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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

**SCOTT BROS LTD**

# THORPE THEWLES DEPOSIT FOR RECOVERY

# APPLICATION FOR AN ENVIRONMENTAL PERMIT

**SEPTEMBER 2020**

wardell armstrong

**Wardell Armstrong**
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| | |
|---|---|
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**SCOTT BROS LTD**

# THORPE THEWLES DEPOSIT FOR RECOVERY

# APPLICATION FOR AN ENVIRONMENTAL PERMIT

**SEPTEMBER 2020**

**PREPARED BY:**

Alison Cook Associate Director

**APPROVED BY:**

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Waste Resource Management

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**Form Part A**

# Application for an environmental permit Part A – About you

**You will need to fill in this part A if you are applying for a new permit, applying to change an existing permit or surrender your permit, or want to transfer an existing permit to yourself. Please check that this is the latest version of the form available from our website.**

**Please read through this form and the guidance notes that came with it.**

**The form can be:**

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

**Note:** if you believe including information on a public register would not be in the interests of national security you must enclose a letter telling us that you have told the Secretary of State. We will not include the information in the public register unless directed otherwise.

It will take less than one hour to fill in this part of the application form.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

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Appendix 1 – Date of birth information for installation and waste activities (applications for a new permit or transferring a permit) only

## 1 About you

Are you applying as an individual, an organisation of individuals (for example, a partnership), a company (this includes Limited Liability Partnerships) or a public body?

| | | |
|---|---|---|
| An individual | ☐ | Now go to section 2 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1 |
| An organisation of individuals (for example, a partnership) | ☐ | Now go to section 3 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1 |
| A public body | ☐ | Now go to section 4 |
| A registered company or other corporate body | ☑ | Now go to section 5 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1 |

## 2 Applications from an individual

### 2a Please give us the following details

Name

Title (Mr, Mrs, Miss and so on) _____

First name _____

Last name _____

Now go to section 6

## 3 Applications from an organisation of individuals or charity

### 3a Type of organisation

For example, a charity, a partnership, a group of individuals or a club _____

# 3 Applications from an organisation of individuals, continued

## 3b Details of the organisation or charity

If you are an organisation of individuals, please give the details of the main representative below. If relevant, provide details of other members (please include their title Mr, Mrs and so on) on a separate sheet and tell us the document reference you have given this sheet

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to question 3c or section 6

## 3c Details of charity

Full name of charity

This should be the full name of the legal entity not any trading name.

## 3d Company registration number

If you are registered with Companies House please tell us your registration number

## 3e Charity Commission number

If you are registered with the Charity Commission please tell us your registration number

Now go to section 6

# 4 Applications from public bodies

## 4a Type of public body

For example, NHS trust, local authority, English county council

## 4b Name of the public body

## 4c Please give us the following details of the executive

An officer of the public body authorised to sign on your behalf

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position

Now go to section 6

# 5 Applications from companies or corporate bodies

## 5a Name of the company

Scott Bros Ltd

## 5b Company registration number

6329873

Date of registration (DD/MM/YYYY)

16/08/2007

If you are applying as a corporate organisation that is not a limited company, please provide evidence of your status and tell us below the reference you have given the document containing this evidence.

Document reference

# 5 Applications from companies or corporate bodies, continued

## 5c Please give details of the directors

If relevant, provide details of other directors and company secretary, if there is one, on a separate sheet and tell us the reference you have given this sheet.

Document reference: See Appendix 1

Details of company secretary (if relevant) and director/s

Title (Mr, Mrs, Miss and so on):

First name:

Last name:

Title (Mr, Mrs, Miss and so on):

First name:

Last name:

Now go to section 6

# 6 Your address

## 6a Your main (registered office) address

For companies this is the address on record at Companies House.

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Bob

Last name: Borthwick

Address: Scott Business Park
Haverton Hill Road
Billingham
Stockton on Tees

Postcode: TS23 1PY

Contact numbers, including the area code

Phone: 01642 750444

Fax: 01642 766544

Mobile: 07702 000889

Email: bob.borthwick@scottbros.com

For an organisation of individuals every partner needs to give us their details, including their title Mr, Mrs and so on. So, if necessary, continue on a separate sheet and tell us below the reference you have given the sheet.

Document reference:

## 6b Main UK business address (if different from above)

Contact name

Title (Mr, Mrs, Miss and so on):

First name: same as 6a above

Last name:

Address:

Postcode:

## 6 Your address, continued

Contact numbers, including the area code

Phone

Fax

Mobile

Email

Now go to section 7

## 7 Contact details

### 7a Who can we contact about your application?

It will help us if there is someone we can contact if we have any questions about your application. The person you name should have the authority to act on your behalf.

Please add a second contact on a separate sheet if this person is not always available.

Document reference of this separate sheet

This can be someone acting as a consultant or an 'agent' for you.

Contact name

Title (Mr, Mrs, Miss and so on) Mr

First name Bob

Last name Borthwick

Address Scott Business Park
Haverton Hill Road
Billingham
Stockton on Tees

Postcode TS23 1PY

Contact numbers, including the area code

Phone 01642 750444

Fax 01642 766544

Mobile 07702 000889

Email bob.borthwick@scottbros.com

### 7b Who can we contact about your operation (if different from question 7a)?

Contact name

Title (Mr, Mrs, Miss and so on)

First name same as 7a above

Last name

Address

Postcode

Contact numbers, including the area code

Phone

Fax

Mobile

Email

# 7 Contact details, continued

## 7c Who can we contact about your billing or invoice?

**Note: Please provide the name and address that all invoices should be sent to for your subsistence fees.**

As in question 7a ☑

As in question 7b ☐

Please give details below if different from question 7a or 7b.

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Address

Postcode

Contact numbers, including the area code

Phone

Fax

Mobile

Email

# 8 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it. More information on how to do this is available at: www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

**Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.**

# 9 Where to send your application

For how many copies to send see the guidance note on part A.

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

For flood risk activity permits send 1 copy only to enquiries@environment-agency.gov.uk or to the local Environment Agency office for where the work is proposed to be carried out.

Or

Permitting Support Centre
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

## Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19101
Clarity approved by Plain English Campaign

### For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

# Appendix 1 – Date of birth information for installation and waste activities (applications for a new permit or transferring a permit) only

## Date of birth information in this appendix will not be put onto our Public Register

**Are you applying as an individual, an organisation of individuals (for example, a partnership) or a company (this includes Limited Liability Partnerships)?**

| | |
|---|---|
| An individual | ☐ Now go to 2 |
| An organisation of individuals (for example, a partnership) | ☐ Now go to 3 |
| A registered company or other corporate body | ☑ Now go to 4 |

## 2 Applications from an individual

Please give us the following details

Name

Date of birth (DD/MM/YY)

## 3 Applications from an organisation of individuals or charity

**Details of the organisation or charity**

If you are an organisation of individuals, please give the date of birth details of the main representative below. If relevant, provide details of other members on a separate sheet and tell us the document reference you have given this sheet.

Name

Date of birth (DD/MM/YY)

Document reference

## 4 Applications from companies or corporate bodies

Name of the company: Scott Bros Ltd

Please give the date of birth details for all directors and company secretary if there is one. If relevant, provide those details of other directors on a separate sheet and tell us the document reference you have given this sheet.

Details of company secretary (if relevant) and director/s

Name: Borthwick, Robert John

Date of birth (DD/MM/YY): [redacted]

Name: Fraser, Ian William

Date of birth (DD/MM/YY): [redacted]

Name: Scott, Peter George

Date of birth (DD/MM/YY): [redacted]

Document reference

**Form Part B2**

# Application for an environmental permit
# Part B2 – General – new bespoke permit

Environment Agency

Fill in this part of the form together with parts A and F1 if you are applying for a new bespoke permit. You also need to fill in part B3, B4, B5, B6, or B7 (this depends on what activities you are applying for). Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces

It will take less than two hours to fill in this part of the application form.

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1 About the permit
2 About the site
3 Your ability as an operator
4 Consultation
5 Supporting information
6 Environmental risk assessment
7 How to contact us
Appendix 1 – Low impact installation checklist
Appendix 2 – Date of birth information for Relevant offences and/or Technical ability questions only

## 1 About the permit

### 1a Discussions before your application

If you have had discussions with us before your application, give us the permit reference or details on a separate sheet. Tell us below the reference you have given this extra sheet.

Permit or document reference: WE4813AA (permit reference)

### 1b Is the permit for a site or for mobile plant?

Site ☑ Now go to section 2

Mobile plant ☐ Now go to question 1c

Note: The term 'mobile plant' does not include mobile sheep dipping units.

### Mobile plant

### 1c Have we told you during pre-application discussions that we believe that a mobile permit is suitable for your activity?

No ☐

Yes ☐

### 1d Have there been any changes to your proposal since this discussion?

No ☐ Now go to section 3

Yes ☐ You should send us a description of the activity you want to carry out, highlighting the changes you have made since our pre-application discussions

Document reference

Now go to section 3

## 2 About the site

### But not mobile plant

### 2a What is the site name, address, postcode and national grid reference?

Site name: Thorpe Thewles

Address: Land Adjacent to Durham Road
Thorpe Thewles
Stockton on Tees

## 2 About the site, continued

Postcode: TS21 3JN

National grid reference for the site (for example, ST 12345 67890): NZ 39729 23691

### 2b What type of regulated facility are you applying for?

**Note: if you are applying for more than one regulated facility then go to 2c.**

- Installation ☐
- Waste operation ☑
- Mining waste operation ☐
- Water discharge activity ☐
- Groundwater activity (point source) ☐
- Groundwater activity (discharge onto land) ☐

What is the national grid reference for the regulated facility (if only one)? (See the guidance notes on part B2.)

- As in 2a above ☑
- Different from that in 2a ☐ Please fill in the national grid reference below

National grid reference for the regulated facility

Now go to question 2d

# 2 About the site, continued

## 2c If you are applying for more than one regulated facility on your site, what are their types and their grid references?

See the guidance notes on part B2.

### Regulated facility 1

National grid reference

### What is the regulated facility type?

Installation ☐

Waste operation ☐

Mining waste operation ☐

Water discharge activity ☐

Groundwater activity (point source) ☐

Groundwater activity (discharge onto land) ☐

### Regulated facility 2

National grid reference

### What is the regulated facility type?

Installation ☐

Waste operation ☐

Mining waste operation ☐

Water discharge activity ☐

Groundwater activity (point source) ☐

Groundwater activity (discharge onto land) ☐

Use several copies of this page or separate sheets if you have a long list of regulated facilities. Send them to us with your application form. Tell us below the reference you have given these extra sheets.

Document reference

Now go to question 2d

# 2 About the site, continued

## 2d Low impact installations (installations only)

2d1 Are any of the regulated facilities low impact installations?

No ☑

Yes ☐ If yes, tell us how you meet the conditions for a low impact installation (see the guidance notes on part B2 – Appendix 1).

Document reference

Tick the box to confirm you have filled in the low impact installation checklist in appendix 1 for each regulated facility ☐

## 2e Treating batteries

2e1 Are you planning to treat batteries? (See the guidance notes on part B2.)

No ☑

Yes ☐ Tell us how you will do this, send us a copy of your explanation and tell us below the reference you have given this explanation

Document reference for the explanation

## 2f Ship recycling

2f1 Is your activity covered by the Ship Recycling Regulations 2015? (See the guidance notes on part B2.)

No ☑

Yes ☐ Tell us how you will do this. Please send us a copy of your explanation and your facility recycling plan, and tell us below the reference numbers you have given these documents

Document reference for the explanation

Document reference for the facility recycling plan

## 2g Multi-operator installation

If the site is a multi-operator site (that is there is more than one operator of the installation) then fill in the table below the application reference for each of the other permits.

### Table 1 – Other permit application references

| |
|---|
| |
| |
| |
| |

# 3 Your ability as an operator

If you are only applying for a standalone water discharge or for a groundwater activity, you only have to fill in question 3d.

## 3a Relevant offences

**Applies to all except standalone surface water discharges and groundwater discharges (see the guidance notes on part B2).**

3a1 Have you, or any other relevant person, been convicted of any relevant offence?

No ☑ Now go to question 3b

Yes ☐ Please give details below

Name of the relevant person

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position held at the time of the offence

Name of the court where the case was dealt with

Date of the conviction (DD/MM/YYYY)

## 3 Your ability as an operator, continued

Offence and penalty set

Date any appeal against the conviction will be heard (DD/MM/YYYY)

If necessary, use a separate sheet to give us details of other relevant offences and tell us below the reference number you have given the extra sheet.

Document reference

Now go to question 3b

Please also complete the details in Appendix 2.

### 3b Technical ability

**Relevant waste operations only (see the guidance notes on part B2).**

Please indicate which of the two schemes you are using to demonstrate you are technically competent to operate your facility and the evidence you have enclosed to demonstrate this.

### ESA/EU skills

Please select **one** of the following:

I have enclosed a copy of the current Competence Management System certificate ☐

**or**

We will have a certified Competence Management System within 12 months and have enclosed evidence of the contract with an accredited certification body ☐

### CIWM/WAMITAB scheme

Please select **one** of the following:

- I have enclosed a copy of:
  - the relevant qualification certificate/s ☑

  **or**
  - evidence of deemed competence ☐

  **or**
  - Environment Agency assessment ☐

  **or**
  - evidence of nominated manager status under the transitional provisions for previously exempt activities ☐

  and, if deemed competent or Agency-assessed, or nominated manager, or if the original qualification is over two years old:

  I have enclosed a copy of the relevant current continuing competence certificate/s ☑
- I will complete my qualification within four weeks of starting the permitted activities and have enclosed evidence of my registration with WAMITAB or my EPOC booking as appropriate ☐
- **For medium- and high-risk tier activities other than landfill**
  I will complete the qualification within 12 months and have enclosed evidence of registration with WAMITAB and, where relevant, EPOC booking. I understand I must complete either four specified units of the relevant qualification or an EPOC within four weeks of the permitted activities commencing ☐

For each technically competent manager please give the following information. If necessary, use a separate sheet to give us these details and tell us below the document reference you have given the extra sheet.

| | |
|---|---|
| Title (Mr, Mrs, Miss and so on) | Mr |
| First name | David |
| Last name | Scott |
| Phone | 07900 000749 |
| Mobile | 07900 000749 |
| Email | david.scottjnr@scottbros.com |

## 3 Your ability as an operator, continued

Please provide the environmental permit number/s and site address for **all** other waste activities that the proposed technically competent manager provides technical competence for, including permits held by other operators. Continue on a separate sheet as required.

| Permit number | Site address | Postcode |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Document reference: Technical Competence Permits Covered (Feb 2020)

Now go to question 3c

Please also complete the details in Appendix 2.

### 3c Finances

**Installations, waste operations and mining waste operations only.**

**Please note that if you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.**

Do you or any relevant person or a company in which you were a relevant person have current or past bankruptcy or insolvency proceedings against you?

No ☑

Yes ☐ Please give details below, including the required set-up costs (including infrastructure), maintenance and clean up costs for the proposed facility against which a credit check may be assessed

We may want to contact a credit reference agency for a report about your business's finances.

### Landfill, Category A mining waste facilities and mining waste facilities for hazardous waste only

How do you plan to make financial provision (to operate a landfill or a mining waste facility you need to show us that you are financially capable of meeting the obligations of closure and aftercare)?

Bonds ☐

Escrow account ☐

Trust fund ☐

Lump sum ☐

Other ☐

Provide a plan of your estimated expenditure on each phase of the landfill or mining waste facility.

Document plan reference

Now go to question 3d

### 3d Management systems (all)

You must have an effective, written management system in place that identifies and reduces the risk of pollution. You may show this by using a certified scheme or your own system.

Your permit requires you (as the operator) to ensure that you manage and operate your activities in accordance with a written management system.

You need to be able to explain what happens at each site and which parts of the overall management system apply. For example at some sites you may need to show you are carrying out additional measures to prevent pollution because they are nearer to sensitive locations than others.

You can find guidance on management systems on our website at www.gov.uk/government/organisations/environment-agency

## 3 Your ability as an operator, continued

**Tick this box to confirm that you have read the guidance and that your management system will meet our requirements** ☑

What management system will you provide for your regulated facility?

ISO 14001 ☐

BS 8555 (Phases 1–5) ☐

Green dragon ☐

Own management system ☑

EC Eco-Management and Audit Scheme (EMAS) ☐

EMAS Easy ☐

Please make sure you send us a summary of your management system with your application.

Document reference/s: Operational Techniques and Management System Summary

## 4 Consultation

**Fill in 4a to 4c for installations and waste operations and 4d for installations only.**

Could the waste operation or installation involve releasing any substance into any of the following?

### 4a A sewer managed by a sewerage undertaker?

No ☑

Yes ☐ Please name the sewerage undertaker

### 4b A harbour managed by a harbour authority?

No ☑

Yes ☐ Please name the harbour authority

### 4c Directly into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries committee?

No ☑

Yes ☐ Please name the fisheries committee

### 4d Is the installation on a site for which:

4d1 a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No ☑

Yes ☐

4d2 a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards Regulations 2015, or a safety report is needed under regulation 7 of those Regulations?

No ☑

Yes ☐

## 5 Supporting information

### 5a Provide a plan or plans for the site

**But not any mobile plant**

Clearly mark the site boundary or discharge point, or both. Also include site drainage plans, site layout plans, and plant design drawings/process flow diagrams (as required). (See the guidance notes on part B2.)

Document reference/s of the plans: Thorpe Thewles Site Plan

### 5b Provide the relevant sections of a site condition/baseline report if this applies

**See the guidance notes on part B2 for what needs to be marked on the plan.**

Document reference of the report: covered by ESSD

If you are applying for an installation, tick the box to confirm that you have sent in a baseline report ☐

# 5 Supporting information, continued

## 5c Provide a non-technical summary of your application

**See the guidance notes on part B2.**

Document reference of the summary: Thorpe Thewles Non Technical Summary

## 5d Are you applying for an activity that includes the storage of combustible wastes?

This applies to all activities excluding standalone water and groundwater discharges.

No ☑

Yes ☐ Provide a fire prevention plan (see the guidance notes on part B2). You need to highlight any changes you have made since your pre-application discussions.

Document reference of the plan:

# 6 Environmental risk assessment

Provide an assessment of the risks each of your proposed regulated facilities poses to the environment. The risk assessment must follow the methodology set out in 'Risk assessments for your environmental permit' at www.gov.uk/government/collections/technical-guidance-for-regulated-industry-sectors-environmental-permitting or an equivalent method.

Document reference for the assessments: See ESSD

## For Waste and Installation Permits only

All bespoke waste and installations permit applications must carry out a climate change risk assessment if the planned duration of the operation is more than 5 years. This will normally be reviewed and discussed with you as part of our compliance activities. However, we may require you to submit your climate change risk assessment as part of your application depending on your risk screening score. We will consider the information contained within your climate change risk assessment when we grant your permit. Conditions may be applied to some permits to manage climate risks.

## 6b Climate change risk screening

See the guidance to Part B2.

Mark your score in each category in the table below. Add each individual score to give a total.

| CATEGORY | SCREENING QUESTIONS | SCORE | YOUR SCORE |
|---|---|---|---|
| 1 TIMESCALES | How long will a permit be required for this site/activity? | | |
| | **5 years or less of operation. No need to fill in the rest of the screening. You do not need to fill in a risk assessment. Please go straight to question 7.** | 0 | |
| | Less than 20 years of operation | 1 | |
| | Until between 2040 and 2060 (between 20 and 40 years from now) | 3 | |
| | Until 2060 or beyond (more than 40 years from now) | 5 | 0 |
| 1 FLOODING | What is your site's risk of flooding from rivers or the sea? | | |
| | Not in a flood-risk zone | 0 | |
| | Very low or Low | 1 | |
| | Medium | 2 | |
| | High | 5 | 0 |
| 3 WATER USE | If you use water for your site operations or fire prevention, what is the source of your water? | | |
| | Water not required | 0 | |
| | Mains water | 1 | |
| | Surface water or groundwater abstraction | 5 | 1 |
| | | TOTAL SCREENING SCORE | 1 |

If your total screening score is 5 or more, complete the climate change risk assessment and submit it with your permit application.

If you expect to operate for 5 years or less, you do not need to submit a risk assessment with your application, regardless of your screening score.

You must enter your score for every category in the table above. If you expect to operate for 5 years or less you may enter 'Not Applicable' for categories 2 and 3.

## 6 Environmental risk assessment, continued

Document reference of the risk assessment (if submitted with application)

not applicable

If your total screening score is less than 5 we may still request your risk assessment as part of determining this application if we believe you face unmanaged climate risks.

If we do not review your risk assessment as part of your application, it will form part of your Environmental Management System and we will discuss it with you as part of our compliance activities.

## 7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

**Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.**

## Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19103 Clarity approved by Plain English Campaign

### For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

## Plain English Campaign's Crystal Mark does not apply to appendix 1.

## Appendix 1 – Low impact installation checklist

**See the guidance notes on part B2.**

| Installation reference | | | | |
|---|---|---|---|---|
| Condition | Response | | | Do you meet this? |
| A – Management techniques | Provide references to show how your application meets A | | | Yes ☐ No ☐ |
| | References | | | |
| B – Aqueous waste | Effluent created | | $m^3$/day | Yes ☐ No ☐ |
| C – Abatement systems | Provide references to show how your application meets C | | | Yes ☐ No ☐ |
| | References | | | |
| D – Groundwater | Do you plan to release any hazardous substances or non-hazardous pollutants into the ground? | | Yes ☐ No ☐ | Yes ☐ No ☐ |
| E – Producing waste | Hazardous waste | | Tonnes per year | Yes ☐ No ☐ |
| | Non-hazardous waste | | Tonnes per year | |
| F – Using energy | Peak energy consumption | | MW | Yes ☐ No ☐ |
| G – Preventing accidents | Do you have appropriate measures to prevent spills and major releases of liquids? (See 'How to comply'.) | | Yes ☐ No ☐ | Yes ☐ No ☐ |
| | Provide references to show how your application meets G | | | |
| | References | | | |
| H – Noise | Provide references to show how your application meets H | | | Yes ☐ No ☐ |
| | References | | | |
| I – Emissions of polluting substances | Provide references to show how your application meets I | | | Yes ☐ No ☐ |
| | References | | | |
| J – Odours | Provide references to show how your application meets J | | | Yes ☐ No ☐ |
| | References | | | |
| K – History of keeping to the regulations | Say here whether you have been involved in any enforcement action as described in Compliance History Appendix 1 explanatory notes | | Yes ☐ No ☐ | |

# Appendix 2 – Date of birth information for Relevant offences and/or Technical ability questions only

## Date of birth information in this appendix will not be put onto our Public Register

Have you filled in the Relevant Offences question?

Yes ☐

No ☑

Have you filled in the Technical ability question?

Yes ☑

No ☐

## 2 Relevant Offences - date of birth information

Please give us the following details

Name

Date of birth (DD/MM/YY)

## 3 Technical ability - date of birth information

Name David Scott

Date of birth (DD/MM/YY) [redacted]

**Form Part B4**

# Application for an environmental permit
# Part B4 – New bespoke waste operation permit

Environment Agency

Fill in this part of the form, together with parts A, B2 and F1, if you are applying for a new bespoke permit for a waste operation. Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces.

It will take less than three hours to fill in this part of the application form.

Contents

1 What waste operations are you applying for?
2 Emissions to air, water and land
3 Operating techniques
4 Monitoring
5 How to contact us
Appendix 1 – Specific questions for clinical transfer and treatment waste operations
Appendix 2 – Specific questions for waste facilities that accept hazardous waste
Appendix 3 – Specific questions for the recovery to land for agricultural benefit of compost like outputs from the treatment of mixed municipal solid wastes
Appendix 4 – Specific questions for inert waste landfill and deposit for recovery operations

## 1 What waste operations are you applying for?

Fill in Table 1a with details of what you are applying for.

Fill in a separate table for each waste operation you are applying for. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given the extra sheet.

Document reference: W3814AA-B4-1a

### Types of waste accepted

For each line in Table 1a, fill in a separate document to list those wastes you will accept on the site for that operation, giving the List of Wastes catalogue code (search for 'Technical guidance on how to assess and classify waste' at www.gov.uk/government/organisations/environment-agency). If you need to exclude waste from your activity or facility by restricting the description, quantity, physical nature, hazardous properties, composition or characteristic of the waste, include these in the document. Send it to us with your application form.

# 1 What waste operations are you applying for?, continued

## Table 1a – Waste operations which do not form part of an installation

| Name of the waste operation | Description of the waste operation | Annex I (D codes) and Annex II (R codes) and descriptions | Hazardous waste treatment capacity (if this applies) (See note 1) | Non-hazardous waste treatment capacity (if this applies) (See note 1) |
|---|---|---|---|---|
| Add extra rows if you need them. If you do not have enough room, go to the line below or send a separate document and give us the document reference here | Use the description from the guidance. Include any extra detail that you think would help to accurately describe what you want to do | | | |
| refer to doc W3814AA-B4-1a | | | | |
| | | | | |
| | | | | |
| | | | | |
| For all waste operations | Total storage capacity (see note 2) | | | |
| | Annual throughput (tonnes each year) | | | |

**Notes**

1 By 'capacity', we mean the total landfill capacity (cubic metres), the total deposit for recovery capacity (cubic metres), the total treatment capacity (tonnes each day) for waste treatment and the total storage capacity (tonnes) for waste storage operations.

2 By 'total storage capacity', we mean the maximum amount of waste in tonnes you store on the site at any one time.

## 1 What waste operations are you applying to vary?, continued

Please provide the document reference. You can use Table 1b as a template.

If you want to accept any waste with a code ending in 99, you must provide more information and a full description in the document.

Document reference: See pages 29 and 30 of the Operational Techniques

### Table 1b – Template example – types of waste accepted and restrictions

| Waste code | Description of waste |
|---|---|
| Example<br>02 01 08*<br>06 01 02* | Example<br>Agrochemical waste containing hazardous substances<br>Hydrochloric acid |

### 1c Deposit for recovery purposes (see Appendix 4 and the guidance notes on part B4)

Are you applying for a waste recovery activity involving the permanent deposit on waste on land for construction or land reclamation restoration or improvement?

No ☐ Go to section 2

Yes ☑

Have we advised you during pre-application discussions that we believe the activity is waste recovery?

No ☑ Go to section 2

Yes ☐

Have there been any changes to your proposal since the discussions?

No ☐

Yes ☐

Please send us a copy of your waste recovery plan that complies with our guidance at https://www.gov.uk/guidance/waste-recovery-plans-and-permits. You need to highlight any changes you have made since your pre-application discussions. Also give us the reference number of the document with your justification.

**Please note that there is an additional charge for the assessment of a waste recovery plan that must be submitted as part of this application. For the charge see https://www.gov.uk/topic/environmental-management/environmental-permits.**

Document reference

## 2 Emissions to air, water and land

Fill in Table 2 below with details of the emissions that result from the operating techniques at each of your waste operations.

Fill in one table for each waste operation.

### Table 2 – Emissions

| Name of the waste operation | Thorpe Thewles | | | |
|---|---|---|---|---|
| **Point source emissions to air** | | | | |
| Emission point reference and location | Source | Parameter | Quantity | Unit |
| none | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 2 Emissions to air, water and land, continued

| Point source emissions to water (other than sewers) | | | | |
|---|---|---|---|---|
| Emission point reference and location | Source | Parameter | Quantity | Unit |
| none | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| **Point source emissions to sewers, effluent treatment plants or other transfers off site** | | | | |
| Emission point reference and location | Source | Parameter | Quantity | Unit |
| | | | | |
| none | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| **Point source emissions to land** | | | | |
| Emission point reference and location | Source | Parameter | Quantity | Unit |
| none | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Supporting information

## 3 Operating techniques

### 3a Technical standards

Fill in Table 3a for each waste operation you refer to in Table 1a above and list the 'appropriate measures' you are planning to use. If you are using the standards set out in the relevant technical guidance(s) (TGN) there is no need to justify using them within your documents in Table 3a.

You must justify your decisions in a separate document if:

- there is no technical standard
- the technical guidance provides a choice of standards, or
- you plan to use another standard

This justification could include a reference to the Environmental Risk Assessment provided in part B2 of the application form.

The documents in Table 3a should summarise the main measures you use to control the main issues identified in your risk assessment or technical guidance. For each of the activities listed in Table 3a, describe the type of operation and the options you have chosen for controlling emissions from your process.

# 3 Operating techniques, continued

## Table 3a – Technical standards

Fill in a separate table for each waste operation.

| Waste operation | | |
|---|---|---|
| Description of the waste operation | Appropriate measure (TGN reference) | Document reference (if appropriate) |
| Deposit of Waste for Recovery | Deposit for Recovery Guidance on Gov.UK | Thorpe Thewles SOP-1 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

In all cases, describe the type of facility or operation you are applying for and, if appropriate, use location plans, process flow diagrams or block diagrams to help describe the operation and process. Give the document references you use for each plan, diagram and description.

Document reference: Thorpe Thewles SOP-1

## 3b General requirements

Fill in a separate table for each waste operation.

## Table 3b – General requirements

| Name of the waste operation | Thorpe Thewles |
|---|---|
| If the TGN or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them | Document reference or references not considered necessary. See SOP-1 |
| If the TGN or your risk assessment shows that odours are an important issue, send us your odour management plan.<br>**If your activity type is listed in the guidance document 'Control and monitor emissions for your environmental permit' as needing an odour management plan, or your risk assessment shows that odours are an important issue, you need to send us your odour management plan.** | Document reference or references<br>not applicable |
| If the TGN or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both) | Document reference or references not applicable |

We may need to ask for management plans or risk assessments in other circumstances based on our regulatory experience. If you are unsure as to whether you need to submit a management plan with your application, please discuss this with the Environment Agency prior to submission.

Search for 'Risk assessment for your environmental permit' at www.gov.uk/government/organisations/environment-agency.

## 3c Information for specific sectors

For some of the sectors, we need more information to be able to set appropriate conditions in the permit. This is as well as the information you may provide in sections 5, 6 and 7. For those activities listed in Table 3c, you must answer the questions in the related document.

## Table 3c – Questions for specific sectors

| Sector | Appendix |
|---|---|
| Clinical waste | See the questions in appendix 1 |
| Disposing of and recovering hazardous waste | See the questions in appendix 2 |
| Recovery to land for agricultural benefit of compost like outputs from the treatment of mixed municipal solid wastes | See the questions in appendix 3 |
| Inert landfill and deposit of waste on land for construction, land reclamation, restoration or improvement | See the questions in appendix 4 |

# General information

## 4 Monitoring

### 4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above

You should also describe any environmental monitoring. Tell us:

- how often you use these measures
- the methods you use
- the procedures you follow to assess the measures

Document reference N/A

### 4b Point source emissions to air only

Provide an assessment of the sampling locations used to measure point source emissions to air. The assessment must use M1 (search for 'M1 sampling requirements for stack emission monitoring' at www.gov.uk/government/organisations/environment-agency).

Document reference of the assessment N/A

## 5 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

**Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.**

## Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

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Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19105 Clarity approved by Plain English Campaign

**For Environment Agency use only**

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

## Plain English Campaign's Crystal Mark does not apply to appendices 1 to 4.

## Appendix 1 – Specific questions for clinical transfer and treatment waste operations

These questions apply to sites that store and/or treat clinical wastes listed in sub-tables 2.1a to 2.1b, EPR 5.07 'Technical guidance for managing clinical waste'. If other hazardous waste is received you should additionally refer to Appendix 2.

### 1 Are you proposing to either

- accept additional waste for thermal or chemical disinfection not included in Table 2.1a of EPR 5.07?
- treat a waste in Table 2.1a or Table 2c other than by the specified methods?

No ☐

Yes ☐ Please provide justification for the treatment of this waste

Document reference

### 2 Provide a summary description of the treatment activities carried out on the waste facility which cover the standards set out in the relevant technical guidance note(s) (TGN)

Document reference

### 3 Provide layout plans detailing the location of:

- waste storage (including areas and structures for separately storing wastes which may be dangerous to store together)
- each treatment plant
- main plant items

Also provide process flow diagrams for each treatment plant and capacity of waste storage areas and structures

Document reference

## Appendix 2 – Specific questions for waste facilities that accept hazardous waste

### 1 Provide a summary description of the treatment activities carried out on the waste facility which cover the standards set out in the relevant technical guidance note(s) (TGN)

Document reference

### 2 Provide layout plans detailing the location of:

- waste storage (including areas and structures for separately storing wastes which may be dangerous to store together)
- each treatment plant
- main plant items

Also provide process flow diagrams for each treatment plant and capacity of waste storage areas and structures

Document reference(s)

## Appendix 3 – Specific questions for the recovery to land for agricultural benefit of compost like outputs from the treatment of mixed municipal solid wastes

### 1 Please provide an accurate and reliable characterisation of your compost like outputs (CLO). This should be based on sampling and analysis of the CLO produced by the treatment (MBT) process over a 12-month period and in accordance with section 2 of TGN 6.15

Document reference

### 2 Please provide an agricultural benefit assessment for the use of your CLO. This should be based on section 2 of TGN 6.15 and should be signed and dated by an appropriate technical expert

Document reference

### 3 Please provide a site-specific risk assessment of risks to soil and food chain receptors. This should be based on Schedule 2 of TGN 6.15 and include a map with a green outline showing the boundary of the area being treated and include:

- locations where the waste will be stored and spread
- any spring, well or borehole used to supply water for domestic or food production purposes that is within 250 metres of the area being treated

## Appendix 3 – Specific questions for the recovery to land for agricultural benefit of compost like outputs from the treatment of mixed municipal solid wastes, continued

- any spring, well or borehole not being used for domestic or food production purposes that is within 50 metres of the area being treated
- any European designated sites (candidate or Special Area of Conservation, proposed or Special Protections Area in England and Wales or Ramsar Site) or Sites of Special Scientific Interest (SSSI) which are within 500 metres of the place where waste is to be stored or spread
- the location of public rights of way
- any Groundwater Source Protection Zones
- surface watercourses
- any buildings or houses within 250 metres of the area being treated
- land drains within the boundary

Document reference

### 4 Are the technical standards and measures fully in line with those set out in section 3 of TGN 6.15?

No ☐ Provide justification for departure from TGN 6.15 and a copy of the proposed technical standards, measures or procedures

Document reference

Yes ☐

## Appendix 4 – Specific questions for inert waste landfill and deposit for recovery operations

### 1 Please provide your Environmental Setting and Site Design (ESSD) report

Document reference: Environmental Setting and Site Design ST18175 Rpt 01

Note: You should use the Environment Agency template to help you develop an environmental setting and site design (ESSD) report.

### 2 Please provide your Waste Acceptance Procedures (including Waste Acceptance Criteria)

Document reference: see Waste Recovery Plan and SOP-1 a Appendix 3

### 3 Have you provided a hydrogeological risk assessment (HRA) for the site?

No ☐ Please refer to the section of your ESSD that explains why this is unnecessary for your site

Yes ☑ Document reference: see ESSD

### 4 Have you completed an outline engineering plan for the site?

No ☐ Please refer to the section of your ESSD that explains why this is unnecessary for your site

Yes ☑ Document reference: see ESSD

### 5 Have you provided a stability risk assessment (SRA) for your site?

No ☐ Please refer to the section of your ESSD that explains why this is unnecessary for your site

Yes ☑ Document reference: see ESSD

### 6 Have you completed a monitoring plan for the site?

No ☐ Please refer to the section of your ESSD that explains why this is unnecessary for your site

Yes ☑ Document reference: see ESSD

### 7 Have you completed a plan for closing the site and procedures for looking after the site once it has closed?

No ☐ If no for deposit for recovery activities please refer to the section of your ESSD that explains why this is unnecessary for your site

Yes ☑ For inert waste landfill you must provide a closure plan

Document reference: See Closure Plan ST18175 RPT 03

### Spreading waste to support plant growth

### 8a Does the activity involve the deposit of waste to create or treat a growing medium (R10 for land treatment)?

No ☑ Now go to question 9

Yes ☐

## Appendix 4 – Specific questions for inert waste landfill and deposit for recovery operations, continued

### 8b If you have answered 'Yes' to question 8a, can you meet both of the following criteria?

- Waste types to be used for the R10 activity are top soils (EWC 17 05 04 or 20 02 02), peat (EWC 17 05 04 or 20 02 02) and/or soil from cleaning and washing beet (EWC 02 04 01) only, and
- The depth of deposit for the R10 activity will not exceed the final 50cm

No ☐

Yes ☐

### 8c If you have answered 'No' to question 8b, have you completed a benefit statement?

No ☐ Please explain why

Document reference

Yes ☐

Note: Refer to our guidance when completing your statement (including EPR 8.01, section 6).

**Form Part F1**

# Application for an environmental permit
# Part F1 – Charges and declarations

Environment Agency

**Fill in this part for all applications for installations, waste operations, mining waste operations, water discharges, point source groundwater discharges and groundwater discharges onto land. Please check that this is the latest version of the form available from our website.**

**Please read through this form and the guidance notes that came with it.**

**The form can be:**

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

It will take less than two hours to fill in this part of the application form.

**Contents**


1 Working out charges
2 Payment
3 Privacy notice
4 Confidentiality and national security
5 Declaration
6 Application checklist
7 How to contact us
8 Where to send your application


**Each individual who is applying for their name to appear on the permit must complete the declaration in section 5. You will have to print a separate copy of the declaration page for each additional individual to complete.**

## 1 Working out charges

**You must fill in this section.**

You have to submit an application fee with your application. You can find out the charge by searching for 'Environment Agency charging scheme and guidance: environmental permits' at www.gov.uk/government/organisations/environment-agency.

Please remember that the charges are revised on 1 April each year and that there is an annual subsistence charge to cover the costs we incur in the ongoing regulation of the permit.

### Table 1 – Type of application (fill number of activity being applied for in each column)

| Installation | Waste | Mining waste | Medium Combustion Plant (MCP)/Specified Generator (SG) | Water discharge/point source discharge to groundwater | Groundwater spreading onto land |
|---|---|---|---|---|---|
| | bespoke deposit for | | | | |
| | recovery | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

### Table 2 – Charge type (A)

| Charge activity reference | Charge activity description | What are you applying to do? E.g. new, minor variation, normal variation, substantial variation, surrender, low risk surrender, transfer | Amount |
|---|---|---|---|
| e.g. 1.17.3 | e.g. Sect 5.2 landfill for hazardous waste | e.g. transfer | e.g. £5,561 |
| 1.17.9 | Deposit for Recovery | New | £ 9,207.00 |
| | | | |
| | | | |
| | | | |
| | | | |
| Total A | | | £ 9,207.00 |

# 1 Working out charges (you must fill in this section), continued

## Table 3 – Additional assessment charges (B)

| Part 1.19 Charges for plans and assessments | | | Tick appropriate |
|---|---|---|---|
| Reference | Plan or assessment | Charge | |
| 1.19.1 | Waste recovery plan | £1,231 | ☑ |
| 1.19.2 | Habitats assessment (except where the application activity is a flood risk activity) | £779 | ☑ |
| 1.19.3 | Fire prevention plan (except where the application activity is a farming installation) | £1,241 | ☐ |
| 1.19.4 | Pests management plan (except where the application activity is a farming installation) | £1,241 | ☐ |
| 1.19.5 | Emissions management plan (except where the application activity is a farming installation) | £1,241 | ☐ |
| 1.19.6 | Odour management plan (except where the application activity is a farming installation) | £1,246 | ☐ |
| 1.19.7 | Noise and vibration management plan (except where the application activity is a farming installation) | £1,246 | ☐ |
| 1.19.8 | Ammonia emissions risk assessment (intensive farming applications only) | £620 | ☐ |
| 1.19.9 | Dust and bio-aerosol management plan (intensive farming applications only) | £620 | ☐ |
| | Advertising | £500 | ☐ |
| Total B | | | £ 2,010.00 |

Total charges

Total A plus total B £ 11,217.00

# 2 Payment

Tick below to show how you have paid.

Cheque ☐

Postal order ☐

Cash ☐ Tick below to confirm you are enclosing cash with the application

Credit or debit card ☐

Electronic transfer (for example, BACS) ☑

Remittance number payment being arranged will be confirmed by e-mail

Date paid (DD/MM/YYYY)

## How to pay

**Paying by cheque, postal order or cash**

Cheque details

Cheque made payable to

Cheque number

Amount £ 11,217.00

You should make cheques or postal orders payable to 'Environment Agency' and make sure they have 'A/c Payee' written across them if it is not already printed on.

Please write the name of your company and application reference number on the back of your cheque or postal order. **We will not** accept cheques with a future date on them.

We do not recommend sending cash through the post. If you cannot avoid this, please use a recorded delivery postal service and enclose your application reference details. Please tick the box below to confirm you are enclosing cash.

I have enclosed cash with my application ☐

## 2 Payment, continued

**Paying by credit or debit card**

If you are paying by credit or debit card we can call you. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro card only.

Please call me to arrange payment by debit or debit card ☐

**Paying by electronic transfer BACS reference**

If you choose to pay by electronic transfer you will need to use the following information to make your payment.

| | |
|---|---|
| Company name | Environment Agency |
| Company address | SSCL (Environment Agency), PO Box 797, Newport Gwent, NP10 8FZ |
| Bank | RBS/NatWest |
| Address | London Corporate Service Centre, CPB Services, 2nd Floor, 280 Bishopsgate, London EC2M 4RB |
| Sort code | 60-70-80 |
| Account number | 10014411 |
| Account name | EA RECEIPTS |
| Payment reference number | PSCAPPXXXXXYYY |

You need to create your own reference number. It should begin with PSCAPP (to reflect that the application is for a permitted activity) and it should include the first five letters of the company name (replacing the X's in the above reference number) and a unique numerical identifier (replacing the Y's in the above reference number). The reference number that you supply will appear on our bank statements.

You should also email your payment details and reference number to ea_fsc_ar@sscl.gse.gov.uk.

If you are making your payment from outside the United Kingdom, it must be in sterling. Our IBAN number is GB23NWK60708010014411 and our SWIFTBIC number is NWBKGB2L.

If you do not quote your reference number, there may be a delay in processing your payment and application.

Now read section 3 below

## 3 Privacy notice

The Environment Agency runs the environmental permit application service.

We are the data controller for this service. A data controller determines how and why personal information is processed.

Our personal information charter explains:

- your rights
- what we do with your personal information

We're allowed to process your personal information because we have official authority as the environmental regulator. We need this information to carry out a task in the public interest that is set out in law. As the data controller, when you apply for an environmental permit, we have a legal obligation to process your personal data under the Environmental Permitting Regulations. The second lawful basis for processing your personal data is to comply with this legal obligation.

We need your personal information to process your environmental permit application. If you do not give us this information we cannot issue a permit to you. After we've issued a permit to you, we use your personal information:

- to check that you're complying with your permit
- during any potential enforcement action

### What personal information we collect

If you're the individual applicant, director or company secretary of a company applying or a technically competent manager we need your:

- name
- date of birth
- address
- email address

If you're the agent, consultant, employee responsible for the activity or the employee responsible for billing and invoicing we need your:

- name
- address
- email address

## 3 Privacy notice, continued

If you're the applicant we need details of any:

- convictions
- bankruptcy

We also collect any questions or feedback you leave, including your email address if you contact us.

### Your responsibility with other people's personal information

If you've included personal information about other people on your application, you must tell them. You must provide them with a copy of this privacy notice so that they know how their personal information will be used.

### What we do with your personal information

We use your personal information to help us decide whether to issue you with a permit.

The information (except dates of birth) is available online on our consultation website during the consultation period. This website is available to everyone so your information may be seen outside the European Economic Area.

After consultation we put all the information (except dates of birth) you give us in your application on our public register.

If you can demonstrate that any information you send us is commercially or industrially confidential, we'll consider withholding that information from our public register.

If you think that the information you'll send us may be a threat to national security you must contact the Secretary Of State before you apply. You must still send us that information with your application. We will not include this information on our public register unless the Secretary of State decides it can be included.

See the environmental permitting guidance for guidance on national security.

We may use your email address to contact you for user research to improve our service. You don't have to take part in the research.

### Where your personal information is processed and stored

We store and process your personal information on servers in the UK. We will not host your personal information outside the European Economic Area.

We do not use your personal information to make an automated decision or for automated profiling.

### How long we keep your personal information

We keep your personal information while your permit is in use and for 7 years after you surrender your permit. If the permit is for a landfill site, we keep the data for 10 years after surrender.

### Removing personal information from the public register

We will remove your personal information from the public register if:

- you withdraw your application
- we refuse your application and the time limit for appealing the decision has expired or an appeal is dismissed
- the information is no longer relevant for public participation purposes under the Environmental Permitting Regulations

### Contact

Our Data Protection Team gives independent advice. They monitor how the Environment Agency uses your personal information.

If you have questions or concerns about how we process personal information, or to make a complaint or request relating to data protection, please contact:

Address: Data Protection Team
Environment Agency
Horizon House
Deanery Road
Bristol
BS1 5AH

Email: dataprotection@environment-agency.gov.uk

You can also make a complaint to the Information Commissioner's Office (ICO).

The ICO is the supervisory authority for data protection legislation. The ICO website has a full list of your rights under data protection legislation.

Now read section 4 below

## 4 Confidentiality and national security

**Confidentiality**

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application. You can find guidance on confidentiality in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

**Only tick the box below if you wish to claim confidentiality for your application**

Please treat the information in my application as confidential ☐

**National security**

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Secretary of State and you must still include the information in your application. We will not include the information in the public register unless the Secretary of State decides that it should be included.

You can find guidance on national security in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

You cannot apply for national security via this application.

Now fill in section 5

## 5 Declaration

**If you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.**

**A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.**

Each individual (or individual trustee) who is applying for their name to appear on the permit must complete this declaration. You will have to print a separate copy of this page for each additional individual to complete.

**If you are transferring all or part of your permit, both you and the person receiving the permit must make the declaration. You must fill in the declaration directly below; the person receiving the permit must fill in the declaration under the heading 'For transfers only'.**

**Note: we will issue a letter to both current and new holders to confirm the transfer. If you are changing address we will need to send this letter to your new address; therefore please tell us your new address in a separate letter.**

**If you are unable to trace one or more of the current permit holders please see below under the transfers declaration.**

**I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.**

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

| | |
|---|---|
| I confirm that my standard facility will fully meet the rules that I have applied for (this only applies if the application includes standard facilities) | ☐ |
| Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well) | ☑ |
| Tick this box if you do not want us to use information from any ecological survey that you have supplied with your application (for further information please see the guidance notes on part F1) | ☐ |

Name

| | |
|---|---|
| Title (Mr, Mrs, Miss and so on) | Mr |
| First name | Bob |
| Last name | Borthwick |
| on behalf of<br>(if relevant; for example, a company or organisation and so on) | Scott Bros Ltd |
| Position<br>(if relevant; for example, in a company or organisation and so on) | Director |

## 5 Declaration, continued

Today's date (DD/MM/YYYY) 11/09/2020

**For transfers only – declaration for person receiving the permit**

**A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.**

**I declare that the information in this application to transfer an environmental permit to me is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.**

**Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration as above. Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.**

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well) ☐

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

on behalf of
(if relevant; for example, a company or organisation and so on)

Position
(if relevant; for example, in a company or organisation and so on)

Today's date (DD/MM/YYYY)

Now go to section 6

## 6 Application checklist

**You must fill in this section.**

If your application is not complete we will return it to you. If you aren't sure about what you need to send, speak to us before you submit your application.

You must do the following:

Complete legibly all parts of this form that are relevant to you and your activities ☑

Identify relevant supporting information in the form and send it with the application ☑

List all the documents you are sending in the table below. If necessary, continue on a separate sheet. This separate sheet also needs to have a reference number and you should include it in the table below ☑

For new permits or any changes to the site plan, provide a plan that meets the standards given in the guidance note on part F1 ☑

Provide a supporting letter for any claim that information is confidential ☐

Get the declaration completed by a relevant person (not an agent) ☑

Send the correct fee ☑

## 6 Application checklist, continued

| Question reference | Document title | Document reference |
|---|---|---|
| B2 3b | Certificate of Technical Competence | |
| B2 3b | List of Sites Covered by TCM | |
| B2 3d | Thorpe Thewles Operational Techniques | SOP 1 |
| B2 5a | Thorpe Thewles Site Plan | Thorpe Thewles Site Plan |
| B2 5c | Thorpe Thewles Non Technical Summary | Thorpe Thewles NTS |
| B2 6 | ESSD | ST18175 RPT 01 |
| B4 1 | WE4813AA 1a Application Form B4 Table 1a | WE4813AA 1a |
| B41c | Waste Recovery Plan | WE4813AA WRP Thorpe Thewles 2019 |
| | Habitats Risk Assessment | ST18175 RPT 04 |
| | Agricultural Benefit Statement | ST18175 RPT 02 |
| | Closure Plan | ST18175 RPT 03 |
| | Summary of Management Plan | ST18175 RPT 05 |
| | Preliminary Risk Assessent | |
| | Monitoring Reports | |

## 7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, or you would like us to review a decision we have made, please let us know. More information on how to do this is available at: https://www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

**Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.**

## 8 Where to send your application

**For how many copies to send see the guidance note on part F1.**

Please send your filled in application form to:

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

Or

Environment Agency Permitting and Support Centre
Environmental Permitting Team
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

**Do you want all information to be sent to you by email?**

Please tick this box if you wish to have all communication about this application sent via email (we will use the details provided in part A) ☐

## Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19132
Clarity approved by Plain English Campaign

### For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

**Application from B4 Table 1a (WE4613AA-B4-1a)**

## Thorpe Thewles WE4813AA waste operation permit application

## Document title: WE4813AA application Form B4 Table 1a  Document reference 'WE4813AA–B4-1a'

**Form B4 Table 1a**

| Name of waste operation | Description of the waste operation | Annex IIA or IIB (disposal and recovery) code and descriptions | Hazardous waste treatment capacity (if this applies) | Non-hazardous waste treatment capacity (if this applies) |
|---|---|---|---|---|
| Thorpe Thewles | Deposit of waste for recovery for land improvement<br><br>Secure storage and use of suitable wastes as listed and described in the waste recovery plan. | R13: Storage of wastes pending any of the operations numbered R3 and R5<br>R5: Recycling or reclamation of other inorganic materials<br>R10: Land treatment resulting in benefit to agriculture or ecological improvement | n/a | n/a – not a landfill or waste treatment operation |
| For all waste operations | Total storage capacity (see note 2) | | n/a | 2,000 tonnes |
| | Annual throughput (tonnes each year) | Note – this is based on the amount of tonnes required under the Waste Recovery Plan | n/a | 27,500 tonnes |

**Certificates of technical competence**

# Continuing Competence Certificate

## This certificate confirms that

David Scott

**Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 16/09/2019**

| | |
|---|---|
| TSNH | Transfer - Non Hazardous Waste |

**Expiry Date: 16/09/2021**

Verification date: 13/09/2019

Authorised:

WAMITAB Chief Executive Officer

Learner ID: 3350

Certificate No.: 5150290

Date of Issue: 16/09/2019

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00139461

# Non-technical summary

**Scott Bros Ltd**

**Thorpe Thewles – Deposit of waste for recovery for land improvement**

Site address: Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN

**Environmental Permit Application**

**Thorpe Thewles Non-Technical Summary**

**Dec 2019**

**Document reference: Thorpe Thewles – NTS**

# Contents

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2. WASTE ACCEPTANCE ..... 4
3. CONTROL OF EMISSIONS TO AIR ..... 4
4. CONTROL OF EMISSIONS TO WATER ..... 5
5. ENVIRONMENTAL MANAGEMENT SYSTEM ..... 5
6. PROTECTED SITES ..... 5

# 1. INTRODUCTION

1.1 Scott Bros Ltd is applying to be the operator of a waste recovery operation at a site in Thorpe Thewles.

The site relates to a parcel of land of approximately 2.7 hectares to the north of a residential property of 'Fairview' and to the west of Durham Road which is at the northern edge of the village of Thorpe Thewles.

The site is a location of a historic landfill (closed in early 1970s).

The primary purpose of the waste activity is to raise the level of the agricultural land by approximately 1 metre (in some areas) in order to re-profile depressions in the land and to ensure sufficient coverage of appropriate capping material above the in-situ landfill. The character of the site would change from rough grassland to pasture, which is considered appropriate to the landscape setting of this site.

The existing waste mass (historically landfilled waste) is covered by soils to a varying depth, however a review has suggested that this layer thickness is as low as 100mm in places. Note – it is not proposed to be excavating any waste during this activity.

The level of the land will be raised but there will be no significant difference in level to the surrounding fields.

Existing topsoil is to be stripped and stockpiled for reuse following placement of the appropriate inert soils across the site.

A waste recovery plan detailing the levels and approximate amount of waste soils required has been submitted to the Environment Agency for approval as part of this application.

The site has been granted planning permission to the site owner (Mr Michael Lindley) to raise the level of the agricultural land. Planning permission No. 17/2905/FUL.

1.2 This waste activity will be operated in accordance with an appropriate Environmental Permit and Planning Permission. The proposed Environmental Permit Boundary is indicated on Drawing 'Thorpe Thewles - Site Plan'. The Environmental Permit Application pertains to the area within the boundary (herein referred to as the site).

1.3 The site will only accept non-biodegradable non-hazardous wastes.

Due to the nature of the site and the activity to provide a capping layer to formerly landfilled waste the materials used will have a requirement to be low stone content and so the soils accepted will include selected subsoils with no particles/stones greater than 50mm and a moisture content of less than 35%.

1.4 The operation of the site will involve the following process.

- Acceptance of non-hazardous and inert excavation and construction and demolition wastes suitable for use in the land reclamation and capping.
- Placement and spreading of the suitable wastes to pre-agreed levels followed by limited compaction (only through tracked plant).

1.5 The site is located on land Land Adjacent to Durham Road in Thorpe Thewles, Stockton-on-Tees, TS21 3JN. The centre of the site has the National Grid Reference of approximately NZ 39729 23691.

1.6 The local properties are generally residential properties with Thorpe Thewles village being within 200m of the southern site boundary.

The nearest protected environmental receptors are detailed in section 6.

## 2. WASTE ACCEPTANCE

2.1 Only non-biodegradable non-hazardous wastes authorised by the Environmental Permit will be accepted at the site. Any loads containing non-permitted waste will be rejected from the site. Any non-permitted wastes observed following tipping will be separated, contained and removed from site.

2.2 All vehicles delivering waste to the site will be checked by suitably trained operatives to ensure that only permitted waste is accepted.

2.3 Soils from contaminated land sites will not be accepted. Any soils accepted will be subject to prior chemical analysis to allow assessment of the suitability of the waste for the intended use on site without risk of pollution.

## 3. CONTROL OF EMISSIONS TO AIR

3.1 There are no point source emissions to air. The potential emissions to air are fugitive, primarily the potential for dust emissions and mud on the roads, which could arise from the delivery and transfer of the permitted wastes. Control measures are in place to prevent or where that is not possible minimise the emission of dust and mud beyond the site boundary.

3.2 The main control measures employed to reduce the potential for fugitive emissions of dust and mud beyond the site boundary are:

- Only waste codes deemed acceptable to a waste to land recovery operation (as per standard rules permit SR2015 No 39) are in the list of acceptable wastes into this site. The acceptance of wastes consisting solely or mainly of dusts, powders or loose fibres are prohibited.
- Hardsurfaced road entering the site with the site access road inspected daily and a motorised sweeper brought in to clear any mud, litter or debris when required.
- Require use of wheel wash facilities for vehicles leaving site.
- Minimise or reduce potential dust impact of any stockpiled materials by means of maximum heights, sprays, windbreaks, careful siting in relation to sensitive receptors, controlling the moisture content of the material delivered and orientation of stockpiles in the direction of the prevailing wind. Note – stockpiling of suitable soil wastes is not expected to be a requirement of the daily site operations and will occur if site conditions prevent direct placement of the waste.

- Avoid potentially dusty activities during periods of high wind.

3.3 Due to the types of wastes accepted and the location of the site, including the proximity to any potential receptors, odour outside the boundary of the site is not considered to be a potential issue.

Due to the site being a former landfill there is a risk of fugitive emissions of landfill gas and landfill leachate. A risk assessment undertaken has indicated that these risks are low but monitoring will be undertaken and control measures in place in the event of any outbreak of perched leachate from the waste mass during any activities (including removal of topsoil layer) and to monitor whether landfill gas is present.

3.4 Due to the location of the site and the proximity to residential properties, noise from plant and vehicles is a potential fugitive emission, although significant noise or vibration outside the boundary of the site is not considered likely to be an issue. Use of heavy plant and vehicles acceptance and movements will be only during daylight hours.

## 4. CONTROL OF EMISSIONS TO WATER

4.1 There are no point source emissions to water from the site for activities related to this application.

4.2 Fugitive emissions to surface water would be indirect water runoff from the soil placed on site. Run off from the operational areas is considered small, with the large majority of it infiltrating into the ground below. The final profile of the site and the placement of soils will be undertaken to minimise ponding of any surface water. Any run-off waters are not likely to have any contamination other than suspended solids. The wastes types permitted are non-hazardous and inert with any soils from potentially contaminated sites requiring prior analysis and assessment prior to acceptance to ensure suitability.

4.3 The are no surface water receptors within 50m of the site boundary.

## 5. ENVIRONMENTAL MANAGEMENT SYSTEM

5.1 Scott Bros Ltd will operate the site in compliance with an Environmental Management System. The Company will have complete control over site operations, maintenance, competence and training, prevention of accidents, organisation and document management and records.

## 6. PROTECTED SITES

6.1 There are no protected sites (such as European Sites or Sites of Special Scientific Interest) in close proximity to the site. The nearest site is approximately 900m to the north-east of the site (Thorpe Wood LNR).

However, following a conservation screening by the Environment Agency there is a protected species (water vole) in the land directly to the east of the site. Every measure will be taken to ensure minimal noise during operations as this is considered to be the main potential impact on the habitat of the water vole.

# Waste Recovery Plan

**Scott Bros Ltd**

**Waste Recovery Plan**

For: Willow Dene Thorpe Thewles

**Document reference: Willow Dene Thorpe Thewles – 2020**

The preapplication permit reference for the activity is EPR/WE4813AA.

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2. Introduction Page 3

3. Environmental Setting Page 4

4. Purpose of the Work Page 7

5. Site Design Page 8

6. Quantity of Waste Used Page 8

7. Is the Waste Being Used As a Substitute For Non-Waste Material? Page 10

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9. Meeting Quality Standards and Development of Soil Specification Page 12

10. Appendix I Page 16

## Waste Recovery Plan

**Preamble**

This waste recovery plan is to accompany an application for a bespoke environmental permit for the use of waste in a deposit for recovery operation.

The preapplication permit reference for the activity is EPR/WE4813AA.

The site has been granted planning permission to the site owner (Mr Michael Lindley) to raise the level of the agricultural land. Planning permission No. 17/2905/FUL.

**Introduction**

The site relates to a parcel of land of approximately 2.7 hectares to the north of a residential property of 'Fairview' and to the west of Durham Road which is at the northern edge of the village of Thorpe Thewles.

The site location and boundary is provided in Figure 1 below.

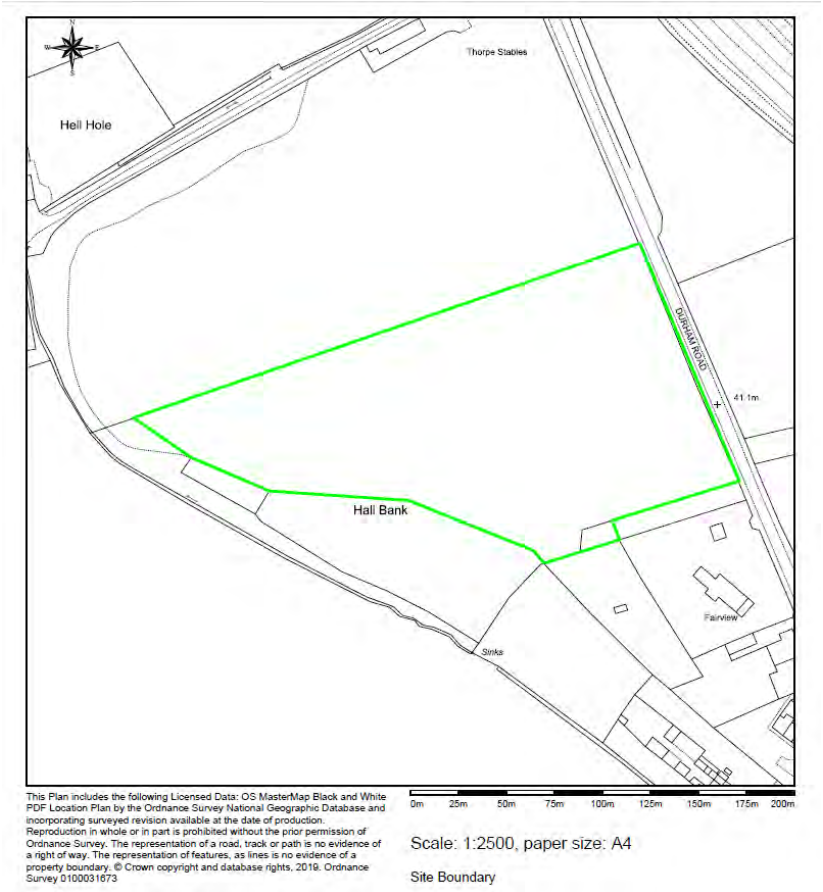



*Figure 1 – Willow Dene Thorpe Thewles site boundary*

The activity is to raise the level of the agricultural land by approximately 1 metre in order to re-profile depressions in the land and to ensure sufficient coverage of appropriate capping material

above the in-situ landfill. The character of the site would change from rough grassland to pasture, which is considered appropriate to the landscape setting of this site.

The level of the land will be raised but there will be no significant difference in level to the surrounding fields.

The development comprises the placement of approximately 16,425$m^3$ of inert uncontaminated soils over an area of about 27,000$m^2$– an average of approximately 0.6m across the site. There will be a small element of cut and fill but the majority of this soil will be imported.

Existing topsoil is to be stripped and stockpiled for reuse following placement of the appropriate inert soils across the site. However, there is a short fall of topsoil on site and some further topsoil will need to be imported. Approximately 2,400$m^3$ of topsoil will be imported to supplement that stockpiled on site. Such imported soils will only be used in the top 0.3m of the restoration, providing a depth of 20 to 30cm of topsoil across the site.

The site is a location of a historic landfill (closed in early 1970s). As the landfill was completed before the modern permitting regime was instigated it was never capped but simply covered with a layer of soils. In many places these soils give only 0.4m of cover over the landfilled wastes whilst at some locations there is only 0.1m of soils over the landfill. The quality of the soils is patchy with between 0.15 and 0.27m of organic topsoil in some parts of the site and no topsoil at all in other areas, only subsoils. Full details are given in the Agricultural Benefit Statement accompanying this application.

The aims of this deposit for recovery operation are firstly to provide a minimum 1m depth of soils over the landfill to allow for future subsoiling (deep cultivation) or field drainage installation by the farmer, without the risk of encountering the landfilled waste. The deeper subsoils to be emplaced will allow for agricultural activities, such as ploughing, to take place without risk of disturbing any of the landfilled materials.

Secondly the works will level out hollows, to provide an even surface across the site and enable easier access by agricultural machinery.

Finally, the works will provide a consistent good quality topsoil at a depth of at least 20cm across the site. This will ensure that fertility across the site is standardised and improve moisture retention to allow for healthier and more consistent crop growth.

With regards to the historic landfill the planning permission has required an appropriate risk assessment to determine if landfill gas or leachate is present in the site (i.e. which could be disturbed during the activity).

- The preliminary risk assessment was completed in November 2018 – document reference: Preliminary Risk Assessment – November 2018.

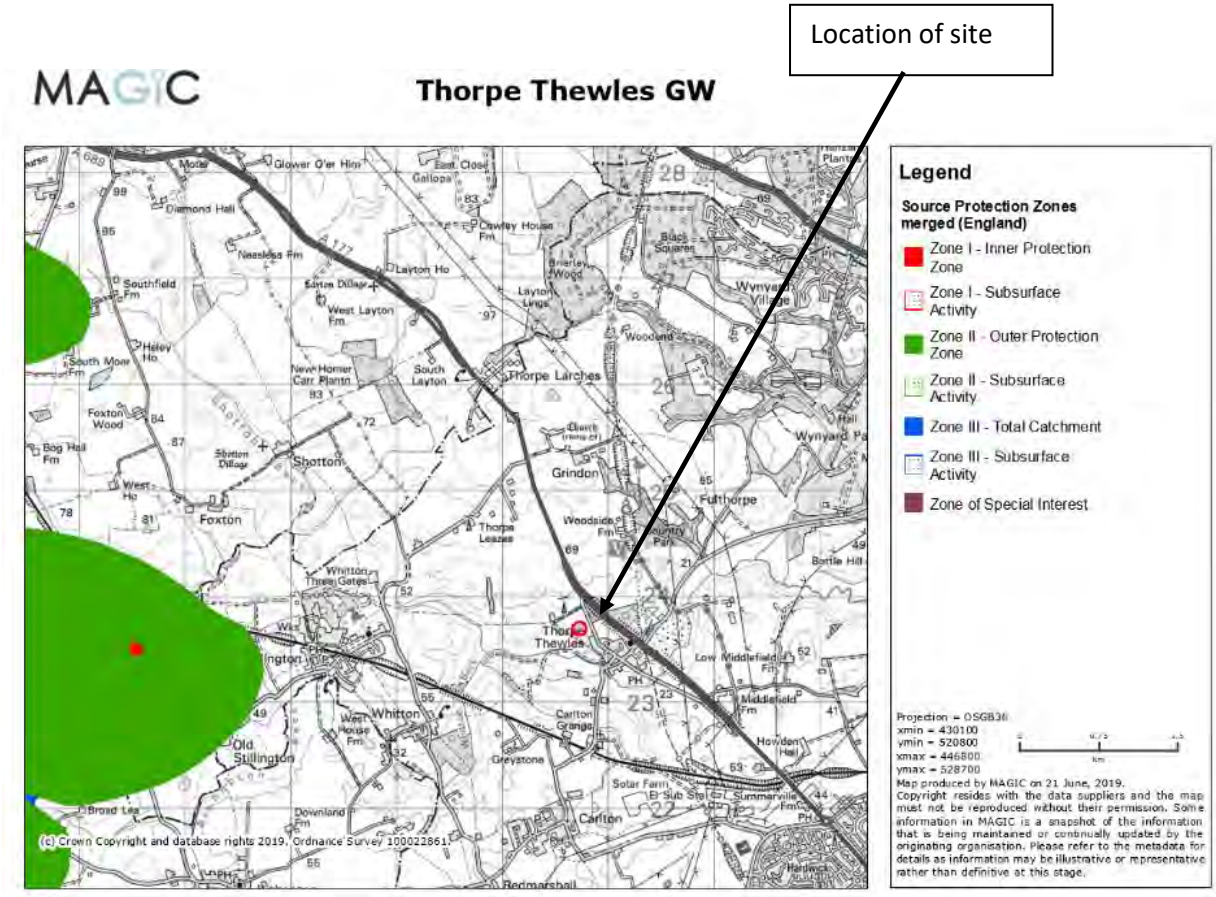
The risk assessment includes control measures in the event of any outbreak of perched leachate from the waste mass during any activities (including removal of topsoil layer) and to monitor whether landfill gas is present.

- Note – it is not proposed to be excavating any waste during this activity and the landfilled waste will remain undisturbed.

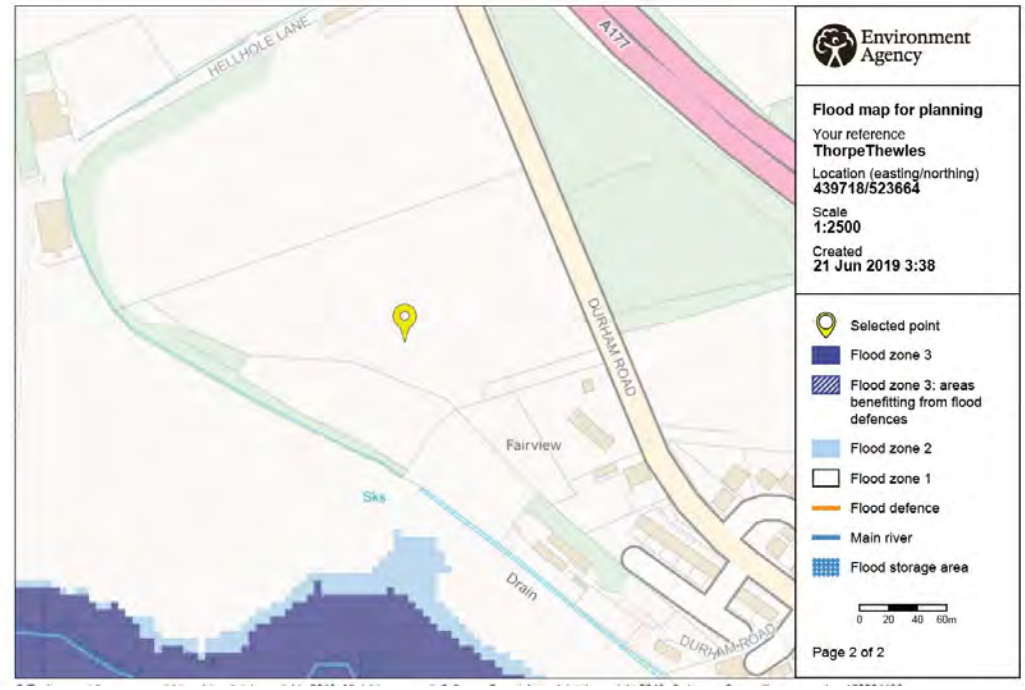
Further detail is provided in the ESSD, prepared by Wardell Armstrong, which assesses all environmental risks and describes the monitoring and control measures that will be in place to minimise these risks.

**Environmental setting**

The proposed development does not overlie a Groundwater Source Protection Zone as can be confirmed in the map below.




The site is in flood zone 1 – which means only a low probability of flooding as confirmed by the map and information below (taken from the Guv.uk Flood Map for Planning).



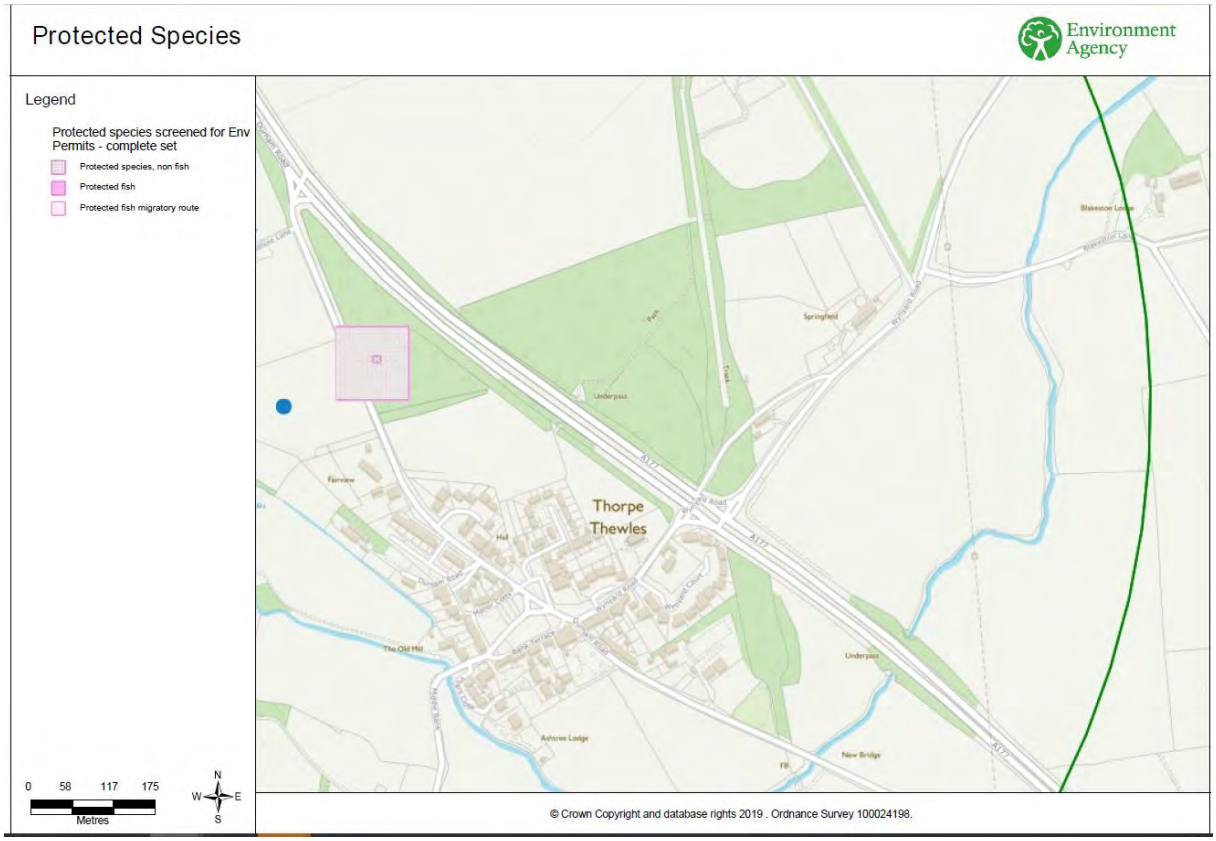

The proposed development is not within:

a) within 500 metres of a European Site or a Site of Special Scientific Interest (SSSI));
b) within 250 metres of the presence of Great Crested Newts where the site is linked by good habitat to the breeding ponds of the newts,
c) within 50 metres of a National Nature Reserve (NNR), Local Nature Reserves(LNR), Local Wildlife Site (LWS), Ancient woodland or Scheduled Ancient Monument,
d) within groundwater Source Protection Zones 1 and 2
e) within 10 metres of a watercourse,
f) within a specified Air Quality Management Area for particulate matter less than 10 microns (PM10).

However, the site does not meet the conditions for a standard rules permit (SR 2015 No 39) for the deposit of waste for recovery due to the presence of protected species (water vole) within 250m of the site and the site is located above a former (historic) landfill site. This information was provided following a conservation screening request for the site.

The following map was provided by the Environment Agency showing the presence of the protected species compared to the location of the site. A Habitats Risk Assessment has been prepared and is enclosed with the application to demonstrate that the risk to the water voles is negligible.

Further detail about the site setting can be found in the ESSD.




**Purpose of the work**

In summary - the activity is for the scraping and re-contouring of the field to create a more productive piece of agricultural land. As the site is a former landfill tip, closed circa 1968, subsidence over the years has caused the land to become unusable and numerous depressions caused.

Therefore, the activity is to recontour the site by raising the level of the agricultural land by up to approximately 1 metre in some areas in order to re-profile depressions in the land – although the average soil depth to be deposited is 0.6m across the site.

This raising of the land is intended to fill the current depressions and provide more consistent and appropriate depth of capping to the historic landfill beneath the entire site. Overall, this activity is intended to provide an improved and more productive land for pasture for farm animals.

The Agricultural Benefit Statement shows how soils will be spread on site, not only to fill depressions caused by differential settlement of the landfill and provide consistent cover but also to improve the productivity of the land by providing a consistent layer of topsoil across the site.

Adequate topsoil will improve the availability of plant nutrients but most importantly improve the soil structure and moisture retention with better availability of water to plants.

Although there is not expected to be any significant presence of landfill leachate or landfill gas (the planning permission and preliminary landfill gas and leachate risk assessment require appropriate

monitoring and inspection), there is a need to provide a more consistent protection/capping layer above the historic landfill. There is as little as 100mm of such protection/capping in some areas.

The existing levels were determined through a topographical survey which also show some of the depressions on the site – as provided in Figure 2.

*Figure 2 – Existing levels at Willow Dene Thorpe Thewles*

**Site Design**

The proposed contours and detailed cross sections are included in the application as drawings TT/08/17/01A, TT/08/17/02, TT/08/17/03 and TT/08/17/04. These can be found in the "Preliminary Risk Assessment", document S45C-6e20051815170.

**Quantity of Waste Used**

The quantity of inert and uncontaminated soils required to adequately re-profile the land and ensure a consistent soil layer above the historic landfill is as detailed in the planning permission for the site and is considered to be the minimum necessary for the desired outcome.

It can be confirmed that the cross section and site levels within the drawings TT/08//17/01 to TT/08/17/04 are to be considered as part of the waste recovery plan.

The site is an approximate 2.7 hectare site and the amount of inert soil wastes required to provide the desired profile in accordance with the planning permission levels is detailed by area below. The volume calculations have been measured with the tonnage being estimated at between 1.5 and 1.7

tonnes per 1 cubic metre of infill (note these correlations are those suggested by Scott Bros experience and from previous communication with the Environment Agency[1] for a site at Casebourne, Haverton Hill).

*Note - the amount of soils and other approved wastes accepted onto site for use in construction would be that required to raise the site to the agreed levels (in the planning and outlined in the WRP) rather than be for a total amount of waste to be accepted onto the site.*

In order to determine the potential volumes of waste materials required to bring the site up to the desired profile the existing levels were determined through a topographical survey as part of the planning permission application.

This is accompanied by a number of site sections running approximately north to south as detailed in drawings TT/08//17/01 to TT/08/17/03.

The following are estimated tonnages taken from these drawings:

| | |
|---|---|
| Area of the site: | 27074m$^2$ |
| Cut volume: | 204m$^3$ |
| Fill volume: | 16425m$^3$ |
| Net fill volume: | 16221m$^3$ |
| Net fill tonnage: | 24332 to 27576 tonnes |
| Average fill depth: | 0.6m average across the site |

*Note – The above figures do not include the scraping back and storing prior to re-use of the topsoil currently present on the site.*

If, after compaction of the waste on-site, a higher conversion rate is more appropriate, then slightly higher tonnages may be required to profile the site to the planning agreed contours. The net volume of 16,221m$^3$ will not change.

- Note – the degree of compaction of the soils will be sufficient to remove large voids and to produce a coherent mass whilst preventing over compaction and any build-up of any excess pore pressures (i.e. tracked and not rolled).

The quantity of waste to be used has been specifically calculated to be the minimum necessary to allow full recontouring of the site; to remove the depressions; and to provide sufficient coverage of the waste mass (historic landfill site). The total quantity to be imported of approximately 16,221m$^3$is well within the standard rules SR 2015 No 39 limit for deposit on land for restoration etc activities, which would allow the deposit of up to 60,000m$^3$ of material.(although this specific standard rules permit is not applicable for the site location as detailed above). The average required depth across the site is at 0.6m with depths of up to approximately 1m in some areas of depressions. This is well

[1] Email from Nathan Price on 10th October 2014, RE: Review of Waste Recovery Plan - Scott Bros Limited, Casebourne.

within the depths considered to be the maximum allowed previously (for example maximum of 2m in now withdrawn standard rules permits for restoration of land).

The planning permission was applied for under the consideration of making the site more productive and was accepted based on the proposals; soil criteria; and quantity of soils as detailed in this waste recovery plan.

**Is the Waste Being Used As a Substitute For a Non-Waste Material?**

In order for the site to be more productive the planning permission was granted to allow soils deposit to fill in depressions and provide a more adequate cover across the entire site (including areas where the cover on the underlying waste mass is only 100mm). Utilising suitable waste materials to develop this site is considered to be the most appropriate option.

The use of non-waste materials has been considered and discounted for the following reasons:

- Condition 7 of the planning approval notice (17/2905/FUL) states that 'materials proposed to be imported into the site shall be clean, uncontaminated recycled soils with a reduced stone content'. It is usual for Planning Authorities to favour a sustainable approach, where the use of virgin materials are minimised. (However this condition would not preclude the use of materials that had been treated to meet a product specification and were therefore no longer waste, eg under the WRAP protocol.)
- Using suitable waste materials excavated during development at other sites in the north east and manufactured soils under Scott Bros mobile plant and local treatment sites (and thereby promoting waste recovery) is considered to be the most sustainable option for putting this site to more beneficial and productive use.
- By operating an approved waste recovery outlet (if the permit is granted) this will prevent the need for some soils in the local area being disposed of directly to landfill and thus providing an option for developers to apply the waste hierarchy during the development of local sites.

**Financial Viability**

In accordance with EA guidance the works are financially viable using non-waste because the work is required to restore the land back to arable use and this work needs to be completed for the land to be useful.

The cost of using non-waste (engineered fill) is set out below in Table 1.

| Table 1 Financial Model Using Non-Waste | | | | |
|---|---|---|---|---|
| **Item** | **Quantity** | **Unit** | **Rate** | **Cost** |
| Fill material | 27,576 | Tonne | £8.75/tonne | £241,290.00 |
| Placement of fill incl:<br>• Plant<br>• labour | 16,425 | $m^3$ | £1.25/$m^3$ | £20,531.25 |
| Total | | | | **£261,821.25** |

Prices quoted for non-waste fill materials are substantiated by a formal quote from an established supplier. A copy of the quote is provided as Appendix I.

Funding is secure for the works to be completed (cash reserves).

The works will be completed to the design provided with the permit application. The design represents the use of the minimum amount of waste possible (27,576 tonnes) whilst still delivering the required depth of soils necessary to allow the safe and sustainable use of the site.

Use of waste has been selected as the most sustainable option. However, were it not possible to use waste Scott Bros would buy in subsoils and topsoil to complete the works. Currently plant growth on site can be patchy and in some places is non-existent, due to a lack of a good soil structure which allows rapid loss of water.

The photographs below, taken by Wardell Armstrong LLP during their site visit on 24h June 2020, illustrate the current condition of the soils, which are presently considered only to comprise Grade 4 (poor quality) land. The addition of subsoil and topsoil will not only improve the appearance of the site but increase the productivity, giving a better return to the farmer.

The use of waste for this scheme is therefore a genuine substitution with non-waste and can be considered to meet the Environment Agency requirements to be classified as a recovery activity.

**Meeting Quality Standards and Development of Soil Specification**

Existing topsoil will be stripped and stockpiled for re-use. Although it is understood that the existing waste mass from the historic landfill is covered by soils to a varying depth, a review has shown this layer thickness to be as low as 100mm in places, but there is no intention or proposal to excavate any waste during the works.

The following will provide the baseline document for the earthwork's specification of the soil used in the recontouring of the site:

- The Manual of Contract Documents for Highways Works, Volume 1: Specification for Highway Works, Series 600 Earthworks.

To ensure compliance with this specification and the planning permission decision, this will include selected subsoils with no particles/stones greater than 50mm and a moisture content of less than 35%. A described above the required degree of compaction will be achieved through tracked plant vehicles rather than the need for specific rolled soils.

The soils used will be inert uncontaminated soils or clean topsoil. These soils will be either direct from local development sites undergoing excavation of soils (EWC codes of either 17 05 04 or 20 02 02) or clays (for example) from soil and inert waste treatment activities (EWC code 19 12 09 (i.e. clay minerals from treatment of naturally occurring soils).

All waste soils will only be accepted if its chemical, physical and biological characteristics make it suitable for its intended use on the site. Any excavated soils from potentially contaminated sites will, by prior chemical analysis and assessment, be determined whether it is suitable for use on the site without any risk of pollution. All wastes will be visually inspected on arrival and at the point of deposit to ensure that it complies with the description in the documentation supplied by the producer and holder and that it is listed as an acceptable waste. The visual inspection will also consider the requirement for no significant presence of particles greater than 50mm in size.

The soil chemical quality standards were included in the planning permissions application and are replicated below in Table 1. These concentrations will be utilised to assess chemical quality requirements in additional to assessment of the site from which the soils are arising including whether there is sufficient information/understanding of the site and soils arising. Note – Scott Bros have utilised and had approved these soils quality acceptance criteria for a range of sites where soils have been used for reclamation or restoration previously.

Only soil wastes that have been pre-authorised will be accepted. The assessment of soils will follow the same procedure as used for other Scott Bros sites (with appropriate site-specific consideration) through the use of a competent consultant in waste assessment and classification.

See the Operating Techniques and Agricultural Benefit Statement for further detail on waste acceptance criteria. Full waste acceptance procedures are included in the Operating Techniques.

*Table 1 – Soil quality acceptance criteria*

| Component | Proposed guideline total concentrations for soils | Source and comments |
|---|---|---|
| **Arsenic** | 32 | CLEA soil guideline value for residential end-use |
| **Cadmium** | 10 | CLEA soil guideline value for residential end-use |
| **Chromium** | 130 | Previous SGV for residential with plant uptake |
| **Copper** | 200 | Previous PAS 100 compost specification |
| **Lead** | 450 | Previous SGV for residential with or without plant uptake |
| **Mercury** | 1 | CLEA soil guideline value for residential end-use |
| **Nickel** | 130 | CLEA soil guideline value for residential end-use |
| **Zinc** | 400 | Previous PAS 100 compost specification |
| **pH** | 6 - 10 | Guideline values to avoid extreme acidic or alkaline conditions |
| **Total Petroleum Hydrocarbons** | 400 | 20% below inert landfill limit value |
| **PAHs (total) - unspeciated (must be non-hazardous*)** | 50 | 50% below inert landfill limit value |

***All thresholds for metals stated in mg/kg dry weight***

***Note – the SGVs for arsenic, cadmium and lead have not been updated to take into account the provisional Category 4 screening levels – but the above table is as provided within the application for planning permission.***

*Table 2 - Types of wastes to be accepted for the Willow Dene Thorpe Thewles improvement of land activity*

| Waste code | Description of waste |
|---|---|
| 01 | WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS |
| 01 04 | wastes from physical and chemical processing of non-metalliferous minerals |
| 01 04 09 | waste sand and clays |
| 17 | CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES) |
| 17 05 | soil (including excavated soil from contaminated sites) stones and dredging spoil |
| 17 05 04 | soil and stones other than those mentioned in 17 05 03 |
| 17 05 06 | dredging spoil other than those mentioned in 17 05 05 |
| 19 | WASTES FROM WASTE MANAGEMENT FACILITIES, OFF SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION / INDUSTRIAL WASTE |
| 19 12 | wastes from the mechanical treatment of wastes |
| 19 12 09 | minerals (for example sand, stones) |
| 19 12 12 | soil substitutes other than that containing hazardous substances only (not aggregate and gravels) |

| | |
|---|---|
| 20 | MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, |
| 20 02 | garden and park wastes |
| 20 02 02 | soil and stones |

*Note – The full list of permitted wastes types to be accepted would mirror only those stated within the standard rules permit SR 2015 No. 39 and listed on Pages 29 and 30 of the Operating Techniques. However, due to the requirement to minimise the particles and stones present the soils are expected to fall within the above waste codes.*

Note – most soils brought to site will be to provide adequate subsoil over the landfill. The topsoil currently on the site will be scrapped back and re-used following the contouring of the site. However, there is a short fall of topsoil on site. 2,400$m^3$ of topsoil will be imported to give a depth of 0.2m over the entire site.

Some permitted waste types may be used to provide temporary site roads or hardstanding areas to facilitate the works and minimise the spread of mud onto the adjacent road. These materials will only be left in place where they are suitable for use as subsoil.

**Appendix 1**

**Bob Borthwick**

**From:** phil.newton@gasmithplant.co.uk
**Sent:** 11 December 2019 11:46
**To:** Bob Borthwick
**Subject:** Fill Material - Thorpe Thewles

Good morning Bob,
Please find below our quotation to supply and place fill material;

Supply and deliver 27,576 tons of fill material to your Thorpe Thewles site at a rate of £8.75 per ton.
Placement of 16,425m$^3$ of fill material at £1.25 /m$^3$

I hope this meets with your approval,

Regards,
**Phil Newton**
G A Smith Ltd
Unit 4 Throckley Way
Middlefields Industrial Estate
South Shields
NE34 0NU

Tel: 0191 492 2655 | Mob: 07436 795865
www.gasmithplant.co.uk | www.gasmithbulk.co.uk
Company Registration No: 6398033

CHAS Constructionline QUALITY ISO 9001 CERTIFIED ENVIRONMENT ISO 14001 CERTIFIED SAFETY OHSAS 18001 CERTIFIED

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# Agricultural Benefit statement

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**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# AGRICULTURAL BENEFIT STATEMENT

**SEPTEMBER 2020**

wardell armstrong

**Wardell Armstrong LLP**
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| | |
|---|---|
| **DATE ISSUED:** | **September 2020** |
| **JOB NUMBER:** | **ST18175** |
| **REPORT NUMBER:** | **004** |
| **VERSION:** | **V1.0** |
| **STATUS:** | **Final** |

**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# AGRICULTURAL BENEFIT STATEMENT

**SEPTEMBER 2020**

**PREPARED BY:**

Dr Jakub Olewski — Principal Soil Scientist

**REVIEWED BY:**

Dr Eleanor Reed — Principal Environmental Scientist

**APPROVED BY:**

Luke Prazsky — Service Director, Waste Resource Management

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**APPENDICES**

Appendix 1 Soil Analysis Report - Nutrients, pH and Organic Matter

# 1 INTRODUCTION

1.1.1 This document sets out the rationale for creation of restored soil profiles at c 2.7ha agricultural field adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN. It explains how waste soils will be used to provide the agricultural benefit. It should be read in conjunction with other documents submitted with the permit application, in particular, the Waste Recovery Plan and Operational Techniques document, and the Environmental Setting and Site Design document.

## 1.2 Statement of competence

1.2.1 The report's author, Dr Jakub Olewski, has over 10-years' experience in soil science working in both environmental consultancy and research. His qualifications include: PhD in Biological Science (with an emphasis on soil and land management), MSc in Agriculture, MSc in Land and Soil Management, and BSc in Agriculture. He is a full member of the British Society of Soil Science (M.I. Soil Sci.); this designation recognises scientists and other professionals with a minimum of five years' track-record in soil science research or application.

## 1.3 Functions of the topsoil

1.3.1 Topsoil is the upper layer of the soil profile and therefore the layer which typically is subject to regular cultivation. The main property that distinguishes topsoil from the underlying subsoil is its higher organic matter content, which in mineral soils is typically between 3 and 10%. Topsoil is also usually more porous, better structured and holds more water per unit volume, than the subsoil. Topsoil is the main reservoir of plant nutrients and is the most biologically active layer of the soil where processes of nutrient transformations, release and immobilisation are the most active. However, a fertile soil is not comprised of the topsoil alone.

## 1.4 Functions of the subsoil

1.4.1 Subsoil is the layer of the soil profile between the topsoil and the soil's parent material. The main difference between the subsoil and the parent material (weathered rock) from which it is formed is that subsoil has been subject to soil forming processes, which are evident in the formation of structure, presence of plant

roots, and the presence of some plant nutrients (generally much lower levels than in the topsoil).

1.4.2 In the UK, it is a convention to describe the soil to a maximum depth of 1.2m, unless solid rock is present at a shallower depth. The main functions of the subsoil are to provide a reservoir of plant available water; to store nutrients that are either present in the parent material or which have leached from the topsoil; and to provide the base in which plant roots can anchor. Subsoils typically contain low levels of organic matter, generally about 1%, although the British Standard Specification for Subsoil and Requirements for Use (BS 8601-2013), states a maximum organic matter content of 2%. The exception are soils formed in peat, where subsoils with high organic matter content can be present.

## 2 BASELINE CONDITIONS

2.1.1 The field is currently in use as a permanent pasture, with the c. 1.5ha eastern part of the field under grass, and the reminder c. 1.2ha western part of the field left fallow and colonised by weeds.

2.1.2 The part of the field under grass has an undulating surface and is gently sloping. The fallow part of the field has an even surface with the slopes falling to the west and south and gradient increasing towards the south boundary of the field.

2.1.3 Due to the differing characteristics of these two areas, each is discussed in turn below.

### 2.2 Eastern part of the field

2.2.1 The topsoil in this part of the field is a slightly stony, dark brown heavy clay loam with rusty mottles. It displayed a moderately developed, coarse, subangular structure and friable consistence and extended to a depth of between 0.15 and 0.27m.

2.2.2 The subsoil is characterised by a slightly stony, dark grey-brown clay, with up to 2% dark reddish brown mottles, and grey ped faces; it displayed a moderately developed, coarse, angular blocky structure and very firm consistence, and extended to a depth of between 0.22 and over 0.60m. Where the subsoil was found to be shallow it was underlaid by the historic landfill material (the landfill material was identified from presence of foreign material, such as whole bricks).

### 2.3 Western part of the field

2.3.1 The western part of the field displayed no topsoil horizon, only subsoil, over the landfill material, at depths of c. 40 to 80cm from the surface.

2.3.2 The subsoil displayed a slightly stony clay texture, with some areas displaying large stones on the surface. The subsoil had a weakly developed, very coarse, angular blocky structure and hard consistence.

2.3.3 There was some construction rubble present in small heaps along the boundary between the east and western part of the field, and a temporary haul road made of recycled aggregate leading across the east part of the field to the west.

## 2.4 Current quality of agricultural land

2.4.1 The productivity of agricultural land in the east part of the field is limited by the soil depth to Subgrade 3b (moderate quality) and by droughtiness (resulting from limited soil depth) to Grade 4 (poor quality). The other significant limitations are: the pattern limitation (changes in soil properties over short distance) and microrelief (undulations), these factors can cause local variability in crop performance and restrictions to mechanised farming operations, respectively. Based on the author's knowledge it is considered that the pattern and relief also limit the land quality to Grade 4.

## 3 PROPOSED IMPROVEMENT WORKS

3.1.1 The following operations are proposed that to improve the quality of agricultural land within the field:

1. Stripping and temporary storage of existing, undulating topsoil in the eastern site area.
2. Placement 0.80m of natural subsoil (where not already in place), compliant with BS8601:2013, with derogation allowing for importation of material of higher clay content than permitted in the standard.
3. Placement of 0.20m of site-won topsoil.
4. Where site won topsoil is not sufficient, placement of 0.20m of imported topsoil compliant with BS3882:2015, estimated at c. 2,400m$^3$.

3.1.2 The subsoils and topsoil will be compliant with the maximum levels of contaminants as stated in the standards and, for those potentially toxic elements not listed in the standards, compliant with the criteria given in Operational Techniques.

## 4 THE AGRICULTURAL BENEFIT OF THE PROPOSED WORKS

4.1.1 The proposed works would recycle clean natural soils and reduce the amount of waste disposed to landfill. They are expected to have the following benefits for the quality of agricultural land within the field, significantly reducing the limitation described above:

1. Separation of the soil profile (topsoil and subsoil) from landfill material, thus enabling for deep cultivation (subsoiling) and the installation of field drainage (not part of the works).
2. Even surface, enabling all mechanised farming operations to be carried out effectively and efficiently.
3. Uniform topsoil depth providing similar levels of fertility across the field, and thus more uniform yields.
4. Increase in overall soil depth resulting in a decrease in droughtiness.

## 5 TYPES OF WASTE MATERIALS TO BE IMPORTED

5.1.1 The Waste Recovery Plan and Operational Techniques document list the classes of waste materials that will be imported to Site to create the specified soil profile. All these wastes are non-hazardous. To be able to use as topsoil or subsoil, the waste material will need to meet the topsoil or subsoil specification given in Section 3 above and the waste acceptance criteria given in the Operational Techniques document, with regards to their physical, chemical and biological properties, such as pH, stone content, content of phytotoxic elements and physical contaminants, such as sharps and plastics.

# 6 AMOUNTS OF WASTE MATERIALS

## 6.1 Topsoil depth

6.1.1 Natural soils typically have about 0.20 to 0.25m of topsoil; whereas soils in agricultural use typically have 0.25 to 0.35m of topsoil. The increased depth of agricultural topsoil is a result of ploughing, mixing plant residues and incorporating organic matter at greater depths. Ploughing depths are limited by the exponential increase in energy expenditure with ploughing depth, combined with diminishing returns in increased soil fertility. However, this does not mean that crops would not benefit from greater topsoil depths, as this would provide a larger reservoir of nutrients on the same surface area. At the Site, a topsoil depth not exceeding 0.20m is proposed.

## 6.2 Subsoil depth

6.2.1 Natural soils in the UK are typically described to 1.2m, however, the subsoil present at depths as low as 0.70m is often of the same composition as material at depths as of 2.0m and more, i.e. similar in properties to the parent material. Here, it is proposed to achieve subsoil thickness of 0.8m in total. The proposed depth of subsoil will provide adequate water storage for the crop and also allow for deep cultivation, such as subsoiling without the risk of disturbing the fill, acting as a separation layer between the soil profile and the landfill, that has not had enough capping on it since the landfilling ceased.

# 7 WASTE HANDLING

## 7.1 Placement of the subsoil

Materials will be placed to the required depth in layers not exceeding 250 mm, using the dump truck and bulldozer method. This will provide a firm base, but would avoid excessive compaction or cementation the would result in poor drainage properties and excessive wetness of the soil profile. The subsoil will be decompacted by ripping with bulldozer drawn tines following placement to required depth. The decompaction will be carried out in dry weather and when the subsoil is dry enough to break up into smaller fragments.

## 7.2 Placement of the topsoil

7.2.1 Materials will be placed to the required depth in layers not exceeding 250mm, using dump truck and bulldozer method. This will be followed by cultivation using a subsoiler (without bringing the subsoil to the surface) to a depth of 0.30 m to “key-in” the topsoil and ensure it is not compacted and provides appropriate conditions for plant roots and water permeability.

## 8 CONCLUSIONS

8.1.1 The importation of waste materials to the Site will improve the agricultural land through providing adequate thickness of subsoil and topsoil, as well as even topsoil surface throughout the entire field.

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# Appendix A Soil Analysis Report

Contact : WARDELL ARMSTRONG LLP
CITY QUADRANT
11 WATERLOO SQUARE
NEWCASTLE UPON TYNE
NE1 4DP
Tel. : 0191 232 0943

**H448**

Please quote the above code for all enquiries

Client : ST18175STWM

Distributor : NT13096

Local Rep : JAKUB OLEWSKI

Telephone :

Sample Matrix : Agricultural Soil

Laboratory Reference
Card Number 09449/20

Date Received 30-Jun-20
Date Reported 02-Jul-20

# SOIL ANALYSIS REPORT

| Laboratory Sample Reference | Field Details | | | Index | | | mg/l (Available) | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. | Name or O.S. Reference with Cropping Details | Soil pH | P | K | Mg | P | K | Mg |
| 41022/20 | 1 | **TOPSOIL COMP**<br>*No cropping details given* | **7.7** | **0** | **1** | **6** | **8.8** | **101** | **382** |
| 41023/20 | 2 | **SUBSOIL COMP**<br>*No cropping details given* | **8.6** | **0** | **2-** | **5** | **7.2** | **127** | **315** |

*If general fertiliser and lime recommendations have been requested, these are given on the following sheets.*
*The analytical methods used are as described in DEFRA Reference Book 427*
*The index values are determined from the AHDB Fertiliser Recommendations RB209 9th Edition.*

Released by Gina Graham On behalf of NRM Ltd Date 02/07/20

**NRM** Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
**Tel:** +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.**nrm.uk.com

NRM Laboratories is a division of Cawood Scientific Ltd, Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Registered Number: 05655711

PAAG Professional Agricultural Analysis Group

# MICRO NUTRIENT REPORT

DATE **2nd July 2020**

SAMPLES FROM **ST18175STWM**

WARDELL ARMSTRONG LLP
CITY QUADRANT
11 WATERLOO SQUARE
NEWCASTLE UPON TYNE
NE1 4DP

Tel: 0191 232 0943

| Reference: **09449/41022/20** | Field Name: **TOPSOIL COMP** | **Result** | **(*)** | **Deficient** | **Marginal** | **Target** | **Marginal** | **Excessive** |
|---|---|---|---|---|---|---|---|---|
| Organic matter (LOI) % | | 6.9 | **1** | *OM level data not available for this crop* | | | | |

| Reference: **09449/41023/20** | Field Name: **SUBSOIL COMP** | **Result** | **(*)** | **Deficient** | **Marginal** | **Target** | **Marginal** | **Excessive** |
|---|---|---|---|---|---|---|---|---|
| Organic matter (LOI) % | | 3.0 | **1** | *OM level data not available for this crop* | | | | |

**Notes (*)**

**(1)** NRM considers Organic soils to contain between 10-20% organic material with Peaty soils containing over 20% . The optimum ranges for Organic Matter which have been set are dependent on the soil type and the cropping but these must be viewed as guidance values only.

| | |
|---|---|
| DATE | 2nd July 2020 |
| SAMPLES FROM | ST18175STWM |
| SAMPLED BY | JAKUB OLEWSKI<br>NT13096 |
| Report reference | 09449/20 |

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## Fertiliser Recommendations

The phosphate and potash recommendations shown below, are those required to replace the offtake and maintain target soil indices. The larger recommended applications for soils below target index will allow the soil to build up to this target index over a number of years. Not applying fertiliser to soils which are above target index will allow the soil to run down over a number of years to the target index.
The recommendation should be increased or decreased where yields are substantially more or less than that specified. The amount to apply can be calculated using the expected yield and values for the offtake of phosphate and potash per tonne of yield given in the RB209 9th edition.
All recommendations are given for the mid-point of each Index.
Where a soil analysis value (as given by the laboratory) is close to the range of an adjacent Index, the recommendation may be reduced or increased slightly taking account of the recommendation given for the adjacent Index. Small adjustments of less than 10 kg/ha are generally not justified.
Efficient use of P and K is most likly to be achieved on soils that are well structured and enable good rooting.
For visual evaluation of soil structure (VESS), a score on 1 or 2 would be considered adequate.
Don't forget to deduct nutrients applied as organic manures.
For Nitrogen recommendations please refer to the RB209 9th edition or seek advice from an FACTS qualified adviser.
Target Indices:
Arable, Forage, Grassland and Potato Crops: P Index 2, K Index 2-
(In rotations where most crops are Autumn-sown, soils are in good condition and P is applied annually, high index 1 can be an adequate target.)
Vegetables and Bulbs: P Index 3, K Index 2+
(If vegetables are only grown occasionally as part of an arable rotation, it would be most economic to target index 2 for arable and forage crops.)
Fruit Vines and Hops: P Index 2, K Index 2, Mg Index 2
(Note: Cider apples respond to K Index 3, Mg Index 3)
A lime recommendation is usually for a 20cm depth of cultivated soil or a 15cm depth of grassland soil. Where soil is acid below 20 cm and soils are ploughed for arable crops, a proportionately larger quantity of lime should be applied. However, if more than 10 t/ha is needed, half should be deeply cultivated into the soil and ploughed down, with the remainder applied to the surface and worked in.
For established grassland or other situations where there is no, or only minimal soil cultivation, no more than 7.5 t/ha of lime should be applied in one application.
In these situations, applications of lime change the pH below the surface very slowly. Consequently, the underlying soil should not be allowed to become too acidic because this will affect the root growth and thus limit nutrient and water uptake, which will adversely affect yield.

| *Field Name / Ref / Soil Type* | *Last Crop / Next Crop* | | *P2O5* | *K2O* | *MgO* | *Lime (Arable)* | *(Grass)* |
|---|---|---|---|---|---|---|---|
| **TOPSOIL COMP** | **Not Given / Not Given** | *Units/Acre* | | | | *T/Ac* **0** | **0** |
| **041022 /** | | *Kg/Ha* | | | | *Te/Ha* **0** | **0** |

| *Field Name / Ref / Soil Type* | *Last Crop / Next Crop* | | *P2O5* | *K2O* | *MgO* | *Lime (Arable)* | *(Grass)* |
|---|---|---|---|---|---|---|---|
| **SUBSOIL COMP** | **Not Given / Not Given** | *Units/Acre* | | | | *T/Ac* **0** | **0** |
| **041023 /** | | *Kg/Ha* | | | | *Te/Ha* **0** | **0** |

Fertiliser recommendations are based on **AHDB RB209 (Ninth Edition).** If a nutrient is deficient and no recommendation is given, either no recommendation is given in RB209 or we have insufficient data to give a recommendation. Apply Lime to the nearest half Ton / Tonne.
NRM is a UKAS accredited laboratory to ISO/IEC 17025



NRM Laboratories is a division of Cawood Scientific Ltd, Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
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# Environmental Setting and Site Design

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WASTE RESOURCE MANAGEMENT

**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

## ENVIRONMENTAL SETTING AND SITE DESIGN

**AUGUST 2020**

wardell armstrong

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**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# ENVIRONMENTAL SETTING AND SITE DESIGN

**AUGUST 2020**

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# 1 INTRODUCTION

## 1.1 Report Context

1.1.1 Thorpe Thewles (the Site) is a historic landfill which is to be restored by Scott Bros Ltd and is currently utilised for rough grazing. Scott Bros Ltd (the Client) propose to emplace c. 16,425m$^3$ of soils over an area of c.27,000m$^2$ at an average thickness of 0.6m.

1.1.2 The Site is located on the outskirts of the village of Thorpe Thewles in Stockton-on-Tees at National Grid Reference (NGR) NZ 39731 23696. Thorpe Thewles is located approximately 6km north west of Stockton. The Site covers an area of approximately 27,000m$^2$. Access to the Site is from Durham Road, which bounds the eastern perimeter of the Site.

1.1.3 The following report has been prepared by Wardell Armstrong LLP (WA) to provide the Environmental Setting and Site Design to support the landfill permit application. The report describes the setting of the Site in terms of its geology, hydrogeology and hydrology and explains and justifies the design of the Site.

## 1.2 Site Details

1.2.1 The Site location and permit boundary are shown on Drawing No. ST18175-001 Access to the Site is from Durham Road, which bounds the eastern perimeter of the Site.

1.2.2 The reprofiling will be achieved through the import of a sufficient quantity of inert waste (subsoils) to ensure a consistent soil layer of 800mm above the historic inert landfill, beneath 200mm of topsoil using topsoil stripped and stored on Site where possible, and 2,400m$^3$ imported topsoil.

1.2.3 Condition 7 of the planning approval notice (17/2905/FUL) states that "*materials proposed to be imported onto the Site shall be clean, uncontaminated recycled soils with a reduced stone content".*

1.2.4 The Site is situated within a rural location, and security will be provided by post and wire fencing in order to exclude livestock from the Site. A gate will be provided at the Site entrance and will be locked whenever the Site is unmanned.

1.2.5 The general topography of the Site falls from 45m Above Ordnance Datum (AOD) in the north east, to 30m AOD in the south west. The current landform of the Site

comprises a number of depressions as a result of subsidence within the historic landfill.

1.2.6 The Site is predominantly surrounded by agricultural land. The closest residential receptors are listed in Table 1.1.

**Table 1.1: Residential Receptors within 500m**

| Residential Receptor | Approximate Distance from Site Boundary |
|---|---|
| House on Durham Lane | 50m |
| Houses on School Close | 100m |
| Houses on St James Close | 130m |
| Buildings on Hellhole Lane | 140m |
| Village of Thorpe Thewles | Includes above properties and extends to approximately 500m south east of the Site boundary. |

1.2.7 Thorpe Beck is classified by the EA as a main river and flows from west to east, approximately 165m south of the Site at its closest point (Drawing No. ST18175-002). Thorpe Beck falls within Billingham Beck from Bishopton Beck to Brierle surface water body (GB103025072360)[1] and is classified by the EA as Poor for ecological quality due to Biological Quality Elements (Invertebrates) and Good for chemical quality.

1.2.8 An unnamed drain runs alongside Hellhole lane to the north of the Site, before changing direction to flow south, along the western boundary of the Site towards Thorpe Beck. Further information pertaining to surface water features can be found in Section 3.4.

1.2.9 Whitton Bridge Site of Special Scientific Interest (SSSI) is located 1.6km south east from the Site (Drawing No. ST18175-002)[2]. There are no other SSSIs within 2km of the Site. There are a number of Woodlands and Ancient Woodlands classified as Priority Habitats within 2km of the Site – the closest Priority Habitat is located 455m east of the Site[2].

1.2.10 The MAGIC website indicates that lapwing, grey partridge and snipe may be present at or near to the Site[2]. These birds are priority species under the Biodiversity Action Plan. A conservation screening request undertaken for the preparation of the Waste

[1] Environment Agency (2020) Catchment Data Explorer: Billingham Beck from Bishopton Beck to Brierle [online] Accessed: June 2020 https://environment.data.gov.uk/catchment-planning/WaterBody/GB103025072360
[2] DEFRA (2020) Magic Map Application [online] Accessed: June 2020 https://magic.defra.gov.uk/MagicMap.aspx

Recovery Plan[3] identified the presence of protected species (water vole) within 250m of the Site.

1.2.11 There are no National Nature Reserves (NNR), Special Areas of Conservation (SAC) or Special Protection Areas within 2km of the Site. There is a Local Wildlife Site (LWS) which runs from Brierly Wood to the north east of the Site towards Thorpe Thewles along the Castle Eden Walkway, the LWS is located 450m east of the Site at its closest point[4]. There are a further two LWSs within 2km of the Site, one located 1.6km south west of the Site, and a second located 1.75km east.

1.2.12 There are three Grade II listed buildings within the village of Thorpe Thewles; St James Church, The Vane Arms Public House, and Hamilton Russel Arms. St Thomas A Becket's Church is a scheduled monument and is located 1.6km north of the Site[2].

1.2.13 The Site is located on a Secondary A Superficial Aquifer, and a Secondary B Bedrock Aquifer[2]. The Site is not located within a Source Protection Zone[2]. Further detail of the geology and hydrogeology is provided in Section 3.2.2 and Section 3.5.

[3] Scott Bros Ltd (2019) Waste Recovery Plan for Willow Dene Thorpe Thewles
[4] Stockton-on-Tees Borough Council (2019) Local Plan Policies Map Adopted 30 January 2019 [online] Accessed: July 2020 https://www.stockton.gov.uk/media/1585778/local-plan-policies-map-website.pdf

# 2 SOURCE CHARACTERISATION

## 2.1 Historical Development

2.1.1 The Site is a historic landfill, closed in the early 1970's. The Site was operated by Teesside Borough Council and records indicate that the waste deposited comprised of household and commercial wastes. The existing waste mass is covered by soils to a varying depth, from a minimum thickness of 100mm[5].

2.1.2 There is no known leachate containment or gas control system associated with the historic landfill, as was normal at the time of operation. The Site was completed prior to the licencing regime being implemented.

2.1.3 Following completion, the Site was subsequently utilised as agricultural land for grazing, however subsidence has caused numerous depressions across the Site and resulted in the land becoming unusable.

2.1.4 There are 16 historic landfills within 2km of the Site, including the historic landfill at the Site, details of these are summarised in Table 2.1 (Drawing No. ST18175-003).

**Table 2.1: Summary of Historic Landfills within 2km of the Site**

| Site Name | Site Operator | Distance and Location from Site | Operational Dates | Waste Types Accepted |
|---|---|---|---|---|
| Refuse Tip off Durham Road | Teesside County Borough Council | At Site | 1970 – 1973 | Commercial and Household |
| Thorpe Thewles Landfill | Thorpe Thewles Landfill | 0.5km east | Unknown | Unknown |
| Thorpe Thewles | Blakeston Hall Farm Company | 0.7km north east | 1979 – 1986 | Inert, Industrial and Liquid Sludge |
| Blakeston Lodge | Blakeston Hall Farm Company | 0.9km north east | 1972 – Unknown | Commercial |
| Middlefield Farm | Mr Hall | 1.0km east | 1950 – 1975 | Unknown |
| Blakeston Hall | Blakeston Hall Farm Company | 1.2km east | 1969 – 1989 | Inert and Industrial |
| Land to the East of Whitton to Redmarshall Road | Cleveland County Council | 1.3km south west | 1982 – 1985 | Inert and Industrial |

[5] Scott Bros Ltd (2020) Thorpe Thewles – Deposit of waste for recovery for land improvement: Environmental Permit Application Thorpe Thewles Operational Techniques

| Table 2.1: Summary of Historic Landfills within 2km of the Site | | | | |
|---|---|---|---|---|
| **Site Name** | **Site Operator** | **Distance and Location from Site** | **Operational Dates** | **Waste Types Accepted** |
| Blakestone Lane | Blakeston Hall Farm Company | 1.4km north east | 1987 – 1988 | Inert |
| Land to the West of Whitton to Redmarshall Road | Cleveland County Council | 1.7km south west | 1977 -1987 | Inert |
| North of Thorpe Theules to Wolviston Road | Cleveland County Council | 1.7km north east | 1977 – 1978 | Inert |
| Quarry | Stockton Rural District Council | 1.7km south west | 1970 – 1970 | Unknown |
| Stillington Tip | Stockton on Tees Borough Council | 1.8km west | Unknown | Unknown |
| Wynyard | Blakeston Hall Farm Company | 1.9km north east | 1977 -1978 | Inert, Industrial and Household |
| Wynyard Road | Stockton Rural District Council | 2.0km north east | 1965 - 1972 | Unknown |
| Stillington Tip | Metabrasive Limited | 2.0 km west | 1977 – 1991 | Inert and Industrial |
| Stillington Industrial Estate | Stockton on Tees Borough Council | 2.0km west | 1992 – 1993 | Inert |

2.1.5 There are no recorded pollution incidents within 2km of the Site, however three Category 2 (Significant) pollution incidents have been recorded at or adjacent to Thorpe Beck upstream of the Site between 2006 and 2019.

## 2.2 Proposed Development

2.2.1 The primary purpose of the waste activity is to raise the level of the agricultural land by approximately 1m in some areas, in order to re-profile depressions in the land and ensure sufficient coverage of appropriate capping material above the in-situ landfill.

2.2.2 The existing waste mass is covered by soils to a varying depth, however a review has suggested that this is as low as 100mm in areas. Existing topsoil will be stripped and stockpiled for reuse following placement of the appropriate inert soils across the Site.

2.2.3 The Waste Recovery Plan and Operational Techniques set out a full list of materials and detailed materials acceptance criteria as well as the approximate amount of waste soils required.

2.2.4 The Site is approximately 2.7 hectares and the estimated net fill volume is 16,425m$^3$.

2.2.5 The operation of the Site will involve the following processes:

- Acceptance of inert waste (subsoil) suitable for use in land reclamation and capping.
- Placement and spreading of the suitable wastes to pre-agreed levels followed by limited compactions (only through tracked plant).

2.2.6 The Site will accept only clean inert materials, which by definition means that they will not undergo any significant physical, chemical or biological transformations and will not generate leachate.

2.2.7 The Environmental Permitting (England and Wales) Regulations 2016 replace the Groundwater Regulations 2009 and transpose the Groundwater Directive 1980, the Water Framework Directive 2000 and Groundwater Daughter Directive 2006. These directives require that inputs of pollutants to groundwater are either prevented or limited, to avoid or control groundwater pollution. A risk screening exercise must be undertaken to assess the level of risk assessment required for the Site.

2.2.8 As the materials accepted will be inert, and by definition not generate leachate, no leachate collection infrastructure will be required.

## 2.3 Installation Engineering

*Groundwater Management Systems*

2.3.1 The proposed activities include stripping the topsoil only prior to emplacement of the inert waste (subsoil). The in-situ historic waste is not proposed to be excavated. No waste will be removed and there will be no activities within the underlying geology. Groundwater management is not required.

*Basal Lining System*

2.3.2 It is not proposed to install a geological barrier due to the inert soils being emplaced above the in-situ historic waste.

*Leachate Generation and Management*

2.3.3 Due to the Site only receiving inert waste (subsoil) there will be no leachate generation. Rainfall which moves through the Site will produce a waste leachate, however this will not alter the existing water balance for the Site. Therefore, a water balance is not required to be undertaken for the Site.

2.3.4 No formal leachate management is proposed as the material to be deposited is inert and by definition will not generate leachate, waste leachate derived from rainfall may contain low levels of contamination, however this will be in accordance with SR205 No 39: Use of Waste in A Deposit for Recovery Operation.

2.3.5 It is not proposed that any leachate monitoring is undertaken due to the very low risk posed by leachate from the deposited materials.

*Landfill Gas Management and Monitoring Infrastructure*

2.3.6 Strict pre-acceptance and acceptance procedures will be in place to control the inert materials deposited on Site. There can therefore be a high level of confidence that biodegradation of the material will be negligible. Due to the very low risk it is not intended that any landfill gas monitoring boreholes are installed.

*Surface Water Management*

2.3.7 During construction surface water will primarily be allowed to drain to ground. During periods of extended or significant rainfall, or in areas where clay based soils have been emplaced the operator will reduce the potential for runoff by replacing the topsoil on Site as soon as an area has been completed. If any significant runoff is noted temporary ditches may be constructed to slow water progress and reduce any runoff from the Site. Monitoring will be undertaken daily to identify any runoff from the Site and recorded within the site log/diary.

*Post Closure Controls*

2.3.8 As the Site will be infilled with inert materials no formal cap is required. The Landfill Directive only requires capping where there is a need to minimise leachate formation, i.e. at hazardous and non-hazardous landfills. The Site will be restored with topsoil and returned to agricultural use.

2.3.9 Due to the inert nature of the infill materials there will be minimal infrastructure to maintain in the aftercare period, the deposited material itself will pose a very low risk to the environment.

2.3.10 Surrender of the permit will largely be based on records demonstrating good characterisation of the material throughout the life of the Site, providing the necessary evidence that only clean inert materials have been deposited.

2.3.11 Once restoration is completed, the Site will be returned to agricultural use.

# 3 PATHWAY CHARACTERISATION

## 3.1 Climate

3.1.1 Long term monthly rainfall data has been obtained from the Meteorological Office for Hartburn Grange at NGR NZ 43846 19831 located approximately 5.5km south east of the Site for the 1981 – 2010 period[6]. Average precipitation for this period is included within Table 3.1.

**Table 3.1: Monthly Average Rainfall at Hartburn Grange Meteorological Station for the Period 1981 - 2010**

| Month | Average Monthly Rainfall (mm) | Month | Average Monthly Rainfall (mm) |
|---|---|---|---|
| January | 41.1 | July | 52.9 |
| February | 32.9 | August | 60.6 |
| March | 36.3 | September | 49.7 |
| April | 41.5 | October | 57.5 |
| May | 40.8 | November | 60.2 |
| June | 52.4 | December | 48.2 |

3.1.2 Within the UK wind is typically from the south west. No detailed wind information is available for the Site. There is a stable building approximately 100m north from the Site that would be a potential receptor for dust. To minimise the potential for dust generation during movement and storage of wastes the following measures will be implemented as deemed relevant;

- The wastes accepted will predominantly be clay based and not likely to cause dust issues whilst they retail the natural moisture content and all efforts will be made to utilise the wastes in the deposit activity and prevent the waste from drying out.
- The orientation of long stockpiles will be placed in the direction of the prevailing wind.
- During times of high winds the stockpiles will not be disturbed.
- The maximum height of each stockpile will be considered depending on the wastes/materials being stored.
- All operations will be carried out with regard to prevailing climatic conditions.
- Dust suppression of stockpiles may be carried out using a water bowser if deemed necessary.
- Gas is not expected to be generated from inert and uncontaminated soils.

[6] Meteorological Office (2020) UK Climate Averages Stockton-on-Tees [online] Accessed: June 2020 https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcxn3ykru

## 3.2 Soils

3.2.1 A Site Walkover undertaken by a WA Principal Soil Scientist in June 2020 identified that the topsoil in the east of the Site was between 0.15 and 0.27m deep and was dark brown in colour with rusty mottles, with a heavy clay loam texture and slightly stony, the stones were predominantly soft limestone. The subsoil within the east of the Site extended to between 0.22 and over 0.60m and was dark greyish brown with up to 2% dark reddish brown mottles and gey ped faces; it was slightly stony.

3.2.2 Within the western area of the Site no topsoil was identified, subsoil was present above the historic landfill at a depth of 0.40 to 0.80m. The subsoil had a clay texture and was predominantly slightly stony, however some areas had large stones present at the surface. There was the presence of some construction rubble at the boundary between the east and west parts of the Site, and a temporary haul road comprised of recycled aggregate lead from the eastern part of the field towards the west.

## 3.3 Geology

*Made Ground*

3.3.1 The Site is underlain by a historic landfill. This is shown on British Geological Survey (BGS) mapping as Made Ground[7]. No information is available relating to the depth or thickness of the historic landfill.

*Superficial Deposits*

3.3.2 According to BGS mapping[7] the Site is underlain by Glaciofluvial Deposits – Devensian Sand and Gravel (Drawing No. ST18175-004.According to BGS Borehole Logs NZ32SE14751/TP37- TP42[8] the Site was a Sand and Gravel Pit prior to landfilling. TP39 is located along the southern boundary of the Site and identifies waste to 1.3m below ground level (bgl) underlain by firm clay subsoil over loose medium grained sand with gravels to the base of the Trial Pit at 3.2m bgl. TP42 is located in the south eastern corner of the Site and did not encounter waste, alternating layers of coarse sand and gravel with black suspected coal was reported to 3.2m bgl, TP38 encountered medium

[7] British Geological Survey (2020) GeoIndex [online] Accessed: June 2020 http://mapapps2.bgs.ac.uk/geoindex/home.html

[8] British Geological Survey (2020) Borehole Scan Reference: NZ32SE14751/TP37 – 42 [online] Accessed: June 2020 http://scans.bgs.ac.uk/sobi_scans/boreholes/685826/images/16750397.html

grained sand with gravels to 3.0m bgl. The remaining three Trial Pits (TP37, TP41 and TP40) recorded waste to their base, between 3.0 and 3.5m bgl. These Trial Pits are located towards the south of the Site, therefore the depth of the historic landfill is unconfirmed, and although it is likely that a large majority of the superficial deposits were excavated during quarrying activities it is unknown whether any superficial deposits remain beneath the historic landfill.

3.3.3 The surrounding areas are predominantly underlain by Till to the north and west, and Till and Glaciofluvial Deposits to the east. Alluvium associated with the Thorpe Beck is present approximately 60m to the south of the Site.

*Bedrock Geology*

3.3.4 BGS Mapping[7] indicates that the Site is underlain by the Roxby Formation (Drawing No. ST18175-005 described as Mudstone and siltstone, reddish brown with subordinate sandstone, sulphates (gypsum, anhydrite) common towards base.

3.3.5 Approximately 600m to the south of the Site there is an area of Yoredale Group – limestone, argillaceous rocks and subordinate sandstone, interbedded. The Roxby Formation is bound to the west by the Seaham Formation and overlain to the south and east by the Sherwood Sandstone Group. The Seaham Formation and Roxby Formation are present to the north.

3.3.6 An inferred fault, with unknown displacement, runs from west to north east approximately 500m north of the Site.

## 3.4 Hydrology

*Surface Water Features*

3.4.1 Whitton Beck and Letch Beck converge 870m south west of the Site to form Thorpe Beck which flows east, 165m south of the Site at its closest point. Maudlin Gutter is located 575m west of the Site, and flows south to join Thorpe Beck. There is an unnamed drain 750m west of the Site which also flows south to join Thorpe Beck.

3.4.2 An unnamed drain runs west alongside Hellhole lane, 150m north of the Site, before flowing south, along the western Site boundary and sinking to groundwater 55m south east of the Site.

3.4.3 There is no flow data available for Thorpe Beck.

*Surface Water Abstractions*

3.4.4 The Environment Agency confirmed on 29th June 2020 that there are no licenced abstractions within 3km of the Site.

*Surface Water Discharges*

3.4.5 The EA responded to a data request on 29th June 2020 with details of surface water discharges within 3km of the Site. Information relating to these discharges is summarised in Table 3.2.

**Table 3.2: Surface Water Discharges within 3km**

| Licence Number | Effluent Type | Receiving Waterbody | Discharge Volume ($m^3$/day) | NGR | Distance from Site |
|---|---|---|---|---|---|
| NE/25/04/1606/001 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ39950 23330 | 0.34km South |
| NE/254/E/0018/001 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ39810 23400 | 0.28km south |
| NE/254/0974/002 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ40070 23210 | 0.48km south east |
| NE/254/E/0016/001 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ38710 22700 | 1.30km south west |
| NE/254/D/0172/003 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ39800 21800 | 1.84km south |
| NE/25/04/1706/007 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | 1605 (685 under dry weather) | NZ38480 22230 | 1.84km south west |
| NE/254/1427/001 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ39230 21640 | 2.05km south |
| NE/25/04/1766/001 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ37900 22500 | 2.06km south west |
| NE/254/0290/001 | Sewage - not water company | Billingham Beck from Bishopton Beck to Brierle | 3 (1 under dry weather) | NZ37850 22500 | 2.10km south west |
| NE/EPRAB3493DL/001 | Sewage - not water company | Billingham Beck from Bishopton Beck to Brierle | 1.5 | NZ38114 21836 | 2.34km south west |
| NE/254/E/0020/001 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ39200 21100 | 2.59km south west |

| Table 3.2: Surface Water Discharges within 3km | | | | | |
|---|---|---|---|---|---|
| **Licence Number** | **Effluent Type** | **Receiving Waterbody** | **Discharge Volume ($m^3$/day)** | **NGR** | **Distance from Site** |
| NE/254/1844/003 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ37400 23600 | 2.15km west |
| NE/254/1825/003 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ37386 23328 | 2.23km west |
| NE/254/1872/003 | Trade | Billingham Beck from Bishopton Beck to Brierle | 18 | NZ37390 23250 | 2.20km west |
| NE/25/04/1717/003 | Trade | Billingham Beck from Bishopton Beck to Brierle | 2 | NZ37390 23220 | 2.21km west |
| NE/254/1834/002 | Sewage - water company | Billingham Beck from Bishopton Beck to Brierle | NA | NZ37260 23350 | 2.33km west |
| NE/254/A/0648/001 | Sewage - not water company | Billingham Beck from Bishopton Beck to Brierle | 7.5 | NZ37100 23800 | 2.47km west |
| NE/254/1904/001 | Sewage - not water company | Billingham Beck from Bishopton Beck to Brierle | 5 | NZ38750 26180 | 2.62km north |

*Surface Water Quality*

3.4.6 As discussed in Section 0 Thorpe Beck falls within Billingham Beck from Bishopton Beck to Brierle surface water body. The reasons for Billingham Beck from Bishopton Beck to Brierle not achieving good status have been determined by the EA as; poor soil management, poor livestock management, poor nutrient management, and sewage discharge (continuous and intermittent)[1].

3.4.7 A baseline surface water contamination assessment was undertaken by Arc Environmental Ltd in April 2019. Surface water samples were obtained within Thorpe Beck, and the Unnamed Drain adjacent to the Site. Three samples were obtained within each watercourse; one upstream, one adjacent, and one downstream of the Site.

3.4.8 The results obtained identified elevated concentrations of Boron, Copper and Polycyclic Aromatic Hydrocarbons (PAH's) within all three surface water samples in the Unnamed Drain. Concentrations identified were higher upstream of the Site and diminished over distance, indicating that the drain was impacted by these determinands upstream of the Site. No elevated Benzene, Toluene, Ethylbenzene and Xylene (BTEX) or Total Petroleum Hydrocarbons (TPH) impacted water was recorded.

3.4.9 The results obtained within Thorpe Beck also identified elevated concentrations of Boron, Copper and PAH's in all three samples. Elevated TPH's (EPH Aliphatic Band >C16-C35) were also recorded within all three samples. Concentrations were slightly higher upstream, and diminished over distance, indicating that Thorpe Beck was impacted by these determinands upstream of the Site. No elevated BTEX or other TPH bands were recorded.

*Flood Risk*

3.4.10 The Site is located within Flood Zone 1 according to the EA Flood Map for Planning, defined as having less than 1 in 1,000 annual probability of river or sea flooding. There is a small area in the north eastern corner of the Site mapped as being at risk from surface water flooding. Surface water flooding occurs when rainwater does not drain away through normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

3.4.11 According to the EA Long Term Flood Map the Site is not at risk of flooding from reservoirs[9].

3.4.12 The Stockton-on-Tees Borough Council Strategic Flood Risk Assessment (SFRA) map shows that the Site is located within an area with between 50% to 75% risk of flooding from groundwater.[10]

## 3.5 Hydrogeology

*Aquifer Characteristics*

3.5.1 The EA classifies the superficial deposits at the Site as a Secondary A Aquifer, defined as being permeable layers capable of supporting water supplies at a local, rather than strategic, scale, and in some cases forming an important source of baseflow to rivers.

3.5.2 The underlying Roxby Formation is classified as a Secondary B Aquifer, defined as predominantly lower permeability layers which may store and yield limited amounts

[9] Environment Agency (2020) Long Term Flood Risk Map [online] Accessed July 2020 https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

[10] JBA Consulting & Stockton-on-Tees Borough Council (2017) Strategic Flood Risk Assessment Map 5 [online] Accessed July 2020 https://www.stockton.gov.uk/media/1585595/2017s5531_sbc_sfra_detailed_map_5.pdf

of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

*Groundwater Elevation and Flow*

3.5.3 No groundwater monitoring data is available for the Site or the surrounding area.

3.5.4 A review of BGS Borehole logs has identified six trial pits dug immediately to the South of the Site, within both the waste associated with the historic landfill and the superficial deposits. These trial pits were dug between 3m below ground level (bgl) and 3.4m bgl, no groundwater was encountered.

3.5.5 BGS Borehole NZ42SW27, located 800m east of the Site, indicates that groundwater was struck at 3.6m bgl within the superficial deposits.

3.5.6 Groundwater elevation and contour plans were requested from the Environment Agency on 1st June 2020. On 29th June 2020 the Environment Agency advised that they hold no records of historic or recent groundwater levels or contour plots for the Site or the surrounding area.

3.5.7 It is anticipated that groundwater flow within the superficial deposits is towards the unnamed drain to the west. Based on the surrounding topography groundwater flow within the bedrock likely discharges to Thorpe Beck.

*Groundwater Abstractions*

3.5.8 The Environment Agency confirmed on 29th June 2020 that there are no licenced abstractions within 3km of the Site.

*Groundwater Discharges*

3.5.9 There are three discharges to groundwater within 3km of the Site, details of which are included in Table 3.3.

**Table 3.3: Groundwater discharges within 3km**

| Licence Number | Effluent Type | Receiving Waterbody | Discharge Volume ($m^3$/day) | NGR | Distance from Site |
|---|---|---|---|---|---|
| NE/254/0759/002 | Sewage - not water company | Land | 1.5 | NZ39200 22600 | 1.13km south west |

| Table 3.3: Groundwater discharges within 3km | | | | | |
|---|---|---|---|---|---|
| **Licence Number** | **Effluent Type** | **Receiving Waterbody** | **Discharge Volume ($m^3$/day)** | **NGR** | **Distance from Site** |
| NE/253/1027/001 | Sewage - not water company | Land | 0.75 | NZ38700 24800 | 1.41km north west |
| NE/EPRMP3822GY/002 | Trade | Land | 1.1 | NZ37341 23553 | 2.23km west |

*Groundwater Quality*

3.5.10 The Roxby Formation underlying the Site is part of the Skerne Magnesian Limestone groundwater body (ID: GB40301G704000)[11]. The Quantitative and Chemical Status element of the Skerne Magnesian Limestone is classified as Poor. The EA define the reasons for this waterbody not achieving Good status as Saline or other intrusion and Groundwater resource impacts.

3.5.11 The Site is located within a Nitrate Vulnerable Zone[2].

3.5.12 The Site is not located within a Source Protection Zone or a Drinking Water safeguard zone[2].

3.5.13 The Site is located on a historic landfill, therefore any potential contamination from the waste streams previously deposited at the Site must be considered with regards to their potential impact upon baseline conditions.

## 3.6 Landfill Gas

3.6.1 There are no historic gas monitoring boreholes around the Site. Although the Soil Gas and Vapour Survey identified concentrations of Carbon Dioxide and Methane associated with the historic landfill, all new materials to be accepted will be inert other than in the final 0.2m of clean topsoil and strict acceptance criteria will be in place. As a result there is no intention to install peripheral monitoring boreholes.

3.6.2 Waste acceptance procedures will ensure that all imported subsoils are inert and therefore will not generate gas. In addition, the maximum depth of waste will be approximately 1m and will not be over compacted, to allow plant growth. This being

[11] Environment Agency (2020) Catchment Data Explorer Skerne Magnesian Limestone [online] Accessed: June 2020 https://environment.data.gov.uk/catchment-planning/WaterBody/GB40301G704000

the case it is expected that aerobic conditions will predominate making the generation of landfill gas very unlikely.

3.6.3 The materials are intended to provide clean cover but will not form an airtight cap. As such, the risk of alterations to any existing pathways, for gas from the historic landfill are considered to be very low, especially given the age of the landfill. With no tipping in the last 45 years , it is expected that any landfill gas generation from the historic landfill will be in decline, if not fully complete.

# 4 RECEPTOR AND COMPLIANCE POINTS

## 4.1 Groundwater and Surface Water

4.1.1 Potential groundwater and surface water receptors will be considered within the Hydrogeological Risk Assessment (HRA) (Section 7).

## 4.2 Residential Receptors

4.2.1 The residential receptors closest to the Site are listed within Table 1.1 with the closest property 50m to the south of the Site.

4.2.2 Should landfill gas be released from the historic waste mass as a result of the removal of topsoil, there is potential for damage to vegetation within the agricultural fields around the Site.

4.2.3 Landfill gas typically comprises approximately 60% methane and 40% carbon dioxide. Both of these gasses are greenhouse gasses and may contribute to global warming. For this reason the air itself is a receptor and uncontrolled releases to the atmosphere should be minimised.

4.2.4 The waste to be deposited is inert waste (subsoils), with topsoil in the final 0.2m and thus the potential for landfill gas generation is negligible. Good Waste Acceptance Criteria will be in place to ensure that the materials deposited are in accordance with the permit, and records will be kept of materials accepted.

4.2.5 Carbon Dioxide and Methane concentrations associated with the historic landfill were found to exceed occupational health criteria during spike testing in 2019. The Preliminary Risk Assessment identified that should gas be identified the requirement for control measures including vents, trenches or other features would be assessed. The Waste Recovery Plan details that daily and ongoing checks for odour will be undertaken, with particular focus on the boundary of the Site. If odour is identified, and also identified at the boundary to the Site then works will stop and an assessment made by a competent person as to the way to proceed.

## 4.3 Amenity

4.3.1 As the material to be accepted is inert waste (subsoil) and clean topsoil there will be no litter or odour generated on Site. The only fugitive emission that may cause a

potential nuisance is dust. Control measures will be in place to prevent dust as set out in the Operating Techniques[5].

4.3.2 The compliance point will be the Site boundary and control measures will be put in place to ensure there is no significant dust beyond the Site boundary, including;

- The wastes accepted will be predominantly clay based, and thus not likely to cause dust issues whilst they retain the natural moisture content, therefore efforts will be made to prevent the wastes from drying out.
- The orientation of long stockpiles will be placed in the direction of the prevailing wind.
- During times of high winds stockpiles will not be disturbed.
- The maximum height of a stockpile will be considered, depending on the materials being stored, likely to be 4m.
- All operations will be undertaken with consideration of prevailing climatic conditions.
- Dust suppression of stockpiles may be carried out using a water bowser if deemed necessary.

## 4.4 Habitats

4.4.1 There are no SAC's, SPAs or Ramsar Sites within 2km of the Landfill. Whitton Bridge SSSI is located 1.6km south east from the Site. Various protected farmland birds are reported to be present within the area, including lapwing, grey partridge and snipe.

4.4.2 The Site will only accept clean inert waste (subsoils). Dust will be managed and controlled, as outlined in Section 4.3.2, so that it does not impact nearby receptors. The Site is not expected to impact the local bird population. As an inert Site it will not attract predators. It is considered that the impact on local habitats will be negligible.

4.4.3 Further detail is provided in the Habitats Risk Assessment which accompanies the application.

# 5 SITE CONDITION REPORT

5.1.1 There is no requirement to provide a site condition report for areas that will be subject to a permanent deposit of material. The purpose of a site report is to set out the condition of the land at permit issue so that at permit surrender it is possible to demonstrate that there has been no deterioration in the quality of the land. Clearly in the case of a landfill the land will not be restored to the same condition that was present at permit issue. Instead surrender of the permit will be based on records of the materials accepted and environmental monitoring carried out during the operation life of the site and post closure to demonstrate that the clean inert material that has been deposited is not impacting and will not impact the environment.

5.1.2 There is no fuel storage on Site. All plant and equipment will be refuelled by a diesel tanker coming onto Site. Such refuelling will be undertaken by a trained personnel who are fully aware of the spillage clean up requirements outlined within the accident management section of the Environmental Permit Application.

# 6 SUMMARY OF THE CONCEPTUAL SITE MODEL

## 6.1 Introduction

6.1.1 The findings of the desk study have been interpreted to form a Conceptual Site Model (CSM)which is discussed in the form of "Source, Pathway and Receptors" below.

## 6.2 Source

6.2.1 It is proposed to reprofile the land using inert waste (subsoils). The source will therefore be the inert soils deposited. Good material acceptance procedures will remove the risk at source.

6.2.2 The is also the possibility of outbreaks of perched landfill leachate from the historic waste mass following the removal of topsoil.

## 6.3 Pathways

6.3.1 Pathways for potential pollutants include any route from the inert soils to the receptors.

6.3.2 The main pathway will be through infiltration, and subsequently through the underlying historic waste mass into the superficial deposits.

6.3.3 Groundwater flow could occur through the soil zone as 'interflow', or through the superficial deposits at a depth greater than 3m bgl.

6.3.4 Due to the topography of the Site sediment laden runoff could occur towards the adjacent unnamed drain.

6.3.5 Outbreaks of perched landfill leachate from the historic waste mass could runoff into the surface watercourses. If leachate is identified the area will be isolated, a bund formed around it and leachate tankered from Site to a suitably permitted facility for treatment, this will prevent landfill leachate from reaching the surface watercourses.

6.3.6 No works will be undertaken within 20m of the nearest surface watercourse. Monitoring of site works will be undertaken on a daily basis to identify any runoff from the Site. Once the deposited soils have been capped using the existing topsoil, runoff will be from the existing topsoil rather than the deposited inert soils.

6.3.7 No landfill gas will be generated due to the inert nature of the soils and the strict material acceptance criteria in place.

6.3.8 Dust or litter can become airborne. No litter is anticipated due to the nature of the materials to be imported. Dust will be managed at the source using the dust control measures described in the operating techniques[5].

## 6.4 Receptors

6.4.1 Although the superficial deposits are overlain by the historic landfill, there is potential for infiltration to occur through the inert soils into and through the historic waste mass, therefore the superficial deposits may be a receptor.

6.4.2 The Roxby Formation is not considered to be at risk due to the low permeability of this unit.

6.4.3 The topography of the Site slopes towards the unnamed drain 20m west, therefore this surface watercourse is a potential receptor. In addition it is likely that both the unnamed drain and Thorpe Beck receive groundwater inflow, and thus both may be a receptor.

6.4.4 The nearest property is 50m south of the Site.

6.4.5 There are Biodiversity Action Plan (BAP) species and habitats in the vicinity of the Site and agricultural land may also be a receptor.

6.4.6 It is considered that the strict control of the source, via material acceptance procedures and compliance with the operational techniques identified will provide adequate protection to the receptors.

## 6.5 Source-Pathway-Receptor Linkages

6.5.1 During the operational phase when waste is being deposited at the Site, rainwater can infiltrate the waste and migrate vertically into the underlying in-situ waste mass. There is no information regarding engineered containment of the historic in-situ waste mass and thus it is assumed that this waste mass is in continuity with groundwater within the underlying superficial deposits (Secondary A aquifer). Groundwater within the superficial deposits has the potential to migrate towards surface water bodies such as the unnamed ditch to the west of the Site and enter surface water.

6.5.2 Additionally, during the soils tip at the Site there is potential for breakout of perched leachate within the underlying historic in-situ waste mass which could migrate overland and into the unnamed ditch the west of the Site. However whilst this is a potential SPR linkage the proposed operating techniques involving daily monitoring, bunding and tankering meaning that this potential SPR linkage is unlikely to be realised through good site management.

6.5.3 Post restoration, the stripped topsoil will be replaced on the imported waste materials and planting re-established. This will reduce the infiltration of rainfall into the waste soils and reduce rainfall runoff containing sediment.

**Table 6.1: Source-Pathway-Receptor Summary for Thorpe Thewles**

| Phase | Sources | Pathway | Receptor |
|---|---|---|---|
| Operational Phase – deposition of inert waste (subsoil) as a recovery operation | Inert waste (subsoil) | Infiltration and vertical flow through historic waste mass | Groundwater within Superficial Deposits |
| | | Groundwater flow through Superficial Deposits | Superficial Deposits, Unnamed Drain and Thorpe Beck |
| | | Sediment laden rainfall runoff | Unnamed Drain |
| | | Airborne | Residential properties to south east, BAP species and habitats and agricultural land |
| | Historic waste | Overland runoff of perched leachate outbreaks following topsoil removal | Unnamed Drain |
| | | Release of landfill gas due to removal of topsoil | Air, residential properties and agricultural land |
| Post Restoration Phase | Inert waste | Infiltration through topsoil into deposited wate and through historic waste | Groundwater within Superficial Deposits |
| | | Groundwater flow through Superficial Deposits | Superficial Deposits, Unnamed Drain and Thorpe Beck |
| | | Rainfall runoff from replaced topsoil | Unnamed drain |

# 7 HYDROGEOLOGICAL RISK ASSESSMENT

## 7.1 The Nature of the Hydrogeological Risk Assessment

7.1.1 The proposed scheme is a waste recovery scheme. Therefore, once the soil substitute materials are placed the materials will cease to be a waste and the Site will not be a landfill. The materials imported will be subject to compliance with the waste acceptance criteria outlined in the Operational Techniques[5]. The Operational Techniques highlight that waste soils will only be accepted provided the chemical, physical and biological characteristics are suitable for the intended use.

7.1.2 Due to the nature of the Site and the intended operations a simple risk screening is considered appropriate. The methodology employed for the HRA includes:

- Establishing a CSM using desk study information (Table 6.1);
- Identification of source, pathway and receptor linkages; and
- Risk screening to assess the risk presented to groundwater by the linkages identified.

## 7.2 The Proposed Assessment Scenarios

7.2.1 The proposed scheme is a waste recovery scheme, therefore once the imported soils have been placed the materials will cease to be waste and the Site will not be a landfill.

7.2.2 Given the inert nature of the material, the absence of any biodegradable materials and the strict pre-acceptance and acceptance procedures that will be in place for the Site the physical characteristics of the deposited material are envisaged to remain constant. It is unlikely that there will be any significant change in quality of any waste leachate generated through infiltration over the life of the Site.

7.2.3 The CSM identified potential linkages including infiltration through the imported soils and vertical migration through the historic waste mass into the underlying superficial deposits, groundwater flow within the superficial deposits towards the surface watercourses, and overland runoff of either sediment laden rainfall runoff or perched leachate outbreaks from the removal of topsoil (Table 6.1).

## 7.3 Proposed Priority Contaminants

7.3.1 Numerical modelling is not considered necessary, see Section 7.1.

7.3.2 Inert wastes are unlikely to produce leachate that presents a risk to groundwater quality, as inert waste does not undergo any significant physical, chemical or biological transformations.

7.3.3 The types of waste to be accepted and restrictions for the use of waste in deposit for recovery are outlined within the Application Table for List of Permitted Wastes[12]. As outlined within the Waste Recovery Plan[3] The soil chemical quality standards outlined in Table 7.1 will be utilised to assess chemical quality requirements in addition to assessment of the site from which the soils are arising.

**Table 7.1: Soil quality acceptance criteria**

| Component | Proposed guideline total concentrations for soils | Source and comments |
|---|---|---|
| Arsenic | 32 | CLEA soil guideline value for residential end-use |
| Cadmium | 10 | CLEA soil guideline value for residential end-use |
| Chromium | 130 | Previous SGV for residential with plant uptake |
| Copper | 200 | Previous PAS 100 compost specification |
| Lead | 450 | Previous SGV for residential with or without plant uptake |
| Mercury | 1 | CLEA soil guideline value for residential end-use |
| Nickel | 130 | CLEA soil guideline value for residential end-use |
| Zinc | 400 | Previous PAS 100 compost specification |
| pH | 6 – 10 | Guideline values to avoid extreme acidic or alkaline conditions |
| Total Petroleum Hydrocarbons | 400 | 20% below inert landfill limit value |
| PAHs (total) – unspeciated (must be non-hazardous) | 50 | 20% below inert landfill limit value |
| All thresholds for metals stated in mg/kg dry weight | | |

## 7.4 Review of Technical Precautions

7.4.1 The inert soil wastes will be placed at average fill depth of 0.6m across the Site, and to approximately 1m in some areas of depressions in the current Site topography, above the historic waste mass. The existing topsoil will be stripped and stockpiled for reuse following placement of the appropriate inert soils across the Site. The proposed

[12] Scott Brothers (2019) Thorpe Thewles WE4813AA Application Table for List of Permitted Wastes Document Reference: WE4813AA-B4-1b

waste recovery scheme does not involve the excavation of any historic waste during this activity.

7.4.2 The Site will only accept inert wastes (subsoils). Due to the nature of the Site and the activity to provide a capping layer to formally landfilled waste the materials used will have a requirement to be low stone content, therefore the soils accepted will include selected subsoils with no particles or stones greater than 50mm and a moisture content less than 35%. As detailed within the Waste Recovery Plan pre-acceptance procedures will ensure than only compliant waste types are accepted. Additionally a trained operator will examine waste descriptions and make a visual inspection of waste loads at the Site. Operatives at the facility will also be made aware of the type of waste to allow additional visual inspection upon off-loading.

7.4.3 Monitoring on the Site is to be undertaken on a daily basis to identify any potential outbreaks of leachate from the historic waste mass. If leachate is identified, the area will be isolated, a bund formed around it, and leachate tankered to a suitably permitted facility for treatment.

7.4.4 The main risk to the environment would be through the deposit of non-conforming waste types. In order to minimise this risk, all incoming waste will be subject to strict waste acceptance. The Waste Recovery Plan, included as part of the application, details the strict procedures in place to ensure that only verified permitted waste types are accepted and deposited on-site.

7.4.5 Adherence to the strict waste acceptance procedures will ensure that the finished scheme will not result in environmental problems associated with pollution.

## 7.5 Numerical Modelling

*Justification for Modelling Approach and Software*

7.5.1 Numerical modelling not considered necessary, see Section 7.1.

*Model Parameterisation*

7.5.2 Numerical modelling not considered necessary, see Section 7.1.

*Sensitivity Analysis*

7.5.3 Numerical modelling not considered necessary, see Section 7.1.

*Model Validation*

7.5.4 Numerical modelling not considered necessary, see Section 7.1.

*Accidents and their Consequences*

7.5.5 Numerical modelling not considered necessary, see Section 7.1.

## 7.6 Emissions to Groundwater

*Compliance Monitoring*

7.6.1 In general, for the CLEA limits identified, the compliance point would be at the point at which the substance would enter the groundwater below the Site. However, risk screening has identified that the superficial and bedrock aquifer are at negligible risk of unacceptable inputs of contaminants to groundwater from the inert waste. Therefore groundwater monitoring is not proposed.

*Surface Water Management*

7.6.2 During construction surface water will primarily be allowed to drain to ground. During periods of extended or significant rainfall, or in areas where clay based soils have been emplaced the operator will reduce the potential for runoff by replacing the topsoil on Site as soon as an area has been completed. If any significant runoff is noted temporary ditches may be constructed to slow water progress and reduce any runoff from the Site. Monitoring will be undertaken daily to identify any run off from the Site and recorded within the site log/diary.

7.6.3 In addition to monitoring for runoff, daily monitoring will be undertaken to assess the presence of any outbreaks of leachate from the historic waste, should leachate be identified the area is to be isolated and a bund formed around it, prior to tankering from the Site to a suitably permitted facility for treatment.

7.6.4 Surface water sampling and screening has been undertaken prior to the commencement of works, and will be undertaken following the completion of works, and if deemed necessary during the works.

## 7.7 Hydrogeological Completion Criteria

7.7.1 The proposed scheme is a waste recovery scheme. Therefore, once the inert soil is deposited the materials will cease to be waste and the Site will not be a landfill.

7.7.2 Groundwater monitoring is not considered necessary and groundwater compliance limits have not been proposed. Surface water monitoring and assessment criteria are proposed in Section 8.

# 8 REQUISITE SURVEILLANCE

## 8.1 The Risk Based Monitoring Scheme

*Leachate Monitoring*

8.1.1 Given the CSM and the nature of the waste recovery scheme, and the low risk to identified groundwater receptors, no leachate monitoring is considered necessary.

*Groundwater Monitoring*

8.1.2 Given the CHSM and the nature of the waste recovery scheme, and the low risk identified to groundwater receptors, no groundwater monitoring is considered necessary.

*Surface Water Monitoring*

8.1.3 Surface water monitoring locations were determined during the baseline surface water contamination assessment. It is proposed to undertake monitoring at the same locations following completion of the works.

8.1.4 The objectives for the surface water monitoring will be to demonstrate that the emplacement of inert soils above the historic waste mass is not having an adverse impact on the identified surface water receptors i.e. the unnamed drain and Thorpe Brook. If significant runoff or outbreaks of perched leachate are identified during daily inspections further surface water sampling will be undertaken.

8.1.5 The proposed suite will include the parameters inspected during the baseline surface water contamination assessment.

# 9 CONCLUSIONS

## 9.1 Compliance with the Landfill Directive

9.1.1 The Landfill Directive does not apply to deposit for recovery operations and has not been considered for this report.

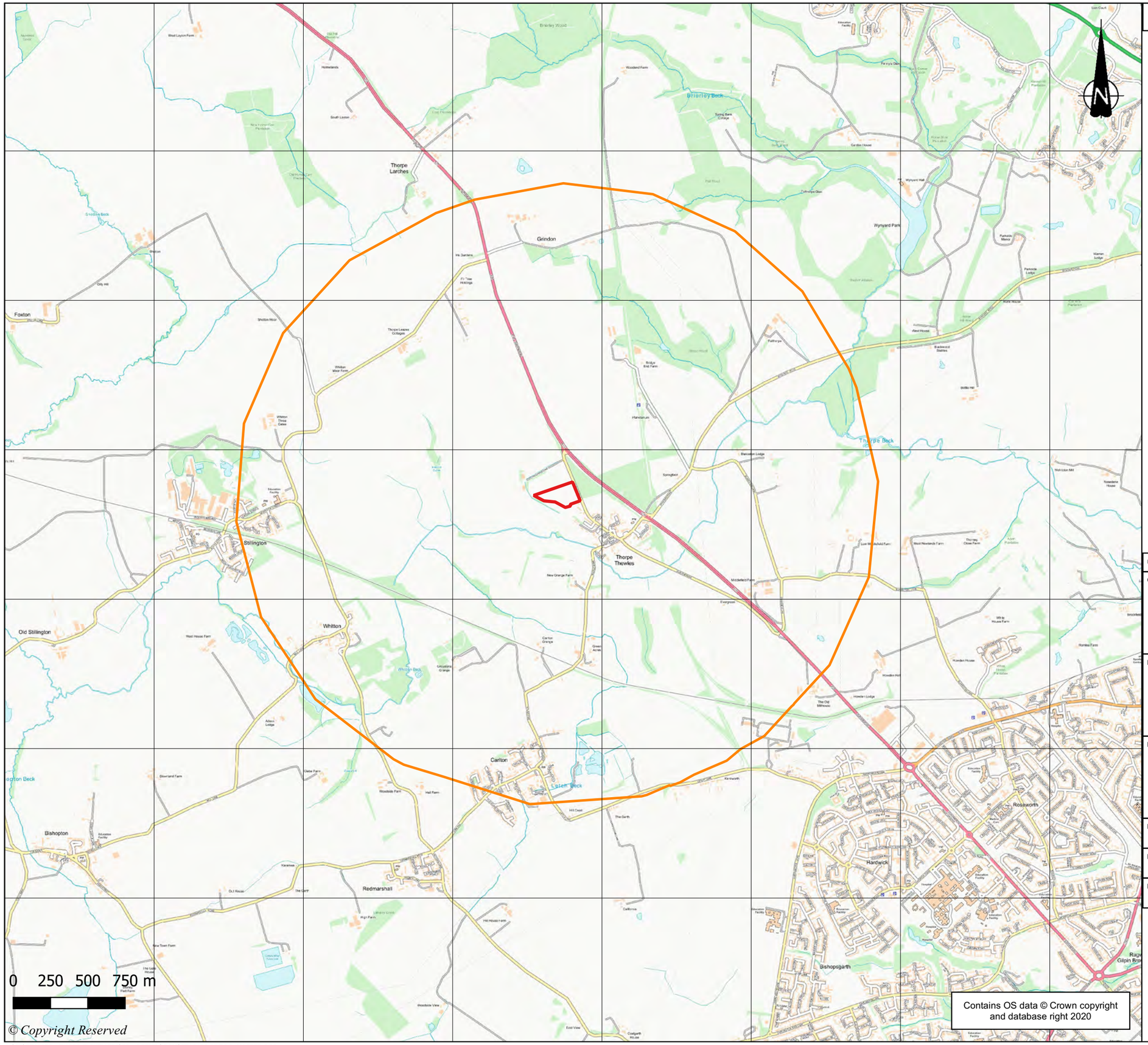
## 9.2 Compliance with the Groundwater Regulations, 2009

9.2.1 Only inert waste (subsoils) will be accepted under strict criteria for the waste recovery scheme. Quality verification checks of the materials will be undertaken at the Site prior to emplacement.

9.2.2 The imported materials will be emplaced above the historic landfill, and capped with the existing topsoil to provide a more substantial cap to the historic waste.

9.2.3 Appropriate risk assessment has been undertaken which has identified that hazardous substances and non-hazardous pollutants are unlikely to enter the groundwater as a result of the emplacement of the non-biodegradable inert materials.

**DRAWINGS**




DO NOT SCALE FROM THIS DRAWING

KEY

Approximate Site Boundary

| REVISION | DETAILS | DATE | DR'N | CH'K'D | APP'D |
|---|---|---|---|---|---|

CLIENT

Scott Bros. Ltd

PROJECT

Thorpe Thewles Permit Application

DRAWING TITLE

Site Location

| DRG No. | | REV |
|---|---|---|
| ST18175-001 | | A |
| DRG SIZE A3 | SCALE 1:25000 | DATE July 2020 |
| DRAWN BY BJ | CHECKED BY LB | APPROVED BY LB |

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WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM, BOLTON, CARDIFF, CARLISLE, EDINBURGH, GLASGOW, LONDON, MANCHESTER, NEWCASTLE UPON TYNE, SHEFFIELD

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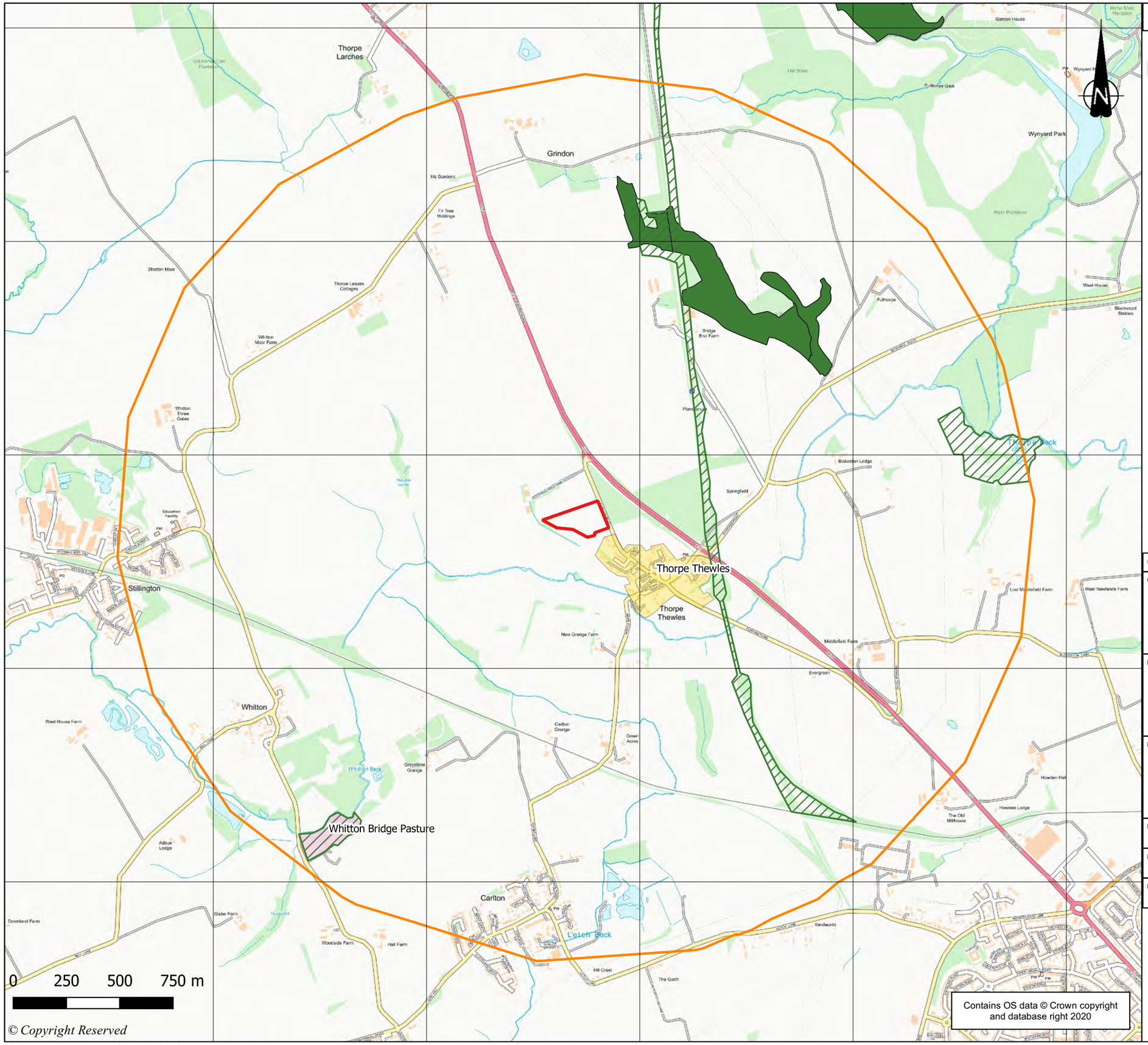


DO NOT SCALE FROM THIS DRAWING

KEY

- Approximate Site Boundary
- 2km Buffer
- Site of Special Scientific Interest
- Residential Area
- Ancient Woodland
- Local Wildlife Site

| REVISION | DETAILS | DATE | DR'N | CHK'D | APP'D |
|---|---|---|---|---|---|

CLIENT

Scott Bros. Ltd

PROJECT

Thorpe Thewles Permit Application

DRAWING TITLE

Site Environmental Setting

| DRG No. | | REV |
|---|---|---|
| ST18175-002 | | A |
| DRG SIZE A3 | SCALE 1:17500 | DATE July 2020 |
| DRAWN BY BJ | CHECKED BY LB | APPROVED BY LB |

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DO NOT SCALE FROM THIS DRAWING

KEY

- Approximate Site Boundary
- 2km Buffer
- Historic Landfill

| REVISION | DETAILS | DATE | DR'N | CH'K'D | APP'D |
|---|---|---|---|---|---|

CLIENT

Scott Bros. Ltd

PROJECT

Thorpe Thewles Permit Application

DRAWING TITLE

Historic Landfills

| DRG No. | | REV |
|---|---|---|
| ST18175-003 | | A |
| DRG SIZE A3 | SCALE 1:17500 | DATE July 2020 |
| DRAWN BY BJ | CHECKED BY LB | APPROVED BY LB |

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0 250 500 750 m

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N:\ST\ST18175 - THORP THWELLERS\03 - DESIGN\QGIS\ST18175_HYDRO_MASTER.QGS

DO NOT SCALE FROM THIS DRAWING

KEY

- Approximate Site Boundary
- 2km Buffer

BGS 1:50k Superfical Deposits

- Glaciofluvial Deposits, Devensian – Sand and Gravel
- Till, Devensian - Diamicton
- Glaciolacustrine Deposits, Devensian - Sand
- Alluvium - Clay, Silt, Sand and Gravel
- Head - Clay, Silt, Sand and Gravel
- River Terrace Deposits (Undifferentiated) - Sand and Gravel
- Lacustrine Deposits - Clay and Silt
- Tidal Flat Deposits - Sand, Silt and Clay
- Peat - Peat

| REVISION | DETAILS | DATE | DR'N | CH'K'D | APP'D |
|---|---|---|---|---|---|

CLIENT: Scott Bros. Ltd

PROJECT: Thorpe Thewles Permit Application

DRAWING TITLE: Superficial Deposits

| DRG No. | | REV |
|---|---|---|
| ST18175-004 | | A |
| DRG SIZE: A3 | SCALE: 1:17500 | DATE: July 2020 |
| DRAWN BY: BJ | CHECKED BY: LB | APPROVED BY: LB |

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KEY

- Approximate Site Boundary
- 2km Buffer

BGS 1:50k Bedrock Deposits

- Seaham Formation - Limestone, Dolomitic
- Yoredale Group - Limestone, Argillaceous Rocks and Subordinate Limestone
- Roxby Formation - Mudstone, Calcareous
- Sherwood Sandstone Group - Sandstone
- Edlington Formation - Mudstone, Calcareous
- --- Fault, Inferred

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|---|---|---|---|---|---|

CLIENT: Scott Bros. Ltd

PROJECT: Thorpe Thewles Permit Application

DRAWING TITLE: Bedrock Deposits

| DRG No. | REV |
|---|---|
| ST18175-005 | A |

| DRG SIZE | SCALE | DATE |
|---|---|---|
| A3 | 1:25000 | July 2020 |

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DO NOT SCALE FROM THIS DRAWING

KEY

- Approximate Site Boundary
- 2km Buffer
- Main River

Listed Buildings

- Grade I
- Grade II
- Scheduled Monument
- Ancient Woodland
- Local Wildlife Site
- Site of Special Scientific Interest
- Residential Area
- Residential Receptors

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|---|---|---|---|---|---|
| | | | | | |

CLIENT

Scott Bros. Ltd

PROJECT

Thorpe Thewles Permit Application

DRAWING TITLE

Potential Receptors Within 2km

| DRG No. | | REV |
|---|---|---|
| ST18175-006 | | A |
| DRG SIZE: A3 | SCALE: 1:15000 | DATE: July 2020 |
| DRAWN BY: BJ | CHECKED BY: AC | APPROVED BY: AC |

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# Habitats Risk Assessment

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**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# HABITATS RISK ASSESSMENT

**SEPTEMBER 2020**

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**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# HABITATS RISK ASSESSMENT

**SEPTEMBER 2020**

**PREPARED BY:**

Alison Cook Associate Director

**APPROVED BY:**

Luke Prazsky Service Director
Waste Resource Management

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2 WATER VOLES ..... 1
3 POTENTIAL IMPACTS ..... 2

# 1 INTRODUCTION

1.1.1 Scott Bros Ltd are applying for a permit for deposit for recovery to enable them to improve agricultural land over a former landfill at Thorpe Thewles. Thorpe Thewles is located approximately 6km north west of Stockton. The Site covers an area of approximately 27,000m$^2$.

1.1.2 A request for a conservation screening assessment from the Environment Agency revealed that there were no SACs, SPAs, or Ramsar Sites close to the site. However, a protected species was thought to be present. The report showed that there may be water voles within 250m of the site.

1.1.3 The only Site of Special Scientific Interest (SSSI) within 2km of the site is Whitton Bridge Pasture SSSI, located 1.6km to the south east. Whitton Bridge Pasture has been designated for its nationally important species rich grassland vegetation, which includes a wide range of grasses and broad-leaved herbs.

1.1.4 There are a number of Woodlands and Ancient Woodlands classified as Priority Habitats within 2km of the Site, with the closest Priority Habitat located 455m east of the Site.

1.1.5 The MAGIC website indicates that lapwing, grey partridge and snipe may be present at or near to the Site. These birds are priority species under the Biodiversity Action Plan.

1.1.6 There is a Local Wildlife Site (LWS) which runs from Brierly Wood to the north east of the Site towards Thorpe Thewles along the Castle Eden Walkway, the LWS is located 450m east of the Site at its closest point[1]. There are a further two LWSs within 2km of the Site, one located 1.6km south west of the Site, and a second located 1.75km east.

# 2 WATER VOLES

2.1.1 Water voles are small mammals that live beside and in water courses. There are no water bodies on site and it is thought most likely that these animals use the Thorpe Beck which is approximately 230m to the south west of the site.

2.1.2 The Wildlife Trusts suggest that allowing an area of longer grass, which is at least 2m wide, close to riverbanks, can provide cover and food for these animals. (https://www.wildlifetrusts.org/wildlife-and-wild-places/saving-species/water-

[1] Stockton-on-Tees Borough Council (2019) Local Plan Policies Map Adopted 30 January 2019 [online] Accessed: July 2020 https://www.stockton.gov.uk/media/1585778/local-plan-policies-map-website.pdf

voles). The works to be carried out will not impact directly on the bank of the beck and will not impact any such habitat close to the beck.

## 3 POTENTIAL IMPACTS

3.1.1 There is potential for excessive dust to smother vegetation or impact aquatic ecosystems. However, measures will be in place for the control of dust. Stockpile sizes and orientation will be designed to minimise exposure to the wind. If necessary, any dust arising will be damped down using a water bowser brought to site. The site will be inspected daily to ensure that dust is not escaping beyond the site boundary. As such it is not expected that dust from the site would have any significant impact on the beck. Other protected sites are 450m or more from the site and it is unlikely that any significant dust will reach them.

3.1.2 Were chemicals to leach from the site this could impact local water courses due to toxic contamination or eutrophication. All materials to be accepted under the permit will be inert or will be clean topsoil and waste acceptance procedures will be in place to ensure that this is the case. There will be no toxic elements in any run-off. Surface water will be managed effectively to ensure that suspended solids do not run-off towards the beck. It is therefore considered that measures are in place to prevent contamination of the beck and protect local groundwater.

3.1.3 The only emissions to air will be from engine exhausts on lorries and excavators. The waste process itself does not produce any point source emissions to air which might impact local grassland and woodland.

3.1.4 The site will accept only inert waste suitable for use as subsoil and clean topsoil in the final 0.2m. No light wastes will be accepted at the site and therefore there should be no windblown litter, which might impact local wildlife.

3.1.5 There will be a requirement to operate machinery on site, comprising excavators and loading shovels. To minimise the impact of noise all plant will be subject to routine inspections and maintenance to prevent excessive noise during operation. The works will take place only during daylight hours five days a week and Saturday mornings. The site is therefore not expected to cause any major disturbance due to noise.

3.1.6 Overall it is not considered that the operation of the site will have a significant impact on wildlife that may be present 200 to 250m away or on protected habitats which lie 450m or more from the site.

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# Management Plan Summary

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**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# MANAGEMENT PLAN SUMMARY

**SEPTEMBER 2020**

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| **STATUS:** | **SEPTEMBER 2020** |

**SCOTT BROS LTD**

# THORPE THEWLES APPLICATION FOR AN ENVIRONMENTAL PERMIT

# MANAGEMENT PLAN SUMMARY

**SEPTEMBER 2020**

**PREPARED BY:**
Alison Cook Associate Director

**APPROVED BY:**
Luke Prazsky Service Director
Waste Resource Management

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# 1 INTRODUCTION

1.1.1 Thorpe Thewles (the Site) is a historic landfill which is to be restored by Scott Bros Ltd and is currently utilised for rough grazing. The landfill was completed in the early 1970s and does not have formal engineering. A layer of soils was applied over the site but this was of variable thickness and in some areas is believed to be only 100mm thick.

1.1.2 Scott Bros. Ltd propose to emplace circa. 16,425m$^3$ of soils over an area of 2.7 hectares. The fill will be at an average thickness of 0.6m. This will even out hollows caused by differential settlement of the old landfill and ensure that there are sufficient subsoils over the area to provide a buffer between the landfill and the overlying growth medium, which will be enhanced to allow for cultivation and improved grazing.

1.1.3 The Site is located on the outskirts of the village of Thorpe Thewles in Stockton-on-Tees at National Grid Reference (NGR) NZ 39731 23696. Thorpe Thewles is located approximately 6km north west of Stockton. Access to the Site is from Durham Road, which bounds the eastern perimeter of the Site.

1.1.4 The following report has been prepared by Wardell Armstrong LLP as the Environment Agency have requested a summary of the Management Plan for the site.

1.1.5 The management of the site is described in the Waste Recovery Plan, the Operational Techniques and the ESSD. This report highlights the areas that the Environment Agency's guidance requires to be covered in a Management Plan and signposts where in the application these management systems are described.

## 2 COMPLIANCE WITH ENVIRONMENT AGENCY GUIDANCE

2.1.1 The Environment Agency provide guidance on their website regarding the information that should be included in a management plan for a site operating under an environmental permit for a waste activity. (https://www.gov.uk/guidance/develop-a-management-system-environmental-permit). The following paragraphs follow the headings within the guidance and give brief details of the systems to be in place or explain where such information is to be found.

### 2.2 Site Infrastructure

2.2.1 The first requirement of the guidance is for a site infrastructure plan. As this is a simple waste recovery operation little infrastructure is needed. There will be no formal drainage infrastructure and the only site building will be a temporary cabin to provide office and welfare facilities. Site roads and hardstanding areas will be temporary in nature and may move to facilitate the soil spreading operations. Unless the materials used are suitable for use as subsoil, these structures will be removed at the end of the works. No fuels or other hazardous materials will be stored at the site.

### 2.3 Vulnerable Locations

2.3.1 The guidance requires that vulnerable locations are identified. The ESSD provides a plan, showing receptors around the site, drawing ST18175-006. Further details regarding receptors are provided in the Waste Recovery Plan.

### 2.4 Drainage

2.4.1 The guidance requires a description of the site drainage. This is provided in section 4.2 of the Operational Techniques. Essentially the materials brought to site will be inert or will be clean topsoils used in the final 0.2m of restoration. As such they do not pose a risk to groundwater or surface water. Drainage will be by natural soakaway.

### 2.5 Water Gas and Electricity

2.5.1 There will be no gas supply to the site.

2.5.2 The permitted operations will not require electricity, other than for the office and welfare facility. Operations will be restricted to day light hours.

2.5.3 Water will be made available for the welfare facilities and for dust suppression and the wheel wash. Water for the wheel wash and for damping down will be brought to site by a bowser.

## 2.6 Site operations

2.6.1 The guidance requires that site operations should be described. The way in which the site at Thorpe Thewles will operate is described in the Operational Techniques and the Waste Recovery Plan. Appendix 2 of the Operational Techniques also lists the sections of Scott Bros Ltd's Management Plan, which give further detail.

2.6.2 As far as possible waste will be deposited directly at its point of final use and spread. Stockpiles may be used for short term storage as described in the Operational Techniques. They will be kept to 4m in height.

## 2.7 Site and Equipment Maintenance Plan

2.7.1 As explained in the Operating Techniques there will be planned maintenance of plant and equipment in accordance with the manufacturer's recommendations. The Plant and Equipment Procedures listed in the key documents will apply.

2.7.2 Records will be kept of all servicing, maintenance and repairs.

## 2.8 Contingency plans

2.8.1 Due to the simplicity of the operation there is only a low risk of pollution should abnormal conditions occur.

2.8.2 Should plant break down, operations will cease until repairs are made or alternative plant can be sourced.

2.8.3 Operations may also be suspended for a short period due to extremely wet weather, which might impact the quality of the restoration, or extremely hot dry weather and/or high winds, which may make it difficult to control dust. The decision to temporarily cease operations will be based on the observations, knowledge and experience of the technically competent manager.

## 2.9 Accident Prevention and Management Plan

2.9.1 Section 4 of the Operational Techniques details the potential impacts on receptors and the measures in place to prevent or minimise those impacts.

2.9.2 The situations considered include emissions of dust, mud tracked from the site, breakdown of equipment, odour due to disturbance of older waste and spillages of polluting substances (eg whilst refuelling or hydraulic oil released due to plant break down).

2.9.3 Issues might also occur due to extreme weather and this is considered in section 2.8, above.

2.9.4 Background monitoring has shown that levels of landfill gas are generally very low. The site is open and it is expected that if gas were released it will be quickly dispersed. As a precautionary measure staff working on site for most of the day will be provided with personal monitors.

## 2.10 Contact information for the public

2.10.1 The site will have a sign in accordance with the Environment Agency's guidance as stated in section 1.4.6 of the Operational Techniques.

## 2.11 Adaption for Climate Change

2.11.1 The site is not in a flood risk area. As works are to be completed in a period of approximately six months it is not considered necessary to prepare a plan for adapting to climate change over time.

## 2.12 Complaints

2.12.1 Should complaints be received these will be recorded in the site complaint log, recording details of the complainant, the nature of the complaint and the time and date that they noted the issue. A note will also be made of the weather conditions at the time and of the operations that were ongoing on site at the time.

2.12.2 All complaints will be passed to the technically competent manager who will investigate the complaint as soon as possible. They will record whether the compliant

was substantiated, the likely cause and the mitigation but in place to prevent further issues.

2.12.3 The complainant will be informed of the outcome of the investigation and the measures taken, unless they have requested otherwise.

2.12.4 Records will be kept for a minimum of 2 years and will be made available to the Environment Agency on request.

## 2.13 Managing Staff Competence and Training

2.13.1 Section 1.4 of the Operational Techniques discusses staff training. All staff employed on site will undergo an induction, including health and safety and environmental awareness. They will be made familiar with the environmental permit and company procedures relevant to their role. The operation will be supervised by a technically competent manager.

2.13.2 All staff will be competent in their role, for example having appropriate training for operation of site plant.

2.13.3 Records will be kept regarding the training given to each member of staff.

## 2.14 Records

2.14.1 Records will be kept in the site cabin, either as hard copies or in digital format. Back up copies will also be maintained.

2.14.2 Records will include:

- The permit.
- The management system.
- Records of site inspections and audits.
- Records of complaints and subsequent actions
- All incoming (and, if needed. outgoing) loads of waste, including waste type and quantity, and duty of care transfer notes.
- Plant servicing and maintenance.
- Abnormal conditions including plant breakdown or severe weather and the actions taken to prevent pollution or damage.

- Staff training.

2.14.3 Further detail regarding record keeping is included in the Operational Techniques.

## 2.15 Site Condition Report

2.15.1 As the application is for a permanent deposit of waste a formal site condition report is not required. However, details regarding the geology and hydrogeology of the area, appropriate pollution control measures and monitoring are described in the ESSD to demonstrate that the site will be returned to a "satisfactory state".

## 2.16 Review of Management Plan

2.16.1 Site operations are expected to last six months and therefore review of the management plan is unlikely to be required. Nevertheless, the Operational Techniques confirm that Scott Bros Ltd have a formal procedure in place to audit compliance with permit conditions and management procedures on an annual basis.

2.16.2 Should there be an incident on site, such as a pollution event, series of complaints or non-compliance with a permit condition, the technically competent manager will investigate the causes and review and update the management plan to prevent further issues.

## 2.17 Site Closure

2.17.1 The application includes a site Closure Plan showing the site will be restored in accordance with the Waste Recovery Plan and will be planted with grass. The site will undergo a number of post closure inspections to confirm that the site is stable and that plant growth is well established.

## 2.18 Understanding of the Operations on Site

2.18.1 All staff will receive training appropriate to their role as explained in section 2.14, above and in the Operational Techniques. The Management Plan will be available on site for reference.

2.18.2 Records will be kept in the site cabin and will be made available to Environment Agency Officers on request.

2.18.3 Contact details will be provided on the site notice board and information will be made available to members of the public on request, where this is appropriate.

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# Operational Techniques

**Scott Bros Ltd**

**Thorpe Thewles – Deposit of waste for recovery for land improvement**

Site address: Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN

**Environmental Permit Application**

**Port Clarence Triangle Operational Techniques**

**January 2020**

**Document reference: Thorpe Thewles - SOP1**

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# 1. INTRODUCTION

## 1.1 General Introduction

1.1.1 Scott Bros Ltd is applying to be the operator of a waste recovery operation at a site in Thorpe Thewles.

The site relates to a parcel of land of approximately 2.7 hectares to the north of a residential property of 'Fairview' and to the west of Durham Road which is at the northern edge of the village of Thorpe Thewles.

The site is a location of a historic landfill (closed in early 1970s).

The primary purpose of the waste activity is to raise the level of the agricultural land by approximately 1 metre (in some areas) in order to re-profile depressions in the land and to ensure sufficient coverage of appropriate capping material above the in-situ landfill. The character of the site would change from rough grassland to pasture, which is considered appropriate to the landscape setting of this site.

The existing waste mass (historically landfilled waste) is covered by soils to a varying depth, however a review has suggested that this layer thickness is as low as 100mm in places. Note – it is not proposed to be excavating any waste during this activity.

The level of the land will be raised but there will be no significant difference in level to the surrounding fields.

Existing topsoil is to be stripped and stockpiled for reuse following placement of the appropriate inert soils across the site.

A waste recovery plan detailing the levels and approximate amount of waste soils required has been submitted to the Environment Agency for approval as part of this application.

The site has been granted planning permission to the site owner (Mr Michael Lindley) to raise the level of the agricultural land. Planning permission No. 17/2905/FUL.

1.1.2 This waste activity will be operated in accordance with an appropriate Environmental Permit and Planning Permission. The proposed Environmental Permit Boundary is indicated on Drawing 'Thorpe Thewles - Site Plan'. The Environmental Permit Application pertains to the area within the boundary (herein referred to as the site).

1.1.3 The site will only accept non-biodegradable non-hazardous wastes.

Due to the nature of the site and the activity to provide a capping layer to formerly landfilled waste the materials used will have a requirement to be low stone content and so the soils accepted will include selected subsoils with no particles/stones greater than 50mm and a moisture content of less than 35%.

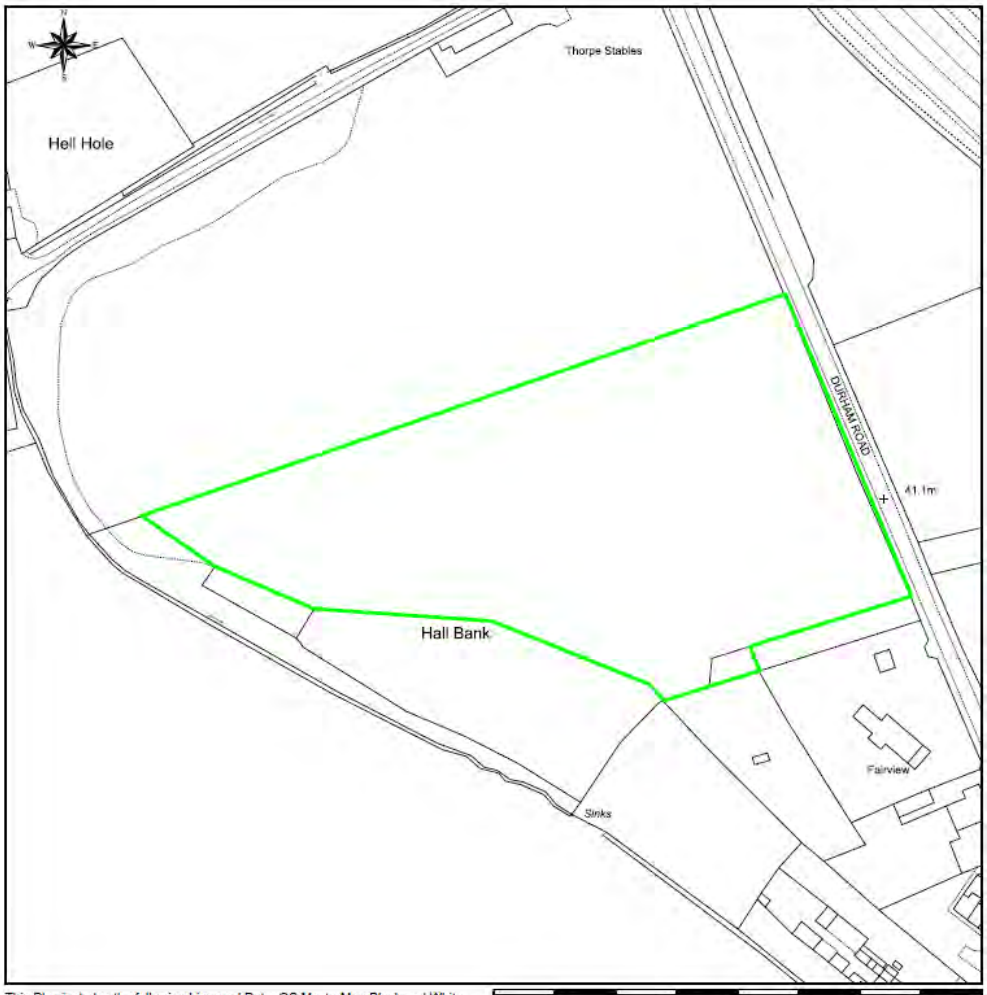
1.1.4 The operation of the site will involve the following process.

- Acceptance of non-hazardous and inert excavation and construction and demolition wastes suitable for use in the land reclamation and capping.
- Placement and spreading of the suitable wastes to pre-agreed levels followed by limited compaction (only through tracked plant).

## 1.2 Site layout and permit boundary

1.2.1 The site is located on land Land Adjacent to Durham Road in Thorpe Thewles, Stockton-on-Tees, TS21 3JN. The centre of the site has the National Grid Reference of approximately NZ 39729 23691.

The site boundary and site layout are shown on the plan with title 'Willow Dene Thorpe Thewles' and is reproduced below for reference.

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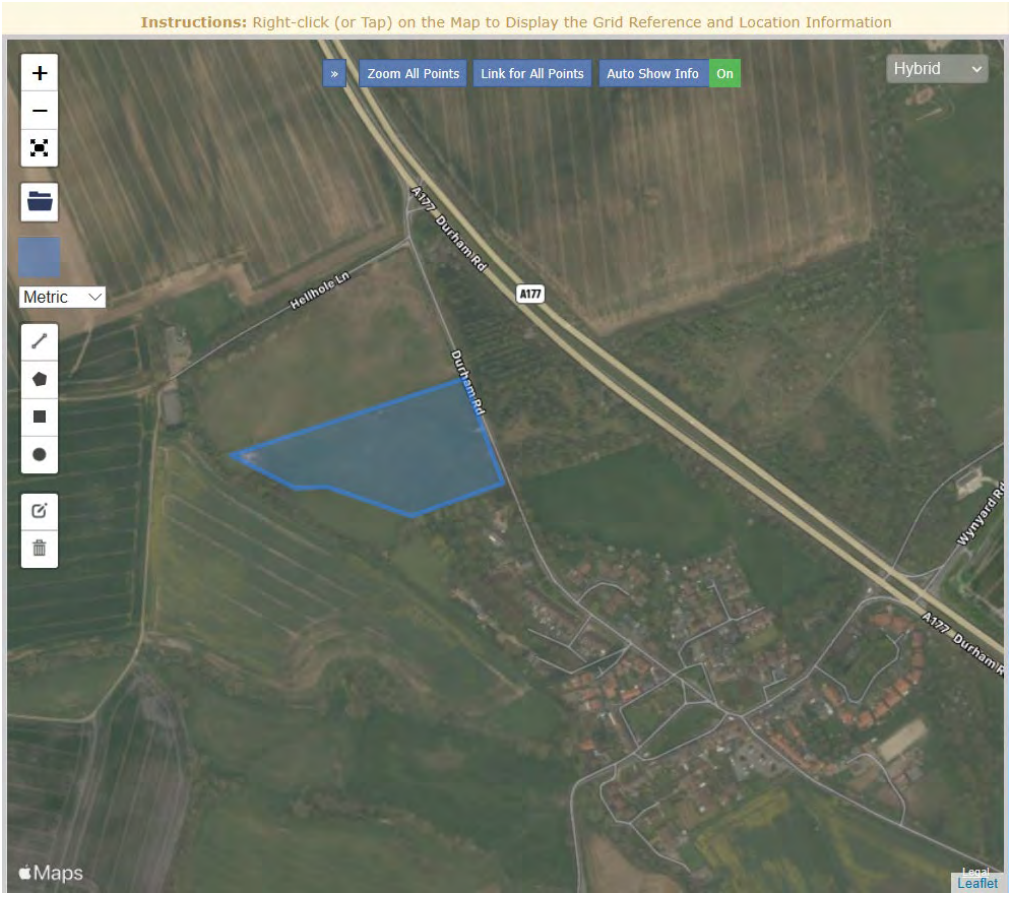



*Gridreferencefinder.com – approximate site boundary shown*

## 1.3 Waste input material – types and quantities

1.3.1 The wastes accepted on to the site for the land improvement recovery work will be non-hazardous inert soil wastes.

These soils will be either direct from local development sites undergoing excavation of soils (EWC codes of either 17 05 04 or 20 02 02) or clays (for example) from soil and inert waste treatment activities (EWC code 19 12 09 (i.e. clay minerals from treatment of naturally occurring soils).

Soils from contaminated land sites will not be accepted. Any soils accepted will be subject to prior chemical analysis to allow assessment of the suitability of the waste for the intended use on site without risk of pollution.

The soils used in the recontouring of the site will need to meet the following earthwork's specification:

- The Manual of Contract Documents for Highways Works, Volume 1: Specification for Highway Works, Series 600 Earthworks.

To ensure compliance with this specification and the planning permission decision, this will include selected subsoils with no particles/stones greater than 50mm and a moisture content of less than 35%.

Note – the soils accepted onto the site are intended to provide a coherent soil mass but not (by themselves) to provide any growing medium for agricultural benefit. The topsoil currently on the site will be scrapped back and re-used following the contouring of the site.

The only other waste that may be accepted during the works will be for on-site infrastructure (such as internal roads and areas of hardstanding). The quantity of this material will be minimised and consist of wastes coded under sub-chapter 17 01 xx and 17 03 02. These will only be retained on site within the deposit if they are deemed not to impair the overall specification of the capping materials placed on to the site.

The acceptable wastes are listed in Appendix 1 Table A1.1.

1.1.5 It is anticipated that the quantities of wastes accepted and placed on site will exceed 200 tonnes per day up to an approximate 1000 tonnes per day. The total quantity of wastes accepted into the site is detailed in the Waste Recovery Plan and is based on set cross-sections and contours.

The following are estimated tonnages are taken from the drawings and WRP:

| | |
|---|---|
| Area of the site: | 27074$m^2$ |
| Cut volume: | 204$m^3$ |
| Fill volume: | 16425$m^3$ |
| Net fill volume: | 16221$m^3$ |
| Net fill tonnage: | 24332 to 27576 tonnes (based on average of 1.5 to 1.7 tonnes per $m^3$) |
| Average fill depth: | 0.6m average across the site |

Note – The above figures do not include the scraping back and storing prior to re-use of the topsoil currently present on the site.

If, after compaction of the waste on-site, a higher conversion rate is more appropriate, then the permitted activity will be permitted to accept the required amount of waste to profile the site to the planning agreed contours.

On some occasions it is anticipated that there will be the requirement for storage of up to 2,000 tonnes of wastes pending placement – especially during times of extended poor weather.

The planning permission requires the works to be completed within six months from commencement. For Scott Bros this commencement will be from the date the permit is issued.

## 1.4 Summary of processes on site

1.4.1 The operation on the site under this permit will involve two activities as detailed below.

Acceptance of suitable non-hazardous and inert excavation or processed waste suitable for use in the recontouring of the site (waste deposit for recovery).

Placement and spreading of the suitable wastes followed by suitable compaction to ensure the earthworks specification is complied with.

Note – the degree of compaction of the soils will be sufficient to remove large voids and to produce a coherent mass whilst preventing over compaction and any build-up of any excess pore pressures (i.e. tracked and not rolled).

1.4.2 All equipment and infrastructure will be subject to an inspection and maintenance programme (see Accident Management section 4.5 and management procedure Scott Bros Ltd/MP/02).

**Waste Framework Directive operational codes**

1.4.3 Although the permit will not be a standard rules, the SR 2015 No. 39 permit for deposit of waste for recovery provides the following WFD recovery and disposal codes which are applicable to the waste operations at Thorpe Thewles:

| Waste activity | WFD recovery and disposal codes |
|---|---|
| Use of waste in deposit (recontouring of site and improvement of land) | R13: Storage of wastes pending the operations numbered R3 and R5<br>R5: Recycling or reclamation of other inorganic materials<br>R10: Land treatment resulting in benefit to agriculture or ecological improvement |

1.4.4 An assessment of Operating Techniques has been undertaken in accordance with Sector Guidance Note S5.06 ‘Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste, Issue 4, December 2004’ relevant guidance on gov.uk website including https://www.gov.uk/guidance/develop-a-management-system-environmental-permits and https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

1.4.5 The Environmental Risk Assessment is included in the document ‘Thorpe Thewles – ERA January 2020.

**Hours of operation**

1.4.6 Material delivery and the waste treatment activities would normally operate for up to 10 hours per day (0800 – 1800), Monday to Friday plus 0900 – 1300 on Saturday – as per restrictions on planning permission. No work will be undertaken outside these hours.

Site loading and unloading operations will not be conducted during the hours of darkness, unless floodlighting of a suitable standard is provided.

Essential maintenance will be carried out as and when necessary and may occasionally take place outside normal working hours. Such maintenance will not be undertaken if the activity is likely to generate any significant noise emissions – due to the site location and nearby receptors.

The facility will clearly display a notice board at the entrance providing the name and contact details of the operator (Scott Bros Ltd); the environmental permit reference; emergency contact details of Scott Bros Ltd and the Environment Agency; and a statement that the site is permitted by the Environment Agency.

**Staffing and understanding of permit conditions**

1.4.7 The site will be operated by personnel conversant with the requirements of the Environmental Permit. All operatives will receive induction and other training appropriate to their roles on site.

1.4.8 Technically Competent Managers (TCM) will manage all waste activities at the site and will hold appropriate operator competence under the CIWM/WAMITAB Operator Competence Scheme or equivalent.

1.4.9 An Environmental Management System (EMS) will be implemented, which includes:

- Quality Management
- Environmental Management
- Health and Safety Management

The EMS provides a mechanism for the environmental management of all areas and departments of the site and allows Scott Bros Ltd to manage and control the environmental impacts of its activities, products and services. Copies of relevant EMS procedures are identified in Appendix 2.

The Quality, Environmental and Health and Safety Policies will be communicated to all employees. Implementation of the system will involve:

- Initial Environmental Awareness Training for all employees.
- Introduction and implementation of the system.

- Identification of any environmental impacts, which is the most significant part of the system and involves a process of identifying key activities, products and services and the associated environmental aspects.
- Identification of any environmental impacts with a plan to prevent or remediate the environmental impacts. A series of targets will be agreed and implemented through site review meetings and be on-going site controls, improvements works or proposed development works.

1.4.10 The system will be regularly audited. An annual audit will be undertaken to cover legal compliance (both environmental and health and safety), environmental improvements and systems compliance. In addition, site performance over the period of the works (expected to be six months) will be assessed. This will be achieved by:

- Establishing compliance with legal commitments, e.g. Environmental Permit and Planning Permission.
- Establishing compliance with relevant legislation, e.g. Environmental Protection (Duty of Care) Regulations 1991.
- Review of Environmental Management Programmes.
- Confirm commitment to continual improvements.

1.4.11 An audit report will be produced and will contain the following information:

- Site Inspection and Health & Safety Audit;
- Incidents Report Support and Review;
- Environment Agency Inspection Summary and Review;
- Review of Environmental Objectives and Performance; and
- Audit findings, conclusion and recommendations.

1.4.12 It is the responsibility of the TCMs to ensure compliance with the EMS and all relevant legislative requirements.

# 2. WASTE ACCEPTANCE PROCEDURES

## 2.1 Pre-acceptance Procedures

2.1.1 Pre-acceptance procedures will ensure that only compliant waste types are accepted. Third parties will be required to provide Scott Bros, in advance, with all necessary information/documentation to satisfy the requirement of The Waste (England and Wales) Regulations 2011 (as amended), including duty of care, and the conditions of the Environmental Permit.

2.1.2 Information required for wastes to be accepted into the Thorpe Thewles use of waste in deposit for recovery facility will include the following specific details:

- Details of the site and type of process producing the waste
- Waste description and appropriate European Waste Catalogue / List of Wastes code*
- The quantity of waste
- The form the waste takes (note – the inputs are limited to solid wastes and will primarily be soils and clay based wastes and do not include wastes consisting solely or mainly of dusts, powders, fibres or wastes in the form of liquids or sludges)
- Chemical analysis of the waste where relevant**
- Specifically for this site – any soil based wastes must have some evidence/confirmation that there are negligible large cobbles/stones present due to the requirement to limit particles greater than 50mm in size.
- Any special handling requirements needed (note – the only waste accepted will be non-hazardous/inert)

* To be acceptable the waste type and relevant EWC / List of Wastes code must be listed as a permitted waste type (detailed in Appendix 1).

** Relevant wastes include any excavated soil from potentially contaminated sites. Such wastes (and any other wastes that have the potential to be contaminated) require the provision of chemical analysis prior to acceptance to allow assessment of the suitability of the waste for the intended use (i.e. use of waste in this deposit activity) without risk of pollution.

2.1.3 A record of all pre-acceptance documentation will be maintained in the Scott Bros site main office (Scott Business Park, Haverton Hill Road, TS23 1PY). Upon arrival of a waste load this documentation will be cross-referenced against details given on the relevant waste transfer notes/season tickets and the contents of the load. Pre-acceptance documentation will be made available for inspection by authorised officers of the Environment Agency. These records shall be kept for a minimum of four years.

2.1.4 Scott Bros will undertake reviews of the pre-acceptance procedures and information to check for their adequacy and accuracy.

## 2.2 Waste Acceptance Procedures

2.2.1 Only wastes which have been subject to the pre-acceptance procedures detailed in section 2.1 will be accepted at the site.

2.2.2 Prior to entering the site all vehicles delivering wastes will be required to 'weigh-in' at the weighbridge located on the site.

If the weighbridge is not available or prior to installation of the weighbridge all vehicles will be required to weigh-in at one of the following sites:

- Scott Bros Norton Bottoms waste management site (Haverton Hill, Billingham, Stockton, TS23 1PX), or
- Scott Bros Tonks Ltd Weighbridge on Haverton Hill Road.

Whilst at the weighbridge, checks will be made to establish whether the haulier is a registered waste carrier. Only registered carriers will be permitted to use the site.

If a weighbridge is not available, or the above weighbridges are deemed to cause too much delay in waste acceptance then Scott Bros may determine that, for this site, the quantity of wastes accepted be based on volume rather than tonnes. Scott Bros will determine volumes of the wastes accepted as accurately as possible. For quarterly waste returns appropriate conversion factors will then be used to generate the return.

2.2.3 Waste will not be accepted if for any reason there is insufficient capacity available or if the site is inadequately manned. This is to ensure that all waste is managed effectively to prevent pollution or loss of amenity.

2.2.4 A suitably trained operator will examine waste descriptions at the weighbridge/reception point and the information will be checked against the pre-acceptance documentation, six figure EWC / List of Wastes code(s) and other details on the waste transfer note/season ticket against the waste types permitted by the Environmental Permit.

2.2.5 The operator will make a visual inspection of all waste loads, where appropriate, before directing the driver to the appropriate unloading area on the Thorpe Thewles site.

2.2.6 Upon off-loading, operatives at the facility must be aware of the type of waste in order for them to carry out a visual inspection, to determine any potential non-conformance with respect to:

- Load security and containment;
- Unexpected components of the waste *(e.g. non-inert items, hazardous items, significant visual contamination etc)*;

- Unacceptable components of the waste – such as more than negligible amounts of particles at or large than 50mm in size;
- Health & Safety and Environmental impact considerations *(including any nuisance such as odour and/or dust)*;
- Compliance with the Duty of Care paperwork and the environmental permit.

When this visual inspection produces no suspect non-conforming waste, then no records are required.

2.2.7 When this visual inspection results in the discovery of non-conforming waste, the operative should contact a Technically Competent Person to allow the investigation and recording of the non-conformance. The non-conforming waste should be handled according to the requirements in Section 2.3.1 to 2.3.6 of this procedure.

2.2.8 There must be no discharge of waste unless a trained operative is present to visually inspect the load.

2.2.9 Following the deposit of the waste the vehicles will proceed to the weighbridge as directed, where they will be re-weighed. This will allow the tonnage of waste delivered to site to be calculated. Note – if the use of a weighbridge is deemed to be causing significant delay then Scott Bros will record volumes of waste as accurately as possible.

2.2.10 Prior to leaving the site all vehicles will go through a wheel wash facility which is located near the entrance of the site.

## 2.3 Handling and control of non-conforming waste

2.3.1 When any visual or sampling inspection results in the discovery of non-conforming waste or components of a waste stream, then this non-conforming waste shall be investigated and a record made.

2.3.2 The ***unacceptable*** non-conforming waste must be stored appropriately in a quarantine area or where possible removed from the site (i.e. not accepted and rejected prior to deposit*).

** If the non-conforming waste is hazardous then the legislative requirements for rejecting hazardous wastes must be followed. This requires the completion of a hazardous waste consignment note.*

2.3.3 The ***unacceptable*** non-conforming waste must be removed from the site as soon as reasonably practicable.

2.3.4 If the deposit of the non-conforming waste causes actual pollution or has the potential to cause pollution then the Environment Agency must be informed as soon as reasonably practicable but within 24 hours of the deposit of the potentially polluting event. Records of the Environment Agency contact and any actions agreed must be recorded.

2.3.5 All instances of rejection of loads or removal of non-conforming waste will be recorded in a site log, which will be made available for inspection by authorised officers of the Environment Agency.

2.3.6 Waste materials dispatched off-site to an authorised facility, will be removed in accordance with The Waste (England and Wales) Regulations 2011. A registered waste carrier will be used. Copies of relevant waste transfer notes will be maintained.

## 2.4 Records

2.4.1 The site will operate a digital record system logging all the details of the acceptance procedure.

2.4.2 Copies of all records required in accordance with the Environmental Permit will be maintained in a digital site log. The site log and any back-ups will be kept in a dedicated office.

2.4.3 Weighbridge tickets and transfer notes (either hard copy or digital) will be retained.

## 2.5 Avoidance, recovery and disposal of wastes

The primary aim of the waste operation on site (the use of waste in a deposit for recovery activity) is to promote the recovery of wastes and to avoid the direct disposal of any wastes. There is not expected to be any significant amounts of wastes generated on the site but, for any wastes generated, Scott Bros will implement the following measures to ensure that the waste hierarchy is applied to the generation of wastes by the activities on site.

2.5.1 Scott Bros Ltd will identify, quantify and characterise any wastes arising from the Thorpe Thewles facility.

2.5.2 Scott Bros will use Government and regulator guidance on the implementation of the Waste Hierarchy to decide how each waste stream is to be recovered or disposed of. Any disposal of waste from the facility will need to be justifiable (for example, explaining why recovery is technically or economically difficult and to describe the measures planned to avoid or minimise any impact to the environment).

2.5.3 Scott Bros Ltd will review and record at least every four years whether changes to these measures should be made and take any further appropriate measures identified.

# 3. WASTE STORAGE AND HANDLING PROCEDURES

## 3.1 Use of waste in deposit for recovery – recontouring the land above a former landfilled waste

3.1.1 Following the waste acceptance procedures at the weighbridge/reception point any waste load deemed suitable for use in the use of waste recovery activity will be sent directly to the appropriate location for unloading.

3.1.2 The load will be tipped under the supervision of a site operative and a visual inspection (as described in section 2.2.6) will be undertaken. Any non-conforming waste should be handled according to the requirements in Section 2.3 of this procedure.

3.1.3 There will be no intention for long-term stockpiling of soils and wastes that will be used in the activity. The only reason that any extended storage is likely to happen is due to periods of poor weather conditions. The maximum volumes for storage have been set at 2000 tonnes.

3.1.4 To minimise the potential for dust generation during movement and storage of wastes, the following measures will be implemented (as deemed relevant):

- The wastes accepted will predominantly be clay based and not likely to cause dust issues whilst they retain the natural moisture content and so all efforts will be made to utilise the wastes in the deposit activity and prevent the wastes from drying out;
- The orientation of long stockpiles will be placed in the direction of the prevailing wind;
- During times of high winds stockpiles will not be disturbed;
- The maximum height of a stockpile will be considered, depending on the wastes/materials being stored;
- All operations will be carried out with regard to prevailing climatic conditions;
- Dust suppression of stockpiles may be carried out using a water bowser if deemed necessary.

# 4. MANAGEMENT MEASURES

## 4.1 Facilities and PPE

4.1.1 The facility will have secure cabin accommodation to provide the following facilities:

- Secure storage of files, computer hardware, sundry supplies and equipment
- Staff toilet and canteen area
- Telephone
- First aid
- Water supply

4.1.2 Site employees and visitors will be required to wear appropriate Personal Protective Equipment (PPE) including:

- Hi visibility vests or jackets; Safety boots; Hard hat

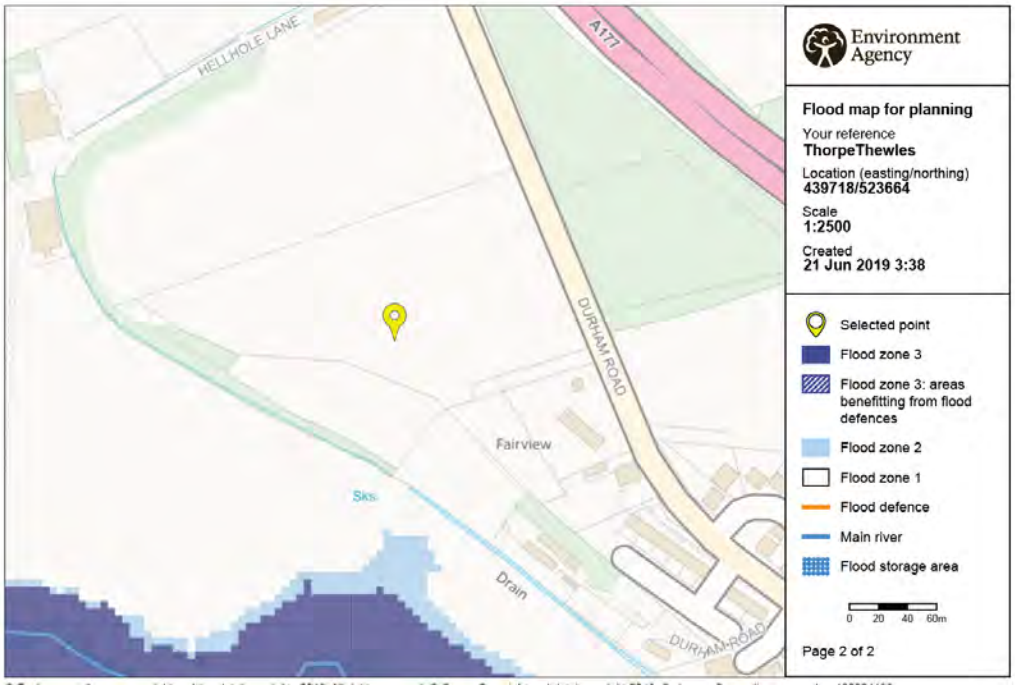
## 4.2 Site drainage, leachate control and landfill gas control

**Site drainage**

4.2.1 The site comprises a former landfill site with partially open un-surfaced ground. With the wastes accepted being uncontaminated and predominantly inert then any water present will not be contaminated and so the water arising on the site is primarily allowed to drain to ground (i.e. rainwater allowed to drain away through soft ground). The main concern would be in periods of extended or significant rainfall on areas where clay-based soils have been emplaced there may be some pooling of water and water run-off. Scott Bros will endeavour to reduce the potential for any pooling of water through the correct recontouring of the site and reduce water run-off by replacing the topsoil on the site as soon as an area is completed. If any significant water run-off is noted, then temporary ditches may need to be constructed to slow water progress and reduce any run-off from the site.

Monitoring of the site work will be undertaken daily to look for any run-off from the site. These daily checks will be recorded as part of the site log/diary.

Note – the site is in flood zone 1 – which means only a low probability of flooding as confirmed by the map and information below (taken from the Guv.uk Flood Map for Planning).




4.2.2 The activity is a use of waste in a deposit for recovery activity and thus there is no requirement for any impermeable surfaces or sealed drainage systems. All spillages will be managed according to the accident management requirements in section 4.5.

**Leachate control**

4.2.3 The production of any leachate or contaminated water from site activities is considered negligible due to the acceptance of non-biodegradable inert wastes. However, due to the site being a former landfill then there is a low risk of leachate from within the landfill being released.

A landfill gas and leachate preliminary risk assessment[1] associated with the development - i.e. the placement of c.0.60m of soils on top of a historical landfill site containing domestic household and commercial waste for future agricultural use – has been generated. Section 3.1 of this risk assessment provides the assessment of risk and control measures for the potential for leachate release from the waste mass.

The report identified a potential risk to adjacent surface water features from potential leachate generated during the groundworks from ground disturbances. The specific risk identified included the removal of the topsoil and releasing perched leachate.

The risk assessment included the following statements and control measures:

- There will be no excavation of waste during this project, with the only materials being removed are the existing topsoil layer on the site (for re-use once recontouring undertaken);

[1] Preliminary Risk Assessment (November 2018) for land adjacent to Durham Road, Thorpe Thewles

- The site currently shows no signs of the leachate outbreak and the existing soil cover is minimal in thickness;
- It was included that, therefore, if there were to be outbreaks they would expect to be visible at present.
- Monitoring on the site is to be undertaken on a daily basis to look for any leachate outbreaks;
- If leachate is identified , the area is to be isolated, a bund formed around it and leachate tankered from the site to a suitably permitted facility for treatment.

The daily checks will be recorded as part of the site log/diary.

4.2.4 A baseline surface water contamination assessment has been undertaken at the site[2]. This Baseline Surface Water Contamination Assessment has been completed to allow future monitoring of adjacent surface water features which represent the primary sensitive receptors. The surface water features flow from roughly northwest to southeast past the landfill site.

Completion of surface water sampling and screening from adjacent surface water courses (unnamed drain / stream which bounds the site and Thorpe Beck located c.125m to the south). The samples were recovered upstream, adjacent and downstream of the landfill site.

The surface water screening results suggest that the levels of contaminants recorded are not associated with any potential pollutants contained within the Historical Landfill and originate somewhere further upstream of the site.

These results can be used as a baseline comparison during the programme of groundworks.

Extreme care and appropriate precautions should be taken not allow any leachate entering the surface water features during the groundworks as outlined within the Preliminary Risk Assessment provided.

4.2.5 Following completion of the works, or as deemed necessary during the works, a further surface water contamination assessment at the same locations will be undertaken to provide evidence that the activity has not impacted on the quality of the surface water.

4.2.6 The facility is not located within a groundwater source protection zone.

4.2.7 There is no fuel storage on site. All plant and equipment are refuelled by a diesel tanker coming on to site. Such refuelling will be undertaken by trained personnel who are fully aware of the spillage clean-up requirements in the accident management section 4.5.

[2] Baseline Surface Water Contamination Assessment - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN, project number 19-279, dated 16th April 2019 by Arc Environmental Ltd

**Landfill gas control**

4.2.6 Due to the site being a former landfill that accepted biodegradable waste then there is a risk of landfill gas from within the landfill being released during the activities on the site.

A landfill gas and leachate preliminary risk assessment[3] associated with the development has been generated. Section 3.2 of this risk assessment provides the assessment of risk and control measures for the potential for landfill gas release from the waste mass.

It should be noted that the site has accepted wastes which may be generating landfill gas, albeit this is expected to be minimal given the 45 years that have passed since the site was completed. Given the lack of cover on the site it is possible that landfill gas could be venting naturally from the site. The assessment looks specifically at the impacts for the placement of the soil layer above the existing waste mass.

The primary risks identified were lateral migration of gas following the placement of the soil layer and migration through the soil layer to the vegetated surface (although currently there is no die-back of any vegetation on the surface).

A soil and gas survey (as detailed in section 4.2.7) recorded methane in two locations across the site (locations 15 and 27) at 2.1% and 2.7% respectively. The remaining locations did not record any landfill gas. Location 15 is towards the southern boundary and location 27 is slightly west of the middle of the site. This suggests that significant (and especially methane rich) landfill gas is not present is significant volumes or locations.

However, the primary environmental concern would be odour from any landfill gas released from the site.

Daily (and ongoing) checks for odour will be undertaken. The primary requirement will be to check whether there is any such odour at the boundary of the site.

If any such odour is noted and is also noted at the boundary of the site, then the works will stop, and an assessment made – by a competent person – as to the way to proceed. This may involve installation of gas control measures in the relevant part of the site (such as vents or trenches).

No works will continue in the affected area of the site until the appropriate control measures have been implemented.

Note – if the landfill gas release / odour appears to be due to opening up of the waste mass then an initial action would be to recover that location.

[3] Preliminary Risk Assessment (November 2018) for land adjacent to Durham Road, Thorpe Thewles

4.2.7 Monitoring of the waste mass has been undertaken to quantify the risk and to provide a crude baseline soil and gas vapour survey[4] (SGVS). This survey was primarily to determine whether the historical landfill is still gassing and how this may affect groundworkers. Overall 40 survey positions over a period of low and falling atmospheric pressure were undertaken.

From the results of the SGVS concentrations of Carbon Dioxide and Methane have been recorded at 13 no. and 2 no. positions respectively of 40 no. monitoring positions which exceed occupational health criteria.

Therefore, it is recommended that continued gas monitoring and sufficient gas alarms (to sound when oxygen levels become depleted) are used throughout the groundworks programme to alert groundworkers to any short term or long ground gas risks.

## 4.3 Defined procedure for preventative maintenance and inspections

4.3.1 The site shall be subject to a daily inspection for the following environmental issues:

- Litter and debris
- Mud on access roads into the site
- Malodours
- Pets infestations (flies, rodents, birds etc)

4.3.2 Resources shall be made available for the prompt correction of any issues. This will include but not be limited to the following examples:

- Repairs to fencing or any security measures implemented on the site
- Tidying and collection of litter or debris and appropriate disposal
- Road sweeping of any significant mud on the access roads as and when needed
- Determination of reasons for any malodours on site and determination of the most appropriate corrective measure (such as removal or covering of malodourous waste)
- Appropriate pest control measures

4.3.3 The observations made during daily inspections shall be recorded in the site log book, along with measures undertaken to correct failures or shortcomings.

4.3.4 A preventative inspections and maintenance plan shall be implemented (management procedure reference ‘Scott Bros Ltd/MP/02’) for the following

[4] Soil Gas and Vapour Survey - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN, project number 19-279, dated 5th April 2019 by Arc Environmental Ltd

mechanical diesel powered equipment used in the use of waste deposit for recovery activity:

- Loading shovel
- Excavators

## 4.4 Amenity issues including noise, odour, mud, litter, pests and vermin

**Noise and vibration**

Although significant noise or vibration outside the boundary of the site is not considered likely to be an issue there remains potential sources of noise and appropriate mitigation measures as necessary.

4.4.1 Potential sources of noise at the site comprise:

- Engine noise from the heavy plant including loading shovels and excavators
- Vehicle noise during deliveries and dispatch of waste

4.4.2 Mitigation measures to overcome noise issues comprise:

- Use of heavy plant only during daylight hours and within the planning permission working hours – i.e. no activities on Sundays or Bank Holidays or Saturdays after 1pm.
- Effective maintenance and inspection of plant and equipment to prevent emissions and to ensure meeting manufacturer's specifications or required standards.
- Appropriate ear protection will be provided to visitors and site operatives as deemed necessary during certain activities.
- If significant noise or vibration is noted outside the site at levels likely to cause pollution then Scott Bros Ltd will generate and implement a noise and vibration management plan*. This plan will describe appropriate measures to prevent, or where that is not practicable, to minimise, any noise and vibration.
- If Scott Bros receive any complaints regarding noise or vibration from activities on the site then the complaint will be investigated and appropriate measures to reduce or eliminate the noise or vibration will be implemented.

** The noise and vibration management plan will show the sources of the noise and the risks to the receptors, in addition to the control measures that will be employed to minimise or prevent the noise or vibration. Control measures implemented may include monitoring noise levels at different time and places; ensuring appropriate*

*maintenance of equipment and plant; consideration of working hours and location of work on site; carrying out noise surveys; etc.*

**Odour**

Due to the types of wastes accepted, odour outside the boundary of the site is not considered likely to be an issue. The issues that may cause odour will be the presence and possible disturbance o the landfill waste beneath the surfacing of the site. Therefore, the following provide some potential sources of odour and appropriate mitigation measures as necessary.

4.4.3 Potential sources of odour at the site comprise:

- Landfill gas emanating from the waste mass following disturbance or placement of soils
- Landfill leachate outbreaks from the waste mass
- Diesel fumes from plant and vehicles
- Non-conforming wastes

4.4.4 Mitigation measures to overcome odour issues comprise:

- Please refer to sections 4.2.3 for the controls on leachate outbreaks.
- Please refer to sections 4.2.6 for the controls on landfill gas issues.
- Daily appraisal of odour during site inspection.
- Use of heavy plant only during daylight hours.
- Effective maintenance and inspection of plant and equipment to prevent emissions and to ensure meeting manufacturer's specifications or required standards.
- If significant odour is noted outside the site at levels likely to cause pollution then Scott Bros Ltd will generate and implement an odour management plan*. This plan will describe appropriate measures to prevent, or where that is not practicable, to minimise, any odour.
- If Scott Bros receive any complaints regarding odour from activities on the site then the complaint will be investigated and appropriate measures to reduce or eliminate the odour will be implemented.

** The odour management plan will show the sources of the odour and the risks to the receptors, in addition to the control measures that will be employed to minimise or prevent the odour. Control measures implemented will include those mentioned above and be dependent on the specific issue (i.e. whether leachate or landfill gas, for example).*

**Dust, mud and litter**

Due to the type of operations on site and waste types accepted emissions of dust and mud may cause some issues on-site and outside the boundary of the site.

Litter arising from the site is not considered to be a significant issue.

The following provide some potential sources of dust, mud and litter and appropriate mitigation measures as necessary.

4.4.5 Potential sources of dust and mud at the site comprise:

- Inert and non-hazardous wastes acceptable within the permit may have minor dusty constituents.
- Prolonged period of dry weather or strong winds may promote the generation of dusts especially through vehicle movements or from stockpiled wastes and materials.
- Soil and materials processing/moving.
- Vehicles tracking mud outside the site.

Potential sources of litter at the site comprise:

- Non-conforming wastes.
- Poor management of site generated waste.

4.4.6 Mitigation measures to overcome dust, mud and litter issues comprise:

- Hardsurfaced road entering the site.
- Site access road inspected daily and a motorised sweeper brought in to clear any mud, litter or debris when required.
- Provision of suitable running surfaces within the site (hard surfacing or compacted inert aggregate surface) – as long as this does not determent the capping / recontouring materials use in the site.
- Require use of wheel wash facilities for vehicles leaving site.
- The acceptance of wastes consisting solely or mainly of dusts, powders or loose fibres are prohibited.
- Minimise or reduce potential dust impact of stockpiled materials by means limited stockpiling, maximum heights, sprays, binders, windbreaks, careful siting in relation to sensitive receptors, controlling the moisture content of the material delivered and orientation of long stockpiles in the direction of the prevailing wind.
- Transport of material to and from site in sheeted vehicles when carrying potentially dusty loads.
- Avoid potentially dusty activities during periods of high wind and consider the siting of operations with respect to the prevailing wind direction.
- Materials acceptable have a low potential for containing litter and visual inspections on all loads accepted to determine any non-conforming components/wastes including litter.
- Good housekeeping including the secure containment of site generated wastes, inspection and collection of loose wastes.

- Litter picking any affected areas as required.
- If significant dust emissions or mud on the access roads is then Scott Bros Ltd will generate and implement an emissions management plan*. This plan will describe appropriate measures to prevent, or where that is not practicable, to minimise, any such emissions.
- If Scott Bros receive any complaints regarding dust, mud or litter from activities on the site then the complaint will be investigated and appropriate measures to reduce or eliminate the dust, mud or litter will be implemented.

** The emissions management plan will show the sources of the emissions (dust or mud on road, for example) and the risks to the receptors, in addition to the control measures that will be employed to minimise or prevent the emissions. Control measures implemented will include those mentioned above.*

**Pests and vermin**

Pests and vermin are typically associated with waste management facilities through the availability of food wastes. Due to the inert and non-biodegradable waste types accepted at the site, the attraction for pests and vermin is low. However, because the site has formerly accepted biodegradable wastes there is the potential to attract vermin and birds especially when opening up the waste mass.

4.4.7 Pests and vermin will be further discouraged from the site through the following measures:

- Human activity on the site (continual disturbance during daylight hours).
- Minimising the time that the waste mass is open – i.e. placement of suitable soils as part of the recontouring of the site as soon as practicable after removing the topsoil form that location/area.
- Full containment of any non-conforming wastes or site generated wastes that may attract vermin or pests.
- Daily inspection of the site for signs of the presence of vermin/pests.
- Contract pest control measures will be employed if vermin etc. become persistent or problematic.

## 4.5 Accident management

4.5.1 The facility will be operated in accordance with this site accident management section. This section details measures to be taken in the event of an accident or equipment failure on site (for example, spillage of oil, breakdown of loading equipment, etc) that may cause environmental pollution. This accident management section is based on the risks and amenity issues raised in section 4.4 and the site specific risk assessment carried out to identify potential hazards arising from the waste treatment and restoration activities.

4.5.2 A preventative inspections and maintenance plan shall be implemented (management procedure reference 'Scott Bros Ltd/MP/02') for all plant and equipment on-site. This procedure includes the following requirements:

- All plant defects and breakdowns will be reported to the Team Leader, who will enter such in the Site Log and arrange for maintenance/repair as soon as is practicable.
- All maintenance and repairs will be carried out in a manner which does not present a risk to the environment. For example all oils will be drained into a sealed container and disposed/recycled appropriately.
- Contractors carrying out repairs on the site will be verbally made aware of these requirements prior to work commencing. The Team Leader is responsible for ensuring that this procedure is complied with.
- If the breakdown or malfunction of any plant or equipment is likely to cause pollution then the Environment Agency will be contacted immediately and mitigation measures put into place to minimise any potential pollution.

4.5.3 All chemical or oil spillages will be cleaned up immediately. All such spillages will require excavation of any contaminated soils and aggregates and placement in a secure container. Such materials will then be sampled and tested (as necessary) to determine the levels of contaminants and potential classification of the waste. All such wastes will be removed from site and disposed of appropriately.

4.5.4 All complaints received will be handled, recorded and corrective actions implemented as per management procedure Scott Bros Ltd/MP/06.

4.5.5 Appropriate mitigation measures (as described in section 4.4) will be implemented to in the event of any emission of noise, vibration, odour, dust, mud or litter that has caused, is causing or may cause significant pollution at or outside the boundary of the site.

4.5.6 Any problem or incident that might affect the environment will be dealt with as a non-conformance as detailed in the management procedure Scott Bros Ltd/MP/05.

**Fires**

4.5.6 No fires are permitted at the facility. No combustible waste types are acceptable.

4.5.7 An appropriate fire assembly point will be determined external to the site weighbridge/reception point. Fire extinguishers and sand will be made available as deemed necessary - at the weighbridge/reception point and other strategic points within the facility.

4.5.8 Any fire will be treated as an emergency. In the event of a fire being discovered, the Emergency Services and the Environment Agency will be contacted. Staff will attempt to control/extinguish the fire using available extinguishing materials (if trained to do so), failing this they will evacuate the working area and relocate to the fire assembly point. The site will be closed until the fire is extinguished and the cause of the fire investigated. The site will only be reopened following approval from the Emergency Services.

**Site security**

4.5.9 Scott Bros Ltd will maintain on-site security presence outside the operational hours of the site (overnight and at weekends).

4.5.10 All plant will be stored on site at the end of each working day. All plant will be appropriately disabled when stored to prevent any trespasser from starting and moving the plant and to prevent potential injury.

4.5.11 All visitors to the site are to present themselves to the weighbridge/site reception point and sign in as authorised to be on site.

**Flooding**

4.5.12 The site is in flood zone 1 – which means only a low probability of flooding as confirmed by the map and information in section 4.2.1.

4.5.13 Any event of flooding will be treated as an emergency.

4.5.14 If any flooding of the site is occurring or imminent, Scott Bros will prevent access to those areas of the site and ensure all plant and equipment is moved to areas not affected by flooding. A review of the current operations and waste materials on the site will be taken to determine whether any further precautionary measures will be required.

## 4.6 Reporting to senior management

4.6.1 All data relating to the operation of the facility will be recorded in the site log book and through the weighbridge system. The contents of the log book will be transferred to a digital database on a weekly basis as a minimum. The database will be accessible to all Senior Management for review and scrutiny.

4.6.2 The contents of the database will also be made available for inspection by the Environment Agency, upon request.

# APPENDIX 1 – LIST OF WASTE TYPES TO BE ACCEPTED

## Use of waste in deposit for recovery

The expected waste types are likely to fall within a more restrictive list as detailed in Table 2 of the waste recovery plan for the actual recontouring/capping type coverage of the site:

| Waste code | Description of waste |
|---|---|
| 01 | WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS |
| 01 04 | wastes from physical and chemical processing of non-metalliferous minerals |
| 01 04 09 | waste sand and clays |
| 17 | CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES) |
| 17 05 | soil (including excavated soil from contaminated sites) stones and dredging spoil |
| 17 05 04 | soil and stones other than those mentioned in 17 05 03 |
| 17 05 06 | dredging spoil other than those mentioned in 17 05 05 |
| 19 | WASTES FROM WASTE MANAGEMENT FACILITIES, OFF SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION / INDUSTRIAL WASTE |
| 19 12 | wastes from the mechanical treatment of wastes |
| 19 12 09 | minerals (for example sand, stones) |
| 19 12 12 | soil substitutes other than that containing hazardous substances only (not aggregate and gravels) |
| 20 | MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, |
| 20 02 | garden and park wastes |
| 20 02 02 | soil and stones |

The soils used will be inert uncontaminated soils. These soils will be either direct from local development sites undergoing excavation of soils (EWC codes of either 17 05 04 or 20 02 02) or clays (for example) from soil and inert waste treatment activities (EWC code 19 12 09 (i.e. clay minerals from treatment of naturally occurring soils)).

All waste soils will only be accepted if its chemical, physical and biological characteristics make it suitable for its intended use on the site. Any excavated soils from potentially contaminated sites will, by prior chemical analysis and assessment, be determined whether it is suitable for use on the site without any risk of pollution. All wastes will be visually inspected on arrival and at the point of deposit to ensure that it complies with the description in the documentation supplied by the producer

and holder and that it is listed as an acceptable waste. The visual inspection will also consider the requirement for no significant presence of particles greater than 50mm in size.

The only other waste that may be accepted during the works will be for on-site infrastructure (such as internal roads and areas of hardstanding). The quantity of this material will be minimised and consist of wastes coded under sub-chapter 17 01 xx and 17 03 02. These will only be retained on site within the deposit if they are deemed not to impair the overall specification of the capping materials placed on to the site.

Therefore, the following full list of wastes codes is being applied for within the permitted activity:

**Exclusions**

Wastes having any of the following characteristics shall not be accepted:

- Consisting solely or mainly of dusts, powders or loose fibres
- Wastes that are in a form which is either sludge or liquid

| Waste code | Description of waste |
|---|---|
| 01 | WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS |
| 01 01 | wastes from mineral excavation |
| 01 01 02 | Wastes from mineral nonmetalliferous excavation - Restricted to waste overburden and interburden only |
| 01 04 | wastes from physical and chemical processing of non-metalliferous minerals |
| 01 04 08 | waste gravel and crushed rocks other than those mentioned in 01 04 07 |
| 01 04 09 | waste sand and clays |
| 10 | WASTES FROM THERMAL PROCESSES |
| 10 12 | wastes from manufacture of ceramic goods, bricks, tiles and construction products |
| 10 12 08 | Waste ceramics, bricks, tiles and construction products (after thermal processing) |
| 10 13 | waste from manufacture of cement, lime and plaster and articles and products made from them |
| 10 13 14 | Waste concrete |
| 17 | CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES) |
| 17 01 | concrete, bricks, tiles and ceramics |
| 17 01 01 | concrete |
| 17 01 02 | bricks |
| 17 01 03 | tiles and ceramics |
| 17 01 07 | mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06 |
| 17 03 | bituminous mixtures |
| 17 03 02 | Bituminous mixtures other than those mentioned in 17 03 01 – road planings only |
| 17 05 | soil (including excavated soil from contaminated sites) stones and dredging spoil |
| 17 05 04 | soil and stones other than those mentioned in 17 05 03 |
| 17 05 06 | dredging spoil other than those mentioned in 17 05 05 |

| | |
|---|---|
| 19 | WASTES FROM WASTE MANAGEMENT FACILITIES, OFF SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION / INDUSTRIAL WASTE |
| 19 12 | wastes from the mechanical treatment of wastes |
| 19 12 09 | minerals (for example sand, stones)<br>Restricted to wastes from treatment of waste aggregates and soils that are otherwise naturally occurring minerals. Does not include fines from treatment of any non-hazardous waste or gypsum from recovered plasterboard. |
| 19 12 12 | soil substitutes other than that containing hazardous substances only<br>Restricted to wastes listed in 191212 waste types in Table A1.2<br>Metal from reinforced concrete must be removed. |
| 20 | MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, |
| 20 02 | garden and park wastes |
| 20 02 02 | soil and stones |

Note – the soils accepted onto the site are intended to provide a coherent soil mass but not (by themselves) to provide any growing medium for agricultural benefit. The topsoil currently on the site will be scrapped back and re-used following the contouring of the site.

## APPENDIX 2 – LIST OF KEY EMS PROCEDURES

The following procedures policies and documents will be implemented as part of the management system for Thorpre Thewles.

| Procedure title | Reference | Version and date |
|---|---|---|
| Environmental policy statement | Scott Bros Ltd/MP/POL | |
| Operations activities | Scott Bros Ltd/MP/01 | |
| Plant and equipment | Scott Bros Ltd/MP/02 | |
| Training procedure | Scott Bros Ltd/MP/03 | |
| Contractor use and supplier approval | Scott Bros Ltd/MP/04 | |
| Non-conformance | Scott Bros Ltd/MP/05 | |
| Complaints procedure | Scott Bros Ltd/MP/06 | |
| New facilities and process change | Scott Bros Ltd/MP/07 | |
| Management structure | n/a | |
| Skills and competencies | n/a | |

# APPENDIX 3 – SOILS ASSESSMENT PROCEDURE

## 1. INTRODUCTION

### 1.1 Purpose

The purpose of this procedure is to ensure that a consistent approach is undertaken for the assessment of soils for the potential use in this activity.

***Note – this procedure considers the chemical make-up of the soils and does not consider the geotechnical properties of the soil.***

***A further requirement for the wastes accepted and used within the recontouring of the site is the lack of any more than negligible presence of stones and cobbles of 50mm and above. This restriction will need to predominantly undertaken through (1) photographs or site visits to see the soils prior to acceptance and (2) comprehensive visual inspection on the Thorpe Thewles site.***

***Where such information is available at the chemical assessment stage then there will be appropriate notes (and risks) detailed within the waste characterisation assessment at the site.***

### 1.2 Principles of the use of soils wastes for reclamation activities

**Soil wastes**

The following overarching principles will be used in the assessment procedure for the determination of whether a soil waste is suitable for use in recontouring the site at Thorpe Thewles:

- NON-HAZARDOUS

  For any soil waste used in a construction activity the soil must be classified as non-hazardous in accordance with the Hazardous Waste (England & Wales) Regulations 2005 (as amended) which implements the definition of 'hazardous waste' in the revised Waste Framework Directive (2008/98/EC)

- SUITABILITY FOR USE WITHOUT RISK OF POLLUTION

  For any soil waste to be used in construction the potential contaminants of any soil waste must, by prior chemical analysis and assessment, be suitable for the intended use without significant risk of pollution.

  ** A table of guideline concentrations below which a soil waste would be classified as suitable for reclamation is used within the assessment procedure. This has been developed for a range of common analysis determinants of soil. The table of guideline concentrations and the principles used to develop the guideline concentrations are provided in Table A.*

- CONSIDERATION OF THE END USE OF THE SITE

  The guideline concentrations in Table A have been derived from published sources and take into account the risk posed by an agricultural proposed end-use of the site following construction (i.e. grazing land) and the location of the site.

### 1.3 Responsibility

It is the responsibility of nominated managers of any staff performing waste assessments to ensure that staff carry out the requirements of this procedure and ensure assessments are recorded as necessary.

Any soil waste enquiry that does not meet the requirements as laid out in this procedure, or where any concerns with making such a determination exist, the waste must not be used for this land recontouring purpose.

### 1.4 Training/competence

Any person undertaking waste and soil assessments that should be applied to a waste must be trained in following this procedure and in the characterisation and assessment of wastes.

The waste assessor must have a comprehensive understanding of the following technical aspects of soil waste assessments:

- Review of site investigation reports
- Reviewing laboratory analytical reports
- Hazardous properties and hazardous waste assessment
- EWC / List of Wastes code assessment
- Waste and soil sampling objectives and requirements
- Waste acceptance criteria suite and results

## 2. ASSESSMENT PROCESS

The assessment process for each and every soil waste stream must follow a series of steps as detailed in the decision tree within this procedure. The decision tree describes the steps that must be taken during the determination of whether a soil waste is suitable for construction purposes.

This procedure does not cover the standard assessment steps that must be taken for all wastes to ensure the waste is acceptable such as the requirements for basic characterisation of the waste, the hazardous waste assessment and any site-specific requirements.

The procedure does not cover the assessment of the suitability for use in a geotechnical or physical manner – e.g. the presence of absence of cobbles or stones at 50mm or greater. However, where information is available on the make-up of the soils then this will be provided as part of the assessment.

## 2.1 Use of soils wastes for deposit for recovery (recontouring of the Thorpe Thewles site) – Initial confirmation requirements

### 2.1.1 Confirm that the soil waste is not classified as hazardous

- Soil will not be accepted from sites where any significant contamination appears to be present and there is no robust opportunity for segregation. If there is any risk of accepting 'contaminated' soils then the soils enquiry will be declined for the Thorpe Thewles site.
- All soils accepted will require accompanying chemical analysis data on the soils so that confirmation of the classification as non-hazardous is able to be undertaken. The assessment of the soils will comply with the Technical Guidance WM3 on the classification and assessment of wastes.
- Only analysis and information representative of the non-hazardous soils arising from the site is suitable for use in the determination for recovery use for the non-hazardous soils. If sufficient analysis or information is not available for the soil waste to make an adequate assessment - then the waste must not be approved as suitable for construction use unless further information and/or analysis is provided (and subsequently determined as acceptable).

### 2.1.2 Assessment of chemical constituents of a soil waste

Following appropriate classification as non-hazardous as detailed in section 2.1.1 the soil for recovery decision tree below should be used to assess whether the soil waste is suitable for use.

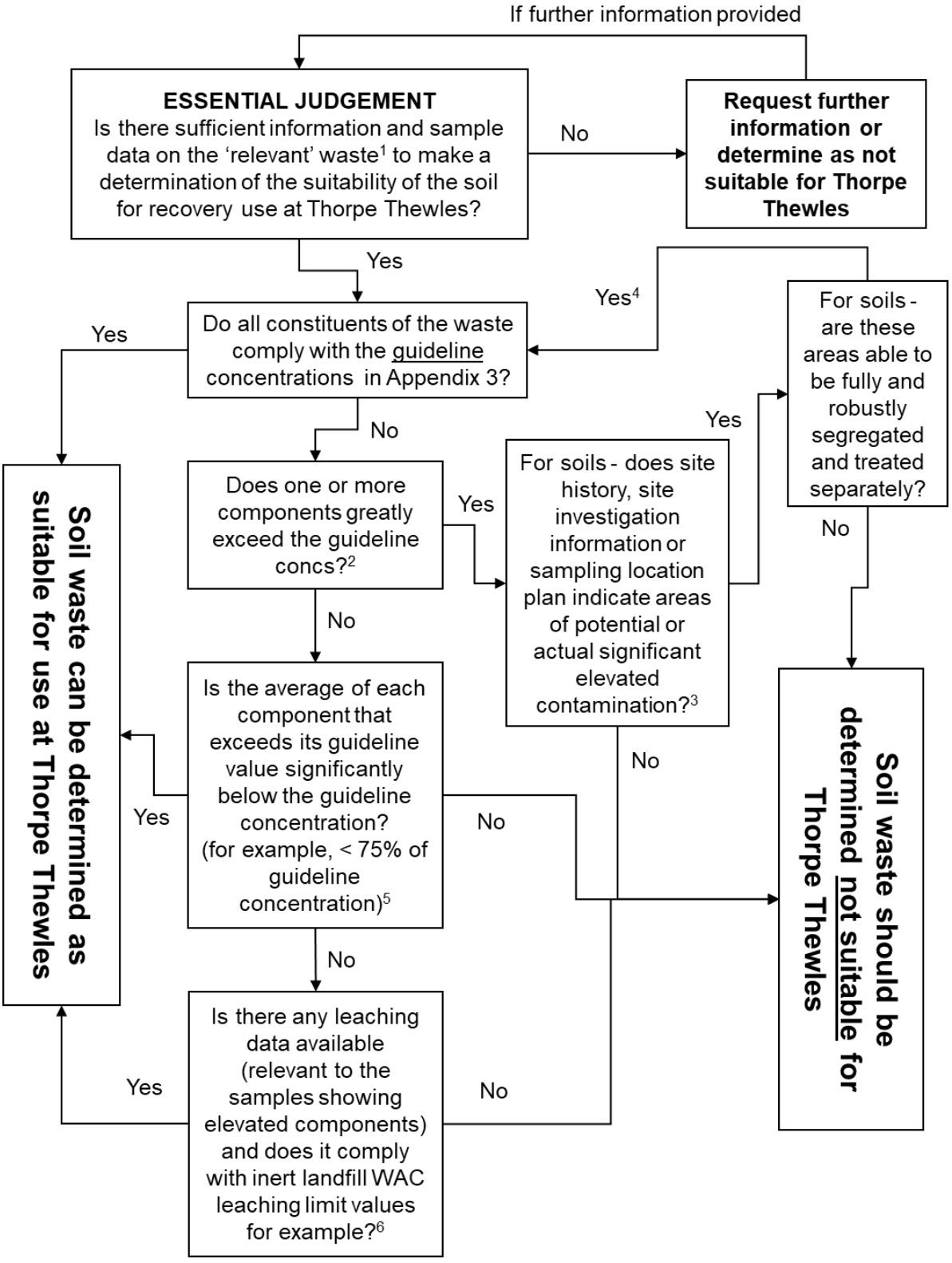
This assessment decision tree is used to assess the suitability for use in the recovery activity at Thorpe Thewles based on the analytical data accompanying the waste.

A judgement of the adequacy of the information provided must be made prior to the determination. For any determination as 'suitable for recovery deposit' there must be sufficient information available that can be retained as evidence to justify such a decision.

The assessment requires consideration of the different constituents in the waste and whether the presence of these constituents is likely to be contrary to any of the principles for determination of the suitability for use. The assessment uses some guideline concentrations for specific constituents.

If these guideline concentrations are exceeded then, for some of the constituents, further assessment options of the data are provided.

## 2.1.4 Soil for construction assessment decision tree (chemical constituents)



Notes to the use of the soil for deposit recovery Decision Tree:

1. Relevant waste – refers to the specific volume of waste from any site that is specifically being assessed for its suitability for use in the recovery activity. Information for any soils remaining on site, soils considered significantly contaminated or soils classified as hazardous is not suitable for use within the determination.
2. A component will be considered to greatly exceed a guideline concentration if one or more of the concentrations are at or above 150% of the guideline concentration. This does not include guideline concentrations that approach the hazardous waste thresholds for the constituent – which must not be exceeded.
3. For soils - does the site history, site investigation or sampling location plan provide any indication why one or more samples maybe showing greatly elevated concentrations of any component? The potential source of contamination may be different across the site (such as different locations for a diesel tank, an industrial processing area, a car parking area or waste storage area etc). Information on the sampling locations will allow assessment of the different areas on the site to determine whether some areas show elevated concentrations of specific components and whether these areas can be fully segregated. This would allow assessment of the suitability for use for those soils not exhibiting greatly elevated concentrations of any constituent.
4. If areas of greatly elevated concentrations of components are able to be robustly segregated then the reminder of the waste will need to follow the full assessment process to confirm whether suitable for use. Confirmation of such segregation must be obtained as evidence. It there is any doubt or risk of significantly contaminated soils then the soil enquiry must be declined.
5. The assessment of the average of any components exceeding the guideline concentrations do not include those constituents with guideline concentrations approaching their hazardous waste threshold – which must not be exceeded. Note – the averaging and comparing to a figure < 75% of the guideline value is an arbitrary but a conservative approach. This approach would indicate that, even if some elevated components exist above the guideline threshold, then these are unlikely to pose a significant risk of pollution as the entire waste stream, on average, is well within the guideline concentrations.
6. For any constituents of soils exhibiting significantly elevated concentrations above the guideline threshold but not meeting the ‘averaging’ criteria, additional evidence through the use of leaching values can be used. For this assessment the specific constituents of concern must comply with the inert landfill 10:1 L/S leaching limit values.

# TABLE A – GUIDELINE CONCENTRATIONS TABLE FOR SOIL WASTES USED AT THORPE THEWLES

| Component | Proposed guideline total concentrations for soils used in Thorpe Thewles activity |
|---|---|
| **Arsenic** | 32 |
| **Cadmium** | 10 |
| **Chromium** | 130 |
| **Copper** | 200 |
| **Lead** | 450 |
| **Mercury** | 1 |
| **Nickel** | 130 |
| **Zinc** | 400 |
| **pH** | 6 - 10 |
| **Total Petroleum Hydrocarbons** | 400 |
| **PAHs (total) - unspeciated (must be non-hazardous*)** | 50 |

***All thresholds for metals stated in mg/kg dry weight***

***These guideline values have been developed from extensive experience of soil concentrations in naturally occurring soils and assessment of soil wastes***

Notes on the development of soil guideline concentrations

There are a range of criteria that can be justifiably applied to soil chemical characteristics for the use of soils in specific recovery activities but, as yet, there are no industry standards. For instance, levels of metals in soils applied to the use of sewage sludge use differ to those specified by contaminated land guidance. Conflict can arise between the need to assess soil analytical results for the purposes of waste management and/or disposal (e.g. waste acceptance criteria for landfill).

The proposed soil guideline concentrations to be imported to the Thorpe Thewles site are set out in the table above and are derived from some of the more stringent previous soil guideline values developed but predominantly from extensive experience of the assessment of soils and understanding of the concentrations observed in naturally occurring and uncontaminated soils.

Guideline concentrations for other components will need to be developed on a case-by-case basis and will use a range of sources, although predominantly experience from soil assessments.

# Preliminary Risk Assessment

**Scott Bros Ltd**

Land at adjacent to Durham Road
Thorpe Thewles
Stockton on Tees
TS21 3JN

# Preliminary Risk Assessment

November 2018

Scott Bros Ltd
Scott Business Park
Haverton Hill Road
Billingham
Stockton-on-Tees
TS23 1PY

SCOTT BROS.

**Scott Bros Ltd**
Land at adjacent to Durham Road
Thorpe Thewles
Stockton on Tees
TS21 3JN

**Preliminary Risk Assessment**

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TT/08/17/04 Long and Cross Sections Sheet 3 of 3

**Scott Bros Ltd**
Land at adjacent to Durham Road
Thorpe Thewles
Stockton on Tees
TS21 3JN

**Preliminary Risk Assessment**

## 1 INTRODUCTION

This document comprises the preliminary risk assessment relating to raising the level of an agricultural field at Land to the Rear of Fairview, Durham Road Thorpe Thewles Stockton on Tees.

Condition 3 of Planning permission Number: 17/2905/FUL states

*"Prior to any works being carried out, a preliminary risk assessment shall be submitted to and approved in writing by the Local Planning Authority. The risk assessment shall outline the necessary methods required to understand and manage any potential leachate and gases at the site. Any works undertaken must be in strict accordance with the approved risk assessment".*

Findings of studies undertaken are presented herein.

# 2 ENVIRONS, RISKS AND RECEPTORS

## 2.1 Site Location

The site is located on the outskirts of the village of Thorpe Thewles in Stockton on Tees at National Grid Reference NZ 39731 23696. Thorpe Thewles is located approximately 6km north west of Stockton.

The site covers an area of approximately 2.7 hectares. Current use is rough grazing, historically the site used as a landfill facility. Access to the site is from Durham road which bounds the eastern perimeter of the site.

The location of the site is shown on Figure 1.

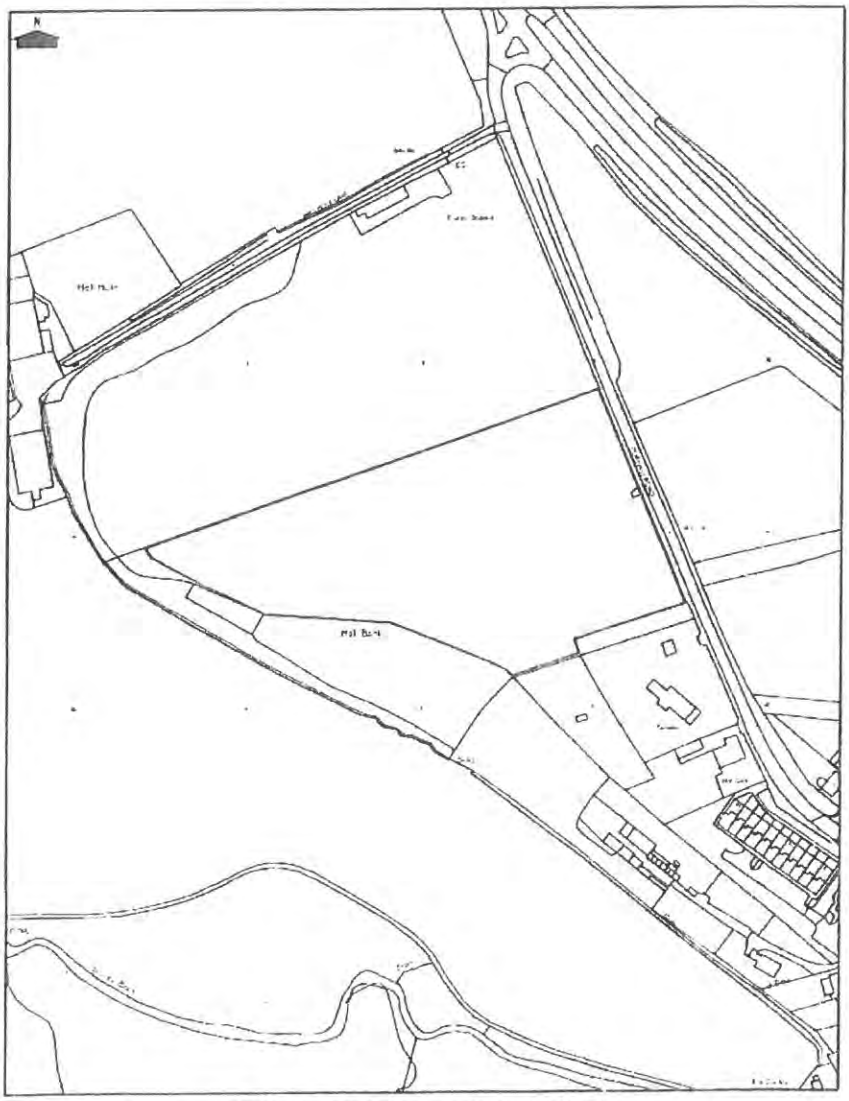


**Figure 1 Site Location (N.T.S)**

## 2.2 Development and Soil Specification

The development comprises the placement of around 16,240m$^3$ of soils over an area of about 27,000m$^2$, an average of around 0.6m. Drawing No TT/08/17/01A details the proposed earthworks with cross sections shown on Drawings TT/08/17/02 - TT/08/17/04.

Existing topsoil is to be stripped and stockpiled for reuse. It is understood that the existing waste mass is covered by soils to a varying depth, however review would suggest this layer thickness is a low as 100mm in places. It is not proposed to excavate waste during the works.

Works are expected to be completed within 6 months of commencement. Soils will be placed on the area stripped of topsoil, the removed topsoil will be replaced above the soil layer.

The Manual of Contract Documents for Highway Works, Volume 1: specification for Highways Works Series 600 Earthworks is proposed as a baseline document for the earthwork's specification. The specification of the soil to be imported is Class 4 Landscape fill. This will comprise selected subsoils with no particles will be greater than 50mm and a moisture content of less than 35%. The degree of compaction of willbe sufficient to remove large voids and to produce a coherent mass whilst preventing over-compaction and any build up of excess pore pressures (i.e. tracked in not rolled).

Soil chemical quality standards detailed in the planning application as replicated in Table 1. These concentrations will be utilised to assess chemical quality requiremnts.

**Table 1 Soil Quality**

| Component | Proposed guidelines total concentration for soil used | Source & Comments |
|---|---|---|
| Arsenic | 32 | CLEA soil guideline value for residential end use |
| Cadmium | 10 | CLEA soil guideline value for residential end use |
| Chromium | 130 | Previous SGV for residential with plant uptake |
| Copper | 200 | Previous PAS 100 compost specification |
| Lead | 450 | Previous SGV for residential with or without plant uptake |
| Mercury | 1 | CLEA soil guideline value for residential end use |
| Nickel | 130 | CLEA soil guideline value for residential end use |
| Zinc | 400 | Previous PAS 100 compost specification |
| pH | 6 - 10 | Guidance value to avoid extreme acidic or alkaline conditions |
| Total Petroleum Hydrocarbons | 400 | 20% below inert landfill limit |
| PAHs (total) – unspeciated (must be non-hazardous) | 50 | 50% below inert landfill limit |

All thresholds are in mg/kg dry weight
Note – the SGVs for Arsenic cadmium and lead have not been updated to take into account the provisional Category 4 Screening levels as these are currently only provisional.

All soils will be subject to testing prior to acceptance on site.

## 2.3 Site Environs

The site comprises a former landfill which has been covered with soil and utilised as grazing since site closure in the early 1970's.

A summary of site environs is given in Table 2 Reference should also be made to figure 1 in section 2.1.

**Table 2 Environs**

| Area | Environs |
|---|---|
| **Site** | The site comprises a former landfill which has been covered with soil and utilised as grazing since the landfill site closed in the early 1970's.<br><br>The perimeter of the field has a post and wire fence with a few mature trees at the boundaries. Access to the site is provided from a field gate along the eastern boundary approximately 4.3m in width. |
| **North** | A further field and access road (Helhole Lane) are located to the north, there are two agricultural buildings approximately 100m north east of the site. A further stable building is located again about 100m from the site boundary. Beyond hellhole lane further agricultural land in present. |
| **South** | A tree belt followed by properties (Fairview and Little Gar)t are located within 20m of the site. Beyond these houses is the main village of Thorpe Thewles. The main housing area in the village is within 100m of the site perimeter. |
| **East** | Durham road bounds the eastern perimeter, beyond which there is a forested area the A177 trunk road and then further forested areas and agricultural land. |
| **West** | Further agricultural land, a tree belt and an access road are located to the west. Within this area a drain running north south some 20m from the site perimeter is located. The drain leads to the Thorpe beck which is located some 150m to the west of the site. |

## 2.4 Site History

The site was historically utilised as a landfill site. Review of the EA records finds the information detailed in Table 3:

**Table 3 EA Data on Historic Landfill Sites**

| Data Field | Description |
|---|---|
| HLD Reference | EAHLD31570 |
| Site Name | Refuse Tip off Durham Road |
| Site Address | Durham Road, Thorpe Thewles, Cleveland |
| Licence/permit reference | 0 |
| REGIS number | |
| WRC reference | 0700/0240 |
| BGS reference | 1078 |
| WRA reference | 0700.240 |
| Permit / licence holder | |
| Permit / licence holder's address | |
| Site operator name | Teesside County Borough Council |
| Site operator's address | Church Road, Teesside |
| OS prefix | NZ |

| Data Field | Description |
|---|---|
| Easting | 439700 |
| Northing | 523600 |
| EA Region | NE |
| EA Area | Dales NE |
| Licence Issue | |
| Licence Surrender | |
| First Input | 31/12/1970 |
| Last Input | 31/12/1973 |
| Inert | |
| Commercial | Yes |
| Industrial | |
| Household | Yes |
| Special | |
| Liquis/ Sludge | |
| Gas Control | |
| Leachate Containment | |
| Exempt | |
| Licensed | |
| No Licence required | |
| Buff point | |

The location of the former tip is shown on Figure 2.

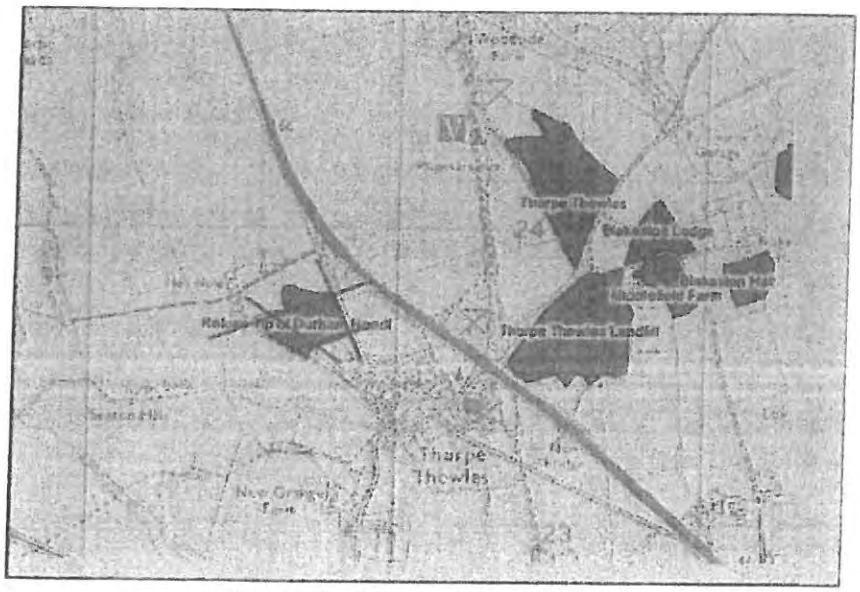



**Figure 2 – Former Landfill Sites**

In summary the site was operated by Teesside County Borough Council between 1970 and 1973. The site accepted household and commercial wastes. There is no known leachate containment or gas control system as was normal at the time of operation. The site was completed prior to licensing regime being implemented.

## 2.5 Geology

Review of BGS mapping finds:

Superficial deposits comprising glaciofluvial deposits of devensian sand and gravel. These are sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the quaternary period.

Bedrock geology comprises the roxby formation of mudstones. These sedimentary bedrocks were formed between 272.3 and 247.1 million years ago during the permian and triassic periods.

The geological sequence comprises reddish brown mudstone and siltstone, with subordinate sandstone. Sulphates (gypsum, anhydrite) are common towards the base of this formation.

## 2.6 Identified Risks

The preliminary risk assessment looks specifically at the risk associated with

- Leachate
- Landfill Gas

Throughout the document and for the purposes of significant effects, qualitative risk definitions have been presented in the form detailed in Figure 3. The designation of risk is based upon a consideration of:

- The likelihood of an event (probability): takes into account both the presence of the source and receptor and the integrity of the pathway.
- The severity of the potential consequences: takes into account both the potential severity of the source and the sensitivity of the receptor.

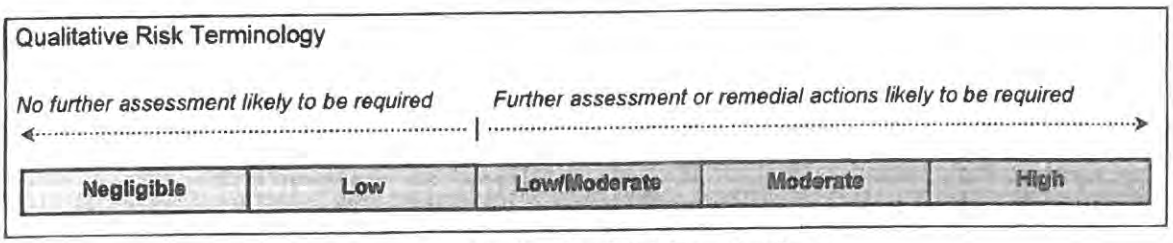



**Figure 3 - Qualitative Risk Terminology**

## 2.7 Identified Receptors

Site environs and receptors are shown on Figure 4. A summary of potential receptors in the surrounding area is given in Table 4.

**Table 4: Summary of Identified Receptors**

| Receptor | Description |
|---|---|
| Waterbodies (rivers, lakes, streams and drainage) | To the west there is a drain running north south some 20m from the site perimeter. The drain leads to the Thorpe beck which is located some 150m to the west of the site.<br><br>These receptors could be impacted from leachate generated by the site activity. |
| Groundwater | Groundwater beneath the site and surrounding area could be impacted from leachate generated by the site activity. |
| Agricultural Buildings | there are two agricultural buildings approximately 100m north east of the site. A further stable building is located north by about 100m from the site perimeter. |
| Domestic Properties | properties (Fairview and Little Gart) are located within 20m of the site. Beyond these houses is the main village of Thorpe Thewles. The main housing area in the village is within 100m of the site perimeter. |
| Services | There will be services which could be potential conduits for landfill gas migration. |
| Flaura & Fauna | Flora and Fauna on or around the site. |

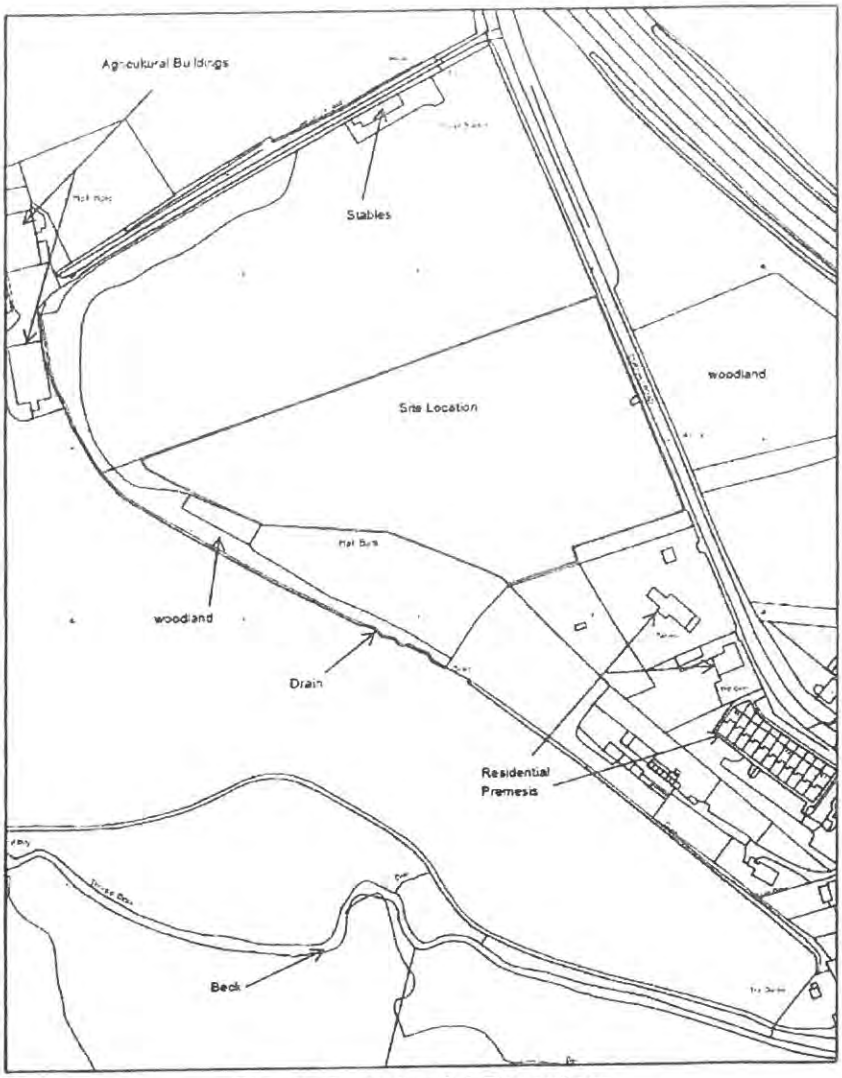



**Figure 4 - Potential Receptors**

# 3 RISK ASSESSMENT AND CONTROL MEASURES

## 3.1 Leachate

An assessment of the risk from leachate in respect raising the level of agricultural land is presented in Table 5. IT should be noted that the site is understood to operate on the attenuation principle, therefore the assessment looks only at the impacts for the placement of the soil layer and not from the existing waste mass.

**Table 5 Preliminary Leachate Risk Assessment**

| *Data* | | | | Judgement | | | Control | | |
|---|---|---|---|---|---|---|---|---|---|
| *Hazard* The harmful consequences if things go wrong | *Receptor* What is at risk? What do I wish to protect? | *Source* The agent or process to cause harm | *Pathway* How the receptor might come into contact with the source | *Probability* of exposure How likely is this contact | *Consequence* Severity of the consequence if this occurs | *Magnitude* of risk The overall magnitude of the risk | *Justification* of magnitude Basis of my judgement | *Risk* management How can I best manage the risk to reduce the magnitude | *Residual* risk Magnitude of risk after management |
| Leachate<br><br>Outbreak of Leachate from waste mass | Surface Water/ Groundwater<br><br>Flora & Fauna | Excavation of waste mass<br><br>Removal of topsoil | Removal of soil could release "perched leachate" from within the waste mass. | Low | Moderate | Low/ Moderate | There will be no excavation of waste during the project. The only materials to be removed are the existing topsoil layer for reuse.<br><br>The site currently shows no signs of the leachate outbreak and the existing soil cover layer is minimal in thickness.<br><br>Therefore, if there were to be outbreaks, they would expect to be visible at present. | Monitoring of site to be undertaken on daily basis to look for any leachate outbreaks.<br><br>If leachate is identified, the area is to be isolated, a bund formed round it and leachate tinkered from site to a suitably permitted facility for treatment. | Low |

| Data | | | | Judgement | | | Control | | |
|---|---|---|---|---|---|---|---|---|---|
| *Hazard* The harmful consequences if things go wrong | *Receptor* What is at risk? What do I wish to protect? | *Source* The agent or process to cause harm | *Pathway* How the receptor might come into contact with the source | *Probability* of exposure How likely is this contact | *Consequence* Severity of the consequence if this occurs | *Magnitude* of risk The overall magnitude of the risk | *Justification* of magnitude Basis of my judgement | *Risk* management How can I best manage the risk to reduce the magnitude | *Residual* risk Magnitude of risk after management |
| Leachate<br><br>Leaching of contaminants from soils placed as part of the works | Surface Water/ Groundwater<br><br>Flora & Fauna | Soils imported to site. | Run off from the site particularly during period of heavy rainfall. | Low | Moderate | Low/ Moderate | Soils will be tested to ensure they are not contaminated. The required quality standard is detailed in Table1.<br><br>Works are not to be carried out within 20m of drains or watercourses. | Comprehensive testing regime of material to be imported.<br><br>Monitoring of site works to be undertaken on daily basis to look for any run off from the site. | Negligible |

## 3.2 Landfill Gas

An assessment of the risk from landfill gas in respect raising the level of agricultural land is presented in Table 6. IT should be noted that the site has accepted wastes which may be generating landfill gas, albeit this is expected to be minimal giver the 45 years that have passes since the site was completed. Given the lack of cover on site it is possible that gas could be venting naturally from the site. The assessment looks specifically at the impacts for the placement of the soil layer above the existing waste mass.

**Table 6 Preliminary Landfill Gas Risk Assessment**

| Data | | | | Judgement | | | Control | | |
|---|---|---|---|---|---|---|---|---|---|
| *Hazard* The harmful consequences if things go wrong | *Receptor* What is at risk? What do I wish to protect? | *Source* The agent or process to cause harm | *Pathway* How the receptor might come into contact with the source | *Probability* of exposure How likely is this contact | *Consequence* Severity of the consequence if this occurs | *Magnitude* of risk The overall magnitude of the risk | *Justification* of magnitude Basis of my judgement | *Risk* management How can I best manage the risk to reduce the magnitude | *Residual* risk Magnitude of risk after management |
| Landfill Gas<br><br>Migration | Residential Properties<br><br>Services | Waste Mass | Lateral migration of gas following placement of soil layer. | Low | High | Moderate/ High | It is unclear if gas is present within the existing waste mass.<br><br>Monitoring of the waste mass is required to assess if there is gas present. This will encompass a spiking survey within the waste mass and at locations between the site and the receptor.<br><br>Checks to rule our services on site should also be made. | If no gas is present, no control measures will be required<br><br>If gas is present, there may be a requirement to install gas control measures. This may include vents, trenches or other facilities. | Low |
| Landfill Gas<br><br>Migration | Flora & Fauna | Waste Mass | Migration through the soil layer to the vegetated surface | Low | Moderate | Low/ Moderate | Landfill gas can cause vegetation die back. However, site inspection does not identify vegetation die back currently at the site. | Given there is no dieback at present it is not expected that there will be an issue. Additionally, the placed soil layer can act as an attenuation layed to "oxidise" fugitive emissions. | Low |

### 3.3 Summary of Control Measures

a) Leachate

During works to remove topsoil there is the risk of outbreaks of "perched Landfill Leachate" This will be mitigated by

- Monitoring of site to be undertaken on daily basis to look for any leachate outbreaks.
- If leachate is identified, the area is to be isolated, a bund formed round it and leachate tinkered from site to a suitably permitted facility for treatment.

The risk of Leaching of contaminants from soils placed as part of the works is mitigated by

- A Comprehensive testing regime of material to be imported to ensure it meets the required quality standard.
- Monitoring of site works to be undertaken on daily basis to look for any run off from the site.

b) Landfill Gas

The risk of Lateral migration of gas following placement of soil layer will be mitigated by

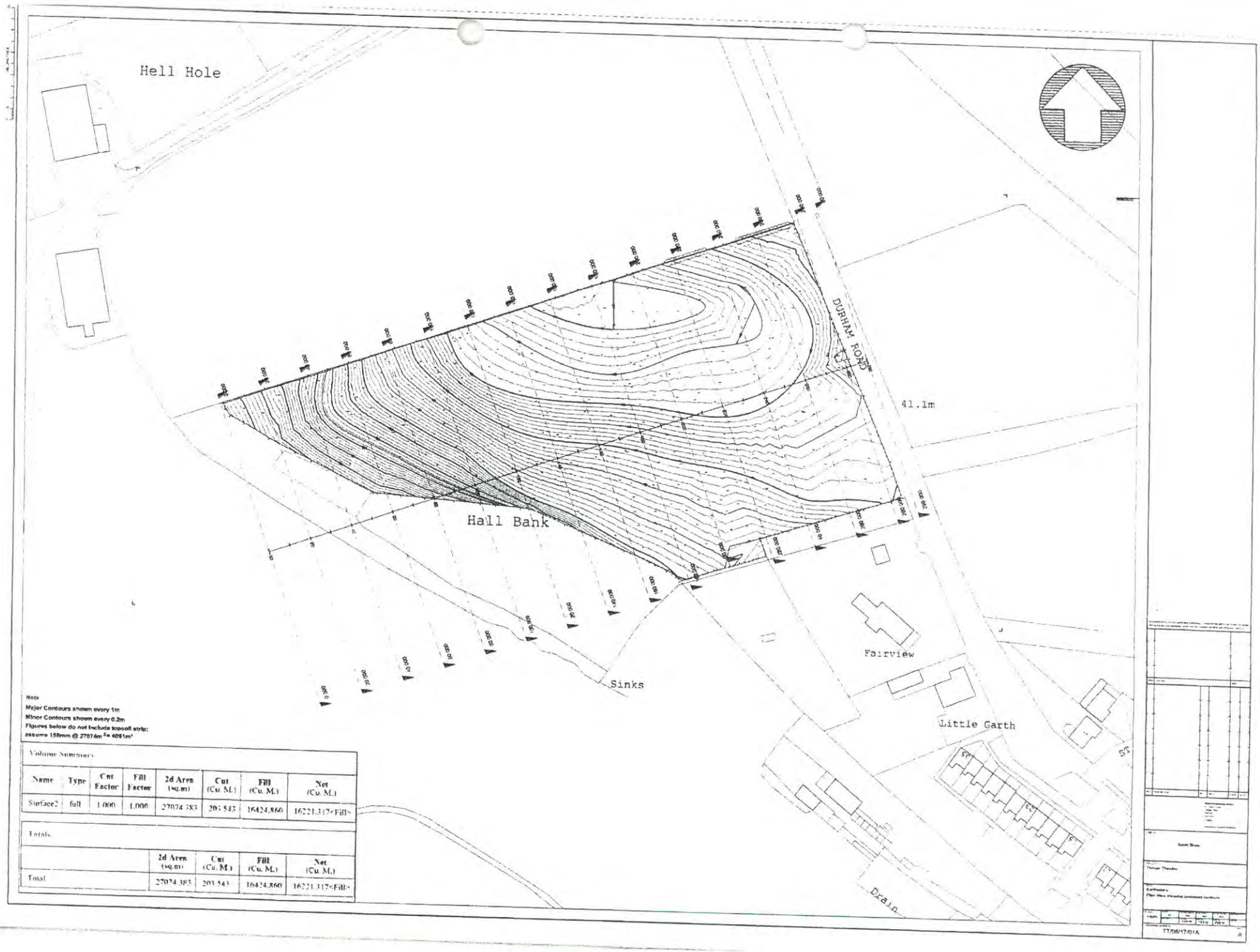
- Monitoring of the waste mass is required to assess if there is gas present. This will encompass a spiking survey within the waste mass and at locations between the site and the receptor. A check on the presence of services is also required.
- If no gas is present, no control measures will be required
- If gas is present, there may be a requirement to install gas control measures. This may include vents, trenches or other facilities. This would be assessed following the monitoring exercise.

# 4 FINDINGS

The following findings are made:

1. The works relating to raising the level of agricultural land.
2. The primary risks from leachate are from remove topsoil causing outbreaks of "perched landfill leachate" and leaching from placed soils.
3. Mitigation measures reduce the risk to acceptable levels.
4. The primary risk from landfill gas is Lateral migration of gas following placement of soil layer.
5. There is a need to assess if gas is present on site, a spiking survey is required.
6. If no gas is present, no control measures will be required.
7. If gas is present, there may be a requirement to install gas control measures. This may include vents, trenches or other facilities. This would be assessed following the monitoring exercise.

# DRAWINGS




Note
Major Contours shown every 1m
Minor Contours shown every 0.2m
Figures below do not include topsoil strip:
assume 150mm @ 27074m² = 4061m³

Volume Summary

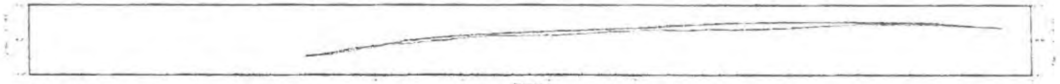
| Name | Type | Cut Factor | Fill Factor | 2d Area (sq.m) | Cut (Cu. M.) | Fill (Cu. M.) | Net (Cu. M.) |
|---|---|---|---|---|---|---|---|
| Surface2 | full | 1.000 | 1.000 | 27074.383 | 203.543 | 16424.860 | 16221.317<Fill> |

Totals

| | 2d Area (sq.m) | Cut (Cu. M.) | Fill (Cu. M.) | Net (Cu. M.) |
|---|---|---|---|---|
| Total | 27074.383 | 203.543 | 16424.860 | 16221.317<Fill> |

T7/08/17/01A

## Long Section Through Site
Scale - 1/500



| | |
|---|---|
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| Existing Levels | [illegible] |
| Existing Levels | [illegible] |

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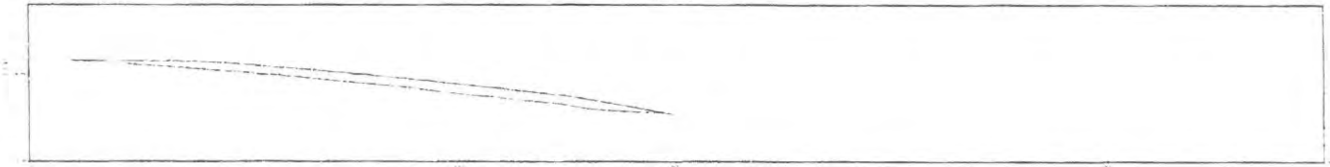

| | |
|---|---|
| Proposed Levels | [illegible] |
| Existing Levels | [illegible] |
| Offsets | [illegible] |

## Chainage40.000 (122)
Scale 1/200

| | |
|---|---|
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| Existing Levels | [illegible] |
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Scale 1/200

| | |
|---|---|
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| Existing Levels | [illegible] |
| Offsets | [illegible] |

## Chainage20.000 (120)
Scale 1/200

| | |
|---|---|
| Proposed Levels | [illegible] |
| Existing Levels | [illegible] |
| Offsets | [illegible] |

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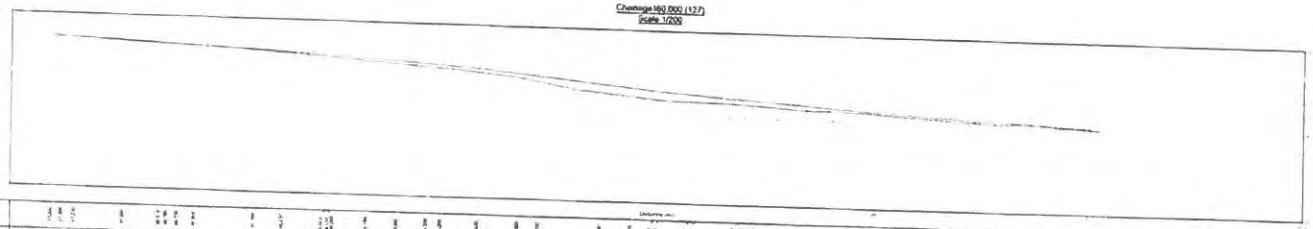
Thorpe Tunstal

Long and Cross Sections
Sheet 1 of 3

TT/08/17/02

Chainage 160.000 (127)
Scale 1/200



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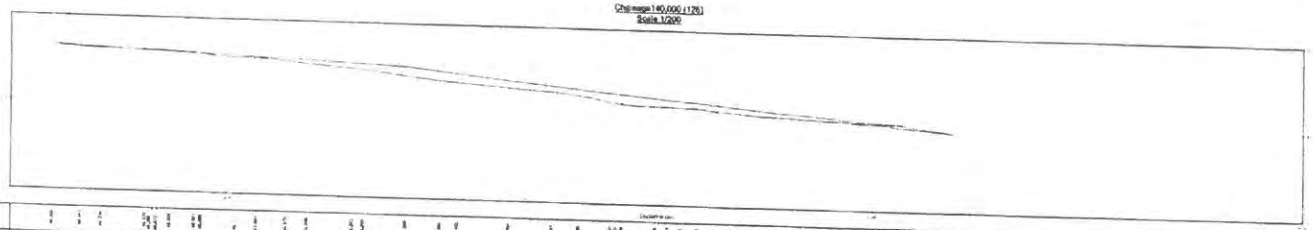
Scale 1/200



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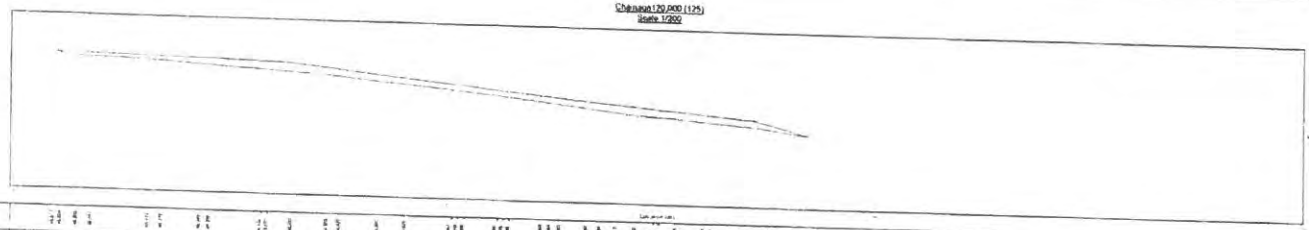

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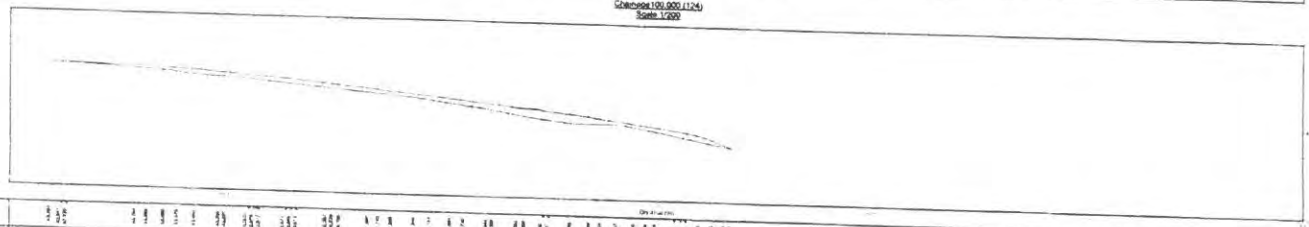
Scale 1/200



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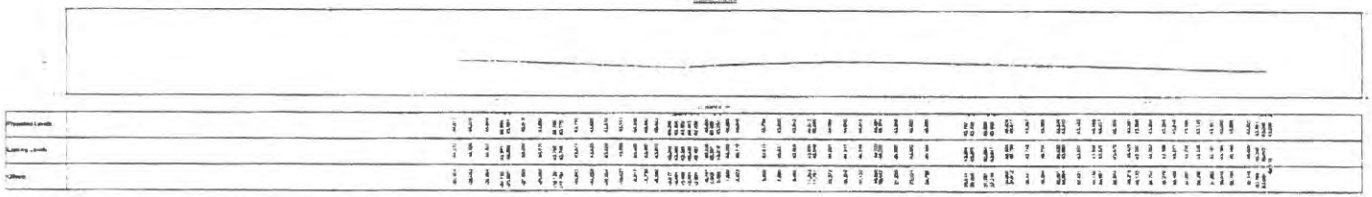
Thorpe Thewles

Long and Cross Sections
Sheet 2 of 3

Chainage260.000 (133)
Scale 1/200



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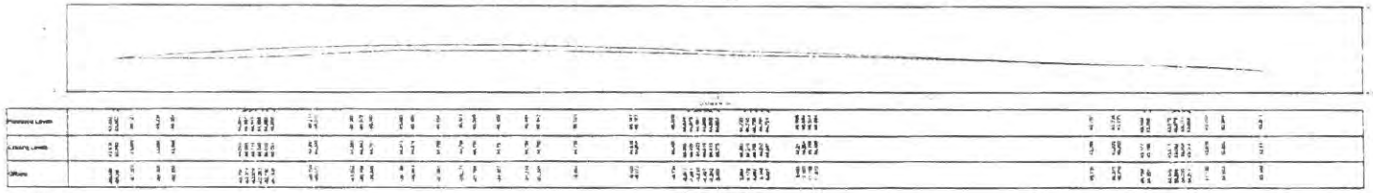

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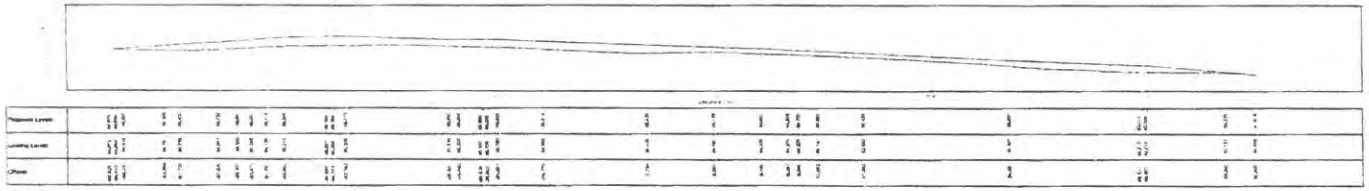

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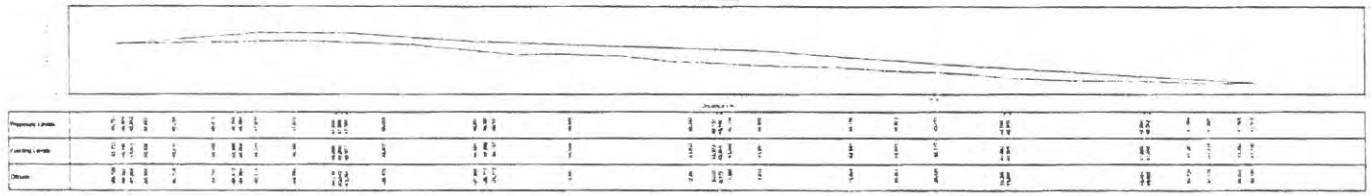

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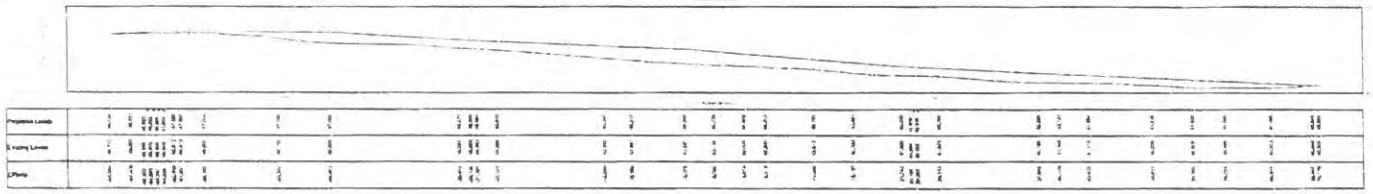

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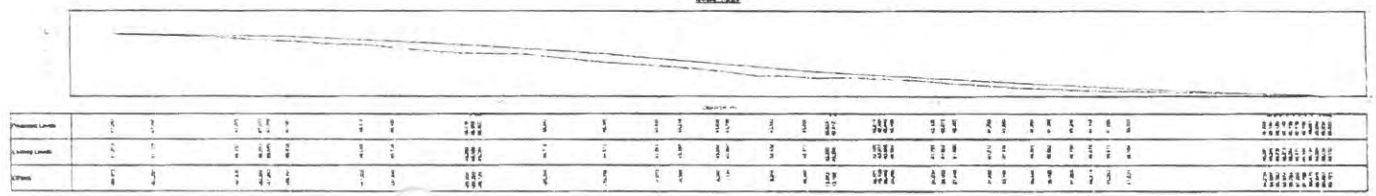

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Thorpe Theater

Long and Cross Sections
Sheet 3 of 3

TT/08/17/04

**Surface water survey**

ARC ENVIRONMENTAL LTD

SOLUM HOUSE, UNIT 1

ELLIOTT COURT, ST JOHNS ROAD

MEADOWFIELD

DURHAM, DH7 8PN

# E-MAIL TRANSMISSION SHEET

| | |
|---|---|
| Email: | Bob.borthwick@scottbros.com |
| Date: | 16th April 2019 |
| To: | Bob Borthwick |
| From: | John Ditchburn |
| Subject: | Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN |
| Project No: | 19-279 |
| Copy: | |
| Total Pages (including this page): | 11 |

**Baseline Surface Water Contamination Assessment - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN**

Bob,

Thank you for the copy of the Preliminary Risk Assessment associated with the development i.e. the placement of c.0.60m of soils on top of a historical landfill site containing domestic household and commercial waste for future agricultural use.

The report identified a potential risk to adjacent surface water features from potential leachate generated during the groundworks from ground disturbances. Therefore, a Baseline Surface Water Contamination Assessment has been completed to allow future monitoring of adjacent surface water features which represent the primary sensitive receptors. The surface water features flow from roughly northwest to southeast past the landfill site.

**Scope of Works:**

- Completion of surface water sampling and screening from adjacent surface water courses (unnamed drain / stream which bounds the site and Thorpe Beck located c.125m to the south). The samples were recovered upstream, adjacent and downstream of the landfill site (See Sampling Point Location Plan Attached).

## Surface Water Screening:

All works associated with this ground contamination assessment and investigations have been completed in accordance with BS10175: British Standard Investigation of Potentially Contaminated Sites Code of Practice (BS10175:2011+A2:2017) & CLR11. Samples were recovered by a representative of Arc Environmental Ltd. during the intrusive investigation works. All samples were stored at approximately 4°C using cool boxes and ice packs prior to delivery to a UKAS/MCERTS accredited laboratory. Sampling was carried out in accordance with 'Technical Policy Statement 63: UKAS Policy on Deviating Samples'. The surface water samples were analysed for relevant contaminants of concern, notably heavy metals and hydrocarbons (PAH's, TPH's and BTEX) and the results are included in the Chemtech Analytical Report attached (Ref. 78001(1)) and are also summarised in Table 1 below and continued on the following page.

**Table 1**

| Analyte | Target Conc ($C_T$) | Drain / Stream 05/04/2019 | | | Thorpe Beck 05/04/2019 | | |
|---|---|---|---|---|---|---|---|
| | | Up-stream | Adj. | Down-stream | Up-stream | Adj. | Down-stream |
| Arsenic | 50[1] | 0.57 | 0.44 | 0.40 | 0.89 | 0.95 | 0.74 |
| Boron | 2[1] | **72** | **61** | **60** | **145** | **144** | **142** |
| Cadmium | 5[1] | <0.07 | <0.07 | <0.07 | <0.07 | <0.07 | <0.07 |
| Chromium | 5-250[1] | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper | 1-28[1] | **5.8** | **4.1** | **3.4** | **2.4** | **2.2** | **2.0** |
| Lead | 4-250[1] | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Mercury | 1[1] | <0.008 | <0.008 | <0.008 | <0.008 | <0.008 | <0.008 |
| Nickel | 50-200[1] | 0.7 | 0.6 | 0.6 | 2.0 | 2.2 | 1.4 |
| Selenium | 10[2] | 1.15 | 1.01 | 0.91 | 0.59 | 0.58 | 0.57 |
| Zinc | 8-500[1] | 7 | 2 | <1 | 7 | 7 | 4 |
| pH | ~ | 7.5 | 7.8 | 8.0 | 7.8 | 7.9 | 8.2 |
| Cyanide | 50[2] | <20 | <20 | <20 | <20 | <20 | <20 |
| Sulphate | 400mg/l[1] | 102 | 79 | 85 | 94 | 92 | 99 |
| Acenaphthene | 10[1] | 0.5 | 0.3 | 0.1 | 1.5 | 0.2 | <0.1 |
| Acenaphthylene | 0.1[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Anthracene | 0.1[2] | 0.1 | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 |
| Benzo(a)anthracene | 0.1[2] | **0.2** | **0.2** | **0.3** | **0.3** | 0.1 | **0.2** |
| Benzo(a)pyrene | 0.1[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(b)fluoranthene | 0.1[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(ghi)perylene | 0.1[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(k)fluoranthene | 0.1[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chrysene | 0.1[2] | **0.2** | **0.2** | <0.1 | **0.2** | <0.1 | <0.1 |
| Dibenz(ah)anthracene | 0.1[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluoranthene | 0.1[2] | **0.5** | 0.1 | 0.1 | **0.8** | 0.1 | 0.1 |

[1] = EQS Freshwater, [2] = UK Drinking Standard, [3] = WHO Health, **Bold** = result exceeds target concentration, Note = All units are µg/l unless stated.



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**Baseline Surface Water Contamination Assessment - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN (Cont'd)**

**Surface Water Screening (Cont'd):**

**Table 1 (Cont'd)**

| Analyte | Target Conc ($C_T$) | Ditch / Stream 05/04/2019 | | | Thorpe Beck 05/04/2019 | | |
|---|---|---|---|---|---|---|---|
| | | Up-stream | Adj. | Down-stream | Up-stream | Adj. | Down-stream |
| Fluorene | 0.1[2] | **0.6** | **0.3** | **0.2** | **1.4** | 0.1 | <0.1 |
| Indeno(123cd)pyrene | 0.01[2] | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Naphthalene | 0.1[2] | **0.3** | <0.1 | <0.1 | **0.7** | <0.1 | <0.1 |
| Phenanthrene | 0.1[2] | **1.1** | **0.3** | **0.3** | **3.0** | **0.1** | **0.2** |
| Pyrene | 0.1[2] | **0.2** | <0.1 | <0.1 | **0.6** | <0.1 | <0.1 |
| Benzene | 30[1] | <1 | <1 | <1 | <1 | <1 | <1 |
| Toluene | 50[1] | <1 | <1 | <1 | <1 | <1 | <1 |
| Ethylbenzene | 300[3] | <1 | <1 | <1 | <1 | <1 | <1 |
| m & p-Xylene | 30[1] | <1 | <1 | <1 | <1 | <1 | <1 |
| o-Xylene | 30[1] | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aliphatic (>C5-C6) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aliphatic (>C6-C8) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aliphatic (>C8-C10) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| EPH Aliphatic (>C10-C12) | 10[2] | <1 | <1 | <1 | 2 | <1 | <1 |
| EPH Aliphatic (>C12-C16) | 10[2] | 2 | <1 | <1 | 6 | 2 | <1 |
| EPH Aliphatic (>C16-C35) | 10[2] | 8 | 6 | 5 | **56** | **16** | **11** |
| EPH Aliphatic (>C35-C44) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aromatic (>EC5-EC7) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aromatic (>EC7-EC8) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aromatic (>EC8-EC10) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |
| EPH Aromatic (>EC10-EC12) | 10[2] | <1 | <1 | <1 | 2 | <1 | <1 |
| EPH Aromatic (>EC12-EC16) | 10[2] | 1 | <1 | <1 | 2 | <1 | <1 |
| EPH Aromatic (>EC16-EC21) | 10[2] | 3 | 1 | 1 | 8 | <1 | 1 |
| EPH Aromatic (>EC21-EC35) | 10[2] | 1 | 1 | 1 | 4 | <1 | 1 |
| EPH Aromatic (>EC35-EC44) | 10[2] | <1 | <1 | <1 | <1 | <1 | <1 |

[1] = EQS Freshwater, [2] = UK Drinking Standard, [3] = WHO Health, **Bold** = result exceeds target concentration, Note = All units are µg/l unless stated.

The results have identified the following:

Unnamed Drain / Stream: -

- Elevated Boron, Copper and PAH's (Anthracene (upstream only), Benzo(a)anthracene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene) were recorded within all three surface water samples (i.e. upstream of the site, adjacent and downstream) with concentrations slightly higher upstream and diminishing over distance. This would suggest that the drain / stream was impacted by Boron, Copper and PAH's upstream of the site.
- No elevated BTEX or TPH impacted water was recorded



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**Baseline Surface Water Contamination Assessment - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN (Cont'd)**

**Surface Water Screening (Cont'd):**

Thorpe Beck: -

- Elevated Boron, Copper and PAH's (Benzo(a)anthracene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene) were recorded within all three surface water samples (i.e. upstream of the site, adjacent and downstream) with concentrations slightly higher upstream and diminishing over distance. This would suggest that Thorpe Beck was impacted by Boron, Copper and PAH's upstream of the site.
- Elevated TPH's (EPH Aliphatic band >C16-C35) were recorded within all three surface water samples (i.e. upstream of the site, adjacent and downstream) with concentrations slightly higher upstream and diminishing over distance. This would suggest that Thorpe Beck was impacted by TPH's upstream of the site.
- No elevated BTEX or other TPH bands were recorded.

**Summary & Recommendations:**

The surface water screening results suggest that the levels of contaminants recorded are not associated with any potential pollutants contained within the Historical Landfill and originate somewhere further upstream of the site.

These results can be used as a baseline comparison during the programme of groundworks.

Extreme care and appropriate precautions should be taken not allow any leachate entering the surface water features during the groundworks as outlined within the Preliminary Risk Assessment provided.

We trust the comments above and the attachments are of benefit and if you have any queries please call.

Regards

John Ditchburn
*BEng (Hons) CSci MIEnvSc FGS*
Director



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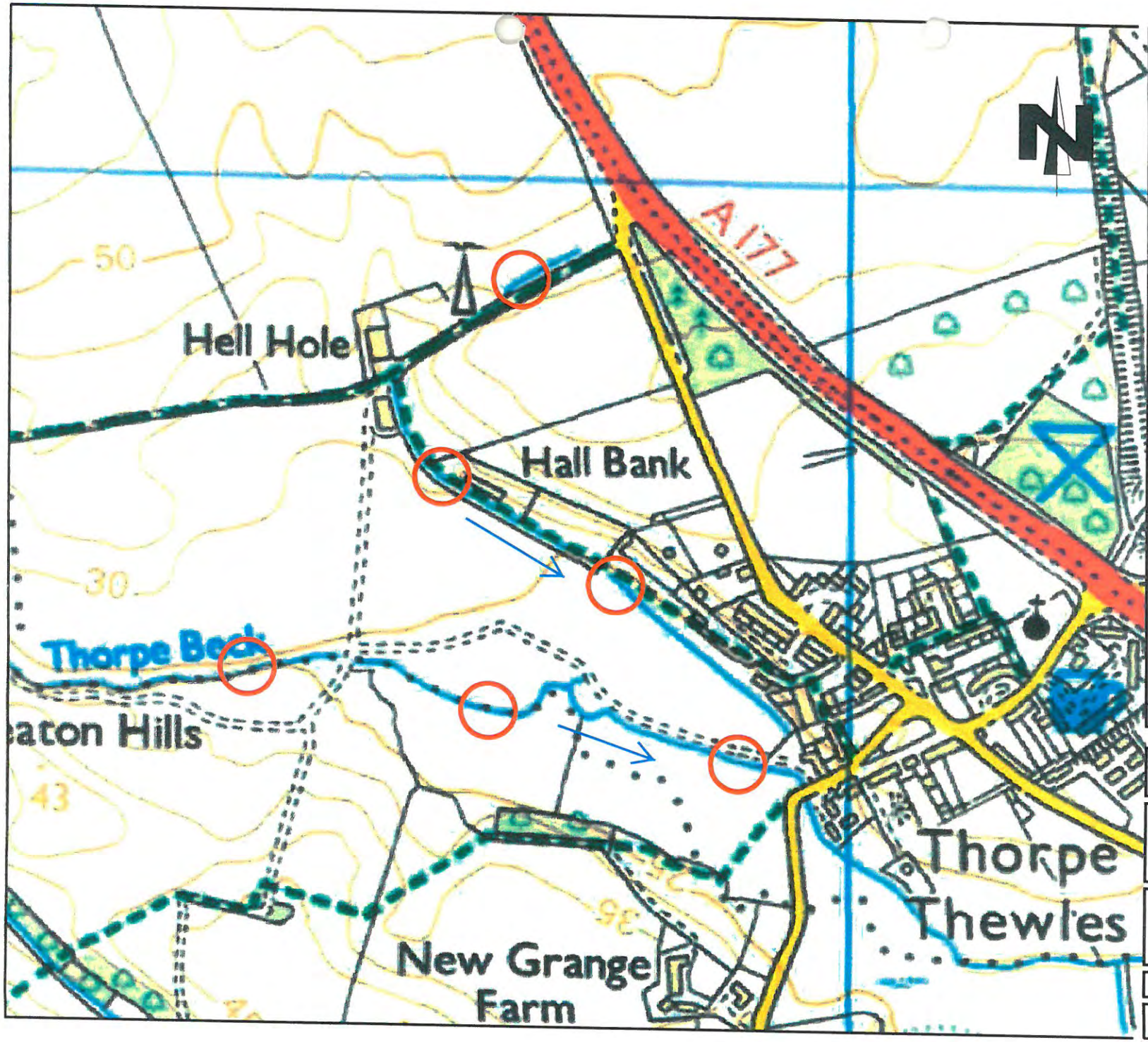


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The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.
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| rev. | date | amendments | drawn | chckd |
|---|---|---|---|---|

Client: **SCOTT BROS**

Project Title:
Land Adjacent to Durham Road
Thorpe Thewles
Stockton on Tees, TS21 3JN

Drawing Title:
Sampling Point Location Plan (Overview)

| Scale at A3: | Date: | Drawn by: | Approved by: |
|---|---|---|---|
| 1:2500 @ A3 | 01.04.19 | P.D | M.P |

| Job Ref: | Drg no: | Rev: |
|---|---|---|
| 19-279 | – | – |

2531

CHEMTECH environmental

# ANALYTICAL TEST REPORT

**Contract no:** 78001(1)

**Contract name:** Thorpe Thewles, Stockton On Tees

**Client reference:** 19-279

**Clients name:** ARC Environmental

**Clients address:** Solum House, Unit 1 Elliott Court
St Johns Road
Meadowfield
DH7 8PN

**Samples received:** 05 April 2019

**Analysis started:** 05 April 2019

**Analysis completed:** 11 April 2019

**Report issued:** 12 April 2019

This is a supplementary report to report number 78001 issued 12 April 2019.

**Notes:**

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.
BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

**Key:**

U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

**Approved by:** J. Campbell

John Campbell
Director

# Chemtech Environmental Limited

## WATERS

| Lab number | | | 78001-1 | 78001-2 | 78001-3 | 78001-4 | 78001-5 | 78001-6 |
|---|---|---|---|---|---|---|---|---|
| Sample id | | | 1- Stream (Upstream) | 1-Thorpe Beck (Upstream) | 2-Stream (Midstream) | 2-Thorpe Beck (Midstream) | 3-Stream (Downstream) | 3-Thorpe Beck (Downstream) |
| Depth (m) | | | - | - | - | - | - | - |
| Date sampled | | | 05/04/2019 | 05/04/2019 | 05/04/2019 | 05/04/2019 | 05/04/2019 | 05/04/2019 |
| Time sampled | | | 11:00 | 11:30 | 11:10 | 11:40 | 11:20 | 11:50 |
| **Test** | **Method** | **Units** | | | | | | |
| Arsenic (dissolved) | CE128 U | µg/l As | 0.57 | 0.89 | 0.44 | 0.95 | 0.40 | 0.74 |
| Boron (dissolved) | CE128 U | µg/l B | 72 | 145 | 61 | 144 | 60 | 142 |
| Cadmium (dissolved) | CE128 U | µg/l Cd | <0.07 | <0.07 | <0.07 | <0.07 | <0.07 | <0.07 |
| Chromium (dissolved) | CE128 U | µg/l Cr | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Copper (dissolved) | CE128 U | µg/l Cu | 5.8 | 2.4 | 4.1 | 2.2 | 3.4 | 2.0 |
| Lead (dissolved) | CE128 U | µg/l Pb | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Mercury (dissolved) | CE128 U | µg/l Hg | <0.008 | <0.008 | <0.008 | <0.008 | <0.008 | <0.008 |
| Nickel (dissolved) | CE128 U | µg/l Ni | 0.7 | 2.0 | 0.6 | 2.2 | 0.6 | 1.4 |
| Selenium (dissolved) | CE128 U | µg/l Se | 1.15 | 0.59 | 1.01 | 0.58 | 0.91 | 0.57 |
| Zinc (dissolved) | CE128 U | µg/l Zn | 7 | 7 | 2 | 7 | <1 | 4 |
| pH | CE004 U | units | 7.5 | 7.8 | 7.8 | 7.9 | 8.0 | 8.2 |
| Cyanide (free) | CE147 | µg/l CN | <20 | <20 | <20 | <20 | <20 | <20 |
| Sulphate | CE049 U | mg/l $SO_4$ | 102 | 94 | 79 | 92 | 85 | 99 |
| **PAH** | | | | | | | | |
| Acenaphthene | CE051 | µg/l | 0.5 | 1.5 | 0.3 | 0.2 | 0.1 | <0.1 |
| Acenaphthylene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Anthracene | CE051 | µg/l | 0.1 | 0.6 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(a)anthracene | CE051 | µg/l | 0.2 | 0.3 | 0.2 | 0.1 | 0.3 | 0.2 |
| Benzo(a)pyrene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(b)fluoranthene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(ghi)perylene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(k)fluoranthene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chrysene | CE051 | µg/l | 0.2 | 0.2 | 0.2 | <0.1 | <0.1 | <0.1 |
| Dibenz(ah)anthracene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluoranthene | CE051 | µg/l | 0.5 | 0.8 | 0.1 | 0.1 | 0.1 | 0.1 |
| Fluorene | CE051 | µg/l | 0.6 | 1.4 | 0.3 | 0.1 | 0.2 | <0.1 |
| Indeno(123cd)pyrene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Naphthalene | CE051 | µg/l | 0.3 | 0.7 | <0.1 | <0.1 | <0.1 | <0.1 |
| Phenanthrene | CE051 | µg/l | 1.1 | 3.0 | 0.3 | 0.1 | 0.3 | 0.2 |
| Pyrene | CE051 | µg/l | 0.2 | 0.6 | <0.1 | <0.1 | <0.1 | <0.1 |
| PAH (total of USEPA 16) | CE051 | µg/l | 3.6 | 9.1 | <1.6 | <1.6 | <1.6 | <1.6 |
| Benzo(j)fluoranthene | CE051 | µg/l | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| PAH (total of OIL 8) | CE051 | µg/l | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 | <0.8 |
| **BTEX & TPH** | | | | | | | | |
| Benzene | CE057 U | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| Toluene | CE057 U | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| Ethylbenzene | CE057 U | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| m & p-Xylene | CE057 U | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| o-Xylene | CE057 U | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aliphatic (>C5-C6) | CE175 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |

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## WATERS

| Lab number | | | 78001-1 | 78001-2 | 78001-3 | 78001-4 | 78001-5 | 78001-6 |
|---|---|---|---|---|---|---|---|---|
| Sample id | | | 1- Stream (Upstream) | 1-Thorpe Beck (Upstream) | 2-Stream (Midstream) | 2-Thorpe Beck (Midstream) | 3-Stream (Downstream) | 3-Thorpe Beck (Downstream) |
| Depth (m) | | | - | - | - | - | - | - |
| Date sampled | | | 05/04/2019 | 05/04/2019 | 05/04/2019 | 05/04/2019 | 05/04/2019 | 05/04/2019 |
| Time sampled | | | 11:00 | 11:30 | 11:10 | 11:40 | 11:20 | 11:50 |
| **Test** | **Method** | **Units** | | | | | | |
| VPH Aliphatic (>C6-C8) | CE175 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aliphatic (>C8-C10) | CE175 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| EPH Aliphatic (>C10-C12) | CE161 | µg/l | <1 | 2 | <1 | <1 | <1 | <1 |
| EPH Aliphatic (>C12-C16) | CE161 | µg/l | 2 | 6 | <1 | 2 | <1 | <1 |
| EPH Aliphatic (>C16-C35) | CE161 | µg/l | 8 | 56 | 6 | 16 | 5 | 11 |
| EPH Aliphatic (>C35-C44) | CE161 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aromatic (>EC5-EC7) | CE175 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aromatic (>EC7-EC8) | CE175 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| VPH Aromatic (>EC8-EC10) | CE175 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |
| EPH Aromatic (>EC10-EC12) | CE161 | µg/l | <1 | 2 | <1 | <1 | <1 | <1 |
| EPH Aromatic (>EC12-EC16) | CE161 | µg/l | 1 | 2 | <1 | <1 | <1 | <1 |
| EPH Aromatic (>EC16-EC21) | CE161 | µg/l | 3 | 8 | 1 | <1 | 1 | 1 |
| EPH Aromatic (>EC21-EC35) | CE161 | µg/l | 1 | 4 | 1 | <1 | 1 | 1 |
| EPH Aromatic (>EC35-EC44) | CE161 | µg/l | <1 | <1 | <1 | <1 | <1 | <1 |

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## METHOD DETAILS

| METHOD | WATERS | METHOD SUMMARY | STATUS | LOD | UNITS |
|---|---|---|---|---|---|
| CE128 | Arsenic (dissolved) | ICP-MS | U | 0.06 | µg/l As |
| CE128 | Boron (dissolved) | ICP-MS | U | 6 | µg/l B |
| CE128 | Cadmium (dissolved) | ICP-MS | U | 0.07 | µg/l Cd |
| CE128 | Chromium (dissolved) | ICP-MS | U | 0.2 | µg/l Cr |
| CE128 | Copper (dissolved) | ICP-MS | U | 0.4 | µg/l Cu |
| CE128 | Lead (dissolved) | ICP-MS | U | 0.2 | µg/l Pb |
| CE128 | Mercury (dissolved) | ICP-MS | U | 0.008 | µg/l Hg |
| CE128 | Nickel (dissolved) | ICP-MS | U | 0.5 | µg/l Ni |
| CE128 | Selenium (dissolved) | ICP-MS | U | 0.07 | µg/l Se |
| CE128 | Zinc (dissolved) | ICP-MS | U | 1 | µg/l Zn |
| CE004 | pH | Based on BS 1377, pH Meter | U | - | units |
| CE147 | Cyanide (free) | Continuous Flow Colorimetry | | 20 | µg/l CN |
| CE049 | Sulphate | Ion Chromatography | U | 10 | mg/l $SO_4$ |
| CE051 | Naphthalene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Acenaphthylene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Acenaphthene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Fluorene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Phenanthrene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Anthracene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Fluoranthene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Pyrene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Benzo(a)anthracene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Chrysene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Benzo(b)fluoranthene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Benzo(k)fluoranthene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Benzo(a)pyrene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Indeno(123cd)pyrene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Dibenz(ah)anthracene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | Benzo(ghi)perylene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | PAH (total of USEPA 16) | Solvent extraction, GC-MS | | 1.6 | µg/l |
| CE051 | Benzo(j)fluoranthene | Solvent extraction, GC-MS | | 0.1 | µg/l |
| CE051 | PAH (total of OIL 8) | Solvent extraction, GC-MS | | 0.8 | µg/l |
| CE057 | Benzene | Headspace GC-FID | U | 1 | µg/l |
| CE057 | Toluene | Headspace GC-FID | U | 1 | µg/l |
| CE057 | Ethylbenzene | Headspace GC-FID | U | 1 | µg/l |
| CE057 | m & p-Xylene | Headspace GC-FID | U | 2 | µg/l |
| CE057 | o-Xylene | Headspace GC-FID | U | 1 | µg/l |
| CE175 | VPH Aliphatic (>C5-C6) | Headspace GC-FID | | 1 | µg/l |
| CE175 | VPH Aliphatic (>C6-C8) | Headspace GC-FID | | 1 | µg/l |
| CE175 | VPH Aliphatic (>C8-C10) | Headspace GC-FID | | 1 | µg/l |
| CE161 | EPH Aliphatic (>C10-C12) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aliphatic (>C12-C16) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aliphatic (>C16-C35) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aliphatic (>C35-C44) | Solvent extraction, GC-FID | | 1 | µg/l |

# Chemtech Environmental Limited

## METHOD DETAILS

| METHOD | WATERS | METHOD SUMMARY | STATUS | LOD | UNITS |
|---|---|---|---|---|---|
| CE175 | VPH Aromatic (>EC5-EC7) | Headspace GC-FID | | 1 | µg/l |
| CE175 | VPH Aromatic (>EC7-EC8) | Headspace GC-FID | | 1 | µg/l |
| CE175 | VPH Aromatic (>EC8-EC10) | Headspace GC-FID | | 1 | µg/l |
| CE161 | EPH Aromatic (>EC10-EC12) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aromatic (>EC12-EC16) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aromatic (>EC16-EC21) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aromatic (>EC21-EC35) | Solvent extraction, GC-FID | | 1 | µg/l |
| CE161 | EPH Aromatic (>EC35-EC44) | Solvent extraction, GC-FID | | 1 | µg/l |

# Chemtech Environmental Limited

# DEVIATING SAMPLE INFORMATION

**Comments**

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

**Key**

| | |
|---|---|
| N | No (not deviating sample) |
| Y | Yes (deviating sample) |
| NSD | Sampling date not provided |
| NST | Sampling time not provided (waters only) |
| EHT | Sample exceeded holding time(s) |
| IC | Sample not received in appropriate containers |
| HP | Headspace present in sample container |
| NCF | Sample not chemically fixed (where appropriate) |
| OR | Other (specify) |

| Lab ref | Sample id | Depth (m) | Deviating | Tests (Reason for deviation) |
|---|---|---|---|---|
| 78001-1 | 1-Stream (Upstream) | - | N | |
| 78001-2 | 1-Thorpe Beck (Upstream) | - | N | |
| 78001-3 | 2-Stream (Midstream) | - | N | |
| 78001-4 | 2-Thorpe Beck (Midstream) | - | N | |
| 78001-5 | 3-Stream (Downstream) | - | N | |
| 78001-6 | 3-Thorpe Beck (Downstream) | - | N | |

**Gas survey**

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MEADOWFIELD

DURHAM, DH7 8PN

# E-MAIL TRANSMISSION SHEET

| | |
|---|---|
| Email: | Bob.borthwick@scottbros.com |
| Date: | 5th April 2019 |
| To: | Bob Borthwick |
| From: | John Ditchburn |
| Subject: | Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN |
| Project No: | 19-279 |
| Copy: | |
| Total Pages (including this page): | |

**Soil Gas and Vapour Survey - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN**

Bob,

Thank you for the copy of the Preliminary Risk Assessment associated with the development i.e. the placement of c.0.60m of soils on top of a historical landfill site containing domestic household and commercial waste for future agricultural use.

The report identified a potential risk to groundworkers from landfill gasses generated during the groundworks from ground disturbances. Therefore, a crude baseline Soil Gas & Vapour Survey has been completed to determine whether the historical landfill is still gassing and how this may affect groundworkers.

Scope of Works:

- Completion of a SGVS (Soil Gas & Vapour Survey) using a small diameter percussive probe to allow completion of the SGVS survey – completed over a 1-day period 04/04/19 during a period of falling atmospheric pressure (weatheronline.co.uk – Durham Tees Valley Airport). 40 positions were surveyed across the site area (See Spike Test Location Plan Attached).

**Soil Gas and Vapour Survey - Land Adjacent to Durham Road, Thorpe Thewles, Stockton on Tees, TS21 3JN (Cont'd)**

Summary of Investigation Results:

The results of the SGVS survey are summarised on the Gas Monitoring Certificate attached and typically identified the following range of gas and vapour readings across the 40 no. survey positions over a period of low and falling atmospheric pressure:-

| Gas / Vapour Type | Range (min./max.) | Occupational Health Exposure Limits | |
|---|---|---|---|
| | | Short Term | Long term |
| Atmospheric pressure(mbar) | 981-986 / falling trend | ~ | ~ |
| Oxygen (%) | 0.9-20.7 | 19.5 | 19.5 |
| Carbon Dioxide (%) | 0.0-13.6 | 1.5 (15 mins) | 0.5 (8 hr period) |
| Methane (%) | 0.0-2.7 | ~ | 0.1 (8 hr period) |
| LEL (%) | 0.0-61.3 | ~ | ~ |
| Carbon Monoxide (ppm) | 0-4 | 100 (15mins) | 30 |
| Hydrogen Sulphide (ppm) | 0-9 | 10 (15 mins) | 5 (8 hr period) |
| PID Toluene* (ppm) | 0-23 | $200_{(uncorrected)}$ | ~ |
| PID Ethanol* (ppm) | 0-23 | $83_{(uncorrected)}$ | ~ |

*Exposure Limit References: - EH40/2005 Workplace exposure limits, NIOSH (the US National Institute for Occupational Safety and Health) 8-hours Threshold Limit Value & OSHA (the US Occupational Safety and Health Administration). [*PID testing - Toluene considered most toxic compound and Ethanol the safest]*

Conclusions:

From the results of the SGVS concentrations of Carbon Dioxide and Methane have been recorded at 13 no. and 2 no. positions respectively of 40 no. monitoring positions which exceed occupational health criteria.

Therefore, it is recommended that continued gas monitoring and sufficient gas alarms (to sound when oxygen levels become depleted) are used throughout the groundworks programme to alert groundworkers to any short term or long ground gas risks.

I trust the comments above and the attachments are of benefit and if you have any queries please call. In terms of providing cost estimates for the options given above, please contact me to discuss further.

Regards

John Ditchburn
*BEng (Hons) CSci MIEnvSc FGS*
Director



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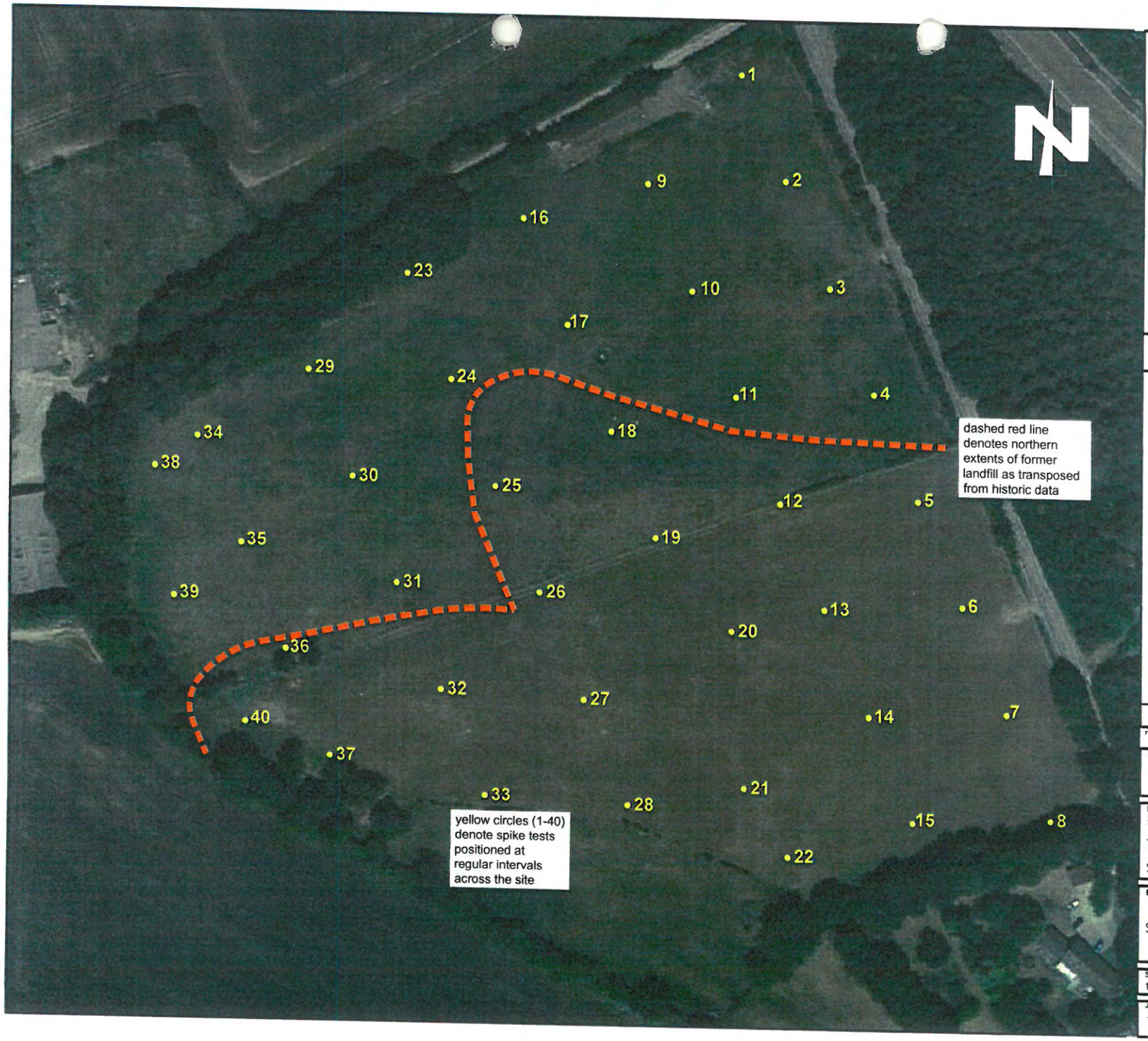


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| rev. | date | amendments | drawn | chckd |
|---|---|---|---|---|

Client: **SCOTT BROS**

Project Title:
Land Adjacent to Durham Road
Thorpe Thewles
Stockton on Tees, TS21 3JN

Drawing Title:
Spike Test Location Plan

| Scale at A3: | Date: | Drawn by: | Approved by: |
|---|---|---|---|
| 1:1250 @ A3 | 05.04.19 | P.D | M.P |

| Job Ref: | Drg no: | Rev: |
|---|---|---|
| 19-279 | – | – |

# Arc Environmental Ground Gas & Groundwater Monitoring Certificate

| | |
|---|---|
| **Site:** | Land at Thorpe Thewles |
| **Ref:** | 19-279 |

| Position | Date | Time | Equipment | Weather | Initials | Comments | | Gas Flow (l/hr) | Atmospheric Pressure (mb) | Trend | Methane (% v/v) | | Methane (% LEL) | | Carbon Dioxide (% v/v) | | Oxygen (% v/v) | | Hydrocarbons (GFM 435 only) | | Other Gases (PPM) | | | Depth to Water (m bgl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | R/F/S | Initial | Steady | Initial | Steady | Initial | Steady | Initial | Steady | Hex % | PID Cf | PID (Isobutylene) | $H_2S$ | CO | |
| 1 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 1.7 | | 18.5 | | | 1 | 0 | 0 | - |
| 2 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 0.7 | | 19.7 | | | 3 | 0 | 0 | - |
| 3 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 985 | F | | 0.0 | | 0.0 | | 0.9 | | 20.0 | | | 2 | 0 | 0 | - |
| 4 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 985 | F | | 0.0 | | 0.0 | | 1.9 | | 18.6 | | | 1 | 0 | 0 | - |
| 5 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.4 | | 20.6 | | | 0 | 0 | 0 | - |
| 6 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.6 | | 20.5 | | | 3 | 0 | 0 | - |
| 7 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 1.7 | | 19.3 | | | 0 | 0 | 0 | - |
| 8 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 1.4 | | 18.0 | | | 1 | 0 | 0 | - |
| 9 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.6 | | 20.3 | | | 2 | 0 | 0 | - |
| 10 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 2.2 | | 18.0 | | | 23 | 0 | 0 | - |
| 11 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.2 | | 20.5 | | | 8 | 0 | 0 | - |
| 12 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 985 | F | | 0.0 | | 0.0 | | 0.3 | | 19.7 | | | 0 | 0 | 0 | - |
| 13 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 1.2 | | 17.1 | | | 0 | 0 | 0 | - |
| 14 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.8 | | 19.9 | | | 0 | 0 | 0 | - |
| 15 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 2.7 | | 61.3 | | 13.6 | | 0.9 | | | 0 | 0 | 4 | - |
| 16 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.5 | | 20.0 | | | 0 | 0 | 0 | - |
| 17 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.9 | | 19.6 | | | 0 | 0 | 0 | - |
| 18 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 0.9 | | 19.9 | | | 0 | 0 | 0 | - |
| 19 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 982 | F | | 0.0 | | 0.0 | | 6.7 | | 13.0 | | | 1 | 0 | 0 | - |
| 20 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 4.1 | | 14.1 | | | 0 | 0 | 0 | - |
| 21 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 6.8 | | 12.0 | | | 0 | 0 | 0 | - |
| 22 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.9 | | 20.0 | | | 3 | 0 | 0 | - |
| 23 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 982 | F | | 0.0 | | 0.0 | | 0.6 | | 20.1 | | | 1 | 0 | 0 | - |
| 24 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 981 | F | | 0.0 | | 0.0 | | 0.5 | | 19.3 | | | 1 | 0 | 0 | - |
| 25 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 981 | F | | 0.0 | | 0.0 | | 1.6 | | 18.3 | | | 0 | 0 | 0 | - |
| 26 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 3.3 | | 13.1 | | | 0 | 0 | 0 | - |
| 27 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 2.1 | | 48.6 | | 0.1 | | 16.1 | | | 0 | 0 | 0 | - |
| 28 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 6.1 | | 8.9 | | | 0 | 0 | 0 | - |
| 29 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 1.9 | | 20.0 | | | 6 | 0 | 2 | - |
| 30 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 0.9 | | 20.3 | | | 9 | 0 | 0 | - |
| 31 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 0.7 | | 19.9 | | | 0 | 0 | 0 | - |
| 32 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 0.0 | | 20.5 | | | 0 | 0 | 0 | - |
| 33 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 0.3 | | 20.7 | | | 0 | 0 | 0 | - |
| 34 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 0.1 | | 20.4 | | | 0 | 0 | 0 | - |
| 35 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 0.1 | | 20.7 | | | 1 | 0 | 0 | - |
| 36 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 983 | F | | 0.0 | | 0.0 | | 2.9 | | 16.1 | | | 0 | 0 | 0 | - |
| 37 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 0.7 | | 19.0 | | | 0 | 0 | 0 | - |
| 38 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.0 | | 20.0 | | | 0 | 9 | 0 | - |
| 39 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP / KC | | | <0.1 | 984 | F | | 0.0 | | 0.0 | | 0.7 | | 19.8 | | | 0 | 0 | 0 | - |
| 40 | 04/04/2019 | | GFM435 | Cloudy / Sunny spells | MP/KC | | | <0.1 | 986 | F | | 0.0 | | 0.0 | | 0.9 | | 19.3 | | | 0 | 0 | 0 | - |

Notes:

Detection limits - Methane = 0.0%, Carbon Dioxide = 0.0%, LEL = 0.0%, Oxygen = 0.0%, Flow = 0.1l/hr

Monitoring order is from Left to Right across table

Monitoring should be for Not Less than 3 minutes However, if high concentrations of gases initially recorded, monitoring should be for up to 10 minutes

N/A = Not applicable

= Off the scale

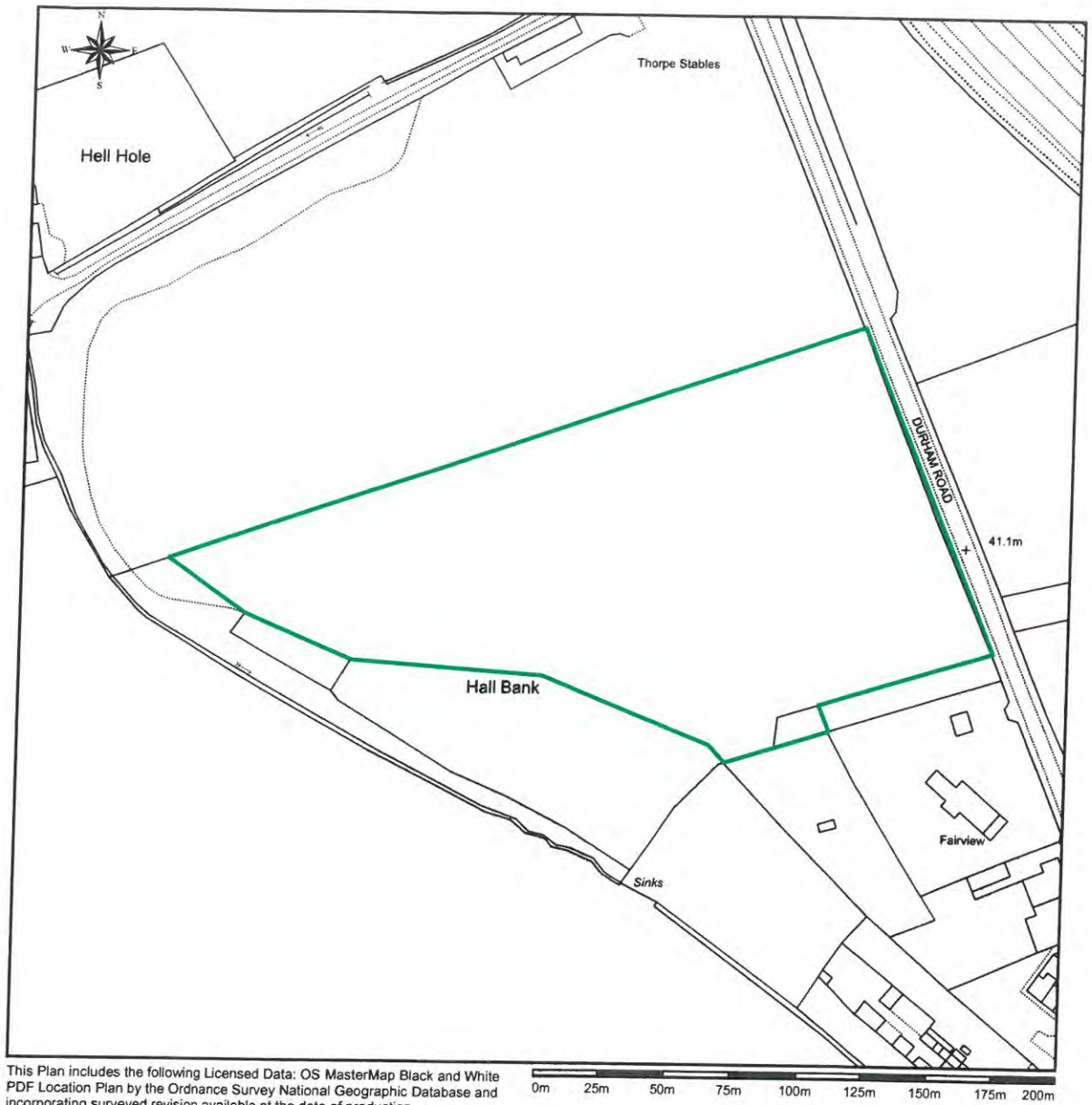
Cf = PID compensation Factor (1-10) - Must be used to multiply the PID reading to give an accurate measure of the total hydrocarbons in the borehole when methane is present

Hex = Hexane (Valid and in range up to 2,800%) - Recorded when abnormally high methane is present.

PID = Photo Ionisation Detector (Calibrated to Isobutylene)

**Drawings**

# Willow Dene Thorpe Thewles

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Scale: 1:2500, paper size: A4

Site Boundary

Ordnance Survey Licensed Mapping

plans ahead by emapsite™

Prepared by: Andy Childs, 20-06-2019

DO NOT SCALE FROM THIS DRAWING

KEY

- Approximate Site Boundary
- 2km Buffer
- Main River

Listed Buildings

- Grade I
- Grade II
- Scheduled Monument
- Ancient Woodland
- Local Wildlife Site
- Site of Special Scientific Interest
- Residential Area
- Residential Receptors

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| REVISION | DETAILS | DATE | DR'N | CHK'D | APP'D |
|---|---|---|---|---|---|
| | | | | | |

CLIENT

Scott Bros. Ltd

PROJECT

Thorpe Thewles Permit Application

DRAWING TITLE

Potential Receptors Within 2km

| DRG No. | | REV |
|---|---|---|
| ST18175-006 | | A |
| DRG SIZE: A3 | SCALE: 1:15000 | DATE: July 2020 |
| DRAWN BY: BJ | CHECKED BY: AC | APPROVED BY: AC |

wardell armstrong

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WWW.WARDELL-ARMSTRONG.COM

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