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MATTHEWS & SON

Chartered Surveyors

Incorporating

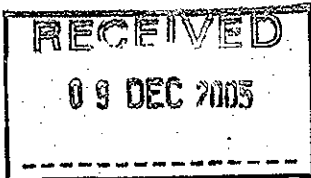
SMITH VINCENT

Chartered Mineral Surveyors

Radway Green Business Centre,
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CW2 5PR

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EA WML/34066
Y (HAVERFORDWEST)

Our ref:

Your ref: 1386

Bob
Mr R Philips
Environment Agency Wales
Llys Afon
Hawthorn Rise
Haverfordwest
Pembrokeshire
SA61 2BQ

7 December 2005

Dear Mr Philips

Fox Lane Landfill Site

Please find attached three copies of the closure report for the above site.

I trust this is sufficient for your purposes but should you wish to discuss please do not hesitate in contacting me.

Yours sincerely

P R Deakin

cc Mr H Merriman

And ac:
91 Gower Street,
London,
WC1E 6AB

Partners

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**ENVIRONMENTAL PROTECTION ACT 1990
SECTION 39 COMPLETION REPORT
FOX LANE LANDFILL SITE
LUDCHURCH
PEMBROKESHIRE**

ENVIRONMENTAL PROTECTION ACT 1990
SECTION 39 COMPLETION REPORT
FOX LANE LANDFILL SITE
LUDCHURCH
PEMBROKESHIRE

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ENVIRONMENTAL PROTECTION ACT 1990
SECTION 39 COMPLETION REPORT
FOX LANE LANDFILL SITE
LUDCHURCH
PEMBROKESHIRE

1 INTRODUCTION

- 1.1 This Completion Report for the inert landfill site located at Fox Lane, Ludchurch, Pembrokeshire (National Grid Reference: SN14880/10760) has been prepared under the provisions of Section 39 of the Environmental Protection Act 1990 and using the guidance provided by Waste Management Paper 26A – Landfill Completion. The report has been prepared by Matthews and Son acting on behalf of the licence holder; Mr H Merriman of Blaencilgoed Farm, Ludchurch, Pembrokeshire, SA67 8LA.
- 1.2 The information contained in the Report has been provided to demonstrate that the condition of the land is unlikely to cause pollution to the environment or cause harm to human health. The information provided in relation to the materials deposited at the site in both type and quantity and landfill gas and water monitoring confirm that the site is well characterised and in a stable condition. The physical stability is also considered.
- 1.3 As required by Waste Management Paper 26A (paragraph 1.8) the following factors have been taken into account:
- the quality and quantity of waste present;
 - the flow and concentration of landfill gas;
 - the potential for polluting leachate or gas to be generated in the future;
 - the possibility of instability of the waste;
 - the presence of particular problem wastes that could present a hazard in the future.
- 1.4 The development history of the site clearly demonstrates that the inert landfill site has been used for the disposal of truly inert wastes that have not produced significant, if any, concentrations of pollutants. There are no important biological, physical or chemical processes taking place within or adjacent to the tip. In addition the site has been operated under a Waste Management Licence since 1993, ref WD920009 a copy of which is attached as Appendix I, on this basis, the amount of information required to demonstrate that the landfill site has achieved the completion condition should be relatively small (WMP 26A paragraph 1.10).
- 1.5 The site has been used for the disposal of inert waste arising from the various excavations and demolition works.
- 1.6 The site can be classed as truly inert because it has not been used for the disposal of non-inert waste.

- 1.7 Details of the quantities deposited on site are shown in Appendix II.
- 1.8 The nature of the deposited waste has been confirmed by examining the deposition records and the material *in situ* in four test pits. The test pits have confirmed the relatively uniform inert nature of the wastes, indicated by the attached photographs and test pit log descriptions.
- 1.9 In addition gas monitoring at the site has been undertaken during the completion investigation. Leachability testing has been undertaken on samples obtained from the test pits in accordance with the Environment Agency leachability testing guidelines to assess the potential for pollution of groundwater. The gas monitoring and leachability testing confirm that the site has achieved the necessary criteria for completion.
- 1.10 The landfilling is restricted to the former quarry bowl and therefore is inherently stable.
- 1.11 The primary objective of this Completion Report is to demonstrate that the inert landfill site has reached the completion condition and that the condition of the land is unlikely to cause pollution. It is considered that the evidence contained in this Report clearly demonstrates that the completion condition has been achieved and that the Environment Agency can be reasonably expected to issue the necessary Certificate of Completion.

2 SITE LOCATION AND DESCRIPTION

- 2.1 The inert landfill site is located within the administrative area of Pembrokeshire County Council and lies approximately 700 metres east of Ludchurch and 5.5 kilometres south east of Narberth, Pembrokeshire and as shown on the attached Location Plan. The landfill site lies within a larger area of land owned by the operator and as shown on the attached Drawing No FL1A-05. The site is in a rural setting and surrounded by fields and agricultural land. The nearest settlement is Ludchurch 700m to the west although there are also several individual residential properties closer to the site.
- 2.2 The approximate centre site is located at National Grid Reference: SN14880/10760.
- 2.3 The landfill site extends to about 1.2 hectares. The site is approximately 120m north-south by 125m wide east-west. A small stream lies between 20m and 40m to the east of the site and flows to the south. This joins the New Inn Stream (Colby Stream) about 2.5km to the south of the site. This stream flows into the sea at Amroth about 4km to the south of the site.
- 2.4 The surrounding ground surface slopes to the south at about 1 in 18 (3°) but the landfilling has been restricted to the quarry that lies below the general level of the land.

- 2.5 The landfill has been contained in the former quarry bowl and its final surface profile will be achieved by the spreading of soils. The proposed restoration profile is shown on the attached Drawings Nos: FL6A-05 and FL7-05. These profiles will ensure that there will be no areas of ponding and the surface will be free draining.
- 2.6 The land immediately adjacent to the site lies between 134 and 145 metres above Ordnance Datum (AOD) with the ground surface falling to the south.
- 2.7 The planning permission, Ref D3/130/92 was granted in 1992 for filling the disused quarry with subsoil and builders rubble. A copy of this consent is attached as Appendix III.

3 GEOLOGY

- 3.1 The geology of the area has been mapped by the British Geological Survey (BGS) and is shown on BGS 1/50000 Sheet 228, Haverfordwest and Six Inch to One Mile Sheet Pembrokeshire XXXV NE. The solid strata at the site consist of limestones of the Carboniferous Period. The limestone formerly worked at the quarry forms the lower part of the Carboniferous Limestone sequence and this is immediately underlain by the Lower Limestone Shales Series again of Carboniferous age. The general dip of the strata, shown on the Geological Plan, is 16° to the south.
- 3.2 The Lower Limestone Shales are shown on the Geological Plan to outcrop about 20 metres to the north of the site. This stratum is in turn underlain conformably by Old Red Sandstone of the Devonian age. The outcrop of the Old Red Sandstone is shown on the Geological Plan to lie between 40 and 60 metres to the north of the site where the interface between the Carboniferous and Devonian strata is shown as an east west trending geological fault that runs parallel to the crest of an anticline. Another fault trending north south is shown to terminate immediately to the north of the site. The full width of the limestone outcrop in the area is in the order of 500 metres. The solid strata and the extent of superficial deposits in the vicinity of the site are shown on the attached Drawing No: FL-GEOLOGY.
- 3.3 The Geological Plan shows the solid strata at the site and its immediate vicinity to be overlain by a layer of till (*ie* glacial debris consisting predominately in this area of silty clays and loosely termed boulder clay). This however has been removed from the landfill area by former quarrying activity.
- 3.4 The geological sequence at the site has been confirmed by the drilling of three water monitoring boreholes in the positions shown on the attached Drawing No: FL8-05. Copies of the borehole logs are attached as Appendix IV. These boreholes were drilled on land immediately adjacent to the former quarry and encountered varying thicknesses of boulder clay, viz: BH A - 2.0m; BH B -

5.8m; and BH C - 5.8m. All three boreholes were recorded as being in limestone at their final depth.

4 HYDROLOGY AND HYDROGEOLOGY

- 4.1 Part of the Carboniferous Limestone to the north of the Pembrokeshire Coalfield is an important aquifer from which a public water supply is drawn at Morfa Bychan Shaft (SN224074) ~9km east of the site. The site is shown to be situated within the groundwater protection zone for this water supply on the Environment Agency website. We are led to believe however that this groundwater protection zone has now been reassessed and the site is no longer thought to lie within this zone.
- 4.2 The water levels in the vicinity of the quarry have been monitored periodically in the three water monitoring boreholes since August 2002. More recently water levels have also been monitored in a water supply well used by Mr Merriman. The locations of the boreholes and well are shown on Drawing No: FL-Geology. A copy of the water monitoring information is attached as Appendix V. Prior to the commencement of backfilling the base of the quarry was partially flooded during the winter and after periods of prolonged wet weather.
- 4.3 It can be seen from the water monitoring information that the water levels in the boreholes suggest that, in the matrix at least, there is an hydraulic gradient to the south. There is a known spring at Farthings End (level ~113m AOD) that lies about 440m to the south of the site (NGR: SN14990/10230).
- 4.4 A Geological Survey field slip for Pembrokeshire XXXV NE shows an "exceedingly strong spring" about 220m south east of the site (NGR: SN15040/10505; level ~123m AOD). This spring has not been observed flowing during my visits to the site but Mr Merriman says that it does flow after periods of heavy / prolonged rainfall. The water flow from the spring is thought to have been affected by pumping from the nearby Blaencilgoed and Gelli Halog quarries.
- 4.5 Water samples have been taken from the boreholes and the water quality in boreholes B and C is of good quality but there was elevated ammonia in borehole A, copies of these analyses are attached as Appendix VI. Borehole A lies immediate adjacent to a silage clamp and it is thought it may have been affected by this. Surface drainage works have since been undertaken so that the silage clamp now accords with best agricultural practice. Further water samples have been taken and the results of this testing are included in Appendix VI. The ammonia levels in Borehole A are now at acceptable levels.
- 4.6 The rainfall in the locality has been monitored during 2005 and a summary of these results is attached as Appendix VII.
- 4.7 An unnamed tributary of the New Inn Stream (Colby Brook) flows immediately

to the east of the site and as shown of Drawing No: FL7-05. This stream flows in a southerly direction and flows into the sea about 4km to the south of the site. This stream has been sampled both upstream and downstream of the site and copies of the analyses are attached in Appendix VIII. The water quality is deemed to be good and shows no signs of contamination.

- 4.8 The water taken from the well is used on a daily basis as a water supply for livestock and there are no signs of contamination.
- 4.9 The stream rises on the Old Red Sandstone strata to the north of the site but water from the limestone feeds into the stream at NGR: SN14990/10230 and formerly at NGR: SN15040/10505.

5 LAND CONTAMINATION

- 5.1 Four test pits were excavated into the body of waste to allow visual examination and for samples to be taken for leachability testing and contamination assessment.
- 5.2 Logs of these test pit logs are attached as Appendix IX and they are also shown in the attached photographs.
- 5.3 Composite samples were collected from each of the test pits, the positions of which are shown on the attached Drawing No FL8-05. The samples were submitted to Staffordshire County Council's Scientific Department for leachability testing. The results of the testing are attached as Appendix X.
- 5.4 The results have been compared to the Environment Agency leachability guidance values for contaminated soils. Samples FL2 and FL3 have chemical oxygen demand values greater than the prescribed value but the excesses are considered to be insignificant when the uncertainties in sampling, preparation and analysis are taken into account. The results from the four test pits confirm that the material is uncontaminated.
- 5.5 The leachability test results show that the material has no leachable potential to cause pollution to either groundwater or a run off potential to affect surface water course quality.

6 LANDFILL GAS

- 6.1 As part of the contamination assessment undertaken at the site, the potential for landfill gas production and migration has been considered. Gas concentrations have been monitored in and around the site using gas analysers. The results of a methane and carbon dioxide survey undertaken at the site are attached as Appendix XI.
- 6.2 The presence of low levels of landfill gas has been detected in the overall site

and in the licensed landfill in particular.

- 6.3 Carbon dioxide has been recorded in spike bar positions and boreholes. The carbon dioxide level in borehole A was recorded as 3.7%. This elevated result lies outside the landfill site footprint but as discussed above this borehole is thought to have been affected by a nearby silage clamp. Virtually all of the results are reported below 1 % v/v. Carbon dioxide monitoring therefore complies with acceptable completion criteria.
- 6.4 Low levels of methane were recorded in the spike bar positions and no methane was encountered in the boreholes.
- 6.5 No evidence of vegetation die back has been observed on site. The gas survey was undertaken when the atmospheric pressure was 999mb and falling.
- 6.6 The results give high levels of confidence that no significant landfill gas is being produced, or at such small concentrations, through natural biodegradation processes, as not to potentially cause harm to the environment. The results from the testing and the general observations, see photographs, show no presence of putrescible waste and therefore has limited if any potential to produce large concentrations of landfill gas over an extended period of time due to the composition of the inert waste.
- 6.7 The low concentrations recorded would suggest extremely low differential pressures and therefore negligible, if any, potential motive force for gas migration.

7 SLOPE STABILITY

- 7.1 The landfill is contained within the former quarry bowl and nowhere does the landfill exceed the level of adjacent land. The landfill is therefore inherently stable and this will not change with time.

8 CONCLUSIONS

- 8.1 This Completion Report for the inert landfill site at Blaencilgoed Farm, Ludchurch, Pembrokeshire has been prepared by Matthews and Son under the provisions of Section 39 of the Environmental Protection Act 1990 and the guidance contained in Waste Management Paper 26A Landfill Completion.
- 8.2 The development history of the site clearly demonstrates the site was used for the disposal of truly inert waste derived from various civil engineering and construction works. The waste characteristics are well known and relatively uniform in nature. Input records have been sent on a regular basis to the Environment Agency and deposited on Public Register.
- 8.3 The landfill site has been operational since 1992, and closed for inert wastes in

2004. The site has been monitored for landfill gas and the results of monitoring have shown carbon dioxide is produced at typical soil gas atmosphere concentrations. Methane was also encountered and considered not to constitute a hazard.

- 8.4 The results of the contamination testing of the soils indicate low concentrations of any contaminants with no potential for leaching above Environment Agency guidance and with no potential to pollute groundwater. The surface water sampling indicates that the water issuing from the site is of good quality and has no impact on the surface water quality.

P R Deakin
28 November 2005

REFERENCES

Ordnance Survey Map

Sheet 158; Tenby and Pembroke:
1/50000 Landranger

British Geological Survey

Sheet 228; Haverfordwest:
1/50000
Sheet Pembrokeshire XXXV NE;
1/10560

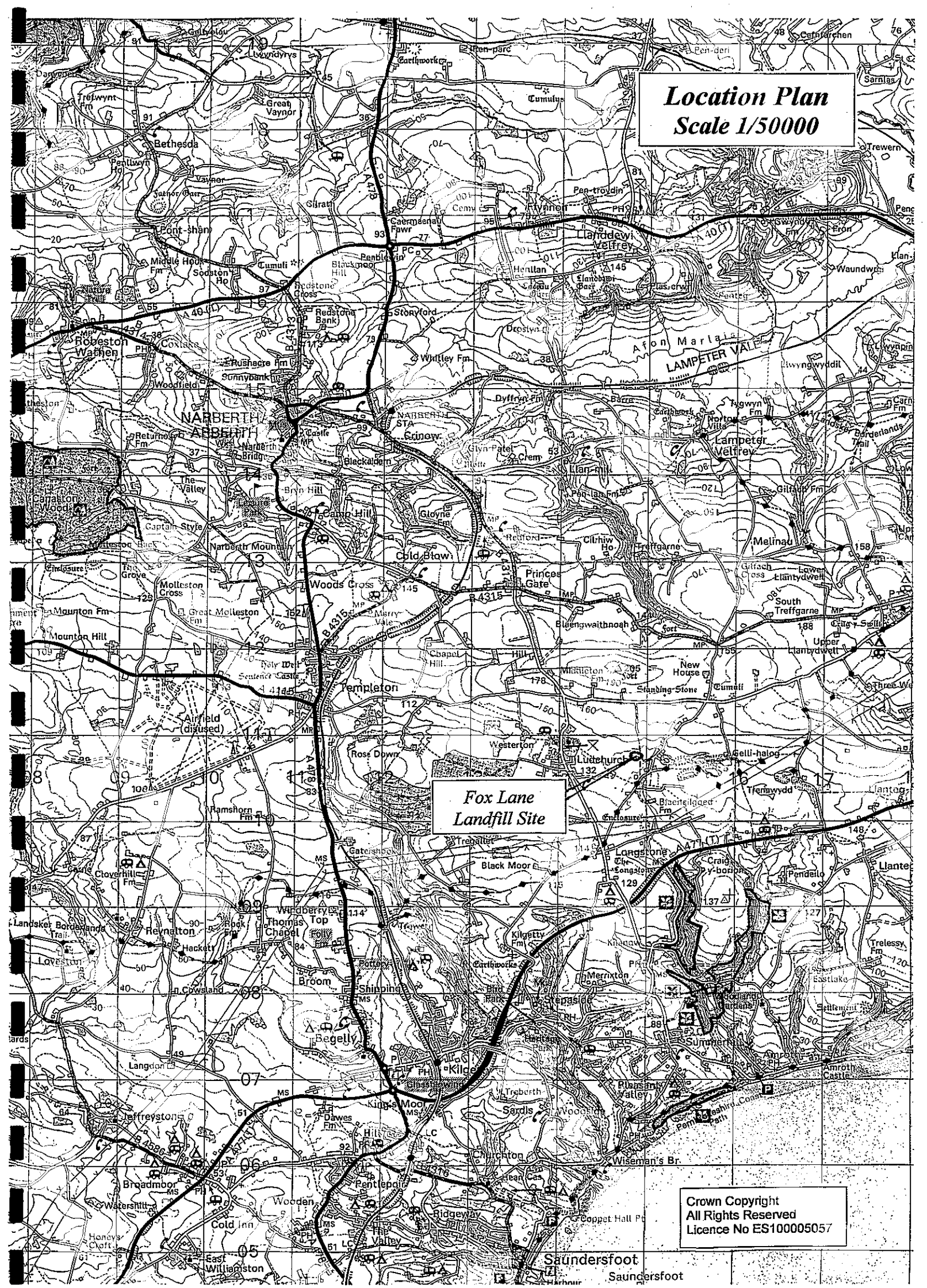
DOE:

Waste Management Paper 26A
Landfill Completion.

Location Plan
Scale 1/50000

**Fox Lane
Landfill Site**

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Mr H Merriman
Fox Lane Landfill

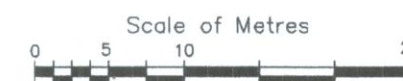
**Plan showing Proposed
Restoration Contours**

Scales
1/500

Drawn
prd

Survey Date
October 2005

Drawing No
FL7-05



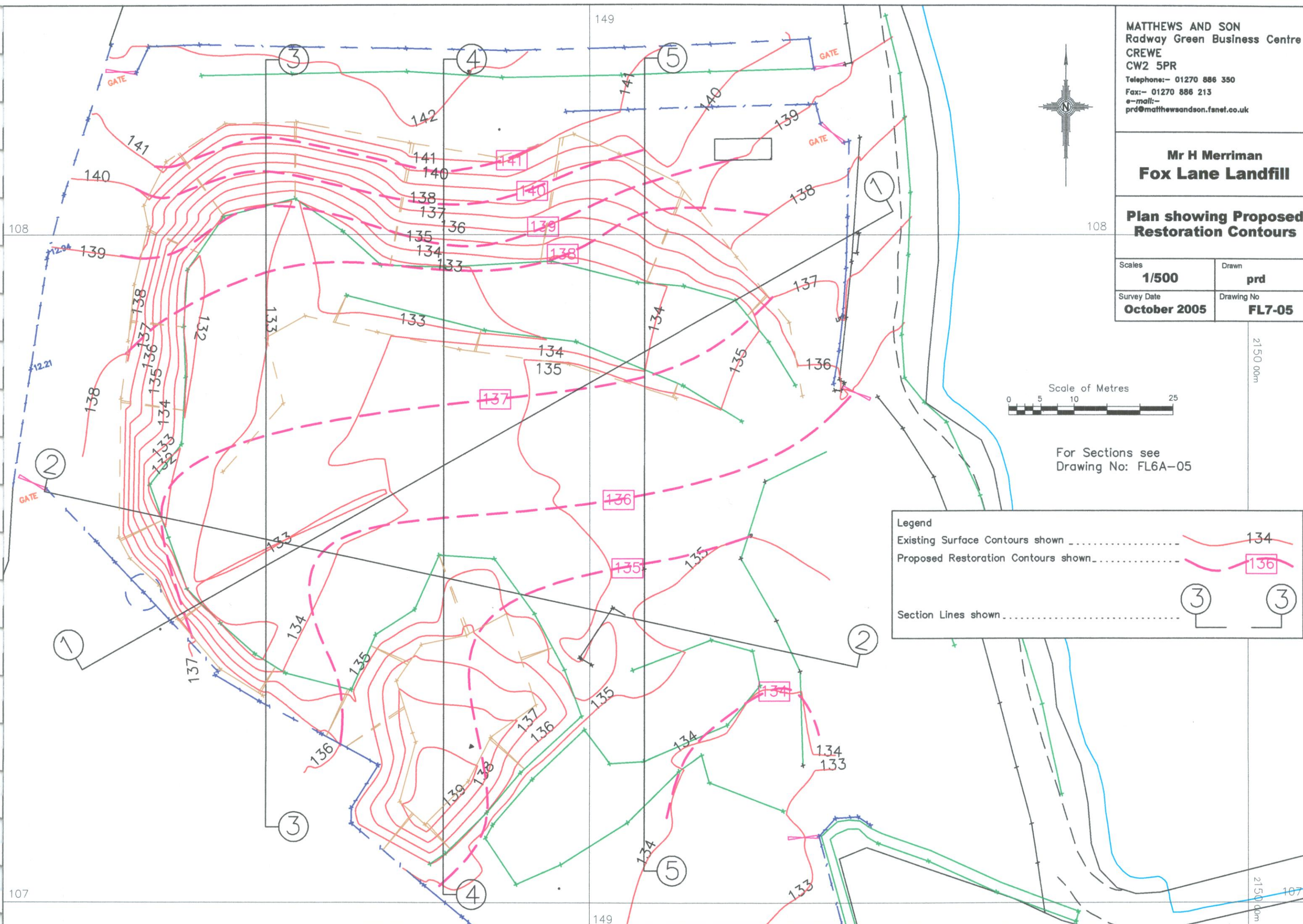
For Sections see
Drawing No: FL6A-05

Legend

Existing Surface Contours shown 134

Proposed Restoration Contours shown 136

Section Lines shown ③ ③



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**Mr H Merriman
Fox Lane Landfill**

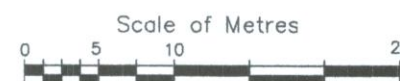
**Plan showing Test Pits,
Gas Measurement Points
& Water Monitoring Boreholes**

Scales
1/500

Drawn
prd

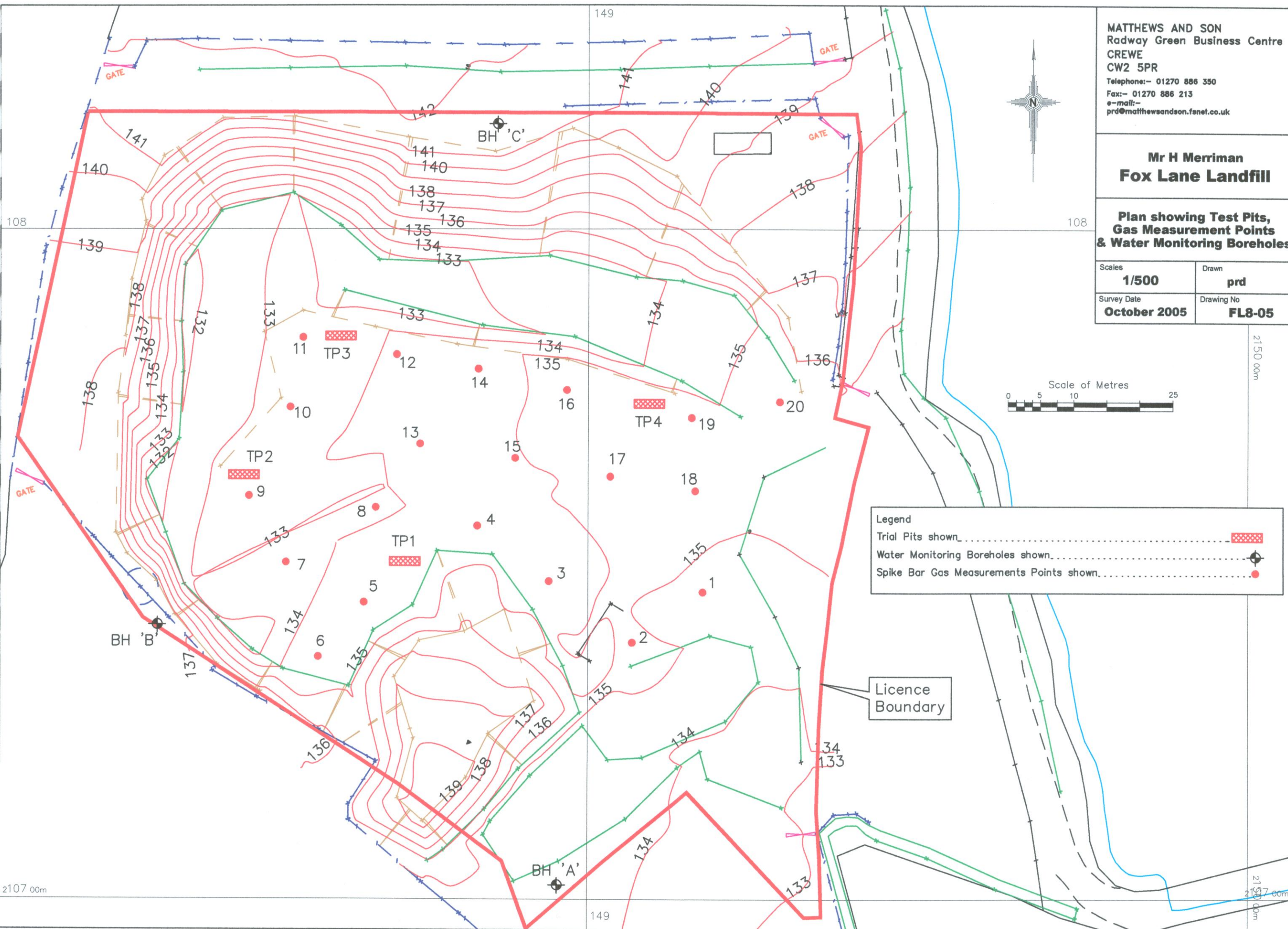
Survey Date
October 2005

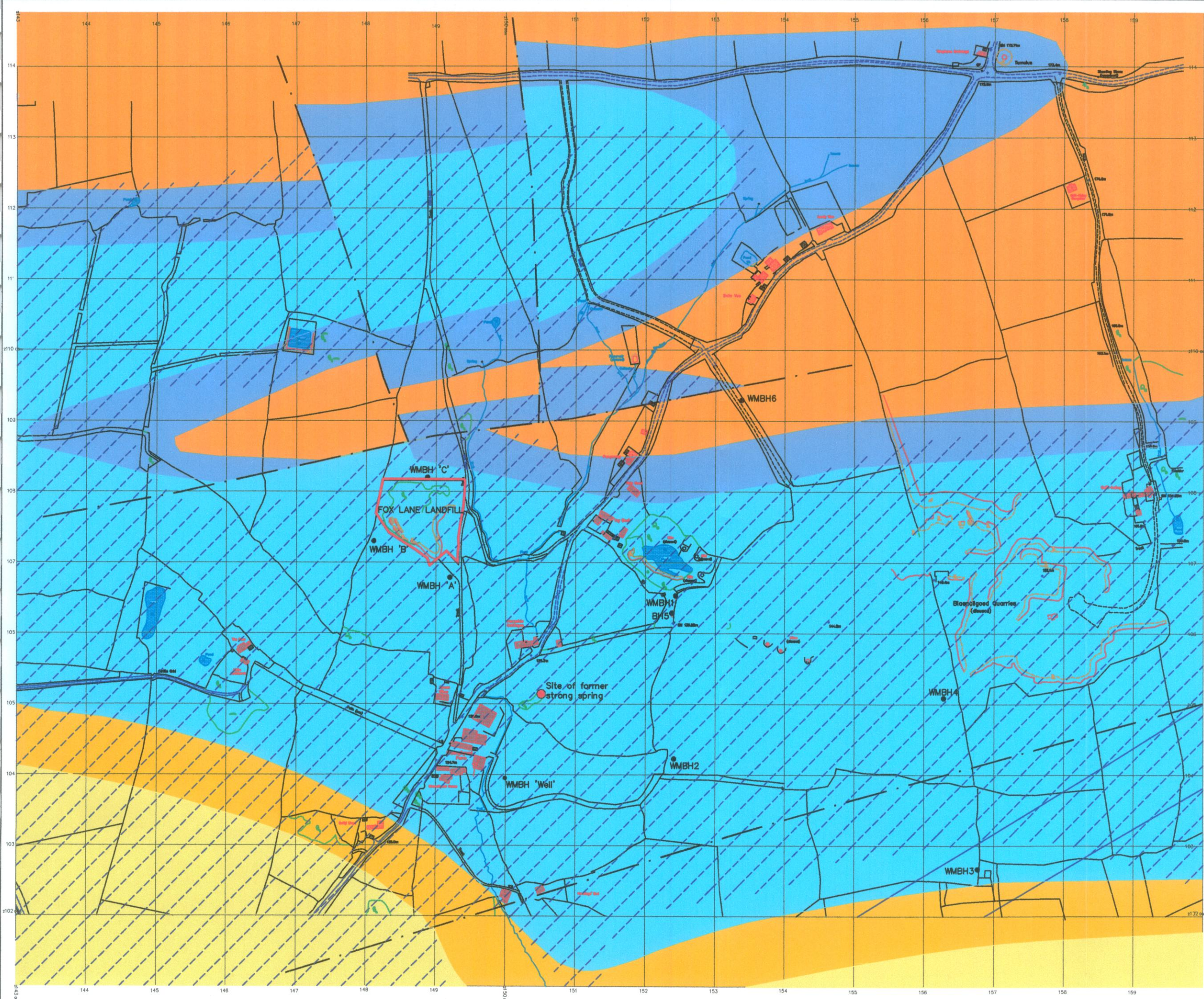
Drawing No
FL8-05



Legend	
Trial Pits shown.....	
Water Monitoring Boreholes shown.....	
Spike Bar Gas Measurements Points shown.....	

Licence
Boundary





Legend

- Old Red Sandstone
- Lower Limestone Shales
- Carboniferous Limestone
- Namurian (Basal Grit)
- Namurian (undifferentiated)
- Glacial Till
- Geological Fault
- WMBH 'A' Water Monitoring Borehole
- Extent of Waste Management Licence

Scale of Metres
0 50 100 200

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Mr H Merriman
 Fox Lane Landfill

GEOLOGICAL PLAN

Scales 1/5000	Drawn prd
Survey Date October 2005	Drawing No FL-GEOLOGY



Fox Lane - Test Pit No 1, October 2005



Fox Lane - Test Pit No 2, October 2005



Fox Lane - Test Pit No 1, October 2005



Fox Lane - Test Pit No 2, October 2005

Appendix I



South Pembrokeshire District Council

D.P. Seal, M.I.E.H. M. Inst. W.M., M. Inst. M.,
Director of Housing and Health

Housing and Health Department
District Offices, Llanion Park, Pembroke Dock, SA72 6DZ
Telephone: Pembroke (0646) 683122 Fax: (0646) 686143
Out of Hours Emergency Telephone: (0831) 326896

Enquiries to: Mr. G.H. Davies.
Our Ref: GHD/AW.
Your Ref:

19th May, 1993.

Mr. Merriman,
Blaencilgoed Farm,
Ludchurch,
NARBERTH,
Pembrokeshire.

Dear Sir,

Control of Pollution Act, 1974.

I enclose your waste disposal licence under the above Act.

I draw your attention to the requirement for certification of site preparatory works.

No waste may be deposited until this Authority has received such notification and given written approval.

Should you have any queries in relation to this matter please do not hesitate to contact me.

Yours faithfully,

G.H. Davies.
Principal Environmental Health Officer.

Enc.

CONTROL OF POLLUTION ACT 1974
DISPOSAL LICENCE - INERT WASTES

Ref. No. 920009.

The South Pembrokeshire District Council in pursuance of the powers conferred on them by the Control of Pollution Act 1974, hereby licence: **Mr. H.D. Merriman**

of **Blaencilgoed Farm, Ludchurch, Narberth, Dyfed.**
(hereinafter called the "licence holder")

to landfill inert waste

on land at **Blaencilgoed Farm** as shown on attached plans, labelled **Appendix A** and numbered **24033**.

This licence is granted subject to the conditions set out in the schedules attached hereto.

Dated this 19th day of May, 1993

Signed 
(Authorised Officer)

The licence holder's attention is drawn to the notes overleaf.

NOTES

THESE NOTES ARE FOR GENERAL GUIDANCE ONLY AND DO NOT CONSTITUTE AN AUTHORITATIVE STATEMENT OF THE LAW.

1. This licence relates only to the requirements of the Control of Pollution Act 1974 for the deposit of waste and the use of plant or equipment subject to the conditions set out in the Schedules and does not constitute a consent required by other legislation. In particular it is the responsibility of the licence holder to comply with any requirements of the HEALTH AND SAFETY AT WORK ACT 1974, the RADIOACTIVE SUBSTANCES ACT 1960, the TOWN AND COUNTY PLANNING ACTS, BUILDING REGULATIONS, the ENVIRONMENTAL PROTECTION ACT 1990, and ALL RELEVANT WATER PROTECTION and ENVIRONMENTAL HEALTH legislation.
2. If the licence holder ceases to occupy the land specified above, then he may transfer the licence to the new occupier after giving notice to the Waste Disposal Authority who has the right to decline to accept the new licence holder.
3. If the licence holder wishes to cancel this licence he must return it to the Waste Disposal Authority together with a notice stating that he no longer requires the licence. Cancellation of the licence will not affect any outstanding liability of the licence holder under the conditions of the licence.

CONTRAVENTION OF LICENCE CONDITIONS

Your attention is drawn to the provisions of Sections 3, 9, & 16 of the Control of Pollution Act 1974. A brief resume is included below.

Section 3

Prohibits under penalty the deposits of waste or the use of plant or equipment, otherwise than in accordance with the terms of the licence. This Section applies to all the conditions contained herein, including any which may be the subject of an appeal to the Secretary of State under Section 10 of the Act. Any deposit which takes place without compliance with all the licence conditions may lead to prosecution under this Section.

Section 9

Non compliance with any licence conditions may lead to the revocation of this licence.

Section 16

The licensing authority is empowered to require the removal of any controlled waste deposited in circumstances where any of the conditions of this licence are not being complied with.

Penalties under Section 3

A persons who contravenes Section 3 subsection (1) shall, subject to subsection (4), be guilty of an offence and liable on summary conviction to a fine of an amount not exceeding scale 5 (currently £5,000) or on conviction on indictment to imprisonment for a term not exceeding two years or a fine or both.

The increased penalty may be given where a person contravenes Section 3(1) and the waste in question is poisonous, noxious and polluting, is likely to give rise to an environmental hazard, and has been brought for the purpose of being disposed of. Under such circumstances the person would be liable on summary conviction to imprisonment for a term not exceeding six months or a fine not exceeding scale 5 on conviction on indictment to imprisonment for a term not exceeding five years or a fine or both.

SCHEDULE A - DEFINITIONS.

The following meanings shall apply throughout this licence:

1. WORKING PLAN shall mean the operational statement, hydrological and hydrogeological management statement together with Drawing No. 24033 of the proposed facility contained in Schedule E.
2. THE ACT shall mean the Control of Pollution Act 1974 as amended.
3. DISPOSAL AUTHORITY shall have the meaning assigned to it in Section 30(1) of the Control of Pollution Act 1974.
4. DULY AUTHORISED OFFICER shall mean any person authorised in writing by the Disposal Authority pursuant to Section 91 (1) of the Control of Pollution Act 1974.
5. ENVIRONMENTAL HAZARD shall have the meaning assigned to it in Section 4(5) of the Control of Pollution Act 1974.
6. LICENCE HOLDER shall mean the person or persons to whom this licence is granted.
7. BIODEGRADABLE shall mean material which may be broken down by the action of microorganisms.
8. LEACHATE shall mean liquid which seeps from or through the landfill and by doing so extracts substances from the deposited waste.
9. INERT WASTE shall mean solid or granular dry materials, free from any noxious, poisonous, or polluting substance, which does not decompose or for which the environmental impact of decomposition is less than, or comparable with, that of topsoil and is virtually insoluble in water.
10. EMERGENCY shall mean a case where a person has reasonable cause to believe that circumstances exist which are likely to endanger life or health or cause damage to property or pollution of water.
11. OPERATING shall mean the deposit of waste or acceptance of waste for deposit and all matters incidental thereto.
12. Notwithstanding the above, words and phrases in this licence have the meaning ascribed to them by the Control of Pollution Act 1974 and its associated regulations.

SCHEDULE B. - SITE PREPARATION.

1. The preparatory works required by conditions 2 to below 6 shall be supervised and certified, by an appropriately qualified person, that they have been constructed in accordance with the working plan. Certification shall be forwarded to the Waste Disposal Authority and no waste material shall be accepted at the facility until the Disposal Authority confirms, in writing, that the certification has been received.

Site Infrastructure

2. Perimeter fencing and gates shall be provided and maintained at all times in accordance with the working plan. The gates shall be securely locked at all times when the facility is unattended. Any damage to the gates and fencing which impairs their effectiveness will be repaired by the end of the working day and if this cannot be accomplished the licence holder shall provide security personnel to guard the facility until such repair is effected.
3. An identification board of durable material and finish shall be displayed at the entrance to the facility at the location specified in the working plan. The following information shall be provided:
 - (a) Name, address and telephone number of facility;
 - (b) Name, address and telephone number of the Disposal Authority responsible for issuing this Licence and the Disposal Licence Number;
 - (c) Hours of operation (as per licence condition);
 - (d) Name, address and telephone number of Licence Holder;
 - (e) Twenty-four hour emergency telephone number and contact.

The board shall be maintained in a legible condition at all times.

4. A site control office of the type specified in the working plan shall be provided at the location specified in the working plan. The site control office shall be maintained to the original standard specified in the working plan.
5. The road from the site entrance to the site control office (hereinafter called the site access road) shall be constructed in accordance with the working plan. The site access road shall be maintained to the original standard specified in the working plan.
6. No tipping shall take place until any water contaminated with silage effluent has been correctly disposed of without causing further contamination.

SCHEDULE C. - TYPES OF WASTE

1. The types of controlled waste accepted at the facility shall consist only of the following inert wastes, as defined in Condition 9 in Schedule A:

Topsoil

Subsoil

Brickwork

Stone

Concrete

Clay

Sand

Silica (excluding finely powdered waste)

Glass

2. The total quantity of waste accepted daily shall not exceed 30 vehicle loads. For the purpose of this licence all vehicles discharging waste of whatever size shall count towards this total.

SCHEDULE D. - OPERATIONS.

1. The licence holder shall operate the facility in accordance with the working plan as agreed with the Disposal Authority and contained in Schedule E of this licence.
2. Any proposed modification to the agreed working plan shall be submitted to the Disposal Authority together with the proposed date of implementation at least 6 weeks before the proposed date of such implementation.
3. The licence holder shall obtain the written agreement of the Disposal Authority for any proposed modification to the actual conduct of the operations from the proposals approved in the working plan.
4. The types of wastes accepted at the facility shall consist of those specified in Schedule C of this licence. All wastes shall be visually inspected to ensure that they conform with the requirements of Schedule C of this licence. Any wastes not conforming to the requirements of Schedule C shall be rejected as unsuitable for disposal at the facility.
5. The Disposal Authority shall be notified immediately of any waste that has been rejected as unsuitable for disposal in accordance with condition 4 above and Schedule C of this licence. This notification shall include the nature and quantity of waste, the name and address of the producer of the waste, the registration number of the vehicle delivering the waste, the name and address of the vehicle's driver and operator, and the time of rejection of the waste.
6. No operations shall be carried out at the facility during the hours of darkness as defined by the statutory lighting up times published by the Science Research Council; i.e. half an hour after sunset to half an hour before sunrise.
7. The facility shall be manned and supervised during operating hours (see condition 8 below) in accordance with the working plan. Supervisors must be able to identify the types of waste permitted by this licence and those wastes specifically excluded.
8. Permitted wastes shall be delivered to the facility between the hours of daylight specified below. Except in cases of emergency, no delivery or removal of waste shall take place outside these hours without the prior approval of the Disposal Authority. All circumstances of emergency movement of such wastes shall be reported forthwith in writing to the Disposal Authority.

Mondays - Fridays From: 0800
To: 1750
Saturdays From: 0800
To: 1200

9. A written record shall be kept of the characteristics and quantities of all wastes delivered to the facility, the name and address of the person delivering the waste, the date and time of the delivery, and identification of the origin of the waste. This record shall be available to any representative of the Disposal authority for inspection at the facility at any reasonable time.
10. A summary of the records required by condition 9 above of all wastes delivered to the facility in a calendar month shall be submitted to the Disposal Authority before the tenth day of the succeeding calendar month.
11. The phasing and direction of the depositing of waste shall be carried out as specified in the working plan and each phase shall be completed before the deposit of waste is commenced in each subsequent phase.
12. All available top soil shall be removed from each individual phase prior to any waste being deposited in each individual phase. The top soil removed shall be stored at the facility at the location specified in the working plan.
13. No material shall be burnt within the boundaries of the facility. Any outbreak of fire shall be regarded as an emergency and immediate action shall be taken to extinguish it. Fire fighting equipment and emergency water supplies shall be provided, maintained and identified in accordance with the working plan. All outbreaks of fire shall be reported immediately to the County Fire Brigade and the Disposal Authority.
14. Measures, in accordance with the working plan shall be taken to remove any mud, debris or any other material that is deposited on any roadway by vehicles using the facility. These measures shall include the sweeping of the site access road, hard surfaced areas and the public highway leading from the facility.
15. The depth of any layer of waste shall not exceed 2.5 metres after initial compaction.
16. Each layer of waste and covering material shall be laid to a fall to encourage surface water run-off from the working face.
17. No processing, sorting, or re-excavation of any waste shall take place at the facility without the prior written agreement of the Disposal Authority.
18. Measures, including proper maintenance and use, shall be undertaken to control the noise of machinery and vehicles operating at the facility which may be detrimental to the amenities of the locality.
19. Measures in accordance with the working plan shall be taken to effectively suppress dust and malodours which may be detrimental to the amenities of the locality.

20. Measures in accordance with the working plan shall be taken to deal effectively with any vermin and insects at the facility.
21. Until final restoration, completed landfill areas shall be graded and maintained as detailed in the working plan.
22. Any cessation of operations for a period in excess of 12 weeks shall be notified to the Disposal Authority. Not less than 14 days notice shall be given to the Waste Disposal Authority of the date on which operations are to recommence in the event of such a cessation.
23. A copy of any notice or instruction received in respect of the facility from any authority, other than the Disposal Authority, which in any way relates to the use of the facility, shall be given to the Disposal Authority within 3 days of the receipt of such a notice or instruction.
24. The terms of this licence shall be made known to any person who is given for the management or control of the facility and be available at all times at the facility for the use of such persons.
25. Notwithstanding the generality of the conditions in this Schedule, the activities to which this licence relates shall not be carried on so as to cause pollution to water or danger to public health or become seriously detrimental to the amenities of the locality affected by the activities.

Appendix II

Fox Lane Landfill Site
 Blaencilgoed Farm
 Ludchurch
 Pembrokeshire

Waste Inputs

Year	Quarter	Input (tonnes)	
2000	First		3857
	Second	2703	
	Third	714	
	Fourth	440	
2001	First	714	3372
	Second	1284	
	Third	807	
	Fourth	567	
2002	First	1309	6887
	Second	1103	
	Third	596	
	Fourth	3879	
2003	First	1243	5977
	Second	1194	
	Third	1607	
	Fourth	1933	
2004	First	1089	4986
	Second	1163	
	Third	1521	
	Fourth	1213	

Appendix III



South Pembrokeshire District Council

20 AUG 1992

PLANNING PERMISSION

Town and Country Planning Act 1990

Name and Address of Applicant:

H MERRIMAN
BLAENGILGOED FARM
LUDCHURCH, NARBERTH

Name and Address of Agent: (if any)

KEN MORGAN
MORGAN GROVE
HILL HOUSE STUDIO
HIGH STREET
NARBERTH

Part I - Particulars of Application

Date of Application:
29/05/92

Application No:
D3/130/92

Particulars and location of development

FILL DISUSED QUARRY WITH SUB SOIL AND BUILDERS RUBBLE
DISUSED QUARRY NORTH OF BLAENGILGOED FARM, LUDCHURCH

Part II - Particulars of Decision

The South Pembrokeshire District Council hereby give notice in pursuance of the provisions of the Town and Country Planning Act 1990 that permission has been granted for the development referred to in Part I hereof in accordance with the application and plans submitted, subject to the following conditions:-

1. The development must be begun not later than the expiration of five years beginning with the date of this permission.
2. The development shall not be carried out otherwise than strictly in accordance with the deposited plan no. D3/130/92 dated 29/05/92. subject to the following conditions.
3. Notwithstanding the information contained in the application inert waste only shall be used as tipping material. Inert waste being defined as 'topsoil, subsoil, hardcore, brickwork, stone, set concrete, clay, sand, silica (excluding finely powdered waste), glass, solid or granular dry materials free from any noxious, poisonous or polluting substance which does not decompose or for which the environmental impact of decomposition is less than or comparable with that of topsoil and is virtually insoluble in water'.
4. There shall be no access to or exist from the quarry by way of the track leading from the south (Blaencilgoed Farm).
5. The following Conditions apply to the access from the north. Visibility splays shall be provided on each side of the existing access giving a clear sight line of 95 metres (312 feet) along the nearside channel of the highway from within a distance of 4.5 metres (15 feet) back from the channel on the centre line of the access road.
6. The existing access shall be widened to 5 metres for a distance of 30 metres from its junction with the County Road.
7. Adequate passing bays shall be provided in the access road.
8. The surface of the Access Road shall be paved for a minimum distance of 30 m behind the edge of carriageway.
9. Details of the access arrangements and visibility splays showing the amount of hedgebank removal and the construction of a new hedgebank to the rear of the visibility splay to be submitted to and approved by the



South Pembrokeshire District Council

improvements to be completed in accord with the approved plans prior to tipping commencing.

10. Tipping shall cease at a level of 1 metre below the existing edge of the quarry. A detailed scheme of surface treatment including topsoil, seeding, landscaping and planting to be submitted to and approved by the Local Planning Authority prior to development commencing. Landscaping to be carried out in the first planting season after tipping.

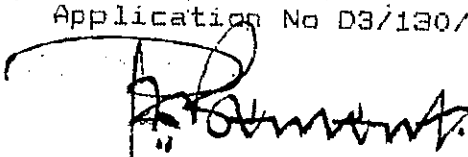
The reasons for the conditions are:

1. Required to be imposed pursuant to Section 41 of the Town and Country Planning Act 1971.
2. To ensure that a satisfactory development is obtained.
3. Prevention of pollution and protection of the environment.
4. The Class 3 road, C.3123, passing Blaencilgoed Farm is considered to be unsuitable for large commercial vehicles by reason of width and alignment.
5. In the interests of road safety.
6. To enable two vehicles to pass in the entrance and to obviate the possibility of a vehicle having to reverse into the County Road.
7. To enable two vehicles to pass in the entrance and to obviate the possibility of a vehicle having to reverse into the County Road.
8. To ensure that no deleterious material is carried onto the road.
9. In the interest of highway safety.
10. To preserve the visual amenities of the area.

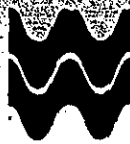
Date 18/08/92

Llanion Park
Pembroke Dock
SA72 6DZ

Application No D3/130/92


Director of Planning & Technical Services

NOTE:- This permission refers only to that required under the Town and Country Planning Acts and does not include any consent or approval under any other enactment, byelaw, order or regulation.



DŴR CYMRU
WELSH WATER

Dyddiad/Date:

Ymholiadau/Enquiries:

Ein Cyf/Our Ref:

Plancon.ceo

Eich Cyf/Your Ref:

DEVELOPERS PLANNING APPLICATION - CONDITIONS

The development of the site with our Trunk Main located as shown on the attached plan will involve certain conditions which must be strictly adhered to. These are:-

1. No structure is to be sited within a minimum distance of 3.0 metres from the periphery of the pipe. The pipeline must therefore be located and marked up accurately at an early stage so that the Developer or others understand clearly the limits to which they are confined with respect to the Company's apparatus. Arrangements can be made for Company staff to trace and peg out such mains on request of the Developer.
2. Adequate precautions to be taken to ensure the protection of the mains at all times during the course of site development.
3. If heavy earthmoving machinery is to be employed, then the routes to be used in moving plant around the site should be clearly indicated. Suitable rampings or other protection would have to be provided to protect the main from any such heavy plant.
4. The main is to be kept free from all temporary buildings, building material and spoil heaps etc.
5. The existing cover on the main is not to be increased or decreased.
6. All chambers, covers, marker posts etc., are to be preserved in their present position.
7. Access to the Company's apparatus must be maintained at all times for inspection and maintenance purposes and must not be restricted in any way as a result of the development.
8. No work to be carried out before this Company has approved the final plans and sections.

Rhanbarth y De Orllewin 86 Ffordd y Brenin, Abertawe SA1 5JG
Ffôn: Abertawe (0792) 468000 Teleffacs: (0792) 472779

South Western Division 86 The Kingsway Swansea SA1 5JG
Tel: Swansea (0792) 468000 Telefax: (0792) 472779

Dŵr Cymru Cyl, cwmni cyfyngedig wedi'i gofrestru yng Nghymru Rhif 2366777 Un o grŵp cwmnïau Welsh Water PLC
Swyddfa Gofrestredig: Plas y Ffynnon Ffordd Cambria Aberhonddu Powys LD3 7HP

Dŵr Cymru Cyl, a limited company registered in Wales No 2366777 One of the Welsh Water PLC group of companies
Registered Office: Plas y Ffynnon Cambrian Way Brecon Powys LD3 7HP

APEX

DRILLING SERVICES

Contract Name Blaine Loped Farm

Contract No

Date 24 6 02

Sheet

1 of 2

Tel: 01656 749149

DAILY DRILL LOG

Working Day No

1 - Mon

Client Mr. H. Merriman

Order No

G. James

Driller

T. Davies

Crewman

QUANTITIES				QUANTITIES	
Bore Hole	Top Depth	Base Depth	Thickness	Core Recovery	Strata Description
					Remarks
					Site Move:
					Bore Moves:
					Casing:
					Open Hole:
					Install AW:
					Core Recovery:
					Tests:
					SPT
					Cabin / Core Store:
					Miscellaneous:
					Hours:
					Move
					Stand
					Drill
					Day Works
					Breakdown
					TOTAL HOURS

Signed by Apex

Signed by Client

Date

Blue - Client's Copy Yellow - QS Copy White - Site Copy

APEX

DRILLING SERVICES

Contract Name Barclay's Farm

Contract No 254 - 6. 02

Date 2. 2. 2002

Sheet 2 of 2

Tel: 01656 749149

DAILY DRILL LOG

Working Day No 1-Mon.

Client MR. H. MERRIMAN

Order No G. JAMES

Driller T. DAVIES

Crewman

Bore Hole	Top Depth	Base Depth	Thickness	Core Recovery	Strata Description	Remarks	QUANTITIES
							Site Move: 1.
							Bore Moves: 2.
							Casing: ODEX 5/8 13. - Mts
							Open Hole: H.G. OD. Mts
							Standing: Hrs
							Install AW: Metres Geolog:
							Core Recovery: Mts
							Tests: SPT No
							Samples: U100 No
							Cabin / Core Store: 13 Mts. Plain.
							Miscellaneous: 33 Mts. Slotted C.A.P.S.
							2 Steel Coves.
							33 Mts. Geo-wrap
							2. Pad locks.
							Move = hrs
							Stand = hrs
							Ball = hrs
							Works = hrs
							Breakdown = hrs

Signed by Apex G. James

Signed by Client

Date

TOTAL HOURS

APEX

DRILLING SERVICES

Contract Name Blanchard Farm

Contract No. 25 Date 6.02.1

Tel: 01656 749149

DAILY DRILL LOG

Working Day No. 2

Client MR H. Mervin

Order No. G. James

Driller T. Davies

Crewman

QUANTITIES				REMARKS	
Bore Hole	Top Depth	Base Depth	Thickness	Core Recovery	Strata Description
Move		10. BH. C.			ODER. CASING TO 27-FTS.
0-00	5-80	5-80	5-80		BH. WET. AF.
5-80	27-00	27-00	21-20		SANDY BOULDER CLAY.
					VERY HARD DRILLING LIMESTONE.
					WITH SMALL BANDS OF SHALE.
Drilling Cont.					INSTANT. 50. MM. PIPE TO 27-FTS.
6-00	27-00	27-00	21-00		Details.
0-00	6-00	6-00	6-00		Slotted. 50. MM. WITH GEOWRAP.
					Plain. 50. MM. PIPE.
6-00	27-00	27-00	21-00		Pea Gravel.
5-00	6-00	6-00	1-00		Bentonite Seal.
1-30	5-00	5-00	3-70		ARISING.
0-30	1-30	1-30	1-00		Bentonite.
0-00	0-30	0-30	0-30		Concrete. INSTANT. STEEL COVER
					BH. DRY. AFTER.
					1 HOUR TO.
					INSTANT.
					BACK KILL.
					INSTANT. PIPE.

Signed by Apex G. James Signed by Client T. Davies Date 6.02.1

TOTAL HOURS 27.00

Blaencilgoed Farm - Water Monitoring

		BH A			BH B			BH C			Well
Surface Level		134.5			137.0			141.5			125.0
Base Level		111.5			114.0			114.5			115.0
Date	Depth	WL AOD	Depth	WL AOD	Depth	WL AOD	Depth	WL AOD	Depth	WL AOD	
05/08/2002	7.85	126.65	5.31	131.69	9.60	131.90					
19/08/2002	7.85	126.65	5.50	131.50	10.01	131.49					
27/08/2002	7.81	126.69	5.98	131.02	10.33	131.17					
10/09/2002	7.83	126.67	6.82	130.18	10.52	130.98					
16/09/2002	7.80	126.70	8.80	128.20	11.33	130.17					
23/09/2002	7.63	126.87	9.00	128.00	11.48	130.02					
30/09/2002	7.65	126.85	8.95	128.05	11.51	129.99					
07/10/2002	7.70	126.80	9.05	127.95	11.60	129.90					
14/10/2002	7.77	126.73	9.11	127.89	11.68	129.82					
21/10/2002	7.60	126.90	9.30	127.70	11.80	129.70					
28/10/2002	7.50	127.00	8.90	128.10	11.20	130.30					
04/11/2002	7.10	127.40	8.30	128.70	11.00	130.50					
12/11/2002	7.45	127.05	8.55	128.45	8.92	132.58					
24/11/2002	7.90	126.60	8.10	128.90	8.10	133.40					
01/12/2002	7.70	126.80	7.80	129.20	7.30	134.20					
16/12/2002	7.80	126.70	7.10	129.90	7.20	134.30					
23/12/2002	8.10	126.40	8.90	128.10	8.01	133.49					
03/01/2003	7.20	127.30	6.90	130.10	7.10	134.40					
22/01/2003	6.63	127.87	3.55	133.45	6.00	135.50					
11/02/2003	6.65	127.85	3.54	133.46	6.20	135.30					
18/02/2003	6.63	127.87	3.40	133.60	6.24	135.26					
27/02/2003	6.62	127.88	0.98	136.02	6.21	135.29					
03/03/2003	6.30	128.20	0.80	136.20	6.00	135.50					
14/03/2003	6.50	128.00	3.60	133.40	1.18	140.32					
24/03/2003	6.60	127.90	3.40	133.60	1.00	140.50					
03/04/2003	6.20	128.30	3.10	133.90	1.10	140.40					
21/04/2003	6.10	128.40	2.90	134.10	1.00	140.50					
11/06/2003	6.00	128.50	2.50	134.50	9.00	132.50					
20/06/2003	5.98	128.52	2.60	134.40	9.10	132.40					
01/07/2004	8.61	125.89	11.01	125.99	7.09	134.41					Heavy rain day before
25/10/2004	8.00	126.50	4.50	132.50	6.30	135.20					Heavy rain for 5 days
16/12/2004	3.74	130.76	6.40	130.60	6.53	134.97	6.00	119.00			Showery
05/01/2005	2.70	131.80	5.20	131.80	6.22	135.28	5.82	119.18			Showery
14/01/2005	2.70	131.80	5.10	131.90	6.38	135.12	6.70	118.30			Showery
02/02/2005	3.20	131.30	5.63	131.37	6.50	135.00	6.34	118.66			Dry
10/02/2005	3.95	130.55	6.70	130.30	6.67	134.83	5.98	119.02			Heavy rain
21/02/2005	4.00	130.50	6.76	130.24	6.53	134.97					Dry
28/02/2005	4.47	130.03	7.34	129.66	6.70	134.80	6.78	118.22			Dry
07/03/2005	4.88	129.62	7.85	129.15	6.80	134.70	6.30	118.70			Dry
15/03/2005	5.28	129.22	8.43	128.57	6.87	134.63	6.95	118.05			Dry
23/03/2005	5.42	129.08	8.53	128.47	6.99	134.51	6.88	118.12			Showery
01/04/2005	5.88	128.62	8.80	128.20	6.80	134.70	7.80	117.20			Showery
13/04/2005	6.00	128.50	9.12	127.88	6.85	134.65	9.20	115.80			Dry
20/04/2005	5.94	128.56	8.76	128.24	6.80	134.70	7.55	117.45			Dry
27/04/2005	5.59	128.91	8.00	129.00	6.57	134.93	6.90	118.10			Dry
12/05/2005	5.32	129.18	8.24	128.76	6.70	134.80	7.20	117.80			Dry
16/06/2005	6.78	127.72	7.66	129.34	7.96	133.54	8.45	116.55			Showery
15/07/2005	6.96	127.54	7.60	129.40	10.18	131.32	9.10	115.90			Dry
18/08/2005	7.54	126.96	6.98	130.02	10.66	130.84					
07/10/2005	5.60	128.90	10.30	126.70	9.70	131.80					
10/11/2005	1.22	133.28	3.71	133.29	6.35	135.15	4.00	121.00			

Appendix VI

Staffordshire

County Council

PUBLIC ANALYSTS OFFICIAL AGRICULTURAL ANALYSTS
MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

REPORT

Lab Ref: 10022537
Date: 7 November 2005

To:
Mathews & Son
Radway Green Business Centre
Crewe
Cheshire
CW2 5PR

On: Ground water, Fox Lane, Pembrokeshire

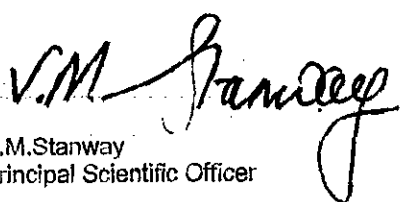
Your Ref: FL A
Date Rec: 10/10/2005

Order Number:

Contact: P Deakin

Determinand	Units	Result
pH	pH Units	6.78
Conductivity	uS/cm@20C	1283
Dissolved Oxygen	mg O ₂ /l	1.0
Alkalinity	mg CaCO ₃ /l	530
Ammoniacal Nitrogen	mg N/l	18.5
Nitrite Nitrogen	mg N/l	5.3
Total Oxidised Nitrogen	mg N/l	6.1
Nitrate Nitrogen	mg N/l	0.8
Chloride	mg Cl/l	72
Sulphate	mg SO ₄ /l	3.7
Sodium	mg Na/l	38
Potassium	mg K/l	42
Magnesium	mg Mg/l	14
Calcium	mg Ca/l	170
Iron	mg Fe/l	3.3
Manganese	mg Mn/l	10
Cadmium	mg Cd/l	< 0.001
Chromium	mg Cr/l	< 0.02
Copper	mg Cu/l	< 0.02
Nickel	mg Ni/l	0.02
Lead	mg Pb/l	< 0.01
Zinc	mg Zn/l	< 0.02
Total Organic Carbon	mg C/l	12.0

There is evidence of a small amounts of organic matter in the water as indicated by the ammonia and TOC values. There is a trace of nickel present and a significant amount of manganese. In other respects there is no evidence of contamination as far as the above parameters are concerned.


V.M. Stanway
Principal Scientific Officer

TEL: 01785 277825
FAX: 01785 277812
E-mail: county.analysts@staffordshire.gov.uk

FRANK HOLLYWOOD
PhD, BSc, MChemA, CChem, MRSC
PUBLIC ANALYST

CONSUMER
SERVICES
14 MARTIN STREET

Staffordshire

County Council

PUBLIC ANALYSTS OFFICIAL AGRICULTURAL ANALYSTS
MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

REPORT

Lab Ref: 10022538
Date: 7 November 2005

To:

Mathews & Son
Radway Green Buissness Centre
Crewe
Cheshire
CW2 5PR

On: Ground water, Fox Lane, Pembrokeshire

Your Ref: FL B
Date Rec: 10/10/2005
Contact: P Deakin

Order Number:

Determinand	Units	Result
pH	pH Units	6.91
Conductivity	uS/cm@20C	1945
Dissolved Oxygen	mg O2/l	1.3
Alkalinity	mg CaCO3/l	698
Ammoniacal Nitrogen	mg N/l	< 0.05
Nitrite Nitrogen	mg N/l	1.2
Total Oxidised Nitrogen	mg N/l	1.5
Nitrate Nitrogen	mg N/l	0.3
Chloride	mg Cl/l	110
Sulphate	mg SO4/l	140
Sodium	mg Na/l	62
Potassium	mg K/l	67
Magnesium	mg Mg/l	32
Calcium	mg Ca/l	250
Iron	mg Fe/l	1.6
Manganese	mg Mn/l	6.7
Cadmium	mg Cd/l	< 0.001
Chromium	mg Cr/l	< 0.02
Copper	mg Cu/l	< 0.02
Nickel	mg Ni/l	< 0.02
Lead	mg Pb/l	< 0.01
Zinc	mg Zn/l	< 0.02
Total Organic Carbon	mg C/l	20.0

There is evidence of a small amount of organic matter in the water as indicated by the TOC values. There is a significant amount of manganese present but in other respects there is no evidence of contamination as far as the above parameters are concerned.


V.M. Stanway
Principal Scientific Officer

TEL: 01785 277825
FAX: 01785 277812
E-mail: county.analysts@staffordshire.gov.uk

FRANK HOLLYWOOD
PhD, BSc, MChemA, CChem, MRSC
PUBLIC ANALYST

CONSUMER
SERVICES
14 MARTIN STREET

Staffordshire

County Council

PUBLIC ANALYSTS OFFICIAL AGRICULTURAL ANALYSTS
MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

REPORT

Lab Ref: 10022539
Date: 7 November 2005

To:
Mathews & Son
Radway Green Buissness Centre
Crewe
Cheshire
CW2 5PR

On: Ground water, Fox Lane, Pembrokeshire

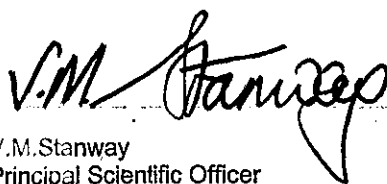
Your Ref: FL C
Date Rec: 10/10/2005

Order Number:

Contact: P Deakin

Determinand	Units	Result
pH	pH Units	7.37
Conductivity	uS/cm@20C	557
Dissolved Oxygen	mg O2/l	8.5
Alkalinity	mg CaCO3/l	216
Ammoniacal Nitrogen	mg N/l	< 0.05
Nitrite Nitrogen	mg N/l	< 0.02
Total Oxidised Nitrogen	mg N/l	< 0.1
Nitrate Nitrogen	mg N/l	< 0.1
Chloride	mg Cl/l	15
Sulphate	mg SO4/l	50
Sodium	mg Na/l	12
Potassium	mg K/l	1.2
Magnesium	mg Mg/l	8.8
Calcium	mg Ca/l	100
Iron	mg Fe/l	0.10
Manganese	mg Mn/l	< 0.01
Cadmium	mg Cd/l	< 0.001
Chromium	mg Cr/l	< 0.02
Copper	mg Cu/l	< 0.02
Nickel	mg Ni/l	< 0.02
Lead	mg Pb/l	< 0.01
Zinc	mg Zn/l	< 0.02
Total Organic Carbon	mg C/l	2.4

There is no evidence of contamination as far as the above parameters are concerned.


V.M. Stanway
Principal Scientific Officer

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FRANK HOLLYWOOD
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PUBLIC ANALYST

CONSUMER
SERVICES
14 MARTIN STREET

Staffordshire

County Council

PUBLIC ANALYSTS OFFICIAL AGRICULTURAL ANALYSTS
MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

REPORT

Lab Ref: 10023903
Date: 22 November 2005

To:
Mathews & Son
Radway Green Buisness Centre
Crewe
Cheshire
CW2 5PR

On: Ground water, Fox Lane Pembrokshire

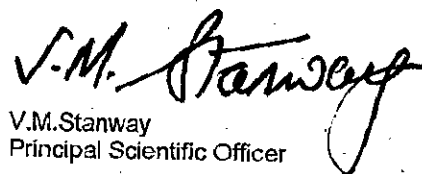
Your Ref: FL A
Date Rec: 01/11/2005

Order Number:

Contact: P Deakin

Determinand	Units	Result
pH	pH Units	6.87
Conductivity	uS/cm@20C	1327
Alkalinity	mg CaCO3/l	368
Dissolved Oxygen	mg O2/l	4.0
Ammoniacal Nitrogen	mg N/l	12.9
Nitrite Nitrogen	mg N/l	0.04
Total Oxidised Nitrogen	mg N/l	2.1
Nitrate Nitrogen	mg N/l	2.1
Chloride	mg Cl/l	77
Sulphate	mg SO4/l	170
Calcium	mg Ca/l	190
Magnesium	mg Mg/l	16
Sodium	mg Na/l	37
Potassium	mg K/l	31
Copper	mg Cu/l	<0.02
Iron	mg Fe/l	1.3
Manganese	mg Mn/l	6.4
Lead	mg Pb/l	<0.010
Zinc	mg Zn/l	0.05
Cadmium	mg Cd/l	<0.001
Chromium	mg Cr/l	<0.02
Nickel	mg Ni/l	0.05

The concentration of ammoniacal Nitrogen is high and indicates contamination by organic matter. Iron and Manganese contents are also high but this is not unusual for a natural groundwater.


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MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

REPORT

Lab Ref: 10025670
Date: 7 December 2005

To:

Mathews & Son
Radway Green Bulness Centre
Crewe
Cheshire
CW2 5PR

On: Groundwater, Fox Lane landfill

Your Ref: FLA
Date Rec: 24/11/2005
Contact: P. Deakin

Order Number:

Determinand	Units	Result
pH	pH Units	6.88
Conductivity	$\mu\text{S/cm@20C}$	320
Ammonium	mg NH_4/l	0.14
Nitrite	mg NO_2/l	0.19
Iron	mg Fe/l	2.0
Manganese	mg Mn/l	0.16

The concentration of ammoniacal Nitrogen is significantly reduced compared to previous samples from the same source. The Manganese content has also reduced but Iron has remained at a high level.


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SERVICES
14 MARTIN STREET

Appendix VII

Rainfall - Blaencilgoed		
Month	Total (mm)	Year to Date
Jan-05	79.8	79.8
Feb-05	49.1	128.8
Mar-05	43.3	172.1
Apr-05	81.2	253.3
May-05	48.5	301.8
Jun-05	84.1	385.9
Jul-05	121.1	507.0
Aug-05	62.2	569.2
Sep-05	115.8	685.0
Oct-05	211.3	896.4
Nov-05	191.0	1087.4

Appendix VIII

Staffordshire

County Council

PUBLIC ANALYSTS OFFICIAL AGRICULTURAL ANALYSTS
MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

To:

Enviroarm Ltd
597 Walsall Road,
Great Wyrley,
Staffs.
WS6 6AE

REPORT

Date: 11 August 2005

Received: 04/07/2005

Site: Fox Lane

For the attention of: A Morris

Fox Lane	Lab ref: Your ref:	10018255 UPSTREAM	10018256 DOWNSTR'M
pH - pH Units		6.65	7.37
Conductivity - uS/cm@20C		481	376
Suspended Solids - mg/l		17	12
Dissolved Oxygen - mg O2/l		6.8	7.7
Alkalinity - mg CaCO3/l		219	170
C.O.D. - mg O2/l		30.0	44.0
BOD(5d ATU) - mg O2/l		< 1.0	< 1.0
Ammoniacal Nitrogen - mg N/l		0.05	< 0.05
Nitrite Nitrogen - mg N/l		< 0.02	< 0.02
Total Oxidised Nitrogen - mg N/l		3.2	2.7
Sulphate - mg SO4/l		13	14
Nitrate Nitrogen - mg N/l		3.2	2.7
Chloride - mg Cl/l		21.7	15.2
Sulphide - mg/l		< 0.02	< 0.02
Sodium - mg Na/l		9.3	9.2
Calcium - mg Ca/l		93	73
Magnesium - mg Mg/l		6.7	6.4
Potassium - mg K/l		< 1.0	< 1.0
Zinc - ug Zn/l		49	14
Iron - ug Fe/l		1500	740
Copper - ug Cu/l		44	17
Lead - ug Pb/l		< 10	< 10
Aluminium - ug Al/l		15	11
Chromium - ug Cr/l		< 5.0	< 5.0
Cadmium - ug Cd/l		< 3.0	< 3.0
Nickel - ug Ni/l		< 5.0	< 5.0
Manganese - ug Mn/l		91	55
Total cyanide - mg CN/l		< 0.010	< 0.010
Phenol - ug/l		0.92	0.21
Acetic acid - mg/l		< 1.00	< 1.00
Propionic acid - mg/l		< 1.00	< 1.00
Iso Caproic acid - mg/l		< 1.00	< 1.00
Iso Butyric acid - mg/l		< 1.00	< 1.00
Caproic acid - mg/l		< 1.00	< 1.00

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Page: 1 of 2

Staffordshire

County Council

PUBLIC ANALYSTS OFFICIAL AGRICULTURAL ANALYSTS
MICROBIOLOGISTS ENVIRONMENTAL CONSULTANTS
SCIENTIFIC ADVISERS

Scientific Services

To:

REPORT

Date : 11 August 2005

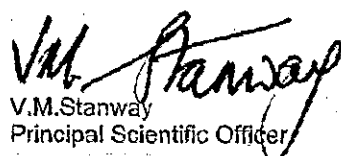
Received : 04/07/2005

Site : Fox Lane

For the attention of: A Morris

Fox Lane	Lab ref: Your ref:	10018255 UPSTREAM	10018256 DOWNSTR'M
Butyric acid - mg/l		< 1.00	< 1.00
Iso Valeric acid - mg/l		< 1.00	< 1.00
Valeric acid - mg/l		< 1.00	< 1.00

The Biochemical Oxygen Demand [BOD] is a 5 day incubation in the presence of ATU [Alylthiourea] which inhibits oxidation of nitrogen compounds and limits the process to carbonaceous oxidation only. Chemical Oxygen Demand [COD] was determined on a settled sample.


V.M. Stanway
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Page: 2 of 2

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CONSUMER
SERVICES
14 MARTIN STREET

Robert Lake - Corporate Director (Social Care and Health)

Client: Mr Merriman

Test Pit: 1

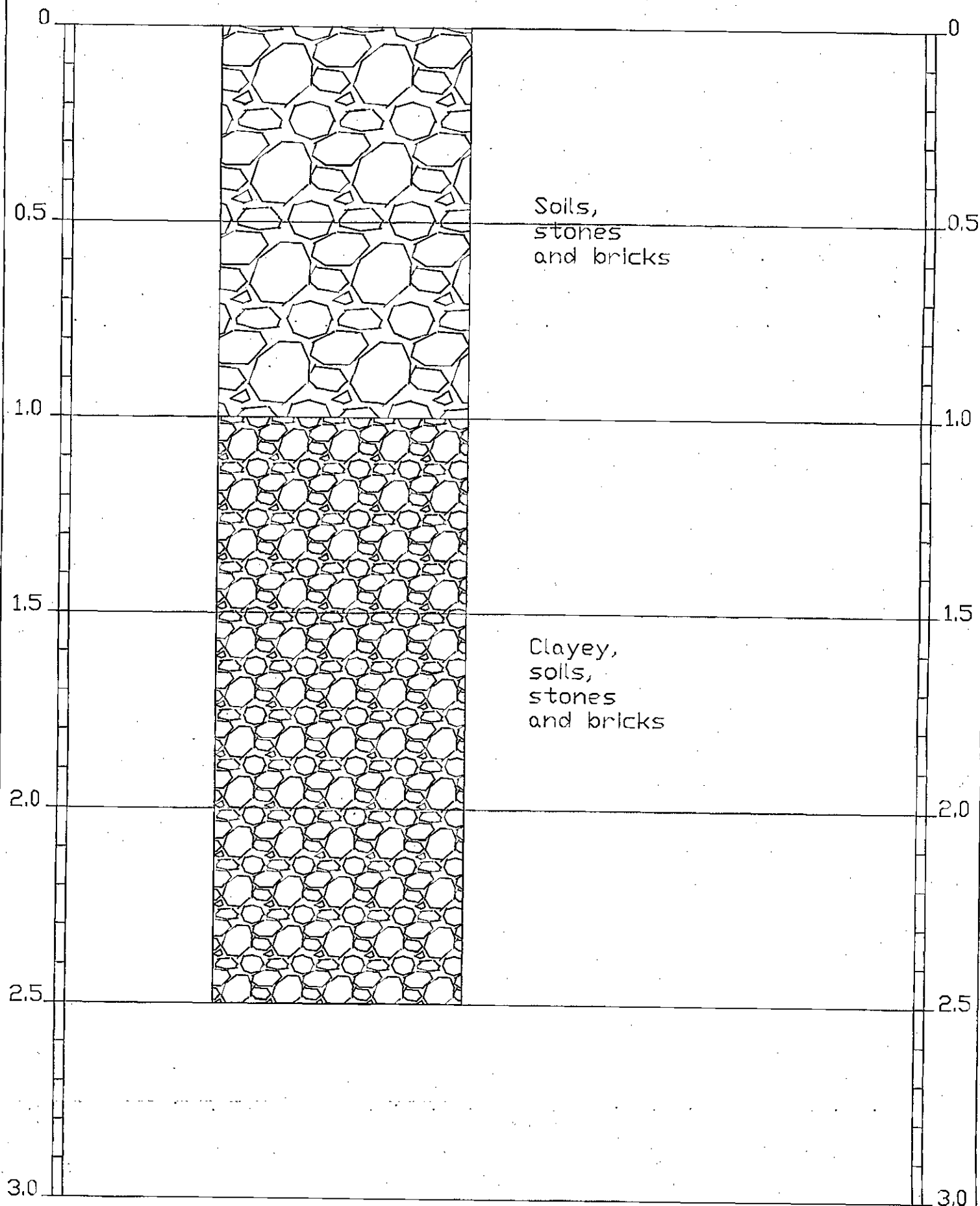
Site: Fox Lane Landfill

Location: Ludchurch, Pembs

Nat Grid Ref: SN 14870/10750

Level: 134.5

Date: 7/10/2005



Logger: P Deakin

Signature

Client: Mr Merriman

Test Pit: 2

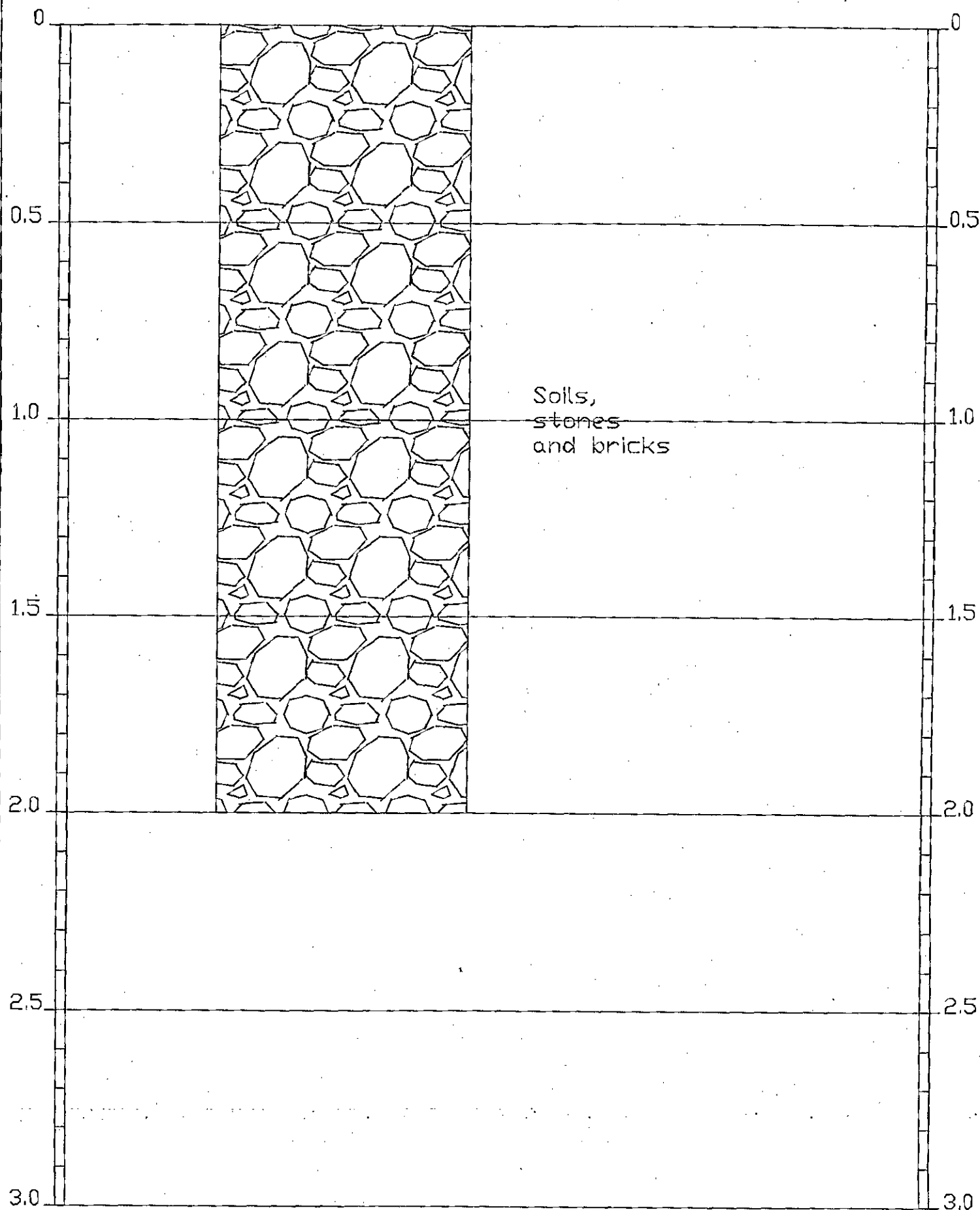
Site: Fox Lane Landfill

Location: Ludchurch, Pembs

Nat Grid Ref: SN 14850/10760

Level: 133.2

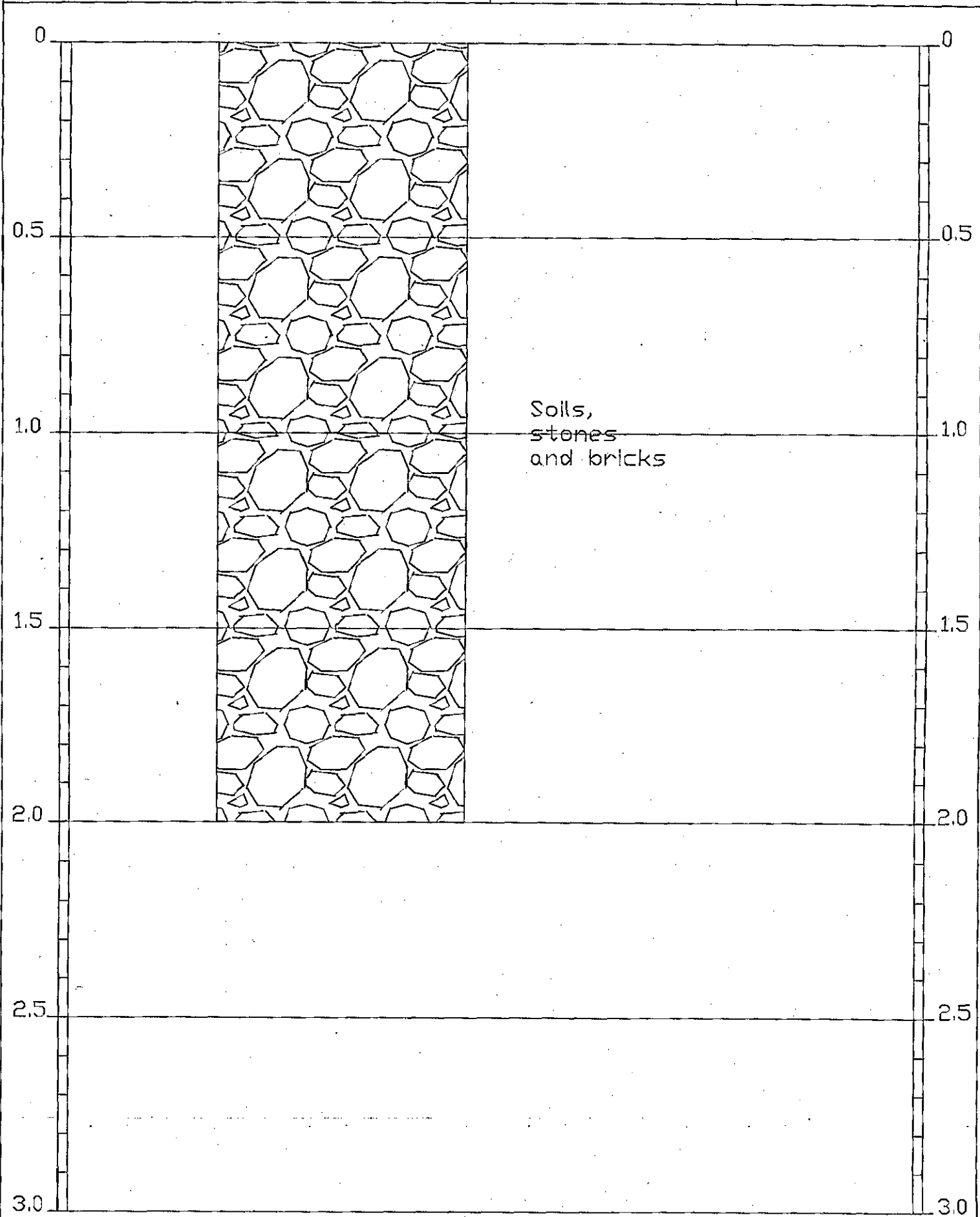
Date: 7/10/2005



Logger: P Deakin

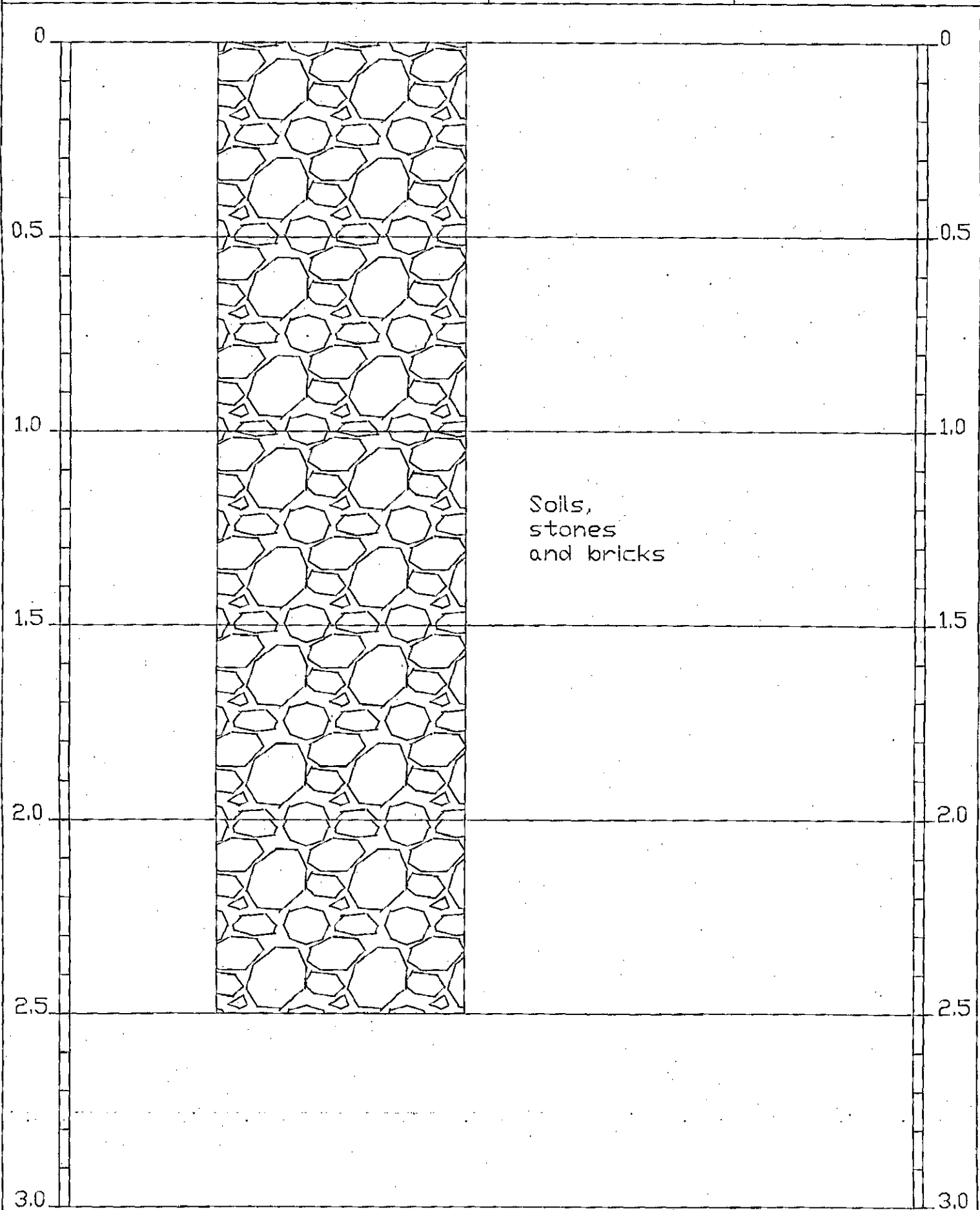
Signature

Client: Mr Merriman	Test Pit: 3	
Site: Fox Lane Landfill	Location: Ludchurch, Pembs	
Nat Grid Ref: SN 14860/10780	Level: 133.5	Date: 7/10/2005



Logger: P Deakin	Signature
------------------	-----------

Client: Mr Merriman	Test Pit: 4	
Site: Fox Lane Landfill	Location: Ludchurch, Pembs	
Nat Grid Ref: SN 14910/10770	Level: 135.3	Date: 7/10/2005



Logger: P Deakin	Signature
------------------	-----------

Lab Ref: 10022559-10022566
Page: 2 of 3

Results:

Laboratory Ref: 100-		Leachate Quality Threshold	22559 FL1	22560 FL2	22561 FL3	22563 FL4
Your Ref:						
pH		5.5-9.5	7.77	7.78	7.46	7.78
Conductivity	µS/cm	1,000	129	113	123	137
Chemical Oxygen Demand	mg/l	30	8.0	40	36	16
Ammonia	mg N/l	0.5	0.16	0.22	0.30	0.04
Phenol	µg C ₆ H ₅ OH/l	0.5	<0.5	<0.5	<0.5	<0.5
Sulphate	mg SO ₄ /l	150	12	4.6	8.6	13
Chloride	mg Cl/l	200	1.8	1.8	1.8	1.2
Nitrite	mg NO ₂ /l	0.1	0.01	0.10	0.03	0.02
Nitrate	mg NO ₃ /l	50	0.4	0.4	0.6	<0.1
Sulphide	mg H ₂ S/l	150	<10	<10	<10	<10
Free Cyanide	µg CN/l	50	22	14	<10	12
Complex Cyanide	µg CN/l	-	46	54	11	15
Boron	µg B/l	2,000	71	71	57	35
Arsenic	µg As/l	10	<10	<10	<10	<10
Cadmium	µg Cd/l	1	<1	<1	<1	<1
Lead	µg Pb/l	50	<50	<50	<50	<50
Copper	µg Cu/l	20	<20	<20	<20	<20
Zinc	µg Zn/l	500	60	70	50	<50
Chromium	µg Cr/l	50	<50	<50	<50	<50
Nickel	µg Ni/l	50	<50	<50	<50	<50

Mr Merriman - Fox Lane Landfill
 Spike Bar - Gas Survey
 7th October 2005

Point	O	CO ₂	CH ₄	Balance
1	20.5	0.1	0.0	79.4
2	20.5	0.1	0.0	79.4
3	20.4	0.1	0.3	79.2
4	20.1	0.3	0.1	79.5
5	20.3	0.1	0.0	79.6
6	20.3	0.3	0.0	79.4
7	20.0	0.3	0.4	79.3
8	20.3	0.3	1.1	78.3
9	20.3	0.1	0.4	79.2
10	19.3	0.3	0.7	79.7
11	19.7	0.5	1.1	78.7
12	20.1	0.2	0.2	79.5
13	20.2	0.2	0.0	79.6
14	19.1	0.9	1.0	79.0
15	20.2	0.2	0.1	79.5
16	20.2	0.3	0.1	79.4
17	20.5	0.1	0.0	79.4
18	19.8	0.2	1.0	79.0
19	19.7	1.4	0.9	78.0
20	20.5	0.2	0.0	79.3

BH A	17.5	3.7	0.0	78.8
BH B	20.5	0.0	0.0	79.5
BH C	19.6	1.4	0.0	79.0

Pressure 999
 -0.060

P R Deakin