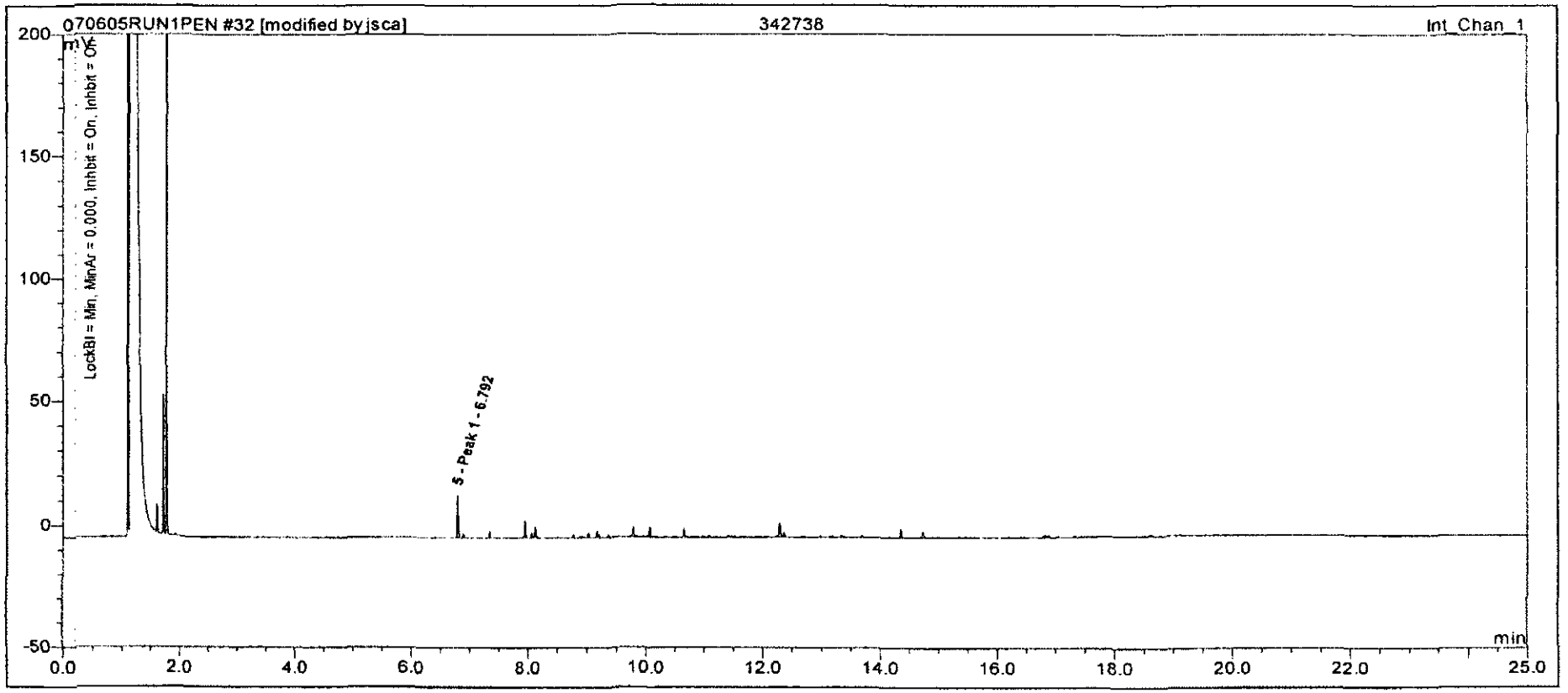
TPH Analysis Standard Samples

32 342738

Project No:	771-220
Sequence:	070605RUN1PEN
Timebase:	5890-PAH
Recording Time:	08.06.05 04:33

Sample Weight/Volume:	10
Solvent Volume:	10
Dilution Factor:	1
Vial Number:	32

Sample Type:	soil
Group amount:	0.0936



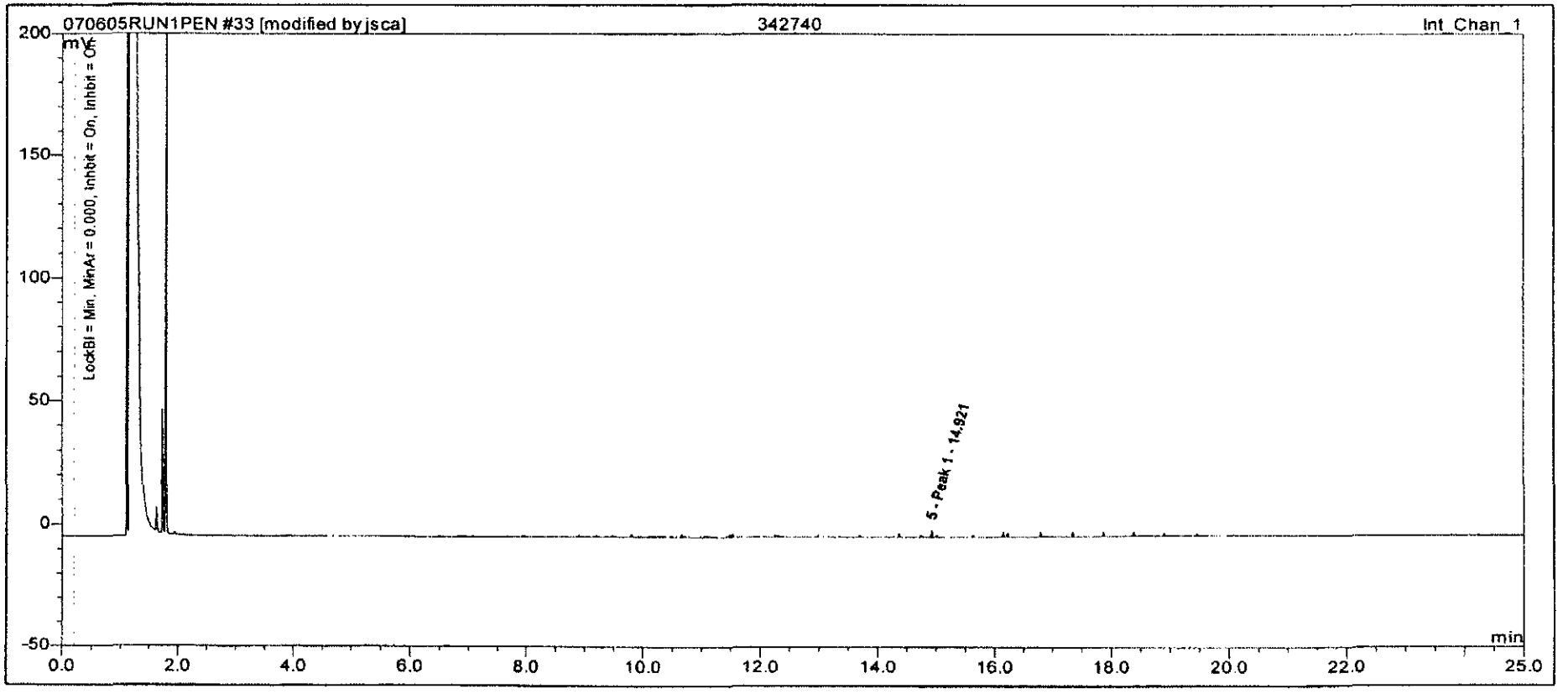
TPH Analysis Standard Samples

33 342740

Project No:	**771-220**
Sequence:	**070605RUN1PEN**
Timebase:	**5890-PAH**
Recording Time:	**08.06.05 10:31**

Sample Weight/Volume:	**10**
Solvent Volume:	**10**
Dilution Factor:	**1**
Vial Number:	**33**

Sample Type:	**soil**
Group amount:	**0.0464**



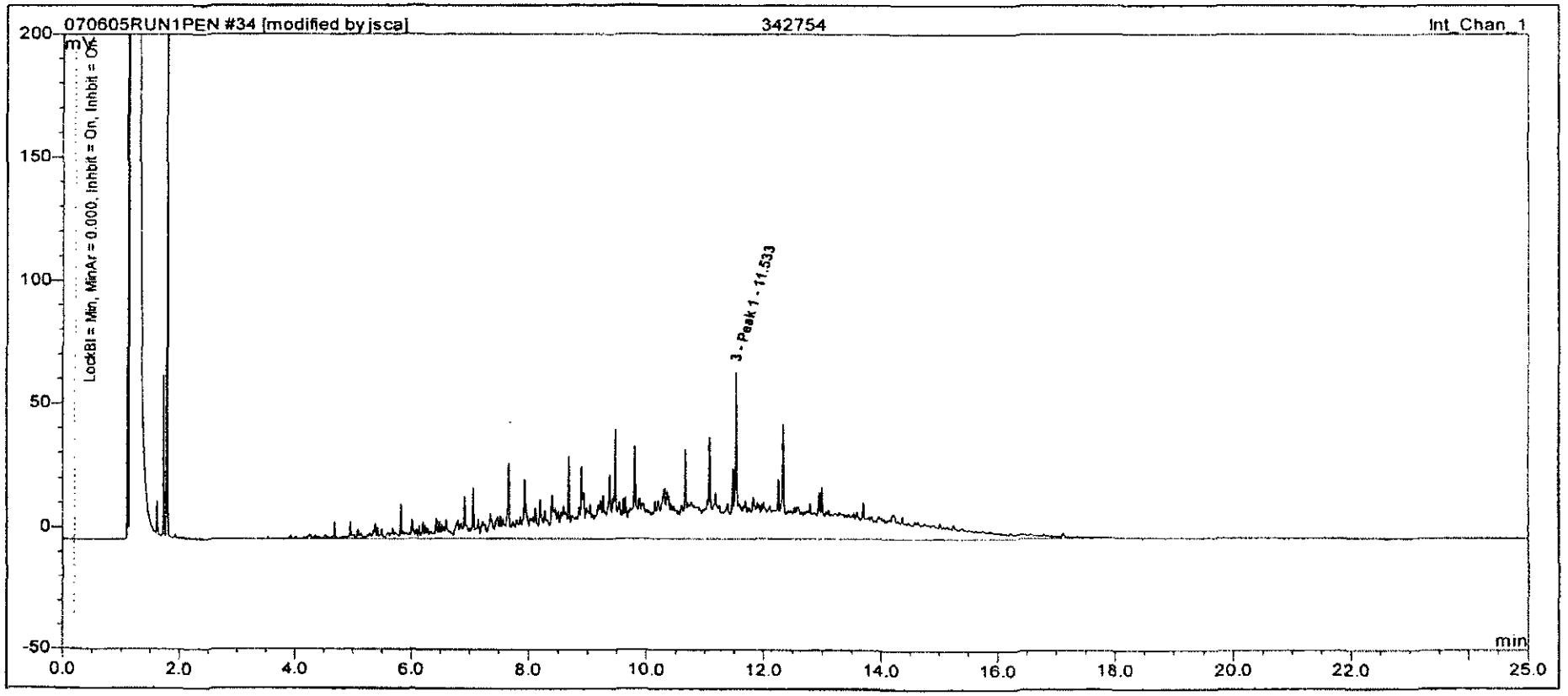
TPH Analysis Standard Samples

34 342754

Project No:	771-220
Sequence:	070605RUN1PEN
Timebase:	5890-PAH
Recording Time:	08.06.05 11:04

Sample Weight/Volume:	10
Solvent Volume:	10
Dilution Factor:	1
Vial Number:	34

Sample Type:	soil
Group amount:	3.1153



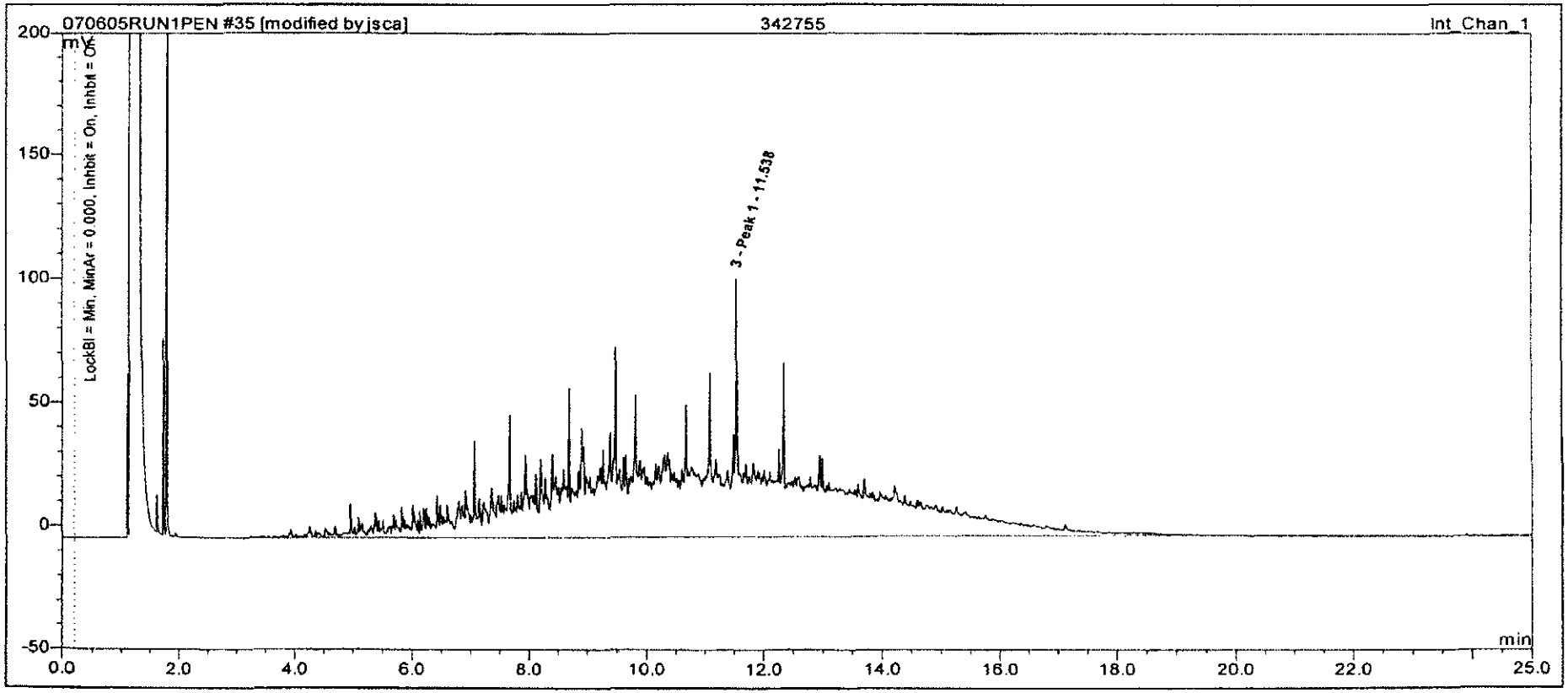
TPH Analysis Standard Samples

35 342755

Project No:	771-220
Sequence:	070605RUN1PEN
Timebase:	5890-PAH
Recording Time:	08.06.05 11:37

Sample Weight/Volume:	10
Solvent Volume:	10
Dilution Factor:	1
Vial Number:	35

Sample Type:	soil
Group amount:	6.0678



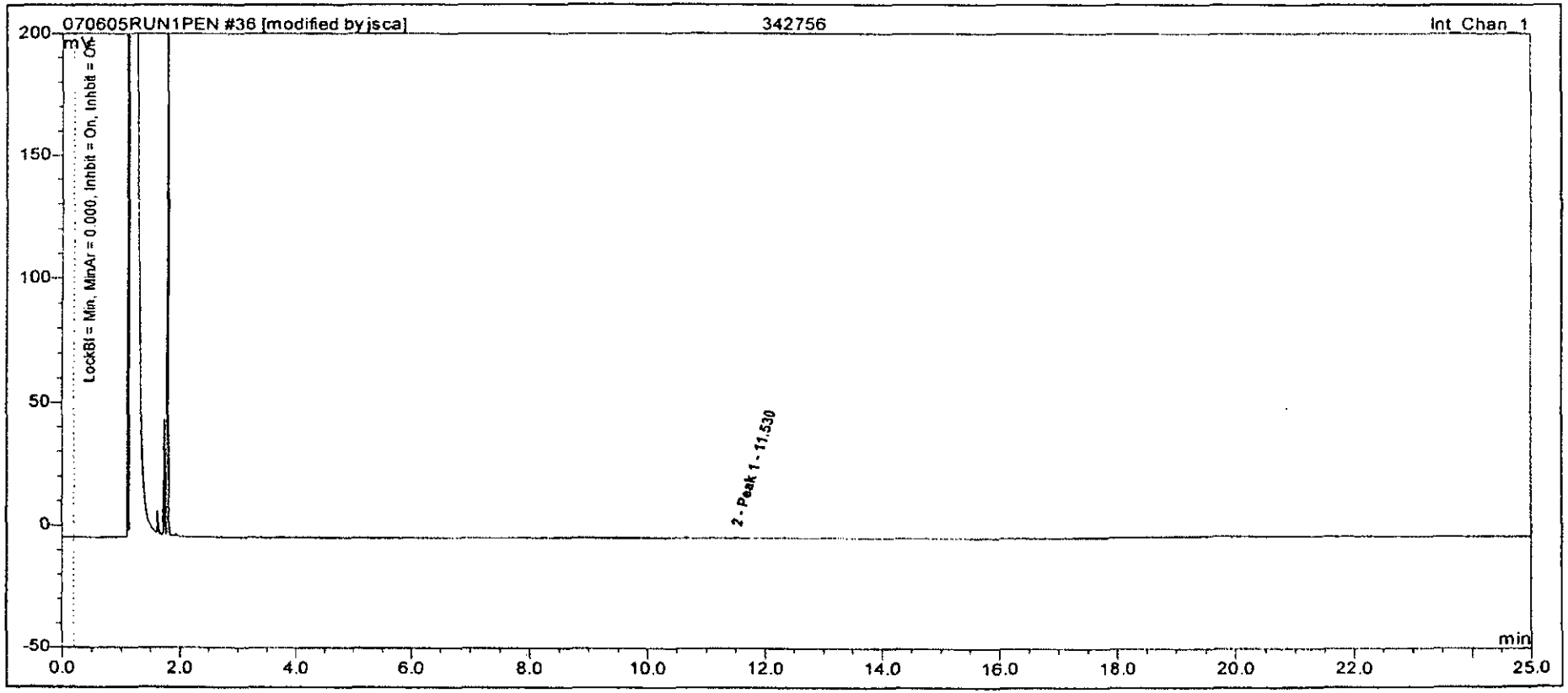
TPH Analysis Standard Samples

36 342756

Project No:	**771-220**
Sequence:	**070605RUN1PEN**
Timebase:	**5890-PAH**
Recording Time:	**08.06.05 12:10**

Sample Weight/Volume:	**10**
Solvent Volume:	**10**
Dilution Factor:	**1**
Vial Number:	**36**

Sample Type:	**soil**
Group amount:	**0.0087**



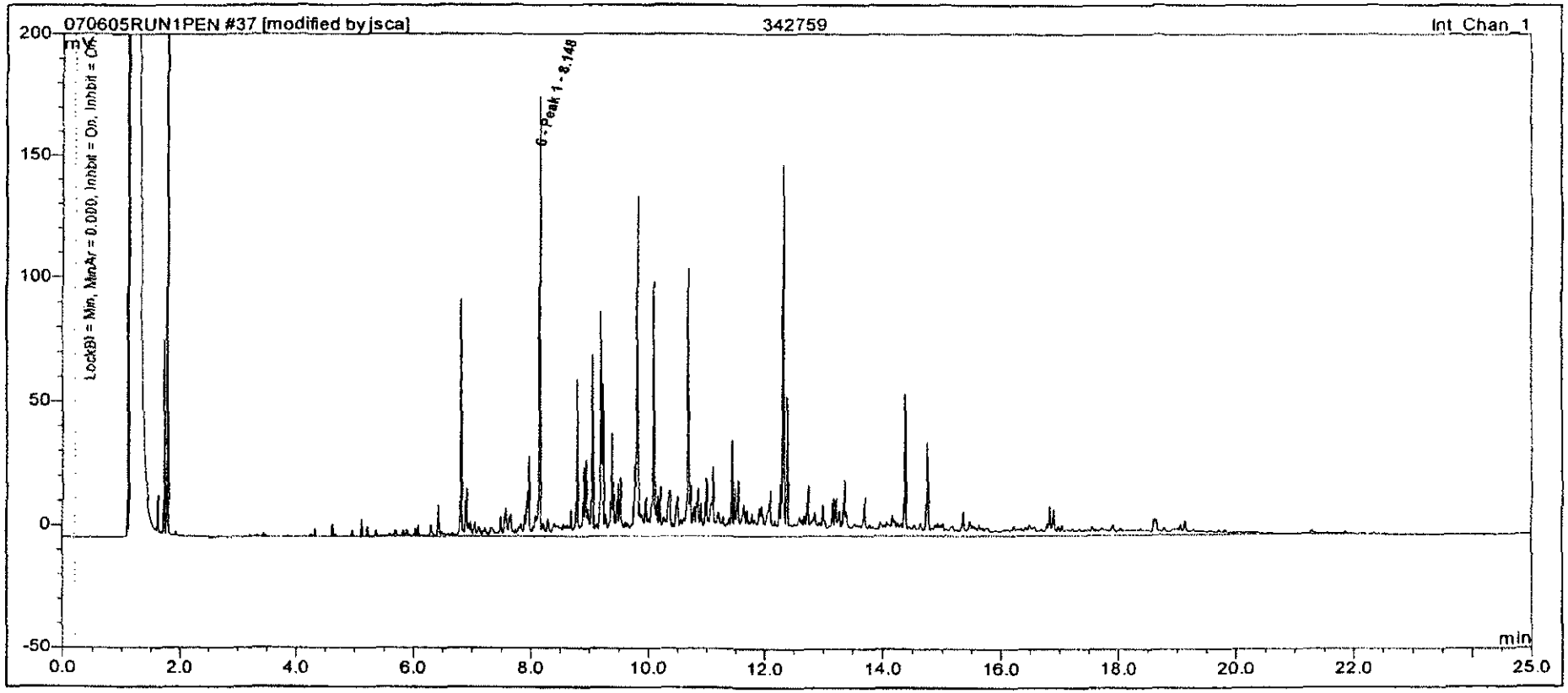
TPH Analysis Standard Samples

37 342759

Project No:	771-220
Sequence:	070605RUN1PEN
Timebase:	5890-PAH
Recording Time:	08.06.05 12:43

Sample Weight/Volume:	10
Solvent Volume:	10
Dilution Factor:	1
Vial Number:	37

Sample Type:	soil
Group amount:	2.9738



JCM

CERTIFICATE OF ANALYSIS

Date :	29/6/2005	Date rec'd :	11/6/2005
Certificate No :	24274	Our Ref :	771-230
Your Ref :	Tankersley		

All positive results for soil samples have been calculated on a dry weight basis where a loss on drying has been determined

Eastwood & Partners
- 1 JUL 2005
Rec'd .....

For the attention of :

G M Seaman
Eastwood & Partners
St Andrews House
23 Kingfield Road
Sheffield
S11 9AS

[redacted]

Janet Hunt,
LABORATORY MANAGER

Robertson Laboratories, Llandudno, North Wales LL30 1SA, United Kingdom
Telephone 01492 581811 Facsimile 01492 592030

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ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd 11/6/2005
Our Ref 771-230
Your Ref. . Tankersley
Cert Date 29/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	TP18 0.2m 343304	TP19 0.3m 343305	TP20 0.6m 343306	TP20 3.3m 343307	TP21 0.4m 343308	TP22 1.0m 343309
! Arsenic (mg/Kg)		17	18	13	10	14	7
! Cadmium (mg/Kg)		-	-	-	-	-	-
! Chromium (mg/Kg)		22	75	17	17	20	17
! Copper (mg/Kg)		35	124	27	26	39	23
! Lead (mg/Kg)		38	319	73	15	40	12
! Mercury (mg/Kg)		<0.10	0.30	<0.10	<0.10	<0.10	<0.10
! Nickel (mg/Kg)		32	59	35	32	26	46
! Selenium (mg/Kg)		<3	<3	<3	<3	<3	<3
! Water Soluble Boron (mg/Kg)		0.4	0.4	0.1	<0.1	0.3	<0.1
! Zinc (mg/Kg)		103	310	140	83	118	91
pH		7.3	7.6	7.8	7.3	5.4	5.1
Total Sulphate (% SO_4)		0.06	-	-	-	-	0.06
Water Soluble Sulphate (g/L SO_4)		0.18	-	-	-	-	0.04
Monohydric Phenols (mg/Kg)		<1	<1	<1	<1	<1	<1
Total PAHs (mg/Kg)		<20	33	<20	<20	<20	<20
TPH (>C8-C36) (mg/Kg)		-	-	-	-	-	-
Asbestos Identification (%)		NI	NI	NI	NI	NI	NI
Loss on drying (%)							
Wt. loss on drying (% of wet)		9.0	6.9	7.4	7.9	8.2	5.5
Retained on 2mm sieve (% of dry)		41.4	41.9	45.9	22.7	33.9	21.7

QA data not reported.
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The material analysed above was not sampled at source by Robertson unless otherwise stated.

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Robertson

ANALYSIS OF SOIL SAMPLES

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	TP24 0.1m 343310	TP25 0.1m 343311	TP27 0.4m 343312	TP28 0.4m 343313	TP31 0.25m 343314	TP33 0.3m 343315
! Arsenic (mg/Kg)		32	11	10	9	14	7
! Cadmium (mg/Kg)		-	0.8	0.7	0.7	1.0	0.9
! Chromium (mg/Kg)		25	25	19	21	32	22
! Copper (mg/Kg)		33	28	26	26	39	28
! Lead (mg/Kg)		-	41	17	20	33	15
! Mercury (mg/Kg)		0.14	<0.10	<0.10	<0.10	<0.10	<0.10
! Nickel (mg/Kg)		18	22	27	31	40	31
! Selenium (mg/Kg)		-	<3	<3	<3	<3	<3
! Water Soluble Boron (mg/Kg)		1.0	0.5	0.4	0.4	0.5	0.2
! Zinc (mg/Kg)		-	92	76	93	120	89
pH		4.3	5.6	4.9	6.0	5.9	4.6
Total Sulphate (% SO_4)		0.14	0.06	-	<0.05	<0.05	-
Water Soluble Sulphate (g/L SO_4)		0.04	<0.03	-	<0.03	<0.03	-
Monohydric Phenols (mg/Kg)		-	-	-	-	-	-
Total PAHs (mg/Kg)		<20	<20	<20	<20	<20	<20
TPH (>C8-C36) (mg/Kg)		-	-	-	-	-	-
Asbestos Identification (%)		-	NI	NI	NI	NI	NI
Loss on drying (%)							
Wt. loss on drying (% of wet)		26.6	11.1	8.6	9.9	24.1	16.7
Retained on 2mm sieve (% of dry)		27.9	24.2	41.7	24.2	27.9	18.5

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ANALYSIS OF SOIL SAMPLES

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	TP36 0.5m 343316	TP37 0.1m 343317	TP39 0.5m 343318	DS35 0.3-0.35m 343319	DS40 0.2-0.35m 343320	DS41 0.4-0.5m 343321
! Arsenic (mg/Kg)		11	11	13	-	13	7
! Cadmium (mg/Kg)		0.7	0.9	0.8	-	-	-
! Chromium (mg/Kg)		19	23	18	-	16	12
! Copper (mg/Kg)		32	32	38	-	47	25
! Lead (mg/Kg)		18	23	21	-	14	21
! Mercury (mg/Kg)		<0.10	<0.10	<0.10	-	<0.10	<0.10
! Nickel (mg/Kg)		40	34	43	-	41	29
! Selenium (mg/Kg)		<3	<3	<3	-	<3	<3
! Water Soluble Boron (mg/Kg)		0.3	0.3	0.1	-	<0.1	0.2
! Zinc (mg/Kg)		96	92	104	-	41	73
pH		5.7	5.3	5.2	-	8.0	7.7
Total Sulphate (% SO_4)		-	-	-	-	<0.05	-
Water Soluble Sulphate (g/L SO_4)		-	-	-	-	0.04	-
Monohydric Phenols (mg/Kg)		-	-	-	-	<1	<1
Total PAHs (mg/Kg)		<20	<20	<20	-	154	<20
TPH (>C8-C36) (mg/Kg)		-	-	-	3468	-	-
Asbestos Identification (%)		NI	NI	NI	-	NI	NI
Loss on drying (%)							
Wt. loss on drying (% of wet)		15.8	19.0	11.5	14.5	13.9	8.9
Retained on 2mm sieve (% of dry)		25.1	19.4	49.3	64.1	51.6	76.1

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ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

DETERMINAND	CLIENT ID. / Depth / LAB ID.	DS42 0.6-0.7m 343322	DS43 0.9-1.0m 343323	DS44 0.6-0.7m 343324	DS45 0.4-0.5m 343325	DS46 0.8-0.9m 343326	DS48 0.3-0.4m 343327
! Arsenic (mg/Kg)		20	22	9	4	14	56
! Cadmium (mg/Kg)		-	-	-	-	-	-
! Chromium (mg/Kg)		15	16	7	10	36	52
! Copper (mg/Kg)		95	61	37	10	54	421
! Lead (mg/Kg)		39	21	27	13	-	-
! Mercury (mg/Kg)		0.39	<0.10	<0.10	<0.10	0.43	0.59
! Nickel (mg/Kg)		25	81	10	28	78	69
! Selenium (mg/Kg)		<3	<3	<3	<3	-	-
! Water Soluble Boron (mg/Kg)		0.1	0.2	0.1	0.3	0.3	0.9
! Zinc (mg/Kg)		31	217	15	54	-	-
pH		3.5	3.9	3.5	6.9	3.9	8.4
Total Sulphate (% SO_4)		-	-	-	-	-	<0.05
Water Soluble Sulphate (g/L SO_4)		-	-	-	-	-	0.15
Monohydric Phenols (mg/Kg)		<1	<1	<1	<1	-	-
Total PAHs (mg/Kg)		<20	<20	<20	<20	<20	21
TPH (>C8-C36) (mg/Kg)		-	-	-	-	-	-
Asbestos Identification (%)		NI	NI	NI	NI	-	-
Loss on drying (%)							
Wt. loss on drying (% of wet)		17.1	18.2	10.6	9.5	32.2	9.2
Retained on 2mm sieve (% of dry)		23.8	22.3	23.7	69.4	14.5	80.2

QA data not reported.
! indicates a MCERTS Accredited
A list of test methods and procedures used are appended.
The material analysed above was not sampled at source by Robertson unless otherwise stated.

UKAS TESTING
0956

Robertson

ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

DETERMINAND	CLIENT ID. Depth LAB ID.	DS49 0.5-0.6m 343328	DS50 0.1-0.2m 343329	DS54 0.4-0.5m 343330	DS58 0.5-0.6m 343331
! Arsenic (mg/Kg)		43	60	7	7
! Cadmium (mg/Kg)		-	-	-	-
! Chromium (mg/Kg)		11	56	17	20
! Copper (mg/Kg)		39	334	22	26
! Lead (mg/Kg)		-	-	-	-
! Mercury (mg/Kg)		*<0.10*	*0.20*	*<0.10*	*<0.10*
! Nickel (mg/Kg)		<9	88	12	16
! Selenium (mg/Kg)		-	-	-	-
! Water Soluble Boron (mg/Kg)		0.1	1.1	0.1	0.2
! Zinc (mg/Kg)		-	-	-	-
pH		3.8	8.7	4.1	3.9
Total Sulphate (% SO_4)		0.16	-	-	-
Water Soluble Sulphate (g/L SO_4)		0.03	-	-	-
Monohydric Phenols (mg/Kg)		-	-	-	-
Total PAHs (mg/Kg)		<20	53	<20	<20
TPH (>C8-C36) (mg/Kg)		-	-	-	-
Asbestos Identification (%)		NI	NI	NI	NI
Loss on drying (%)					
Wt. loss on drying (% of wet)		17.9	4.7	15.0	11.5
Retained on 2mm sieve (% of dry)		24.6	72.5	27.1	45.5

QA data not reported.
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UKAS TESTING
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Robertson

ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

CLIENT ID	LAB ID	TPH (C8-C35) (mg/kg	Characterisation
DS35 Depth 0.3-0.35m	343319	------	Heavily weathered diesel

QA data not reported.
I indicates a MCERTS Accredited
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UKAS TESTING
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ANALYSIS OF SOIL SAMPLES

FUGRO

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

CLIENT ID	DEPTH	LAB ID	
TP18	0.2m	343304	Loam like soil with stones and other debris
TP19	0.3m	343305	Sandy soil with stones and other debris
TP20	0.6m	343306	Loam like soil with stones and other debris
TP20	3.3m	343307	Clay like soil with stones and other debris
TP21	0.4m	343308	Clay like soil with stones and other debris
TP22	1.0m	343309	Clay like soil with stones and other debris
TP24	0.1m	343310	Loam like soil with stones and other debris
TP25	0.1m	343311	Loam like soil with stones and other debris
TP27	0.4m	343312	Clay like soil with stones and other debris
TP28	0.4m	343313	Loam like soil with stones and other debris
TP31	0.25m	343314	Clay like soil with stones and other debris
TP33	0.3m	343315	Clay like soil with stones and other debris
TP36	0.5m	343316	Clay like soil with stones and other debris
TP37	0.1m	343317	Clay like soil with stones and other debris
TP39	0.5m	343318	Clay like soil with stones and other debris
DS35	0.3-0.35m	343319	Sandy soil with stones and other debris
DS40	0.2-0.35m	343320	Sandy soil with stones and other debris
DS41	0.4-0.5m	343321	Sandy soil with stones and other debris
DS42	0.6-0.7m	343322	Sandy soil with stones and other debris
DS43	0.9-1.0m	343323	Clay like soil with stones and other debris
DS44	0.6-0.7m	343324	Clay like soil with stones and other debris
DS45	0.4-0.5m	343325	Sandy soil with stones and other debris
DS46	0.8-0.9m	343326	Sandy soil with stones and other debris
DS48	0.3-0.4m	343327	Sandy soil with stones and other debris
DS49	0.5-0.6m	343328	Clay like soil with stones and other debris
DS50	0.1-0.2m	343329	Sandy soil with stones and other debris
DS54	0.4-0.5m	343330	Clay like soil with stones and other debris
DS58	0.5-0.6m	343331	Clay like soil with stones and other debris

QA data not reported.
! indicates a MCERTS Accredited
A list of test methods and procedures used are appended.
The material analysed above was not sampled at source by Robertson unless otherwise stated.

UKAS TESTING
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FUGRO

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

DETERMINAND	TECHNIQUE	METHOD REFERENCE
Soil Samples		
! Arsenic #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Asbestos Identification #	Characterisation (quantitation outside UKAS scope)	MDHS77 **
! Cadmium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Chromium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Copper #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
! Lead #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Loss on drying	Dried at 40°C	In house
! Mercury #	Aqua regia digest/Atomic fluorescence	ELSA/52 **
Monohydric Phenols	NaOH extraction/distillation/colorimetry	ELSA/35 **
! Nickel #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
pH	Hydrogen ion selective electrode	ELS/001 **
Sample Description	Visual Inspection	Not Applicable
! Selenium #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **
Total PAHs #	Solvent extraction/GC-MS	ELSA/50 **
Total Sulphate #	HCl digestion/ICP	ELSA/36 **
TPH (>C8-C36)	Pentane extraction/GC-FID	ELSA/75 **
TPH Characterisation	Characterisation by GC-FID	ELSA/45 **
! Water Soluble Boron #	Aqueous extraction/ICP	ELSA/39 **
Water Soluble Sulphate #	2:1 water extract/ICP-AES	ELSA/43 **
! Zinc #	Nitric/hydrochloric acid digestion/ICP	ELSA/53 **

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FUGRO

Date rec'd : 11/6/2005
Our Ref. : 771-230
Your Ref. : Tankersley
Cert Date : 29/6/2005

** Denotes UKAS Accredited Method
! Denotes MCERTS Accredited
++ Denotes Subcontracted Analysis
Opinions and interpretations expressed herein are outside the scope of UKAS accrediation
All analysis carried out on 'as received' sample, except where otherwise indicated
# Denotes analysis carried out on sample oven-dried at 40°C for 16 hours minimum and then passed through a 2mm sieve – asbestos analysis is carried out on the dried sample prior to sieving .Where asbestos present all analysis is carried out on 'as received' sample
Asbestos determination is a qualitative method.

Abbreviations :

MEWAM	Methods for the Examination of Water and Associated Material
ADAS	Agricultural Developement and Advistory Service
SMEWW	Standard Methods for the Examination of Water and Wastewater
US	Sample was unsuitable for analysis
IS	Insufficient sample to carry out analysis
NI	No Asbestos Identified
NA	Not Applicable
NR	Not Recognised

UKAS TESTING
0956

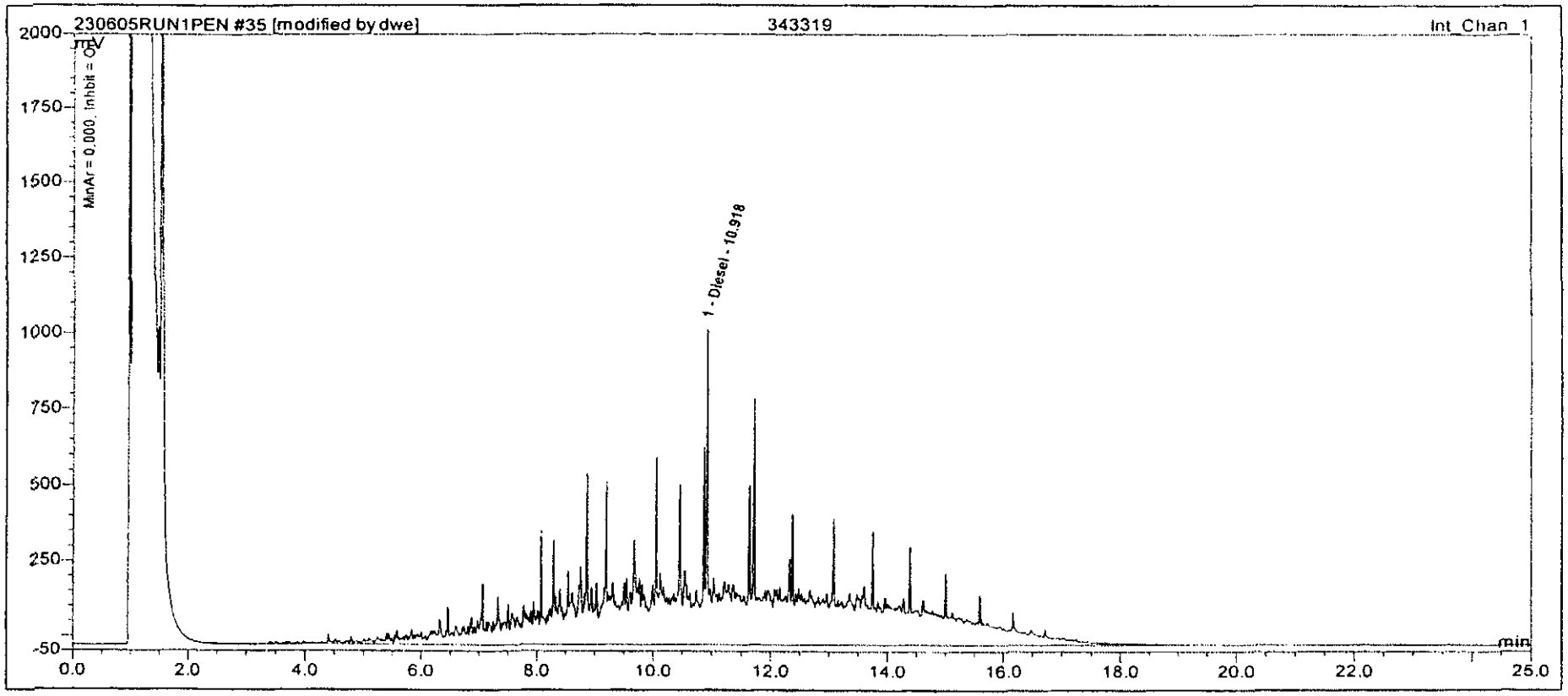
TPH Analysis Standard Samples

35 343319

Project No:	**771-230**
Sequence:	**230605RUN1PEN**
Timebase:	**EZ-Flash**
Recording Time:	**24.06.05 11:36**

Sample Weight/Volume:	**10**
Solvent Volume:	**10**
Dilution Factor:	**1**
Vial Number:	**35**

Sample Type:	**soil**
Group amount:	**2.9646**



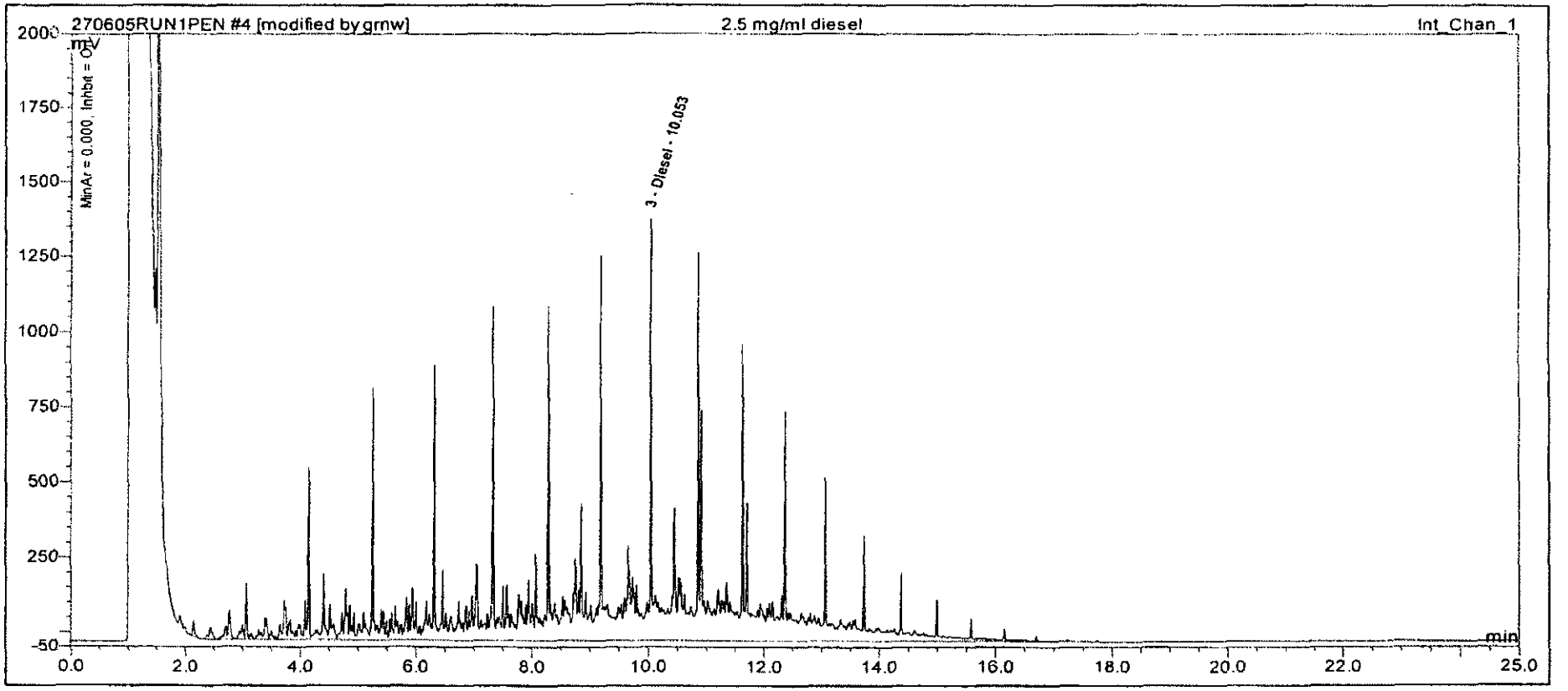
TPH Analysis Standard Samples

4 2.5 mg/ml diesel

Project No:	
Sequence:	**270605RUN1PEN**
Timebase:	**EZ-Flash**
Recording Time:	**27.06.05 19:40**

Sample Weight/Volume:	**1**
Solvent Volume:	**1**
Dilution Factor:	**1**
Vial Number:	**4**

Sample Type:	
Group amount:	**2.4938**



Monitoring Date: 13 June 2005							
Hole No.	CH_4 %	CO_2 %	O_2 %	Atmos press (mb)	Flow rate (l/hr)	Water Level (mbgl)	Base of Pipe (mbgl)
Start							
BH2	0.0	0.0	20.3	982			
BH5	0.0	0.2	19.9	982			
BH13	0.0	14.3	5.7	981			
BH14	0.0	1.8	18.9	982			
BH17	0.0	1.1	18.7	981			
BH21							
BH30							
BH37							
DS12							
DS26							
DS31	0.0	3.7	18.6	981			
DS43	0.0	7.6	9.6	982			
DS49	0.0	6.4	13.3	981			
End							

Remarks: Flow pod malfunctioning, monitoring abandoned.

Monitoring Date: 15 July 2005							
Hole No.	CH_4 %	CO_2 %	O_2 %	Atmos press (mb)	Flow rate (l/hr)	Water Level (mbgl)	Base of Pipe (mbgl)
Start							
BH2	0.2	0.0	20.7	990	0.0	22.09	23.61
BH5	0.3	3.5	12.1	990	0.2	DAB	9.13
BH13	0.3	6.0	12.8	990	0.0	19.24	19.79
BH14	0.3	0.0	20.5	990	3.0	DAB	9.20
BH17	0.3	0.0	20.7	991	0.2	7.53	9.07
BH21	0.3	4.5	14.6	990	3.2		
BH30	0.3	3.2	11.4	991	-0.2		
BH37	0.2	0.3	19.9	993	-0.2		
DS12	0.3	3.1	12.0	991	0.0	DAB	3.22
DS26	0.3	8.0	1.4	991	-0.2	0.69	2.96
DS31							
DS43							
DS49	0.3	8.5	10.7	990	0.0	0.00	1.58
End							

Remarks: Unable to locate DS31 and DS43. Unable to remove gas taps on BH21, BH30 and BH37 due to tarmac.

NFO NO FLOW OBSERVED
NR NOT RECORDED

E♦P
Eastwood&Partners
CONSULTING ENGINEERS
St Andrews House
23 Kingfield Road
Sheffield S11 9AS
Tel: (0114) 2554554 Fax: (0114) 2554330

DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

GROUND GAS MONITORING RESULTS

Table No.	**1**
Job No.	**27958**
Date	**3.08.05**
Checked	**JCH**
Typist ref	**JP**

Monitoring Date: 3 August 2005							
Hole No.	CH_4 %	CO_2 %	O_2 %	Atmos press (mb)	Flow rate (l/hr)	Water Level (mbgl)	Base of Pipe (mbgl)
Start							
BH2							
BH5							
BH13							
BH14							
BH17							
BH21						15.71	16.32
BH30						DRY	17.89
BH37						11.54	17.36
DS12							
DS26							
DS31	0.4	0.0	21.0	997	0.8	DAB	2.03
DS43	-	-	-	-	-	-	-
DS49							
End							

Remarks: Unable to locate DS43. Removed obstructions from blocked standpipes.

Monitoring Date:							
Hole No.	CH_4 %	CO_2 %	O_2 %	Atmos press (mb)	Flow rate (l/hr)	Water Level (mbgl)	Base of Pipe (mbgl)
Start							
BH2							
BH5							
BH13							
BH14							
BH17							
BH21							
BH30							
BH37							
DS12							
DS26							
DS31							
DS43							
DS49							
End							

Remarks:

NFO NO FLOW OBSERVED
NR NOT RECORDED

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DAIMLER CHRYSLER

WENTWORTH BUSINESS PARK, TANKERSLEY, BARNSLEY

GROUND GAS MONITORING RESULTS

Table No.	2
Job No.	27958
Date	3.08.05
Checked	JCH
Typist ref	JP