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. 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 tick the box in section 5 of F1 or F2 and 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.

Contents

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
An organisation of individuals (for example, a partnership)	☐ Now go to section 3
A public body	☐ Now go to section 4
A registered company or other corporate body	☑ Now go to section 5

2 Applications from an individual

2a Please give us the following details

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Date of birth (DD/MM/YYYY)

Now go to section 6

3 Applications from an organisation of individuals

3a Type of organisation

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

3b Details of the organisation

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

3 Applications from an organisation of individuals, continued

Last name

Date of birth (DD/MM/YYYY)

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

Eco Sustainable Solutions Limited

5b Company registration number

03119513

Date of registration (DD/MM/YYYY)

30/10/1995

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

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)

First name

Last name

Eco Sustainable Solutions Limited

Address

Redcotts House

1 Redcotts Lane

Wimborne

Dorset

Postcode

BH21 1JX

Contact numbers, including the area code

Phone

01202 593601

Fax

Mobile

Email

6 Your address, continued

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 for the extra sheet

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

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

Now go to section 7

7 Contact details

7a Who can we contact about your application?

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

Contact name

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

First name Samantha

Last name Pople

Address SLR Consulting Ltd

Langford Lodge, 109 Pembroke Road

Clifton

Bristol

Postcode BS8 3EU

Contact numbers, including the area code

Phone 01179 064280

Fax

Mobile 07964 985089

Email spople@slrconsulting.com

7 Contact details, continued

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

Contact name

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

First name: Mike

Last name: Thompson

Address: Chapel Lane
Parley
Christchurch
Dorset

Postcode: BH23 6BG

Contact numbers, including the area code

Phone: 01202 593601

Fax: 01202 581119

Mobile:

Email: mike.thompson@thisiseco.co.uk

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

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.environment-agency.gov.uk

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 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

£

Application for an environmental permit – Part C2 – General – varying a bespoke permit

Fill in this part of the form, together with part A and the relevant parts of C3 to C7 and part F1 or F2, if you are applying to vary (change) the conditions or any other part of the permit. Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or changing existing ones).

Waste operation changing to installation or vice versa?

If your changes mean that a waste operation becomes an installation (or vice versa) you also need to fill in either part C3 (waste to installation) or part C4 (installation to waste).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Please read through this form and the guidance notes that came with it. Please write clearly in the answer spaces.

It will take less than two hours to fill in this form.

Contents

1 About the permit

Note: If you are applying to convert your existing permit to a standard permit or add a standard facility you need to fill out form C1.

1a Discussions before your application

If you have had discussions with us before your application, provide the permit reference number or details on a separate sheet and tell us below the reference you have given the document.

Permit or document reference: EPR/GP3793FY/V010

1b Permit number

What is the permit number that this application relates to? EPR/GP3793FY

1c Site details

What is the name, address and postcode of the site?

Site name: Parley Waste Management Facility

Address: Chapel Lane, Parley, Christchurch, Dorset

Postcode: BH23 6BG

2 About your proposed changes

2a Type of variation

What type of variation are you applying for? (Please tick)

Standalone water discharge activity or point source groundwater activity	☐
Minor technical	☐
Normal variation	☑
Substantial	☐

2 About your proposed changes, continued

2b Changes or additions to existing activities

Please give us brief details in the box below. More detailed information can be given in Table 1 below.

407.03407.00003/NTS

Fill in Table 1 with details of all the proposed changes to current activities. In the final column of the table, give us the document reference for the proposed changes and send them to us with your filled in application form.

Fill in a separate table for each activity you are applying to vary or add. 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 this document.

Document reference

You only need to fill in one table for your mining waste operations.

2c Consolidating (combining) or updating existing permits

If your proposed change is to modernise (update) your permit, now answer 2c1; otherwise go to 2d.

If your proposed change is to consolidate (combine) a number of permits, now answer 2c2; otherwise go to 2d.

Note: In both cases we may require additional information from you about, for example, your management system. Therefore we would always advise you to talk to us before you submit any application to modernise or consolidate permits. Please see the 'Making an application' web page at www.environment-agency.gov.uk.

2c1 Do you want to have a modern style permit?

No ☐

Yes ☐

2c2 Identify all the permits you want to consolidate (combine) by listing the permit numbers in Table 2 below.

Table 2 – Permit numbers

Eco Sustainable Solutions would like to consolidate Permit reference EPR/GP3793FY/V006 (dated 08/10/10) and all subsequent
variations to the Permit (including this application). The most recently issued is variation 009, and this application is variation 010.

2d Treating batteries

Are you proposing to treat batteries?

No ☑

Yes ☐ Tell us how you will do this and send us a copy of your explanation

Document reference for the explanation

2e Low impact installations (installations only)

Will any changes mean that any of the regulated facilities will become low impact installations?

No ☑ Now go to section 3

Yes ☐

If yes, tell us how you meet the conditions for a low impact installation (see the guidance in appendix 1).

Document reference for the explanation

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

Now go to section 3

Table 1 – Changes to existing activities

Name	Installation schedule 1 references	Description of the installation activity	Description of waste operation	Description of the mining waste operations	Description of water discharge activity	Description of groundwater activity	Proposed changes document reference
i.e. name of installation, waste operation, mining waste operation, water discharge activity or groundwater activity							
Example – Effluent unique name					Example – treated sewage effluent		
If you do not have enough room, go to the line below or send a separate document and give us the document reference here							
Bio-methane Plant	DAA to the AD plant	DAA		N/A	N/A	N/A	407.3407.00003/NTS
			R3, R12, R13				
			R3, R5, R12, R13				
			R3, R12, R13				

3 Your ability as an operator

If you are applying to add waste installations or waste operations to a permit that has not previously had them, you need to fill in all of section 3.

If you are applying to consolidate (combine) two or more permits or have an updated permit you must fill in question 3d.

This section does not apply for applications to surrender a permit.

3a Relevant offences (installations and waste operations only – see the guidance notes on part C2)

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 407.03407.00003/Appendix A

Last name

Date of birth (DD/MM/YYYY)

Position at the time of the offence

Name of the court

Date of the conviction (DD/MM/YYYY)

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 post conviction plans if relevant) and tell us below the reference number you have given the extra sheet.

Document reference of the extra sheet

Have you sent us a post conviction plan for this offence?

No ☐ You must send us a post conviction plan with this application and give us the document reference below

Document reference

Yes ☐ Please give us the reference for the post conviction plan you have sent and the date sent in

Post conviction plan reference

Date sent in (DD/MM/YYYY)

Now go to question 3b

3b Technical ability (specified waste management activities and waste operations only – see the guidance notes on part C2)

Please tick the scheme you are using to show you have the suitable technical skills and knowledge to manage your facility.

CIWM/WAMITAB ☑

ESA/EU ☐

Please send in a registration letter from your scheme as above ☑ 407.03407.00003/Appendix B

Now go to question 3c

3c Finances (installations, waste operations and mining waste operations – see the guidance notes on part C2)

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 2010.

Do you or any relevant person have current or past bankruptcy or insolvency proceedings against you?

No ☑

Yes ☐ Please give details over page, 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.

3 Your ability as an operator, continued

The proposed Bio-Methane plant will be operated by a sub-contractor under contract. The competency of the sub-contractor will be demonstrated at the time the sub-contractor is formally appointed. Relevant certificates will be forwarded to the EA. The Permit Holder will be Eco Sustainable Solutions Limited.

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.

Give the document plan reference number

Now go to question 3d

3d Management systems

You can find guidance on management systems in 'How to Comply'. We have also developed environmental management toolkits for some business sectors which you can use to produce your own management system. You can get these by calling 03708 506 506 or by downloading them from our website at www.environment-agency.gov.uk.

Does your management system meet the conditions set out in our guidance?

No ☐
Yes ☑

What management system will you provide for your regulated facility?

EC Eco-Management and Audit Scheme (EMAS) ☐
ISO 14001 ☐
BS 8555 (Phases 1–5) ☐
Green Dragon ☐
Own management system ☑

You must send us a summary of your management system with your application.

Document reference or references for this summary: 407.03407.00003/Appendix C

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

4 Consultation (fill in 4a to 4c for installations and waste operations and 4d for installations only), continued

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 1999, 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 (see the guidance notes on part C2 for what needs to be marked on the plan)

Document plan reference or references

407.03407.00003/Drawing 002

5b Do any of the variations you plan to make need extra land to be included in the permit?

No ☐

Yes ☑ Please provide a site report for the extra land.

Document report reference or references

407.03407.00003/SCR

5c Provide a non-technical summary of your application

Document reference: 407.03407.00003/NTS

5d Adding an installation

If you are applying to add an installation, tick the box to confirm that you have sent in a baseline report and provide a reference. ☑

Document reference of the report: 407.03407.00003/SCR

6 Environmental risk assessment (if you need one – see the guidance notes on part C2)

Provide an assessment of the risks each of your proposed activities cause to the environment. The risk assessment must use H1 or an equal method.

Document reference of the assessment: 407.03407.00003/H1

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.environment-agency.gov.uk

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.)

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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 ☐

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

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 ☐	

Application for an environmental permit
Part C3 – Variation to a bespoke installation permit

Fill in this part of the form, together with part A, part C2 and part F1, if you are applying to vary (change) the conditions or any other part of the permit. Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or making changes to existing ones).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Please read through this form and the guidance notes that came with it. 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 activities are you applying to vary?

Fill in Table 1a below with details of all the activities listed in schedule 1 of the Environmental Permitting Regulations (EPR) and all directly associated activities (DAAs) (in separate rows), that you propose to carry out at the installation.

Fill in a separate table for each installation you are applying to vary. 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 document.

Document reference

Table 1a – Types of activities

Schedule 1 listed activities						
Installation name	Schedule 1 references (See note 1)	Description of the Activity (See note 2)	Activity capacity (See note 3)	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity (if this applies) (See note 3)	Non-hazardous waste treatment capacity (if this applies) (See note 3)
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	Put your main activity first			For installations that take waste only	For installations that take waste only	For installations that take waste only
AD Facility	Section 5.4,Part A1,b),i)	Anaerobic Digestion	91.00	R3, R13	0.00	91.00
ABPR Treatment	Section 6.8,Part A1,c)	Animal By-Product	42.00	R3, R13	0.00	42.00
		Treatment				

Directly associated activities (See note 4)	
Name of DAA	Description of the DAA (please identify the schedule 1 activity it serves)
Add extra rows if you need them	
Non Listed DAA to the AD - Bio-Methane Plant	Enrichment of Gas in Bio-Methane Plant
Non Listed DAA to the AD - Digestate Processing	Processing digestate from the AD plant
For installations that take waste	Total storage capacity (See note 5 below)
	Annual throughput (tonnes each year)

Table 1a – Types of activities

Schedule 1 listed activities						
Installation name	Schedule 1 references (See note 1)	Description of the Activity (See note 2)	Activity capacity (See note 3)	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity (if this applies) (See note 3)	Non-hazardous waste treatment capacity (if this applies) (See note 3)
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	Put your main activity first			For installations that take waste only	For installations that take waste only	For installations that take waste only
AD Facility	Section 5.4,Part A1,b),i)	Anaerobic Digestion	91.00	R3, R13	0.00	91.00
ABPR Treatment	Section 6.8,Part A1,c)	Animal By-Product	42.00	R3, R13	0.00	42.00
		Treatment				

Directly associated activities (See note 4)	
Name of DAA	Description of the DAA (please identify the schedule 1 activity it serves)
Add extra rows if you need them	
Non Listed DAA to the AD - Bio-Methane Plant	Enrichment of Gas in Bio-Methane Plant
Non Listed DAA to the AD - Digestate Processing	Processing digestate from the AD plant
For installations that take waste	Total storage capacity (See note 5 below)
	Annual throughput (tonnes each year)

1 What activities are you applying to vary?, continued

Notes

1 Quote the section number, part A1 or A2 or B, then paragraph and sub paragraph number as shown in part 2 of schedule 1 to the regulations.

2 Use the description from schedule 1 of the regulations. Include any extra detail that you think would help to accurately describe what you want to do.

3 By 'capacity', we mean:

- the total incineration capacity (tonnes every hour) for waste incinerators;
- the total landfill capacity (cubic metres) for landfills;
- the total treatment capacity (tonnes each day) for waste treatment;
- the total storage capacity (tonnes) for waste storage operations;
- the processing and production capacity for manufacturing operations; or
- the thermal input capacity for combustion activities.

4 Fill this in as a separate line and give an accurate description of any other activities associated with your schedule 1 activities. You cannot have DAAs as part of a mobile plant application.

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

Types of waste accepted

For those installations that take waste, for each line in Table 1a (including DAAs), fill in a separate document to list those wastes you will accept on to the site for that activity. Give the List of Wastes catalogue code and description. 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.

Please provide the reference for each document.

You can use Table 1b as a template.

If you want to accept any wastes with a code ending in 99, you must give us more information and a full description.

Document reference for this extra information: 407.03407.00003/Appendix D

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

Waste code	Description of waste
Example 02 01 08* 06 01 02*	Example Agrochemical waste containing dangerous substances Hydrochloric acid

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 installations.

Fill in one table for each installation.

Table 2 – Emissions

Installation name	Parley Waste Management Facility			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
A1 - A5				
All bio-filters and emergency biomethane flare				
See 407.03407.00003/BATOT and Drawing				
002V2 for details				

2 Emissions to air, water and land, continued

Table 2 – Emissions, continued

Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity	Unit
407.03407.00003/BATOT				
Point source emissions to sewers, effluent treatment plants or other transfers off site				
Emission point reference and location	Source	Parameter	Quantity	Unit
407.03407.00003/BATOT				
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity	Unit
n/a				

Supporting information

3 Operating techniques

3a Technical standards

Fill in Table 3 for each activity, at the installation you have referred to in Table 1a above. List the relevant technical guidance note (TGN) or notes you are planning to use. If you are planning to use the standards set out in the TGN, there is no need to justify using them.

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 C2 (general bespoke permit) of the application form.

The documents you have referenced in Table 3 should summarise the main measures you use to control the main issues identified in the H1 assessment or technical guidance. For each of the activities listed in Table 3, describe the type of operation and the options you have chosen for controlling emissions from your process.

3 Operating techniques, continued

Table 3 – Technical standards

Fill in a separate table for each activity at the installation.

Installation name	Parley Waste Management Facility	
Description of the schedule 1 activity or directly associated activity	Relevant technical guidance note or Best available techniques as described in BAT conclusions under IED (see footnote below. You will need to refer to 'How to comply' for all permits)	Document reference (if appropriate)
	'How to comply'	
AD Facility, Open Windrow Composting.	How to Comply with your Permit	Version 6, June 2013
	S5.06 Guidance for the Recovery & Disposal	Issue 5, May 2013
	of Hazardous and Non Hazardous Waste	

*Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

If appropriate, use block diagrams to help describe the operation and process. Provide the references for the description.

Document reference for the diagram or description

3b General requirements

Fill in a separate Table 4 for each installation.

Table 4 – General requirements

Name of the installation	Parley Waste Management Facility
If the TGN or H1 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 407.03407.00003/H1 and BATOT
Where the TGN or H1 assessment shows that odours are an important issue, send us your odour management plan	Document reference or references 407.03407.00003/H1 and BATOT
If the TGN or H1 assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references 407.03407.00003/H1 and BATOT

3c Types and amounts of raw materials

Fill in Table 5 for all schedule 1 activities. Fill in a separate table for each installation.

Table 5 – Types and amounts of raw materials

Name of the installation		Parley Waste Management Facility		
Capacity (See note 1 below)				
Schedule 1 activity	Description of raw material and composition	Maximum amount (tonnes) (See note 2 below)	Annual throughput (tonnes each year)	Description of the use of the raw material including any main hazards (include safety data sheets)
AD Facility				
ABPR Treatment	407.03407.00003/BATOT			
Composting Activity				
Discharge of Water				

Notes

1 By 'capacity', we mean the total storage capacity (tonnes) or total treatment capacity (tonnes each day).
2 By 'maximum amount', we mean the maximum amount of raw materials on the site at any one time.

3 Operating techniques, continued

Use a separate sheet if you have a long list of raw materials, and send it to us with your application form. Please also provide the reference for this extra sheet.

Document reference for the sheet: 407.03407.00003/BATOT

3d 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 below, you must answer the questions in the related document.

Table 6 – Questions for specific sectors

Sector	Appendix
Combustion	See the questions in appendix 1
Chemicals	See the questions in appendix 2
Intensive farming	See the questions in appendix 3
Clinical waste	See the questions in appendix 4
Hazardous and non-hazardous waste recovery and disposal	See the questions in appendix 5
Incinerating waste	See the questions in appendix 6
Landfill	See the questions in appendix 7

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; and
- the procedures you follow to assess the measures.

Document reference: 407.03407.00003/BATOT

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.

Document reference of the assessment: 407.03407.00003/BATOT

5 Environmental impact assessment

5a Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment]?

No ☐

Yes ☑ Please provide a copy of the environmental statement and, if the procedure has been completed:

- a copy of the planning permission; and
- the committee report and decision on the EIA.

Document reference for the copy: 407.03407.00003/Appendix E

6 Resource efficiency and climate change

If the site is a landfill, you only need to fill in this section if the application includes landfill gas engines.

6a Describe the basic measures for improving how energy efficient your activities are

Document reference for the description: 407.03407.00003/BATOT

6b Provide a breakdown of any changes to the energy your activities use up and create

Document reference for the description: 407.03407.00003/BATOT

6c Have you entered into, or will you enter into, a climate change levy agreement?

No ☑ Describe the specific measures you use for improving your energy efficiency.

Document reference for the description: 407.03407.00003/BATOT

6 Resource efficiency and climate change, continued

Yes ☐ Please give the date you entered (or the date you expect to enter) into the agreement. Please also provide documents that prove you are taking part in the agreement (DD/MM/YYYY)

Document reference of proof

6d Explain and justify the raw and other materials, other substances and water that you will use

Document reference of the justification: 407.03407.00003/BATOT

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

If you produce waste, describe how you recover it. If it is technically and financially impossible to recover the waste, describe how you dispose of it while avoiding or reducing any effect it has on the environment.

Document reference of the description: 407.03407.00003/BATOT

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: 03708 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.environment-agency.gov.uk

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 ☐

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 7.

Appendix 1 – Specific questions for the combustion sector

1 Identify the type of fuel burned in your combustion units (including when your units are started up, shut down and run as normal). If your units are dual fuelled (that is, use two types of fuel), list both the fuels you use

Fill in a separate table for each installation.

Installation reference			
Type of fuel	When run as normal	When started up	When shut down
Coal			
Gas oil			
Heavy fuel oil			
Natural gas			
WID waste			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Other			

Notes

1 Not covered by Industrial Emissions Directive 2010/75/EU.
2 'Biomass' is referred to in www.opsi.gov.uk/si/si2002/20020914.htm.

Give extra information if it helps to explain the fuel you use.

Document reference

2 Give the composition range of any fuels you are currently allowed to burn in your combustion plant

Fill in a separate table for each installation.

Fuel use and analysis					
Installation reference					
Parameter	Unit	Fuel 1	Fuel 2	Fuel 3	Fuel 4
Maximum percentage of gross thermal input	%				
Moisture	%				
Ash	% wt/wt dry				
Sulphur	% wt/wt dry				
Chlorine	% wt/wt dry				
Arsenic	% wt/wt dry				
Cadmium	% wt/wt dry				
Carbon	% wt/wt dry				
Chromium	% wt/wt dry				
Copper	% wt/wt dry				
Hydrogen	% wt/wt dry				
Lead	% wt/wt dry				
Mercury	% wt/wt dry				
Nickel	% wt/wt dry				
Nitrogen	% wt/wt dry				
Oxygen	% wt/wt dry				
Vanadium	mg/kg dry				
Zinc	mg/kg dry				
Net calorific value	MJ/kg				

Appendix 1 – Specific questions for the combustion sector, continued

3 If NOx factors are necessary for reporting purposes (that is, if you do not need to monitor emissions), please provide the factors associated with burning the relevant fuels

Fill in a separate table for each installation.

Installation reference	
Fuel	NOx factor (kgt^{-1})
Fuel 1	
Fuel 2	
Fuel 3	
Fuel 4	

Note: kgt^{-1} means kilograms of nitrogen oxides released for each tonne of fuel burned.

4 Will your combustion plant be subject to Chapter III of the Industrial Emissions Directive 2010/75/EU? (see Government Guidance)

No ☐ Now fill in part F

Yes ☐

5 Is your plant

an existing plant (a plant licensed before 1 July 1987)? ☐

a new plant (a plant licensed on or after 1 July 1987 but before 27 November 2002, or a plant for which an application was made before 27 November 2002 and which was put into operation before 27 November 2003)? ☐

or

a new-new plant (a plant for which an application was made on or after 27 November 2002)? ☐

6 If you run more than one type of plant or a number of the same type of plant on your installation, please list them in the table below

Fill in a separate table for each installation.

Installation reference	
Type of plant	Number within installation
Existing	
New	
New-new	
Gas turbine (group A)	
Gas turbine (group B)	

7 If you run an existing plant, have you submitted a declaration for the 'limited life derogation' set out in Article 33 of Chapter III of the Industrial Emissions Directive?

No ☐ Now go to section 9

Yes ☐

8 Have you subsequently withdrawn your declaration?

No ☐

Yes ☐

9 List the existing large combustion plants (LCPs) which have annual mass allowances under the National Emission Reduction Plan (NERP), and those with emission limit values (ELVs) under the LCPD

Installation reference	
LCPs under NERP	LCPs with ELVs

10 Do you meet the monitoring requirements of Chapter III of the Industrial Emissions Directive?

Yes ☐

Document reference number

Appendix 2 – Specific questions for the chemical sector

1 Please provide a technical description of your activities

The description should be enough to allow us to understand:

- the process;
- the main plant and equipment used for each process;
- all reactions, including significant side reactions (that is, the chemistry of the process);
- the material mass flows (including by products and side streams) and the temperatures and pressures in major vessels;
- the all emission control systems (both hardware and management systems), for situations which could involve releasing a significant amount of emissions – particularly the main reactions and how they are controlled;
- a comparison of the indicative BATs and benchmark emission levels standards in Technical Guidance Notes (TGNs) EPR 4.01, EPR 4.02 and EPR 4.03 and chemical sector BREFs.

Document reference

2 If you are applying for a multi-purpose plant, do you have a multi-product protocol in place to control the changes?

No ☐

Yes ☐ Provide a copy of your protocol to accompany this application

Document reference

3 Does Chapter V of the Industrial Emissions Directive (IED) apply to your activities?

No ☐

Yes ☐ Fill in the following

3a List the activities which are controlled under the IED

Installation reference	
Activities	

3b Describe how the list of activities in question 3a above meets the requirements of the IED

Document reference

Appendix 3 – Specific questions for the intensive farming sector

1 For each type of livestock, tell us the number of animal places you are applying for

Installation reference	
Type of livestock	Number of places

2 Is manure or slurry exported from the site?

No ☐

Yes ☐

3 Is manure or slurry spread on the site?

No ☐

Yes ☐

Appendix 4 – Specific questions for the clinical waste sector

If you are applying for an activity covered by the Waste Incineration Directive and wish to accept clinical waste you should fill in questions 1, 2 and 3 of this appendix.

Note: If your procedures are fully in line with the standards set out in EPR5.07 then you should tick the 'yes' box and provide the procedure reference. There is no need for you to supply a copy of the procedure.

1 Are pre-acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.2 of EPR 5.07 and which are used to assess a waste enquiry before it is accepted at the installation?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

2 Are waste acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.2 of EPR 5.07, and which are used to cover issues such as loads arriving and being inspected, sampling waste, rejecting waste, and keeping records to track waste?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

3 Are waste storage, handling and dispatch procedures, and infrastructure in place that are fully in line with the appropriate measures set out in section 3.2 of EPR 5.07?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

4 Are monitoring procedures in place that are fully in line with the appropriate measures set out in section 3.3 of EPR 5.07?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

5 Are you proposing to either

- accept an additional waste not included in Table 2.1 of section 2.1 of EPR 5.07, or
- apply a permitted activity to a waste other than that identified for that waste in Table 2.1?

No ☐

Yes ☐ Provide justification

Document reference

6 Please provide a summary description of the treatment activities undertaken on the installation. This should cover the general principles set out in section 2.1.4 of EPR 5.07

Document reference

7 Please provide layout plans detailing the location of each treatment plant and main plant items and process flow diagrams for the treatment plant

Document reference

Appendix 5 – Specific questions for the hazardous and non-hazardous waste recovery and disposal sector

Note: If your procedures are fully in line with the standards set out in SGN 5.06 then you should tick the 'yes' box and provide the procedure reference. There is no need for you to supply a copy of the procedure.

1 Are pre-acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.1.1 of SGN 5.06, and which are used to assess a waste enquiry before it is accepted at the installation?

No ☐ Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes ☑ Document reference 407.03407.00003/BATOT

2 Are waste acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.1.2 of SGN 5.06, and which are used to cover issues such as loads arriving and being inspected, sampling waste, rejecting waste, and keeping records to track waste?

No ☐ Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes ☑ Document reference 407.03407.00003/BATOT

3 Are waste storage procedures and infrastructure in place that are fully in line with the appropriate measures set out in section 2.1.3 of SGN 5.06?

No ☐ Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes ☑ Document reference 407.03407.00003/BATOT

4 Provide a layout plan giving details of where the installation is based, the infrastructure in place (including areas and structures for separately storing types of waste which may be dangerous to store together) and capacity of waste storage areas and structures

Document reference 407.03407.00003/Drawing 002

5 Provide a summary of the treatment activities carried out on the installation. This should cover the general principles set out in section 2.1.4 of SGN 5.06 and the specific principles set out in sections 2.1.5 to 2.1.15 as appropriate of SGN 5.06

Document reference 407.03407.00003/NTS

6 Provide layout plans giving details of where each treatment plant is based, the main items at each plant, and process flow diagrams for the treatment plant

Document reference or references 407.03407.00003/Drawing 002 and BATOT

Appendix 6 – Specific questions for the waste incineration sector

If you are proposing to accept clinical waste please also fill in questions 1, 2 and 3 of appendix 4 above.

1a Do you run incineration plants as defined by Chapter IV of the Industrial Emissions Directive (IED)?

No ☐ You do not need to answer any other questions in this appendix

Yes ☐ IED applies

1b Are you subject to IED as an incinerator or co-incinerator?

As an incinerator ☐

As a co-incinerator ☐

2 Do any of the installations contain more than one incineration line?

No ☐ Now go to section 4

Yes ☐

3 How many incineration lines are there within each installation?

Fill in a separate table for each installation

Installation reference	
Number of incineration lines within the installation	
Reference identifiers for each line	

You must provide the information we ask for in questions 4, 5 and 6 below in separate documents. The information must at least include all the details set out in section 2 ('Key Issues') of TGN S5.01 (under the sub heading 'European legislation and your application for an EP Permit').

You must answer questions 7 to 13 on the form below.

4 Describe how the plant is designed, equipped and will be run to make sure it meets the requirements of IED, taking into account the categories of waste which will be incinerated

Document reference

5 Describe how the heat created during the incineration and co-incineration process is recovered as far as possible (for example, through combined heat and power, creating process steam or district heating)

Document reference

6 Describe how you will limit the amount and harmful effects of residues and describe how they will be recycled where this is appropriate

Document reference

For each line identified in question 3, answer questions 7 to 13 below

Question 3 identifier, if necessary

7 Do you want to take advantage of the Article 45 (1)(f) allowance (see below) if the particulates, CO or TOC continuous emission monitors (CEM) fail?

No ☐

Yes ☐ This allows 'abnormal operation' of the incineration plant under certain circumstances when the CEM for releases to air have failed. Annex VI, Part 3(2) sets maximum half hourly average release levels for particulates (150mg/m^3), CO (normal ELV) and TOC (normal ELV) during abnormal operation.

Describe the other system you use to show you keep to the requirements of Article 13(4) (for example, using another CEM, providing a portable CEM to insert if the main CEM fails, and so on).

Appendix 6 – Specific questions for the waste incineration sector, continued

8 Do you want to replace continuous HF emission monitoring with periodic hydrogen fluoride (HF) emission monitoring by relying on continuous hydrogen chloride (HCl) monitoring as allowed by IED Annex VI, Part 6 (2.3)?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you control hydrogen chloride and keep it to a level below the HCl ELVs.

No ☐

Yes ☐ Please give reasons for doing this

9 Do you want to replace continuous water vapour monitoring with pre-analysis drying of exhaust gas samples, as allowed by IED Annex VI, Part 6 (2.4)?

Under this you do not have to continuously monitor the amount of water vapour in the air released if the sampled exhaust gas is dried before the emissions are analysed.

No ☐

Yes ☐ Please give your reasons for doing this

10 Do you want to replace continuous hydrogen chloride (HCl) emission monitoring with periodic HCl emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen chloride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 6 – Specific questions for the waste incineration sector, continued

11 Do you want to replace continuous HF emission monitoring with periodic HF emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

12 Do you want to replace continuous SO_2 emission monitoring with periodic sulphur dioxide (SO_2) emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for sulphur dioxide if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

13 If your plant uses fluidised bed technology, do you want to apply for a derogation of the CO WID ELV to a maximum of 100 mg/m³ as an hourly average, as allowed by IED Annex VI, Part 3?

No ☐

Does not apply ☐

Yes ☐ Please give your reasons for doing this

Appendix 7 – Specific questions for the landfill sector

1 Provide your Environmental Setting and Installation Design (ESID) report

Document reference

2 Provide your hydrogeological risk assessment (HRA) for the site

Document reference

3 Provide your stability risk assessment (SRA) for the site

Document reference

4 Provide your landfill gas risk assessment (LFGRA) for the site

Document reference

We have developed templates for these four reports which can be found within H1 – Landfill Annex.

5 Provide your proposed plan for closing the site and your procedures for looking after the site once it has closed

Document reference

Application for an environmental permit
Part C4 – Varying a bespoke waste operation permit

Fill in this part of the form, together with parts A, C2 and F1, if you are applying to vary (change) the conditions or any other part of the permit. Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or making changes to existing ones).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

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

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

Fill in a separate table for each waste operation you are applying to vary. 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 this document.

Document reference: 407.03407.00003/NTS

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 and description. 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.

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			
Parley Waste Management Facility	Activities A1 - A4 listed in the current issued on the 31/05/12. (We acknowledge there is now a 2013 Permit update also, but not issued at the time of submitting this app).	R3, R4, R5, R12, R13,	0.00	863
For all waste operations	Total storage capacity (see note 2)			100000
	Annual throughput (tonnes each year)			315000

Notes

1 By 'capacity', we mean the total landfill capacity (cubic metres) for landfills, 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: 407.03407.00003/NTS

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

Waste code	Description of waste
Example 02 01 08* 06 01 02*	Example Agrochemical waste containing dangerous substances Hydrochloric acid

1c Deposit for recovery purposes (see the guidance notes on part C4)

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

No ☐

Yes ☐

Have we told you during discussions we have had with you before your application that we believe the activity is waste recovery?

No ☐ no pre application discussions were carried out.

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 Regulatory Guidance Note 13. You need to highlight any changes made since the discussions and tell us below the reference you have given this document.

Document reference: 407.03407.00003/WRP

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 facility.

Table 2 – Emissions

Name of the waste operation	Parley Waste Management Facility			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
N/A				
Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity	Unit
407.03407.00003/BATOT				

2 Emissions to air, water and land, continued

Table 2 – Emissions, continued

Point source emissions to sewers, effluent treatment plants or other transfers off site				
Emission point reference and location	Source	Parameter	Quantity	Unit
407.03407.00003/BATOT				
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity	Unit
N/A				

Supporting information

3 Operating techniques

3a Technical standards

Fill in Table 3a for each operation referred to in Table 1a above and list the relevant technical guidance note (TGN) or notes you are planning to use. If you are planning to use the standards set out in the TGN, there is no need to justify using them.

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 C2 (General bespoke permit) of the application form.

The documents should summarise the main measures you use to control the main issues identified in the H1 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.

Table 3a – Technical standards

Fill in a separate table for each waste operation.

Waste operation Parley Waste Management Facility		
Description of the waste operation	Relevant technical guidance note (You will need to refer to 'How to comply' for all permits)	Document reference (if appropriate)
	'How to comply'	
Parley Waste Management	How to Comply with your Environmental Permit	407.03407.00003/BATOT
Facility		

3 Operating techniques, continued

In all cases, describe the type of facility or operation you are applying for, and, if appropriate, use block diagrams to help describe the process. Provide the document references below.

Document reference: 407.03407.00003/BATOT

3b General requirements

Fill in a separate table for each installation.

Table 3b – General requirements

Name of the waste operation	Parley Waste Management Facility
If the TGN or H1 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 N/A
If the TGN or H1 assessment shows that odours are an important issue, send us your odour management plan	Document reference or references 407.03407.00003/H1 and BATOT
If the TGN or H1 assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references N/A

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	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; and
- 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.

Document assessment reference: 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.environment-agency.gov.uk

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 ☐

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 waste facilities that accept clinical waste

Note: If your procedures are fully in line with the standards set out in EPR5.07 then you should tick the 'yes' box and provide the procedure reference. There is no need for you to supply a copy of the procedure.

1 Are pre-acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.2 of EPR 5.07 and which are used to assess a waste enquiry before it is accepted at the installation or waste facility?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

2 Are waste acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.2 of EPR 5.07, and which are used to cover issues such as loads arriving and being inspected, sampling waste, rejecting waste, and keeping records to track waste?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

3 Are waste storage, handling and dispatch procedures, and infrastructure in place that are fully in line with the appropriate measures set out in section 3.2 of EPR 5.07?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

4 Are monitoring procedures in place that are fully in line with the appropriate measures set out in section 3.3 of EPR 5.07?

No ☐ Provide justification for departure from EPR 5.07 and submit a copy of the procedures

Document reference

Yes ☐ Document reference

5 Are you proposing to either

- accept an additional waste not included in Table 2.1 of section 2.1 of EPR 5.07, or
- apply a permitted activity to a waste other than that identified for that waste in Table 2.1?

No ☐

Yes ☐ Provide justification

Document reference

6 Please provide a summary description of the treatment activities undertaken on the waste facility. This should cover the general principles set out in section 2.1.4 of EPR S5.07

Document reference

7 Please provide layout plans detailing the location of each treatment plant and main plant items and process flow diagrams for the treatment plant

Document reference

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

Note: If your procedures are fully in line with the standards set out in SGN 5.06 then you should tick the 'yes' box and provide the procedure reference. There is no need for you to supply a copy of the procedure.

1 Are pre-acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.1.1 of SGN 5.06, and which are used to assess a waste enquiry before it is accepted at the waste facility?

No ☐ Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes ☐ Document reference 407.03407.00003/BATOT

2 Are waste acceptance procedures in place that are fully in line with the appropriate measures set out in section 2.1.2 of SGN 5.06, and which are used to cover issues such as loads arriving and being inspected, sampling waste, rejecting waste, and keeping records to track waste?

No ☐ Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes ☐ Document reference 407.03407.00003/BATOT

3 Are waste storage procedures and infrastructure in place that are fully in line with the appropriate measures set out in section 2.1.3 of SGN 5.06?

No ☐ Provide justification for departure from SGN 5.06 and submit a copy of the procedures

Document reference

Yes ☐ Document reference 407.03407.00003/BATOT

4 Provide a layout plan giving details of where the waste facility is based, the infrastructure in place (including areas and structures for separately storing types of waste which may be dangerous to store together) and capacity of waste storage areas and structures

Document reference 407.03407.00003/Drawing 002

5 Provide a summary of the treatment activities carried out on the waste facility. This should cover the general principles set out in section 2.1.4 of SGN 5.06

Document reference 407.03407.00003/BATOT

6 Provide layout plans giving details of where each treatment plant is based, the main items at each plant, and process flow diagrams for the treatment plant

Document reference or references 407.03407.00003/Drawing 002

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 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 process over a 12 month period and in accordance with section 2 of TGN 6.15

Document reference

2 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 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;
- 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; and
- 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?

Yes ☐

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

Document reference

Appendix 4 – Specific questions for inert landfills

1 Provide your Environmental Setting and Installation Design (ESID) report

Document reference

2 Have you completed a hydrogeological risk assessment (HRA) for the site?

No ☐

Yes ☐ Document reference

Note: For inert landfills, this is only necessary in certain cases. Refer to our guidance 'Environmental Permitting Regulations: Inert Waste Guidance, Standards and Measures for the Deposit of Inert Waste on Land'.

3 Provide your stability risk assessment (SRA) for the site

Document reference

We have developed templates for these three reports which can be found within H1 – Landfill Annex.

4 Provide your proposed plan for closing the site and your procedures for looking after the site once it has closed

Document reference

Application for an environmental permit Part F1 – Opra, charges and declarations

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

For applications for water discharge and point source groundwater discharge activities you need to fill in part F2 instead.

Please read through this form and the guidance notes that came with it. 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 (you must fill in this section)

You have to submit an application fee with your application. You can find out the charge by either looking at the relevant standard rules permit page, the 'Making an application' webpage at http://www.environment-agency.gov.uk/business/topics/permitting/32318.aspx, or the current environmental permitting charging scheme on our website at www.environment-agency.gov.uk which sets out our charges under the Environmental Permitting Regulations. 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.

Note: for Opra charged Tier 3 Facilities you also need to complete an Opra profile (see section 2).

Table 1 – Working out charges

Type of application	Bespoke Environmental Permit Variation Application			
	Summary of charges			
Tier 2 facilities (including Part A(2) and Part B; see guidance notes on part F1)	Charge identifier	Number of facilities	Charge for each facility (£)	Charges due (£)
Tier 3 facilities				
Total Opra charging score for installations	131.00	× charge multiplier	206.00	= 26,986.00
Total Opra charging score for waste operations	60.00	× charge multiplier	140.00	= 8,400.00
Total Opra charging score for mining waste facilities		× charge multiplier		=
Other charges				
Total charges due				35,386.00

2 Opra (does not apply to standard facilities, any other tier 2 permit applications (e.g. groundwater land spreading activities), or water-discharge or groundwater point source discharge activities)

If you are submitting a bespoke application, you must include a completed electronic copy in Excel of the current Opra spreadsheet.

For most variations, full and partial surrenders you will need to submit a copy of your current Opra profile based on your existing profile, not any new profile following the variation or surrender. Check the latest charges guidance for further advice.

For transfers you will need to submit a revised Opra profile to include your own operator performance. Note: this will not change the set transfer fee.

Tick this box to confirm that you have included the OPRA spreadsheet ☐

3 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	PSCAPPECOSU001 £412 only. Remainder previously paid	
Date paid (DD/MM/YYYY)		

How to pay

Paying by cheque, postal order or cash

Cheque details

Cheque made payable to		
Cheque number		
Amount	£	412.00

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 ☐

Paying by credit or debit card

If you are paying by credit or debit card, either we can call you or you can fill in the separate form CC1 and enclose it with the application. 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 ☐

I have enclosed form CC1 with my application ☐

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:	Income Dept 311, PO Box 263, Peterborough, PE2 8YD
Bank:	Citigroup Centre
Address:	Canada Square, London, E14 5LB
Sort code:	08-33-00
Account number:	12800543
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.

3 Payment, continued

You should also email your payment details and reference number to FSC-Income@environment-agency.gov.uk or fax it to 01733 464 892.

If you are making your payment from outside the United Kingdom, it must be in sterling. Our IBAN number is GB23 CITI0833 0012 8005 78 and our SWIFTBIC number is CITI GB2LXXX.

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

Now read section 4 below.

4 The Data Protection Act 1998

We, the Environment Agency, will process the information you provide so that we can:

- deal with your application;
- make sure you keep to the conditions of the licence, permit or registration;
- process renewals; and
- keep the public registers up to date.

We may also process or release the information to:

- offer you documents or services relating to environmental matters;
- consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues;
- carry out research and development work on environmental issues;
- provide information from the public register to anyone who asks;
- prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken, and take any action that is needed;
- assess whether customers are satisfied with our service, and to improve our service; and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows). We may pass the information on to our agents or representatives to do these things for us.

Now read section 5 below.

5 Confidentiality and national security

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.

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 'Core Environmental Permitting Guidance' published by Defra and available via our website at www.environment-agency.gov.uk.

You cannot apply for national security via this application.

Now go to section 6.

6 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 2010.

A relevant person should make the declaration (see 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'.

6 Declaration, continued

Note: 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	☑
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	Trelawney
Last name	Dampney
on behalf of (if relevant; for example, a company or organisation and so on)	Eco Sustainable Solutions Limited
Position (if relevant; for example, in a company or organisation and so on)	Director
Today's date (DD/MM/YYYY)	15/01/2015

For transfers only – declaration for person receiving the permit

A relevant person should make the declaration (see guidance notes on part F1).

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	☐
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 7

7 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	☑

7 Application checklist (you must fill in this section), continued

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 ☑

Question reference	Document title	Document reference
	See Contents Page	

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.environment-agency.gov.uk

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.

9 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:

Permitting Support Centre
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 ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

_____

Our reference number

_____

Payment received?

No ☐

Yes ☐ Amount received

£ _____

Post-Conviction Plan

Name: Trelawney Dampney

Company Name: Eco Sustainable Solutions Ltd

Date: 24th July 2014

1.0 List of offences covered by this Plan

Offence	When & where	Person convicted	Sentence	Current business relationship.
Breach of Environmental Permit conditions	Eco Sustainable Solutions, Chapel Lane, Parley on dates between October 2012 and April 2013	Trelawney Dampney	None	Managing Director

2.0 Authorisation to which this Plan relates if appropriate

Authorisation number	Principle place of business
EPR/GP3793FY	Chapel Lane Parley Christchurch BH23 6BG

3.0 List of Persons / Relevant persons to which this plan relates;

Persons Convicted	Date of Birth
Trelawney Dampney	24th June 1958

Other relevant persons at the time of conviction	Date of Birth
N/A	

4.0 Circumstances of the Offence

Please provide details of events which led to the commission of the offence including accountability and any mitigating circumstances you feel are relevant. Continue on a separate sheet if necessary.

Over a period of time dating from 17th October 2012 to 29th April 2013, the Environment Agency recorded breaches of the Environmental Permit registered to Eco Sustainable Solutions. The conditions breached were 2.1.1; waste stored higher than 4m, and also 3.3.1: odour. Both breaches were caused as a result of the block composting method used at Eco for some time and also a mistaken level marker used at Eco to determine the compost pile heights. However the Environment Agency also reported that some operational issues relating to the in-vessel composting at Eco were also contributing to the odour off site.

An Enforcement Notice was served on Eco Sustainable Solutions on 19th December 2013 in relation to a breach of these permit conditions. Unfortunately the Notice was not complied with until July 2013 due to the incorrect level marker used on site to indicate pile heights and measures taken were not reducing the odours off site as desired and complaints continued. The Environment Agency subsequently issued legal proceedings of which Eco Composting pleaded guilty to all offences in court on16th April 2014.Subsequenly Eco were fined £9,000 and ordered to pay costs of £5,000. A mitigating feature of the prosecution however was that Eco Sustainable Solutions complied with the notice by 4th July 2013.

Unfortunately however, following Eco's compliance with the Notice in July 2013 odour complaints continued to be received and substantiated by the EA and as such a Warning Letter was issued to Eco on 19th September 2013. The Environment Agency then served two further Enforcement Notices on Eco Sustainable Solutions on both 20th December 2012 and two on the 31st January 2014 specifying the contravention of condition 3.3.1; Odour and issued a number of further steps to be taken by both 31st January 2014 and 28th February 2014.The first notice required a change from block to windrow composting for both green and IV waste and the second and third required additional monitoring of the IV barn, increased maintenance of the bio-filter, increased aeration to the lagoons and an update to the sites Environmental Management Plan and Odour Management Plan.

Eco had at all times accepted full accountability for the odours caused off site, and also agreed that measures taken in previous Enforcement Notices had not been successful and that the only way to reduce odours was to make a complete change to the whole composting process and the In vessel barn, however such would take considerable time and finance.

Eco liaised with The Environment Agency at all times on their progress of meeting the enforcement notice and extension was such agreed as satisfactory progress was being made with a further notice being served on 3rd March with revised dates of completion for the bio-filter monitoring and lagoon aeration, although all previous conditions were seen as being complied with by the EA on 10th March 2014 and were such withdrawn. The later notice was also complied with and withdrawn on 10th March, and the last of the actions complied with by 4th April 2014 and thus all notices complied with and measures to significantly reduce odours undertaken.

Eco Sustainable Solutions fully accept that during this period prior to notice compliance, odour was still noticeable off site in unfavourable wind conditions, but were taking steps to both comply with the Enforcement Notices served and also overhaul the complete composting process.
Furthermore, after making a complete change to the green composting process, Eco Sustainable Solutions took the decision that processing in-vessel food waste at the site created too much of a risk in terms of odour for future permit compliance and therefore completely ceased in-vessel composting in January 2014 and directed all food waste to another Eco site undertaking Anaerobic Digestion near Dorchester. The Parley site now only acts as a transfer station for internal storage of food waste prior to processing. This has now created more space for green composting in windrows where odour is also significantly reduced due to the purchase of new turning equipment and operating a Compost Manager system.

5.0 Investigation into how and why the offence occurred

Please give full details of any action you have taken to establish the cause of the offence.

The offences from which Enforcement Notices were served by the Environment Agency and subsequent prosecution were caused as a result of actions at Eco Sustainable Solutions four fold:

1. The method of block composting at the time of the breach was no longer considered Best Available Technique within the composting industry and more appropriate techniques that could reduce odours were now available.
2. The processing of in-vessel food waste compost generated more significant odours from the site
3. The leachate lagoons were often in anaerobic conditions generating further odour.
4. The pile heights were at greater than 4 metres potentially created further odour off site

The above issues were exasperated further however as the Eco site in Parley is located in close proximity to industrial units at Bournemouth airport and residential houses on Barrack Road. If wind directions were that of North-Westerly or Easterly, odours could potentially be apparent in such locations.

As a result of the above methods and actions which caused the offence, Eco Sustainable Solutions have subsequently made all improvements necessary by way of complying with all Enforcement notices served by the Environment Agency and also that of further actions taken by Eco to significantly reduce any potential odours from its site. These are detailed in section 9.

6.0 Effects of offences on people and/or the environment

Eco Sustainable Solutions fully accept that odours were generated from the site and did have an effect on nearby businesses and residents alike. The odours generated were either of a green/woody type smell which was caused as a result of the points mentioned above in section 5, or that of the IV waste or leachate lagoon.

During the process of making improvements to the site to address the odour issue, Eco liaised with local stakeholders and also that of residents/businesses who had previously made complaints concerning the odour generated at Eco. Eco often visited premises and residents when an odour complaint had been received and then further wrote to all those concerned and invited businesses/residents to a liaison meeting chaired by the Environment Agency on 15th April 2014 to discuss the previous issues and improvements made. Attendees at the meeting were also invited to a tour of the site to enable improvement measures to be witnessed.

Following such, complaints have reduced significantly. In 2013 55 odour complaints were substantiated by the Environment Agency, so far this year (as of July 2014) 3 complaints have been substantiated and these relate to IV stockpiles still being removed from the site which has now been completed.

7.0 Potential for Repetition

Do you rate the potential for repetition of the offence(s) as:

☐	High
☐	Medium
☒	Low

Please tick one box.

Reasons: All possible measures, as detailed below in section 9 have been implemented to the satisfaction of the Environment Agency and also that of further voluntary methods to ensure odour migrating off site has significantly reduced. Eco Sustainable Solutions now conform to Best Available techniques for the composting of green materials. Stock pile heights cannot currently be exceeded due to the open windrow composting method now adopted and usability of the straddle turner, they remain approximately 2-2.5 metres in height.

8.0 Other permits or registrations held

Please detail other permits or registrations issued by the Environment Agency which you hold.

Permit/Registration Type and Number	**Site to which it relates**
EPR/FP3692SU	Piddlehinton AD Facility Piddlehinton Dorchester DT2 7TU
EPR/GB3831RY	Preston Beach Waste Transfer Station Weymouth DT4 7SX

9.0 Remedial and Preventative Measures

Please detail the measures you have taken to prevent recurrence of the offence including plans for audit and review.

Improvement measures to significantly reduce odours from the Eco Sustainable Solutions to off site locations both through voluntary arrangements and Environment Agency Enforcement Notices are set out below:

1. Change from block to open windrow composting of green waste accredited to PAS 100 quality standard and utilising the CompostManager computerised management system which fully informs Eco of both how the compost is performing and also if actions such as turning or irrigation is required.

2. Purchase of an open-straddle compost turner which allows a quick and effective way to turn and aerate the compost to reduce odours.

3. Installation of 4 aerators to the leachate lagoon to reduce anaerobic conditions within the lagoons which were a source of odour from the premises.

4. Completely cease In-vessel composting on site which was considered to be the main source of odour. The site now only accepts food waste at Parley within an enclosed transfer barn which is subsequently hauled

5. Undertaken significant assessment, monitoring and maintenance to the air flow and function of the bio-filters from the in-vessel food waste barn to reduce any potential odours from this building

6. Purchase of a further green waste screener to increase the capacity and thus reduced storage of green waste.

7. Doubled the footprint of the green waste composting area to allow the correct storage capacity for the green waste windrows.

8. Revision of the company Odour Management Plan and employment of odour mitigation and management measures to all aspects of the process at Eco.

9. Employment of a Environmental Compliance Manager at Eco Sustainable Solutions to ensure the role of continued compliance is placed at the top of the company agenda.

Eco Sustainable Solutions Limited

Environmental Management System

Parley Site
Permit reference: EPR/GP3793FY

April 2011

Eco Sustainable Solutions Ltd,
Chapel Lane,
Parley,
Christchurch
Dorset,
BH23 6BG
Tel: 01202 593601
Fax: 01202 581119
www.thisiseco.co.uk

Contents

1. Introduction

This Environmental Management System (EMS) has been prepared in accordance with the Environmental Permitting requirements and sets out the considerations and operational details that are relevant to the working of the following operations carried out at the Eco Sustainable Solutions Ltd site located at Chapel Lane, Parley, Christchurch, Dorset, BH23 6BG.

Permit reference: EPR/GP3793FY

1.1 Amendments to the EMS and Supporting Information

Any proposed changes to the EMS or to the operations within the Environmental Permit areas on site will be notified to the Environment Agency. Such notification will be accompanied by a Risk Assessment of the risk to human health or the environment that such changes may pose.

Those changes requiring prior approval by the Environment Agency shall not be implemented until such written approval is received. All other changes requiring pre-notification shall form part of the adopted EMS following notification.

1.2 Site Diary

Throughout the EMS a site diary is referenced and is used to maintain a record of the activities that take place on site, any incidents that occur and any remediation works necessary. For logistical purposes this is not one single document but a term used to cover a series of required daily record sheets. These are detailed in Table 1.

Table 1. Information included within Site Diary

Record Title	Frequency	Area Covered
Maintenance Checklist	Daily	Litter
		Lagoon levels
		Rainfall and weather conditions
		Site security e.g. condition and monitoring of security fences
		Mud/Debris
		Drainage
		Biofilter
		Health and Safety
		Hired equipment
Daily Odour Assessment	Daily	Odour
Weather Sheet	Daily	Actioned Odour/Dust & measures
Weighbridge Tickets	Daily/As required	Incoming wastes
		Reject/contaminants/quarantined.
Fitter Log	Daily	Maintenance/breakdowns
Defect Reporting/Service Log	Daily	Maintenance/breakdowns
Sample records	As required	Sample abnormalities
Incident/Accident Emergency Form	As required	Environmental, Quality & Health & Safety. Incident Response

2. Environmental Policy

Eco Sustainable Solutions are aware, not only of global concerns, but those of our local environment. As members of the local community we also share its concerns and will make every effort to ensure that we minimise any adverse effects that our undertakings and operations may have on the environment.

Eco Sustainable Solutions will achieve the commitment of safeguarding the environment by undertaking and implementing the following:

Eco Sustainable Solutions will:

- Identify all environmental impacts of the company.
- Comply with existing legislation as a minimum.
- Implement procedures to minimise pollution to Land, Air and Water.
- Continuously endeavour to reduce the environmental impact of the operations.
- Reduce waste and consumption of energy and natural resources wherever and whenever possible.
- Provide appropriate training and resources to ensure personnel the required skills to implement the policy.
- Work to develop efficient transport systems that have minimal environmental impact and meet the CO_2 emissions requirements as laid down by the Department of Transport for all Vehicles.
- Communicate the policy to all employees.

3. Scope

This EMS supersedes Working Plan 5.3 however omits wood processes exempt under Schedule 3 Paragraph 13 (Exemption Number: 3002517/DOR/E/L/ECO002/003). Activities under the exemption are covered in a separate document.

This EMS sets out the nature of the site, relevant site and infrastructure works, methods of operation and environmental controls. The permitted waste management operations carried out on the site are detailed in Table 2.

Table 2. Waste Management Operations and Material Limits

	Description	As defined in Annex IIB of EC Framework Directive on Waste (91/156/EEC):	Unit Quantity Limits
Composting Unit (inc. associated water storage) Former permit reference: WML296/ EAWML23525	The reception, storage, processing, composting, screening & dispatch of biodegradable wastes through the Composting Unit.	**R3:** Recycling/reclamation of organic substances which are not used as solvents **R13:** Storage of material intended for the operations above	• 35,000 tonnes per annum • Liquid waste shall only be added if the moisture content of the compost fall below 50% weight by weight • 1,200m^3 maximum in storage awaiting shredding at any one time • 25,000m^3 maximum waste in storage at any one time
In Vessel Composting Unit Former waste permit number EAWML23710	The reception, storage, processing, composting, screening & dispatch of biodegradable catering and liquid wastes through the In Vessel Composting Unit.	**R3**:Recycling/reclamation of organic substances which are not used as solvents **R5:** Recycling/reclamation of other inorganic materials R13: Storage of material intended for the operations above	• 45,000 tonnes per annum • Liquid waste shall only be added if the moisture content of the compost fall below 50% weight by weight • 11,500 m^3 maximum storage in windrow area
Soils Recycling Unit Former waste permit number EAWML23717	The reception, storage, processing, screening, washing & dispatch of inert soils & inert C&D wastes through the Soils Recycling Unit.	**R3**: Recycling/reclamation of organic substances which are not used as solvents **R5:** Recycling/reclamation of other inorganic materials **R13:** Storage of material intended for the operations above.	• 50,000 tonnes per annum

The site comprises a parcel of land east of Chapel Lane, Parley, centred on Grid Reference SZ10145 98805. The location of the site is shown in Figure 1. The locations of the different areas covered by the Environmental Permits are shown in Figure 2. Access to the site as a whole is via the main entrance, as denoted in Figure 2.

Figure 1. Site Location

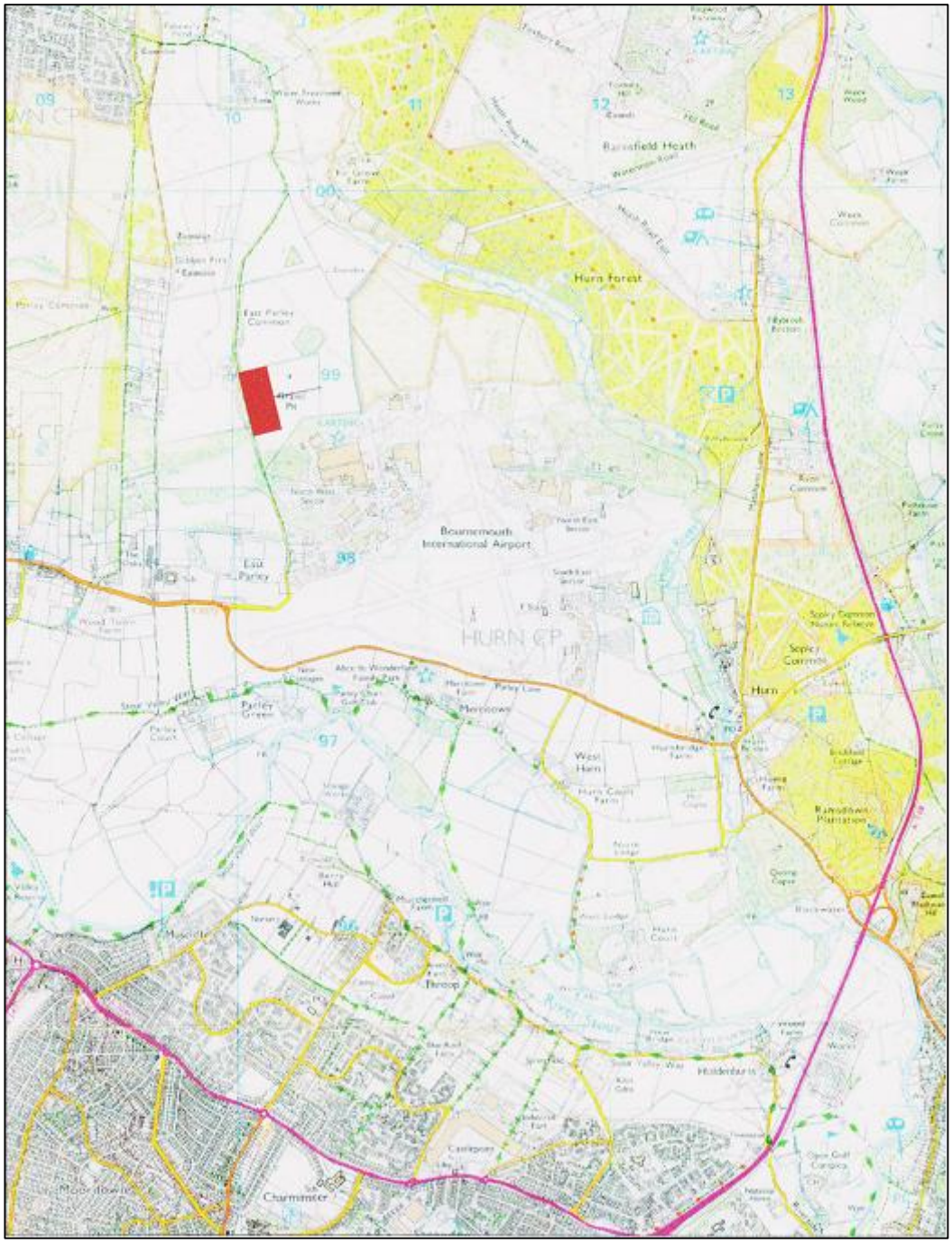
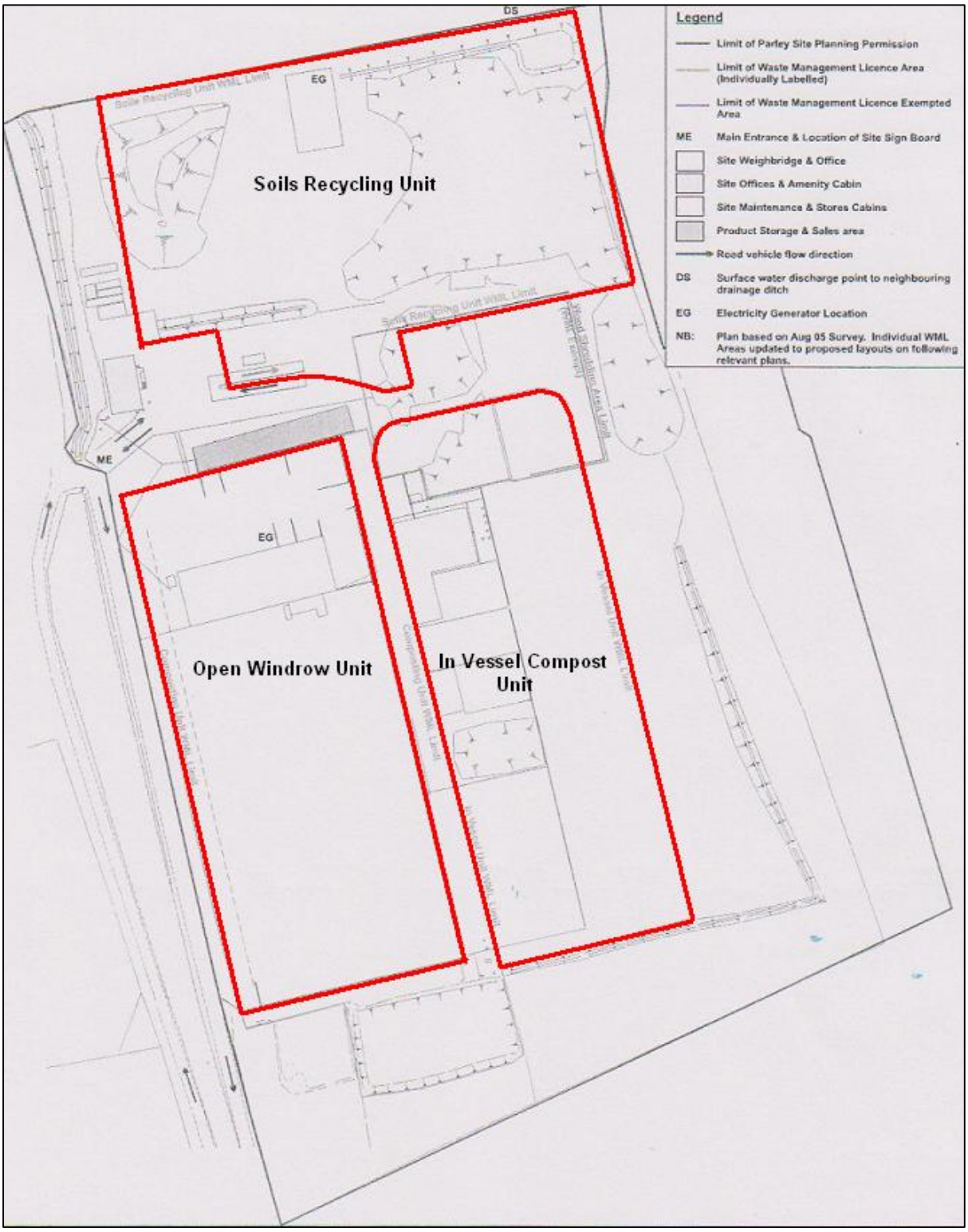


Figure 2. Site Plan



4 Site Overview

4.1 Opening hours

The hours of operation for the reception of waste are as follows:

Monday to Friday: 07.00 to 17.00 Saturday: 07.00 to 12.00 noon

The site operates up until 18.00 Monday to Friday and 13.00 Saturday to allow maintenance works to be carried out but no waste will be accepted, processed or dispatched from site during these times. The receipt of waste is also limited to daylight hours or where adequate lighting is available. Working may be required outside these hours in exceptional circumstances, such as in the event of plant breakdown or similar. The Environment Agency and Local Planning Authority will be notified verbally and in writing in advance should this be required to gain consent prior to carrying out the work

4.2 Provision of Site Identification Board

A site information and warning notice is required for each Environmental Permit operated at Parley. The sign carrying this amalgamated information is located at the main entrance to the site. The site notice contains all the required elements as set out within each Environmental Permit, including Permit numbers, opening hours, operator's details (including address and contact telephone numbers), Environment Agency contact details and emergency contact telephone numbers.

4.3. Site Security

The site is surrounded by either a 1.8m high close boarded fence (to the Chapel Lane boundary), or a post and wire stock fence backed in places by replanted hedgerow (to the rear of the site). All gates to the site are kept locked when not in use. The site is monitored out of hours using 2 camera systems, one of which has a dial out facility to a 24 hour monitoring station, so providing continual out of hours coverage of the site. The monitoring station has emergency contact numbers for all the senior management responsible for the operations at the site. The boundary fences, main & access gates and cameras are checked daily for damage or signs of attempted entry. Such occurrences are noted in the site diary and any damage is repaired immediately in the case of minor damage or within a week in the case of major damage. The main access point to the site passes alongside the main office and weighbridge units, which provide continual supervision and video monitoring of all traffic movements in and out of the site.

5. Permitted Waste

The permitted waste types and annual tonnages (tpa) for each Environmental Permit are listed shown below. The text in italics is entered to give completeness to the classification, where required. These wastes will be accepted at the site as long as they are free of contamination. Any liquid waste is accepted in line with Eco's Odour Management Plan.

Any loads containing contaminants will be rejected and directed to an appropriate landfill site. Records of such incidents will be kept as part of the site diary. Any non-conforming waste found during the processing of waste on site will be loaded into skips (either covered or open, dependent upon waste type) and disposed of at the appropriate landfill. The site accepts waste streams from public utility, local authority, private contractors, companies and the general public.

5.1 Open Windrow Composting

Part A Open Windrow composting – maximum of 35,000 tonnes per year	
Waste Code	Description
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning
02 01 03	plant-tissue waste
02 01 07	wastes from forestry (comprising wood and plant tissue)
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	wastes from wood processing and the production of panels and furniture
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing
03 03 01	waste bark and wood
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	wood, glass and plastic
17 02 01	wood (untreated)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste plant matter only

5.2 In Vessel

Part B In vessel Composting – maximum of 45,000 tonnes per year	
01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**
01 05	drilling muds and other drilling wastes
01 05 04	freshwater drilling muds and wastes
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning
02 01 02	animal tissue waste
02 01 03	plant-tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw)
02 01 07	wastes from forestry (comprising wood and plant tissue)
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 01	sludges from washing and cleaning
02 02 02	animal tissue waste (excluding animal blood).
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 03 05	sludges from on-site effluent treatment
02 05	wastes from the dairy products industry
02 05 01	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 05 02	sludges from on-site effluent treatment
02 06	wastes from the baking and confectionery industry
02 06 01	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 06 03	sludges from on-site effluent treatment
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
02 07 99	Wastes not otherwise specified (includes spent grains, hops and whisky filter sheets/cloths only allowed if biodegradable with no chemical agents added and no toxin residues present)
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	wastes from wood processing and the production of panels and furniture
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 10	fibre rejects (not containing hazardous substances)
04	**WASTES FROM THE LEATHER FUR AND TEXTILE INDUSTRIES**
04 01	wastes from the leather and fur industry
04 01 01	fleshings and lime split wastes

04 01 09	wastes from dressing and finishing
04 02	Waste from the textile industry
04 02 10	organic and natural products (un-dyed and untreated)
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
07	**WASTES FROM ORGANIC CHEMICAL PROCESSES**
07 01	wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 02	wastes from the MFSU of plastics, synthetic rubber and man-made fibres
07 02 13	waste plastic (only certified biodegradable plastic to be accepted)
07 03	wastes from the MFSU of organic dyes and pigments (except 06 11)
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11
07 06	wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11
08	**WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS**
08 04	wastes from MFSU of adhesives and sealants (including waterproofing products)
08 04 16	aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	packaging (including separately collected municipal packaging waste)
15 01 01	paper and cardboard packaging not containing veneers or plastic coated.
15 01 02	plastic packaging (only certified biodegradable plastics)
15 01 03	wooden packaging (untreated)
15 01 05	composite packaging only biodegradable organic packaging
15 01 09	textile packaging
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 03	off-specification batches and unused products
16 03 06	organic wastes other than those mentioned in 16 03 05
16 10	aqueous liquid wastes destined for off-site treatment
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	wood, glass and plastic
17 02 01	wood (untreated)
17 05	Soil (including excavated soil from contaminated sites) stones and dredging spoil
17 05 06	Dredging spoil other than that containing dangerous substances (only from top 300mm of dredged surface. Anything below this will not contain compostable material)
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE**
19 02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 03	stabilised/solidified wastes
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 05	wastes from the aerobic treatment of solid wastes
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost (only from a process operated according to PAS 100 and QP requirements or another approved standard)
19 05 99	Wastes not otherwise specified

19 06	waste from the anaerobic treatment of waste
19 06 03	liquor from anaerobic treatment of municipal waste (source segregated municipal waste only)
19 06 04	digestate from anaerobic treatment of municipal waste (source segregated municipal waste only)
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 01	paper and cardboard
19 12 07	wood other than wood containing dangerous substances
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard (where no non-biodegradable coating or preserving substance present)
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 01 38	wood other than that mentioned in 20 01 37 (where no non-biodegradable coating or preserving substance present)
20 01 39	plastics
20 01 99	Wastes not otherwise specified
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste (comprising wood and plant tissue)
20 03	other municipal wastes
20 03 02	biodegradable waste from markets
20 03 03	street-cleaning residues

5.3 Soils

Part C Soils recycling Unit – maximum of 50,000 tonnes per year	
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	concrete, bricks, tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
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
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 08	wastes from waste water treatment plants not otherwise specified
19 08 99	wastes not otherwise specified (UV treated sewage effluent only)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 02	garden and park wastes (including cemetery waste)
20 02 02	soil and stones

6. Environmental Impacts Plan and Controls

All processes and activities under each of Eco's permitted areas and their potential Environmental impacts are summarised within Table 3. Potential Impacts are categorised into Low, Medium and High.

Table 3. Potential Environmental Impacts of Processes and Activities

Area of site	Process / Activity / Equipment Each process/activity/equipment impact on the environment is considered under normal or abnormal (ab) operations.	A	W	E	D	L	N	R
	Associated Environmental Legislation • The Environmental Permitting (England and Wales) Regulations 2007, SI 3538 • Groundwater regulations 1998, SI 2746 • Water Resources Act 1991, as amended. • Environmental Protection Act 1990 • Control of Pollution (Oil Storage) (England) Regulations 2001, SI 2954 Hazardous Waste Regulations (2005) (applicable activities indicated by an *)	**A** Emissions to Air (including dust) **E** Energy Usage (e.g. electricity, gas, oil) **L** Land Contamination **R** Resource Consumption (e.g. water, chemicals, not energy) **W** Emissions to Water **D** Waste Disposal **N** Nuisance (i.e. noise or odour) **Impact (presuming the worst posible scenario)** **(L)** Low impact:Minimal effects on the environment, short term recovery from effects, nuisance to local inhabitants, small amounts of hazardous waste **(M)** Medium impact: Notible effect on the environment, medium term recovery from effects, warning from statutory bodies, indoor emergency **(H)** High impact: on the environment, long term impact, official complaints or fines, emergency occuring outdoors (including if emergency is only is only a secondary aspect)						
Office	Storage and generation of documentation							
Weighbridge	Generation and processing of relevant paperwork e.g. Waste transfer notes							
Site General	Storage of Fuel tank		H			H		
	Filling fuel tank, static and mobile plant		M			M		
	Chemical/Gas storage (for list of specific substances please see COSHH file)							
	Sweeping of yard (vehicle attachement)	L					L	
	Drainage clearance							
	Perimeter odour control misting system (electric)			L			L	L
	Odour Control Mobile fan (diesel)			L			L	L
	Dust suppression misting system			L				L
	Vermin control							
	Generator use and storage	L	L	M		L		
	Storage and Disposal of waste (Scrap metal, plastic and general)				L	L		
Maintenance	Vehicle maintenance and repairs		L					L
	General site maintenance	L						
	Maintenance and cleaning of plant	L				L		
	Disposal and Storage of maintenance waste (Hazardous - waste oil, batteries and waste oil filters)		L		M	L		
Green Compost ('Open Windrow')	Tipping green waste (customer)							
	Storage of preshredded green waste					L		
	Operation of two loading shovels (general pushing up of incoming waste, loading shredder and screen), shredder and screen operation	L		M			L	
	Application of odour control product						L	L
	Storage of maturing compost	L	L			L	H	
	Operation of 360 excavator (turning of green waste compost)	L		M			M	
	Lagoon/Pumping & handling of leachate and run off water Discharge to STW			L	L	L	M	

Area of site	Process / Activity / Equipment Each process/activity/equipment impact on the environment is considered under normal or abnormal (ab) operations.	A	W	E	D	L	N	R
	Associated Environmental Legislation • The Environmental Permitting (England and Wales) Regulations 2007, SI 3538 • Groundwater regulations 1998, SI 2746 • Water Resources Act 1991, as amended. • Environmental Protection Act 1990 • Control of Pollution (Oil Storage) (England) Regulations 2001, SI 2954 Hazardous Waste Regulations (2005) (applicable activities indicated by an *)	**A** Emissions to Air (including dust) **E** Energy Usage (e.g. electricity, gas, oil) **L** Land Contamination **R** Resource Consumption (e.g. water, chemicals, not energy) **W** Emissions to Water **D** Waste Disposal **N** Nuisance (i.e. noise or odour) **Impact (presuming the worst possible scenario)** **(L)** Low impact: Minimal effects on the environment, short term recovery from effects, nuisance to local inhabitants, small amounts of hazardous waste **(M)** Medium impact: Notable effect on the environment, medium term recovery from effects, warning from statutory bodies, indoor emergency **(H)** High impact: on the environment, long term impact, official complaints or fines, emergency occuring outdoors (including if emergency is only is only a secondary aspect)						
In Vessel	Entrance and exit IVC barn						M	
	Disinfectant					L		
	Storage of pre treated IVC waste	L				L	L	
	Operation plant and loading shovel	L		M			L	
	Application of odour control product	L		L			L	L
	Biofilter use and maintenance	L						
	Loading and unloading clamp	L					M	
	Maintenance & cleaning						L	
	Use, maintenance and service of Boiler			M				
	Maturing In Vessel Compost Storage	L	L			L	M	
	Operation of 360 excavator for turning	L		M			M	
	Liquid acceptance		L			L		
	Mixing and emptying mixing bay		L			L		
	Cleaning and emptying of lagoon						M	
	IVC screening	L		L			M	
	Emptying of plastic bay (rejects)						L	
	Loading IVC compost to tractors			L			L	
Soils	Operation of loading shovel, 360 excavator and plant	L		M			L	
	Soil storage							
Washplant	Recirculation of water		L	L		L		L
	Operation of plant and loading shovel to load hopper and customer vehicles	L		M			L	
	Operation and cleaning silt lagoons		L	L	L	L		
	Aggregate storage							

Any new activities will be identified and added. Likely changes include alternation to operations and development.

Tables 4A-4G summarise equipment and procedures in place for activities/processes with either a medium or high impact in any of the environmental impact areas.

Table 4A. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Air.

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 4B. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Water

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
General Site	***Storage of Fuel tank***	**High:** A fuel spillage may occur due to impact, vanadlism or tank rupture causing contamination of local water courses.	Yes- Security cameras, secure site, crash barrier in front of tank to minimise risk of impact. Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	
General Site	***Filling fuel tank, static and mobile plant***	**Medium:** Spillage may result in the pollution of local watercourses	Yes- Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	None

Table 4C. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Energy

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Site General	***Generator use and storage***	**Medium:** Fuel consumption contributes towards depletion of natural resources	No	No	Maintenance Procedure - Regular service	Yes	None
Green Compost	***Operation of two loading shovels (general pushing up of incoming waste, loading shredder and screen), shredder and screen operation***	**Meduim:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Green Compost	***Operation of 360 excavator (turning of green waste compost)***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
In Vessel Compost	***Operation plant and loading shovel***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
In Vessel Compost	***Use, maintenance and service of Boiler***	**Medium:** Fuel consumption contributes towards depletion of natural resources	No	No	Yes- Regular servicing and maintenance	Yes	None
In Vessel Compost	***Operation of 360 excavator for turning***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Soils	***Operation of loading shovel, 360 excavator and plant***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Washplant	***Circulation of water***	**Low:** Fuel consumption contributes towards depletion of natural resources	No	No	Pumps are regularly serviced	Yes	None
Washplant	***Operation of plant and loading shovel to load hopper and customer vehicles***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None

Table 4D. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Disposal

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Maintenance	***Disposal and Storage of maintenance waste (Hazardous - waste oil, batteries and waste oil filters)***	**Medium:** Incorect disposal or treatment could cause water or land contamination or harm to human health	No	No	**Yes-** All appropriate staff are aware of requirements for hazardous waste storage and paperwork	**Yes**	

Table 4E. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Land

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Site General	***Storage of Fuel tank***	**High:** A fuel spillage may occur due to impact, vanadlism or tank rupture causing contamination of land	Yes- Security cameras, secure site, crash barrier in front of tank to minimise risk of impact. Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	None
Site General	***Filling fuel tank, static and mobile plant***	**Medium:** Spillage may result in the pollution of local land	Yes -Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	None

Table 4F. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Nuisances

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Green Compost	***Storage of maturing compost***	**High:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes -Perimiter system and topical applicaiton of product as well as a mobile fan used when wind is unfavourable.	Yes	Yes- fan located and turned on when unfavourable wind conitons are forcaseted and current.	Yes	Eco's Odour Management Plan covers this activity in more detail
Green Compost	***Operation of 360 excavator (turning of green waste compost)***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	No	No	Activity suspended during unfavourable wind conditions. Weather monitoring and assessments by office and site staff	Yes	None
Green Compost	***Lagoon/Pumping & handling of leachate and run off water Discharge to STW***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes- Aeration pumps used to minimise anearobic conditions	Yes	Lagoons aerated alternatively. If wind is unfavourable suspend aeration as that itself may cause odour due to aggitation	Yes	None
In Vessel	***Entrance and exit IVC barn***	**Low:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes- Barn door	Yes- external service contract on door.	Yes - barn door is shut unless access needed for vehicles	Yes	None
In Vessel	***Storage of pre treated IVC waste***	**Low:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes- Biofilter and enclosed barn	Yes	Yes - barn door is shut unless access needed for vehicles	Yes	None
In Vessel	***Loading and unloading clamp***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Mobile fan can be used if deamed necessary according to Eco's Odour Management Plan	Fan - service contract	Yes- when NW wind direction suspend operations.	Yes	None
In Vessel	***Maturing In Vessel Compost Storage***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	N/A	N/A	Topical application of odour mimimising product	Yes	Eco's Odour Management Plan covers this activity in more detail
In Vessel	***Operation of 360 excavator for turning***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance			Yes- when NW wind direction suspend operations.	Yes	None
In Vessel	***Cleaning and emptying of lagoon***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance			Yes- when NW wind direction suspend operations.	Yes	None
In Vessel	***IVC screening***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes - perimeter odour misting system extends along boundary where tractors loaded	Yes	Yes- when NW wind direction suspend operations.	Yes	Eco's Odour Management Plan covers this activity in more detail

Table 4G. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Resources

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Processes outlined in Tables 4A-4G and additional site procedures are described further in Table 5. A number of the procedures are detailed further within this EMS document

Table 5. Control Procedures

Procedure Name	What process / activity / equipment does it relate to?	Where is the procedure kept	Version Number	When was this procedure last reviewed	Comments
Spill Responce Procedure	**General Site:** Filling fuel tank, static and mobile plant (Potential land and water impact)	Office and Workshop, Chemical Store, Weighbridge, Mess Room		Mar-11	None
	Site General: Storage of Fuel tank	Office and Workshop, Chemical Store, Weighbridge, Mess Room		Mar-11	None
Maintenance Procedure (Fitter Daily log)	**Site General:** Generator use and storage	Office		Feb-11	None
	Green Compost: Operation of two loading shovels (general pushing up of incoming waste, loading shredder and screen), shredder and screen operation	Office		Feb-11	None
	Green Compost: Operation of 360 excavator (turning of green waste compost)	Office		Feb-11	None
	In Vessel Compost: Operation plant and loading shovel	Office		Feb-11	None
	In Vessel Compost: Use, maintenance and service of Boiler	Office		Feb-11	None
	In Vessel Compost: Operation of 360 excavator for turning	Office		Feb-11	None
	Soils: Operation of loading shovel, 360 excavator and plant	Office		Feb-11	None
	Washplant: Operation of plant and loading shovel to load hopper and customer vehicles	Office		Feb-11	None
Waste Disposal Procedure	**Maintenance:** Disposal and Storage of maintenance waste (Hazardous - waste oil, batteries and waste oil filters)	Office		Mar-11	None
Odour Management Plan	**Green Compost:** Storage of maturing compost	Office - Within OMP document	Dec-10	Dec-10	None
	Green Compost: Operation of 360 excavator (turning of green waste compost)	Office - Within OMP document	Dec-10	Dec-10	None
	Green Compost: Lagoon/Pumping & handling of leachate and run off water Discharge to STW	Office - Within OMP document	Dec-10	Dec-10	None
	In Vessel Compost: Loading and unloading clamp	Office - Within OMP document	Dec-10	Dec-10	None
	In Vessel Compost: Maturing In Vessel Compost Storage	Office - Within OMP document	Dec-10	Dec-10	None
	In Vessel Compost: IVC screening	Office - Within OMP document	Dec-10	Dec-10	None
	In Vessel Compost: Operation of 360 excavator for turning	Office - Within OMP document	Dec-10	Dec-10	None
	In Vessel Compost: Cleaning and emptying of lagoon	Office - Within OMP document	Dec-10	Dec-10	None
Additional relavent control procedures					
Procedure Name	What process / activity / equipment does it relate to?	Where is the procedure kept	Version Number	When was this procedure last reviewed	Comments
Waste Acceptance Control Systems and Procedures	All site	Office -Within EMS document		Mar-11	None
Control of Mud & Debris	All site	Office -Within EMS document		Mar-11	None
Control, Monitoring & Reporting of Dusts, Fibres and Particulates	All site	Office -Within EMS document		Mar-11	None
Control and Monitoring of Noise	All site	Office -Within EMS document		Mar-11	None
Control of Pest Infestations	All site	Office -Within EMS document		Mar-11	None
Control of Litter	All site	Office -Within EMS document		Mar-11	None
Composting Unit Operational Control Procedures	All Green Composting Unit	Office -Within EMS document		Mar-11	None
In Vessel Unit Operational Control Procedures	All In Vessel Composting Unit	Office -Within EMS document		Mar-11	None
Soils Recycling Unit Operational Control Procedures	**All Soil Recycling Unit**	Office -Within EMS document		Mar-11	None
Emergency Response	All site	Office -Within EMS document		Oct-10	None
Reducing the risk of composting fires	Green and In Vessel Composting	Office -Within EMS document		Jan-11	None
Incident and Accident Reporting Procedure	All site	Office -Within EMS document		Jan-11	None

7. Legal Requirement

Eco's Environmental Policy statement requires Eco to comply with existing legislation as a minimum and aim to go beyond legal and other requirements

Table 6. List of relevant legislation

Legislation /code of practice	Applicable to which processes/product	Where is a copy held?	Person responsible for compliance
Environmental Permitting Regulations 2010	• All	Site Operations Office	COTC Holder
Groundwater regulations 1998, SI 2746	• All	Site Operations Office	COTC Holder
Water Resources Act 1991,as amended.	• All	Site Operations Office	COTC Holder
Environmental Protection Act 1990	• All	Site Operations Office	COTC Holder
Control of Pollution (Oil Storage) (England) Regulations 2001, SI 2954	• Site general	Site Operations Office	COTC Holder
Hazardous Waste Regulations (2005)	• Site general • Maintenance	Site Operations Office	COTC Holder
Health and Safety at Work Act 1974	• All	Site Operations Office	COTC Holder
COSHH	• All	Site Operations Office	COTC Holder
Non-road Mobile Machinery (Emission of gaseous and particulate pollutants regulations) 1999	• All	Site Operations Office	COTC Holder
Contaminated Land Regulations 2000	• Site general • Maintenance	Site Operations Office	COTC Holder
Town and planning Act 1990	• All	Site Operations Office	COTC Holder

8. General Site Operational Control Procedures

8.1 Waste Acceptance Control Systems and Procedures

This transfer of waste will be recorded in the site weighbridge Waste Transfer Note system.

All incoming waste vehicles are required to proceed to the weighbridge, as indicated on Figure 2, where details of vehicle registration, source of waste and weight are recorded.

From the weighbridge, the vehicles will proceed to the assigned off loading point for the relevant Environmental Permitted area and discharge the waste.

All loads are inspected during discharge for articles that contravene the relevant Environmental Permit. Should any such articles be discovered, the driver will be asked to wait while Site Management is informed and the load is thoroughly assessed for further action to be taken and a load inspection sheet is completed.

If the material is not as described but falls within the permitted wastes for the relevant Unit, the Site Management will inform the haulier and producer of the discrepancy and record the incident on the daily record sheet. If the material is unpermitted, the load will either be reloaded and removed from site in the haulier's vehicle or, if this is not possible, segregated within a covered skip and removed from site as soon as possible. All such incidents will be recorded in the site record and notified to the E.A. within 48 hours.

Any loads containing minor quantities of non-conforming wastes are accepted in the knowledge that the non-conforming materials can be removed by hand during initial processing. These removed materials are placed in a quarantine skip for removal from site.

A covered, lockable skip will be used for waste quarantine should the waste type require it. Non-covered quarantine skips will be emptied as required. As covered skips will only be bought in when necessary, they will be removed within 2 working days of being filled and locked while awaiting removal.

Details of any rejected loads are recorded which forms part of the site diary and the volume/tonnage records adjusted accordingly. Removal of quarantined wastes to other permitted sites is also recorded in the site diary.

All staff are trained in to only allow accept permitted wastes and the implications of contaminants in terms of health & safety, Environmental Permit contravention, pollution prevention and product contamination.

8.2 Waste Quantity Measurement Systems

Incoming waste loads are required to proceed directly to the weighbridge, which is calibrated and Trading Standards approved to accept loads of up to 50,000 kg net weight.

At the weighbridge, details of the incoming load are checked against the Waste Transfer Note to confirm the amount and type of wastes, their source and the Waste Carriers Licence Number for the transaction. Where practical an initial inspection of the load is made prior to directing the vehicle to the relevant discharge point within the site.

Any recycled products sold or materials transferred between Environmental Permitted areas are also recorded by the site weighbridge Waste Transfer Note/Sales Ticket system to ensure as far as is reasonably practicable a comprehensive account of stocks can be made when required.

8.3 Storage of Specified Waste

Each waste management operation on site has its own designated unloading area. Unloading facilities for the various operations on site are listed below:

Composting Unit:

Discharge to feed/blending pile on sealed concrete pad
Liquid waste to discharge by direct injection into compost within maturation block.

In Vessel Unit:

Discharge to feed/blending pile on sealed concrete pad within secure building
Liquid waste to discharge by direct injection into compost in clamps, by an excavator following preliminary mixing with absorbent material (wood chip/saw dust) at the designated in vessel mixing bay or where appropriate by direct injection at the in vessel maturation pad.

Soils Recycling Unit:

Discharge to feed/blending pile on compacted hardcore pad

All loads are further inspected for non-conforming wastes following discharge. Processes for dealing with non-conforming wastes are covered in Section 8.1 (Waste Acceptance Control Systems and Procedures) in this EMS.

8.4 Control of Mud & Debris

The access to the site is regularly checked for mud and other debris which may present a hazard to the highway. The internal roadways are hard surfaced throughout the site, so providing clean access to all the Permitted areas on site. This good running surface negates the need for provision of specific wheel vehicle cleaning equipment for the site as a whole.

Within the Soils Recycling Unit, the site is underlain by roller compacted concrete capable of being scraped free of significant contamination of mud. All other areas covered by Environmental Permits are hard surfaced with either reinforced concrete or tarmac, so providing a road surface that is easily maintainable in a debris-free state with the plant and powered brushes available on site.

High pressure washing hoses are available on site for use in cleaning down vehicles leaving the site, where necessary.

The permitting of the operation of the In Vessel Composting Unit under ABPR and the nature of the wastes it receives requires the cleaning of all vehicles leaving the discharge area for this Permitted Unit. This will be done using a pressure washer equipped with a disinfectant dosing unit to remove any debris or contamination from the wheels and chassis of the vehicle and will be carried out by or directly supervised by a member of the Eco Composting site staff.

All pedestrians leaving the In Vessel Composting Unit or passing between areas within the unit will also disinfect their footwear using the disinfectant baths provided. Again, this will be supervised by a member of the Eco Composting site staff. The In Vessel Unit will be locked when not receiving material.

All vehicles entering or leaving the site loaded will have their loads sheeted or roped, as necessary, to prevent spillage on the public highway.

8.5 Control, Monitoring & Reporting of Dusts, Fibres and Particulates

The site has a 5mph speed limit and the benefit of a fully surfaced entranceway and internal road system which are maintained free of loose material to minimise the potential for dust generation by vehicle movements.

Water is available on site for dampening any material liable to cause a dust nuisance during shredding, turning or screening. Stockpiles, roadways, product bays and surrounding areas are regularly dampened down during dry periods using a water bowser as well as a timed sprinkler system covering central area.

All In-Vessel wastes, except when being transferred between treatment operations, are kept within a building or the composting vessel until such time as the composting process is largely completed.

The site diary is used to record any incidents of excessive dust arising and control measures used as well as noting ambient conditions on site.

An external contractor carries out 6 monthly Bioaerosol monitoring every. A copy of each monitoring report and risk assessment produced and any recommended measures auctioned. A copy of the report and risk assessment is provided to the EA.

Any complaints are recorded using an Incident Report Form (Appendix 3)

8.6 Control of Odours

All measure and procedures to control odours are covered within Eco's Odour Management Plan.

Any complaints are recorded using an Incident Report Form (Appendix 3)

8.7 Control and Monitoring of Noise

All equipment operated by the site is suitably attenuated to reduce noise emissions in line with EEC standards for the mobile plant being operated. All plant operated on site is maintained and serviced in accordance with manufacturer's instructions to minimise noise emissions.

Most processes carried out on site take place either within buildings or behind stockpiles or screening bunds to assist in the reduction of noise apparent outside the site boundary. To further assist in the reduction of noise at local properties, a noise attenuation bund has been raised to the west of Chapel Lane, across from the site boundary.

The site diary is used to record any incidents of excessive noise generation and control measures used as well as noting ambient conditions on site.

Any complaints are recorded using an Incident Report Form (Appendix 3)

8.8 Control of Pest Infestations

The site is under a vermin control contract which includes regular checks for evidence of vermin (rodents, birds, flies, etc) and remedial action as required.

Waste processed through the In Vessel Unit is shredded and sanitised within either the enclosed reception barn or a sealed sanitisation barrier to stop rodent access and infestation.

The site daily diary and vermin control record is used to record any incidents of vermin on site and any control measures used.

8.9 Control of Litter

Regular checks are made in and around the site for litter which may escape during the waste discharge or processing of waste on site.

Any waste retrieved will be processed by the Permitted or Exempted units on site or removed from site via covered skip or container to a suitably Permitted facility for disposal.

The site daily diary is used to record any incidents of litter generation and control measures or disposal used.

9. Site Engineering for Pollution Prevention & Control

9.1 Engineered Site Containment and Drainage Systems

The site is bounded to the north, south and west by areas of restored land that are planted with willow woodland or hedgerow and raised slightly above the level of the site. To the west of the site is the main access road, slightly lower than the level of the site. A bund is in place along the edge of the site against the access road to prevent runoff onto the access road.

A ditch runs some 5m away from and parallel to the northern boundary of the site and flows from west to east to join a pool within the landlord's property. To the west of the site lies a drainage ditch between the split site access roads, draining south to a stream within the landlord's property.

The site has four distinct drainage systems:

- The main system serves the organic waste maturation areas, wood shredding area, weighbridge/entrance area and sales area. This system is split to cover the In-Vessel and Green Waste composting maturation areas separately, so avoiding cross contamination of the compost.
- The second system serves the In-Vessel waste processing buildings.
- The third system serves the soils recycling area and recycles the aggregates plant process water
- The roof water from the buildings is either diverted to soakaways under the site's concrete pads or falls onto the concrete pads to be sent via the main drainage system to the lagoons on the southern side of the site.

Therefore the site has total coverage between these systems. The site is constructed on inert fill material laid as part of the old landfill site that the Eco's Parley facility is built on.

The surface water runoff from the soils recycling unit runs (via constructed curb) to a catch ditch just inside the northern boundary of the site. This ditch flows to a concrete lined lagoon that is used as a water source for the aggregates wash plant. There is no discharge out of the site from this lagoon. Rainfall falling in this area is used to replenish the process water for the aggregates plant. In the unlikely event of there being excessive water, the water from the soils lagoon will be transferred by bowser or pump to the main site water management lagoons that serve the maturation areas.

This lagoon intercepts silt carried by both the runoff water and the process water from the aggregates wash plant. The water within this system will be recirculated through the aggregates washing plant.

The site has a Discharge Consent to the nearby ditch (Discharge Consent Number: 401724) which was used for discharge from the soils lagoon after the silt had settled out. However, the current aggregates plant recirculating system incorporates the old silt lagoon and requires no discharge so this Consent will be maintained but not used.

The surface water runoff (and any leachate) from the organic waste and concreted areas of the site is collected by surface channels and directed to a lagoon system located at the southern end of the site. This system is equipped with 2 lagoons, one to service the In Vessel maturation area and one to service the rest of the organic waste recycling area.

The systems are separate to ensure runoff from the ABPR compost within the In Vessel maturation yard does not cross into the green waste system and so get pumped onto the green waste maturation block to contaminate the maturing compost.

The surface channels (inspected and cleaned daily) discharge via separate silt traps into the two lagoons. This system is equipped with silt traps to capture large debris and lighter materials. This will reduce the amount of cleaning the actual lagoons require.

The lagoons will be built with underlying drainage blankets to ensure any build up of ground water under the lagoons is controllable and poses no risk to the system's integrity.

The lagoons are constructed from reinforced concrete to allow cleaning by machine. The lagoons are equipped with plant access ramps to allow the cleaning to be carried out by small loading shovel instead of by hand.

The lagoon system is served by a pumped discharge system that removes water from the In Vessel lagoon and discharges it, via Pumping Station No 1, to Palmersford STW (Trade Effluent Consent from Wessex Water). There is a link pipe between the two lagoons that allows the full utilisation of the storm water storage capacity present within the system. During storms, this will be opened to allow the green waste lagoon to discharge to the pumping station via the In Vessel lagoon. This discharge method ensures that the flow in the system does not contaminate the green waste lagoon. The link pipe is placed so that the lagoons permanently retain some standing water to allow the conditioning of the maturing compost.

The system also has a floating discharge pump in each lagoon. These separate units will draw from just below the surface of the lagoons to avoid floating material that could block them and will send the water to be sprayed onto the maturation piles within the Compost and In Vessel Units. In the event that the lagoons require emptying completely, these pumps will have the facility to discharge to the pumping station, for onwards pumping to Palmersford STW.

Capacity calculations and design details for the lagoon system are included in Appendix 1.

The system has been changed so that runoff goes straight to the lagoons and then is passed from there to the STW via the pumping station. This ensures the lagoon storage is used in the most efficient way possible. On cessation of the storm inflow, the pumping station will continue to discharge to remove water from the lagoons to bring the water down to agreed levels.

This system ensures no water from the site is able to leave the site in an uncontrolled manner.

Pumping station 1 is equipped with duplicate pumps to ensure against failure.

The runoff from the ABPR area (reception/shredding barn & barrier clamps) is directed, via surface gullies and sub-surface drains, to a dedicated and separate pumping station as indicated in Appendix 2. From this pumping station, the leachate is pumped directly to Palmersford STW via the sewer main. There is no option to recirculate this water to the maturation blocks as doing so would infringe ABPR regulations.

The In Vessel pumping station removes liquid from within the ABPR unit only and so is not affected by storm conditions. However, there is storage in the interceptors under the building should it be required. The runoff from the roofs of the clamps and reception barn all passes to a dedicated collection system and soakaways constructed within the site area.

9.2 Removal of Residual Wastes from Site

Loads are inspected and dealt with as outline in Section 8.1 (Waste Acceptance Control Systems and Procedures) of this EMS.

Any non-conforming wastes discovered during the shredding, screening or conditioning of permitted waste will be quarantined and removed, following procedures as set down in Section 8.1 (Waste Acceptance Control Systems and Procedures) of this EMS, to a suitably Permitted disposal facility.

10. Maintenance and Operation of Plant and Equipment

A schedule of all plant (fixed and mobile) required on a regular basis to carry out the Environmental Permitted operations on site can be seen in Figure 1. The site operates a strict maintenance regime and all equipment is of sufficient capacity to allow downtime for routine maintenance and servicing as recommended by the manufacturer. All breakdowns and accidents involving plant or equipment are entered into the site diary.

Figure 3. Plant Hour Log

Plant No.	Operation	Machine	Next Service	Service Interval	W/Ending									
					21-Mar	02-Jan	09-Jan	16-Jan	23-Jan	30-Jan	06-Feb	13-Feb	20-Feb	27-Feb
1	Wood Lee	PICKING STATION SERVICE DETAILS	500	500 Service	9568	sold	sold	sold	sold	sold	sold	sold	sold	sold
2	Weymouth	DOPPSTADT DW 2560 SERVICE DETAILS	6400	400 Service	5949	6178	6192	6199	6212	6241 6241	6290	6320	6359	6390
3	Clean Wood	WOOD SCREEN BROOKS SERVICE DETAILS	100	N/A Service		0	0	0	0	0	0	0	0	0
4	Soils	FINLAY 790 SCREEN SERVICE DETAILS	9700	500 Service	6261	7751	7789	7841	7882	7899	7921	7988	8021	8044 8044
5	Soils	FINLAY 883 SCREEN SERVICE DETAILS	14000	500 Service	10310	11856	11899	11928	11978	11999	12005	12045 12045	12079	12129
6	Soils	GENERATOR SERVICE DETAILS	11100	350 Service	4875 4875	7756	7789	7829 7829	7859	7905	7942	8001	8025	8059
7	Erins	NEW GENERATOR SERVICE DETAILS	2200	350 Service	27689	31319	31371	31420	31475 31475	31525	31579	31579	31605	31655
8	Parley Barn	Premiertech Baler SERVICE DETAILS	1000	500 Service	0	0	0	0	0	0	0	0	0	0
9	In Vessel 25233	VOLVO L70F SERVICE DETAILS	5700	500 Service	640	3200 3200	3244	3288	3321	3345	3453	3489	3525	3571 3571
10	In Vessel	FINLAY 790 SCREEN SERVICE DETAILS	7900	250 Service	4417	6321	6455 6455	6532	6652	6705	6751	6789	6819	6849
11	Turning 110809	Volvo 290 SERVICE DETAILS	3000	500 Service	5420	821	844	892	875	888	895	945	999	1042
12	Yard/Turf	MANITOU TELESCOPIC MLT 735 SERVICE DETAILS	6000	500 Service	1870	4300 4300	4322	4355	4402	4445	4478	4526	4589	4620
13	Comfy bed	MERLO 33-7 SERVICE DETAILS	1000	500 Service	4820	41	102	156	202	2089	326	356	398	425
14	In Vessel 71916	VOLVO L50 SERVICE DETAILS	8000	500 Service	4018	5810	5841	5902	5941 5941	6002	6065	6094	6125	6198
15	Compost 22735	VOLVO L90 SERVICE DETAILS	11500	250 Service	6553	9082	9121 9121	9149	9211	9355	9401	9455	9486	9541
16	Compost New	VERMEER HG6000 SERVICE DETAILS	3900	300 Service	959	2420	2421	2455	2499 2499	2555	2605	2644	2659	2701
17	Wood 22052	VOLVO L70E SERVICE DETAILS	14500	500 Service	9785	12201	12254	12299	12541	12501 12501	12678	12705	12748	12799
18	IVC 10192	New Volvo 290 SERVICE DETAILS	1000	500 Service	1720	3255	3352	3489	3511	3541	3584 3584	3599	3644	3690
19	Soils 13800	VOLVO 150E SERVICE DETAILS	6700	500 Service	2214	4389	4410	4485	4541 4541	4589	4638	4689	4755	4789
20	Soils 12056	VOLVO 210 SERVICE DETAILS	17000	500 Service	12406	1488	14508	14552 14552	14615	14688	14727	14759	14795	14845

No plant may be operated unless full instructions and training have been given by a person competent to do so and the operative has received permission from the Operations Manager or Managing Director in person to operate the plant.

Fluid & fuel levels are checked on plant daily together with guard security and general condition. Any defects and repairs are reported and logged as part of the maintenance records system.

Additional plant may be hired in to meet a specific, short term need or during periods of peak activity. All newly arrived or hired in equipment is subject to particular scrutiny to ensure it meets the standards required by the company and current legislation.

No plant or equipment may be worked on for maintenance purposes unless it has been isolated to prevent accidental start up and, except in exceptional circumstances, work shall only be undertaken when equipment is at ground level.

All calibration of equipment as required by Quality Control and ABPR will be undertaken and the certificates retained within the site records system, available for inspection at the site office during working hours

11. Composting Unit Operational Control Procedures

The composting unit involves the reception, shredding, composting and screening of green waste for the production of compost.

The green waste is brought onto site and discharged within the Composting Unit, upon discharge, the waste is sorted and inspected by a site operative driving either a 360^{o} excavator or a loading shovel. Any non-conforming waste discovered after discharge will be dealt with as described in Section 9.2 Removal of Residual Wastes from Site.

Once the waste has been sorted it will be shredded before being added to the feed end of the 4m high compost block. Should immediate shredding not be possible, the waste will be stocked within the discharge area of the Composting Unit until shredded, this stockpile being turned and managed to prevent odour generation.

Once added to the compost block, the waste moisture content will controlled by compost liquor/water from the adjacent lagoon sprayed on to the block.

Once the waste moisture content is at the correct level, it is left to heat to provide the sanitisation stage of the composting process. This stage, which takes approximately 2 weeks, allows the compost to self heat as the composting process takes effect, so killing pathogens and weed propagules present within the compost. The compost is turned weekly during its sanitisation phase to mix the compost and introduce air into the compost mass. This turning is undertaken by either a compost turner or 360^{o} excavator. No turning will take place if visibility is impaired by either steam or fog.

Eco's Odour Management Plan details specific requirements such as suspension of turning during unfavourable wind directions. Due to the large number of measures/procedures within the Odour Management Plan they are not replicated within this EMS.

Once sanitisation is complete, the compost matures within the block, whilst the turning continues. This maturation process can take between 6 to 10 weeks, dependent upon time in the block and planned final use of the compost. During this time, the compost continues to be turned.

Once maturation has been completed, the compost, having been turned and moved, has progressed from the shredding area, across the concrete pad to the screening area. Once ready for screening, the compost will be removed from the block by loading shovel and delivered to the screen for separation into product, reject and waste.

The Composting Unit screen separates the finer composts and mulches from the coarser faction of the material from the compost block, at the same time as removing any plastics and the metals, not found during the initial sorting phase, for disposal. The composts and mulches are stocked within the yard for reloading to client vehicles & sale while the coarser rejects are returned to the discharge area for reshredding and stockpiling to await removal as a soil conditioner for agricultural use.

Composting outputs are sampled under the Quality Protocol scheme to ensure a consistent quality of product, free of pathogens, weed propagules and contamination.

12. In Vessel Unit Operational Control Procedures

Processing within the In Vessel Unit involves the reception, shredding, composting (by enclosed sanitisation & open windrow maturation) and screening of waste subject to the Animal By Products Regulations (ABPR). Other wastes (green waste, shredded wood waste and shredded road sweepings) will be blended with the ABPR waste to assist in the improvement of the Carbon:Nitrogen balance of the compost. As a part of this process, non-hazardous liquid waste is added to the composting material to assist in the composting process.

The incoming waste is discharged and inspected inside an enclosed reception and shredding barn prior to being blended and shredded and placed inside an enclosed composting clamp. Upon discharge, the waste is sorted and inspected by a site operative driving a loading shovel. Any non-conforming waste (metal, glass, etc) discovered after discharge will be dealt with as described in Section 8.1 Removal of Residual Wastes from Site. This inspection procedure will be followed for all incoming wastes processed within the In Vessel system.

Once inspected, the waste is stockpiled within the building and then blended and shredded. The shredder will reduce the blended material down to sub 12mm in any one plane, as laid down by the EU Standard ABPR requirements. As a part of this process, the non-ABPR waste is blended into the ABPR waste to give an even mix within the material.

12.1 Clamps

Once shredded and blended, the waste will be placed in a totally enclosed clamp. The waste may be stored prior to composting. If stored, the waste will remain in a separate, controlled, aerated clamp to begin the composting process. Once placed within the monitored clamp, ABPR-controlled non-hazardous liquid waste may be added to the composting material to assist in the composting process by bringing the moisture levels in the waste to optimum. Once wet, the blended waste will self heat through the composting process. The waste must reach a temperature of 70^{o}C for at least 1 hour throughout its mass within this barrier. This heating is monitored and recorded using a PC-based logging system and 12 temperature probes. Should the PC based system fail, manual probes with individual data loggers will be used as a backup system. Whilst the heating of the waste through the composting action will bring the core temperature of the waste to a minimum of 60^{o}C within this clamp naturally, to ensure attaining 70^{o}C throughout the whole waste mass the site will have the facility to inject steam into the waste through the floor of the clamp until the whole mass reaches 70^{o}C for at least 1 hour. Once the waste is recorded as having reached the required temperature, the clamp will be allowed to continue composting under fan assistance until being opened and the waste transferred to the maturation block. The process time for the clamp will be between 8-15 days. This will include loading, self-heating, steaming and unloading. During this time, the waste may be further wetted as required. This extended process time will allow further composting of the waste, so reducing potential odour incidence on emptying the clamp.

12.2 Biofilter

The In Vessel barn has a biofilter system that draws air from the barn with a pair of fans & then passes it through c.1.2m of shredded wood. This biofilter draws all the steam from the barn and clamp system, so scrubbing any tramp odours from within the barn and clamps during shredding, blending & moving of the waste. The In Vessel clamps themselves are built with an air floor system that draws air down through the compost mass and passes it back to the top of the clamp. This air is drawn with a fan that will run on a timed on:off cycle during the residence of the compost in the clamp. The fan is turned off while the compost is being steamed. The fan and air floor are fitted with a manifold system to collect and remove any condensate from the air drawn through the compost. This liquid is discharged within the shed & removed via the shed drainage system.

12.3 Maturation

The In Vessel Unit maturation area, to the south of the ABPR area, will receive the compost once the temperature-monitored and ABPR/EU Standard sanitisation phase has been completed. Due to the nature of the compost produced by the ABPR area, the compost will effectively re-heat and resanitise itself on this maturation pad. As the compost is removed from the clamps and formed into maturation blocks within this area, it will be covered with approximately 300mm of shredded wood, supplied from the Permit Exempt Wood Shredding Unit. This material will act as a passive biofilter for the compost to prevent odours and will also be incorporated into the maturing compost during the turning of the block. Once incorporated into the maturation block, the compost will be wet up to the required level by either compost liquor/water from the adjacent lagoon sprayed on to the block or non-odorous non-hazardous Non-ABPR liquid waste, which will be incorporated directly into the compost block from incoming tankers, where appropriate. All other liquid wastes will be discharged from incoming tankers into a dedicated mixing bay, where the waste will be mixed with saw dust and/or wood chip. It will then be added to the maturation block and incorporated during turning thus reducing the potential for run-off from the block as well as odour associated with inefficient mixing of those liquid wastes, and the establishment of localised anaerobic conditions. This maturation pile will then be retained until maturation is complete being turned as required. Once mature, it will be screened and then dispatched from site as a soil conditioner for agricultural use.

12.4 Leachate Management

Leachate and runoff management is undertaken using the enclosed lagoon and pumping system available on site. Leachate, augmented by runoff water and non-hazardous liquid waste, is used to help wet and condition the composting piles to ensure the moisture content of the piles is maintained at a level suitable to promote efficient composting of the waste.

All liquid within this system is contained by either the site drainage system or the fact that it is locked within the composting blocks as part of the composting process. The automatic pumping stations within the Composting Unit and In Vessel Unit ensure that any excess liquid generated through storm rainfall runoff is efficiently removed from the site to Palmersford STW.

All records of the injection of liquid waste will be stored within the site records system, available at the site office during working hours.

Please see Appendix 1 for relevant liquid waste process calculations.

12.5 Liquid Waste management

Control measures and procedures are covered within Eco's Odour Management Plan.

12.6 HACCP Plan

The In Vessel Unit will follow procedures as laid down by the ABPR Certification, including those listed under its HACCP Plan.
These are:

- All waste to be logged on input and batch records to be maintained showing which loads were included in shredded batches.
- Unit to be maintained in a clean condition & cleaning duties to be recorded.
- All waste to be kept in sealed clamps or barn until ABPR EU Standard sanitisation phase completed.
- All measuring/monitoring equipment to be calibrated quarterly & records kept.
- Minimum of 25% of batches to be sampled & analysed for pathogens and records kept. Any failing batches to be returned to process or landfilled.
- All vehicles/personnel entering area or moving from shredding to transfer area are to use disinfectant baths provided and/or ensure wheels and chassis are cleaned using pressure washer provided.
- All waste discharges and discharge vehicle cleaning operations are to be supervised/inspected by member of site staff.

13 . Soils Recycling Unit Operational Control Procedures

The soils processing unit principally involves the screening and blending of the incoming waste to provide soils and small aggregate of various grades and sizes. This process also involves blending in compost produced by the Composting Unit with the incoming soils, should it be required, to improve the quality of the recycled soils produced by the operation.

13.1 Soil Screening

The incoming soils waste is discharged to the feed pile for the screens and there sorted and inspected by a site operative. Any non-conforming waste discovered after discharge will be dealt with as described in Section 8.1 Removal of Residual Wastes from Site. All soils are screened on hard standing.

13.2 Washplant

The water supply for the washer is taken from a set of concrete lined lagoons to the north eastern side of the soils yard. This water (treated effluent pumped from Palmersford Sewage Treatment Works) is re-circulated through the aggregate wash plant to the lagoon in a closed loop.

Silt from the washing process is captured by a set of concrete lined settlement lagoons which are de-silted using a 360^{o} excavator. The removed silt is then recycled through the soil processing facility.

13.3 Soils Unit Lagoon

Operators undertake a recorded daily check (Mon-Sat) on both the water and silt levels to ensure appropriate water levels are maintained. The de-silting frequency has been increased and is undertaken on a weekly basis. De-silting is carried out using a 360^{o} excavator and bucket. As an additional measure the site maintenance checklist includes a daily visual assessment of the condition of the lagoon. A bowser can be deployed to the lagoons to drain excess water if necessary (in the event heavy rainfall). Prior to non operational periods e.g. weekends and bank holidays the water levels are reduced using a bowser. Water removed is deposited in to the larger lagoons at the southern end of the site, where there is a larger capacity and an ability to pump the water to the sewage plant.

All site pumps are maintained to the highest standards as part of the site maintenance schedule. The lagoon has a floating discharge line that draws water from just below the surface of the lagoon to avoid the uptake of heavy sediment material that could cause blockages and pump failure. In the event of a failure at the discharge pump, re-circulation of water to supply the aggregate washing operation will cease. As a result the water level in the lagoon will not be affected.

14. Quality Control Procedures

Soils Recycling Unit
The soils produced by this unit are regularly sampled for particle size, organic & nutrient content and the presence of any contamination.

Composting Unit
Composting outputs are sampled under the Quality Protocol scheme to ensure a consistent quality of product, free of pathogens, weed propagules and contamination.

In Vessel Unit
Compost produced by the In Vessel Unit is sampled on completion of the ABPR/EU Standard sanitisation stage to ensure no pathogens are present within the batch.

This compost will also be sampled at the end of the maturation stage to ensure it meets Quality Protocol requirements and is a consistent product, free of pathogens, weed propagules and contamination. However, the compost will not be certified as a Quality Protocol product as the feedstocks used are not included in the Quality Protocol list.

Temperature Monitoring
Temperature monitoring of the compost maturation blocks will be carried out daily for at least 3 locations along each block. Temperatures will be taken from a minimum depth of 1.5m and noted once the readings have stabilised. Records of temperature measurements will be made and kept in the site offices.

15. Staff Responsibilities and Training

The site is operated under the ultimate control of the Managing Director Mr T. Dampney, but day to day operational responsibility rests with the Operations Manager.

The site as a whole employs 40 full time personnel. The site as a whole carries sufficient complement of staff to cover leave and sickness requirements. Organisation & responsibilities of the staff are shown in Figure 4.

The site operations fall within the requirements of Waste Management Paper 4 and Circular 11/94 and so do require competent management and supervision by a COTC holder. Site staff are suitably trained to carry out their required duties.

COTCs are held by:

Trelawney Dampney	*Managing Director*	*TMNH 4*
Steve Harman	*Operations Manager*	*TMB 4 & LS4*
Mike Thompson	*Technical Manager*	*TMB4 & LB4*
Mark Dare	*Site Supervisor*	*Operator Competence Certificates 4TSMNH6 Transfer and Treatment*

In the event of staff changes overseeing the operations, the EA will be notified in advance and evidence supplied as to the adequacy of the technical competence of the new appointee.

Individuals responsibilities for compliance are summarised in Table 7.

Table 7. Responsibilities for compliance

Name	Role	Part of permit responsible for	Any other legislative responsibilities	Required training received?
Trelawney Dampney	Managing Director	Over all site responsibility and control	-	Yes - COTC
Steve Harman	Operations Manager	Operational Control	-	Yes - COTC
Mike Thompson	Technical Manager	Technical Control	-	Yes - COTC
Rebecca Jones	Assistant Operations Manager	Operations	-	
Mark Dare	Site Supervisor	Site Supervision	-	Yes - Operator Competence Certificate 4TSMNH6 Transfer and Treatment

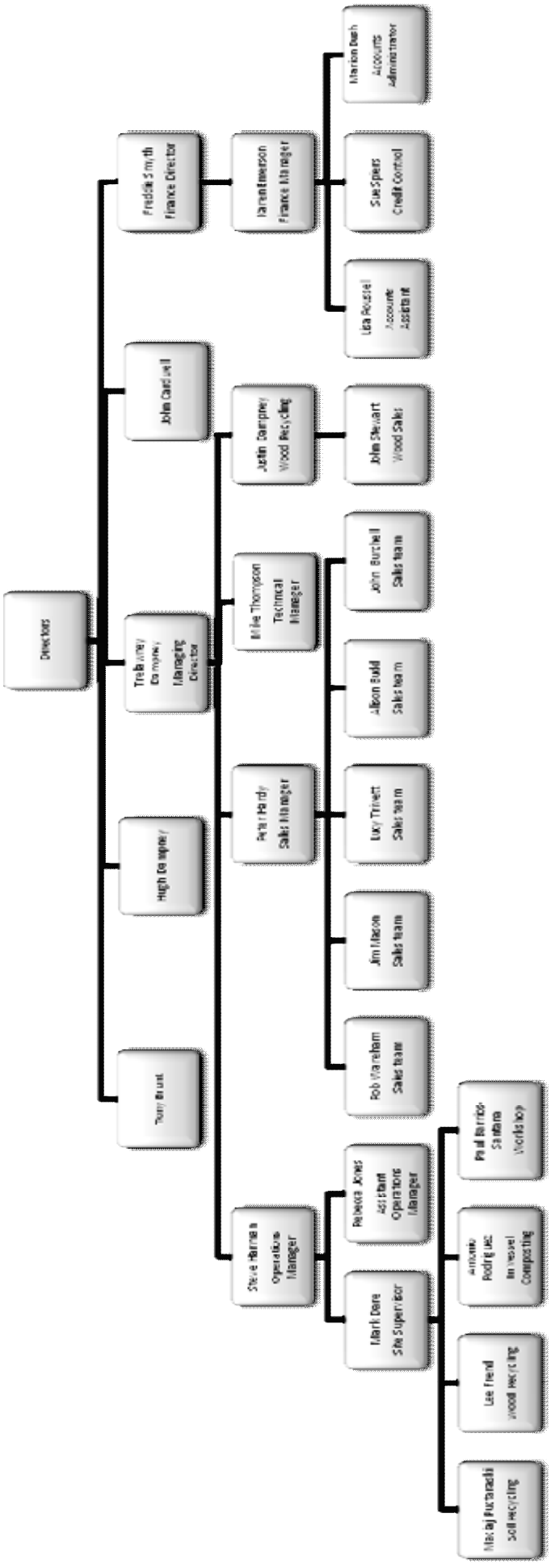


Figure 4. Organisational Structure of Eco Sustainable Solutions

In the event of an absence of any of the employees in the table above, a suitable temporary replacement will be delegated using the form below.

Table 8. Delegation of Responsibilities

Name of employee	
Job title/role to be filled during absence	
Department	
Absence type e.g. maternity leave	
Name of employee covering absences role	
Parts of permit employee is responsible for	
Any other responsibilities the employee will be covering	
Length of time cover will be for	
Any training required to enable employee to cover the role effectively and competently	

15.1 Training

All employees shall complete a Company Induction Programme prior to commencing with their designated duties. The induction programme will be relevant to employees' responsibilities

Training and Development

Management will regularly identify and review employee-training needs, thus ensuring that all staff receive suitable training to assist them in undertaking their task safely and efficiently.

Eco will continually assess the competence level of all managers, employees and contractors and complete annual appraisals.

The training programme will cover four main categories:

- Induction and site familiarity training
- Skill training e.g.: mobile equipment operator, first aid, fire management, maintenance training
- Site based modular training by means of team briefings/tool box talks covering safe systems of work
- Safety based management training covering policies and procedures

Training needs will be continually reviewed and met by in-house or external providers as appropriate.

Training Matrix

A training matrix is used by Eco to track the training needs of all staff working on site. This allows training to be planned and tracked with refresher courses booked as and when necessary. As the training matrix is a working document only a sample section can be seen in Figure 5. An up to date matrix is available from the site office.

Figure 5.Sample of Training Matrix

	NAME	WHEELED LOADING SHOVEL		360 EXCAVATOR		TELEHANDLER	
		ACHIEVED	EXPIRES	ACHIEVED	EXPIRES	ACHIEVED	EXPIRES
Green	ROBERTO D'OLIVA	24/2/2007	24/2/2012				
	BEN			Req	Req		
Erins	ADI WOOLCOCK	24/2/2007	24/2/2012				
Soils	MACIEJ PUCTARSKI	26/8/2009	25/8/2014			24/2/2007	23/2/2012
	KESH THAPA	4/3/2011	3/3/2016	25/9/2009	24/9/2014		
Wood	JAROSLAW WIWER	26/8/2009	25/8/2014	25/9/2009	24/9/2014	27/10/2009	26/10/2014
	LEE FREND	26/8/2009	25/8/2014	8/2/2007	8/2/2012		
	ANTONIO CONSALVES	8/2/2007	8/2/2012				
Comfybed	JACEK GRZYBOWSKI					30/11/2009	29/11/2014
IV	ANTONIO RODRIGUES	24/2/2007	24/2/2012				
	PATRYK WYLECIAL			25/9/2009	24/9/2014	27/10/2009	26/10/2014
	MARK SHERIFF	8/2/2007	8/2/2012				
Site	MARK DARE	26/8/2009	25/8/2014			24/2/2007	24/2/2012
	JASON DARE	4/3/2011	3/3/2016			27/10/2009	26/10/2014
	PAUL BARRIOS SANTANA	4/3/2011	3/3/2016			27/10/2009	26/10/2014
	LEE NEWBERRY	Req	Req				
	ADAM STADNIK	4/3/2011	3/3/2016				
Labourers	AIRTON SOARES						
	JAN WIWER						
	MATEUZ KOWALSKI						
WEYMOUTH	LAWRENCE BAKER	20/11/2009	19/11/2014				

16. Pollution Control, Monitoring & Reporting

Eco carries out a comprehensive programme of pollution monitoring which is undertaken by suitably qualified personnel. This programme has been established with the EA & Dorset County Council for a number of years and covers all the Environmental Permitted and Exempted site activities.

16.1. Groundwater Monitoring

A programme of groundwater monitoring along the southern edge of the site is in place and agreed with the EA. This is targeted at monitoring the composting operations, which are undertaken on site by reason of the composting operations having a greater potential for releasing polluting runoff. Groundwater monitoring and sampling is undertaken by an independent third party. Groundwater samples are taken every month. Groundwater borehole levels are also checked monthly. A list of determinands is shown below:

- Water Level
- pH
- Temperature
- Electrical Conductivity
- BOD
- Ammoniacal Nitrogen
- Nitrate
- Nitrite
- Potassium (K)
- Soluble Reactive Phosphorous (P)

16.2. Surface Water Monitoring

Surface water discharges from the site drainage lagoon via the site drainage solids interceptor prior to discharge to the ditch. These surface water discharges are sampled every month as part of the overall site monitoring programme. The samples are analysed for the following determinands:

- Water Level
- pH
- Temperature
- Electrical Conductivity
- BOD
- Ammoniacal Nitrogen
- Nitrate
- Nitrite
- Potassium (K)
- Soluble Reactive Phosphorous (P)

In the event of an increase of more than 10% of any of the above, further investigations as to the likely cause will be commenced and will include sampling of stockpiles to identify possible sources. Should this sampling show any abnormal material is within the site, it will be removed to an appropriate landfill. Thereafter, sampling will continue at an increased frequency until results have returned to a typical mean.

16.3 Leachate Monitoring

Levels of liquid in the storage lagoon are noted daily and recorded on the site diary. Leachate will be sampled monthly and analyses for the following determinands:

- Water Level
- pH
- Temperature
- Electrical Conductivity
- BOD
- Ammoniacal Nitrogen
- Nitrate
- Nitrite
- Potassium (K)
- Soluble Reactive Phosphorous (P)

Leachate will be sampled annually and analyses for the following determinands:

- Simazine
- Atrazine
- Malathion
- Endosulphan
- Hexachlorobenzine
- Zinc
- Copper
- Nickel
- Boron
- pH
- Temperature
- Electrical Conductivity
- BOD
- Ammoniacal Nitrogen
- Nitrate
- Nitrite
- § Soluble Reactive Phosphorous
- § Potassium

Records of monitoring results will be held in the site offices and also copied to the EA as the results of analyses are received.

16.4. Reporting

Results of all monitoring will be forwarded to the EA as part of the annual environmental report required under the site's Environmental Permits.

Any abnormal results will be highlighted and annotated with possible explanations and remediation measures taken. Such action will also be noted in the Site diary.

17. Site Records

All site records are kept in the main site office which is located as shown in Figure ECOP02.5.2. These records are available during normal hours of business.
Records kept in the main site office include all of the following:

- Monitoring Records
- Sampling Records
- Analysis Results
- Site diary Sheets (outlined in section 1,2)
- Waste Transfer Notes generated by the weighbridge system
- All maintenance and repair records
- Design and construction records
- Inspection and audit records

The above list is not exhaustive. The records will be retained, either in paper or digital copy, for a period of 2 years.

17.1 Records of Waste Movements to Exemption and Deployment Areas

Records of waste and product movements to fields covered by exemptions for Deployment Notifications for land spreading will also be kept in the main site office. These records are available during normal hours of business.

Records kept include all of the following:

- Ticket Number
- Destination of Waste/Product
- Type of Waste/Product
- Date of Dispatch/Spreading
- Cumulative Tonnage spread to fields

These records will also be retained for a period of 2 years, either in paper or digital copy.

17.2 Periodic Reporting of Environmental Performance

Sampling and analysis results are reported to the EA and Dorset County Council as the results are received by Eco Composting. The site will provide Quarterly Waste Returns to the EA. The site environmental performance is reviewed by the EA under OPRA system. Other records maintained by the site are available for inspection by the relevant authorities or their representatives during normal working hours.

18. Clear environmental objectives and targets

This section sets out environmental objectives and targets that Eco Sustainable Solutions is aiming to achieve in order to improve its overall environmental performance.

Objectives:

1. Continually adopt fuel efficient systems for all plant and machinery.
2. Increase efficiency of material segregation to allow increased recovery and recycling of waste materials
3. Continuous research to gain greater understanding of management systems for the benefit of the company and the community.
4. Reduce resource use

Targets:

Continually adopt fuel efficient systems for all plant and machinery.

- Reduce CO2 emissions.

Increase efficiency of material segregation to allow increased recovery and recycling of waste materials

- Increase quantity of clean wood extracted from mixed wood to be processed and used locally and thereby reducing Eco's carbon footprint.
- Reduce material going to landfill.

Continuous research to gain greater understanding of management systems for the benefit of the company and the community.

- Increase understanding of odour minimising practices and therefore decrease odour complaints.

Reduce resource use

- Used and source recycled products where possible.

19. Health & Safety

Eco operates to a strict Health & Safety Policy which all employees are required to comply with. Employees are inducted on the company Health & Safety system & Risk Assessments relevant to their roles on joining the company and are regularly consulted on Health & Safety issues. The full Health and Safety Policy includes all Health and Safety related procedures. Copies of the full policy can be found in the site office and the mess room.

The Directors/Manager will ensure that staff are kept informed about fire exits, procedures, alarms and assembly points. All visitors and contractors must register in the visitor's book when entering the premises and sign out when they leave. All visitors must be accompanied whilst on premises. Contractors must be inducted and familiarised with the site 'Emergency Procedures' together with the location of any first aid facilities and assembly point adjacent to the entrance of the main office.

Any accidents or incidents including near misses are recorded using an Incident Report Form (Appendix 3)

Health & Safety Policy Statement

In accordance with the provision of the Health and Safety at Work Act the Company is committed to the health, safety and welfare at work of its employees. The Company will also ensure that, as far as is reasonably practicable, persons not in its employment are not exposed to risks to their health and safety when they come into contact with the Company or the products it uses.

In particular the Company has a responsibility to:

- Provide and maintain safe and healthy working conditions, taking into account current statutory requirements.
- Provide training and instruction to enable employees to perform their work safely and efficiently.
- Provide and maintain safe plant and equipment and safe systems at work.
- Maintain a constant and continuing interest in health and safety matters applicable to the Company's activities and for the management to set an example in safety behaviour.
- Consult with employees on health and safely arrangements.
- Provide risk assessments covering the Company's work activities.
- Provide COSHH assessments detailing the safe storage, handling and disposal of hazardous substances.

Whilst the Company accepts its prime responsibility for ensuring the health, safety and welfare for its employees, it is expected that all employees accept their responsibilities under the Health and Safety at Work Act to:

- Take care of their own health and safety and that of others who may be affected by their acts or omissions.
- Co-operate with management to enable the Company to fulfil its legal obligations.
- Not interfere with, or misuse anything provided in the interests of health, safety and welfare.

The Company is committed to a programme of continual improvement, and will provide the necessary resources to ensure the full implementation of the Policy and the Proprietor will give full backing to all those committed to achieving the policy objectives.

This policy will be subject to an annual review or when process conditions change.

19.1. Personnel

All contractors working on site must comply with the company rules and provide copies of relevant certification, safe systems of work and insurance details (third party & employer's liability) prior to work commencing on site. A schedule of persons directly employed by Eco Sustainable Solutions and their job titles is found on Figure 4. All staff are issued with and are required to wear Personal Protective Equipment as deemed necessary for their role. First aid facilities are provided on site, based in the main Site Office. There are First Aiders based at Parley, ensuring the site operations are covered to the required standard. Working during the hours of darkness is prohibited unless suitable lighting is available. Washroom (including showers) and mess room facilities are available to all working on the site.

19.2. Equipment

All equipment used on site must comply with the relevant Health & Safety legislation and regulations, in particular:

- HASAWA 1974
- PUWER 1998
- Noise at Work Regulations 1989
- COSSH
- PPEWR 1992

20. Emergency Preparedness and response plans

Eco has developed appropriate considerations for potential emergencies which include cover planned and unplanned maintenance, plant break down, exhaustion of storage capacity and fire. Table 9 shows graded responses to maintain or regain control depending on the severity of potential situations. In all instances the control of the emergency or incident is the main priority and where applicable the Environment Agency is notified.

Table 9 Contingency measures to maintain or regain control in event of an emergency or incident.

Emergency/Incident	Contingency/Options
Fire or maintenance of essential machinery or plant,	Hire of machinery. Closing of operational areas of non DCC contracted waste. Diversion to alternative site Diversion to landfill.
Absence of multiple operators due to sickness.	Sub contracted staff can be obtained Closing of operational areas of non DCC contracted waste. Such as soils, turf and clean wood operations). Staff to be used from these areas. Diversion to alternative site Diversion to landfill
Overfill of lagoons	Removal of leachate out of operational hours if required.
Storage capacity exhausted	Diversion to alternative site Diversion to landfill
Site closure (on site or off site incident)	Diversion to alternative site in the event of short term closure are all in place. In the event of an emergency inform customers (council) at the earliest opportunity, and update the situation and status regularly.

Eco has a Contingency Diversion Plan for all contracted and non contracted waste which includes site details for both for long and short term diversions requirements.

A list of Key Site and Emergency Contacts can be found in Table 10.

Table 10. Key Site and Emergency Contacts

SITE DETAILS			
Location: Chapel Lane, Parley, Christchurch, Dorset, BH23 6BG			
Site Access Grid Reference:			
SITE CONTACTS	**Name**	**Office Hours (specify)**	**Out of hours**
Owner:	Trelawney Dampney	07785308255	07785308255
Operations Manager:	Steve Harman	07881517851	07881517851
Site Supervisor:	Mark Dare	07979364544	07979364544
Landowner/Agent:	Trelawney Dampney	07785308255	07785308255
EMERGENCY SERVICES		**Office Hours**	**Out of hours**
Emergency		999	999
Medical:		Bournemouth Hospital: 01202 303626 Bournemouth Eye Hospital: Before visiting telephone: 01202 704181 (8:00am – 9:00pm)	Bournemouth Hospital: 01202 303626
Police:		01202 222222	01202 222222
Fire:		Non- emergency 01305 252040	Non- emergency 01305 252040
REGULATORS		**Office Hours**	**Out of hours**
Health and Safety Executive (HSE)		0845 345 0055	01519 229235. If unobtainable 01519 221221 (Duty Press Officer). **Only in cases:** following a work-related death, or strong likelihood of death, following a serious accident to gather details of physical evidence that would be lost if waited until normal working hours; following a major incident where the severity of the incident, or the degree of public concern, requires an immediate public statement
Local Authority (Christchurch):		01202 495000	01202 495000
Environment Agency (Local)		08708 506506	-
EA (24 hour emergency hotline)		0800 807060	0800 807060
Natural England		08456 003078	-
UTILITY/KEY SERVICES	**Name**	**Office Hours**	**Out of hours**
Water undertaker:	Wessex Water	0845 600 4600 (8am-6pm)	Emergency Services
Sewerage undertaker:	Wessex Water	0845 600 4600 (8am-6pm)	Emergency Services
Gas supplier:	N/A	N/A	N/A
Electricity supplier:	British Gas	0800 111 999	0800 111 999
Security Contact:	Secure Alarms	01202 737025	01202 737025

20.1 Potentially Polluting Leaks & Spillages

Eco Sustainable Solutions operate a number of items of mobile plant for the processing, shredding, screening and loading of materials. These are all maintained to the manufacturer's recommendations thereby minimising the potential for any breakdowns, which may lead to pollution from engine or hydraulic oils or antifreeze. Servicing and maintenance of plant and equipment is carried out on hard surface within the site, except in cases of immovable breakdown. All used consumables including oils are disposed of to a suitable facility.

Two spill response kits are kept on site in strategic locations for use in the event of accidental oil or fuel spillages. All oils, greases and chemicals are stored within an 1100 litre bunded chemical Store. Table 11 lists liquids and powders that are stored on site and could be harmful to the environment if they escape. Fuel is stored in a double skinned tank, conforming to the relevant fuel storage regulations.

As referred to in Section 9.1, all site drainage is contained and is directed to Palmersford STW via the engineered site lagoon. All drainage gullies feeding this lagoon are inspected daily and cleaned whenever necessary to ensure that at no time does any surface water or composting liquors escape site in an uncontrolled manner.

Table 11. List of Substances and Storage Facilities

Material	Max Quantity (L)	Type and size of storage	Secondary Containment Type &size
Red Diesel/Gas oil	24950L	Above ground double skinned & Bunded	N/A
	1500L	Portable, steel 3mm	N/A
Phosphoric Acid	250L	25L pails	Chem Store
Acetylene	96kg	Gas Cylinder	Cage
Propane	96kg	Gas Cylinder	Cage
Odour Major	500L	IBC container	
Odour Sergeant	80L	Pail	Chem Store
Automatic Transmission Fluid (Volvo)	40L	Pail	Chem Store
Hydraulic oil 46	410L	Oil Drum	Chem Store
Bitumen	5L	Tin	Chem Store
Dyna Trans MPV (Total)	208L	Oil Drum	Chem Store
GP3 Antifreeze	40L	Bedon	Chem Store
Deionised water	25L	Pail	Chem Store
Rimula-Heavy Duty Engine Oil (RT4)	209L	Oil Drum	Chem Store
Coolant VCS ready mixed (Volvo)	40L	Pail	Chem Store
Universal Antifreeze BS 6580:1992 EMPA	60L	Pail	Chem Store
Shell OMALA 220	40L	Pail	Chem Store
DYNA TRANS MPV (Total)	60L	Pail	Chem Store
Unipart – Fully Synthetic Engine Oil 5W/30	5L	Pail	Chem Store
Acid Dilute - Ethanoic	5L	Pail	Chem Store
Greccote	4L	Pail	Chem Store
Wet brake oil Allison C-4 WB101, Volvo	25L	Pail	Chem Store
Quick dry Zinc Phosphate Primer	20L	Pail	Chem Store
Cuprinol Shed and Fence Preserver	5L	Pail	Chem Store
Idenden- Aquashield,	20L	Pail	Chem Store
Mangers White Spirit	8L	Pail	Chem Store
Paint (Johnsons Trade) l gloss	25L	Pail	Chem Store
Layland Trade Gloss	15L	Pail	Chem Store
Transmission TM 80W90 (Total)	20L	Pail	Chem Store
Multipurpose EP2 (Greese)	100L	Tin/Tubes	Workshop
Volvo Coolant	50L	Pail	Workshop
GP3 Anti Freeze	50L	Pail	Workshop
Chain Wire Lubricant	5L	Spray tin	Workshop
Mould and Tool Cleaner	5L	Spray tin	Workshop
WD Antirust agent	5L	Spray tin	Workshop
Multipurpose grease Manitou	50kg		Workshop
Waste Oil	420L	Oil Drum	Chem Store
Oil Filters	100kilos	Oil Drum	Chem Store
Oxygen (and high purity oxygen)	75kg	Gas Cylinder	Workshop
Pureshield Argon	75kg	Gas Cylinder	Workshop
Argoshield	75kg	Gas Cylinder	Workshop
OK 21.03 (Gouging and joint preparation)	10kg pack	Box	Workshop

OK 48.00, OK 68.81, OK 83.50 (Arc Welding)	100L	Box	Workshop
Disinfectant (IV barn)	100L	Pail	Chem store

20.2 Fires on Site

The lighting of fires on site is strictly prohibited, no wastes of any type are burnt on the site. Work areas are kept tidy with no waste paper or other combustible material lying around. Smoking is allowed only in designated areas.

Should a fire be detected within the site, extinguishers and hoses are available within the site and employees have been trained in their correct use. Any such incident is reported to the Environment Agency and recorded in the Site diary at the earliest opportunity. Assembly points in the event of emergency are located adjacent to the main site offices. In the event of a major fire, the entire site would be evacuated and the Fire Service called. More detailed instructions are provided in Eco's H&S policy.

20.3 Reducing the Risk of Site Composting Fires

This section demonstrates how the risk of spontaneous combustion (SC) within the blocks of compost at Eco Sustainable Solutions is managed.

All organic wastes have the potential to SC. Along with accidental or malicious ignition, it is one of the more common causes of a compost fire. SC occurs when materials self-heat to a temperature high enough to cause them to ignite. As the temperature rises, the speed of temperature increase also rises. In a compost pile, the organic matter and microbial activity generate heat from the biological activities. At 70-80°C microorganisms die or become dormant, and the biological heating stops. Heat-releasing chemical reactions then take over until the material reaches 150 and 200°C which is the temperature that organic materials typically ignite.

The key factors that need to be controlled are:

- Temperature
- Moisture content: Dry pockets and poor moisture distribution should be avoided.
- Airflow: Uneven and limited airflow should be avoided.
- Compost pile size: in most cases the bigger the pile the greater the risk.

Control Measures

Training has been provided and written guidelines distributed to appropriate site staff which outlines the importance of carrying out the following control measures:

- Visual inspections: The liberation of steam from vents may indicate instability.
- Daily odour assessments are carried out. Any detection of a burnt/smouldering smell must be reported and investigated fully.
- Piles must remain at or below 4m high; an increase in width and length is not possible due to space restrictions.
- Temperature and moisture of the compost blocks are monitored daily and recorded on either a Green Batch Formation and Monitoring Record Sheet or In Vessel Batch Formation and Monitoring Record Sheet, whichever is appropriate.

Moisture

Moisture levels are tested once per working day at 10, 20, 30, 40m across length of each batch at a minimum of 0.5m below the surface.
If the material is too dry and falls away from the hand leaving no residue of moisture, additional liquids and/or leachate will be introduced to the blocks to increase moisture levels. Due to the daily monitoring, liquid application can be carried out on a daily basis.

Temperature

The Quality Protocol requires that you monitor core zone temperature and moisture monitoring at one point per 250m^3 (cross section of the batch, blocks are treated the same) within the block. Being able

to access to the midpoint is desirable, however this can be extrapolated and used to determine when to turn the compost blocks based on the biological activity and when to add moisture to optimise the process.
If it is found during monitoring, that temperatures are too high, (75°C +), the material is mechanically turned (using a slew on average every 3 days) to re-introduce oxygen into and re-mix the material. Turning prevents any heat build-up, assists a uniform mix of materials and enables adequate ventilation. If hot patches are detected despite turning, moisture will be added until temperature falls below 65°C.

Fire Fighting

Measures set out above reduce risk by managing contributing factors and enable early detection. Should a fire occur and there is any doubt in how to handle the material the Fire Brigade must/will be called. The local fire department carried out a site visit in May 2010 where information was gathered to assist crews in the event of a fire. Should smouldering material or a small fire occur, specific site staff have been trained how to respond. The main points of training are outlined below:

- Equipment or operators should never climb on top of the material when a fire is suspected.
- Do not aerate affected material (added airflow feeds chemical oxidation thus fuelling the fire)
- Apply water or leachate to affected area (Green waste lagoon leachate can be used on both piles and In Vessel leachate can only be used on the In Vessel pile.)
- Only remove burning sections once quenched.
- Remove coolest material from the edges of the pile first,
- Spread the material and apply additional water if required.
- Continue to apply water until core temperature falls below 65°C.
- If in doubt call Fire Brigade.

Appendix 1. Water Balance Equation

Appendix 2. Lagoon Schematic

Appendix 3. Incident Report Form

Site:	Date of Incident:	Ref No ***(site/year/number)***:

What Happened?		
Person Involved:	**Persons Status:**	**Length of Service *(months)*:**
Type of Incident:	**Classification of Incident:**	**Weather Conditions:**
Reported By:	Date of report:	Witnessed by:

Immediate Action Taken / First Aid / Containment Measures:	Reported to: Police/EA/Other: *(Circle)* **Name:** **Rank No/Title:** **Station/Location:** **Crime No/Reference:**

Initial Investigation / Basic Causes:		
Investigated By *(Print)*:	Signature:	Date of Initial Investigation:

Long Term Actions to reduce the risk of a repeat incident:

Full Investigation Required? Yes Or No:

If <u>Yes</u> to Full Investigation Required Check:

- ☐ Training Records
- ☐ Treatment Administered
- ☐ Service Records of and Equipment Involved
- ☐ Engineers Report
- ☐ Issue Documents for PPE
- ☐ Issue Documents for Procedures

Attach Applicable Copies

Is there a risk assessment covering this incident? Yes/ No:	Do procedures, assessment or systems require modification incident? If so please state references below:

Action Complete: *Print*	Signature:	Date of Completion:

RIDDOR incident? Yes/No	If **Yes**: Managing Director to be informed and completed actior	
Informed:	Signature:	Date:
Action Complete:	Signature:	Date:

Estimated Cost of Accident/Incident:	**Company**	**Non Company**
Value of Loss/Fines		
Value of Damage/Clean Up		
Estimated Cost Lost Production Time		

PART F ROAD SWEEPINGS PLANT

01	**Wastes resulting from exploration, mining, quarrying, physical and chemical treatment of minerals**
01 05	**Drilling muds and other drilling wastes**
01 05 04	freshwater drilling muds and waste
01 05 05*	oil-containing drilling muds and waste
20	**Municipal wastes (including separately collected fractions)**
20 03	**Other municipal wastes**
20 03 03	Street cleaning residues

PART E ANAEROBIC DIGESTION

02	**Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing**
02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	Sludges from washing and cleaning
02 02 02	Animal tissue waste
02 01 03	Plant-tissue waste
02 01 06	Animal faeces, urine & manure (including soiled straw), effluent, collected separately & treated off site
02 01 07	Wastes from forestry
02 01 99	Residues from commercial mushroom cultivation
02 02	**Wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 01	Sludges from washing and cleaning
02 02 02	Animal-tissue waste
02 02 03	Materials unsuitable for consumption or processing
02 02 99	Sludges from gelatin production and animal gut contents
02 03	**Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 01	Sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	Sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	Materials unsuitable for consumption or processing
02 03 05	Sludges from on-site effluent treatment
02 04	**Wastes from sugar processing**
02 04 03	Sludges from on site effluent treatment
02 04 99	allowed only if no chemical agents added and no toxin residues
02 05	**Wastes from the Dairy Products Industry**
02 05 01	Wastes unsuitable for consumption or processing
02 05 02	Sludges from on-site effluent treatment
02 06	**Wastes from the baking and confectionary industry**
02 06 01	Materials unsuitable for consumption or processing
02 06 03	Sludges from on site effluent treatment

02 07	**Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	Wastes from spirits distillation
02 07 04	Materials unsuitable for consumption or processing
02 07 99	Malt husks, malt sprouts, malt dust; spent and sludge from breweries; sludge from wine making; yeast and yeast-like residues; waste types in this section allowed if biodegradable material only, no chemical agents added
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and Cardboard**
03 03	**Wastes from pulp, paper and cardboard production & processing**
03 03 02	Green Liquor Sludge
03 03 08	Wastes from sorting of paper and cardboard destined for recycling
03 03 10	Fibre rejects, fibre and filler sludges from mechanical separation
04	**Leather, fur and textile industry**
04 01	**Wastes from the leather & fur industry**
04 01 01	Fleshings and lime split wastes
04 01 05	Tanning liquor free from chromium
04 01 07	Sludges, in particular from on site effluent treatment free of chromium
04 02	**Wastes from the textile industry**
04 02 10	Organic matter from natural products
04 02 99	Waste biodegradable plastic
15	**Packaging, absorbents, wiping cloths and filters**
15 01	**Waste packaging (including separately collected municipal packaging waste)**
15 01 01	Paper and cardboard packaging (biodegradable faction only)
15 01 02	Plastic Packaging (biodegradable faction only)
15 01 03	Wooden packaging (biodegradable faction only)
15 01 05	Composite Packaging (biodegradable faction only)
19	**Materials from Waste and Water Treatment**
19 02	**Wastes from physico/chemical treatments of waste**
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 02 06	Sludges from physico/chemical treatment other than those containing dangerous substances
19 02 10	Combustible wastes other than those containing dangerous substances
19 05	**Wastes from aerobic treatment of solid wastes**
19 05 01	Non-composted fraction of municipal & similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 05 03	Off specification compost
All waste types in 19 05 allowed as long as from a source separated origin	
19 06	**Wastes from anaerobic treatment of solid wastes**
19 06 03	Liquor from anaerobic treatment of municipal waste
19 06 04	Digestate from anaerobic treatment of municipal waste
19 06 05	Liquor from anaerobic treatment of animal and vegetable waste

19 06 06 Digestate from anaerobic treatment of animal and vegetable waste

All waste types in 19 06 allowed as long as from a source separated origin

19 08 Waste from waste water treatment plants not otherwise specified

19 08 09 Grease and oil mixture from oil/water separation containing only edible oil and fats

19 08 12 Sludges from biological treatment of industrial waste water other than those containing dangerous substances

20 Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions

20 01 Separately collected fractions of municipal wastes

20 01 01 Paper & Cardboard

20 01 08 Biodegradable kitchen and canteen waste

20 01 25 Edible oil & fat

20 01 38 Wood other than that containing dangerous substances

20 02 Garden and park wastes

20 02 01 Biodegradable waste

20 03 Other Municipal Wastes

20 03 01 Mixed municipal waste

20 03 02 Wastes from markets

PART F CLEAN BIOMASS PLANT

02	**Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02.01.03	Plant-tissue waste
02.01.07	Wastes from forestry
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and Cardboard**
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	Waste bark and cork
03 01 05	Untreated sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
17	**construction and demolition wastes (including excavated soil from contaminated sites)**
17 02	**Wood, glass and plastic**
17 02 01	wood (untreated)
19	**Wastes from waste management facilities off-site waste water treatment plants and preparation of water intended for human consumption / industrial use.**
19 12	**wastes from mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified.**
19 12 07	Untreated wood other than wood containing dangerous substances
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 38	Untreated wood other than that mentioned in 20 01 37
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste

PART G ABPR

02	**Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 02 99	wastes not otherwise specified (sludges from gelatin production and animal gut contents)
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing
02 06 03	sludges from on-site effluent treatment
04	**Wastes from the leather, fur and textile industries**
04 01	**wastes from the leather and fur industry**
04 01 01	fleshing and lime split wastes
04 01 07	sludges, in particular from on site effluent treatment free of chromium
04 01 09	wastes from dressing and finishing
04 02	**waste from the textile industry**
04 02 10	organic matter from natural products, e.g. grease, wax

19	**Wastes from waste management facilities, off site waste water treatment plants and** the preparation of water intended for human consumption and water for industrial use
19 05	**wastes from aerobic treatment of solid waste**
19 05 02	non-composted faction of animal and vegetable waste
19 05 03	off specification compost
19 06	**wastes from anaerobic treatment of solid waste**
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**separately collected fractions of municipal wastes**
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 03	**other municipal waste**
20 03 02	wastes from markets – allowed only if source segregated biodegradable fractions e.g. plant material, fruit and vegetables.

Part H SRF Plant

15	**Packaging, absorbents, wiping cloths and filters**
15 01	**Waste packaging (including separately collected municipal packaging waste)**
15 01 01	Paper and Cardboard Packaging
15 01 02	Plastic Packaging
15 01 03	Wooden Packaging
15 01 05	Composite Packaging
15 01 06	Mixed Packaging
15 01 09	Textile Packaging
17	**Construction and Demolition Wastes (including excavated soil from contaminated sites)**
17 02	**Wood, Glass and Plastic**
17 02 01	Wood
17 02 03	Plastic
19	**Materials from Waste and Water Treatment**
19 02	**Wastes from physico/chemical treatments of waste**
19 02 03	Premixed wastes composed only of non-hazardous wastes

19 05	**Wastes from aerobic treatment of solid wastes**
19 05 01	Non-composted fraction of municipal & similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 05 03	Off specification compost
19 05 99	Wastes not otherwise specified Compost Oversize Rejects
	Reject Plastic Contamination
19 06	**Wastes from anaerobic treatment of solid wastes**
19 06 04	Dry Digestate from anaerobic treatment of municipal waste
19 06 06	Dry Digestate from anaerobic treatment of animal and vegetable waste
19 06 99	waste not otherwise specified*[Note 1]
19 12	**Wastes from the Mechanical Treatment of Waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	Paper and Cardboard
19 12 04	Plastic and Rubber
19 12 07	Wood other than mentioned in 19 12 06
19 12 08	Textiles
19 12 10	Combustible Waste (Refuse Derived Fuel)
19 12 12	Other Wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**Separately Collected Fractions (except 15 01)**
20 01 01	Paper and Cardboard
20 01 10	Clothes
20 01 11	Textiles
20 01 38	Wood other than those mentioned in 20 01 37
20 01 39	Plastics
20 02	**Garden and park wastes**
20 02 01	Biodegradable waste
20 02 03	Other non-biodegradable wastes Packaging
	Litter
20 03	**Other Municipal Wastes**
20 03 01	Mixed Municipal Wastes Packaging litter

20 03 02 Waste from Markets

20 03 03 Street-Cleaning Residues litter & plastics

Note 1 – Dried and sanitized screenings from Eco Sustainable Solutions Limited Piddlehinton Anaerobic Digestion Facility

Certificate No. OCC64586

Operator Competence Certificate

Qualification Title:

Non Hazardous transfer/with or without treatment (not otherwise specified) (4MPTNH6)

This Certificate is awarded to

Justin Dampney

Awarded: 18/02/2014

Authorised

WAMITAB Chief Executive Officer

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

This certificate is jointly awarded by WAMITAB and the Chartered Institution of Wastes Management (CIWM) and provides evidence to meet the Operator Competence requirements of the Environmental Permitting (EP) Regulations, which came into force on 6 April 2008.

00053630

wamitab

Certificate No. CCC8569

Continuing Competence Certificate

This certificate confirms that

Mark Dare

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 25/04/2014

TMNH Treatment - Non Hazardous Waste

Awarded: 25/04/2014

Expiry Date: 25/04/2016

Authorised

WAMITAB Chief Executive Officer

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00051677

wamitab

Certificate No. CCC8207

Continuing Competence Certificate

This certificate confirms that

Michael Robert Thompson

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 11/04/2014

LNH	Landfill - Non Hazardous Waste
TMNH	Treatment - Non Hazardous Waste

Awarded: 11/04/2014

Expiry Date: 11/04/2016

Authorised

WAMITAB Chief Executive Officer

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00051193

Certificate No. CCC8246

Continuing Competence Certificate

This certificate confirms that

Stephen Neville Harman

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 14/04/2014

LH Landfill - Hazardous Waste

Awarded: 14/04/2014

Expiry Date: 14/04/2016

Authorised

WAMITAB Chief Executive Officer

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00051154

wamitab

Certificate No. CCC8279

Continuing Competence Certificate

This certificate confirms that

Stephen Neville Harman

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 14/04/2014

TMNH Treatment - Non Hazardous Waste

Awarded: 14/04/2014

Expiry Date: 14/04/2016

Authorised

WAMITAB Chief Executive Officer

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00051121

Certificate No. CCC8512

Continuing Competence Certificate

This certificate confirms that

Trelawney Dampney

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 23/04/2014

TMNH Treatment - Non Hazardous Waste

Awarded: 23/04/2014

Expiry Date: 23/04/2016

Authorised

WAMITAB Chief Executive Officer

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00051350

eco

SLR

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PARLEY WASTE MANAGEMENT FACILITY

ENVIRONMENTAL PERMIT VARIATION APPLICATION

SITE LOCATION PLAN

DRAWING 001

Scale	Date
1:50,000 @ A4	OCTOBER 2014

03407.00003.22.001.1A Site Location Plan.dwg

LEGEND

- ENVIRONMENTAL PERMIT BOUNDARY
- ENVIRONMENTAL PERMIT BOUNDARY 2KM BUFFER
- ANCIENT WOODLAND INVENTORY
- LOCAL NATURE RESERVE
- RAMSAR
- SPECIAL AREAS OF CONSERVATION
- SPECIAL PROTECTED AREA
- SITES OF SPECIAL SCIENTIFIC INTEREST
- NATIONAL PARK
- SCHEDULED MONUMENT

LISTED BUILDING POINTS

DL | II* | I | NOT APPLICABLE | II

LISTED BUILDING POLYGONS

DL | II* | I | NOT APPLICABLE | II

4 THE ROUNDAL
RODDINGLAW BUSINESS
PARK, GOGAR
EDINBURGH. EH12 9DB
T: 0131 335 6830
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www.slrconsulting.com

PARLEY WASTE MANAGEMENT FACILITY

ENVIRONMENTAL PERMIT VARIATION APPLICATION

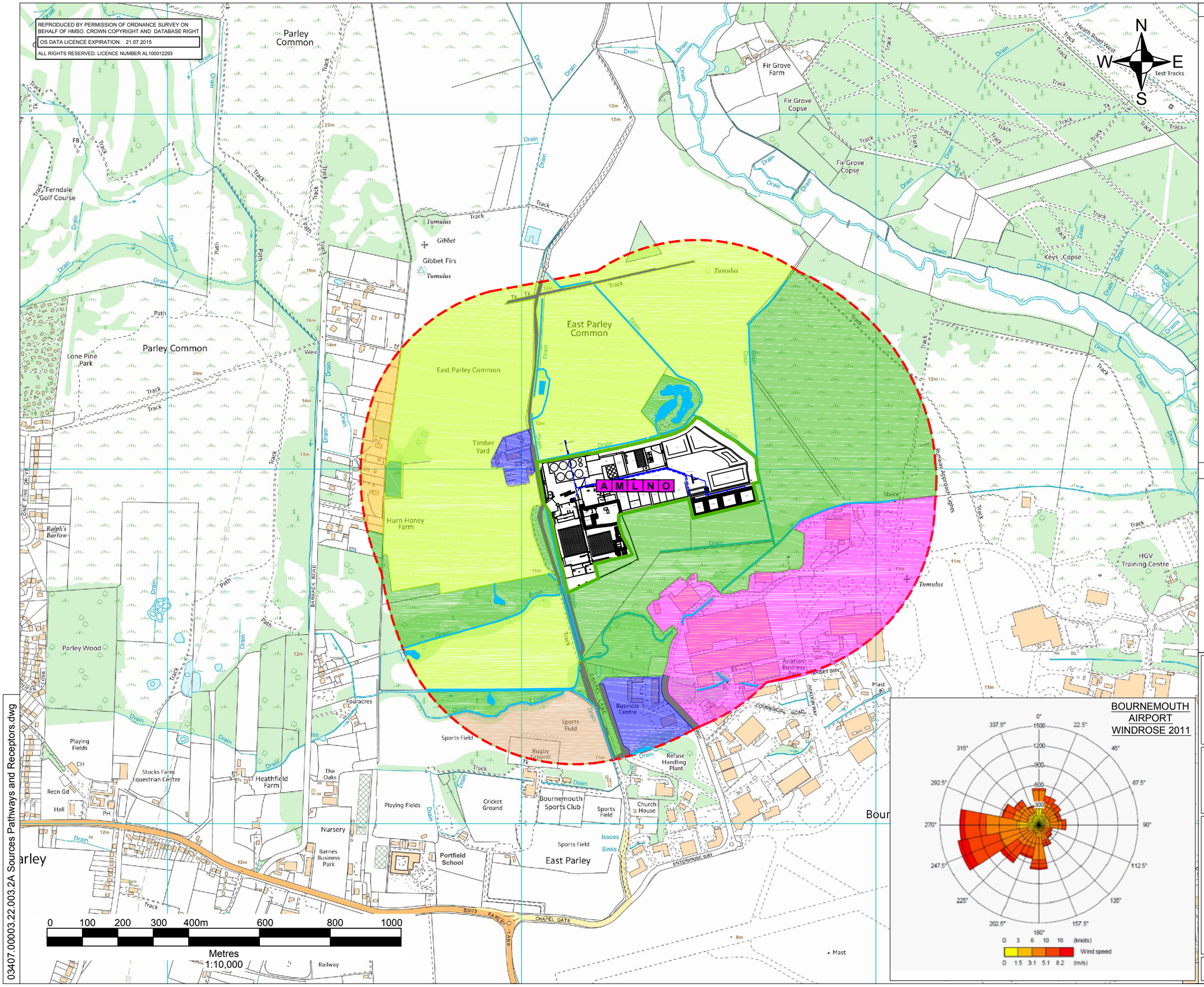
CULTURAL & NATURAL HERITAGE

DRAWING 004

Scale 1:25,000 @ A3

Date JULY 2014

3407.0003.10.004.0 Parley Waste Management Facility Cultural & Natural Heritage



NOTES

- ENVIRONMENTAL PERMIT BOUNDARY
- 500m OFFSET BOUNDARY
- COMMERCIAL / INDUSTRIAL
- OPEN SPACE / FARM LAND
- SURFACE WATER BODIES / DITCHES
- LOCAL ROAD / TRACK NETWORK
- SPORTS FIELD
- BOURNEMOUTH AIRPORT
- RESIDENTIAL
- SOLAR PARK

SOURCE TERMS

- A AIRBOURNE EMISSIONS
- M MUD ON ROAD
- L LITTER
- N NOISE
- O ODOUR

TREENWOOD HOUSE
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PARLEY WASTE MANAGEMENT FACILITY

ENVIRONMENTAL PERMIT VARIATION APPLICATION

SOURCES PATHWAYS AND RECEPTORS

DRAWING 003

Scale: 1:10,000 @ A3

Date: OCTOBER 2014

03407.00003.22.003.2A Sources Pathways and Receptors.dwg

global environmental solutions

Parley Waste Management Facility, Parley, Christchurch

Environmental Permit Variation Application

Site Condition Report

SLR Ref: 407.03407.00003/SCR

Eco Sustainable Solutions Limited

October 2014

CONTENTS

APPENDICES

DRAWINGS

1.0 INTRODUCTION

SLR Consulting Ltd (SLR) has been instructed by Eco Sustainable Solutions Limited (Eco) to prepare an environmental permit (EP) application for its waste management facility at Parley, Christchurch, Bournemouth. The site is currently permitted under a Consolidated Permit issued by the Environment Agency on 8th October 2010 (EA Reference; EPR/GP3793FY), which permits open windrow composting, in vessel composting, wood and soil recycling.

The location of the site is illustrated in Drawing 001 dated October 2014. The Site Layout and Drainage Plan are illustrated on Drawing 002 dated October 2014. The location of receptors is illustrated on Drawing 003, Sources, Pathways and Receptors.

This SCR has been prepared in accordance with the Environment Agency's H5 Guidance Note on SCR[1]. The objective of the SCR is to record and describe the condition of the land at the site at the time of the permit application. The SCR will provide a point of reference and baseline environmental data so that when the permit is surrendered it can be demonstrated that there has been no deterioration in the condition of the land as a result of the proposed operations, and ensure that the condition of the land is in a 'satisfactory state' on surrender of the permit.

Sections 1 to 3 of the EA's SCR template have been completed in the preparation of this document, which comprises the following:

- site details;
- condition of the land at permit issue;
    - geology;
    - hydrogeology;
    - hydrology;
- pollution history;
- evidence of historic contamination; and
- permitted activities.

Section 4 to 7 of the SCR template will be maintained during the life of the permit and Sections 8 to 10 will be completed and submitted in support of the application to surrender the permit.

[1] EA Guidance; Site Condition Report – guidance and templates, Version 3, May 2013.

2.0 SITE CONDITION REPORT H5 TEMPLATE

1.0 SITE DETAILS	
Name of the applicant	Eco Sustainable Solutions Limited
Activity address	Chapel Lane Parley Christchurch Dorset BH23 6BG
National grid reference	SZ 102 989 – centre of the entire site.

Document reference and dates for Site Condition Report at permit application and surrender	407.04296.00001/SCR, July 2014 – for an Environmental Permit Variation application.

Document references for site plans (including location and boundaries)	Drawing 001 dated October 2014 – Site Location Plan Drawing 002 dated October 2014 – Site Layout and Drainage Plan

Note:

In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:

- Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

If this information is not shown on the site plan required by Part A of the application form then you should submit the additional plan or plans with this site condition report.

2.0 Condition of the land at permit issue	
Environmental setting including: • geology • hydrogeology • surface waters	**<u>Geology</u>** The Envirocheck Report (Appendix SCR1) shows the superficial geology of the site is comprised by the River Terrace Deposits 4, which consists of sand and gravel. The

	bedrock geology comprises the Branksome Sand Formations. **Hydrogeology** The Envirocheck Report indicates that both the River Terrace Deposits 4 and the Branksome Sand Formations are classified as 'Secondary A' Aquifers which have permeable layers capable of supporting water supplies at a local rather than strategic scale, but in some cases forming an important base flow to rivers. ***Groundwater Vulnerability*** The Envirocheck shows the site to be located on the majority of a Major Aquifer (Secondary Aquifer), with soils of variable intermediate leaching permeability. The north west corner of the site lies in an area of high variable leaching permeability. ***Source Protection Zone*** The Envirocheck shows that the site is not located within a Source Protection Zone. **Hydrology** There is one surface water feature within the site boundary. The surface water lagoon lies to the south of the site. The closest surface water features, two fishing lakes that are recharged by a number of small streams, are located 50m to the north of the site boundary. There are various drains located to the north, south, east and west which are associated with the Moor River, which is located approximately 660m to the north east of the site. ***Flooding*** The Envirocheck report confirms that the site does not lie within a flood plain but is surrounded to the north, east, south and west by one.
Pollution history including: • pollution incidents that may have affected land • historical land-uses and associated contaminants	**Pollution History** The Envirocheck Report for the site includes details of pollution incidents that may have affected the land, historical land uses and maps, and the details are summarised below;

• any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures	**On site:** There have been no on site pollution incidents on record. **Off site:** There have been 4 substantiated pollution incidents registered within 1km of the site. The closest incident occurred 152m to the south for the release of atmospheric pollutants on humans. The incident was categorised as Category 2, a significant incident. **Historical Land-uses** **On site:** The Envirocheck report confirms that there has been potentially polluting historical land uses on site. *Historical Landfill Sites;* Parley Court Farm was originally operated by E.G Hoare Limited as an inert waste landfill within the south eastern area of the site. The first input of waste was in 1992. SITA Products and Services also operated this site, which has since been closed. Chapel Lane Quarry was operated by SITA Products and Services from 1999 onwards. The landfill accepted non-biodegradable waste (but not construction). The site has since closed. *BGS Recorded Mineral Sites;* SITA Holdings UK Limited operated a gravel opencast quarry within the site boundary. The quarrying activities have now been ceased. **Off site:** Within 1000m of the site boundary there has been a history of waste management activities. The Envirocheck report details 5 licensed waste management facilities within 1km of the site. The closest active site is located 430m to the south east. The site is listed as a Special Waste Transfer Station, currently operated by Hurn Waste Oil Ltd. The site has been active since 1990. There are a further 3 active sites and one that was surrendered in 2007. There are 3 registered waste transfer stations that have all since been either revoked or surrendered. The closest, Parkstone Mini Skips, was located 298m to the south and operated by A O Sheppard.

	There is one Planning Hazardous Substances Contents, issued by Christchurch Borough Council to FLR Engineering Ltd for flammable substances. The site is located 228m south of the site boundary. There are 2 further BGS Recorded Mineral sites within 1km of the site boundary. The closest was located at Parley Court approximately 238m to the north, which was operated by E.G. Hoare Limited. The site is listed as a former opencast quarry for the extraction of sand and gravel. ***Historical Maps*** The historical maps included in the Envirocheck Report illustrate that the site consisted of rough pasture and heathland. The site was subsequently cleared during the 1950's. From 1963 onwards Bournemouth (Hurn) Airport began to develop to the south of the site. East Parley Common is depicted to the north. Between 1982 and 1985 a slurry pit is located within the north west corner of the site, associated with the surrounding agricultural activities. Various drains are located within and adjacent to the site boundaries. From 1992 onwards the site was subject to the landfilling of inert waste. A gravel pit is depicted to the north of the site. From 2006 onwards the existing site layout is depicted with the Timber Yard located to the north west. All of the above represent potentially contaminative former land uses in the locality of the site.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	An Envirocheck Report for the site is included as Appendix SCR1. In addition a Site Investigation Report, carried out in June 2012, is also included in Appendix SCR2.
Baseline soil and groundwater reference data	An Envirocheck Report for the site is included as Appendix SCR1. In addition a Site Investigation Report, carried out in June 2012, is also included in Appendix SCR2.

Supporting information	• Source information identifying environmental setting and pollution incidents • Historical Ordnance Survey plans • Site reconnaissance • Historical investigation / assessment / remediation / verification reports • Baseline soil and groundwater reference data

3.0 Permitted activities

Permitted activities	Parley Waste Management Facility with the following activities carried out on site; **R1:** Use principally as a fuel or other means to generate energy. **R3:** Recycling or reclamation of organic substances which are not used as solvents. **R4:** Recycling/reclamation of metals and metal compounds. **R5:** Recycling or reclamation of other inorganic materials. **R13:** Storage of wastes pending the operations numbered R3 and R5.
Non-permitted activities undertaken	N/A.
Document references for: • Plan showing activity layout; and • Environmental risk assessment.	Drawing 001 dated October 2014: Site Location Drawing 002 dated October 2014: Indicative Site Layout and Drainage Plan Environmental Risk Assessment Reference 407.03407.00003/H1, dated October 2014

Note:

In Part B of the application form you must tell us about the activities that you will undertake at the site. You must also give us an environmental risk assessment. This risk assessment must be based on our guidance (*Environmental Risk Assessment - EPR H1*) or use an equivalent approach.

It is essential that you identify in your environmental risk assessment all the substances used and produced that could pollute the soil or groundwater if there were an accident, or if measures to protect land fail.

These include substances that would be classified as 'dangerous' under the Control of Major Accident Hazards (COMAH) regulations and also raw materials, fuels, intermediates, products, wastes and effluents.

If your submitted environmental risk assessment does not adequately address the risks to soil and groundwater we may need to request further information from you or even refuse your permit application.

3.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Eco Sustainable Solutions Limited; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

WYG Environment
part of the WYG group

Eco Sustainable Solutions

Chapel Lane, East Parley

Proposed Biomass and Anaerobic Digester Plant

Site Investigation Report

June 2012

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1	May 2012	DRAFT (FACTUAL)
2	June 2012	V1 (INTERP)

Contents Page

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 Instruction

WYG Environment (WYG) was commissioned by Eco Sustainable Solutions to carry out a ground investigation on the site of a proposed biomass and anaerobic digester plant. Instructions to proceed were received via an email from Mike Thompson of Eco Sustainable Solutions dated 2nd April 2012. The order number for the work is 10806.

1.2 Brief

The brief was to provide an assessment of ground conditions in the vicinity of two proposed developments at the site in East Parley, for a proposed biomass burner plant and an anaerobic digester.

1.3 Report Scope

The report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes, the in-situ and laboratory test results. All information collected has been used to provide an interpretation of the ground conditions, with recommendations on geotechnical design for the proposed development.

1.4 Limitations

This report has been prepared following the acceptance of the proposal letter from WYG to Eco Sustainable Solutions dated 29th March 2012 and the associated Terms and Conditions of Engagement. It is subject to the report conditions contained in Appendix A. The information contained in this report is intended for the use of Eco Sustainable Solutions. WYG can take no responsibility for the use of this information by any third party or for uses other than that described in this report.

The recommendations and opinions expressed in this report are based on the strata observed in the exploratory holes, the results of the site and laboratory tests, and information provided by others. WYG take no responsibility for conditions that have not been revealed by the exploratory holes, or which occur between them. Whilst every effort has been made to interpret the conditions between investigation locations, such information is only indicative and liability cannot be accepted for its accuracy.

2.0 SITE INFORMATION

2.1 Location and Situation

The site is located adjacent to Bournemouth Airport, approximately 8km north of Bournemouth City Centre. The site consists of an active composting and wood processing facility which covers an area of approximately 16 hectares. The areas under consideration are limited to the footprints of the proposed biomass and anaerobic digester plants.

The site is located in a mixed industrial and rural setting, with Bournemouth Airport and associated business park located adjacent to the south of the site. The area to the north and east is predominantly is a mixture of rural and residential land uses. A site location plan is presented as Figure 1 and the site layout is presented as Figure 2.

The surrounding land uses are outlined as follows:

	Description
North	• Agricultural fields and fishing lakes.
East	• Agricultural fields
South	• Bournemouth Airport and business park off Enterprise Way.
West	• Fields with housing and commercial premises off Barrack Road.

2.2 Site description

The site is the location of an active composting and wood processing plant. Access to the site is via Chapel Lane, a single track road with passing places. An office building and weighbridge is located on the western boundary to the site, close to the site entrance, and consists of a single storey building with an associated area of car parking. The remainder of the site is predominantly hardstanding with areas used for large scale composting and wood processing. A number of large machinery and storage sheds are also present on the site.

The area of the proposed biomass burner is currently used for the storage of materials resulting from the screening of composted materials (typically unwanted materials such as un-composted materials and plastic). The area was located in the south eastern extent of the site and at the time of the investigation was not covered by hard standing.

The location of the proposed anaerobic digester consists of an agricultural filed which at the time of the investigation had recently been ploughed and the ground conditions were soft. Access to this area of the site was via the eastern boundary of the main site or via an access track to the north of the site.

2.3 Proposed development

It is understood that planning permission has been granted for the development of a new biomass plant on the site adjacent to the current composting facility. In addition a proposal is currently under development for the construction of an anaerobic digester plant in the location of a ploughed field to the east of the current composting plant. The location if these areas are indicated on Figure 2 – Site Layout Plan

3.0 ENVIRONMENTAL CONTEXT

3.1 Geology

The site is covered by British Geological Survey 1:50,000 map number 329, Bournemouth. The map indicates the site is underlain by River Terrace Deposits which are described as sands and gravels. The solid geology beneath the site is recorded as the Branksome Sand Formation in the Eocene period.

The site is known to be the location of a former sand and gravel quarry which has subsequently been backfilled and the ground levels are now similar to the surrounding areas. Therefore significant thicknesses of made ground are anticipated across the site.

3.2 Hydrogeology

With respect to aquifer classification, the Environment Agency website classifies both the superficial and underlying bedrock geology deposits as a Secondary A Aquifer, which contain permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. Soils beneath the site are classified as having a high leaching potential.

The site is not located within a source protection zone.

3.3 Hydrology

Moors River is located approximately 70m north east of the site; in addition two fishing lakes recharged by a number of small streams are located approximately 50m north of the site boundary.

3.4 Radon

BRE document 211 'Radon: Guidance on Protective Measures for New Dwellings – 2007' indicates the site is located in an area where no radon protection measures are required for new developments.

4.0 FIELDWORK

4.1 Fieldwork Details

The site investigation work was undertaken by WYG between the on the 17th to the 24th April 2012. Details of the fieldwork methods used are given in the Notes section at the end of this report. The scope of the investigation included;

Proposed Biomass Plant

- Three cable percussive boreholes identified as BH1, BH1a and BH2 were advanced to 10.0m below ground level (BH1 was terminated at 4.0m due to obstructions and was relocated to BH1a). A monitoring stand pipe was installed in BH2 on completion.
- Four machine excavated trial pits.

Proposed Anaerobic Digester Plant

- Three cable percussive boreholes identified as BH3, BH4 and BH5 were advanced to 10.0m below ground. A monitoring stand pipe was installed in BH5 on completion.
- Fifteen machine excavated trial pits.

In addition, geotechnical testing was carried out as described in Section 6.0.

Figure 3a shows the layout of the exploratory holes. A summary of pit depths and ground conditions encountered are shown on engineering logs in Appendix B. Geotechnical laboratory test results are presented in Appendix C.

5.0 GROUND CONDITIONS

5.1 Ground Conditions Encountered

The sequence of strata encountered beneath the site was:

- Topsoil
- Made Ground
- River Terrace Deposits

Ground sections are presented in Figure 3b and discussed in more detail in the following sections.

5.1.1 Topsoil

Topsoil was only encountered in the location of the proposed anaerobic digester plant to a depth ranging from 0.30m and 0.60m. It generally consisted of sandy slightly gravelly brown topsoil. The gravel content was described as fine and medium flint.

5.1.2 Made Ground

Made ground deposits were identified in all exploratory locations. In the location of the proposed anaerobic digester made ground thicknesses were generally seen to increase from west to east with typical thicknesses of 2.0 to 2.5m in the west of this area to a maximum recorded thickness of made ground of 6.3m bgl. In the region of the biomass plant a maximum thickness of 6.3m was recorded.

The made ground was predominantly granular in nature and reflected the materials backfilled within the former sand and gravel pit. The made ground was generally described as a sandy gravel of concrete, brick with cobble sized fragments of concrete and masonry. The gravel content also included fine to coarse sub rounded flint.

Minor constituents also included plastic, wood fragments and other materials such as wire and fencing. A tree trunk was identified in one location in the region of 1.0m in length.

5.1.3 River Terrace Deposits

River Terrace deposits were encountered beneath in all locations where the base of the made ground was identified. These deposits were largely granular in nature with the nature of the deposits ranging from sand through to gravelly sand and sand and gravel. Cohesive deposits were identified in seven locations including sandy clay and gravelly clay.

5.2 Obstructions

Obstructions were encountered within the made ground as part of the advancement of the cable percussive boreholes. BH1 was terminated at 4.0m due to the presence of a concrete obstruction at 2.30m which was penetrated however further advancement of the borehole was not possible due to damage to the rig. As a result the borehole was relocated to BH1a and on identification of an obstruction at a similar level the location was excavated using a 360° excavator to a depth of 3m to clear any large concrete obstructions before continuation using with the cable percussive rig.

5.3 Groundwater

Groundwater was encountered in the majority of the investigation locations. The details are outlined in table below and in the exploratory logs in Appendix B.

5.4 Visual/Olfactory Contamination

With the exception of the made ground deposits discussed above, no significant visual or olfactory signs of contamination were noted during the site investigation.

5.5 Summary of Ground Conditions Encountered

Table 1 Summary of geotechnical laboratory tests undertaken

Exploratory Location	Topsoil (mbgl)	Made Ground (mbgl)	River Terrace Deposits (mbgl)				Groundwater (mbgl)
			Sand	Gravel	Sand and Gravel	Clay	
BH1	N.E	GL – 4.0*					3.0
BH1a	N.E	GL – 4.8	6.1 – 10*		4.8 – 6.1		0.7
BH2	N.E	GL – 6.3	6.5 – 10.0*		6.3 – 6.5		2.9
BH3	N.E	GL – 6.3				6.3 – 9.0	

Exploratory Location	Topsoil (mbgl)	Made Ground (mbgl)	River Terrace Deposits (mbgl)				Groundwater (mbgl)
			Sand	Gravel	Sand and Gravel	Clay	
			9.0 – 10.0*				2.1
BH4	N.E	GL – 6.0	6.0 – 10.0*				3.8
BH5	N.E	GL – 5.5	8.0 – 10.0*		5.5 – 5.8	5.8 – 8.0	2.5
TP1	GL – 0.4	0.4 – 2.5	2.5 – 2.8 4.0 – 4.1*		2.8 – 4.0		4.0
TP2	GL – 0.3	0.3 – 2.4	2.4 – 4.1		4.1 – 4.2*		4.2
TP3	GL – 0.5	0.5 – 3.8*					3.8
TP4	GL – 0.3	0.3 – 4.0	4.0 – 4.1*				N.E
TP5	GL – 0.4	0.4 – 5.1*					5.1
TP6	GL – 0.3	0.3 – 2.6		2.6 – 4.2		4.2 – 4.8*	N.E
TP7	GL – 0.4	0.4 – 4.9				4.9 – 5.0*	3.5
TP8	GL – 0.6	0.6 – 4.9*					N.E
TP9	GL – 0.6	0.6 – 2.3	3.0 – 3.8*		2.3 – 3.0		3.8
TP10	GL – 0.6	0.6 – 3.4			3.4 – 3.6*		3.4
TP11	GL – 0.3	0.3 – 2.0	2.6 – 4.0		2.4 – 2.6 4.0 – 4.1*	2.0 – 2.4	4.0
TP12	GL – 0.4	0.4 – 4.6*					4.5
TP13	GL – 0.3	0.3 – 5.0*					N.E
TP14	GL – 0.4	0.4 – 2.8				2.8 – 5.6*	2.8
TP15	GL – 0.4	0.4 – 4.6*					4.6
TP16	N.E	GL – 2.6*					2.5
TP17	N.E	GL – 4.5*					1.8
TP18	N.E	GL – 4.0*					1.7
TP19	N.E	GL – 4.3*					2.0

* base not encountered

6.0 LABORATORY TESTING

6.1 Geotechnical Testing

A programme of laboratory testing was carried out on samples taken from the various strata to determine the engineering properties of the materials underlying the site. The testing was scheduled by WYGE and carried out by Professional Soils Laboratory (PSL) which is an approved supplier in accordance with the requirements of WYGE quality system and is UKAS accredited for a range of geotechnical tests.

The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given below:

Table 2 Summary of geotechnical laboratory tests undertaken

TEST	STANDARD (BS1377:1990)	No.
Moisture Content	Part 2, Clause 3.2	2
Liquid Limit (definitive method)	Part 2, Clause 4.3	1
Plastic Limit	Part 2, Clause 5.3	2
Plasticity Index	Part 2, Clause 5.4	1
Particle Size Distribution (wet)	Part 2, Clause 9.2	8
Sedimentation by pipette	Part 2, Clause 9.4	1
Organic matter content	Part 3 Clause 3	3
One dimensional consolidation properties	Part 5, Clause 3	2
Triaxial tests "Quick" undrained with multistage loading	Part 7, Clause 9	2
BRE SD1 (pH, acid soluble sulphate, water soluble sulphate and total sulphur)		3
Dry Den/MC (2.5kg Rammer Method CBR Mould) and CBR at each compaction point	Part 4 Clause 3.4	5

Laboratory geotechnical test results are presented in Appendix C.

7.0 DISCUSSION – ENGINEERING PROPERTIES

7.1 Ground conditions

Significant thicknesses of made ground, 2.0m to in excess of 6.0m, were encountered during the site investigation. In addition, in the area of the proposed Biomass Plant, large differences in the thickness of made ground occur over relatively small lateral distances. This is best reflected in Figure 4, which presents a contour plot of the made ground thickness showing the lateral variation. The variable thickness of made ground mostly likely reflects the variable nature in which the gravels have previous been extracted, creating linear features of deeper localised zones.

Made ground predominantly comprised granular materials with a thin discrete clay layer encountered in BH5 between 5.2m and 5.5m. A number of obstructions were encountered within the Made Ground, primarily in the area of the proposed Anaerobic Digester and comprised a concrete slab in BH1, TP16 and TP17 at a depth of 2.0m to 2.3m. A tree trunk was also encountered within TP15 along with variable amounts of other waste such as masonry, plastics, wood, cables, geotextiles, plastic and concrete.

The underlying River Terrace deposits comprise intermixed cohesive and granular deposits. Cohesive deposits were encountered in seven exploratory positions located in the Anaerobic Digester area, as shown in Figure 5. Where encountered in the trial pits at relatively shallow depths (2.0m to 4.9m), the cohesive materials were recorded as soft orange brown sandy clay and varied in thickness from 0.4m to >2.8m. Cohesive soils encountered in the boreholes at depths of 5.8m and 6.3m comprised firm to stiff light grey sandy clay and varied in thickness between 2.2m and 2.7m.

Granular River Terrace Deposits were encountered in the majority of exploratory positions and typically comprised light grey and orange brown sand, sand and gravel in roughly equal proportions, and to a lesser degree sandy gravel. The variable nature of these deposits is a reflection of their depositional environment. It is assumed that the predominantly coarser grained gravel deposits have been removed by previous aggregate extraction operations. The in-situ density of the granular deposits recorded within the boreholes ranged from dense to very dense.

Groundwater was encountered in the majority of exploratory positions at depths ranging from 0.7m to 5.0m. No additional monitoring of groundwater installations has been completed but for the purposes of this assessment the groundwater table has been assumed to be at a depth of circa 2 to 2.5m below existing ground levels.

7.2 Soil properties

The ranges of the various soil properties measured are discussed below, to aid in the selection of design values. However, the appropriate choice of characteristic and design values will depend on the particular analysis and design philosophy used, and should be selected by the designer.

Where characteristic values are given, these are reasonably conservative estimates of a measured or assessed property that may be used to represent the overall behaviour of the material. Design values are similar but also take into account the ground-structure interaction for a given structure so need to be selected by the designer. It is recommended, however, that design values used do not exceed the characteristic values given in this report.

7.2.1 Made Ground – Granular Materials

The range and variation of SPT N values can be seen from Table 3 below and from the SPT Plot presented as Figure 6. The wide scatter of results is typical of made ground soils. SPT N values appear to decrease slightly with depth, which may indicate that the lower made ground was less engineered when placed. SPT tests undertaken in BH1, BH1A and BH2 in the area of the Biomass Plant generally recorded higher SPT N values, as shown in Table 3 below. Table 3 also includes estimates of the angle of shearing resistance, φ, based on the correlation by Peck, Hanson and Thornburn(8).

Table 3 – Made Ground – Granular Materials - SPT N values (blows per 300mm)

Area		No. of results	Range (min-max)	Average	Lower quartile	Characteristic value
Site wide	N values	24	0 - 41	24	7	7
	ϕ (°)		27 - 39	31	29	29
Anaerobic Digester	N values	16	0 - 32	10	4	4
	ϕ (°)		26.5 – 36.5	30	28	28
Biomass Plant	N values	8	15 - 41	24	14.5	14.5
	ϕ (°)		29 – 39	34	31	31

Five compaction tests were undertaken on granular Made Ground Deposits from a selection of trial pit samples at depths between 1.0m and 2.0m. Initial moisture contents ranged between 15% and 28%, and maximum dry densities ranging between 1.58mg/m^3 and 1.94mg/m^3. Optimum moisture content ranged

between 12% and 22%. This demonstrates the Made Ground soils are wet of optimum moisture content by 3-6%.

Chemical testing was undertaken on three samples of the Made Ground to allow the assessment of ground aggressivity on concrete and gave total sulphates in the range of 0.05 to 0.17% SO4, water soluble sulphate (2:1 extract as SO4) of 0.14 to 0.38g/l, pH value of 8.0 to 8.8 and total sulphur of 0.04 to 0.1%

7.2.2 Made Ground – Cohesive Materials

Testing and analysis of clay materials encountered at the base of Made Ground in BH5 between 5.2 and 5.5m have not been undertaken / considered due to their localised and discontinuous nature.

7.2.3 River Terrace Deposits – Cohesive Materials

The tested soil properties of the cohesive River Terrace Deposits are presented in Table 4 below. As mentioned at the start if this section there is a significant difference between the shear strength recorded by hand vane testing of clay soils encountered in the trial pits and the shear strength recorded by triaxial and SPT testing within the deeper clay soils encountered within the boreholes.

Table 4 – Summary of soil parameters for Cohesive River Terrace Deposits

Parameter		No. of results	*Range (min-max)*
Classification Tests			
Natural moisture content %		1	*22*
Liquid limit (LL)		1	*29*
Plastic limit(PL)		1	*14*
Plasticity index (PI)		1	*15*
SPT N values		2	*16-17*
Undrained shear strength:			
- from triaxial test	c (kPa)	2	*84-90*
- from hand vane	c (kPa)	6	*10-37*
- from SPT N values (a)	c (kPa)	2	*72-76*
Consolidation properties^:			
- from oed-ometer test	mv (m2/MN)	2	*0.107-0.206*
	cv (m2/yr)	*2*	*1.38-11.42*

(a) estimated from a correlation by Stroud and Butler (1975);

7.2.4 River Terrace Deposits – Granular Materials

The range and variation of SPT N values can be seen from the table below and the plot presented as Figure 7. There was no noticeable variation in the values with depth. The table also includes estimates of the angle of shearing resistance, φ, based on the correlation by Peck, Hanson and Thornburn(8).

Table 5 – Made Ground – Granular Materials - SPT N values (blows per 300mm)

	No. of results	Range (min-max)	Average	Lower quartile	Characteristic value
N values	15	5 – 50	35	28	28
ϕ (°)		28 – 41	37	35	35

8.0 GEOTECHNICAL ASSESSMENT

8.1 Proposed development

The current development proposals comprise the construction of an Anaerobic Digester on the northern area of the site and a biomass plant in the southern area of the site. The Anaerobic Digester Plant comprises:

1) 3no. storage tanks 9.3m in diameter
2) 2no. hydrolysis tanks 12.3m in diameter
3) 4no. digester tanks 22.5m in diameter
4) 6m high control building
5) Gas upgrading compound
6) Storage areas

The ground investigation focused on the more heavily loaded structures associated with Items 1 to 5. Weltic Biopower stated that maximum ground pressure required is 100kN/m^2 with maximum total settlements of no greater than 30mm.

At the time of preparing the report, no details of the Biomss plant were available.

8.2 Foundations

The existing in-situ shallow soils are not capable of supporting the proposed structures due to the typically loose density and variable thickness of made ground soils across the site and the localised presence of soft clay soils a depths ranging from 2m to 5m.

Consideration has been given to alternative option including the application of ground improvement techniques to increase the bearing capacity of the near surface soils and reduce settlements to with tolerable limits or the use of piled foundations. The advantages and disadvantages of the various options/techniques are discussed in the following sections.

8.2.1 Excavation and re-compaction of near surface soils.

Given the made ground soils are predominantly granular and the availability of space on site, it could be possible to excavate the soils for processing and re-compaction. However, unless significant de-watering is undertaken the depth of excavation would need to be limited to depths of circa 2-2.5m. Initial classification testing would suggest that the made ground soils would comply with Class 1A General Fill in accordance with the Specification for Highway Works Series 600 Earthworks with fine contents of below 15%. Example compaction requirements, in accordance with Table 6/4 Method 2 of Series 600, could comprise construction layers of 200mm with 4 passes of a vibratory roller with mass per metre width of 2900kg – 3600kg. Any material such as soft clay, deleterious material containing weak or degradable contaminants, or other unsuitable material such as concrete boulders, tree trunks, plastic or metals, that were encountered within the made ground during trail pitting, should be removed. Compaction tests undertaken on samples of the shallow made ground soils indicate that the materials are 3-6% wet of optimum moisture content and would benefit from drying in order to achieve 95% compaction (i.e. 95% of its maximum dry density).

The significant limitation of this process is the depth of treatment that would leave 0-3m of loose made ground soils and the localised presence of soft clay soils of variable/undefined thickness. The contour plot of made ground thickness shows how rapidly variations can occur, see Figure 4.

Soft clay was encountered in TP4 at a depth of 2.0 to 2.4m and therefore could be removed prior to backfilling. However, in trial pits 4, 6, 7 and 14 the soft clay was encountered at depths of 2.8 to 4.9m with a thickness of at least 2.8m recorded in TP14. Given the variable nature of the River Terrace Deposits the presence of further soft clay layers in between exploratory positions cannot be ruled out.

Preliminary estimates of settlements have been undertaken for the range of ground conditions present and are summarised in Table 6:

Table 6 Settlement estimates for varying ground model

Ground Model	Estimate of settlement*- Total (differential)
1. 2m of re-compacted fill, 3m of un-compacted made ground over granular RTD	70mm (30 to 200mm) – rapid, substantially complete during construction
2. 2m of re-compacted fill, 1m of un-compacted made ground, 2.6m of soft clay over granular RTD	115mm (40 to 150mm) – slow over several years
3. 2m of compacted fill over granular RTD	10mm (5 to 20mm) – rapid, substantially complete during construction

* Based on 22.5m base loaded to 100kN/m^2

Given that the ground model is likely to vary beneath the structures, the actual differential settlements are likely to be higher.

Given that settlement will occur fairly rapidly in ground models 1 and 3, it is possible take out the ground settlement by surcharging the ground prior to construction. Surcharging the ground once the excavated soils have been re-compacted would require circa 5m of fill to replicate the proposed development ground pressure of 100kN/m^2. Settlement associated with the granular would rapid take place (days/weeks). However, settlement associated with the presence of any soft clay would take considerably longer to occur (several years).

Surcharging is potentially only a viable option if it can be confirmed that soft clay is not present or only of limited thickness, less than 0.5m at depths greater than 3m, within the footprint of the proposed structures. Dynamic or static cone probing within the footprints of the proposed structures could achieve this fairly quickly and economically. Given the anticipated variability of the ground, considerable residual risk remains with this option.

8.2.2 Ground Columns

Ground improvement by columns (stone or concrete) taken down to the dense granular River Terrace Deposits would normally be considered a viable option for loosely compacted granular soils. However, WYG have consulted with a ground improvement specialist and the problems for this type of ground improvement are similar to those identified in the previous section, namely:

1). The medium dense surface made ground would have to be pre-loosened to permit treatment to sufficient depth. This is particularly the case in the area of the Biomass Boiler where further obstructions (concrete slab) have been identified.

2). There is wide variation in the depth of made ground beneath several of the larger tanks and thus differential settlements would be hard to limit to tolerable acceptances.

3). The presence of localised soft clays beneath the made ground.

It is therefore considered that ground columns formed by stone or concrete would be unsuitable.

8.2.3 Dynamic Compaction

A solid steel tamping weight is dropped onto the ground from a sufficiently great height to achieve the necessary compaction. The resulting high energy impact transmits shock waves through the ground. This reduces voids between soil particles resulting in enforced settlement, thus reducing long term settlement. The treatment is carried out in a series of impact positions on various grid patterns which are arranged so that compacted zones beneath the weights overlap to ensure the whole area has been treated. As a result, foundation loads can be supported without shear failure or excessive settlement. This technique is used in conjunction with good control and in-situ testing procedures.

Unfortunately, the ground conditions are unsuitable for the use of dynamic compaction due to the presence of a relatively high groundwater table and the localised presence of soft clays.

8.2.4 Piled foundations

Given the variability in ground conditions, the use of piled foundations may represent the lowest risk option. Whilst a wide variety of pile types may be used, it is considered that pre-cast driven piles would be the most suitable given the ground conditions. The significant benefit of driven piles is that they could be driven to a set depth within the River Terrace Deposits and thus the issues with rapidly varying depths to competent soils could be overcome. Furthermore, such piles avoid problems associated with the relatively high water table and do not generate any arisings.

Advice should be sought from specialist piling contractors to determine the most suitable and cost-effective type. The contractor should also be able to give recommended pile diameters and depths, with guaranteed

performance. However, the pile capacities indicated in Table 7 may be taken for preliminary design. Assumptions made in calculating these capacities are included in the table.

Table 7: Indicative Allowable Pile Capacities for Driven Cast In-situ Piles

Pile length[1] (m)	Diameter of Pre-cast Driven Pile[2] (mm)		
	300mm	400mm	450mm
	Allowable Working Pile capacity (kN)		
8	70	123	155
9	98	171	215
10	117	203	255

1. Assumes maximum presence of 6m of made ground and/or soft clay.
2. For a single pile

In assessing pile capacities, no allowance has been made for the downdrag (negative skin friction) caused by settlement of any soft clay under the influence of surface loading.

8.3 Chemical attack on buried concrete

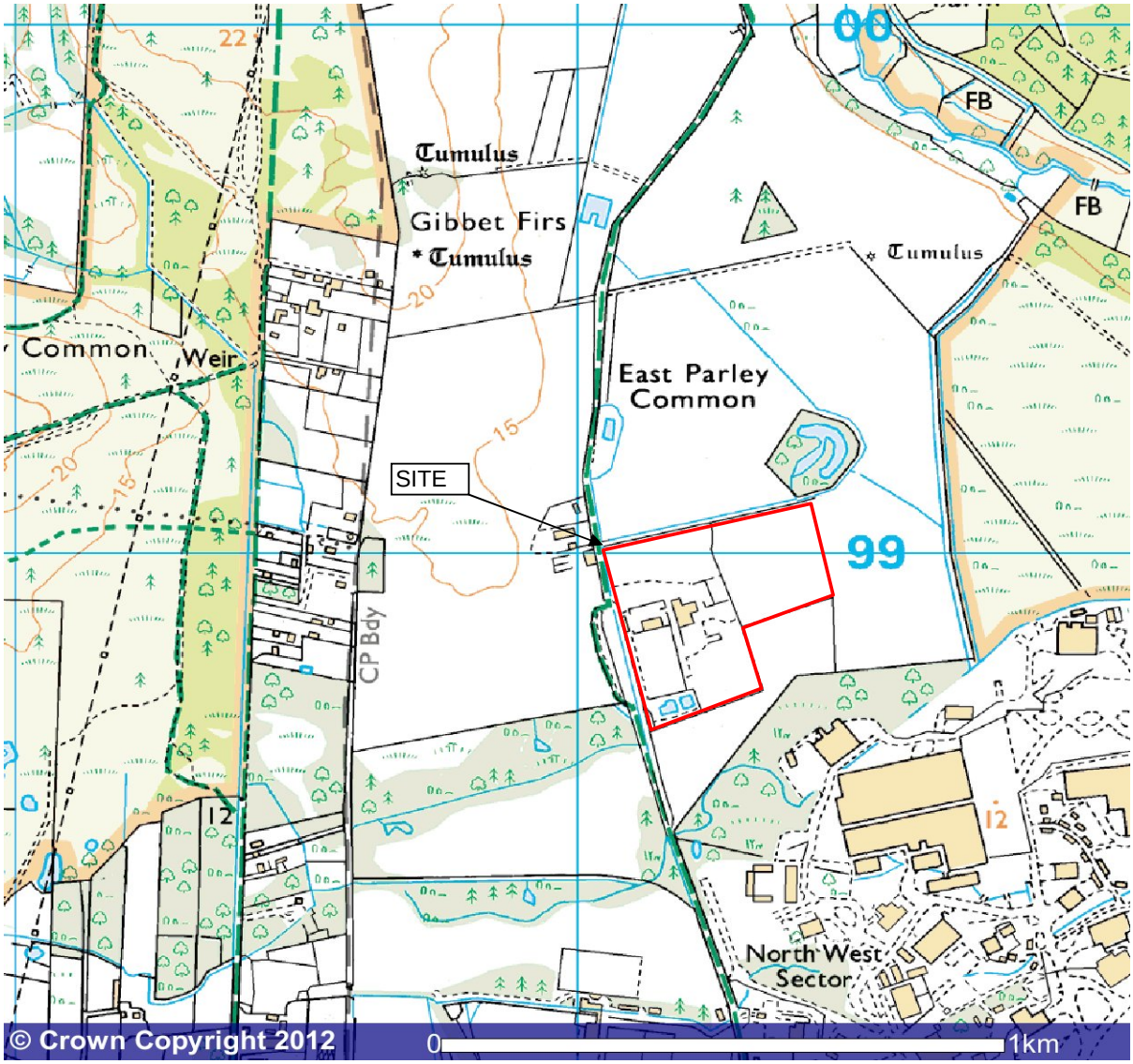
Chemical tests (see Appendix C) show low levels of water soluble sulphates and slightly alkaline conditions. Based on these conditions, it is recommended that for concrete on contact with the made ground soils, the Design Sulphate Class for the site, as defined in BRE Special Digest 1(11), be taken as DS-1, and the Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-1.

8.4 Temporary works

Trial pit excavations carried out during the site investigation work were generally unstable. Battering or side protection will be needed where man-entry into excavations is required, especially for excavations deeper than 1.2m.

Groundwater was typically encountered a variable depths it should be expected that excavations below 2m will have significant ingresses.

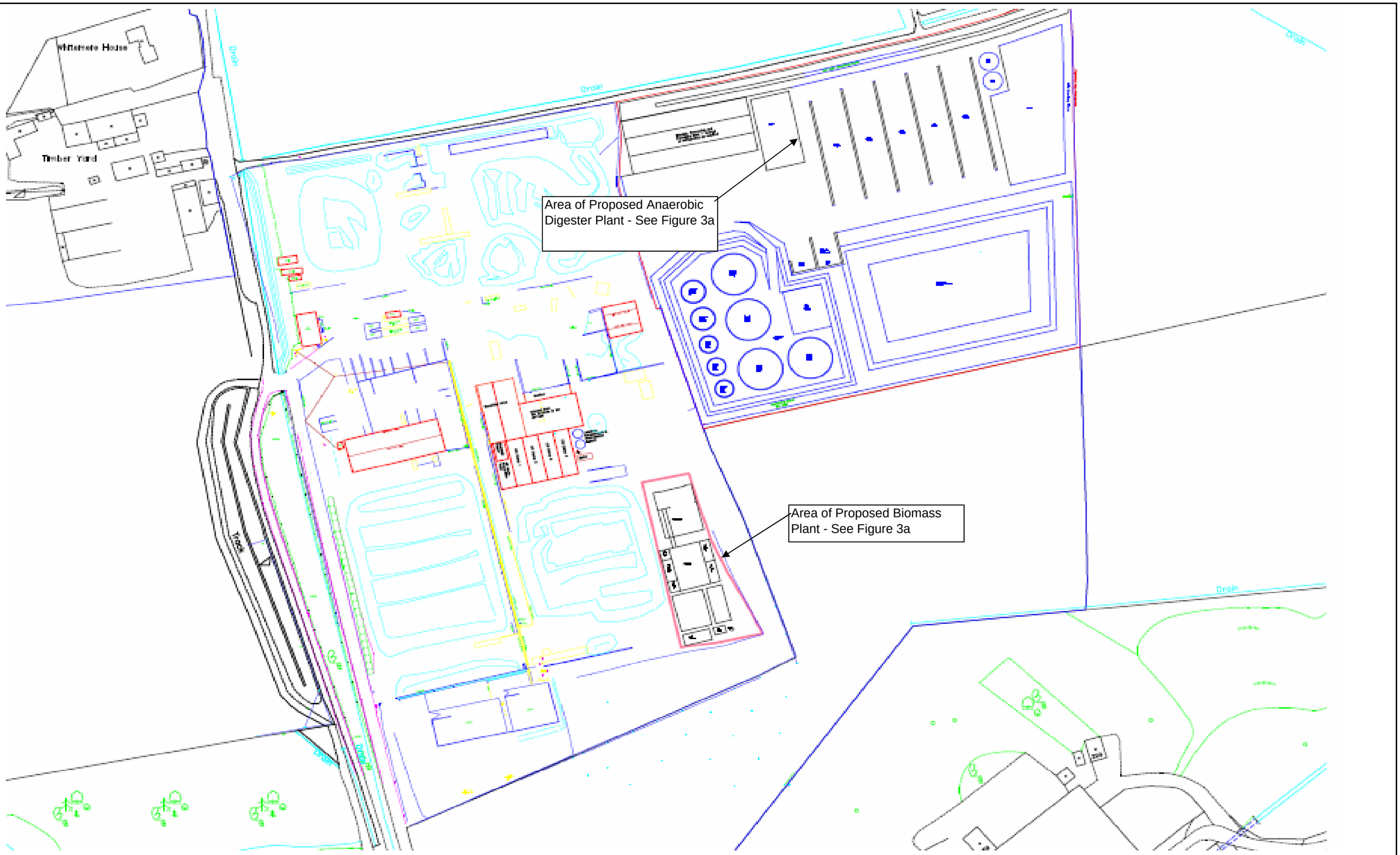
Figures



Ordnance Survey

WYG Environment
5th Floor, Longcross Court, 47 Newport Road, Cardiff
Tel: 02920 829200
Fax: 02920 455321
Environmental Consultancy
Ground Engineering Services

Project	Drawing Title	
Chapel Lane, East Parley Proposed Biomass and Anaerobic Digester Plant	Site Location Plan	
Client: Eco Sustainable Solutions	Checked by: AE	Drawing No.: Figure 1



WYG Environment
5th Floor, Longcross Court, 47 Newport Road, Cardiff
Tel: 02920 829200
Fax: 02920 455321
Environmental Consultancy
Ground Engineering Services

Project
Chapel Lane, East Parley
Proposed Biomass and Anaerobic Digester Plant

Drawing Title
Site Layout plan

Client
Eco Sustainable Solutions

Checked by
AE

Drawing No.
Figure 2

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

N

Drain

4m high Screening Bund

Site Boundary Fence

Greenhouse Site Boundary

Section 1

Section 2

Section 3

Section 4

TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19

BH1 BH1A BH2 BH3 BH4 BH5

Storage, Processing and Packaging Area - Heated or refrigerated as required

CONCRETE

CONCRETE WALL

Biofilter

InVessel Barn
6m @ Eaves & 9m at Peak

IVC Clamp 2

IVC Clamp 3

IVC Clamp 4

Boiler

Leachate Management & Recirculation System

Screening Bund 2m High

Walking Floor Fuel Store
H16.11m Pitch 12.5 Deg

Furnace/Boiler House
H16.13m Pitch 30deg

Lagoon Above
H16.13m Pitch 30deg

ID Fan
Height 4m

Economiser
H16.13m Pitch 30deg

Chimney
Height 40m

MH

0 5 10 15 20 25 m

SCALE 1:500

LEGEND:

TP2 APPROXIMATE LOCATION OF TRIAL PITS

BH3 APPROXIMATE LOCATION OF BOREHOLES

REV	DESCRIPTION	BY	CHK	APP	DATE

5th FLOOR, LONGCROSS COURT
47 NEWPORT ROAD
CARDIFF
CF24 0AD

TEL: +44 (0)29 2082 9200
FAX: +44 (0)29 2045 5321
e-mail: cardiff@wyg.com

Client: ECO SUSTAINABLE SOLUTIONS LTD

Project: PARLEY AD & BIOMASS SI

Drawing Title: SITE INVESTIGATION LAYOUT PLAN

Scale @ A1	Drawn	Date	Checked	Date	Approved	Date
1:500	PJ	14.06.12	PC	14.06.12	CBP	14.06.12

Project No.	Office	Type	Drawing No.	Revision
A076110	4416	ENV	3a	00

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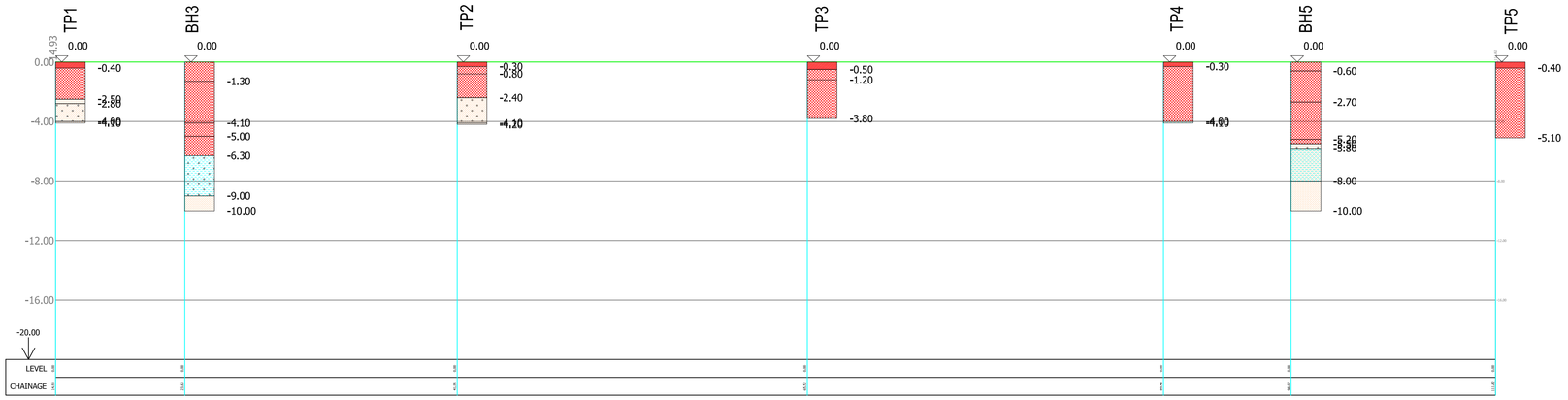
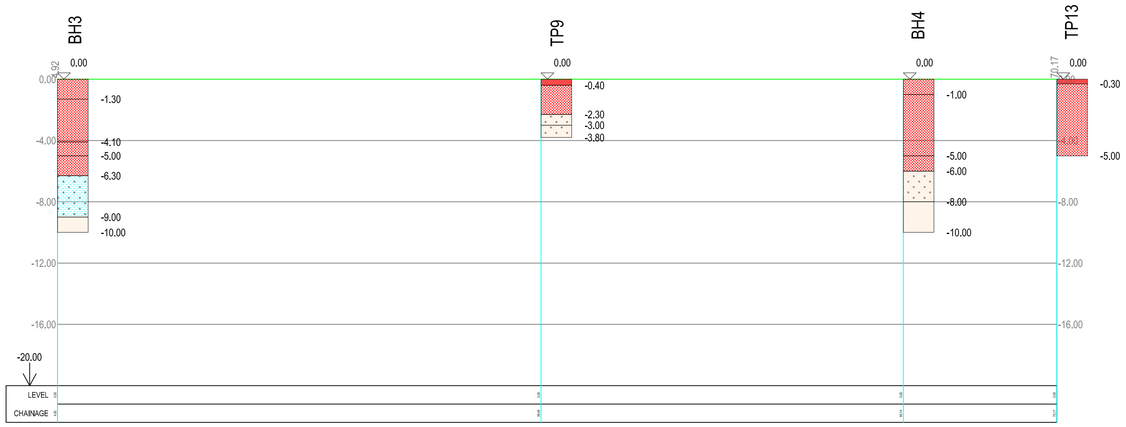
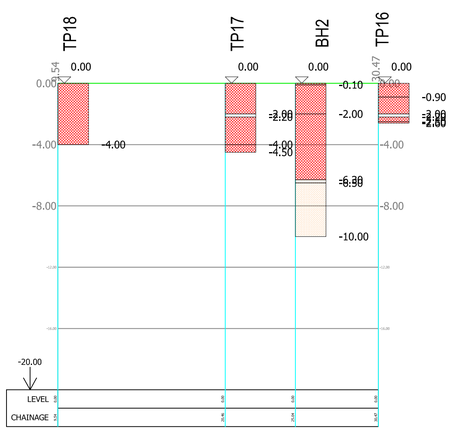
DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS



Section 1
Horiz. 1:100
Vert. 1:100



Section 2
Horiz. 1:100
Vert. 1:100



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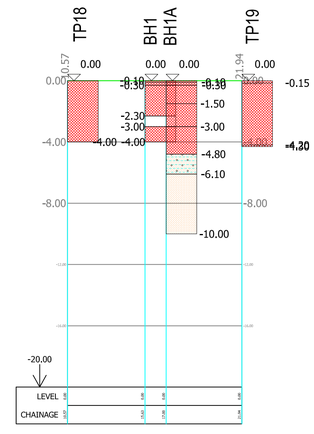
Horiz. 1:100
Vert. 1:100



Section 4
Horiz. 1:100
Vert. 1:100

REV	DESCRIPTION	BY	CHK	APP	DATE

5th FLOOR, LONGCROSS COURT
47 NEWPORT ROAD
CARDIFF
CF24 0AD

TEL: +44 (0)29 2082 9200
FAX: +44 (0)29 2045 5321
e-mail: cardiff@wyg.com

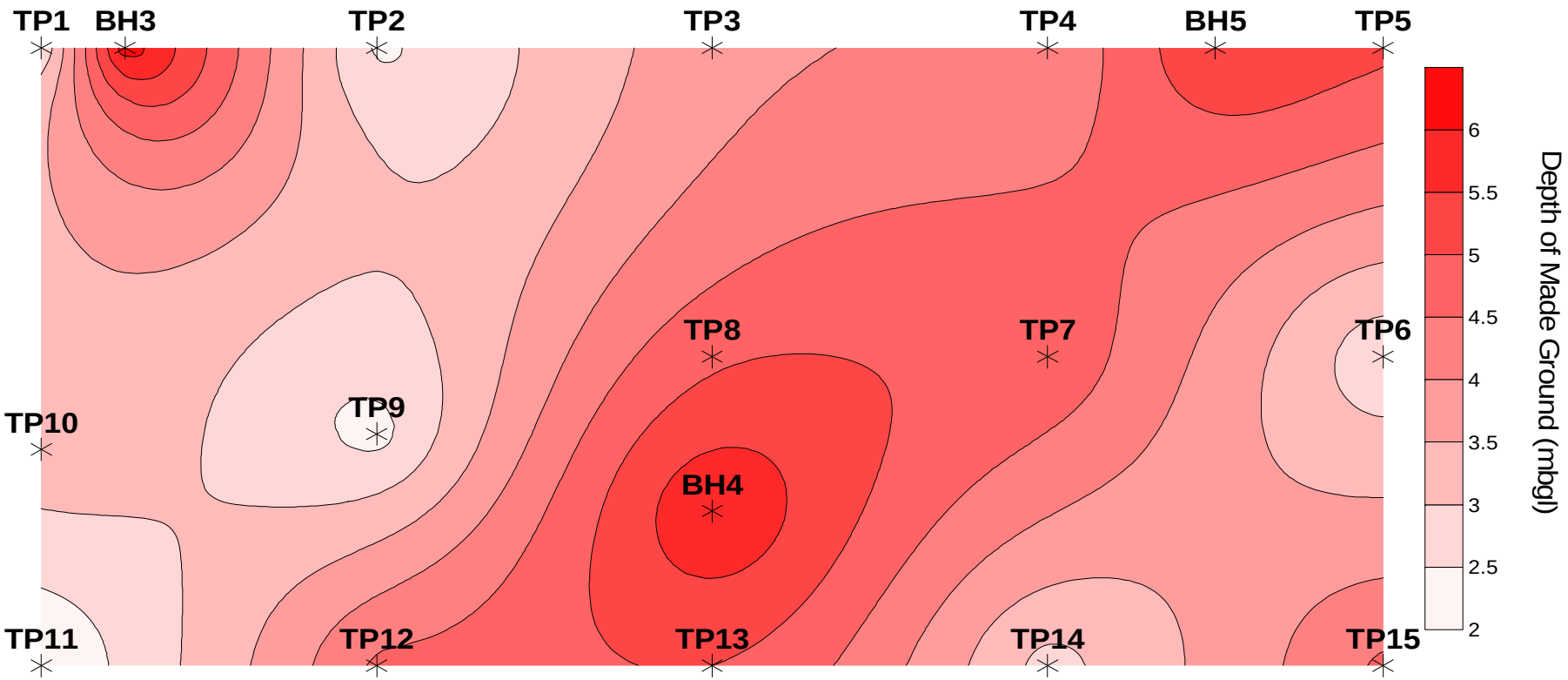
Client: ECO SUSTAINABLE SOLUTIONS LTD

Project: PARLEY AD & BIOMASS SI

Drawing Title: CROSS SECTIONS

Scale @ A1	Drawn	Date	Checked	Date	Approved	Date
AS SHOWN	PJ	14.06.12	PC	14.06.12	CBP	14.06.12

Project No.	Office	Type	Drawing No.	Revision
A076110	4416	ENV	3b	00



WYG Environment
5th Floor, Longcross Court, 47 Newport Road, Cardiff
Tel: 02920 829200
Fax: 02920 455321
Environmental Consultancy
Ground Engineering Services

Project	Parley Ad & Biomass SI
Drawing Title	Contour plot of observed Made Ground depths (m below ground level)
Client	ECO Sustainable Solutions Ltd
Checked by	CBP
Drawing No.	Figure 4

N

4m high Screening Bund

Storage, Processing and Packaging Barn – Heated or refrigerated as required

TP1
BH3 6.3 - 10.0 >3.7m
TP2
TP3
TP4 4.0 - 4.1 >0.1m
BH5 5.2 - 10.0 >4.8m
TP5
TP6 4.2 - +4.8 >0.6m
TP7 4.9 - +5.0 >0.1m
TP8
TP9
TP10
BH4
TP11 2.0 - 2.4 0.4m
TP12
TP13
TP14 2.8 - +5.6 2.8m
TP15

LEGEND:

- TP2 APPROXIMATE LOCATION OF TRIAL PITS
- BH3 APPROXIMATE LOCATION OF BOREHOLES
- CLAY

0 5 10 15 20 25 m

SCALE 1:500

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:
ECO SUSTAINABLE SOLUTIONS LTD

5th FLOOR, LONGCROSS COURT
47 NEWPORT ROAD
CARDIFF
CF24 0AD

Project:
PARLEY AD & BIOMASS SI

Drawing Title:
PRESENCE OF COHESIVE SOILS WITHIN RIVER TERRACE DEPOSITS

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:500	PJ 15.06.12	PC 15.06.12	CBP 15.06.12

Project No.	Office	Type	Drawing No.	Revision
A076110	4416	ENV	5	00

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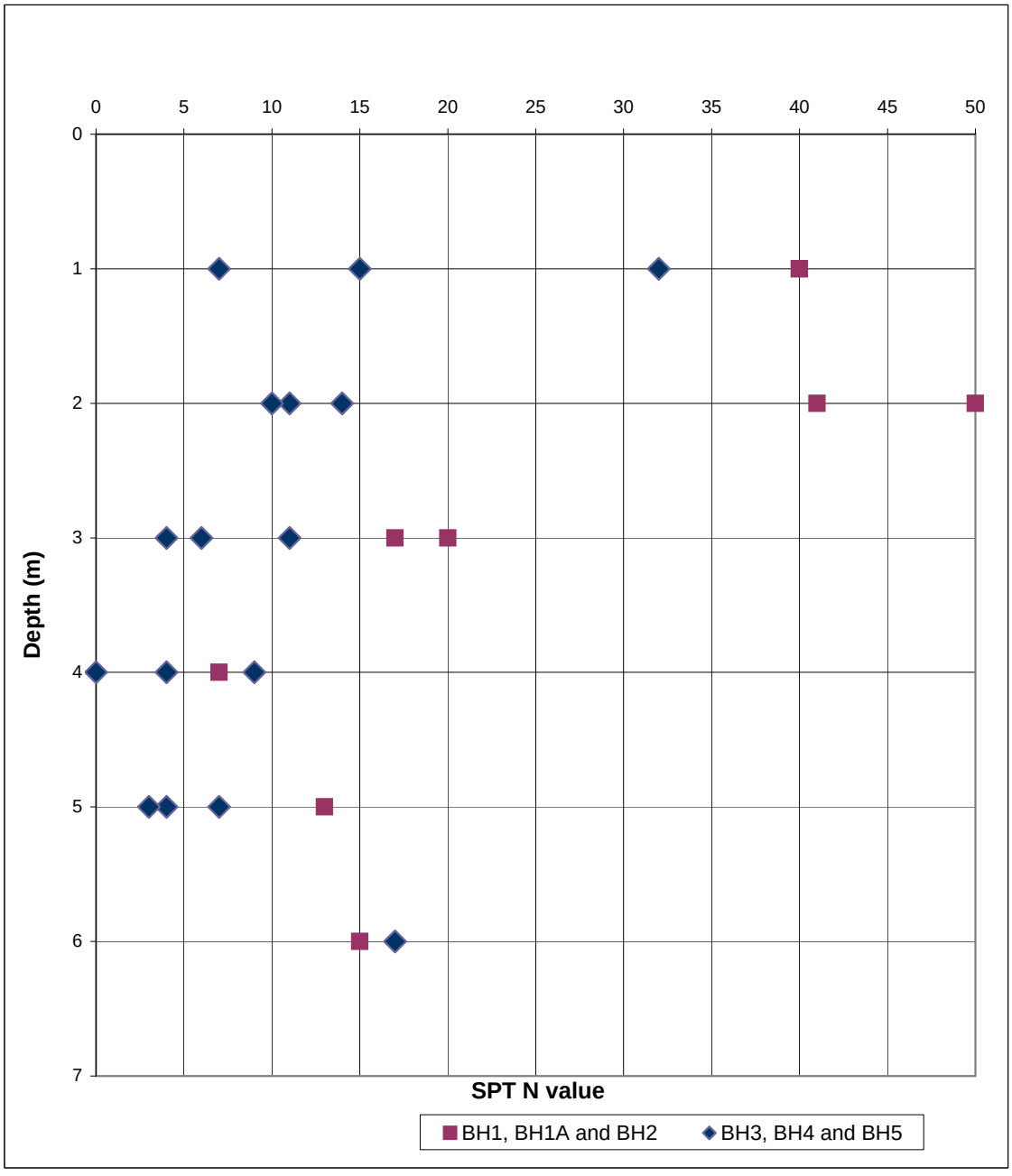
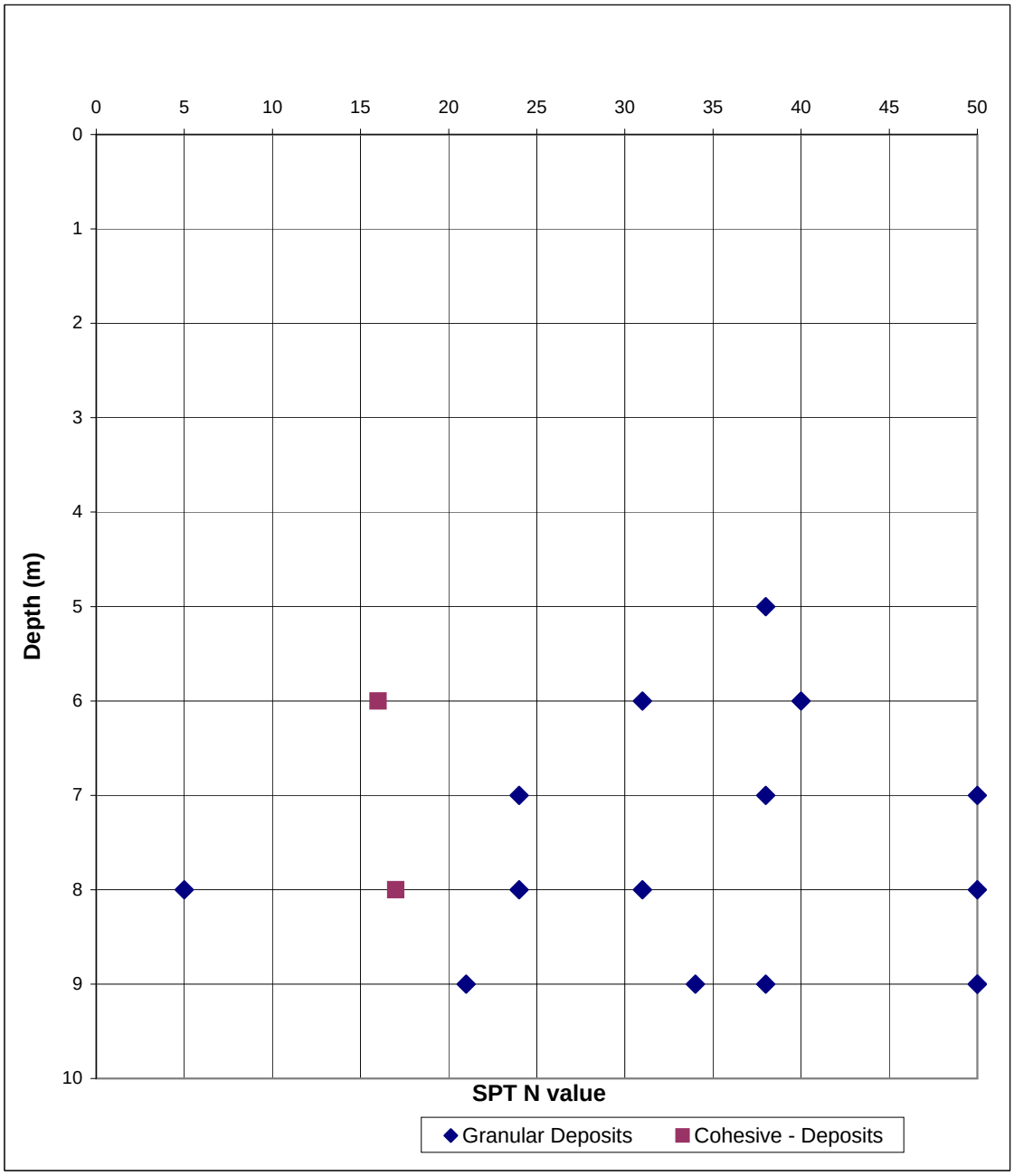
Made Ground - SPT N Value vs Depth



WYG Environment Ltd
5th Floor Longcross, 47 Newport Road, Cardiff CF24 0AD
Tel: 029 2082 9200
Fax: 029 2045 5321
Environmental Consultancy
Ground Technologies and Investigations

Site	Parley AD & Biomass SI
Client	Eco Sustainable Solutions
Job No.	A076110
Figure No.	6
Date Drawn	18/06/2012

River Terrace Deposits - SPT N value vs Depth



WYG Environment Ltd
5th Floor Longcross, 47 Newport Road, Cardiff CF24 0AD
Tel: 029 2082 9200
Fax: 029 2045 5321
Environmental Consultancy
Ground Technologies and Investigations

Site	Parley AD & Biomass SI
Client	Eco Sustainable Solutions
Job No.	A076110
Figure No.	7
Date Drawn	18/06/2012

Appendices

Appendix A – Report Conditions

APPENDIX A - REPORT CONDITIONS

GROUND INVESTIGATION

This report is produced solely for the benefit of Eco Sustainable Solutions and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a visual site inspection, reference to accessible referenced historical records, information supplied by those parties referenced in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive research. Where ground contamination is suspected but no physical site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to activities related to the site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, perhaps in higher concentrations, elsewhere on the site cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question as such bodies often have unpublished, more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYGE. In time improved practices or amended legislation may necessitate a re-assessment.

The assessment of ground conditions within this report is based upon the findings of the study undertaken. We have interpreted the ground conditions in between locations on the assumption that conditions do not vary significantly. However, no investigation can inspect each and every part of the site and therefore changes or variances in the physical and chemical site conditions as described in this report cannot be discounted.

The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed cannot be absolute due to the limitations of time and resources imposed by the agreed brief and the possibility of unrecorded previous use and abuse of the site and adjacent sites. The report concentrates on the site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists further extensive research will be required before the effects can be better determined.

Appendix B – Engineering Logs

WYG ENVIRONMENT
Ground Engineering Services
5th Floor, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Borehole Number
BH1
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **Cable Percussive**
Co-ordinates : **410265.69E - 98794.36N Level:**

Hole Information

From	To	Method	Diameter
0.00m	4.00m	Cable Percussive	150mm

Scale 1:50 Sheet 1 of 1
Logged By : **SR**
Checked By : **PV**
Start Date : **17/04/12**
Finish Date : **17/04/12**

Legend	Reduced Level (mOAD)	Depth (m)	Casing (m)	Water Level (m)	Installation/ Backfill	Sampling & In Situ Testing: Depth	Type Number	
General waste and wood chip. (MADE GROUND).		0.10				0.10	D1	
		0.30				0.20	D2	
Dark brown sandy GRAVEL of angular fine to coarse and occasional cobbles of concrete, brick and sub rounded fine to coarse flint. (MADE GROUND)						0.60	D3	
Dense dark brown and grey very sandy GRAVEL of sub angular to angular fine to coarse of concrete, brick, plastic, occasional wood fragments and sub rounded fine to coarse flint. (MADE GROUND)				1.00		1.00	S	N=40 (5,8,10,10,10,10)
						1.00-1.45	SP4	
						1.00	W9	
						1.60-1.90	B5	
						2.00	S	0 for 0mm
						2.00-2.20	SP6	64/95mm - Abandoned
		2.30						
Concrete obstruction. (MADE GROUND).						2.70	D7	
		3.00	3.00m 150mm	3.00		3.00	S	N=17 (4,8,3,4,5,5)
Medium dense dark brown and grey very sandy GRAVEL. Gravel is sub angular to angular fine to coarse of concrete, brick, plastic, occasional wood fragments and cobbles of sub rounded concrete and whole bricks and sub rounded fine to coarse flint. (MADE GROUND)						3.00-3.45	SP8	
						3.70	D10	
		4.00				4.00	S	N=17 (1,3,3,4,5,5)
Borehole complete at 4.00 m bgl.						4.00-4.45	SP11	

Observations / Remarks.

1. Borehole abandoned due to concrete obstruction and relocated to BH1a.
2. Backfilled with arisings on completion.

Chiselling

From	To	Time
2.30m	2.50m	30 mins

Groundwater

Struck	Rising to	Time (mins)	Remarks
3.00m	1.00m	20	

WYG ENVIRONMENT
Ground Engineering Services
5th Floor, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Borehole Number
BH1A
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **Cable Percussive**
Co-ordinates : **410266.05E - 98793.03N Level:**

Hole Information

From	To	Method	Diameter
0.00m	10.00m	Cable Percussive	150mm

Scale 1:50 Sheet 1 of 1
Logged By : **SR**
Checked By : **PV**
Start Date : **17/04/12**
Finish Date : **18/04/12**

Legend	Reduced Level (mOAD)	Depth (m)	Casing (m)	Water Level (m)	Installation/ Backfill	Sampling & In Situ Testing: Depth	Type Number	
General waste. (MADE GROUND)		0.10						
Dark grey slightly sandy GRAVEL of angular fine to coarse and occasional cobbles of concrete, brick, and sub rounded fine to coarse flint. (MADE GROUND)		0.30		0.50				
Dark brown and grey very sandy GRAVEL of sub angular to angular fine to coarse of brick, plastic, and subrounded fine to coarse flint. (MADE GROUND).		1.50		0.70				
Brown slightly sandy GRAVEL of subangular fine to coarse concrete and cobble and boulder sized fragments of concrete and masonry. (MADE GROUND)		3.00						
Brown sandy GRAVEL of sub angular fine to coarse concrete and brick and sub rounded fine to coarse flint. (MADE GROUND)		4.80				4.80	D1	
Loose brown and grey slightly clayey very SAND and GRAVEL of sub rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)		6.10				5.00 5.00-5.45	S SP2	N=5 (1,1,1,1,1,2)
						5.50-59.00	B3	
Medium dense brown (locally grey) SAND. (RIVER TERRACE DEPOSITS)						6.00 6.00-6.45	S SP4	N=21 (1,1,5,5,5,6)
						6.60-6.90	B5	
. . . . 7.00m dense						7.00 7.00-7.45	S SP6	N=38 (5,8,9,9,10,10)
						7.70	D7	
						8.00 8.00-8.45	S SP8	N=31 (1,4,5,6,10,10)
						8.70	D9	
						9.00 9.00-9.45	S SP10	N=38 (3,6,9,9,10,10)
						9.70	D11	
		10.00	10.00m 150mm			10.00	S	N=44 (6,8,10,10,12,12)
Borehole complete at 10.00 m bgl								

Observations / Remarks.

1. Borehole excavated to 3.0m with mechanical excavator to clear obstructions before advancing borehole.
2. Borehole completed at 10.0m.
3. Backfilled with arisings on completion.

Chiselling

From	To	Time
1.50m	1.60m	30 mins

Groundwater

Struck	Rising to	Time (mins)	Remarks
0.70m	0.50m	20	

WYG ENVIRONMENT
Ground Engineering Services
5th Floor, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Borehole Number
BH2
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **Cable Percussive**
Co-ordinates : **410278.53E - 98805.77N Level:**

Hole Information

From	To	Method	Diameter
0.00m	10.00m	Cable Percussive	150mm

Scale 1:50 Sheet 1 of 1
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **19/04/12**

Legend	Reduced Level (mOAD)	Depth (m)	Casing (m)	Water Level (m)	Installation/ Backfill	Sampling & In Situ Testing: Depth	Type Number	
General waste (MADE GROUND).		0.10				0.10	D1	
Dense dark grey and brown slightly sandy GRAVEL of angular fine to coarse and occasional cobbles of concrete, brick, wood fragments and sub rounded fine to coarse flint. (MADE GROUND)						0.40-0.80	B2	
						1.00	S	N=40 (1,6,10,10,10,10)
						1.00-1.45	SP3	
						1.70	D4	
		2.00				2.00	S	N=41 (9,10,11,12,9,9)
Dense brown and green very clayey, gravelly SAND. Gravel is sub angular fine to coarse concrete, bricks and occasional wood fragments. (MADE GROUND)						2.00-2.45	SP5	
						2.70	D6	
				▽ 2.90		2.90	W14	
. . . . 3.00m - 4.00m medium dense						3.00	S	N=20 (1,1,4,5,5,6)
						3.00-3.45	SP7	
						3.60-3.90	B8	
. . . . 4.00m - 5.00m loose						4.00	S	N=7 (1,1,1,2,2,2)
						4.00-4.45	SP9	
						4.70	D10	
. . . . 5.00m medium dense						5.00	S	N=13 (1,2,4,4,3,2)
						5.00-5.45	SP11	
						5.70	D12	
						6.00	S	N=15 (1,3,5,4,4,2)
						6.00-6.45	SP13	
		6.30						
Brown and grey SAND AND GRAVEL. (RIVER TERRACE DEPOSITS)		6.50						
Dense becoming very dense at depth brown (locally grey) SAND. (RIVER TERRACE DEPOSITS)						6.70	D15	
						7.00	S	N=31 (3,6,7,8,8,8)
						7.00-7.45	SP16	
						7.60-7.90	B17	
						8.00	S	N=34 (2,4,8,8,8,10)
						8.00-8.45	SP18	
						8.70	D19	
						9.00	S	N=38 (3,5,7,8,11,12)
						9.00-9.45	SP20	
						9.70	D21	
		10.00	10.00m 150mm			10.00	S	N=85 (5,10,12,22,25,26)
Borehole complete at 10.00 m bgl								

Observations / Remarks.

1. Standpipe installed to 10.0 m with slotted pipe 7.0m to 10.0m with gravel surround. Bentonite seal 6.0m to 7.0m.

Chiselling

From	To	Time

Groundwater

Struck	Rising to	Time (mins)	Remarks
2.90m	2.90m	5	
2.90m	2.90m	20	

WYG ENVIRONMENT
Ground Engineering Services
5th Floor, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Borehole Number
BH3
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **Cable Percussive**
Co-ordinates : **410283.99E - 99044.48N Level:**

Hole Information

From	To	Method	Diameter
0.00m	10.00m	Cable Percussive	150mm

Scale 1:50 Sheet 1 of 1
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Description	Legend	Reduced Level (mOAD)	Depth (m)	Casing (m)	Water Level (m)	Installation/ Backfill	Sampling & In Situ Testing: Depth	Type Number	
Topsoil over dense brown slightly clayey gravelly SAND. Gravel is sub angular fine to coarse of concrete, brick, wood fragments and plastic and occasional cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND).							0.20-0.80	B1	
							1.00	S	N=32 (1,2,2,8,10,12)
							1.00-1.45	SP2	
			1.30						
Medium dense green brown becoming brown gravelly SAND. Gravel is rounded fine to coarse and occasional cobbles of concrete, brick, plastic and whole bricks. (MADE GROUND)							1.60-2.00	B3	
					2.10		2.00	S	N=11 (2,2,3,2,3,3)
							2.00-2.45	SP4	
							2.10	W11	
							2.70	D5	
							3.00	S	N=11 (1,1,1,3,3,4)
							3.00-3.45	SP6	
							3.70	D7	
			4.10				4.00	S	N=4 (1,1,1,1,1,1)
Loose green slightly clayey slightly gravelly SAND. Gravel is sub angular fine to coarse brick and occasional sub rounded fine to coarse flint. (MADE GROUND)							4.00-4.45	SP8	
							4.60-4.90	B9	
			5.00		5.00		5.00	S	N=7 (3,5,2,1,1,3)
Loose becoming medium dense grey brown slightly gravelly SAND. Gravel is sub angular fine to coarse brick with occasional wire. (MADE GROUND)							5.00-5.45	SP10	
							5.50-5.90	B12	
							6.00	S	N=17 (4,2,3,4,4,6)
			6.30				6.00-6.45	SP13	
Stiff light grey slightly gravelly CLAY Gravel is sub rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)							6.50-6.90	B14	
							7.00-7.45	U15	80 Blows
							7.45	D16	
							7.70	D17	
							8.00	S	N=17 (3,4,4,4,4,5)
							8.00-8.45	SP18	
							8.70	D19	
			9.00				9.00	S	N=40 (8,10,10,10,10,10)
Dense grey SAND. (RIVER TERRACE DEPOSITS)							9.00-9.45	SP20	
							9.60-9.90	B21	
			10.00	10.00m 150mm			10.00	S	N=84 (6,10,12,18,25,29)
Borehole complete at 10.00 m bgl									

Observations / Remarks.

1. Borehole completed at 10.0m.
2. Backfilled with arisings on completion.

Chiselling

From	To	Time

Groundwater

Struck	Rising to	Time (mins)	Remarks
5.00m	2.10m	20	

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Borehole Number
BH4
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **Cable Percussive**
Co-ordinates : **410330.81E - 99014.84N Level:**

Hole Information

From	To	Method	Diameter
0.00m	10.00m	Cable Percussive	150mm

Scale 1:50 Sheet 1 of 1
Logged By : **SR**
Checked By : **PV**
Start Date : **23/04/12**
Finish Date : **23/04/12**

Description	Legend	Reduced Level (mOAD)	Depth (m)	Casing (m)	Water Level (m)	Installation/ Backfill	Sampling & In Situ Testing: Depth	Type Number	
Topsoil over brown slightly gravelly SAND. Gravel is sub angular fine to coarse of concrete, brick, wood fragments and plastic and occasional cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND).							0.50	D1	
			1.00				1.00	S	N=7 (1,1,1,2,2,2)
Loose dark grey and brown sandy GRAVEL of sub angular fine to coarse of brick, concrete and occasional wood fragments and sub rounded fine to coarse flint. (MADE GROUND).							1.00-1.45	SP2	
							1.60-1.90	B3	
							2.00	S	N=10 (2,2,2,2,2,4)
							2.00-2.45	SP4	
							2.70	D5	
. . . . 3.00m very loose							3.00	S	N=4 (1,0,1,1,1,1)
							3.00-3.45	SP6	
					3.80 ▼		3.70	D7	
							3.80	W12	
							4.00	S	N=0 (1,0,0,0,0,0)
							4.00-4.45	SP8	
							4.70	D9	
			5.00				5.00	S	N=4 (1,1,1,1,1,1)
Loose light brown clayey GRAVEL of sub angular fine to coarse brick, concrete and occasional wood fragements. (MADE GROUND)							5.00-5.45	SP10	
							5.60-5.90	B11	
					5.70 ▽				
			6.00				6.00	S	N=24 (2,4,4,6,6,8)
Medium dense green and grey slightly gravely SAND. Gravel is sub rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)							6.00-6.45	SP13	
							6.60-6.90	B14	
. . . . 7.00m very dense							7.00	S	N=137 (3,13,23,32,40,42)
							7.00-7.45	SP15	
							7.70	D16	
			8.00				8.00	S	50 for 30mm
Very dense grey SAND. (RIVER TERRACE DEPOSITS)							8.00-8.30	SP18	50/30mm (25,40,50)
							8.70	D19	
							9.00	S	0 for 0mm
							9.00-9.20	SP20	57/95mm - Abandoned
							9.70	D21	
			10.00	10.00m 150mm			10.00	S	50 for 20mm
Borehole complete at 10.00 m bgl									

Observations / Remarks.
1. Borehole completed at 10.0m.
2. Backfilled with arisings on completion.

Chiselling

From	To	Time

Groundwater

Struck	Rising to	Time (mins)	Remarks
5.70m	3.80m	20	

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Borehole Number
BH5
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **Cable Percussive**
Co-ordinates : **410357.62E - 99056.47N Level:**

Hole Information

From	To	Method	Diameter
0.00m	10.00m	Cable Percussive	150mm

Scale 1:50 Sheet 1 of 1
Logged By : **SR**
Checked By : **PV**
Start Date : **23/04/12**
Finish Date : **24/04/12**

Description	Legend	Reduced Level (mOAD)	Depth (m)	Casing (m)	Water Level (m)	Installation/ Backfill	Sampling & In Situ Testing: Depth	Type Number	
Topsoil over brown slightly gravelly SAND. Gravel is sub angular fine to coarse of concrete, brick, wood fragments and plastic and occasional cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND).			**0.60**				0.40	D1	
							0.70-1.00	B2	
Medium dense grey and black slightly clayey gravelly SAND. Gravel is sub angular fine to coarse bricks, concrete and wood and sub rounded fine to coarse flint. (MADE GROUND)							1.00 1.00-1.45	S SP3	N=15 (3,3,3,4,4,4)
							1.70	D4	
							2.00 2.00-2.45	S SP5	N=14 (4,3,2,6,4,2)
					2.50		2.50	W8	
			2.70		2.70		2.70	D6	
Loose brown slightly clayey very sandy GRAVEL of sub angular to angular fine to coarse brick, concrete, tarmac and sub rounded to rounded fine to coarse flint. (MADE GROUND)							3.00 3.00-3.45	S SP7	N=6 (3,2,2,2,1,1)
							3.60-3.90	B9	
							4.00 4.00-4.45	S SP10	N=9 (3,3,3,2,2,2)
							4.70	D11	
							5.00 5.00-5.45	S SP12	N=3 (2,1,0,1,1,1)
			5.20				5.20-5.50	B13	
Soft brown silty slightly gravelly CLAY. Gravel is sub angular fine to coarse brick and wood. Locally ashy. (MADE GROUND)			**5.50**						
Brown and grey SAND AND GRAVEL. (RIVER TERRACE DEPOSITS)			**5.80**				5.60-5.80	B14	
Stiff grey sandy CLAY. (RIVER TERRACE DEPOSITS).							5.90	D15	
							6.00 6.00-6.45	S SP16	N=16 (3,4,4,4,4,4)
							6.60-6.90	B17	
							7.00-7.45	U18	70 Blows
							7.45	D19	
							7.70	D20	
			8.00				8.00 8.00-8.45	S SP21	N=24 (2,4,6,6,6,6)
Medium dense grey SAND. (RIVER TERRACE DEPOSITS)									
							8.60-8.90	B22	
. . . . 9.00m very dense							9.00 9.00-9.20	S SP23	0 for 0mm 70/95mm - Abandoned
							9.70	D24	
			10.00	10.00m 150mm			10.00	S	50 for 50mm
Borehole complete at 10.00 m bgl									

Observations / Remarks.

1. Standpipe installed to 10.0m with slotted pipe 8.0m to 10.0m. Bentonite seal 8.0m to 5.3m.

Chiselling

From	To	Time

Groundwater

Struck	Rising to	Time (mins)	Remarks
2.70m	2.50m	20	

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Exploratory Hole Number
TP1
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410275E - 99043N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			**0.40**					
Brown slightly clayey very sandy GRAVEL of sub angular fine to coarse of concrete, brick, wood fragments and plastic and occasional cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND).						1.20	B001	
						2.00	B002	
. . . . below 2.2m becoming light brown.			**2.50**					
Light grey, locally orange SAND with occasional pockets of clayey sand. (RIVER TERRACE DEPOSITS)			**2.80**			2.60	B003	
Light grey SAND and GRAVEL. Gravel is sub rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)			**4.00**			3.50	B004	
Grey SAND. (RIVER TERRACE DEPOSITS)			**4.10**	4.00				
End of Trial Pit at 4.10 m bgl.				4.00				

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 4.0m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable below 2.5m

Groundwater

Struck	Rising to	Time (mins)	Remarks
4.00	4.00	5mins	Rapid inflow

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Exploratory Hole Number
TP2
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410302E - 99048N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.30					
Brown clayey slightly gravelly SAND. Gravel is of sub angular fine to coarse brick, concrete, plastic and sub rounded fine to coarse flint. (MADE GROUND)			0.80					
Dark brown sandy GRAVEL of sub angular fine to coarse concrete, bricks, metal fragments, plastic and sub rounded fine to coarse flint. (MADE GROUND)			2.40			1.50	B1	
Yellow brown locally orange slightly gravelly SAND. Gravel is sub rounded fine to coarse flint (RIVER TERRACE DEPOSITS)			4.10			3.00	B2	
Light grey SAND and GRAVEL. Gravel is sub rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)			4.20	4.20				
End of Trial Pit at 4.20 m bgl.				4.20				

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 4.2m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable below 3.3m

Groundwater

Struck	Rising to	Time (mins)	Remarks
4.20	4.20	5mins	Rapid inflow

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Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP3
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410325E - 99051N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.50					
Brown slightly clayey gravelly SAND. Gravel is sub angular fine to coarse of concrete, brick, pottery fragments and occasional whole bricks and occasional cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND).			1.20					
Light yellow brown very gravelly SAND. Gravel is sub angular fine to coarse of brick, wood fragments, plastic, wire, occasional cobble sized fragments of concrete and rounded fine to coarse flint. (MADE GROUND)						2.00	B1	
						3.00	B2	
			3.80	▼				
End of Trial Pit at 3.80 m bgl.				3.80 3.80				

Observations / Remarks

1. Backfilled with arisings on completion.
2. Slight seepage at 3.8m

Excavation Information

Length	:	3.00m
Width	:	1.20m
Orientation	:	90 degrees
Shoring	:	None
Stability	:	Unstable below 2.5m

Groundwater

Struck	Rising to	Time (mins)	Remarks
3.80	3.80	5mins	Slight seepage

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Exploratory Hole Number
TP4
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410349E - 99055N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.30					
Brown slightly clayey SAND and GRAVEL of angular to sub angular brick, concrete and sub rounded fine to coarse flint with occasional cobbles of concrete and whole bricks. (MADE GROUND)						2.00	B1	
						3.00	B2	
			4.00			4.00	B3	
Orange brown very clayey SAND. (RIVER TERRACE DEPOSITS)			4.10					
End of Trial Pit at 4.10 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater not encountered

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks

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Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP5
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410371E - 99059N**
Level :

Scale 1:25 **Sheet 1 of 2**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.40					
Brown slightly clayey gravelly SAND. Gravel is sub angular to angular fine to coarse of bricks, concrete, plastic and sub rounded to rounded fine to coarse flint and occasional cobble sized fragements of concrete and masonry. (MADE GROUND)						2.00	B1	
						4.50	B2	

Continued next sheet.....

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 5.1m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks
5.10	5.10	5mins	Rapid inflow

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Exploratory Hole Number
TP5
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410371E - 99059N**
Level :

Scale 1:25 **Sheet 2 of 2**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown slightly clayey gravelly SAND. Gravel is sub angular to angular fine to coarse of bricks, concrete, plastic and sub rounded to rounded fine to coarse flint and occasional cobble sized fragements of concrete and masonry. (MADE GROUND)			**5.10**	▼ 5.10 5.10				
End of Trial Pit at 5.10 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 5.1m, rapid inflow.

Excavation Information

Length	:	3.00m
Width	:	1.20m
Orientation	:	90 degrees
Shoring	:	None
Stability	:	Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks
5.10	5.10	5mins	Rapid inflow

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Ground Engineering Services
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Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP6
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410374E - 99042N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.30					
Brown slightly clayey gravelly SAND. Gravel is sub angular to angular fine to coarse brick, concrete, tarmac, cable, teram material and sub rounded to rounded fine to coarse flint. (MADE GROUND)			2.60			2.50	B1	
Orange brown sandy GRAVEL with pockets of soft grey clay. Gravel is rounded medium and coarse flint. (RIVER TERRACE DEPOSITS)			4.20			2.80	B2	
Soft orange brown sandy CLAY with lenses of light grey clay and sand. (RIVER TERRACE DEPOSITS)			4.80			4.60 4.60 4.60	1 2 3	HV = 24kPa HV = 37kPa HV = 30kPa
End of Trial Pit at 4.80 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater not encountered.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks

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Exploratory Hole Number
TP7
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410353E - 99035N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.40					
Grey brown sandy GRAVEL of rounded fine to coarse flint and angular fine to coarse brick, concrete, ceramic pipe. (MADE GROUND)				3.50 3.50		3.00	B1	
			4.90					
Continued next sheet.....			5.00					

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 3.5m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable below 4.0m

Groundwater

Struck	Rising to	Time (mins)	Remarks
3.50	3.50	5mins	Rapid inflow

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Ground Engineering Services
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Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP7
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410353E - 99035N**
Level :

Scale 1:25 **Sheet 1+ of 1**

Logged By : **SR**
Checked By : **PV**
Start Date : **18/04/12**
Finish Date : **18/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Soft grey CLAY. (RIVER TERRACE DEPOSITS)								
End of Trial Pit at 5.00 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 3.5m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable below 4.0m

Groundwater

Struck	Rising to	Time (mins)	Remarks
3.50	3.50	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
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Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP8
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410328E - 99031N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.60					
Dark grey slightly clayey gravelly SAND. Gravel is sub angular fine to coarse concrete, brick, plastic, wood fragments with cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND)						3.50	B1	
			4.90					
End of Trial Pit at 4.90 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater not encountered.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
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Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP9
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410307E - 99022N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.40					
Dark grey gravelly SAND. Gravel is sub angular fine to coarse of concrete, brick, plastic pipe and ceramic with occasional cobbles of concrete and sub rounded fine to coarse flint. (MADE GROUND)			2.30			2.00	B1	
Grey slightly clayey sandy GRAVEL of rounded fine to coarse flint. Sand is coarse. (RIVER TERRACE DEPOSITS)			3.00			2.50	B2	
Orange gravelly SAND. Gravel is rounded fine to coarse. (RIVER TERRACE DEPOSITS)			3.80	▼		3.50	B3	
End of Trial Pit at 3.80 m bgl.				3.80 3.80				

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 3.8m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks
3.80	3.80	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP10
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410278E - 99016N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.60					
Dark brown gravelly SAND. Gravel is rounded to sub rounded fine to coarse flint and sub angular fine to coarse and occasional cobbles of brick, concrete and wood fragments. (MADE GROUND)			3.40	▼ 3.40 3.40		2.50	B1	
Grey SAND AND GRAVEL. Gravel is rounded fine to coarse flint. Sand is coarse. (RIVER TERRACE DEPOSITS)			3.60					
End of Trial Pit at 3.60 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 3.4m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable below 3.0m

Groundwater

Struck	Rising to	Time (mins)	Remarks
3.40	3.40	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP11
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410282E - 98995N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.30					
Dark brown becoming brown gravelly SAND. Gravel is sub angular fine to coarse concrete, brick including whole bricks, pipe, plastic sheeting and sub rounded fine to coarse flint. (MADE GROUND)						1.50	B1	
. . . . at 1.6m large concrete beam 0.2m x 0.3m x 1.2m								
. . . . at 1.8m pocket of ashy material.			2.00					
Soft brown CLAY with pockets of sand. (RIVER TERRACE DEPOSITS)			2.40					
Grey SAND AND GRAVEL. Gravel is rounded fine to coarse flint. Sand is coarse. (RIVER TERRACE DEPOSITS)			2.60					
Orange gravelly SAND. Gravel is rounded fine to coarse. (RIVER TERRACE DEPOSITS)						3.00	B2	
			4.00	▼				
Grey SAND AND GRAVEL. Gravel is rounded fine to coarse flint. Sand is coarse. (RIVER TERRACE DEPOSITS)			4.10	4.00				
End of Trial Pit at 4.10 m bgl.				4.00				

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 4.0m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks
4.00	4.00	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP12
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410308E - 99000N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.40					
Grey brown gravelly SAND. Gravel is sub angular fine to coarse and occasional cobbles of brick, including whole bricks, concrete and rounded fine to coarse flint. (MADE GROUND)						3.00	B1	
			4.60	4.50				
End of Trial Pit at 4.60 m bgl.				4.50				

Observations / Remarks
1. Backfilled with arisings on completion.
2. Groundwater encountered at 4.5m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks
4.50	4.50	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP13
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410334E - 99003N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.30					
Green brown becoming brown gravelly SAND. Gravel is rounded fine to coarse and occasional cobbles of concrete, brick, plastic and whole bricks. (MADE GROUND)						4.00	B1	
			5.00					

End of Trial Pit at 5.00 m bgl.

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater not encountered.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP14
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410359E - 99009N**
Level :

Scale 1:25 **Sheet 1 of 2**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.40					
Brown gravelly SAND. Gravel is sub angular fine to coarse concrete, brick, plastic, wood fragements and sub rounded fine to coarse flint. (MADE GROUND)			2.80	2.80 2.80		2.50	B1	
Soft orange sandy slightly gravelly CLAY. Gravel is rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)			3.00					
Very soft orange sandy CLAY with pockets of sand. (RIVER TERRACE DEPOSITS)						3.50 3.50 3.50 3.50	1 2 3 B2	HV = 12kPa HV = 14kPa HV = 10kPa

Continued next sheet.....

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 2.8m, rapid inflow.

Excavation Information

Length	:	3.00m
Width	:	1.20m
Orientation	:	90 degrees
Shoring	:	None
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks
2.80	2.80	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP14
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410359E - 99009N**
Level :

Scale 1:25 **Sheet 2 of 2**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Very soft orange sandy CLAY with pockets of sand. (RIVER TERRACE DEPOSITS)			5.60					
End of Trial Pit at 5.60 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 2.8m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks
2.80	2.80	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP15
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410380E - 99015N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **19/04/12**
Finish Date : **19/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown sandy slightly gravelly TOPSOIL. Gravel is sub rounded fine and medium flint. (MADE GROUND)			0.40					
Brown gravelly SAND. Gravel is sub angular fine to coarse bricks, concrete including cobbles of concrete and rounded fine to coarse flint. (MADE GROUND)			2.40					
Yellow brown gravelly SAND. Gravel is rounded fine to coarse flint and sub angular fine to coarse bricks, whole bricks, concrete with pockets of stiff white clay and sand. (MADE GROUND)			3.10			2.50	B1	
Dark brown/grey slightly clayey gravelly SAND. Gravel is angular fine to coarse brick, concrete and rounded fine to coarse flint. (MADE GROUND)						3.50	B2	
. . . . At 4.5m, tree trunk circa 1.0m in length.			4.60	▼				
End of Trial Pit at 4.60 m bgl.				4.60 4.60				

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 4.6m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Unstable

Groundwater

Struck	Rising to	Time (mins)	Remarks
4.60	4.60	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP16
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410283E - 98810N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **23/04/12**
Finish Date : **23/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
General waste over grey brown gravelly SAND. Gravel is sub rounded to rounded fine to coarse flint and sub angular concrete, bricks. (MADE GROUND)			**0.90**			0.50	B1	
Dark grey slightly sandy GRAVEL of sub angular fine to coarse bricks, concrete and rounded fine to coarse flint, whole bricks, wood fragments and concrete slabs. (MADE GROUND)			**2.00**			1.20	B2	
Concrete and asphalt. (MADE GROUND)			**2.20**					
Yellow brown gravelly SAND. Gravel is rounded fine to coarse flint and sub angular fine to coarse bricks, whole bricks, concrete. (MADE GROUND)			**2.50**	▼ 2.50				
Brown and grey gravelly SAND. Gravel is rounded fine and coarse flint and angular fine to coarse bricks, concrete. (MADE GROUND)			**2.60**	2.50		3.00	B3	
End of Trial Pit at 2.60 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 2.5m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks
2.50	2.50	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP17
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410274E - 98804N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **23/04/12**
Finish Date : **23/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Wood chips and compost over dark brown and grey slightly clayey very sandy GRAVEL of angular fine to coarse, occasional cobbles of concrete, brick, flint, plastic. (MADE GROUND)						1.00	B1	
. . . . at 1.6m boulders of re-enforced concrete.				1.80 1.80				
			2.00					
CONCRETE			**2.20**					
Brown sandy GRAVEL of angular fine to coarse concrete, brick and sub rounded fine to coarse flint. (MADE GROUND)			**4.00**					
Orange brown and grey slightly clayey SAND with occasional gravel of sub rounded fine to coarse flint. (MADE GROUND)						4.20	B2	
			4.50					
End of Trial Pit at 4.50 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 1.8m, rapid inflow.

Excavation Information

Length	:	3.00m
Width	:	1.20m
Orientation	:	90 degrees
Shoring	:	None
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks
1.80	1.80	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP18
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410264E - 98799N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **23/04/12**
Finish Date : **23/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown and dark brown sandy GRAVEL of sub angular fine to coarse concrete, bricks wire fencing and flint and sub angular cobbles and occasional boulders of concrete. (MADE GROUND)				1.70 1.70		1.00	B1	
			4.00					
End of Trial Pit at 4.00 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 1.7m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks
1.70	1.70	5mins	Rapid inflow

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP19
Final

Project : **Parley AD & Biomass SI**
Project Number : **A076110**
Client : **Eco Sustainable Solutions**
Method : **360 Excavator**
Co-ordinates : **410267E - 98788N**
Level :

Scale 1:25 **Sheet 1 of 1**
Logged By : **SR**
Checked By : **PV**
Start Date : **23/04/12**
Finish Date : **23/04/12**

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Wood chips and compost. (MADE GROUND)			0.15					
Grey sandy GRAVEL of angular to sub angular fine to coarse brick, concrete, tarmac and wood fragments. (MADE GROUND)				2.00 2.00		2.00	B1	
			4.20					
Grey slightly clayey SAND. Gravel is sub angular fine to coarse brick, flint and concrete. (MADE GROUND)			4.30			4.30	B2	
End of Trial Pit at 4.30 m bgl.								

Observations / Remarks

1. Backfilled with arisings on completion.
2. Groundwater encountered at 2.0m, rapid inflow.

Excavation Information

Length : 3.00m
Width : 1.20m
Orientation : 90 degrees
Shoring : None
Stability : Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks
2.00	2.00	5mins	Rapid inflow

Appendix C – Geotechnical Laboratory Results

PSL
Professional Soils Laboratory

LABORATORY REPORT

UKAS TESTING
4043

Contract Number: PSL12/1761

Client's Reference: Report Date: 29 May 2012

Client Name: WYG Cardiff
5th Floor
Longcross Court
47 Newport Road
Cardiff
CF24 0AD

For the attention of: Paul Connelly

Contract Title: Parley AD & Biomass SI

Date Received: 10-May-12
Date Commenced: 10-May-12
Date Completed: 29-May-12

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

Checked and Approved Signatories:

R Gunson (Director) | A Watkins (Director) | M Beastall (Laboratory Manager)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH1	5	B	1.60-1.90	Brown very sandy clayey silty GRAVEL with cobbles.
BH1A	3	B	5.50-5.90	light brown mottled grey very gravelly clayey silty SAND.
BH2	8	B	3.60-3.90	Dark brown very gravelly very clayey silty SAND.
BH3	15	U	7.00-7.45	Stiff light grey very silty CLAY.
BH5	9	B	3.60-3.90	Brown mottled grey very sandy slightly silty GRAVEL.
BH5	18	U	7.00-7.45	Stiff grey very silty CLAY.
TP1	1	B	1.20	Brown very sandy clayey silty GRAVEL.
TP3	1	B	2.00	MADE GROUND brown very gravelly slightly clayey silty sand.
TP2	1	B	1.50	MADE GROUND greyish brown very sandy clayey gravel.
TP4	1	B	2.00	Brown very gravelly very clayey SAND.
TP4	3	B	4.00	Brown gravelly slightly clayey SAND.
TP5	1	B	2.00	Greyish brown gravelly sandy CLAY.
TP9	2	B	2.50	Light brown very sandy slightly silty GRAVEL.
TP11	1	B	1.50	MADE GROUND brown gravelly sandy clay.
TP14	2	B	3.50	Brown slightly gravelly very sandy CLAY.
TP16	1	B	0.50	Grey gravelly clayey SAND.
TP17	1	B	1.00	MADE GROUND dark brown sandy slightly clayey gravel of cobbles.
TP18	1	B	1.00	MADE GROUND dark grey very gravelly sandy clay.

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	29/05/12		29/05/12		29/05/12

PARLEY AD & BIOMASS SI.

Contract No: PSL12/1761

Client Ref: A076110

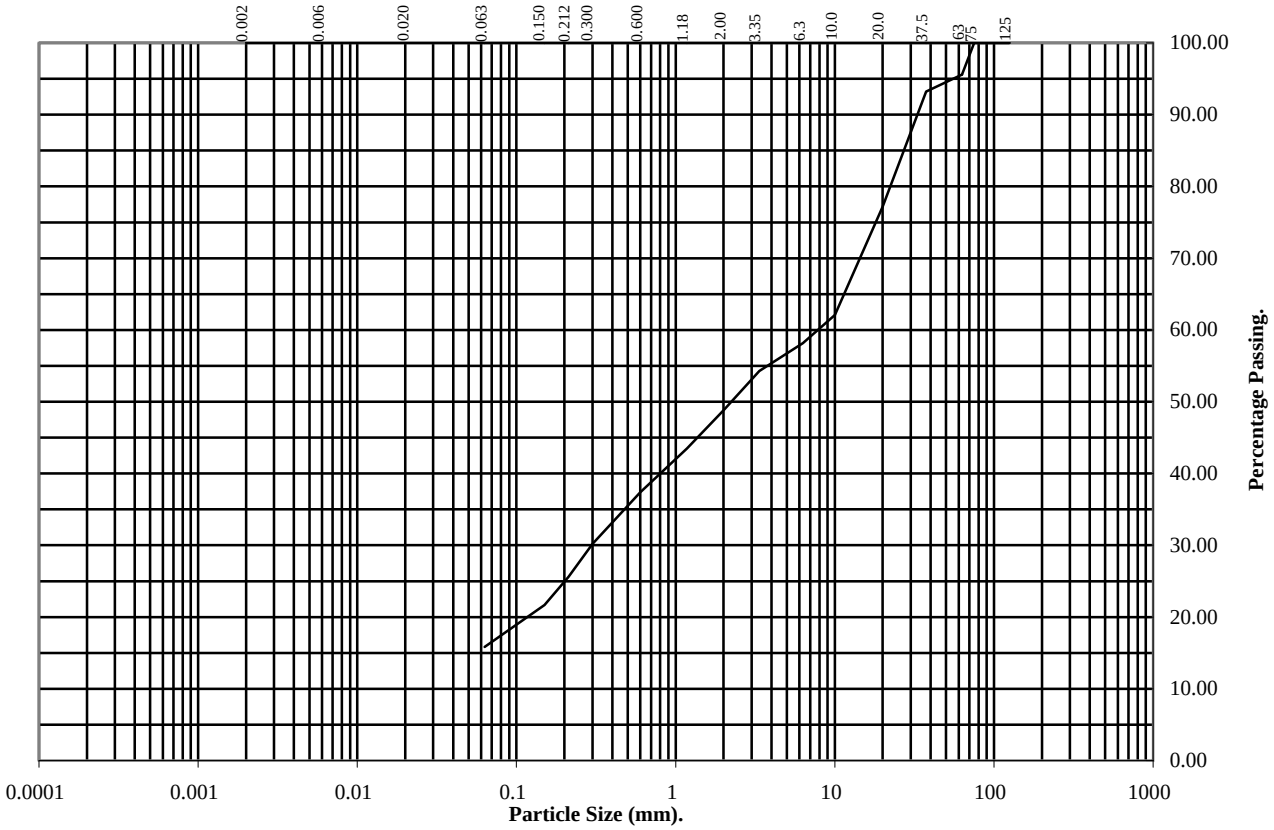
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH1** **Depth (m):** **1.60-1.90**

Sample Number: **5** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	96
37.5	93
20	77
10	62
6.3	58
3.35	54
2	49
1.18	43
0.6	37
0.3	30
0.212	26
0.15	22
0.063	16

Soil Fraction	Total Percentage
Cobbles	4
Gravel	47
Sand	33
Silt / Clay	16

Remarks:

See summary of soil descriptions.

Checked By	Date	Approved By	Date
RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

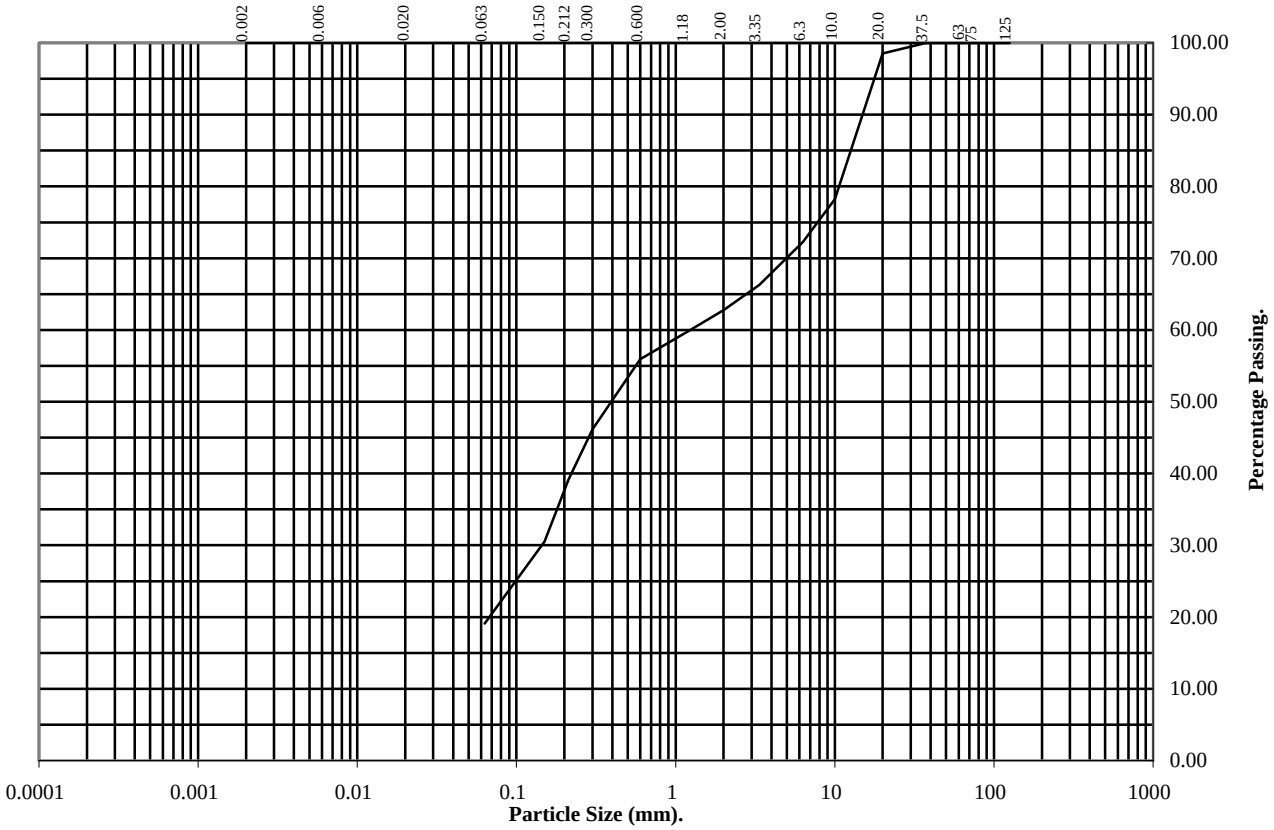
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH1A** **Depth (m):** **5.50-5.90**

Sample Number: **3** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	78
6.3	72
3.35	66
2	63
1.18	60
0.6	56
0.3	46
0.212	39
0.15	31
0.063	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	44
Silt / Clay	19

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

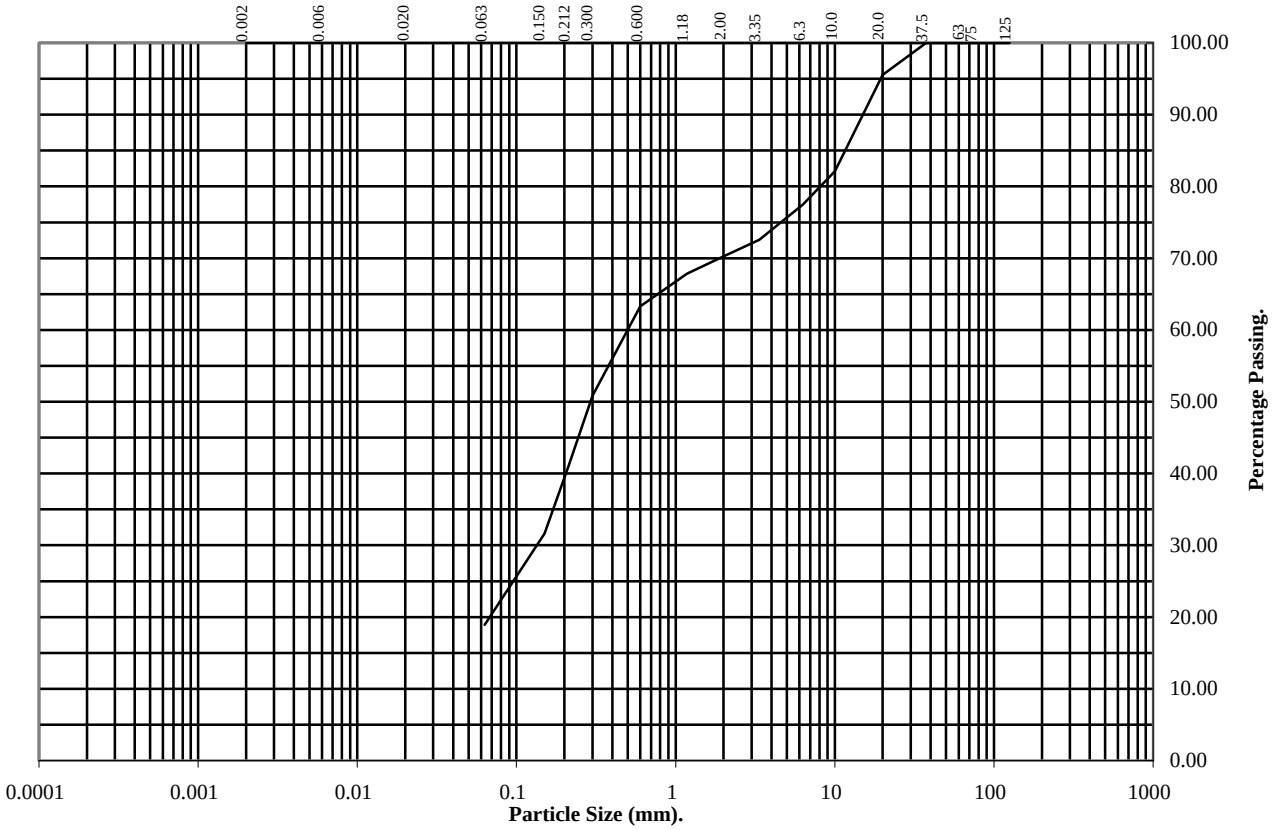
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Depth (m):** **3.60-3.90**

Sample Number: **8** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	82
6.3	77
3.35	73
2	70
1.18	68
0.6	63
0.3	51
0.212	41
0.15	32
0.063	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	30
Sand	51
Silt / Clay	19

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
	29/05/12		29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

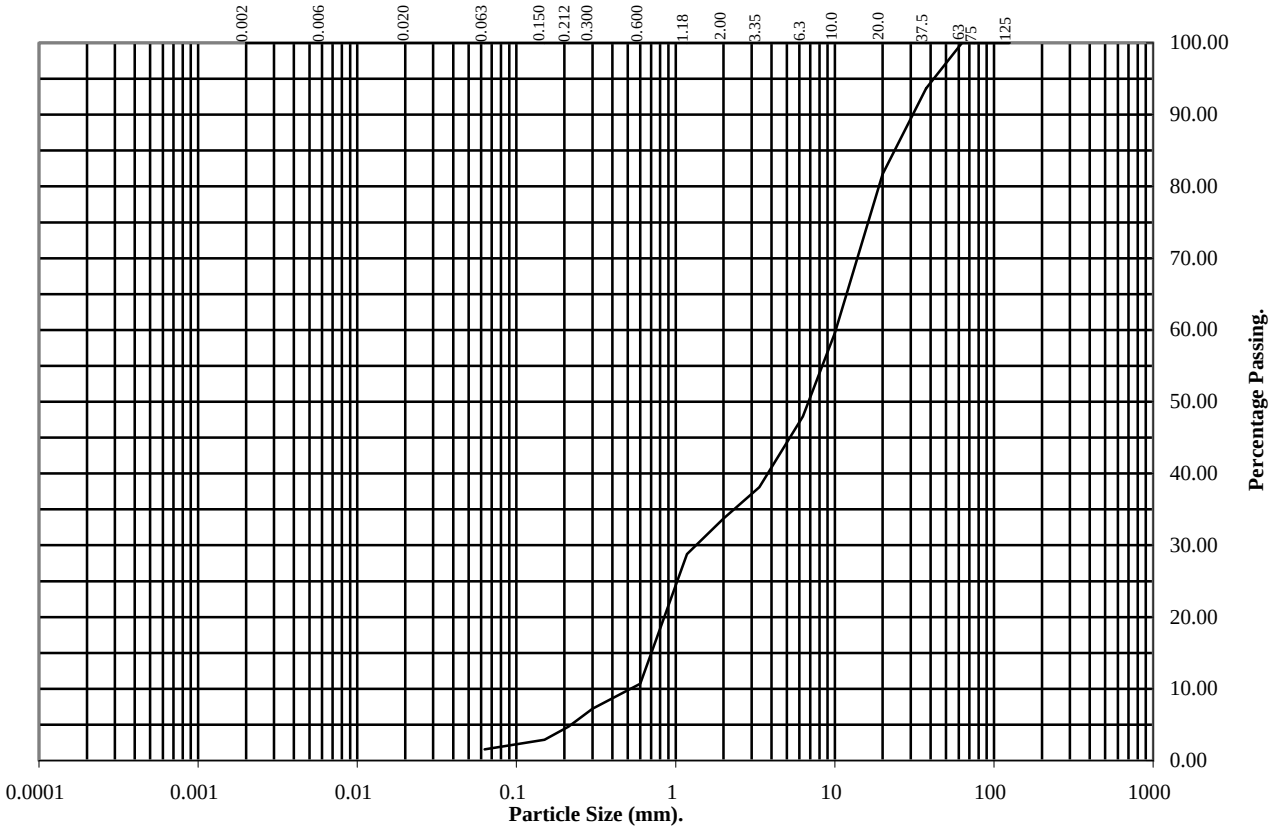
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH5** **Depth (m):** **3.60-3.90**

Sample Number: **9** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	94
20	82
10	60
6.3	48
3.35	38
2	34
1.18	29
0.6	11
0.3	7
0.212	5
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	66
Sand	32
Silt / Clay	2

Remarks:

See summary of soil descriptions.

Checked By	Date	Approved By	Date
	29/05/12		29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

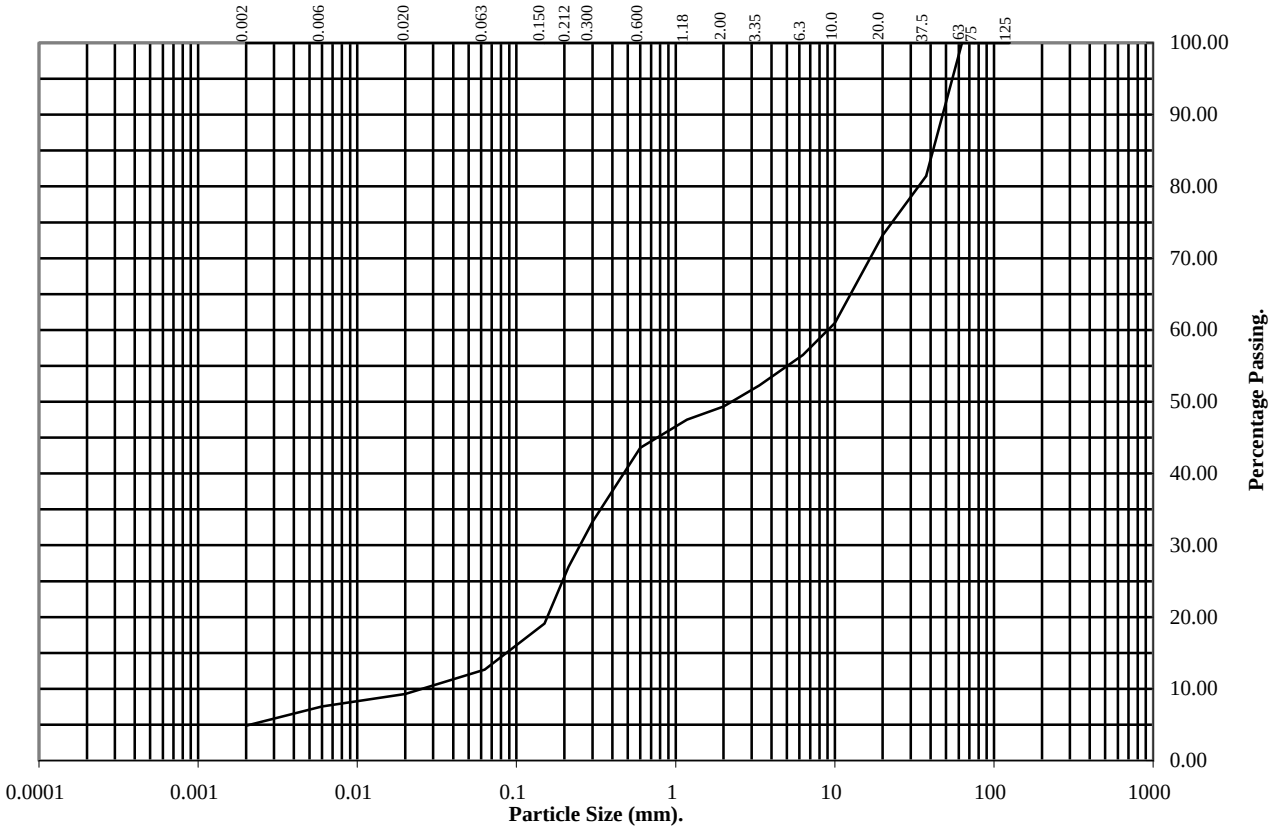
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP1** **Depth (m):** **1.20**

Sample Number: **1** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	81
20	73
10	61
6.3	57
3.35	52
2	49
1.18	48
0.6	44
0.3	33
0.212	27
0.15	19
0.063	13

Particle Diameter	Percentage Passing
0.02	9
0.006	8
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	51
Sand	36
Silt	8
Clay	5

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
	29/05/12		29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

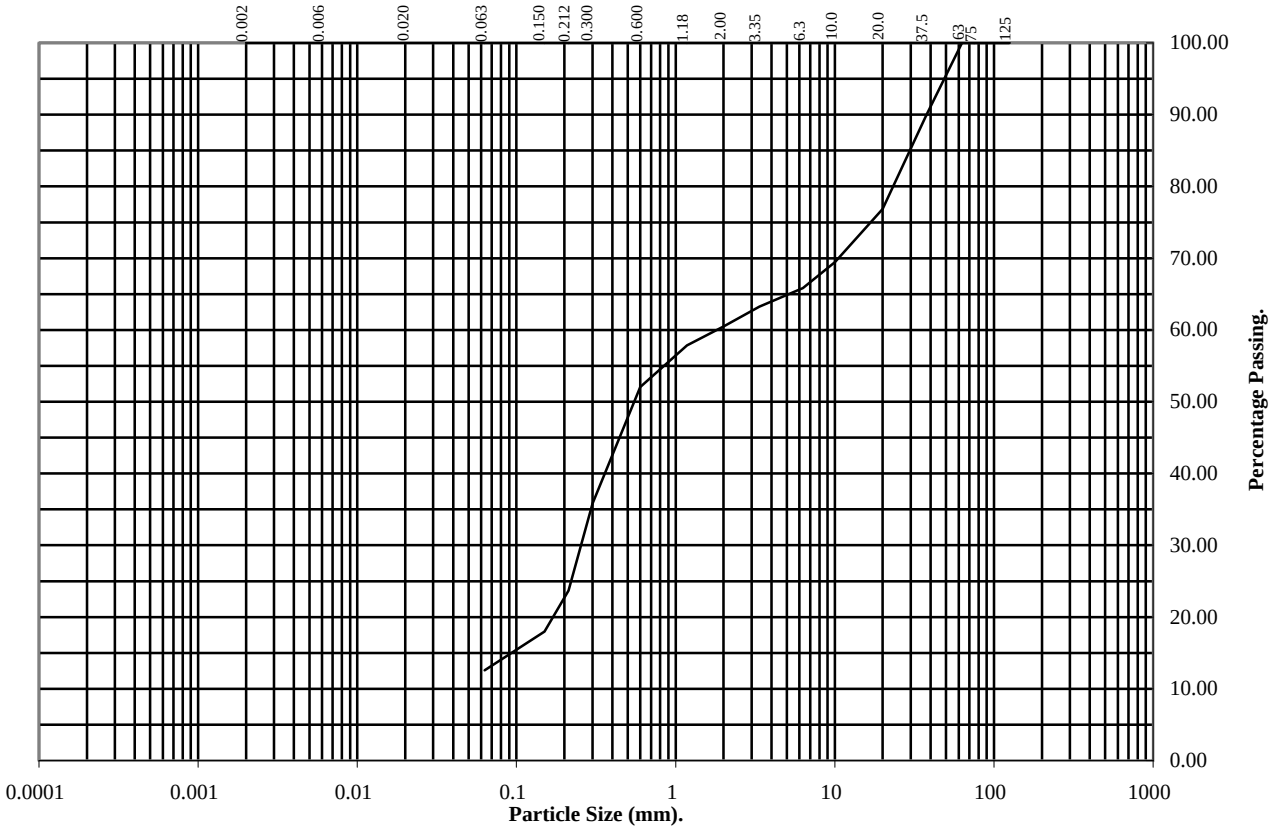
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP3** **Depth (m):** **2.00**

Sample Number: **1** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	90
20	77
10	69
6.3	66
3.35	63
2	60
1.18	58
0.6	52
0.3	36
0.212	24
0.15	18
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	47
Silt / Clay	13

Remarks:

See summary of soil descriptions.

Checked By	Date	Approved By	Date
RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

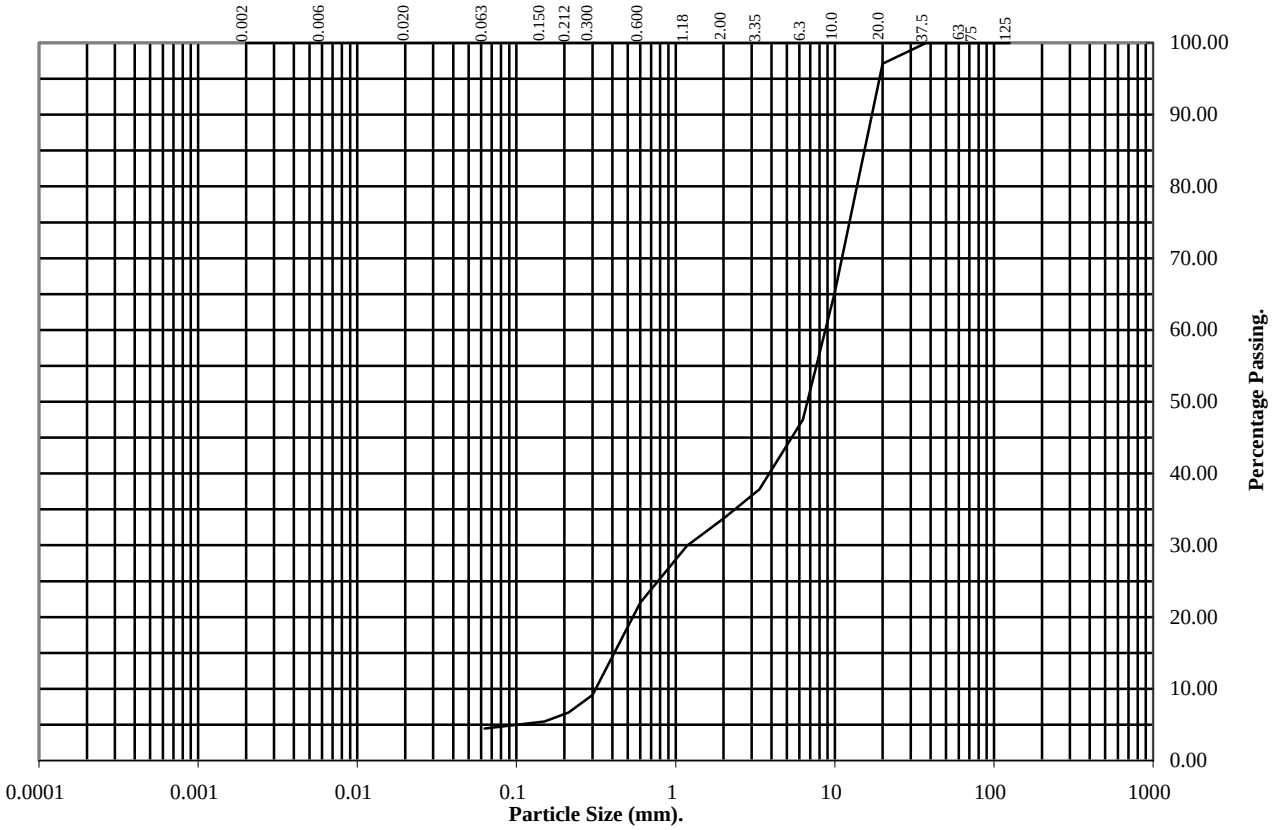
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP9** **Depth (m):** **2.50**

Sample Number: **2** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	97
10	65
6.3	48
3.35	38
2	34
1.18	30
0.6	22
0.3	9
0.212	7
0.15	5
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	66
Sand	30
Silt / Clay	4

Remarks:

See summary of soil descriptions.

Checked By	Date	Approved By	Date
RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

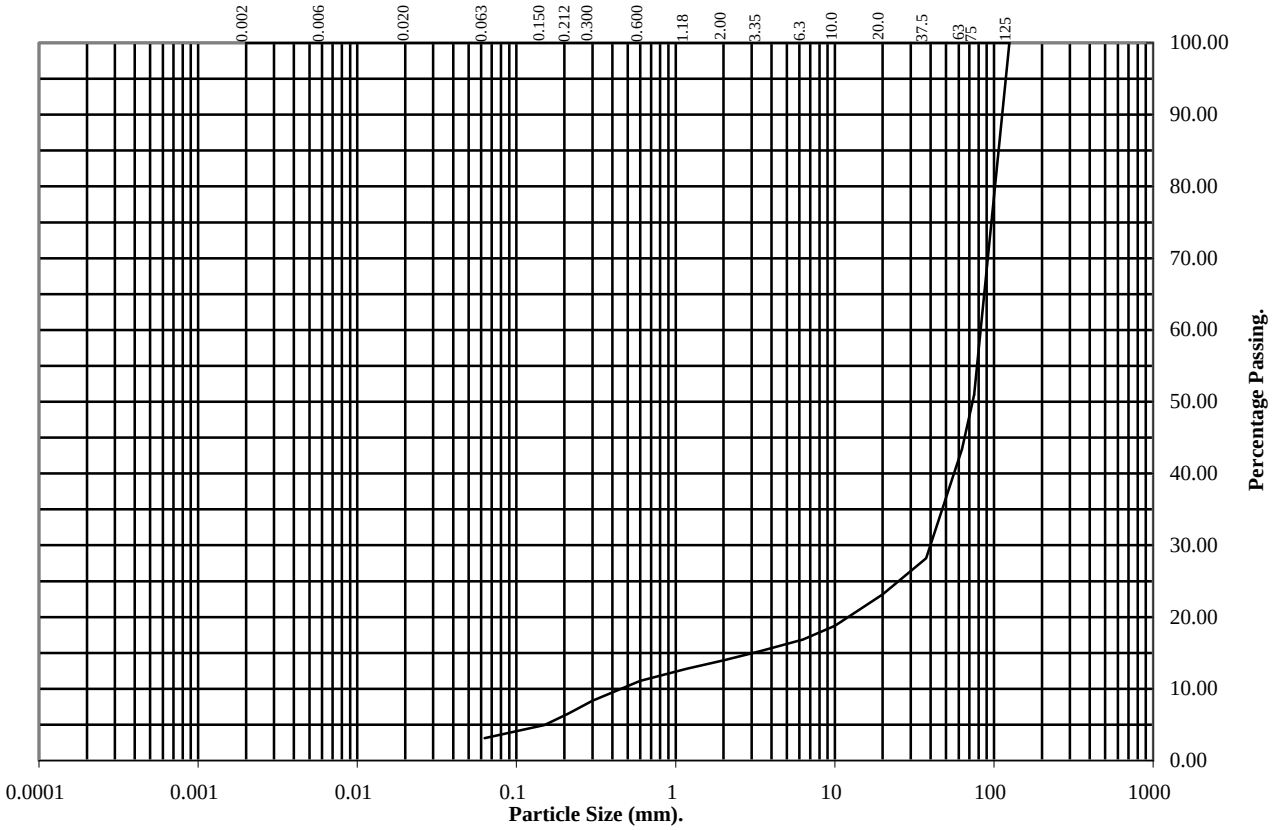
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP17** **Depth (m):** **1.00**

Sample Number: **1** **Sample Type:** **B**



BS Test Sieve	Percentage Passing
125	100
75	51
63	43
37.5	28
20	23
10	19
6.3	17
3.35	15
2	14
1.18	13
0.6	11
0.3	8
0.212	7
0.15	5
0.063	3

Soil Fraction	Total Percentage
Cobbles	57
Gravel	29
Sand	11
Silt / Clay	3

Remarks:

See summary of soil descriptions.

Checked By	Date	Approved By	Date
RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.: PSL12/1761**

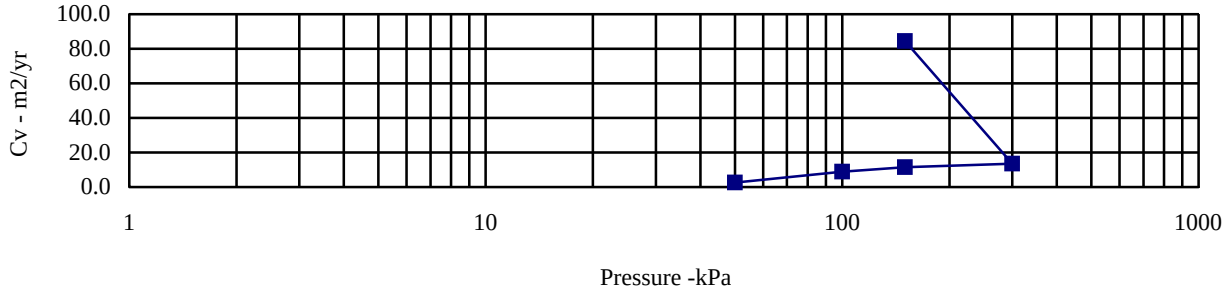
One Dimensional Consolidation Properties

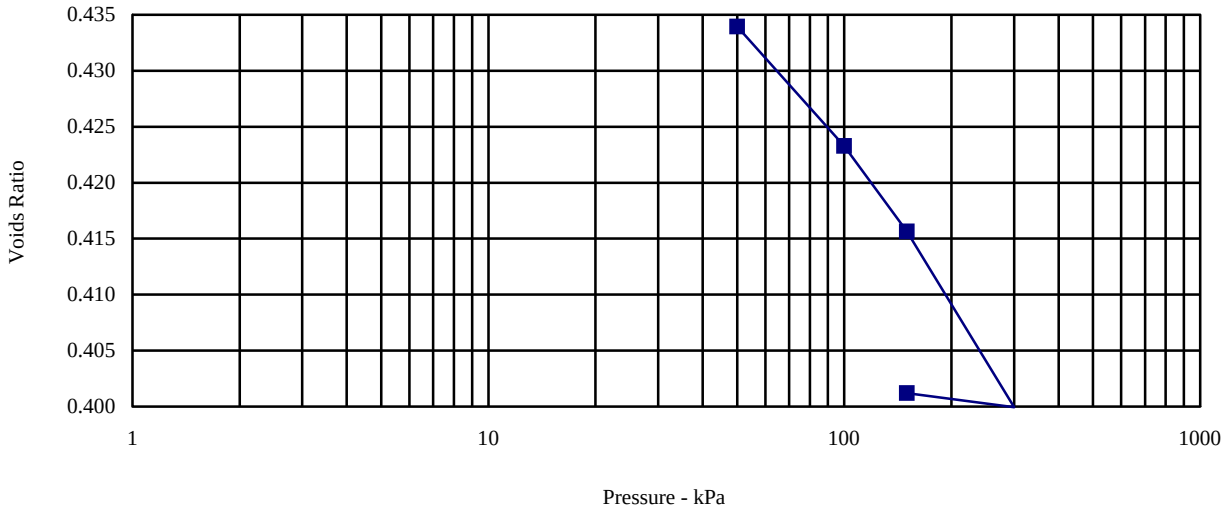
BS 1377: Part 5: 1990

Hole Number: BH3 **Depth (m): 7.00-7.45**

Sample Number: 15 **Sample Type: U**

Initial Conditions		Pressure Range			Mv	Cv	Specimen location	
Moisture Content (%):	18	kPa			m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	2.13	0	-	50	0.518	2.561	Method used to	
Dry Density (Mg/m3):	1.80	50	-	100	0.149	8.978	determine CV:	t90
Voids Ratio:	0.4721	100	-	150	0.107	11.421	Nominal temperature	
Degree of saturation:	103.1	150	-	300	0.074	13.595	during test ' C:	20
Height (mm):	19.88	300	-	150	0.006	84.456	Remarks:	
Diameter (mm)	75.22						See summary of soils description.	
Particle Density (Mg/m3):	2.65							
Assumed								





Checked by	Date	Approved by	Date
	29/05/12		29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No.** **PSL12/1761** Page of

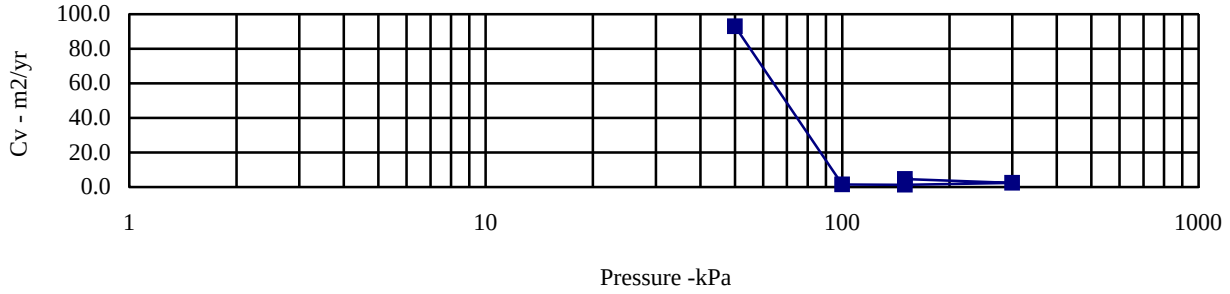
One Dimensional Consolidation Properties

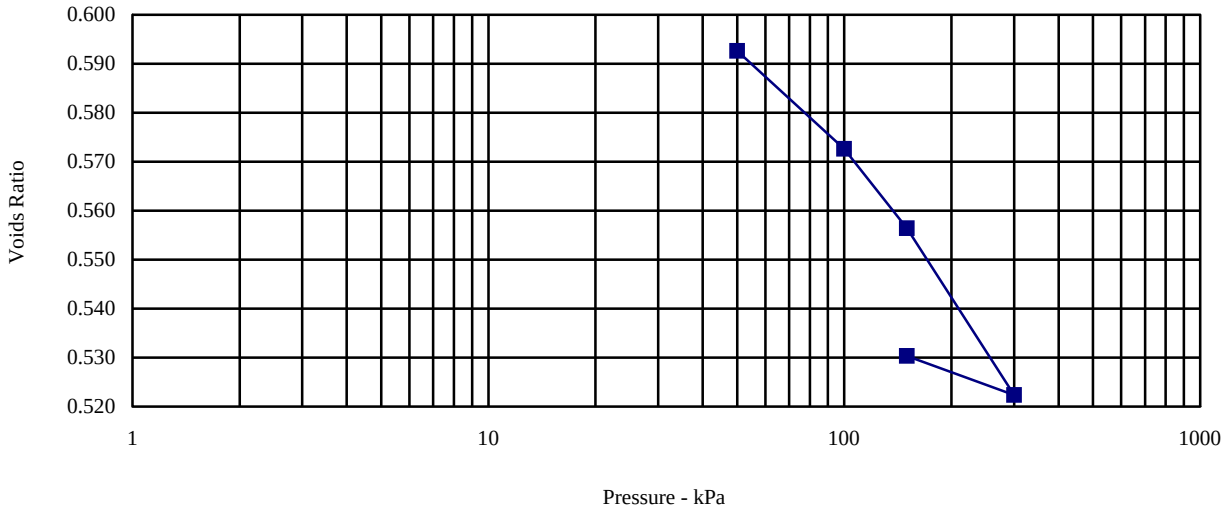
BS 1377: Part 5: 1990

Hole Number: BH5 **Depth (m): 7.00-7.45**

Sample Number: 18 **Sample Type: U**

Initial Conditions		Pressure Range kPa			Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	22							
Bulk Density (Mg/m3):	2.02	0	-	50	0.167	92.878	Method used to	
Dry Density (Mg/m3):	1.65	50	-	100	0.251	1.462	determine CV:	t90
Voids Ratio:	0.6060	100	-	150	0.206	1.385	Nominal temperature	
Degree of saturation:	97.9	150	-	300	0.146	2.444	during test ' C:	20
Height (mm):	19.91	300	-	150	0.035	4.711	Remarks:	
Diameter (mm)	75.25						See summary of soils description.	
Particle Density (Mg/m3):	2.65							
Assumed								





Checked by	Date	Approved by	Date
	29/05/12		29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No. PSL12/1761** Page of

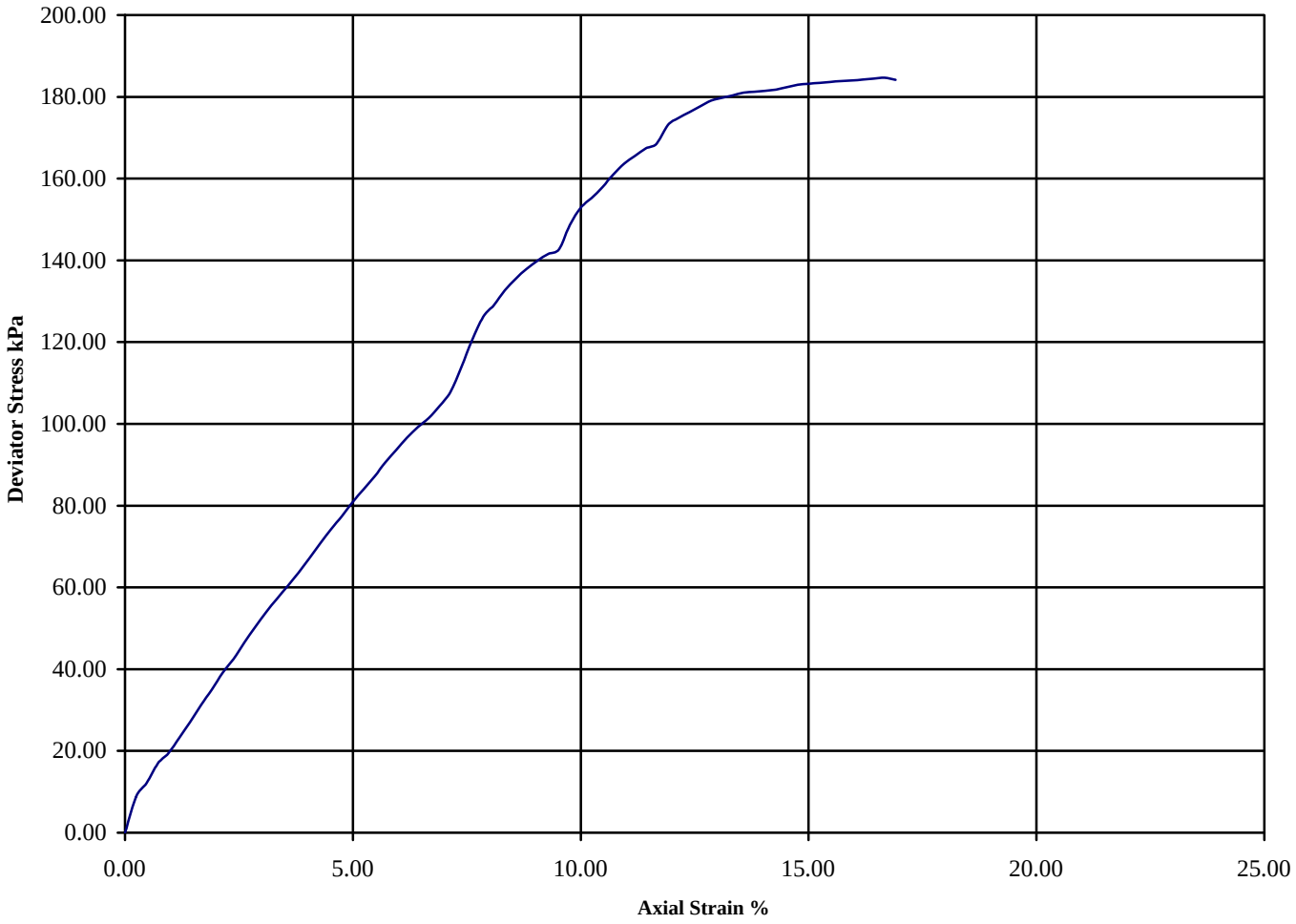
Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

B.S. 1377 : Part7 : Clause 9 : 1990

Hole Number: BH3 **Depth (m):** 7.00-7.45

Sample Number: 15 **Sample Type:** U



Diameter (mm):		102	Height (mm):		210	Test:	100mm Multistage		
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Remarks
A	20	2.12	1.77	100	143	71	9.5	Brittle	Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness Membrane Correction applied (kPa) 0.35 0.35 0.34
				150	169	84	11.7		See summary of soil descriptions.
				200	185	92	16.7		

Checked	Date	Approved	Date
	29/05/12		29/05/12

PSL Professional Soils Laboratory

PARLEY AD & BIOMASS SI.

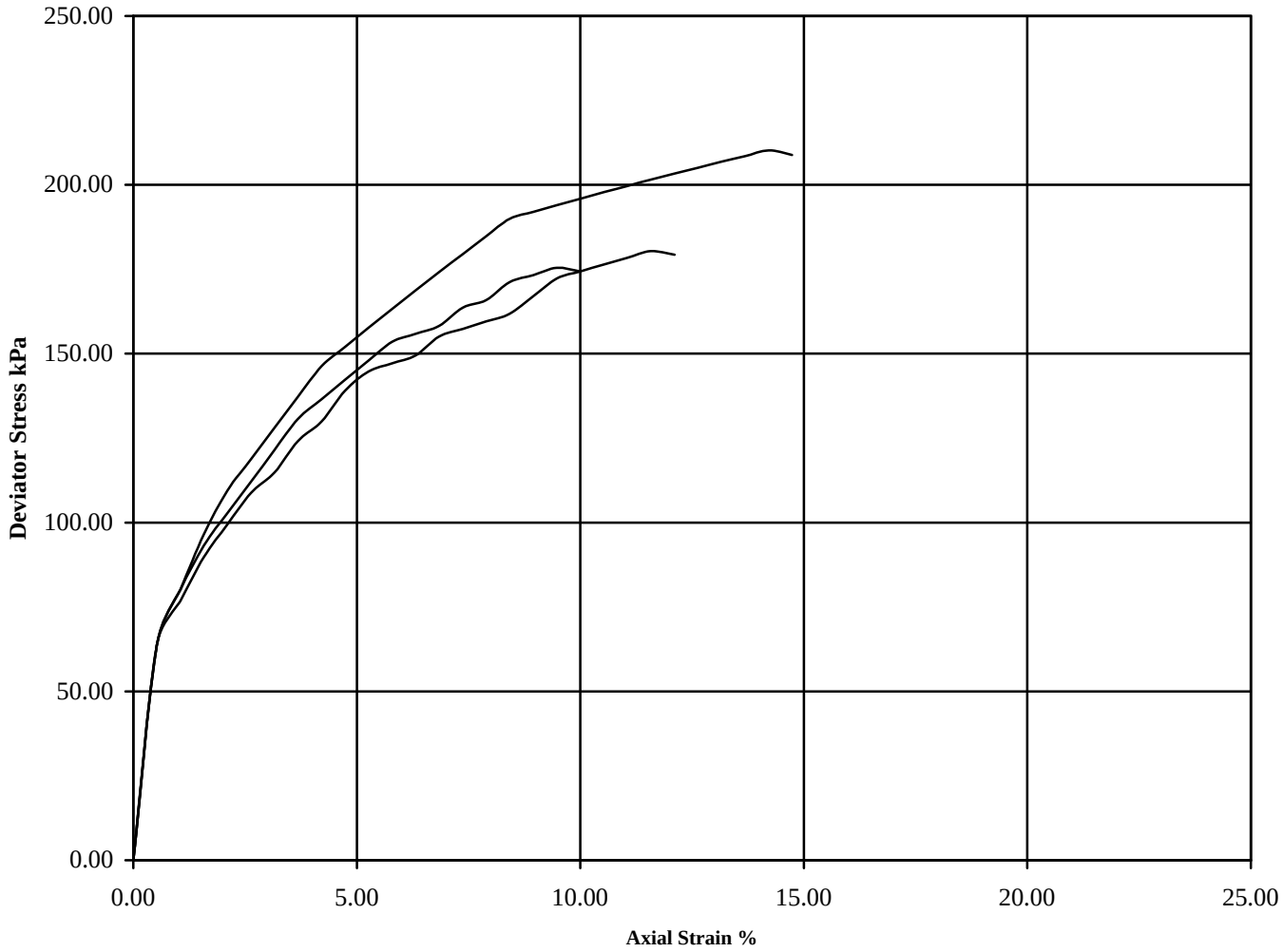
Contract No: PSL12/1761

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure
B.S. 1377 : Part7 : Clause 8 : 1990

Hole Number: **BH5** **Depth (m):** **7.00-7.45**

Sample Number: **18** **Sample Type:** **U**



Diameter (mm):		38	Height (mm):		76	Test:	Set of Three, 38 mm Samples.		
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Deviator Stress (kPa)	Shear Strength (kPa)	Failure Strain (%)	Mode of Failure	Remarks
1	21.8	2.03	1.66	100	175	88	9.5	Brittle	See summary of soil descriptions.
2	22.0	2.03	1.66	150	180	90	11.6	Brittle	
3	22.1	2.05	1.68	200	210	105	14.2	Brittle	

Checked and Approved By Date

29/05/12

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PARLEY AD & BIOMASS SI.

Contract No: **PSL12/1761**

SUMMARY OF SOIL CLASSIFICATION TESTS

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

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m^3 Clause 7.2	Dry Density Mg/m^3 Clause 7.2	Particle Density Mg/m^3 Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
TP4	3	B	4.00	7.9					NP			
TP14	2	B	3.50	22				29	14	15	84	Low plasticity CL.

SYMBOLS : NP : Non Plastic *** : Liquid Limit and Plastic Limit Wet Sieved.**

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Compiled by	Date	Checked by	Date	Approved by	Date
	29/05/12		29/05/12		29/05/12

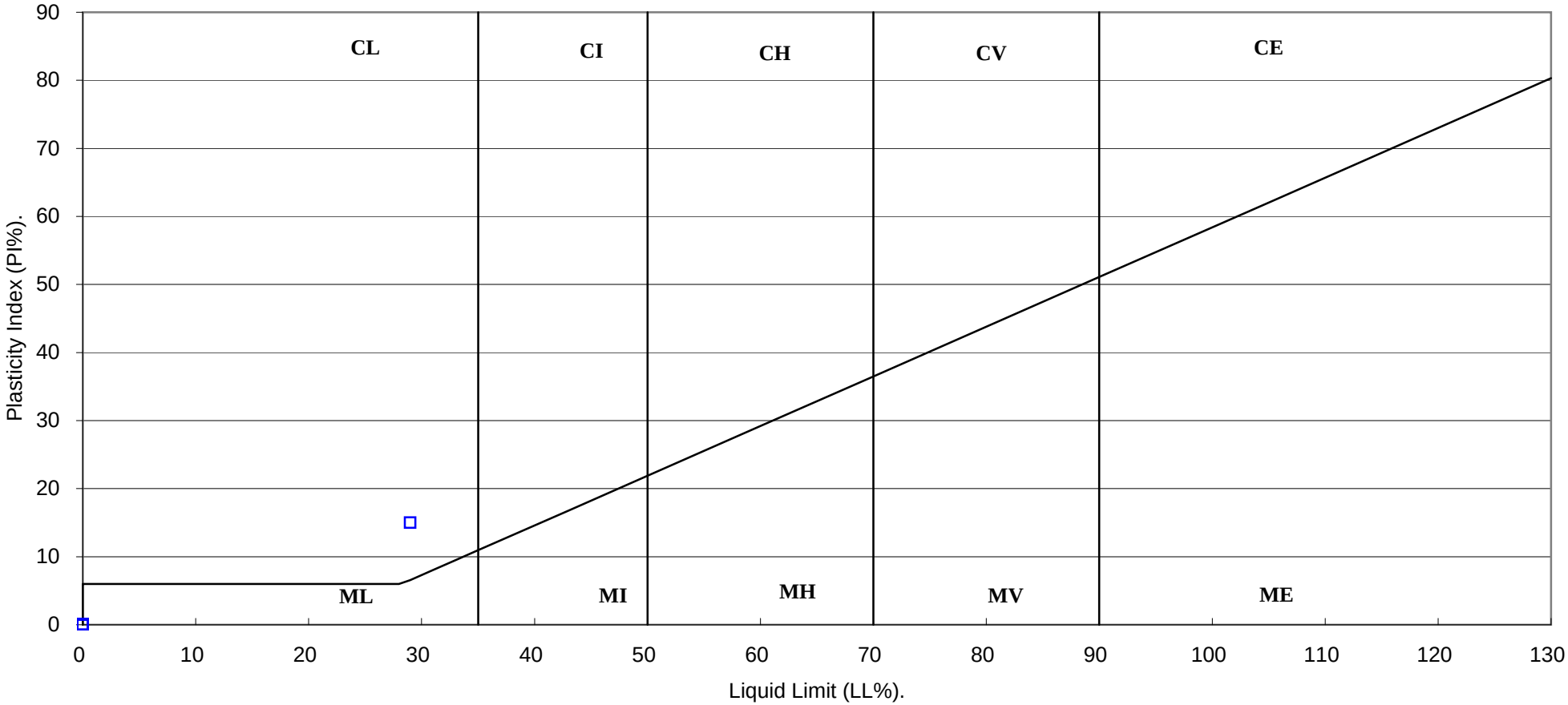
PARLEY AD & BIOMASS SI.

Contract No: **PSL12/1761**

Client Ref: **A076110**

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)

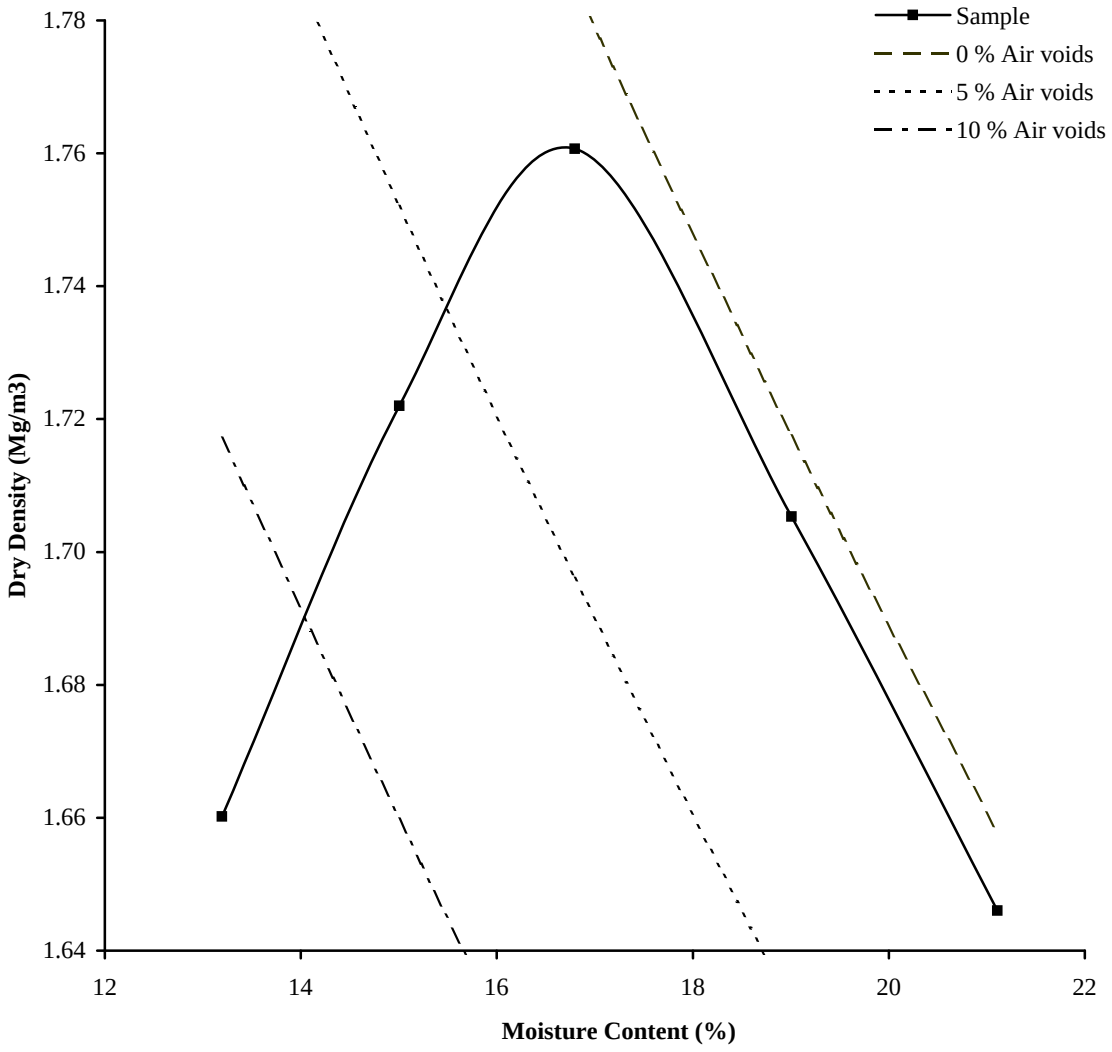


PSL Professional Soils Laboratory	Compiled by	Date	Checked by	Date	Approved by	Date
		29/05/12		29/05/12		29/05/12
	PARLEY AD & BIOMASS SI.				Contract No:	PSL12/1761
					Client Ref:	A076110

Dry Density/Moisture Content Relationship Test

BS 1377 : Part 4 : 1990

Hole Number:	**TP2**	**Depth (m) :**	**1.50**
Sample Number:	**1**	**Sample Type:**	**B**



Initial Moisture Content:	19	Method of Compaction	2.5kg / Separate Sample	
Particle Density (Mg/m3):	2.55	Assumed	Material Retained on 37.5 mm Test Sieve (%):	14
Maximum Dry Density (Mg/m3):		1.76	Material Retained on 20.0 mm Test Sieve (%):	10
Optimum Moisture Content (%):		17		
Remarks	See Summary of Soil Descriptions.			

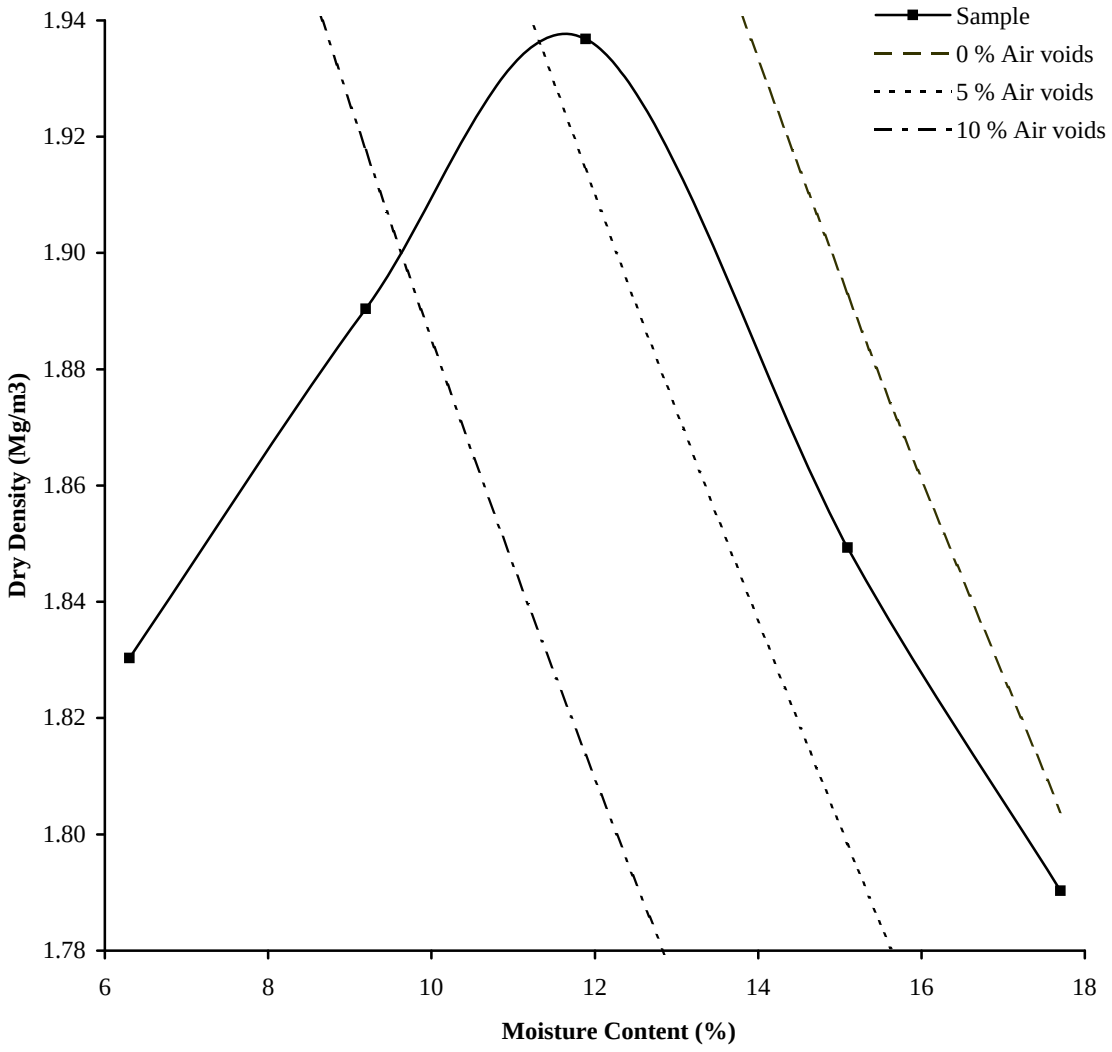
	Checked By	Date	Approved By	Date
	RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No. PSL12/1761**

Dry Density/Moisture Content Relationship Test

BS 1377 : Part 4 : 1990

Hole Number:	**TP4**	**Depth (m) :**	**2.00**
Sample Number:	**1**	**Sample Type:**	**B**



Initial Moisture Content:	15	Method of Compaction	2.5kg / Separate Sample	
Particle Density (Mg/m3):	2.65	Assumed	Material Retained on 37.5 mm Test Sieve (%):	4
Maximum Dry Density (Mg/m3):		1.94	Material Retained on 20.0 mm Test Sieve (%):	8
Optimum Moisture Content (%):		12		
Remarks	See Summary of Soil Descriptions.			

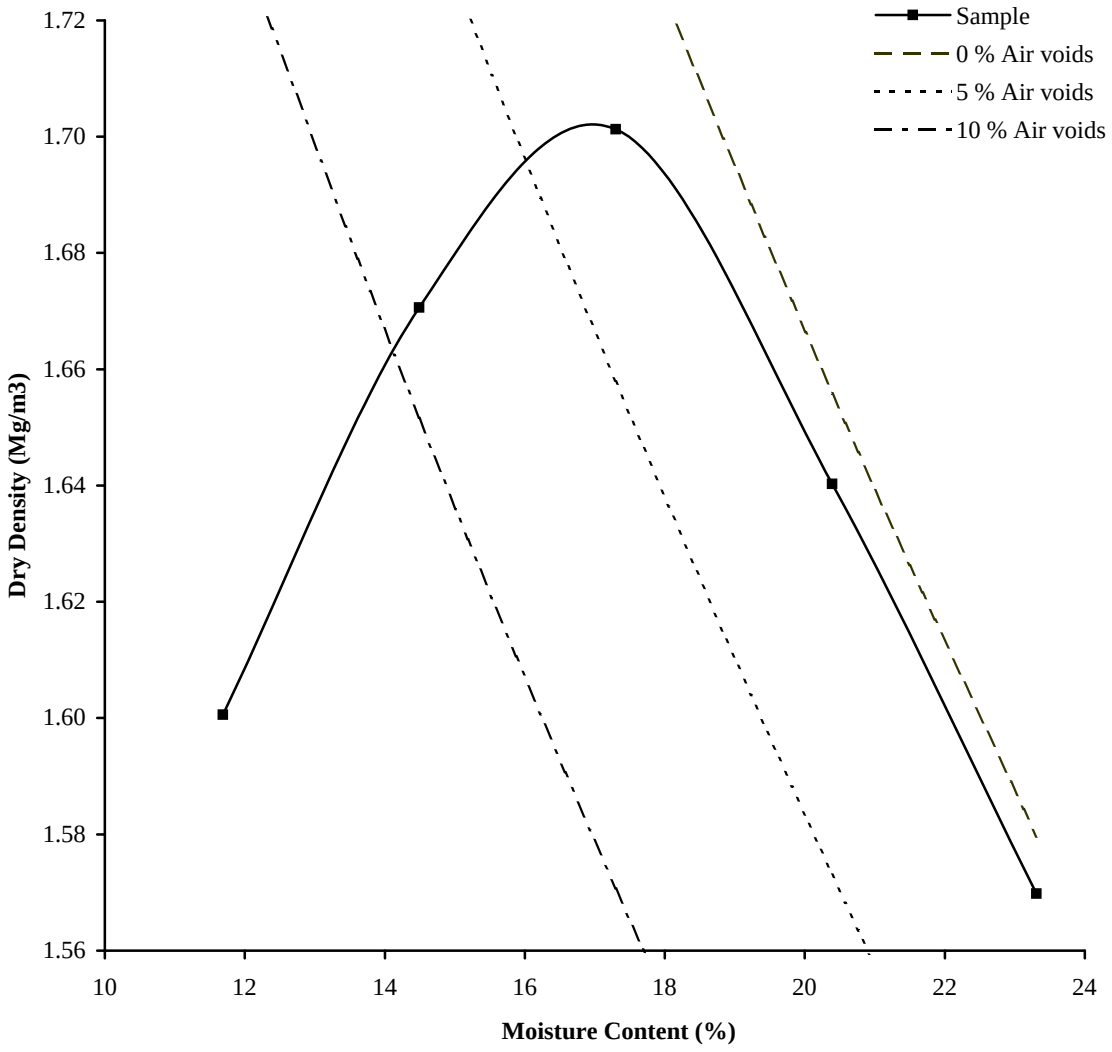
	Checked By	Date	Approved By	Date
	RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No. PSL12/1761**

Dry Density/Moisture Content Relationship Test

BS 1377 : Part 4 : 1990

Hole Number:	**TP5**	**Depth (m) :**	**2.00**
Sample Number:	**1**	**Sample Type:**	**B**



Initial Moisture Content:	23	Method of Compaction	2.5kg / Separate Sample	
Particle Density (Mg/m3):	2.50	Assumed	Material Retained on 37.5 mm Test Sieve (%):	2
Maximum Dry Density (Mg/m3):		1.70	Material Retained on 20.0 mm Test Sieve (%):	13
Optimum Moisture Content (%):		17		
Remarks	See Summary of Soil Descriptions.			

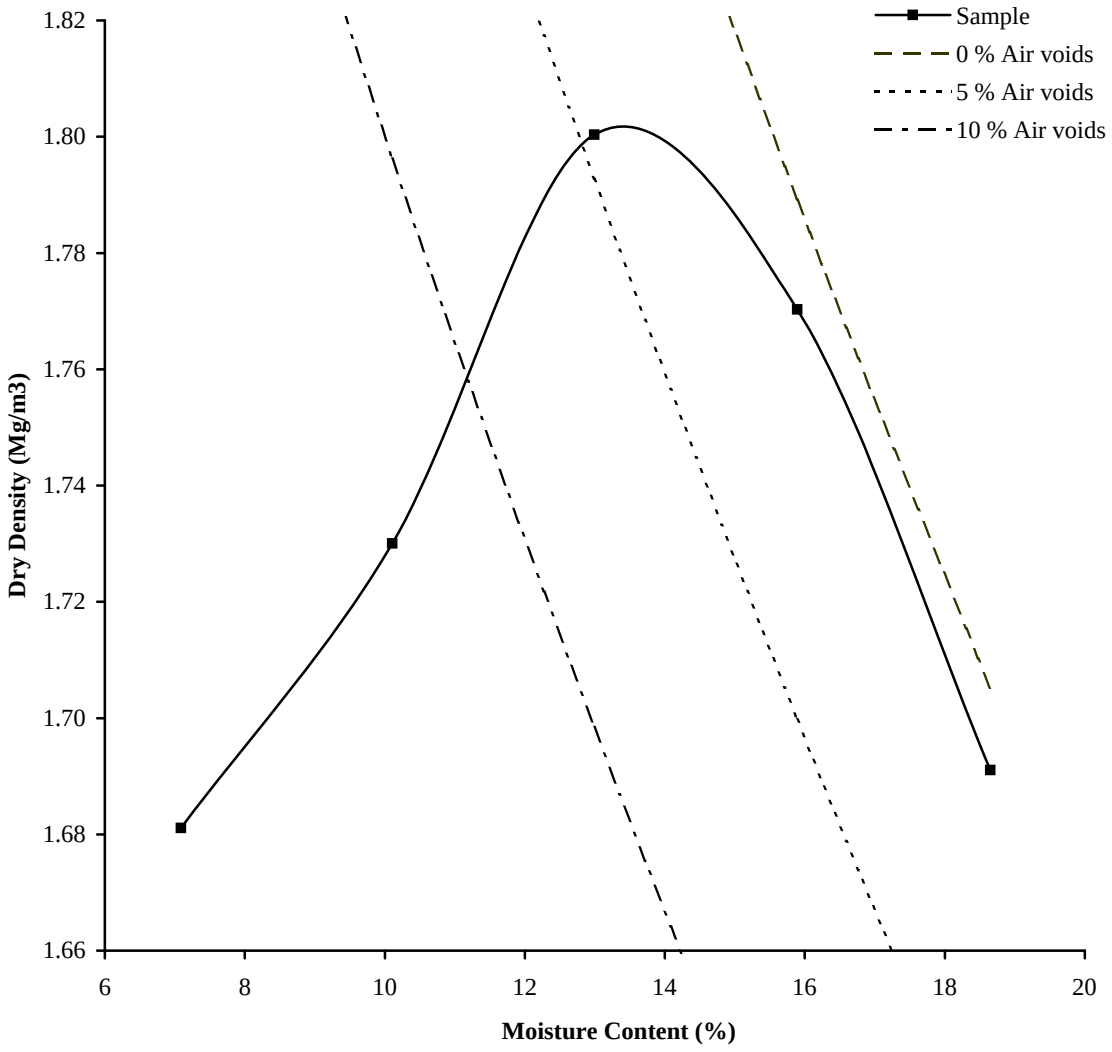
Checked By	Date	Approved By	Date
RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No. PSL12/1761**

Dry Density/Moisture Content Relationship Test

BS 1377 : Part 4 : 1990

Hole Number:	**TP11**	**Depth (m) :**	**1.50**
Sample Number:	**1**	**Sample Type:**	**B**



Initial Moisture Content:	19	Method of Compaction	2.5kg / Separate Sample	
Particle Density (Mg/m3):	2.50	Assumed	Material Retained on 37.5 mm Test Sieve (%):	7
Maximum Dry Density (Mg/m3):		1.80	Material Retained on 20.0 mm Test Sieve (%):	7
Optimum Moisture Content (%):		13		
Remarks	See Summary of Soil Descriptions.			

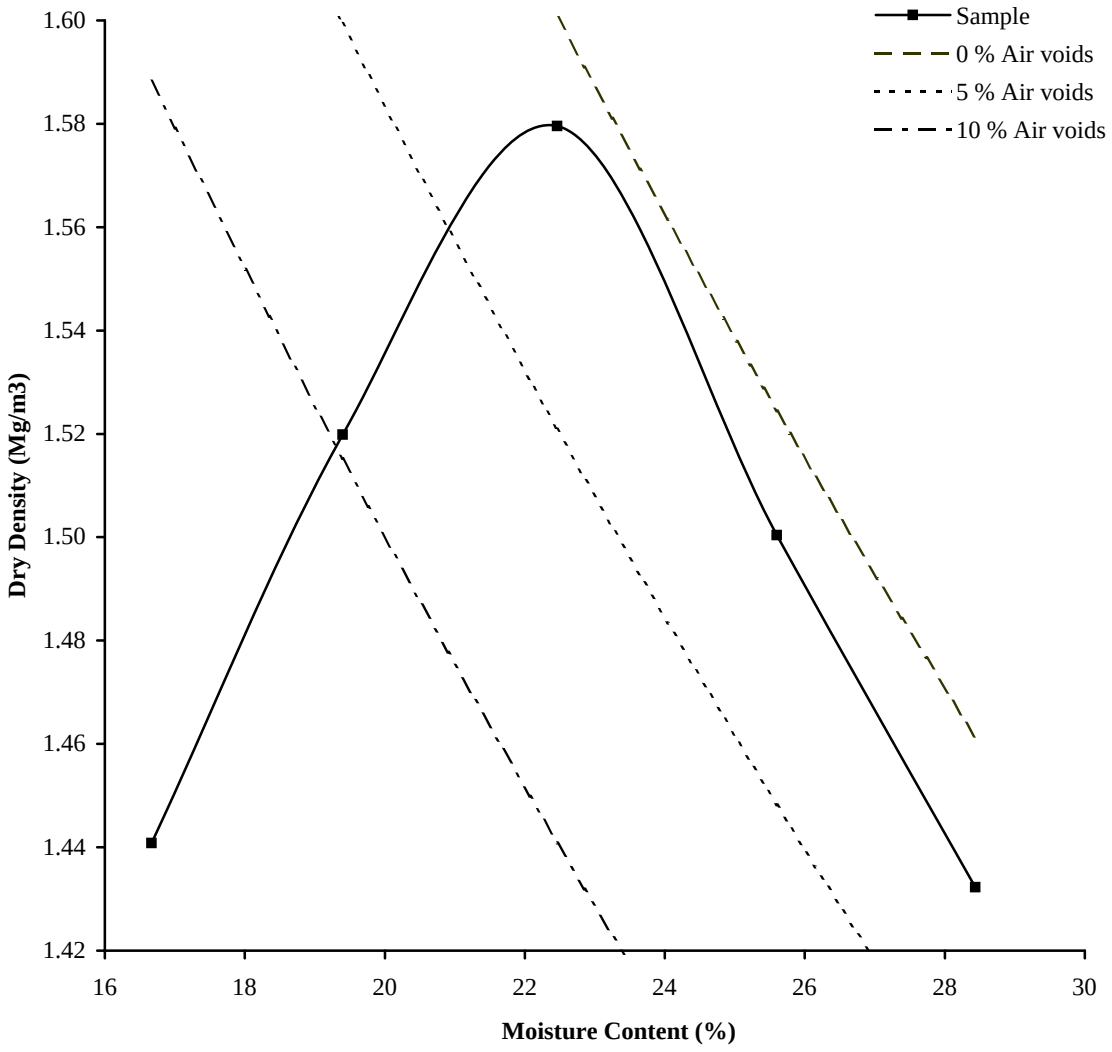
	Checked By	Date	Approved By	Date
	RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No. PSL12/1761**

Dry Density/Moisture Content Relationship Test

BS 1377 : Part 4 : 1990

Hole Number:	**TP18**	**Depth (m) :**	**1.00**
Sample Number:	**1**	**Sample Type:**	**B**



Initial Moisture Content:	28	Method of Compaction	2.5kg / Separate Sample	
Particle Density (Mg/m3):	2.50	Assumed	Material Retained on 37.5 mm Test Sieve (%):	2
Maximum Dry Density (Mg/m3):		1.58	Material Retained on 20.0 mm Test Sieve (%):	6
Optimum Moisture Content (%):		22		
Remarks	See Summary of Soil Descriptions.			

	Checked By	Date	Approved By	Date
	RC	29/05/12	RC	29/05/12

PSL Professional Soils Laboratory	**PARLEY AD & BIOMASS SI.**	**Contract No. PSL12/1761**

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ANALYTICAL TEST REPORT

Contract no: 45088

Contract name: Parley AD & Biomass SI

Client reference: PSL12/1761

Clients name: Professional Soils Laboratory

Clients address: 5-7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 14 May 2012

Analysis started: 14 May 2012

Analysis completed: 18 May 2012

Report issued: 18 May 2012

Notes:
Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd were 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, withour prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

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: K Campbell

Karan Campbell, Director
John Campbell, Director

Chemtech Environmental Limited

SOILS

Lab number			45088-1	45088-2	45088-3	45088-4	45088-5	45088-6
Sample id			BH 1	BH 5	TP 3	TP 10	TP 16	TP 17
Depth (m)			1.60-1.90	0.70-1.00	2.00	2.50	1.20	1.00
Test	**Method**	**Units**						
pH	CE004 [M]	units	8.8	8.1	-	-	-	8.0
Sulphate (2:1 water soluble)	CE061	g/l SO_4	0.14	0.13	-	-	-	0.38
Sulphate (total)	CE062	% w/w SO_4	0.07	0.05	-	-	-	0.17
Sulphur (total)	CE054	% w/w S	0.06	0.04	-	-	-	0.10
Organic matter content	CE005 [M]	% w/w	-	-	4.85	3.72	2.51	-

Chemtech Environmental Limited

WATERS

Lab number			45088-7	45088-8
Sample id			BH 1	BH 3
Depth (m)			1.00	2.10
Test	**Method**	**Units**		
pH	CE004 [U]	units	9.6	-
Sulphate	CE049 [U]	g/l SO_4	0.05	-
Total Organic Carbon	CE071	mg/l C	-	42.3

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	Wet	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		0.01	g/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w SO_4
CE054	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S
CE005	Organic matter content	Based on BS 1377, Colorimetry	Dry	M	0.01	% w/w

Chemtech Environmental Limited

METHOD DETAILS

METHOD	WATERS	METHOD SUMMARY	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	U	-	units
CE049	Sulphate	Ion Chromatography	U	0.01	g/l SO_4
CE071	Total Organic Carbon	TOC analyser		1	mg/l C

global environmental solutions

Parley Waste Management Facility, Parley, Christchurch

Environmental Permit Variation Application

H1 Environmental Risk Assessment

SLR Ref: 407.03407.00003/H1

Eco Sustainable Solutions Limited

October 2014

CONTENTS

TABLES

REFERENCED DRAWINGS

Drawing 001	Site Location Plan
Drawing 002	Site Layout and Drainage Plan
Drawing 003	Sources, Pathways and Receptors
Drawing 004	Cultural and Natural Heritage

1.0 INTRODUCTION

Eco Sustainable Solutions Limited (Eco) has instructed SLR Consulting Limited (SLR) to prepare a H1 Environmental Risk Assessment in support of an application to vary Environmental Permit (EP) reference EPR/GP3793FY for the Chapel Lane Waste Management Facility, Parley, Christchurch in Bournemouth. The location of the site is illustrated on Drawing 001, Site Location Plan, included in Section 5 of this EP application.

This H1 assessment has been completed in accordance with the Environment Agency Technical Guidance EPR – H1 *'Environmental Risk Assessment for Permits (and all applicable annexes)'.* The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This H1 assessment should be read in conjunction with the Non Technical Summary, Best Available Techniques and Operating Techniques document and Site Condition Report

This H1 Environmental Risk Assessment considers risk associated only with the proposed new activities to be carried out at the site, namely:

- Anaerobic Digestion (AD) plant – to process agricultural crops, animal by-products and a range of non-hazardous waste types to produce biogas for the production of electricity and ultimately for export to the National Grid.
- The acceptance and transfer of Animal By Product waste and source segregated food waste for bulking and transfer to alternative AD facilities;
- Digestate processing – the resulting product from the AD process which can then provide agricultural benefits by spreading to land under a mobile plant permit off site.
- Clean Biomass Plant – to process clean wood accepted at the site to produce heat and energy to supply all operations on site.
- Bedding Plant – to produce animal bedding from clean wood waste imported and accepted on site;
- Solid Recovered Fuel (SRF) Plant – to produce a SRF product for recovery purposes off site;
- Plastics and Reject Drier – to be able to treat and dry plastics, green waste, litter and compost from waste operations on site;
- Recovery of waste for the construction of the required engineered surfacing in the new area of the site (based on the U1 exemption – use of waste in construction); and the
- Treatment of one hazardous waste code at the road sweepings plant (operations of which are included in a variation currently being determined, EA Ref: EPR/GP3793FY/V009).

Green waste composting on site is already a permitted activity, and although will be brought within the remit of the IED legislation as a listed activity as part of this permit variation, it is not considered necessary to review the risks from the composting activities within this H1 assessment as no changes to waste treatments, wastes accepted or waste quantities are proposed. Likewise, the Soil Recycling and Compost Like Output (CLO) operations currently carried out on site are not part of the proposed permit variation and therefore not subject to further assessment here.

The environmental permit boundary, site layout infrastructure and site drainage are detailed on Drawing 002. All sensitive human receptors within 500m are illustrated on Drawing 003 and in Table 2 of this report. Cultural and Natural Heritage are illustrated on Drawing 004 All drawings are included in Section 4 of this EP variation application.

2.0 H1 OVERVIEW AND APPROACH

This H1 environmental risk assessment complies with regulatory guidance[1] and uses the following approach for identifying and assessing the risks in four steps:

Step 1 - Identify risks from your activity.

Step 2 - Where risks are identified from step 1 then assess the risks and check that they are acceptable using the relevant modules provided as annexes to the H1 Guidance.

Step 3 - Justify appropriate measures to control your risks, if necessary.

Step 4 - Present your assessment.

Step 1 is a screening step to identify the potential risks to the environment from the proposed development. The Environment Agency H1 Guidance identifies modules (annexes) considered appropriate for a development such as Parley Waste Management Facility as below:

(a) Amenity and Accidents;
(d) Surface Water;
(f) Air;
(g) Site Waste (installations only);
(h) Global Warming Potential;
(j) Groundwater (installations only); and
(k) Cost Benefit Analysis (if needed).

Annex (d) 'surface water; is considered not to be relevant as the site wish to use the existing surface water discharge consent (EA Ref: 401724). Although the location of this consent is being amended in this variation, the surface water drain is connected to the existing system that the current consent refers to.

Annex (f) 'air' is not considered to be relevant because there are no point source emissions to air.

However, the main source emission to air will be from the AD plant, from the biogas engines located at the Combined Heat and Power Plant (CHP). The plant will be separately permitted and operated by an external contractor as chosen by Eco. Therefore, this variation application does not evaluate this emission to air.

Annex (g) 'site waste' and Annex (h) 'global warming potential' is not considered relevant as the need for the facilities has been addressed as part of the planning permission.

Annex (j) 'groundwater' is considered not to be relevant as there are no proposed discharges to groundwater from the development.

Annex (k) is not considered relevant as the need for the facilities has been addressed as part of the planning application.

Step 2

[1] Environment Agency H1 Environmental Risk Assessment for Permits (and appendices) V2.2 December 2011

Annex (a) identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. Where appropriate, the assessment demonstrates how the risk of pollution or harm can be mitigated by measures to manage these risks (step 3).

The following tables present the assessment (step 4) in terms of hazards posed, receptors and pathways, along with management and residual risks for the following hazards:

- Odour;
- Noise & Vibrations;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.

For the purposes of this H1 assessment (annex (a), a 2km radius has been adopted in reviewing potentially sensitive receptors of ecological importance along with features such as sites of cultural and natural heritage. A radius of 500m from the proposed permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

3.0 SITE SETTING & RECEPTORS

3.1 Site Setting

The site is located in Parley in Christchurch, north of the centre of Bournemouth. The site lies within a predominately rural setting with Bournemouth International Airport and Aviation Business Park located 130m to the south of the site. The entrance to the facility lies adjacent to the access road Chapel Lane to the west. The national grid reference for the site is SZ 102 989 and the site location is illustrated on Drawing 001 dated October 2014.

The closest residential property lies 60m to the north of the site, along Chapel Lane. Further properties are located 450m to the west along Barrack Road which include Hurn Honey Farm.

The site lies in close proximity to a number of national and European designated sites within 2km of boundary. The Dorset Heath SAC, the Dorset Heathlands SPA and the Hurn Common SSSI all lie adjacent to the eastern boundary of the site, and extend to the south and west. Parley Common SSSI and the Dorset Heathlands Ramsar lies 20m to the west.

Surrounding land-use and receptors are identified on Drawing 003 - Sources Pathways and Receptors, and Drawing 004 - Cultural and Natural Heritage dated October 2014, and are identified in Table 2-1 below.

Table 3-1
Surrounding Land Uses

Boundary	Description
North	East Parley Common, PV farm, two fishing lakes and associated ditches.
East	Heathland, PV farm, the Aviation Business Park and surface water ditches.
South	Agricultural land, Aviation Business Park, Bournemouth International Airport and a Business Centre.
West	Chapel Lane, Timber Yard, residential properties and agricultural land.

The immediate surrounding land use is described in further detail below:

Residential properties

The closest residential property lies 60m to the north of the site, along Chapel Lane. Further properties are located 450m to the west along Barrack Road which include Hurn Honey Farm.

Industrial and Commercial Premises

A timber yard lies 20m to the north west.

Bournemouth International Airport and the Aviation Business Park are located 130m to the south.

A business centre lies 300m to the south of the site.

PV Farms and Agricultural Land

PV Farms lie to the north and west of the site. The site is further surrounded by open space and agricultural land to the east, south and west.

Recreational Premises

A sports ground lies 310m to the south of the site.

Other premises

Chapel Lane lies adjacent to the western boundary. The wider local road network is illustrated on Drawing 003.

3.1.1 Hydrology & Hydrogeology

Hydrogeology

The Envirocheck Report (included as Appendix SCR1 of the Site Condition Report, ref: 407.03407.00003/SCR) shows the superficial geology of the site is comprised by the River Terrace Deposits 4, which consists of sand and gravel. The bedrock geology comprises the Branksome Sand Formations.

The Envirocheck Report indicates that both the River Terrace Deposits 4 and the Branksome Sand Formations are classified as 'Secondary A' Aquifers which have permeable layers capable of supporting water supplies at a local rather than strategic scale, but in some cases forming an important base flow to rivers.

The Environment Agency's web site[2] indicates that the application site does not lie within a source protection zone (SPZ).

Hydrology

There is one surface water feature within the site boundary. The surface water settlement lagoon lies in the southern portion of the site and is used to treat process water from the composting area. An existing silt lagoon lies to the north of the site boundary. This will be moved from its current location and re located to the eastern side of the site, as illustrated on Drawing 002.

The closest surface water features, two fishing lakes, Parley Lakes, which are recharged by a number of small streams, are located 50m to the north of the site boundary. There are various drains located to the north, south, east and west which are associated with the Moor River, which is located approximately 660m to the north east of the site.

The Envirocheck report confirms that the site does not lie within a flood plain but is surrounded by one to the north, east, south and west.

[2] www.environment-agency.gov.uk, accessed July 2014.

3.1.2 Ecological and Cultural Receptors

Ecology

European/International Sites

A Multi Agency Governmental Information for the Countryside (MAGIC) internet search was carried out for the following ecological receptors:

European Habitats Sites

- Special Areas of Conservation (SAC);
- RAMSAR sites; and
- Special Protection Areas (SPA).

UK Statutory Habitats Sites

- Site of Special Scientific Interest (SSSI)

Other ecological sites

- National Nature Reserves;
- Local Nature Reserves;
- Ancient Woodlands;
- Woodland Trust Sites;
- National Parks;
- Areas of Outstanding Natural Beauty; and
- National Forest.

Special Areas of Conservation

The *Dorset Heaths SAC* lies adjacent to the eastern boundary and extends to the south and west of the site. The SAC is a complex site which includes a total of 37 SSSI's (which includes the Hurn Common SSSI) most of which include fine transitions between European dry heaths and wet lowland heathland and mires, as well as habitats that include woodland, grassland, pools, saltmarsh and reed swamps.

Special Protection Areas

The *Dorset Heathlands SPA* lies adjacent to the eastern boundary and extends to the south and west of the site. This SPA lies in the same footprint as the Dorset Heaths SAC and Hurn Common SSSI. The SPA covers an extensive complex of heathland sites at the western edge of the Hampshire Basin. Historically, the area has seen a loss in heathland and so has left the remaining heaths in a fragmented state. However, despite these losses the heaths show a high level of ecological solidarity. The SPA contains large areas of dry heath, wet heath and acid valley mire with a wide range of different fauna and species. The SPA also includes a number of SSSI sites.

RAMSAR Sites

The *Dorset Heathlands RAMSAR* is located 20m to the west of the site. The RAMSAR contains areas of heathland with many examples of wet heath and acid valley mire, which are habitats that are restricted to the Atlantic fringe of Europe. The heath wetlands are among the best of their type in lowland Britain. The RAMSAR also includes transitions to

coastal wetland fen habitat types. The wetland flora and fauna includes a large variety of nationally rare and scare species, especially invertebrates.

Sites of Special Scientific Interest

Hurn Common SSSI lies adjacent to the eastern boundary of the site and further to the south. The site is made up of fragmented areas which form one of the largest remaining expanses of heathland in the country. The site has been designated due to the well represented dry and wet heathland types, which include areas of acidic grassland and a rich associated fauna. In particular, the site forms an important link between the heathlands of the New Forest and South East Dorset. The SSSI also lies close to the Moors River and River Avon.

Parley Common SSSI lies approximately 20m to the west of the site. The area forms a small part of the original extensive area of heathland between the Moors River and the River Stour, however is still retains much of its outstanding interest which has made the site famous for over one hundred years. The site still retains many of the characteristic and rare species associated with the Dorset Heathlands. The site also includes a rich invertebrate fauna which links to the heaths of the New Forest.

Moors River System SSSI lies approximately 600m to the north east of the site. The Moors River is part of a national series of river SSSI's and is also a Nature Conservation Review Site. The Moors River is a small lowland river which supports an diverse number of aquatic and wetland plants. The river system also supports several fish, bird and aquatic mammal species of high conservation importance.

The search confirmed that there are no Woodland Trust Sites, Local Nature Reserves, National Forests or National Parks within 2km of the site.

3.1.3 Cultural Heritage

Searches on the MAGIC[1] website confirm that there are none of the following within 2km of the application site:

- National Forest;
- Scheduled Monuments;
- National Trust Properties; and
- Registered Battlefields.

There are a number of Grade I listed buildings within 2km of the permit boundary which are illustrated on Drawing 004.

3.2 Receptors

Table 3-2 and Drawings 003 and 004 show the locations of receptors that are considered to be potentially sensitive and could reasonably be affected by the waste management activities.

Table 3-2
Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from site boundary(at nearest point)
Identified receptors within 500m of the Environmental Permit Boundary as shown on Drawing 003 Identified receptors within 500m of the Environmental Permit Boundary as shown as shown on Drawing 003 Sources Pathways and Receptors			
Bournemouth International Airport and Aviation Business Park	Commercial	South	130m
Property along Chapel Lane	Residential	North	60m
Properties along Barrack Road and Hurn Honey Farm	Residential	West	450m
Business Centre	Commercial	South	300m
Sports Ground	Recreational	South	310m
Parley Lakes	Fishing Lakes	North	50m
Timber Yard	Commercial/Industrial	North west	20m
Chapel Lane	Local Road Network	West	9m
PV Farms	Industrial	North and west	Adjacent
Agricultural Land (leased by Eco)	Agricultural	South	Adjacent
Surface water drains	Surface water	North, west and east	Adjacent
Identified receptors within 2km of the Environmental Permit Boundary as shown on Drawing 004 Cultural and Natural Heritage			
Hurn Common	Site of Special Scientific Interest	East and south	Adjacent
Dorset Heaths	Special Area of Conservation	East, south and west	Adjacent
Dorset Heathlands	Special Protection Area	East, south and west	Adjacent
Area of Woodland (within Hurn Common SSSI, Dorset Heaths SAC and Dorset Heathlands SPA)	National Inventory of Woodland and Trees	South	50m
Parley Common	Site of Special Scientific Interest	West	20m
Dorset Heathlands	RAMSAR	West	20m
Moors River	Site of Special Scientific Interest	North east	600m

4.0 ANNEX (A) TABLES

Table 3 Odour Risk Assessment

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Odour: Odours associated with waste activities on site including; Acceptance and processing of 15,000tpa of waste arising from the Clean Waste Biomass Power Plant; Acceptance and processing of 55,000tpa within the Combined AD Plant, with an additional 10,000tpa of ABPR waste, and including approximately 62,450tpa of digestate sent on for processing; Acceptance of 12,000tpa	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.	Air.	All vehicles entering the facility will be covered/sheeted. All waste storage areas will be cleaned on a regular basis. The site will employ good housekeeping techniques. <u>Clean Wood Biomass Plant</u> Strict waste acceptance procedures within the green waste reception area will ensure only permitted waste will be accepted within the biomass plant. Clean wood waste will be accepted at the green waste reception area, where the wood will be separated and treated and transferred to the clean biomass reception building. The drying of all biomass waste will occur within the confines of a building, as illustrated on Drawing 002. Where the waste will then be transferred to the clean biomass plant for incineration. The building will also benefit from a biofilter. Biodegradable waste storage periods will be minimised and wastes subject to a rapid turnover. The clean wood waste will be fresh green waste, reducing the potential for odour emission. The acceptance of green waste is already a permitted activity on site, therefore existing management plans will continue to be adopted on site. <u>Anaerobic Digestion Plant:</u> Wastes arriving on site for the AD will either be directed straight to the AD reception area or arise from the green waste reception area.	Medium	Odour annoyance	**Not significant** – given the current activities permitted on site and enclosed nature of proposed waste operations. Odour Management Plan in place on site.

within the SRF Plant for the purposes of processing and treatment of RDF waste; Processing of approximately 12,225tpa of residuals from waste operations on site within the plastics and rejects drier; Processing and treatment of clean wood waste for the Bedding Plant. Processing, treatment and bioremediation of hazardous waste code (oil containing drilling muds) at the road sweepings plant Waste recovery operations – the use of waste in construction Transfer and bulking up of ABPR waste and source segregated food waste			Strict waste acceptance procedures will be adhered to ensure only permitted wastes are accepted on site. The AD waste reception area will be housed in an enclosed building benefiting from roller shutter doors. All incoming waste will be discharged within the reception area behind closed doors. This ensures no unpasteurised fresh waste is open to the atmosphere, preventing external odours. The reception building will benefit from aa biofilter system that will draw air out of the building with a pair of fans & then passes through a filter bed of shredded wood. The biofilter will draw air through the waste reception building, so giving the barn a negative pressure and removing any tramp odours and bioaerosols from within the building during the reception, handling, shredding and blending of the waste. The negative pressure ensures that any draughts blow into the barn, so retaining odour and bioaerosols with the building. The anaerobic digestion process is detailed further in the Best Available Techniques and Operating Techniques Document, included in Section 7 (407.03407.00003/BATOT). <u>Solid Recovered Fuel (SRF) Plant</u> Wastes processed within the SRF plant will comprise of litter wastes redirected from the green waste reception and green composting operations as well as residual wastes from other operations on site including rejects from the drier, litter from the CLO composting and dry and sanitised screenings from Eco's existing AD facility at Piddlehinton.(EA Permit Ref: EPR/FP3692SU/A001. The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. All operations associated with the SRF, including waste reception, processing and storage will take place within a building. All treated and baled SRF will be stored within the confines of a building adjacent to the processing plant. <u>Plastics and Rejects Drier</u> Residual waste arising from the AD plant, CLO Composting plant and centrifuge cake from road sweepings will be processed (dried) within the drier. The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. Treated waste from the drier will be stored within the confines of a			

			building, as illustrated on Drawing 002. Bedding Plant The clean wood waste, destined to be processing in the bedding plant, will be fresh green waste, reducing the potential for odour emission. The acceptance of green waste is already a permitted activity on site, therefore existing management plans will continue to be adopted on site. Waste Recovery Activities The waste types used for all waste recovery operations on site, are as per the U1 exemption, and are not deemed to be odorous in nature. Soil and stones waste is considered to be predominately inert and would not contain a high proportion of biodegradable wastes. Soil is not considered a source of offensive odour and therefore not considered a source of offsite impacts Road Sweepings Plant – hazardous waste acceptance. Oil contaminated drilling muds are not deemed to be particularly odorous in nature. If particularly odorous, tarpaulins will be used to cover the waste to prevent the emission of any odours. The bioremediation of the processed mud waste is unlikely to produce odour due to the waste types being treated. Transfer of ABPR and food waste All ABPR and food waste will be unloaded within an enclosed barn with the doors closed. The building also benefits from a biofilter. This type of waste will not be treated on site, only stored before transfer off site to a suitably licensed facility. The doors to the building will be kept closed. All waste will be stored within skips within the barn. Management: Routine and reactive odour monitoring will be employed at the site. Site personnel will carry out olfactory monitoring throughout the working day. In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken. In the event that odorous waste is delivered to site it will be segregated & removed at the earliest opportunity. The site manager will be responsible for odour control & regular olfactory monitoring; including ensuring that ventilation systems are fully operational. Records will be maintained of odour emissions, odour			

			complaints and remedial action taken. For further detail on odour generation and management refer to the Best Available Techniques and Operating Techniques document and the Odour Management Plan submitted as Appendix BATOT1 (SLR Ref: 407.03407.00003/BATOT).			

Table 4 Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise Noise from vehicular movements Noise associated with waste activities on site including; Acceptance and processing of 15,000tpa of waste arising from the Clean Waste Biomass Power Plant; Acceptance and processing of 55,000tpa within the Combined AD Plant, with an additional 10,000tpa of ABPR waste, and including approximately 62,450tpa of digestate sent on for processing; Acceptance of 12,000tpa within the SRF Plant for	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.	Air.	Speed limits will be implemented for vehicles using the site. Traffic calming measures will be implemented to enforce speed limits. Site access & haul roads and operational areas will be maintained and repaired to minimise emissions of noise due to uneven and poor surfacing. A noise attenuation bund has been built to the west of Chapel Lane, from just south of the main site entrance to approximately half way along the green waste maturation pad. The bund runs alongside the Lane, within a turf field owned by Eco, and acts as effective noise suppression for residents of Barrack Road. The operations are so configured as to ensure that most treatment processes are either confined within buildings or have material stockpiles located around the main noise sources (shredders and screens). Plant will be selected & operated to minimise noise. Auditory inspections will be carried out regularly & in response to complaints. Operating hours will be restricted. Opening of doors to buildings will be kept to a minimum. All buildings will be constructed with materials which have sound reduction properties. Quiet plant options will be used wherever possible to ensure noise is kept to a minimum. Plant & equipment will be maintained regularly to minimise noise resulting from deterioration & inefficient operation. The site manager will be responsible for ensuring that nuisances arising from site noise are minimised. All site personnel will be trained in the need to minimise site noise and will be responsible for monitoring and reporting excessive noise when carrying out their	Mobile. Potentially intermittent throughout the day. Nearest sensitive residential receptors are located approximately 60m to the north, however Bournemouth Airport is located 130m to the south. Medium.	Noise nuisance	Low / Not significant due to Noise Management measures in place on site.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
the purposes of processing and treatment of RDF waste; Processing of approximately 12,225tpa of residuals from waste operations on site within the plastics and rejects drier; Processing and treatment of clean wood waste for the Bedding Plant. Processing, treatment and bioremediation of hazardous waste code (oil containing drilling muds) at the road sweepings plant Waste recovery operations – the use of waste in construction Transfer and bulking up of ABPR waste and source segregated food waste			everyday duties. Where applicable and appropriate, drop heights will be kept to a minimum. All potentially noise generating activities such as waste reception, processing and treatment will occur within enclosed buildings. In the event that noise becomes problematic, if possible the equipment will be shut down, replaced, serviced or repaired to reduce the noise levels; & where appropriate plant will be modified to incorporate noise suppression equipment. <u>Waste Recovery Operations</u> All waste recovery operations will occur within the confines of the site extension, which is located at a considerable distance from the majority of all local receptors. All operations will occur within the sites opening hours. All waste recovery operations will cease once construction works have taken place and are completed. Records of management & monitoring of noise will be maintained. The Noise Management Plan will be adhered to on site and a copy kept in the site office.			

Table 5 Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
To Air:						
Dust & bio aerosols from: Vehicular movements Handling & processing of waste in the green waste reception area Handling & processing of waste in the SRF building AD processes Processing, treatment and bioremediation of hazardous waste code (oil containing drilling muds) at the road sweepings plant Waste recovery operations – the use of waste in construction	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.	Air	<u>General principles:</u> The design of the buildings for the AD and SRF facilities is based on the principles of containment, extraction & treatment. Good housekeeping will be implemented across the site, including the use of a road sweeper and water bowsers if necessary. Speed limits will be implemented for vehicles using the site. Traffic calming measures will be implemented to enforce speed limits & reduce emissions of dust. Site access & haul roads and operational areas will be maintained and repaired to minimise emissions of dust due to uneven and poor surfacing. The AD facility will benefit from a biofilter connected to the building. All storage and treatment of waste at the SRF plant will be within a building. All storage and bulking up of ABPR and food waste destined for transfer off site will occur within the sealed building which benefits from a biofilter. This type of waste will not be treated on site, but transferred off site to a suitably licensed facility for recovery. Waste recovery operations, if possible, will not occur in particularly windy conditions, to prevent the emission of dust outside of the site boundary. Due to the nature of the material treated in the CLO clamps – it is unlikely that the process will cause considerable dust emissions. The CLO clamps will managed as per the existing permitted open	Medium	Dust nuisance Risk to health from bioaerosols	Low Bioaerosol Management and Monitoring Plans in place on site. Dust Management Plan in place on site.

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Transfer and bulking up of ABPR waste and source segregated food waste			compost windrows. All roads and operational areas will be swept where necessary to reduce dust emissions. Regular, visual inspection at all areas of the site and site boundary will be carried out by site personnel. In the event that significant visual dust is observed at the boundaries of the operational areas, action will be taken to suppress the dust. Should dust become problematic, mitigation measures as detailed in the sites Dust Management Plan will be implemented, including the cessation of operations where appropriate or necessary and the use of water sprays and bowsers. A copy of the Dust Management Plan will be kept in the site office. Eco will ensure that company operations are carried out in such a manner as to minimise dust generation and other environmental impacts as far as possible. <u>Management:</u> The site manager will be responsible for ensuring that nuisances arising from site dust and bio aerosols are minimised. All site personnel will be trained in the need to minimise site dust and will be responsible for monitoring and reporting excessive dust when carrying out their everyday duties. Records of management & monitoring of dust and bio aerosols will be maintained.			
To Water						
Runoff from site surfaces, composting waste piles, & other stored wastes.	Surface water features, including the two fishing lakes, Parley Lakes,	Overland	The site will benefit from an engineered drainage system, which will be designed to segregate clean surface water from potentially	Low	Contamination of surface water	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
	which are recharged by a number of small streams, located 50m to the north of the site boundary. Various drains located to the north, south, east and west which are associated with the Moor River, which is located approximately 660m to the north east of the site.		contaminated water. *Surface Water Runoff* All surface water runoff from the soils yard, to the eastern end of the site, will drain to a purpose built silt lagoon. Once the silt has been allowed to settle, the water will be reused and recirculated in the soils wash plant, to reduce the requirement of importing clean water into the system. Surface water runoff from the entrance of the site will flow to an interceptor, where it will be pumped, along secure pipework, to the silt lagoon also. Any unrequired water from the silt lagoon will be pumped to the two vertical reedbeds. Once the runoff has passed through the reedbed system, it will be discharged to surface water at the surface water discharge point (SW1) to the east, as illustrated on Drawing 002. The rain water roof system on all the buildings, will catch the water and allow it to flow to the ditches surrounding the site. *Process Water* Potentially contaminated water from the AD plant, liquid and digestate storage tank area (and the Road Sweepings Plant – currently being submitted as a separate variation application) will be pumped, via secure pipework, to the two vertical aerated reedbeds, located to the south east of the site. All surface water runoff from the southern lagoons will also be pumped, via secure pipework, to a separate pair of reed beds for further treatment. The runoff from these lagoons will also be used as recirculation liquid in the composting windrows, when required. After treatment via the reedbeds, this water will be pumped, via a separate secure pipework system, to sewer and onwards to Palmersford Sewage Treatment Works, to the north of the site. All			
Percolation of contaminated water through site surfaces	Secondary A Aquifer beneath the site.	Percolation through the ground		Low	Contamination of groundwater	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			surface water runoff, after processing by their dedicated pair of reed beds, will be discharged to a neighbouring stream. All runoff from the ABPR waste reception barn will be directly linked to secure pipework to be discharged off site at the sewage treatment works. The hazardous oil containing drilling muds, will be stored separately from the non-hazardous waste also processed at the plant. Only inert and non-hazardous waste codes will be accepted at the site for waste recovery. Accordingly run off from the site will not be contaminated. All deposits of waste will be directly at the excavation site and there will therefore be no direct pathway to surface water receptors. The site manager will be responsible for the engineered drainage system on site.			
Leaks or spillage from storage of liquids	Adjacent land	Run off / percolation	Operational areas of the site will benefit from impermeable surfacing and engineered drainage systems. Tanks will be constructed so that any leaks/spillages will be contained. Tanks will be surrounded by a leakage containment bund capable of containing at least 110% of the volume of the largest tank within the bund. Storage tanks will be constructed to the appropriate British Standard. Tanks will be inspected visually on a regular basis by the site staff to ensure the continued integrity of the tanks, & identify the requirement for any remedial action. Materials suitable for absorbing & containing minor spillages will be maintained on site. The facility buildings, in which potentially polluting materials will be	Low	Contamination of land	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			located, will drain directly to a sealed drainage system, as illustrated on Drawing 002. The site staff will undertake regular monitoring for evidence of spillage and leakage. Alongside regular visual inspections, the tanks will be fitted with level indicators to prevent overfilling. The site manager will be responsible for implementing the spillage & leakage management plan.			
Pests						
Flies & vermin in biodegradable waste Transfer and bulking up of ABPR and source segregated food waste	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.	Via air (flies) or over ground (vermin)	The site will be inspected by both site management and operatives for infestations of pests, vermin and insects on a regular basis. In the event that specific waste is found to be responsible for attracting scavengers or pests, this waste will be removed from site as soon as practicable. All ABPR and food waste destined for transfer off site will be stored and bulked up within an enclosed building. A nominated sub-contractor for the control and monitoring of pests will be appointed. The site manager will be responsible for monitoring for flies and vermin and if necessary implementing remedial action.	Low	Nuisance	**Not significant**
Mud/Litter						
Litter from waste	Potentially sensitive receptors as listed	Airborne litter	The site manager & operatives will inspect the site & surrounding area on a regular basis & will collect any litter & return it to the main	Medium	Nuisance	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
	in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.		waste storage areas. The fencing which will surround the site will act to prevent litter escaping from the site. However, if necessary, additional netting will be erected to reduce the escape of wind-blown litter. Litter arising from the activities shall be cleared from affected areas outside the site as soon as practicable. The site manager will be responsible for monitoring litter and if necessary implementing remedial action in accordance with the BATOT document (SLR Ref: 407.03407.00003/BATOT).			
Mud on roads	Chapel Lane	Transferral of mud on vehicle wheels	Areas of site surfacing will be maintained free of significant quantities of mud & debris. All operational areas will be subject to monitoring by staff throughout the working day to identify accumulations of mud requiring remedial action. Where necessary road cleaning equipment will be deployed to prevent the tracking of mud & debris onto the highway. All vehicles leaving operational areas will, before leaving the site, be cleaned as necessary and will be checked to ensure that they are clear of loose waste & that products being exported from the site are secure. The site manager will be responsible for ensuring that mud on roads does not become a significant hazard in accordance with the Best Available Techniques and Operating Techniques document (SLR	Medium	Mud on road	Not significant

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			Ref: 407.03407.00003/BATOT)			

Table 6 Accidents Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	**What is at risk what do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? – Who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
Unauthorised waste receipt and processing	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.	Via air (odours) Overland to sewers, surface & groundwater	Only waste authorised by the permit will be accepted at the site. Upon delivery waste will be subject to strict waste acceptance procedures to identify, reject and / or segregate potentially non-conforming wastes. All waste will be subject to inspection and checking against the declaration on the waste transfer note. In the event that unauthorised waste is delivered to the site, the waste will be segregated, contained & stored in a designated quarantine area prior to export from site. The Site Manager will be responsible for implementing risk management measures to prevent the acceptance of unauthorised wastes.	Low	Odour nuisance Water contamination	**Not significant**
Fire	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land,	Air Water runoff	Incompatible materials will be stored apart. The hazardous waste storage area (for all oil containing drilling muds) will be appropriately labelled with the correct hazard labels. Hazardous and non-hazardous waste will be stored separately at the road sweepings plant area. The plant inspection schedule will include checks of electrical equipment within the site to ensure that any faults are identified and repaired. Fire extinguishers will be provided at designated locations. Smoking will not be permitted in the operational areas of the site.	Low	Nuisance (smoke and fumes) Water contamination (runoff)	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	**What is at risk what do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? – Who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
	local road network, recreational areas, and the sites of ecological, cultural and natural heritage.		The operators working practices will ensure assessment of fire hazards & training of employees in fire prevention, e.g. in the use of fire extinguishers and emergency procedures. No wastes will be burned on site and any fire at the site will be treated as an emergency. Actions to be taken in the event of a fire: Notify the fire brigade immediately & the EA as soon as practicable; Isolate the burning area & attempt to extinguish the fire utilising the on-site fire extinguishers, if safe to do so; prevent, if possible, contaminated site drainage from entering any un-surfaced ground; & evacuate the site if the fire is not containable. The site manager will be responsible for implementing the fire procedures & action plan.			
Spillage and Leakage	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural	Runoff and percolation through ground	Operational areas of the site will benefit from impermeable surfacing and engineered drainage systems. Tanks will be constructed so that any leaks/spillages will be contained. Tanks will be surrounded by a leakage containment bund capable of containing at least 110% of the volume of the largest tank within the bund. Storage tanks will be constructed to the appropriate British Standard. Tanks will be inspected visually on a regular basis by the site staff to ensure the continued integrity of the tanks, & identify the requirement for any remedial action. Materials suitable for absorbing & containing minor spillages will be maintained on site. The facility buildings, in which potentially polluting materials will be located, will drain directly to an internal foul drainage system. The site staff will undertake regular monitoring for evidence of	Low	Contamination of groundwater & surface water	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	**What is at risk what do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? – Who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
	heritage.		spillage and leakage. Alongside regular visual inspections, the tanks will be fitted with level indicators to prevent overfilling. The site manager will be responsible for implementing the spillage & leakage management plan.			
Security & Vandalism	Site personnel	Unlawful entry to site	The site is fitted with cameras and an alarm which is monitored 24 hours a day by an external security company. Fencing will extend around the perimeter of the site. The gates to the site will be locked closed whenever the site is unattended. Gates & fencing will be inspected regularly by the operations staff to identify deterioration and damage, & the need for any repairs. Fencing & gates will be maintained and repaired to ensure their continued integrity. In the event that damage is sustained repairs will be made by the end of the working day. If this is not possible, suitable measures will be taken to prevent any unauthorised access to the site & permanent repairs will be affected as soon as practicable. All visitors to the site will sign in and out. Operational procedures, including regular inspections, ensure continual monitoring of security provision at the site. The site manager will be responsible for maintenance of site security.	Low	Damage to site personnel & property	**Not significant**
Plant Failure: Breakdown of clean biomass plant, SRF plant, plastics and reject drier, road sweepings plant and the AD plant	Potentially sensitive receptors as listed in Table 2-2, including industrial / commercial premises, residential	Via air	Should any problems, malfunctions or breakdowns occur within the clean biomass plant, SRF plant, plastics and reject drier, road sweepings plant and the AD treatment process, treatment will be stopped until such time as the problems are rectified. If necessary waste will be diverted to alternative facilities to prevent any build up within reception halls. The site manager will be responsible for ensuring regular checks and	Low	Nuisance	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	**What is at risk what do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? – Who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
	premises, areas of open space and agricultural land, local road network, recreational areas, and the sites of ecological, cultural and natural heritage.		maintenance is carried out on all plant and machinery, as per the sites EMS.			
Flooding: Flood water resulting from overburdening of the drainage system	Surface water features, two fishing lakes, Parley Lakes, which are recharged by a number of small streams, are located 50m to the north of the site boundary. Various drains located to the north, south, east and west which are associated with the Moor River, which is located approximately 660m to the north east of the site.	Via overland flow	The site is located within close proximity to, but not within, a flood plain. Notwithstanding this, the design of the drainage and attenuation system will be such that flooding resulting from the overburdening of the drainage system will be mitigated. The site manager will be responsible for implementing flood management techniques in accordance with the Best Available Techniques and Operating Techniques document (SLR Ref: 407.03407.00003/BATOT)	Low	Water pollution	**Not significant**

5.0 CONCLUSION

This environmental risk assessment has been undertaken as described by regulatory guidance EPR H1[3]. The assessment is provided as part of the application for an Environmental Permit Variation for the Parley Waste Management Facility.

Qualitative risk assessment (Annex a) has considered odour, noise, fugitive emissions, dust, releases to water, litter, mud, birds, vermin and insects, and potential for accidents and incidents. The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed development are not likely to be significant.

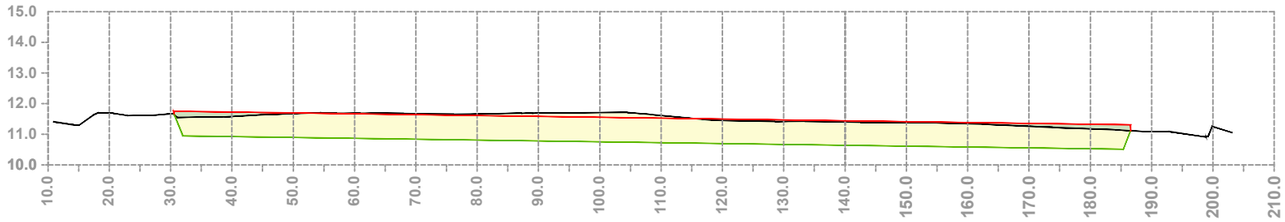
[3] Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, v2.0 April 2010

6.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Eco Sustainable Solutions Limited; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.



SECTION A - A

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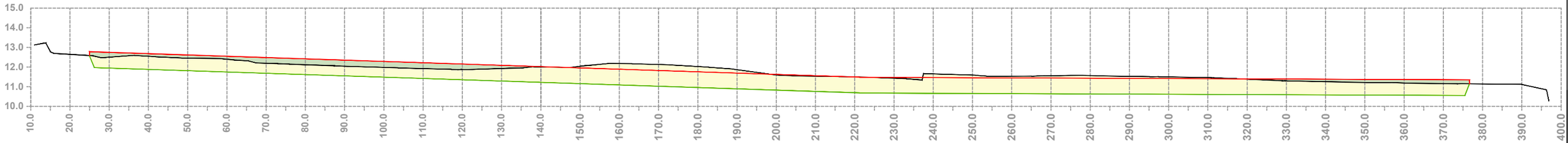

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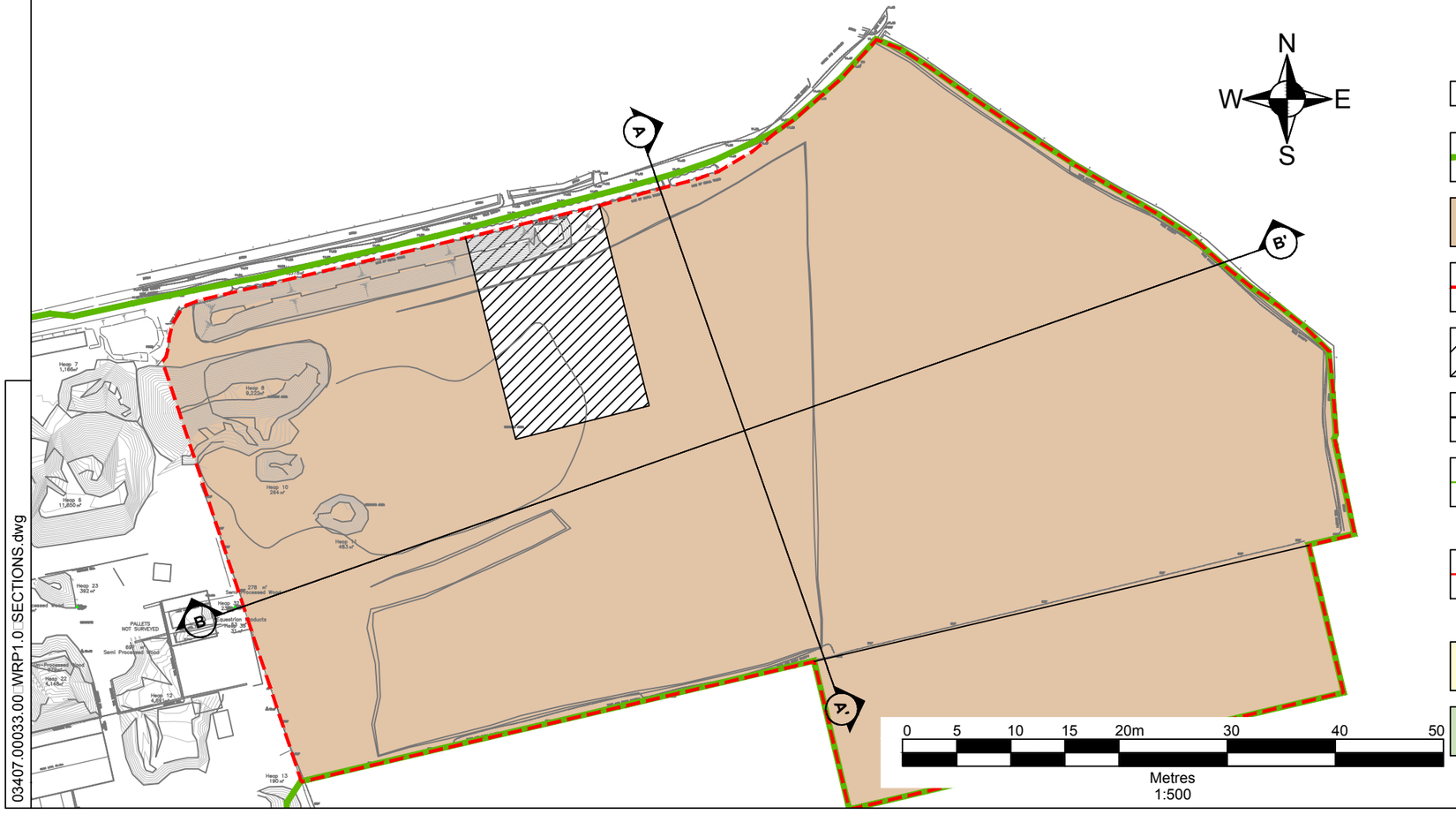

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LEGEND

- ENVIRONMENTAL PERMIT BOUNDARY
- APPROXIMATE AREA OF WASTE RECOVERY
- APPROXIMATE WASTE RECOVERY BOUNDARY
- AREA OF LAND NOT SUBJECT TO WASTE RECOVERY
- EXISTING PROFILE
- PROPOSED SOIL EXCAVATION DEPTH (400 - 600mm SOIL REMOVAL)
- PROPOSED FINAL LEVEL OF HARD SURFACING (800mm OF FILL, BOTH RUBBLE / HARDCORE AND ROLLER COMPACTED CONCRETE)
- EXCAVATION
- FILLING

NOTE

1. DRAWING IS BASED ON DORSET LAND SURVEYING TOPOGRAPHICAL SURVEYS, DRAWING NUMBER 3371 / 0713 DATED JULY 2013 AND DRAWING NUMBER 3371 / 0114, DATED JANUARY 2014.

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PARLEY WASTE MANAGEMENT FACILITY

ENVIRONMENTAL PERMIT VARIATION APPLICATION

ILLUSTRATIVE CROSS SECTIONS

DRAWING WRP1

Scale	Date
AS SHOWN @ A3	OCTOBER 2014

global environmental solutions

Parley Waste Management Facility, Parley, Christchurch

Environmental Permit Variation Application

SLR Ref: 407.03407.00003/WRP

Waste Recovery Plan

Eco Sustainable Solutions Limited

October 2014

CONTENTS

DRAWINGS

1.0 INTRODUCTION

1.1 Background

Eco Sustainable Solutions Limited (Eco) has instructed SLR Consulting Limited (SLR) to prepare a Waste Recovery Plan (WRP) in support of an application for an Environmental Permit Variation for the use of waste in construction at Parley Waste Management Facility.

The location of the site is illustrated on Drawing 001, included in Section 4 of this application.

1.1.1 Site Location & Setting

The site is located in Parley in Christchurch, north of the centre of Bournemouth. The site lies within a predominately rural setting with Bournemouth International Airport and Aviation Business Park located 130m to the south of the site. The entrance to the facility lies adjacent to the access road Chapel Lane to the west. The national grid reference for the site is SZ 102 989 and the site location is illustrated on Drawing 001.

The closest residential property lies 60m to the north of the site, along Chapel Lane. Further properties are located 450m to the west along Barrack Road which include Hurn Honey Farm.

The site lies in close proximity to a number of national and European designated sites within 2km of boundary. The Dorset Heath SAC, the Dorset Heathlands SPA and the Hurn Common SSSI all lie adjacent to the eastern boundary of the site, and extend to the south and west. Parley Common SSSI and the Dorset Heathlands Ramsar lies 20m to the west.

1.1.2 Background

The site is currently permitted under a Consolidated Permit issued by the Environment Agency on 8th October 2010 (EA Reference; EPR/GP3793FY). The site previously operated under three different permits:

- EAWML 23710 issued 22nd December 2003;
- EAWML 23717 issued 18th May 2004; and
- EAWML 23545 issued 26th January 1996.

The current permitted activities comprise of four different waste operations and are operated in the existing permitted area of the site:

- **A1: Open Windrow Composting** – physical treatment, composting and maturation of the types of waste included in Table S2.1 Part A of the permit.
- **A2: In Vessel Composting** - physical treatment, composting and maturation of the types of waste included in Table S2.1 Part B of the permit.
- **A3: Soil Recycling** – treatment including sorting, separation, screening, blending of compost and soils, washing of oversized gravels of the types of waste included in Table S2.1 Part C of the permit.
- **A4: Wood Recycling** – treatment of wood wastes included in Table S2.1 Part D, consisting only of sorting, separation, cutting, pulverising, shredding and chipping for recovery.

This variation seeks to relocate and introduce the following activities in the site extension area, including the following;

- relocation of the soil recycling yard, with associated surface water and silt management lagoon to the eastern area of the extension;
- a road sweepings plant and associated Compost Like Output (CLO) clamps;
- storage of road sweepings processed waste in bays;
- a Solid Recovered Fuel (SRF) plant and associated storage bays;
- bagged bedding plant storage area;
- a drying plant; and
- the reed beds which management all water management from the site.

1.1.3 Planning application

A planning application which includes the use of waste rubble for the engineered surfacing at the site was submitted in August 2014.

1.1.4 Requirement for the development

As part of this overall scheme of works, it is proposed to engineer a suitable base on which to construct the new developed site. The indicative layout of the proposed scheme is shown on Drawing 002.

The construction of the engineered surfacing at the site will provide the necessary space for Eco to expand and develop their current waste operations at site. They will be introducing new waste technologies and plant to separate and recover as many elements of the waste as possible. This in turn will prevent the requirement for waste types that have typically been sent to landfill for disposal.

Largely due to a lack of appropriate infrastructure, the existing site will struggle to manage the increase in the volume of waste accepted on site through this variation application and to adequately mitigate the environmental risks associated with current operations. In order to improve environmental compliance and hence protect the future of the site, major redevelopment has been planned in consultation with the local EA officer, including improvements to site layout, engineered site surfacing, drainage, and containment.

The new development also seeks to ensure that wherever possible waste operations on site will be enclosed within specified plant or buildings, from the point of delivery to the export of the finished products. This therefore, reduces any impacts associated with the treatment of green waste on site.

The development of the site is to provide environmental enhancement, modernisation and the efficient operation of the waste facility.

1.2 Waste Recovery

A legal test derived from the Waste Framework Directive and European Case Law is used to decide whether an activity constitutes disposal or recovery. The Environment Agency guidance states that "*Waste recovery is about using waste to replace other non-waste materials to achieve a beneficial outcome in an environmentally sound manner".*

This Waste Recovery Plan (WRP) has been developed in order to demonstrate that the proposed construction of engineered surfacing constitutes recovery and not disposal by satisfying the requirements of the Environment Agency Guidance Defining Waste Recovery: Permanent Deposit of Waste on Land (EPR13). The WRP specifically addresses the questions as set out in Section 4 of the EA guidance, and also demonstrates that the

proposals satisfy the specific criteria outlined in Appendix 1 of EPR13: Applying the Recovery Test in Practice.

2.0 PROPOSED DEVELOPMENT

The proposed design for the site extension incorporates engineered impermeable surfacing throughout, buildings and covered areas with sealed drainage for all areas of the site used for the storage and treatment of waste for recovery, as illustrated on Drawing 002, included in Section 4 of this application.

The engineered surfacing will require 600mm of insitu material to be removed and replaced with 800mm of fill, of both recovered waste rubble and roller compacted concrete.

The proposed development of the engineered surfacing at Parley Waste Management Facility is illustrated on a series of drawings, as follows:

Drawing 002 illustrates the new layout and infrastructure of the installation; and

Drawing WRP1 illustrates the engineered surfacing scheme and provides cross sections showing the location of the placed construction waste.

Construction of the engineered surfacing in the land for the site extension has already commenced. Soils have been stripped and all excavation work has been completed.

A risk assessment, which includes odour, noise and dust management and mitigation measures, for the waste recovery operations at Parley Waste Management Facility is included in Section 6 of this application.

3.0 WASTE RECOVERY CRITERIA

Section 4 of EPR13 contains a list of questions that need to be addressed in order to demonstrate that a proposed activity is recovery and not disposal, and these questions are considered below.

3.1 Is there a clear benefit from the activity?

It is considered that the proposed redevelopment of the Parley Waste Management Facility is essential in order to ensure that the environmental risks associated with current and future waste management operations can be adequately managed and mitigated, such that compliance with their Environmental Permit can be achieved going forward. The improved site layout, engineered base, surfacing, drainage and containment proposed will each ensure that the all permitted waste management operations will in future take place with the minimum impact on the environment and human health.

The proposed use of waste in engineering a suitable base on which to construct the redeveloped site and the erection of a screening bund around the perimeter of the site will provide the after use with two specific benefits:

- The proposed scheme will provide a suitably engineered base on which to construct a site surface that is fit for purpose (engineering preparation); and
- The proposed scheme will provide protection and containment for the separately permitted waste management activities undertaken within the site.

Each of these benefits is considered in detail below:

3.1.1 Engineering Preparation

The true base of the site consists solely of compacted natural ground. There is no existing site surface and there is also no protection of the ground, groundwater or surface water from potential contamination from the majority of waste which will be stored and treated on the site.

The proposed engineering of this working surface will raise and level the area overall and introduce appropriate falls, such that drainage will be significantly improved. The new concrete surface that will be constructed on the engineered base will in turn be more durable and easier to maintain and keep clean than existing arrangements. The new engineered surfacing will also reduce the likelihood of accidents and make any leaks or spills easier to contain and clear up.

The site is not currently located within a flood zone, however, a flood prediction map made available by the Environment Agency details that the site is surrounded to the north east and south of the area, by land at risk from a 1 in 100 year flood. Therefore, slightly raising the natural base of the site will have the additional benefit of helping to protect it in the event of a major flood and avoid the potential for contamination of flood waters by waste.

3.2 Is the recovered waste material suitable for its intended use?

It is confirmed that only inert and specific non-hazardous waste material that is suitable for its intended use will be used in the recovery activity at Parley Waste Management Facility.

The waste category to be used in the recovery operation is as detailed in Table 3-1.

Table 3-1
Parley Waste Management Facility Waste Types

EWC Code	Description
17 01 07	Mixtures of concrete, bricks, tiles and ceramics not containing dangerous substances
17 05 04	Soil and stones
19 12 12	Aggregates only

The waste type specified in Table 3-1 above is included in Appendix 2 of EPR13 and is also noted as being acceptable under the U1 Exemption; this waste is specifically identified as suitable for use in construction of engineered surfacing.

All material accepted for engineering use at Parley Waste Management Facility for use in the engineered surfacing will be inert or non-hazardous. There is no intention of accepting contaminated materials. Strict material acceptance procedures will be implemented at the site to ensure only uncontaminated inert materials are accepted.

Should any waste, classified under European Waste Catalogue code 17 05 04 - soil and stone, be discovered that may appear to be contaminated, this material would be isolated and quarantined before undergoing further testing to establish its suitability or otherwise, prior to use or disposal, as appropriate.

A copy of the Waste Acceptance Procedure for the Parley Waste Management Facility scheme is enclosed as Appendix C in Section 1 of this application.

These waste acceptance procedures will ensure that only wastes that are chemically and physically suitable for use in the recovery activity will be used on site.

3.3 Is the minimum amount of waste being used to achieve the intended benefit?

The objective of the proposed development is to construct engineered surfacing in accordance with this WRP.

Construction of the engineered surfacing to these specific requirements determines the quantity of material that is required to achieve the specified design. The use of lesser material would not achieve the intended benefit as the design criteria and objectives would not be satisfied.

The total quantity of waste to be used in the construction of the proposed engineered surfacing as shown in Drawing WRP2 is approximately 25,000 tonnes, but the minimum amount will be used as required. As there are no suitable materials on site all materials will need to be imported from off-site sources.

Operations at the site will be undertaken in accordance with Eco's Environmental Management System (EMS), which will also ensure procedures are implemented to ensure appropriate standards are achieved.

Furthermore, the proposed development will be carried out in accordance with the conditions of their Environmental Permit issued and regulated by the Environment Agency under the provisions of the Environmental Permitting (England and Wales) Regulations 2013.

It is therefore concluded that the foregoing factors will ensure that the proposal will be completed to an appropriate standard.

3.4 Is the waste being used as a substitute for non-waste material?

The construction of the engineered surfacing could be completed using non-waste materials. However, given that 25,000 tonnes of imported materials are required to complete the scheme, this option is not considered sustainable as it would represent an unnecessary depletion and waste of natural resources. Using waste materials would avoid the depletion of natural resources and also prevent the landfilling of these materials, thereby promoting sustainability.

It is therefore clear that the waste being used in the construction of the engineered surfacing is being used as a substitute for non waste material.

3.5 Will the proposal be completed to an appropriate standard?

The proposed development of the site including the construction of the engineered base will be carried out in accordance with the scheme approved by the EA and the Planning Authority.

The restoration activities will be supervised by technically competent persons who hold the necessary Certificate of Technical Competence (COTC) under the Waste Management Industry Training and Advisory Board (WAMITAB).

Copies of the WAMITAB certificates are enclosed in Section 1 of this application.

Operations at the site will be undertaken in accordance with an internal Environmental Management System (EMS), which will also ensure procedures are implemented to ensure appropriate standards are achieved. A copy of the site's EMS is provided in Section 1 of this application.

Furthermore the proposed development will be carried out in accordance with the conditions of this environmental permit variation issued and regulated by the Environment Agency under the provisions of the Environmental Permitting (England and Wales) Regulations 2013.

It is therefore concluded that the foregoing factors will ensure that the proposal will be completed to an appropriate standard.

4.0 CONCLUSION

In view of the foregoing details it is concluded that the proposed construction of the engineered surfacing at Parley Waste Management Facility satisfies all the requirements of a recovery operation as:

- there is a clear benefit from the activity;
- the recovered waste material is suitable for its intended use;
- the minimum amount of waste is being used to achieve the intended benefit;
- the waste is being used as a substitute for a non waste material; and
- the proposal will be completed to an appropriate standard.

5.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Eco Sustainable Solutions Limited; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

SECTION 9 – AIR QUALITY AND ODOUR

9.1 INTRODUCTION

Scope of the Air Quality Assessment

9.1.1 This section of the ES has been prepared by GF Environmental Limited. Eco Sustainable Solutions Ltd (Eco) is applying for full planning permission for the following:

> *"Proposed reconfiguration of existing and consented development; introduction of new plant and processes; increase in permitted throughput; partial widening of access road; partial realignment of Bridleway E62/29; new landscaping and associated matters."*

9.1.2 This is referred to as the Comprehensive Planning Application and will broadly comprise of the following elements:

- The comprehensive reconfiguration of existing and consented processes, including the rearrangement of the existing Soils Recycling Area and consented Anaerobic Digestion Facility;
- The modernisation of on-site processes through the introduction of new plant and processes, including Green Waste Composting Windrows, a Digestate Reprocessing Plant, a Compost Handling Centre, a Road Sweepings Plant, an SRF Processing Plant, and the conversion of the existing IVC barn for clean biomass combustion;
- An increase in the overall waste throughput capacity at the site from the currently approved 210,000 tonnes per year to 266,000 tonnes per year;
- The widening of part of the existing access road along Chapel Lane to provide a two-way carriageway;
- The realignment of part of Bridleway E62/29 to the west of the fencing supplies centre and Whitemere House; and
- The provision of a comprehensive landscaping scheme, including the introduction of 7m high screening bunds along the northern and eastern site boundaries, as well as a native tree and shrub planting belt.

9.1.3 The majority of the on-site recycling processes will now be sealed from arrival to dispatch. The comprehensive planning application proposals are intended to provide for the modernisation and efficient operation of the various processes on the Site.

9.1.4 Previous studies undertaken in relation to air quality impacts associated with process operations on the Eco site have considered the impact of emissions from the recently approved Biomass Energy Facility (BEF) and an Anaerobic Digestion (AD) facility. Of particular importance to these studies was consideration of the potential impact of increased levels of nitrogen deposition within the Dorset Heathlands habitat site that surrounds the Eco site. These studies have been updated and amalgamated to take account of changes in the composting of waste and the introduction of the new clean biomass combustion plant that will arise as a result of the comprehensive planning application.

9.1.5 The previous assessment considered the impact of process emissions from the BEF in conjunction with the removal of four diesel generators from the Eco site, and an ~16% reduction in green waste composting capacity through the diversion of oversize biomass materials to the BEF as fuel, in addition to supplying other local biomass CHP systems. Overall, it was shown that the introduction of the BEF and AD facility developments will result in an overall reduction in current levels of nitrogen deposition in the adjoining Dorset Heathland habitat, equivalent to ~7% to 9% of the Lower Critical Load.

9.1.6 The purpose of the detailed air quality assessment presented in this report is to re-evaluate the potential impact of process operations on the Eco site, in light of the proposed changes to be incorporated in the comprehensive planning application. This report provides information on the data used during the modelling, the methodology adopted, assumptions made and the results generated by the model.

ADMS Version 5.0

9.1.7 The modelling software used was ADMS Version 5, one of a range of different models available for modelling the impact of pollutant emissions to atmosphere on local air quality. Those used routinely in the UK for this sort of application include US-EPA models such as AERMOD, and the ADMS models developed in the UK by Cambridge Environmental Research Consultants (CERC).

9.1.8 The ADMS model is described as a “skewed Gaussian model” and is therefore considered to be a new generation air dispersion model. The model can be used to assess ambient pollutant concentrations arising from a wide variety of emissions sources associated with an industrial process. It can be used for initial screening or detailed determination of ground level pollutant concentrations on either a short term basis (up to 24 hour averages) or longer term (monthly, quarterly or annual averages).

9.1.9 The ADMS model incorporates a more rigorous treatment of the interaction between a plume and the boundary layer than earlier models. In ADMS 5 the boundary layer is characterised by the boundary layer height and the Monin-Obukhov length (LMO) and not, as in the case of US-EPA methodologies, by a Pasquill-Gifford stability category. The use of the Monin-Obukhov length enables the variation in boundary layer properties with height to be included in the calculations, providing a potentially more-realistic treatment of plume dispersion under convective conditions.

9.2 MODELLING INPUT DATA

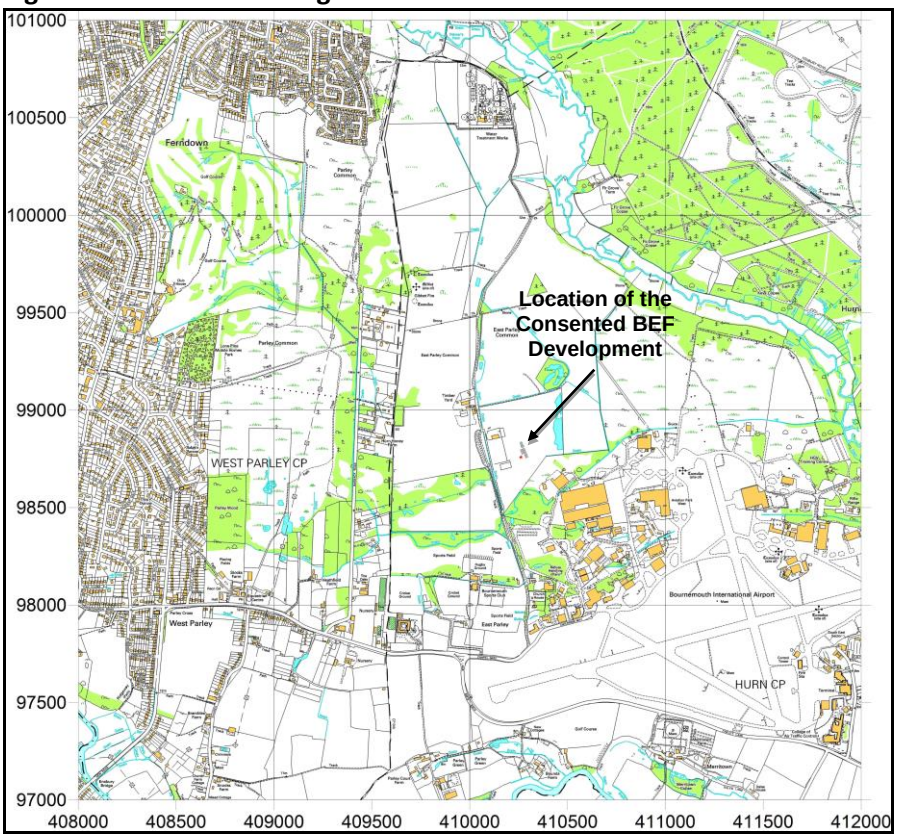
Introduction

9.2.1 This section provides a summary of the input data used in the model. A more detailed discussion is contained within Appendix 9.1.

Site Location and Setting

9.2.2 The Eco Sustainable Solutions site is situated on Chapel Lane, Parley, Dorset. Figure 9.1 indicates the local setting of the site situated at national grid reference 410300, 98800.

Figure 9.1: The Local Setting of the Eco Sustainable Solutions Site



9.2.3 Planning permission was recently granted for an anaerobic digestion (AD) plant on the Eco site that will generate biomethane for injection into the national grid. An air quality assessment was undertaken to assess the potential impact of vehicle emissions associated with the AD facility, and the conclusions of this assessment were incorporated into the current assessment for the comprehensive planning application.

Background to Existing Activities on the Eco Site

9.2.4 Currently, Eco has permission to operate two integrated composting facilities at the site (Green Waste & In Vessel), a soils recycling plant and a wood shredding plant. These facilities receive materials from Local Authority sites and collections, as well as from private companies. Eco supplies products made from these materials back to the local marketplace and other recycling companies.

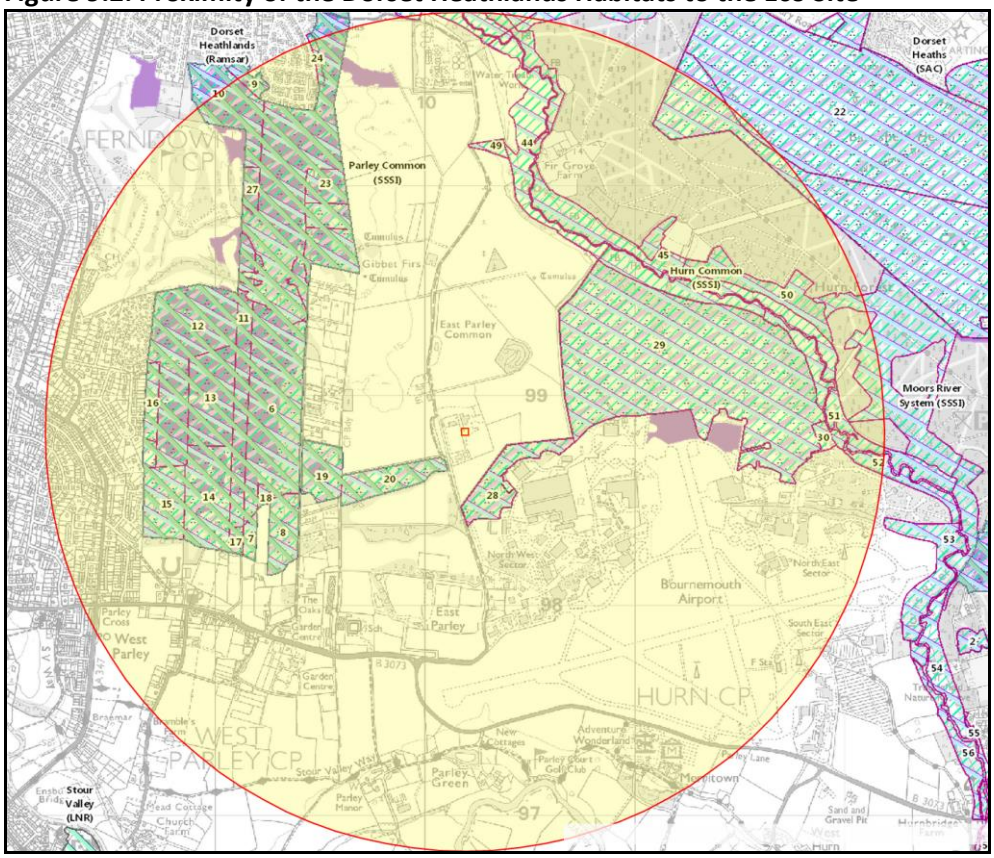
9.2.5 Untreated wood is delivered to the Eco Site for shredding and either composting on site or removal from site for further processing elsewhere. The wood waste presently shredded on site will now be sent to the BEF for the purpose of recovering the inherent energy content, instead of being removed from site for export to biomass CHP facilities as far afield as Sweden. Oversize material from the green waste composting process will also be sent to the BEF.

9.2.6 The land used by Eco Sustainable Solutions Ltd extends to some 200 hectares and is situated within the Dampney's Trust landholding. The waste management operations are contained within the Chapel Lane site that covers approximately 7.1 hectares, while the permitted site that includes the approved AD facility comprises a total of 11.5 hectares. The majority of the land surrounding the Chapel Lane site is now set aside for solar photovoltaic panels. To the south is an area of land under restoration to heathland. The nearest residential property is located approximately 400m north of the site. Other properties are situated approximately 750m south, due west and north-west of the Site.

9.2.7 Bournemouth International Airport is located approximately 500m to the south of the Development. An application has been made to the Local Planning Authority to increase number of passengers using the airport to 1.8million per year by 2010 and to 3million per year by 2015. The resulting development will increase the number of vehicle movements both on and off the airport, will increase the number of aeroplane movements both on the ground and airborne, and, increase the number of ancillary services associated with the operation of the airport. The airport is currently the most significant local contributor to background levels of pollutants such as NOx.

9.2.8 The local environment is dominated by lowland heath habitats. The local soils are deficient in nutrients and as a result have developed a natural character that has been designated with Site of Special Scientific Interest (SSSI) status. Surrounding the Site there are three SSSIs: Parley Common, St Leonards and St Ives Heaths, and Hurn Common. These habitats also form part of the Ramsar, SPA and SAC habitats associated with the wider European-designated Dorset Heathlands. The locations of these are highlighted in Figure 9.2 below. The local environment is therefore particularly sensitive to nitrate loading and as such the potential impact of oxides of nitrogen (NOx) and ammonia released from combustion sources, such as the BEF and the proposed clean biomass plant, and the green waste composting activities.

Figure 9.2: Proximity of the Dorset Heathlands Habitats to the Eco Site



Plant Details

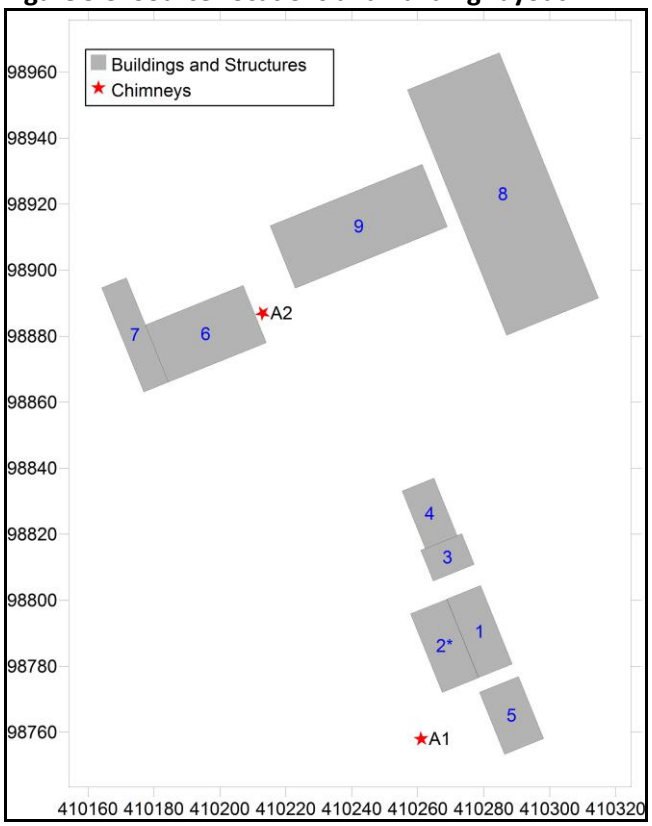
9.2.9 ADMS requires that sources of emissions are defined in terms of dimensions, location and physical characteristics of temperature and velocity. This modelling study has been carried out to assess the potential impact on local air quality due to releases of atmospheric pollutants from the chimneys associated with the BEF and the proposed clean biomass plant.

9.2.10 The BEF comprises of a biomass combustion process with a single operational line, with a dedicated exhaust flue within a single stack (A1). The plant will generate renewable electricity and also recover some of the heat from the hot flue gas for use on-site. The BEF will be operational for about 8,000 hours (90%) a year. The remainder of the time the unit will be offline for routine maintenance.

9.2.11 The clean biomass plant will incorporate a Uniconfort Global 500 biomass boiler that will utilise ~15,000 tpa of clean biomass fuel in a conventional combustion plant with a thermal rating of ~7 MWth. The clean biomass plant will generate ~5.8 MWth of hot water for on-site use. Fluegas generated by the combustion of the clean biomass fuel will be discharged to atmosphere from a dedicated flue within a single stack (A2).

9.2.12 The locations of the modelled stacks, relative to nearby on-site buildings and structures are presented in Figure 9.3. Buildings are discussed further in the sections below.

Figure 9.3: Source Locations and Building Layout



9.2.13 The numbering sequence refers to the buildings and structures associated with the BEF and the clean biomass plant. The results of the modelling were also used to confirm the required height of the chimney associated with the clean biomass plant.

Emissions Data – Biomass Energy Facility

9.2.14 Modelling was undertaken using the emission limit values (ELVs) for waste co-incineration plant as defined in the Industrial Emissions Directive (IED) as the basis of determining the maximum pollutant mass emission rates from the proposed BEF. As such, the emissions limits used in the modelling process should be seen as a worst case scenario and are higher than those the plant would actually produce. This is because it would not be practicable to operate the plant continuously on the IED limit without frequently exceeding the limit, such action leading to the suspension of the Environmental Permit that will be required from the Environment Agency to operate the facility.

9.2.15 The emissions data were calculated from fluegas process information provided by Imtech Energy , likely technology providers, and are summarised in Table 9.1 and Table 9.2 below.

Table 9.1: Emission Source Parameters

Parameter	Line 1
Stack Height (m)	22
Stack Diameter (m)	0.85
Efflux Temperature (°C)	118
Efflux Velocity (m s^{-1})	15.1
Location (x,y)	410261,98758

Table 9.2: Modelled Emissions Data (Maximum)

Substance	Long Term (g/s)	Short Term (g/s)
NO_X	1.635 (200)	3.270 (400)
SO_2	0.409 (50)	1.635 (200)
CO	0.409 (50)	1.226 (150)
PM_{10}	0.082 (10)	0.245 (30)
HF	0.0082 (1)	0.033 (4)
HCl	0.082 (10)	0.491 (60)
VOC	0.082 (10)	0.164 (20)
Dioxins	5.43E-10 (0.066 ng Nm^{-3})	5.43E-10 (0.066 ng Nm^{-3})
Metals		
Cd, Tl	2.72E-4 (0.03 mg Nm^{-3})	2.72E-4 (0.03 mg Nm^{-3})
Hg and its compounds	2.72E-4 (0.03 mg Nm^{-3})	2.72E-4 (0.03 mg Nm^{-3})
Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V	2.72E-3 (0.03 mg Nm^{-3})	2.72E-3 (0.03 mg Nm^{-3})

9.2.16 The above pollutant discharge rate are based upon a fluegas volumetric flowrate of 29,434 Nm3 hr-1 (IED reference conditions of 11% O2, dry and STP). Pollutant discharge rates were calculated by multiplying the fluegas volumetric flowrate data provided by Imtech Energy by the appropriate IED ELV, both of which are based upon the same reference conditions. Emissions of

metals, and dioxins and furans, were based upon the 6% O2 reference basis for co-incineration plant, corrected to 11% O2.

9.2.17 It is proposed that the BEF will be equipped with an air pollution control (APC) system that is considered to be Best Available Techniques (BAT). Exact details of the APC system will be detailed as part of the Environmental Permit determination process that will be undertaken with the Environment Agency. The NOx modelling was therefore undertaken on the basis of emission data shown in Table 9.2 and reported on the basis of an emission rate equivalent to 100% of the IED ELV.

Clean Biomass Plant

9.2.18 The clean biomass plant will utilise non-waste biomass fuels and therefore will not be subject to the same operational constraints as the BEF. The emissions data were calculated from fluegas process information provided by Eco Link Power Ltd, likely technology providers, and are summarised in Table 9.3 and Table 9.4.

Table 9.3 Emission Source Parameters

Parameter	Line 1
Stack Height (m)	15
Stack Diameter (m)	0.7
Efflux Temperature (°C)	160
Efflux Velocity (m s^{-1})	15.4
Location (x,y)	410213,98887

Table 9.4: Modelled Emissions Data (Concentration)

Substance	Long Term (g/s)
NO_X	0.299 (80)
SO_2	0.187 (50)
CO	0.187 (50)
PM_{10}	0.037 (10)
HF	0.004 (1)
HCl	0.037 (10)
VOC	0.37 (10)

9.2.19 The above pollutant discharge rate are based upon a fluegas volumetric flowrate of 13,435 Nm3 hr-1 (11% O2, dry and STP). Pollutant discharge rates were calculated by multiplying the fluegas volumetric flowrate data provided by Eco Link by the appropriate ELV, both of which are based upon the same reference conditions. Emissions of metals, and dioxins and furans, were not

considered in the assessment for the clean biomass plant as the fuels do not include any waste materials.

Atmospheric Chemistry & Background Pollutant Concentrations

9.2.20 The atmospheric chemistry module in ADMS was not used for the current assessment. Instead, an empirical approach in the Environment Agency's guidance on the modelling of NOx emissions from combustion process, was used to calculate annual average and hourly average NO_2 ground-level concentrations from model reported average NOx concentrations.

Equation 1

Calculation of Annual Average NO_2 Predicted Environmental Concentration (PEC)

(Annual NOx Modelled x 0.7) + Annual NO_2 Monitored

Equation 2

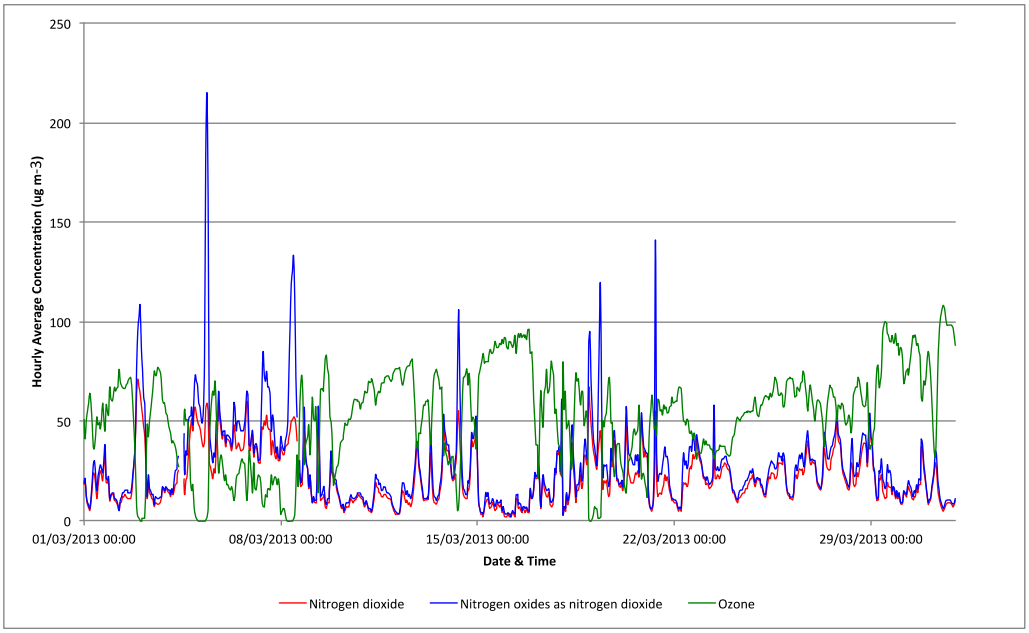
Calculation of Hourly Average NO_2 Predicted Environmental Concentration (PEC)

(Hourly NOx Modelled x 0.35) + (Annual NO_2 Monitored x 2)

9.2.21 This method may overestimate the PEC for NO_2 in close proximity to the site as conversion of NOx to NO_2 is unlikely to be instantaneous, as it requires mixing of the plume with the ambient air and its associated oxidant species (O3, etc.).

9.2.22 Atmospheric chemistry in the Parley area is not constant, as shown by data recorded at the Bournemouth urban background AURN monitoring station (nearest monitoring station in the AURN Network), that provide a reasonable indication of the air quality conditions in the area around the development site. Archive data for March 2013 show the variability of hourly average NOx, NO_2 and ozone concentrations, and indicate that the availability of atmospheric oxidants such as ozone is significantly lower at certain times, and varies significantly on a daily basis.

Figure 9.4: Variation in Hourly Average NO_X, NO_2 and Ozone Concentrations at the Bournemouth AURN Site – March 2013



9.2.23 As can be seen, the NOx and ozone curves tend to mirror one another, with NO_2 comprising the majority of the NOx for the majority of the time when ozone concentrations are higher. Similar patterns are exhibited for other months throughout the year.

9.2.24 The NOx/NO_2 concentrations are markedly higher when ozone concentrations are lower, with NOx being the dominant species (higher levels of nitric oxide). Under these variable conditions, the atmospheric transformation of NOx to NO_2, associated with emissions from the BEF, will be affected to a varying degree. Accordingly, there is likely to be a proportion of the year when the atmospheric chemistry in the Parley area may be restricted in its capacity to convert NOx to NO_2 and the model predictions may overestimate the significance of annual average NO_2 predictions at receptors in the vicinity of the development site.

9.2.25 Background air quality data were obtained from the DEFRA 2010-based Background Maps website in the form of estimated data for the Eco site and the surrounding area.

9.2.26 The predicted annual average background NO_2 concentration for 2014, the year when the BEF is expected to be operational, used within the assessment was 12.8 µg m-3 for the 1 km2 grid square adjacent to the Eco site. Estimates for other pollutants were also obtained from the DEFRA website and are summarised in Table 9.5.

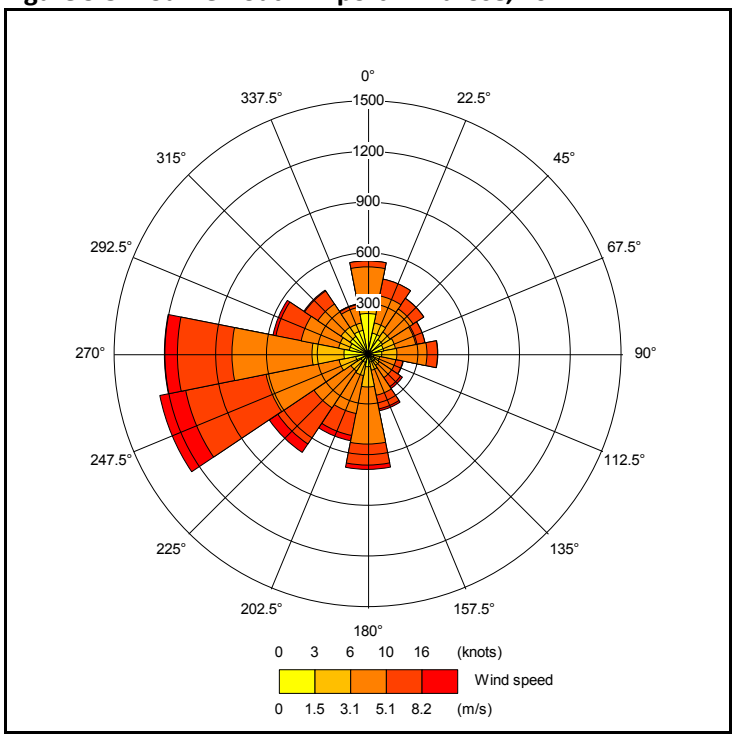
Table 9.5: Estimated Background Pollutant Concentrations in the Vicinity of the Eco Site

Pollutant	Baseline Year	Concentration (µg m^{-3})
NO_2	2014	12.8
NO_x	2014	17.3
PM_{10}	2014	14.2
$PM_{2.5}$	2014	9.5
SO_2	2005*	2.2*
CO	2014**	126**
Benzene	2014**	0.29**
Note: * 2001 estimate corrected to 2005 as per LAQM TG(03) guidance ** Projected forward from 2001 data using the DEFRA Year Adjustment Calculator		

Meteorological Data

9.2.27 Meteorological data from Bournemouth Airport, approximately 1 km from the proposed location of the BEF Facility, for 2008 to 2012 were utilised. These data sets did not contain a full compliment of cloud cover data and were therefore supplemented with cloud data from the nearby Boscombe Down measurement station. The windrose for 2011 is shown in Figure 9.5; the windroses for 2008 to 2012 are presented in Appendix 9.3.

Figure 9.5: Bournemouth Airport Windrose, 2011



9.2.28 The data indicate a predominance of winds from a westerly to south-westerly direction with a significant proportion from the south and the north-east. The meteorological data included nine parameters defined in Table 9.6.

Table 9.6: Modelled Meteorological Parameters

Parameter	Description
YEAR	Year of observation
TDAY	Julian Day (1 to 366) of observation
THOUR	Hour of Observation
T0C	Temperature (ºC)
U	Wind speed (m s^{-1})
PHI	Wind Direction (nearest 10 degrees)
P	Precipitation (mm)
CL	Cloud cover (Oktas)
RHUM	Relative Humidity (%)

Local Environmental Conditions

9.2.29 Local environmental conditions describe the factors that might influence the dispersion process (such as nearby structures, sharply rising terrain, etc.) and also describe the locations at which pollutant concentrations are to be predicted. These include:

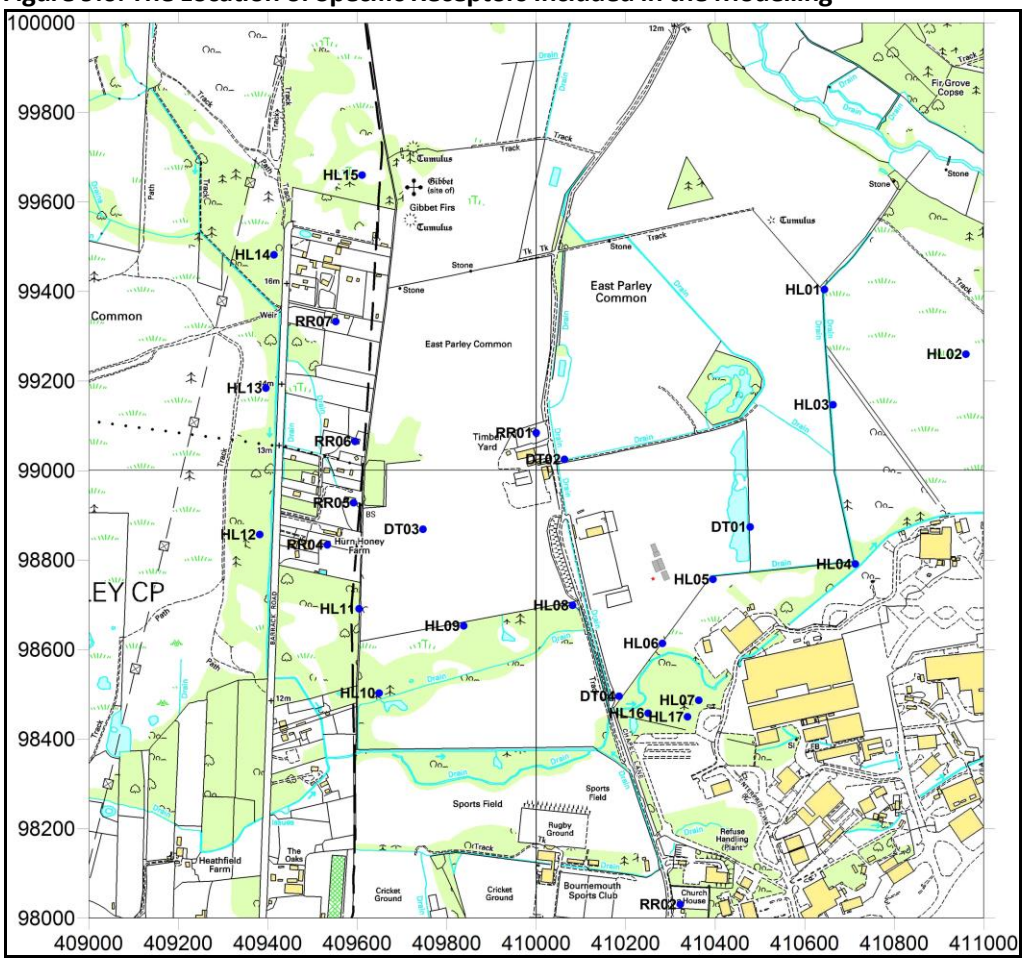
Nearby Buildings and Structures

9.2.30 The proximity of buildings or solid structures to an emission source can affect the dispersion of a plume, particularly in the vicinity of that structure. The potential impact of this occurring was assessed based on the data presented in Table 9.7 and graphically in Figure 9.3. This is discussed in greater detail in Appendix 9.1.

Table 9.7: Modelled Building Data Incorporated into the Model

Building	Height (m)	Length (m)	Width (m)	Angle (°)	Main Building
Main Combustion Plant Building (2)	16.3	25.6	11.842	158	✓ (BEF)
Main Combustion Plant Building (1)	9.5	25.6	10.969	158	
Fuel Reception (4)	9.257	18.813	10.355	158	
Prepared Fuel Store (3)	4.72	10	13.355	158	
Air Cooled Condenser (5)	15	20.2	12.7	158	
IVC Barn Building – Section 1 (6)	9	32	18.6	68	✓ (CBP)
IVC Barn Building – Section 2 (7)	2	34	8	158	
Proposed SRF Plant (8)	9	80.123	30	158	
Bagging Plant (9)	8	49.626	20.335	68	

Figure 9.6: The Location of Specific Receptors Included in the Modelling



9.2.31 The first two characters of the receptor name denote whether the receptor represents heathland (HL), the location of the deployed diffusion tubes (DT), or a residential receptor (RR).

Sensitivity Analysis

9.2.32 The model was run on the basis of the conclusions from a sensitivity analysis undertaken to determine the environmental parameters that have the most significant impact on the predicted ground-level concentrations . The parameters assessed were:

- Surface Roughness;
- Buildings;
- Meteorological Data;
- Terrain.

9.2.33 The results showed that building downwash effects had a significant impact on model predictions, while terrain effects were shown to be insignificant. A surface roughness factor of 0.3m was considered to be the most appropriate description for the area surrounding the Eco site, and the 2011 meteorological data for Bournemouth International Airport were shown to provide worst case conditions or dispersion.

9.2.34 Subsequent detailed modelling incorporated the above results from the sensitivity analysis.

Chimney Height

9.2.35 The previous assessment undertaken for the BEF confirmed that a chimney height of 22 metres would provide effective dispersion of emissions to atmosphere, which was subsequently confirmed by detailed assessment.

9.2.36 For the clean biomass plant, a D1 calculation was undertaken based upon the process data and pollutant discharge data in Table 9.3 and Table 9.4, which indicated that a chimney height of 12 metres was required to provide effective dispersal of pollutants. The output from the D1 calculation is appended to this report (Appendix 9.2).

Iterative Modelling of Stack Heights

9.2.37 As stated above, atmospheric dispersion modelling provides a more rigorous approach to assessing the requirements for chimney height.

9.2.38 The ADMS model was configured to run using the same input profile with the only variable being the stack height, which was increased in 1m increments. This was based on a surface roughness of 0.3m and the building effects module activated. In view of the sensitivity of the surrounding lowland heath to nitrate deposition, the assessment was carried out on the basis of the Process Contribution (PC) to background NO_2 concentrations.

9.2.39 The model was setup to model emissions of NOx, and considered the impact on the Process Contribution to annual average NO_2 concentrations. The results from the ADMS modelling are presented in Table 9.9 and Figure 9.7.

9.2.40 When setting up a receptor grid it is important to ensure that there are sufficient receptor points to able to predict the magnitude and location of the maximum concentration. If the grid of receptor points is too widely spaced, the maximum concentration may be missed.

9.2.41 A receptor grid covering an area 4 km x 4 km in a 101 x 10 grid with 40 metre spacing was incorporated into the model in order to assess the potential impact of pollutant emissions from the BEF on air quality in the surrounding area. In addition, 26 specific receptor locations were modelled. Their details are presented in Table 9.8 and Figure 9.6.

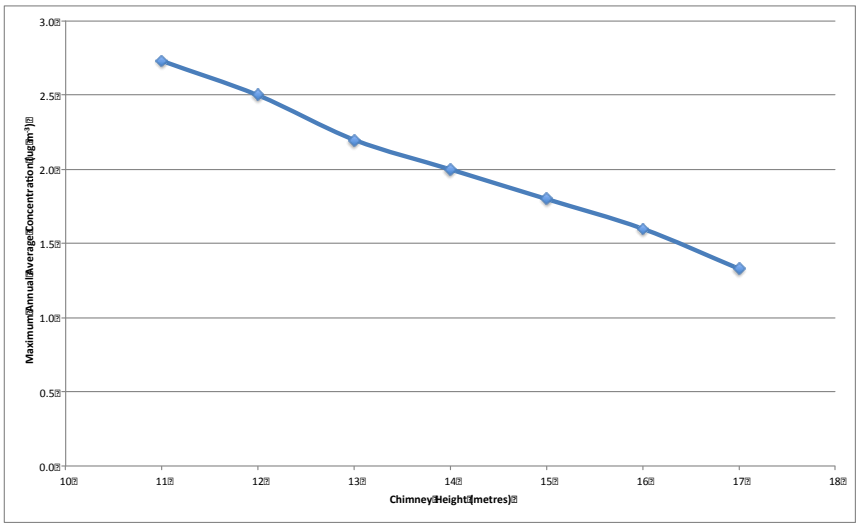
Table 9.8: Results from Iterative Chimney Height Assessment – PC NO_2

Stack Height (m)*	Annual Average PC (µg m^{-3})	Annual Average PC as Percentage of AQS**
11	2.7	6.8%
12	2.5	6.3%
13	2.2	5.5%
14	2.0	5.0%
15	1.8	4.5%
16	1.6	4.0%
17	1.3	3.3%

* Note this was based on: Surface Roughness – 0.3 metres; Building Effects Module – Active; Terrain Module – Inactive; Release Height – Variable; Meteorological Data – Bournemouth 2011

** Assessment level based on the 40 µg m^{-3} Annual Average objective limit.

Figure 9.7: Maximum Annual Average PC for NO_2 Associated with Different Chimney Heights for the Proposed Clean Biomass Plant



9.2.42 The results show a gradual reduction in the maximum annual average NO2 Process Contributions with increasing chimney height up to a height of 17 metres. The results from the D1 calculation indicated that a chimney height of at least 12 metres was required, nevertheless, Eco's technology providers have designed the chimney of the clean biomass plant to be 15 metres in height. This will provide additional dispersion capability and minimise the risk of exposure to emissions from the clean biomass plant for people living and working nearby, as well as minimising nitrogen deposition in the surrounding heathland habitat.

9.3 DETAILED ASSESSMENT OF AIR QUALITY IMPACTS

Introduction

9.3.1 The Bio-Energy Facility (BEF) does not form part of the comprehensive planning application but is included in the air quality assessment to fully understand the cumulative impact of emissions from process operations carried out on the site as a whole. Detailed atmospheric dispersion modelling was undertaken on the basis of the following conclusions of the sensitivity analysis as follows:

- BEF release height: 22 metres
- Clean biomass plant release height: 15 metres
- Building module: active
- Terrain effects: inactive
- Surface roughness: 0.3 metres
- Meteorological data: Bournemouth International Airport 2011

9.3.2 When operational, the BEF will be regulated under the conditions of an Environmental Permit will be required prior to operation which will contain emission limit values specified by the Industrial Emissions Directive for NO_X, SO_2, CO, Particles (PM_{10}), VOCs, HCl, HF, mercury and its compounds, cadmium and thallium and their compounds, Group 3 metals, and dioxins and furans. Detailed atmospheric dispersion modelling for all of these pollutants will also be required as part of an air quality assessment, and H1 Environmental Risk Assessment, to support the Environmental Permit application.

9.3.3 As the clean biomass plant will not burn any fuel that is classified as waste, it will not be subject to the same regulatory regime as the BEF, and therefore the assessment considered only the potential impact on local air quality of emissions of NO_X, SO_2, Particulates (PM_{10} and $PM_{2.5}$), CO and VOCs, which are normally considered in relation to air quality impacts associated with clean biomass combustion plant.

9.3.4 The results from detailed modelling are presented in the following section. Results are presented in terms of the maximum Process Contribution (PC), and also as the Predicted Environmental Concentration (PEC) taking into account the PC and the estimated background concentration for the area, where available.

Determining Significance.

NO_2 and PM_{10}

9.3.5 The descriptive terms for the impact significance for NO_2 and PM_{10} are based on those published in Development Control: Planning for Air Quality (2010 Update) prepared by Environmental Protection UK. The descriptors are reproduced in Table 9.9, Table 9.10 and Table 9.11 below.

Table 9.9: Definition of Impact Magnitude for Changes in Annual Mean Nitrogen Dioxide and PM_{10} Concentration

Magnitude of Change	Annual Mean Nitrogen Dioxide	Annual Mean PM_{10}
Large	Increase/decrease >4 µg/m^3	Increase/decrease >1.8 µg/m^3
Medium	Increase/decrease 2 - 4 µg/m^3	Increase/decrease 0.9 - 1.8 µg/m^3
Small	Increase/decrease 0.4 - 2 µg/m^3	Increase/decrease 0.2 - 0.9 µg/m^3
Imperceptible	Increase/decrease <0.4 µg/m^3	Increase/decrease <0.2 µg/m^3

Table 9.10: Air Quality Impact Descriptors for Changes to Annual Mean Nitrogen Dioxide Concentrations

Absolute Concentration in Relation to Standard	Change in Concentration		
	Small	Medium	Large
Decrease concentration with scheme			
Above standard without scheme (>40 µg m^{-3})	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Standard without scheme (36-40 µg m^{-3})	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below standard without scheme (30-36 µg m^{-3})	Negligible	Slight Beneficial	Slight Beneficial
Well Below standard without scheme (<30 µg m^{-3})	Negligible	Negligible	Slight Beneficial
Increase With Scheme			
Above standard with scheme (>40 µg m^{-3})	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Standard with scheme (36-40 µg m^{-3})	Slight Adverse	Moderate Adverse	Moderate Adverse
Below standard with scheme (30-36 µg m^{-3})	Negligible	Slight Adverse	Slight Adverse
Well Below standard with scheme (<30 µg m^{-3})	Negligible	Negligible	Slight Adverse

Table 9.11: Air Quality Impact Descriptors for Changes to Annual Mean PM_{10} Concentrations at a Receptor

Absolute Concentration in Relation to Objective/Limit Value	Change in Number of Days *		
	Small	Medium	Large
Increase with Scheme			
Above Objective/Limit Value *With* Scheme (>35 days)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Objective/Limit Value *With* Scheme (32 to 35 days)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objective/Limit Value *With* Scheme (26 to 32 days)	Negligible	Slight Adverse	Slight Adverse

Absolute Concentration in Relation to Objective/Limit Value	Change in Number of Days *		
	Small	Medium	Large
Well Below Objective/Limit Value *With* Scheme (<26 days)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objective/Limit Value *With* Scheme (>35 days)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Objective/Limit Value *With* Scheme (32 to 35 days)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objective/Limit Value *With* Scheme (26 to 32 days)	Negligible	Slight Beneficial	Slight Beneficial
Well Below Objective/Limit Value *With* Scheme (<26 days)	Negligible	Negligible	Slight Beneficial

Other Pollutants

9.3.6 The Environment Agency provides guidance for screening the significance of air quality impacts associated with the operation of industrial processes. For long term impacts Horizontal Guidance Note H1 recommends a 1% significance threshold relative to a long term AQS or environmental assessment level, with a corresponding 10% significance threshold for the assessment of short term impacts.

Process contributions can be considered insignificant if:

- the long term process contribution is <1% of the long term environmental standard; and
- the short term process contribution is <10% of the short term environmental standard

The long term process contribution 1% threshold is based on the judgements that:

- it is unlikely that an emission at this level will make a significant contribution to air quality since process contributions will be small in comparison to background levels, even if a standard is exceeded;
- the proposed 1% threshold is also two orders of magnitude below the standard and provides a substantial safety margin to protect health and the environment.

The short term 10% process contribution threshold is based on the judgements that:

- spatial and temporal conditions mean that process contributions are more likely to dominate ambient environmental concentrations;
- short term background concentrations can be assumed to be twice long term concentrations;
- the proposed 10% threshold is an order of magnitude below the standard and provides a substantial safety margin to protect health and the environment.

9.3.7 For all other pollutants considered as part of this assessment the following assessment thresholds were used, as recommended by the Environment Agency in EPR H1:

- A PC of less than 1% of the annual average objective limit should be considered insignificant.

- A PC less than 10% of the short-term (hourly) average objective limit should be considered insignificant.

9.3.8 The modelled source and emissions data used in the detailed assessment of emissions from the BEF and the clean biomass plant are summarised in Table 9.1, Table 9.2, Table 9.3 and Table 9.4.

Detailed Modelling – Air Quality Assessment

9.3.9 The impact of emissions from the BEF and the clean biomass plant were assessed in line with the national air quality standards and objective limits (where applicable) and against pollutant-specific Environmental Assessment Limits (EALs) detailed in the Environment Agency's Horizontal Guidance Note H1 Annex F.

9.3.10 The results from detailed modelling are presented in the following sections.

Nitrogen Dioxide (NO2)

9.3.11 The results of the NO2 modelling are presented in Table 9.12, and represent the values at the location of maximum Process Contribution across the 4km x 4km output grid.

9.3.12 The data presented are for both the Process Contributions (PC) and the Predicted Environmental Concentration (PEC) for NO2. The PEC values take into account the estimated background NO2 concentration for the general area in the vicinity of the Eco site for 2014 of 12.8 µg m-3, and the conversion of the NOx released from the process, based upon empirical formulae endorsed by the Environment Agency's AQMAU.

Table 9.12: Modelling Predictions for Oxides of Nitrogen and Nitrogen Dioxide

Pollutant	Statistic	BEF		Clean Biomass Plant		Cumulative Impact	
		Concentration (µg m^{-3})	PC/PEC as %AQS/EAL	Concentration (µg m^{-3})	PC/PEC as %AQS/EAL	Concentration (µg m^{-3})	PC/PEC as %AQS/EAL
NO_X	Annual (PC)	~7.2	~24	~2.6	~9	~8.0	~27
	Short Term 100% (PC)	~120	-	~33	-	~120	-
NO_2	Annual (PEC)	~18	~45	~15	~37	~18	~46
	Annual (PC)	~5.1	~13	~1.8	~4.5	~5.6	~14
	Short Term 99.79% (PEC)*	~61	~30	~34	17	~62	~31
	Short Term 99.79% (PC)*	~35	~17	~8	~4	~37	~18

9.3.13 The results from modelling predicted that under Normal Operating conditions, the maximum annual average NO_2 PEC for the BEF would be ~18 µg m-3, or about 45% of the 40 µg m-3 annual AQS objective value, and can be screened out as insignificant in terms of Environment Agency guidance. The corresponding value for the clean biomass plant was ~15 µg m-3, or ~37% of the AQS objective value, and can also be screened out as insignificant. The cumulative maximum annual average NO_2 PEC was predicted to be ~18 µg m-3, or ~46% of the AQS objective value and can be screened out as insignificant.

9.3.14 The maximum annual average NO_2 PC across the receptor grid due to emissions from the BEF was predicted to be ~5 µg m-3, or ~13% of the annual objective. This was located ~160 metres to the north-east of the chimney of the BEF. The corresponding value for the clean biomass plant was predicted to be ~1.8 µg m-3, or ~5% of the AQS objective value, while the cumulative impact was predicted to be ~6 µg m-3, or ~14% of the objective value.

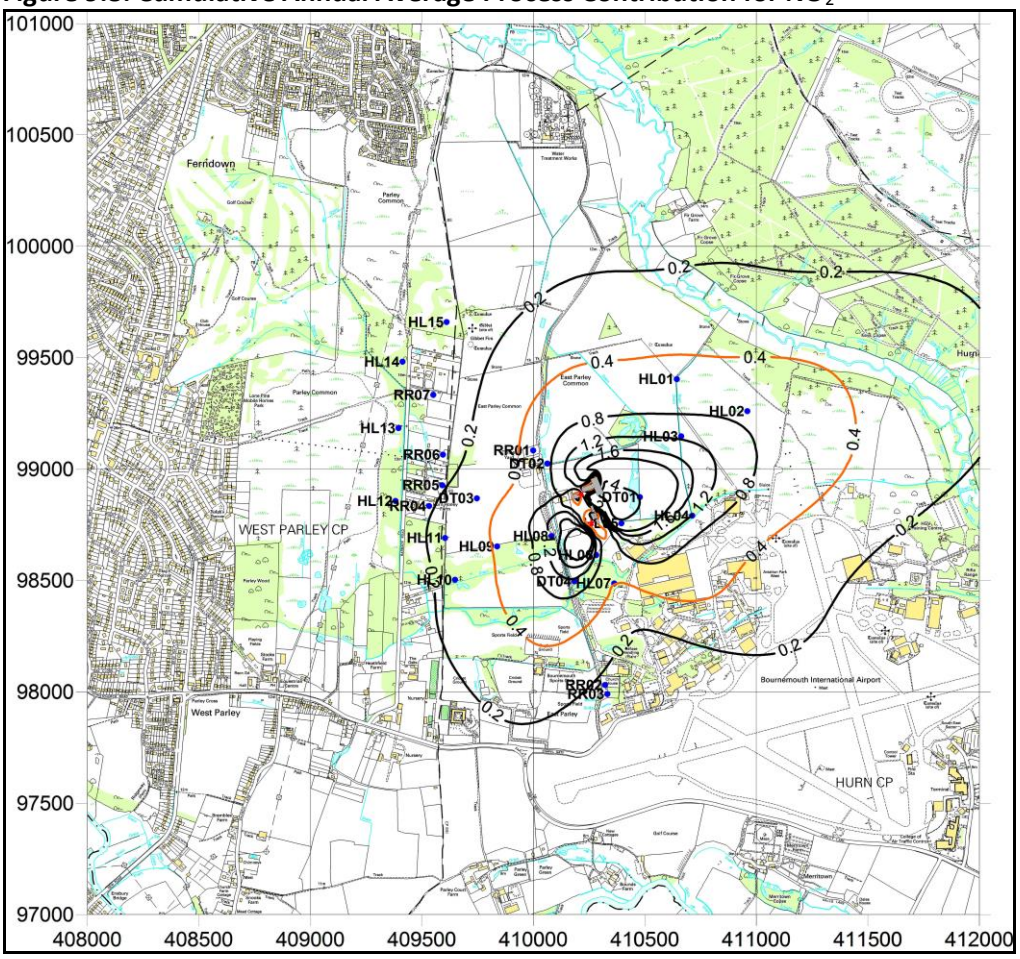
9.3.15 Based on the Environmental Protection UK descriptors presented in Table 9.9 and Table 9.10, the process contribution at the location of the maximum Process Contribution represents a large increase with a slight adverse impact. However, the Process Contribution decreases rapidly with distance from the site and at nearby residential receptors the impact becomes negligible (see Section 9.4).

9.3.16 The maximum hourly average NO2 PEC, expressed as the 99.79th percentile value, was predicted to be ~60 µg m-3, or approximately 30% of the 200 µg m-3 AQS objective value. The corresponding value for the clean biomass plant was ~34 µg m-3, or ~17% of the objective value.

9.3.17 The above estimates are based upon worst-case emissions of NOx at the appropriate emission limit value, and an estimated background concentration value for NO_2 of 12.8 µg m-3 for the general area around the Eco site in 2014, when the facility is expected to be operational. It should be noted that the above data relate to the location of maximum Process Contribution, and are therefore greater than other values across the remainder of the modelled output grid, and in particular, greater than would be expected at the nearby residential receptors (see Section 9.4).

9.3.18 The annual average Process Contribution for NO_2 associated with the operation of both the BEF and the clean biomass plant is presented graphically in Figure 9.8.

Figure 9.8: Cumulative Annual Average Process Contribution for NO_2



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9.3.19 The orange contour line represents a value of 0.4 µg m-3, or 1% of the annual average AQS objective value. Accordingly, in line with Environment Agency guidance the impact of increased NO_2 concentrations in areas outside this contour, can be screened out as insignificant.

9.3.20 The maximum cumulative Process Contribution to annual average NO_2 concentrations across the 4km x 4km area above is ~6 µg m-3, and at the nearest residential property, RR01 adjacent to the Eco site, the Process Contribution is ~0.5 µg m-3, or ~1% of the annual AQS above background. Therefore, the cumulative annual average NO_2 Process Contribution associated with emissions from the BEF and the clean biomass plant can in all likelihood be considered as insignificant in relation to the Environment Agency's assessment criteria in Horizontal Guidance Note H1.

9.3.21 The Environment Agency also specifies a significance threshold of 10% for short-term model predictions, therefore, for hourly average Process Contribution values for nitrogen dioxide, a value of 20 µg m-3 or below can be considered as insignificant. The modelling predicted that the maximum cumulative hourly average PC for NO_2, expressed as the 99.79th percentile value, would be ~37 µg m-3; which is above the 10% significance threshold. However, this is predicted to occur within a few metres to the south of the site boundary.

9.3.22 When considered in conjunction with the estimated background concentration the PEC value is about one third of the hourly average AQS objective value and can be screened out as insignificant. Process contributions decrease markedly with distance from the site, and values at nearby sensitive receptors are proportionately lower in relation to their distance from the site.

Sulphur Dioxide (SO_2)

9.3.23 The results from detailed modelling of Sulphur Dioxide are presented in Table 9.13. The results are discussed in the context of the Process Contribution and the Predicted Environmental Concentration, based upon the DEFRA 2005 estimated value of 2.2 µg m-3.

Table 9.13: Maximum Process Contribution for Sulphur Dioxide

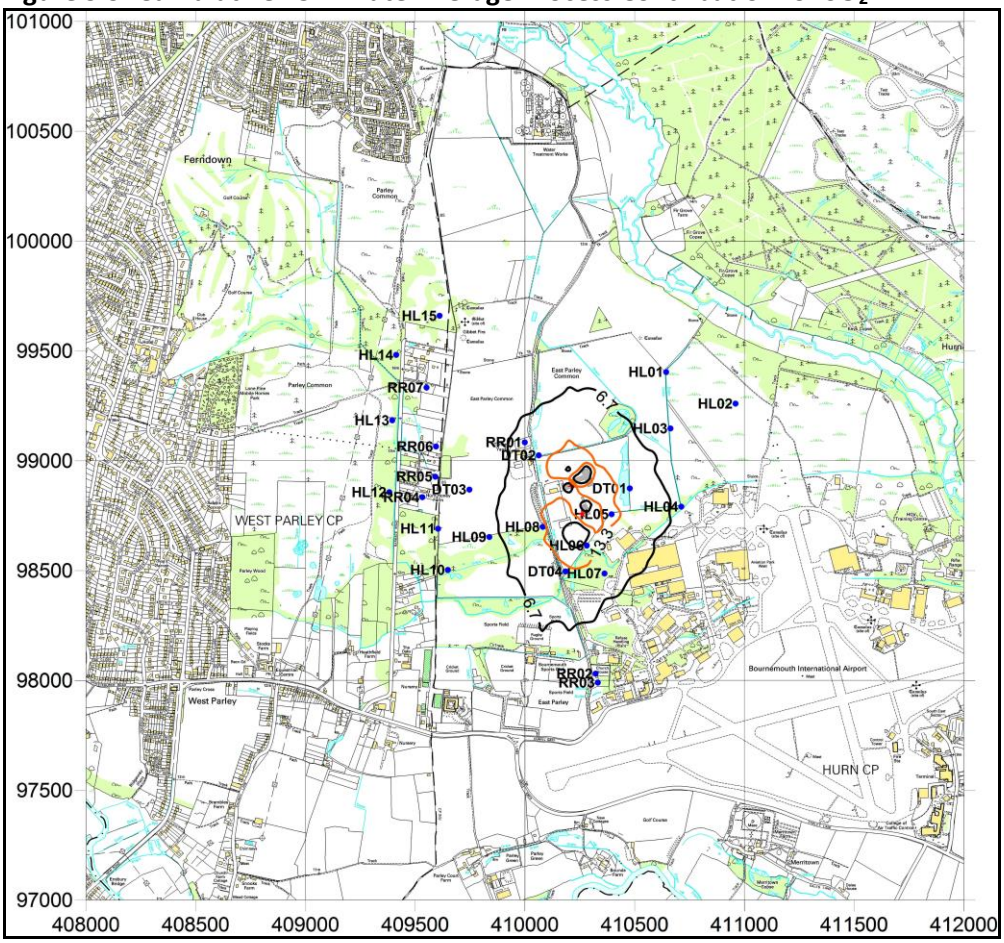
Statistic	Exceedence Threshold (µg m^{-3})	BEF		Clean Biomass Plant		Cumulative Impact	
		Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS
Annual PC	20	~1.8	~9	~1.6	~8	~2.6	~13
Annual PEC		~4	~20	~4	~19	~5	~24
Short Term PC 99.9%	266	~27	~10	~16	~6	~30	~11
Short Term PEC 99.9%		~31	~12	~20	~8	~34	~13
Short Term PC 99.73%	350	~25	~7	~15	~4	~27	~8
Short Term PEC 99.73%		~29	~8	~19	~6	~32	~9
Short Term PC 99.18%	125	~17	~14	~9	~7	~18	~15
Short Term PEC 99.18%		~21	~17	~13	~11	~23	~~18

9.3.24 The maximum 15 minute Process Contribution for SO_2 (99.9th percentile value) associated with the emissions from the BEF was predicted to be ~27 µg m-3; approximately 10% of the 266 µg m-3 AQS objective value, and can be screened out as insignificant in relation to Environment Agency guidance for the assessment of short term air quality impacts. The corresponding value for the clean biomass plant was ~16 µg m-3, ~6% of the objective value, which can also be screened out as insignificant. The cumulative 15 minute average Process Contribution was predicted to be ~30 µg m-3, or ~11% of the objective value, a value that is of marginal significance only.

9.3.25 The corresponding cumulative Predicted Environmental Concentration, taking into account the DEFRA 2005 estimate of the existing background of 2.2 µg m-3, is ~34 µg m-3, or ~13% of the AQS objective value. It should be borne in mind that it is a worst case value based upon the maximum ELVs for both the BEF and the clean biomass plant.

9.3.26 The cumulative 15 minute average Process Contribution for SO_2 associated with the operation of the BEF and the clean biomass plant is presented graphically in Figure 9.9.

Figure 9.9: Cumulative 15 Minute Average Process Contribution for SO_2



9.3.27 The orange contour represents a 15 minute Process Contribution of 13.3 µg m^{-3}, or 5% of the AQS objective value. Accordingly, the cumulative impact of SO_2 emissions from the BEF and the clean biomass plant can be screened out as insignificant in all areas beyond the site boundary.

9.3.28 As stated earlier, the Process Contribution decreases rapidly with distance from the site and at nearby residential receptors the impact becomes negligible (see Section 9.4).

9.3.29 Similar conclusions can be drawn for the hourly and daily average AQS objective values for SO_2.

9.3.30 Detailed modelling predicted that the maximum cumulative annual average PC for SO_2 was likely to be ~2.6 µg m^{-3}, approximately 13% of the 20 µg m^{-3} objective limit for the protection of vegetation. However, this is predicted to occur at the location of the maximum Process Contribution, with values reducing markedly with distance from the site.

Carbon Monoxide (CO)

9.3.31 The results from detailed modelling of carbon monoxide are presented in Table , and are discussed in the context of the Process Contribution and the 2014 DEFRA estimates for the general area surrounding the Eco site.

Table 9.14: Maximum Process Contribution for Carbon Monoxide

Statistic	Exceedence Threshold (µg m^{-3})	BEF		Clean Biomass Plant		Cumulative Impact	
		Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS
Annual PC	-	~1.7	-	~1.5	-	~2.5	-
Annual PEC		~130	-	~130	-	~130	-
Short Term PC 100%	10,000	~23	~0.2%	~14	~0.1	~24	~0.2
Short Term PEC 100%		~270	~2.7	~260	~2.6	~270	~2.7

9.3.32 Detailed modelling predicted that the maximum cumulative 8 hour rolling average ground-level Process Contribution for CO associated with the emissions from the BEF and the clean biomass plant would be ~0.2% of the AQS objective value of 10,000 µg m^{-3}, and can be screened out as insignificant in relation to Environment Agency guidance.

9.3.33 Estimated background data indicate that annual average CO concentrations in the vicinity of the Eco site in 2014 are likely to be ~130 µg m^{-3}, and as such will not have a significant effect on the above conclusions for CO.

Particles (PM_{10})

9.3.34 The results from detailed modelling of Particles (PM_{10}) are presented in Table . The results are presented in the context of the Process Contribution and the resultant Predicted Environmental Concentration, taking into account the estimated annual average background concentration of 14.2 µg m^{-3} for 2014.

9.3.35 The modelling has been undertaken assuming that all of the particulate matter released from the BEF and the clean biomass plant will be in the form of PM_{10}, and so represents an absolute worst case scenario, as emissions of particulates may contain coarser fractions of dust.

Table 9.15: Model Predictions for Particles (PM_{10})

Statistic	Exceedence Threshold (µg m^{-3})	BEF		Clean Biomass Plant		Cumulative Impact	
		Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS
Annual PC	40	~0.4	~1	~0.3	~0.8	~0.6	~1.5
Annual PEC		~14.6	~37	~14.5	~36	~14.8	~37
Short Term PC 90.41%	50	~1.3	~2.6	~1.1	~2.2	~1.4	~2.8
Short Term PEC 90.41%		~15	~31	~15	~31	~15	~31

9.3.36 Detailed modelling predicted that the maximum cumulative annual average PC for fine particles (PM_{10}) was likely to be ~0.6 µg m^{-3}, approximately 1.5% of the 40 µg m^{-3} AQS objective value, which is of marginal significance. Accordingly, emissions of PM_{10} from the BEF and the clean biomass plant are unlikely to have a significant impact on air quality, in terms of the annual average AQS objective value, in the vicinity of the Eco site.

9.3.37 The maximum cumulative daily average PC, expressed as the 90.41 percentile value, was predicted to be ~1.4 µg m^{-3}, which represents a value of ~3% of the AQS objective value and can be screened out as insignificant.

9.3.38 Taking the estimated 2014 background concentration of 14.2 µg m^{-3} into consideration with the Process Contribution predicted by modelling, the maximum cumulative annual average Predicted Environmental Concentration for PM_{10} was estimated to be ~15 µg m^{-3}, or about one third of the AQS objective value of 40 µg m^{-3}. The corresponding cumulative daily average PEC value for PM_{10} is also predicted to be ~15 µg m^{-3}. The PEC values are dominated by the background estimate, and the Process Contribution is considered insignificant in comparison.

9.3.39 In terms of the impact descriptors recommended by Environmental Protection UK, the maximum cumulative annual average Process Contribution represents a **small** increase in ambient PM_{10} concentration with a **negligible** impact on local air quality in the vicinity of the Eco site.

Particles ($PM_{2.5}$)

9.3.40 The implementation of EC Directive 2008/50/EC introduced two new objective values for Particles ($PM_{2.5}$) with a Stage 1 Limit Value of 25 µg m^{-3}, expressed as an annual average and to be met by 1 January 2015, and a Stage 2 Limit Value of 20 µg m^{-3}, expressed as an annual average and to be met by 1 January 2020. The 2015 Limit Value is also the "Target Value" for 1 January 2010.

9.3.41 Modelling was undertaken assuming that all of the particulate matter released from the proposed BEF and clean biomass plant was in the form of $PM_{2.5}$, and so represents an absolute worst case scenario, as emissions of particulates likely to contain coarser fractions of dust.

9.3.42 The results from detailed modelling of Particles ($PM_{2.5}$) are presented in Table 9.16, and are presented in the context of the Process Contribution and the resultant Predicted Environmental Concentration, taking into account the estimated annual average background concentration of 9.5 µg m^{-3} for 2014.

Table 9.16: Model Predictions for Particles ($PM_{2.5}$)

Statistic	Exceedence Threshold (µg m^{-3})	BEF		Clean Biomass Plant		Cumulative Impact	
		Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS
Annual PC	25	~0.4	~1.6	~0.4	~1.6	~0.6	~2.4
Annual PEC		~10	~39	~10	~39	~10	~39

9.3.43 The results from modelling for Particles ($PM_{2.5}$), assuming that all of the particulate emission from the BEF and the clean biomass plant are in the form of $PM_{2.5}$, predicted that the maximum cumulative annual average PC for Particles ($PM_{2.5}$) was likely to be ~0.6 µg m^{-3}; ~2.4% of the 2015 limit value of 25 µg m^{-3}, and ~3% of the 20 µg m^{-3} limit value for 2020.

9.3.44 In terms of the Environmental Protection UK impact descriptors, based upon those for PM_{10}, the increase in $PM_{2.5}$ concentrations arising from emissions from the BEF and the clean biomass plant is likely to be **small** and have a **negligible** impact on local air quality.

9.3.45 Taking the estimated 2014 background concentration of 9.5 µg m^{-3} into consideration with the Process Contribution predicted by modelling, the maximum cumulative annual average Predicted Environmental Concentration for $PM_{2.5}$ was estimated to be ~10 µg m^{-3}, or approximately 39% of the objective value of 25 µg m^{-3}.

Volatile Organic Compounds (VOCs)

9.3.46 The results from detailed modelling of VOCs are presented in Table 9.17 and are discussed in the context of the Process Contribution alone.

Table 9.17: Maximum Process Contribution for VOCs

Statistic	Exceedence Threshold (µg m^{-3})	BEF		Clean Biomass Plant		Cumulative Impact	
		Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS	Concentration (µg m^{-3})	PC/PEC as %AQS
Annual PC	5	~0.4	~8	~0.3	~6	~0.5	~10
Daily PC (100%)		~3.7	-	~2.1	-	~4.0	-

9.3.47 There are no assessment levels for total VOC emissions as they comprise a mixture of organic compounds. There is no information available about the proportion of benzene that may be present in the total VOC emission, however, it is likely to be a very small percentage of the total. In order to provide a worst-case assessment, the annual average Process Contribution for VOCs was compared against the annual AQS objective value for 2010 for benzene of 5 µg m^{-3}.

9.3.48 The model predicted a maximum cumulative annual average Process Contribution of ~0.6 µg m^{-3} for VOCs, which represents a value that is ~10% of the benzene AQS objective value. However, as discussed above, this can probably be screened out as insignificant as benzene is only likely to comprise a small fraction of the overall VOC emission.

9.3.49 The estimated annual average benzene concentration for 2013 for the area in the vicinity of the Eco site is ~0.3 µg m^{-3}, which does not affect the conclusions of the above assessment for VOCs.

Other Pollutants

9.3.50 The BEF will utilise waste wood as a fuel and therefore will be subject to the IED ELVs for HCl, HF, heavy metals, as well as dioxins and furans. However, the clean biomass plant will only utilise non-waste biomass fuels and so will not be subject to the same regulatory controls. Accordingly, the following discussion relates solely to emissions from the BEF.

Hydrogen Chloride (HCl)

9.3.51 The results from detailed modelling of HCl are presented in Table 9.18. There are no available data on current background concentrations of hydrogen chloride in the vicinity of the development site therefore the results are discussed in the context of the Process Contribution alone.

Table 9.18: Maximum Process Contribution for Hydrogen Chloride

Statistic	Exceedence Threshold	Unit	Averaging Period	Process Contribution (mg m^{-3}) (Exceedences)	PC as a Percentage of the AQS/EAL (%)
Annual	20*	µg m^{-3}	1hr	~0.4	~2
Short Term 100%	750			~6	~0.8
Note: * Environmental Assessment Level based on long term value in Horizontal Guidance Note IPPC H1					

9.3.52 Detailed modelling predicted that the maximum 1 hour ground-level PC for HCl associated with the emissions from the BEF would be ~6 µg m^{-3}, or ~0.8% of the 750 µg m^{-3} EAL specified in the Environment Agency's Horizontal Guidance Note H1 Annex F, which is taken from the Expert Panel on Air Quality Standards (EPAQS) document on hydrogen halides[1]. The predicted PC was therefore less than the 10% significance threshold recommended by the Environment Agency and can be screened out as insignificant.

[1] Expert Panel on Air Quality Standards Guidelines for halogens and hydrogen halides in ambient air for protecting human health against acute irritancy effects. (February 2006 - ISBN 0-85521-169-5)

9.3.53 There is no long term EAL specified by EPAQS, but the previous Environment Agency Horizontal Guidance Note IPPC H1 specifies a value of 20 µg m^{-3} as the basis for assessment of long term impacts for HCl. The annual average Process Contribution of 0.4 µg m^{-3}, represents a value that is ~2% of the long term EAL and is marginally above the 1% significance threshold specified by the Environment Agency, and can probably be screened out as insignificant.

Hydrogen Fluoride (HF)

9.3.54 The results from detailed modelling of Hydrogen Fluoride are presented in Table 9.19. There are no available data on current background concentrations of hydrogen fluoride in the vicinity of the development site therefore the results are discussed in the context of the Process Contribution alone.

Table 9.19: Maximum Process Contribution for Hydrogen Fluoride

Statistic	Exceedence Threshold	Unit	Averaging Period	Process Contribution (µg m^{-3}) (Exceedences)	PC as a Percentage of the AQS/EAL (%)
Annual	16	µg m^{-3}	1hr	~0.04	~0.3
Short Term 100%	160	µg m^{-3}		~0.6	~0.4

9.3.55 Detailed modelling predicted that the maximum 1 hour Process Contribution for HF associated with the emissions from the BEF would be ~0.6 µg m^{-3}, or ~0.4% of the 160 µg m^{-3} EAL specified by the Environment Agency and EPAQS. The model predicted that there would be no exceedences of the assessment level and therefore the impact is considered to be insignificant.

9.3.56 EPAQS recommended an assessment level of 16 µg m^{-3} for long-term environmental concentrations of HF. The annual average PC value for HF represents a value that is about 0.3% of the long term EAL recommended by EPAQS, and is considered to be insignificant.

Cadmium and Thallium (Cd & Tl)

9.3.57 The results from detailed modelling of cadmium and thallium are presented in Table 9.20, and are based upon the assumption that the emission is all cadmium, which is likely to overestimate the situation considerably. Emissions of cadmium are based upon the IED ELV for co-incineration plant, which is 0.05 mg Nm^{-3} based upon a reference oxygen concentration of 6% v/v, which converts to 0.033 mg Nm^{-3} at 11% oxygen.

Table 9.20: Maximum Process Contribution for Cadmium and Thallium

Statistic	Exceedence Threshold	Unit	Averaging Period	Process Contribution (µg m^{-3}) (Exceedences)	PC as a Percentage of the AQS/EAL (%)
Annual	0.005	µg m^{-3}	24hr	~$1.29x10^{-2}$	~26
Short Term 100%	-	µg m^{-3}		~$1.39x10^{-1}$	-

9.3.58 Detailed modelling predicted that the maximum annual average PC for cadmium and thallium associated with the emissions from the BEF would be ~26% of the 0.005 µg m^{-3} AQS Target Value. The model predicted that there would be no exceedences of the assessment level. There is no assessment level for short-term environmental concentrations of cadmium and thallium.

9.3.59 It should be noted that the above assessment is based upon the assumption that cadmium and thallium will be released continuously from the BEF at the IED ELV of 0.033 mg Nm^{-3}, and that the combined emission will be totally as cadmium, which is highly unlikely if the facility is to remain within regulatory compliance. Accordingly, the results for cadmium represents a worst case scenario and probably overestimate considerably the significance of emissions of this pollutant.

Mercury and its Compounds (Hg)

9.3.60 The results from detailed modelling of mercury and its compounds are presented in Table 9.21 and are discussed in the context of the Process Contribution alone. Emissions of mercury are based upon the IED ELV for co-incineration plant, which is 0.05 mg Nm^{-3} based upon a reference oxygen concentration of 6% v/v, which converts to 0.033 mg Nm^{-3} at 11% oxygen.

Table 9.21: Maximum Process Contribution for Mercury and its Compounds

Statistic	Exceedence Threshold	Unit	Averaging Period	Process Contribution (µg m^{-3}) (Exceedences)	PC as a Percentage of the AQS/EAL (%)
Annual	0.25	µg m^{-3}	24hr	~$1.29x10^{-2}$	~26
Short Term 100%	7.5	µg m^{-3}		~$1.39x10^{-1}$	~0.9

9.3.61 Detailed modelling predicted that the maximum annual average Process Contribution for mercury and its compounds associated with the emissions from the BEF would be ~0.5% of the Environmental Assessment Limit and are therefore considered to be insignificant. The model predicted that there would be no exceedences of the assessment level.

9.3.62 The maximum daily average Process Contribution for mercury was predicted to be $1.4x10^{-1}$ µg m^{-3}, which represents ~0.9% of the short term assessment level for mercury and its compounds, and is therefore considered as insignificant.

Group 3 Metals

9.3.63 The IED stipulates emission limits on Group 3 Metals including antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni), and vanadium (V). Emissions of Group 3 metals are based upon the IED ELV for co-incineration plant, which is 0.5 mg Nm^{-3} based upon a reference oxygen concentration of 6% v/v, which converts to 0.33 mg Nm^{-3} at 11% oxygen. The cumulative emission limit requires that the total emission (*i.e.* the sum) for all of these metals is below 0.33 mg m^{-3}.

9.3.64 The Environment Agency issued guidance on metals impact assessment[2]. The guidance recommends a stepwise approach to assessment of emissions of Other Metals. The first step is based upon the assumption that each of the nine metal species is emitted at the IED emission limit value of 0.33 mg Nm^{-3} for Other Metals, corrected from a 6% oxygen basis to 11% oxygen. The results from this initial screening assessment are presented below.

Table 9.22: Maximum Annual Average Process Contribution for Group 3 Metals – Step 1 Screening

Metal	Exceedence Threshold (µg m^{-3})	Process Contribution BEF (µg m^{-3})	Process Contribution as %AQS/EAL
Antimony	5	1.29E-02	0.3%
Arsenic	0.003	1.29E-02	430%
Chromium$^{(VI)}$	0.0002	1.29E-02	6,450%
Cobalt	0.2*	1.29E-02	6%
Copper	10	1.29E-02	0.13%
Lead	0.25	1.29E-02	5%
Manganese	150	1.29E-02	0.01%
Nickel	0.02	1.29E-02	65%
Tin	20*	1.29E-02	0.06%
Vanadium	5	1.29E-02	0.3%

9.3.65 As can be seen, emissions of Arsenic, Chromium(^{VI}), Cobalt, Lead and Nickel are identified as being potentially significant by this initial screening assessment. It should be noted that the assessment assumes that all of the chromium present in the emissions to atmosphere is present as Chromium$^{(VI)}$, therefore representing an absolute worst case basis for assessment.

[2] http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_7349_63ba6d.pdf

9.3.66 Environment Agency interim guidance suggests that a second stage screening assessment should be based upon the assumption that each of the metal species comprises 11% of the total group. For those metals that were not screened out in the initial screening assessment, the following results were obtained.

Table 9.23: Maximum Annual Average Process Contribution for Other Metals – Step 2 Screening

Metal	Exceedence Threshold (µg m^{-3})	Process Contribution Biomass CHP Plant (µg m^{-3})	PC as %AQS/EAL Biomass CHP Plant (%)
Arsenic	0.003	1.42E-03	47%
Chromium$^{(VI)}$	0.0002	1.42E-03	710%
Cobalt*	0.2*	1.42E-03	0.7%
Lead	0.25	1.42E-03	0.6%
Nickel	0.02	1.42E-03	7.1%
Note * EAL taken from IPPC H1 as no relevant value available in EPR H1.			

9.3.67 As can be seen, the results from the Step 2 analysis indicate that emissions of Arsenic, Chromium$^{(VI)}$ and Nickel are identified as still being potentially significant by this second stage screening assessment. Environment Agency interim guidance suggests that a third stage screening assessment should be based on emissions from currently operational MSW incineration plant.

9.3.68 On the basis of measurements undertaken at thirteen MSW incineration facilities in England and Wales between 2007 and 2009, the Environment Agency published the following emissions data for use as an indicative basis for assessment of the three metalloid species.

Table 9.24: Interim Guidance for Assessment of Chromium$^{(VI)}$, Arsenic and Nickel

Measurement	Mean (mg m^{-3})	Minimum (mg m^{-3})	Maximum (mg m^{-3})
Total Chromium$^{(VI)}$ Concentration* (mg m^{-3})	0.000035	0.0000023	0.00014
Arsenic Concentration* (mg m^{-3})	0.0007	0.0003	0.003
Nickel Concentration* (mg m^{-3})	0.022	0.0000	0.136
Note: * Based upon concentration in the APC Residues			

9.3.69 The mean concentration values in the above table were used as the basis for the Step 3 assessment, and the results are presented in Table 9.25.

Table 9.25: Maximum Annual Average Process Contribution for Chromium^{VI}, Arsenic and Nickel – Step 3 Screening

Metal	Exceedence Threshold (µg m^{-3})	Process Contribution Biomass CHP Plant (µg m^{-3})	PC as %AQS/EAL Biomass CHP Plant (%)
Arsenic	0.003	1.81E-05	0.6%
Chromium$^{(VI)}$	0.0002	9.03E-07	0.5%
Nickel	0.02	5.68E-04	2.8%

9.3.70 On the basis of the Environment Agency Interim Guidance, the Step 3 screening assessment for "Group 3 Metals" based upon the above metalloid species, the values for the annual average Process Contribution for Chromium(^{VI}) and Arsenic can be screened out as insignificant. The corresponding value of Nickel is marginally above the Environment Agency's 1% insignificance threshold and can probably be screened out as insignificant given the worst case basis for assessment.

9.3.71 Measurement data from the Harwell Rural Heavy Metals monitoring network[3] indicates that the annual average nickel concentration in 2012 was 0.63 ng m^{-3}. When taken in conjunction with the estimated Process Contribution in Table 9.25, the maximum PEC is likely to represent a value that is ~6% of the EAL, and can be screened out as insignificant in relation to Environment Agency guidance in Horizontal Guidance Note H1 Annex F.

9.3.72 The Step 3 assessment indicates that emissions of Nickel from the BEF could be marginally significant, however, nickel is unlikely to be a significant constituent of the biomass to be accepted as fuel and can therefore be screened out as insignificant.

Dioxins & Furans

9.3.73 The results from detailed modelling of dioxins and furans are presented in Table 9.26. There are no air quality standards or environmental assessment levels for dioxins.

Table 9.26: Maximum Process Contribution for Dioxins& Furans

Statistic	Exceedence Threshold	Unit	Averaging Period	Process Contribution (µg m^{-3}) (Exceedences)	PC as a Percentage of the AQS/EAL (%)
Annual	-	µg m^{-3}	24hr	~2.6x10^{-9}	-
Short Term 100%	-	µg m^{-3}		~2.8x10^{-8}	-

[3] http://uk-air.defra.gov.uk/data/non-auto-data?site_id=HAR&network=rm&s=View+Site#site_id=HAR&view=data

9.3.74 The maximum annual PC for dioxins was ~2.6x10^{-9} µg m^{-3}, at the point of maximum Process Contribution, which was ~160 metres to the north-east of the BEF chimney and within the confines of the site. Emissions from the BEF are not expected to significantly increase the airborne concentrations or deposition rate of dioxins and furans over what may be currently experienced in the vicinity of the proposed development site.

9.3.75 The maximum daily average PC for dioxins was predicted to be ~2.8 x 10^{-8} µg m^{-3}. It should be noted that the dioxin emissions profile was based on the IED ELV of 0.066 ng m^{-3} (0.1 ng Nm^{-3} at 6% O_2 converted to 11% O_2 equivalent). The BEF will operate in compliance with the IED Regulations and conditions to be incorporated into a forthcoming Environmental Permit, and dioxin emissions are expected to be consistently below the ELV. The emissions profile is therefore considered to be overly pessimistic, and to result in higher predicted process contributions than are considered likely when the facility becomes operational.

9.3.76 One of the main exposure pathways for dioxins is through the food chain, and an assessment of the potential impact on the health of local residents due to emissions of dioxins from the BEF was undertaken in line with the US EPA Human Health Risk Assessment Protocol (HHRAP)[4].

9.3.77 The results show that at the location of the maximum Process Contribution, dioxin intake via the food chain, as well as by inhalation, is likely to be about 4% of the TDI for adults and about 3% for infants. This is based upon emissions at the IED ELV for the whole of the year, and at a location of ~160 metres to the north-east of the BEF chimney, where there are no residential properties. The corresponding figures at the nearest residential property (RR01), situated a few hundred metres to the north of the site, were ~0.4% of the TDI for adults and ~0.3% of the TDI for infants, which are considered as insignificant.

9.4 AIR QUALITY IMPACTS AT NEARBY RESIDENTIAL RECEPTOR LOCATIONS

Introduction

9.4.1 Specific receptors representing nearby residential properties, and other locations where people may congregate for significant periods of time, were included in the detailed atmospheric modelling in order to assess the potential impact on local air quality of emissions from the BEF and the clean biomass plant. The following discussion relates to issues associated with NO_2 and $PM_{2.5}$ only as these are considered to be the most significant pollutants in relation to local air quality management.

Nitrogen Dioxide

9.4.2 The Maximum Cumulative Annual PC and PEC ("With Development") values for NO_2 associated with emissions from the BEF and the clean biomass plant are presented in Table 9.27.

[4] GFE161 Dioxin Health Risk Assessment, GF Environmental Ltd, August 2013

Table 9.27: Maximum Cumulative Process Contributions and Predicted Environmental Concentrations for NO_2 at Nearby Residential Receptors

Receptor Name	Annual NO_2 PC (µg m^{-3})	% AQS	Annual NO_2 PEC (µg m^{-3})	% AQS
RR01	0.5	1.3%	13.3	33%
RR02	0.2	0.4%	13.0	32%
RR03	0.2	0.4%	13.0	32%
RR04	0.2	0.5%	13.0	32%
RR05	0.2	0.5%	13.0	32%
RR06	0.2	0.4%	13.0	32%
RR07	0.1	0.3%	12.9	32%

9.4.3 The cumulative annual average Process Contribution at the above residential receptors is less than the Environment Agency's 1% insignificance threshold for assessment of long term impacts on local air quality. In terms of the Environmental Protection UK impact descriptors, the increase at the above locations is **imperceptible** and likely to have a **negligible** impact on local air quality for people living in the vicinity of the Eco site.

9.4.4 The exception is at Receptor No. RR01 where the corresponding Process Contribution of 0.5 µg m^{-3}, marginally exceeds the 1% insignificance threshold. However, when considered in relation to the estimated background concentration of 12.8 µg m^{-3}, the corresponding PEC values were all about one third of the AQS objective limit and can be screened out as insignificant in relation to Environment Agency guidance.

Particles ($PM_{2.5}$)

9.4.5 The maximum cumulative annual average PC and PEC values for $PM_{2.5}$ associated with emissions from the BEF and the clean biomass plant are presented in Table 9.28 for the nearby residential receptors.

Table 9.28: Cumulative Process Contributions and Predicted Environmental Concentrations for Particles ($PM_{2.5}$) at Nearby Residential Receptors

Receptor Number	Annual $PM_{2.5}$ PC (µg m^{-3})	% AQS	Annual $PM_{2.5}$ PEC (µg m^{-3})	% AQS
RR01	0.06	0.2%	9.6	38%
RR02	0.02	0.1%	9.5	38%
RR03	0.02	0.1%	9.5	38%
RR04	0.02	0.1%	9.5	38%
RR05	0.02	0.1%	9.5	38%
RR06	0.02	0.1%	9.5	38%
RR07	0.01	0.1%	9.5	38%

9.4.6 As can be seen, the maximum cumulative annual average PC value for $PM_{2.5}$ at nearby residential receptors is very small with values considerably lower than 1% of the AQS Target Value of 25 µg m^{-3}. When the estimated background $PM_{2.5}$ concentration for 2014 is taken into account, the corresponding PEC value is about one third of the AQS Target Value.

9.4.7 Applying the Environmental Protection UK descriptors for PM_{10} to the case for $PM_{2.5}$, the increase in annual average $PM_{2.5}$ concentrations at the above residential receptors is likely to be **imperceptible** and have a **negligible** impact on local air quality.

9.4.8 Accordingly, emissions of $PM_{2.5}$ from the BEF and the clean biomass plant are likely to have a **negligible** impact on the health of local residents living in the vicinity of the Eco site.

9.5 IMPACT ON LOCAL AIR QUALITY ASSOCIATED WITH VEHICLE MOVEMENTS FOLLOWING THE COMPREHENSIVE REDEVLOPMENT OF THE ECO SITE

Introduction

9.5.1 Volume 11, Section 3 of the Design Manual for Roads and Bridges (DMRB) gives guidance on the assessment of the impact that road projects may have on local air quality. It includes a calculation method to estimate local pollutant concentrations. The calculations have been incorporated into a spreadsheet that is made available by the Highways Agency[5].

9.5.2 The latest version of the DMRB Screening Method (Version 1.03c) was issued in July 2007, and was used to undertake the screening assessments of the potential impact of pollutant emissions from vehicles associated with the comprehensive planning application for the development of the Eco site in Chapel Lane.

Input Data

Traffic Flow Data

9.5.3 Estimates of vehicle movements associated with the two phases of the development were provided by Motion-UK[6], who undertook the transport assessment to support the comprehensive planning application.

9.5.4 The DMRB Screening Method requires an input of traffic flow figures for the stretch of road (link) expressed as an annual average daily flow (AADT), and the input parameters are summarised in Table 9.29.

[5] http://www.dft.gov.uk/ha/standards/tech_info/files/DMRB_Screening_Method_V1.03c__(12-07-07)_locked.zip
[6] Email communication from Del Tester, Origin Transport Consultants Ltd (previously DT Transport Planning Ltd), 12th November 2013.

Table 9.29: Vehicle Data Input into the DMRB Model

Link	Annual Average Daily Total *	Percentage Cars	Percentage HGVs	Average Speed (km h^{-1})
1	269	30.1%	69.9%	32 **

Note: * Increase in vehicle movements associated with the comprehensive planning application.
** Average of all vehicles

9.5.5 The average speed of vehicles travelling along Chapel Lane to and from the development site in Table 9.29 was assumed to be ~32 km/hr (~20 mph).

9.5.6 The DMRB guidance recommends certain threshold values for changes in traffic flow associated with developments that may require detailed assessment. The thresholds are summarised as follows:

- road alignment will change by 5 m or more; or
- daily traffic flows will change by 1,000 AADT or more; or
- Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
- daily average speed will change by 10 km/hr or more; or
- peak hour speed will change by 20 km/hr or more.

9.5.7 None of the above apply to the developments associated with the comprehensive planning application and the impact on local air quality associated with vehicular emissions from the additional 188 HGV movements per day associated with the comprehensive planning application can be screened out as insignificant. However, for illustrative purposes and to demonstrate the relatively small impact on local air quality of the vehicular emissions, an assessment was undertaken using the DMRB assessment tool.

9.5.8 In line with official guidance[7] the background concentrations of NO_X and NO_2 were set to zero, and the DMRB spreadsheet was set to calculate the "Road Increment NO_X" value. This value was then entered into the "NO_X to NO_2 Calculator" spreadsheet[8] to calculate the total NO_2 value, as per the guidance below.

[7] http://www.airquality.co.uk/archive/laqm/documents/DMRB_text_130309.pdf
[8] http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc

Box 1: Instructions for taking account of recent changes in NO_2/NO_x ratios using the DMRB Screening Model (v1.03c).
Step 1: Run the DMRB model as usual, but enter a value of zero as the background for both NOx and NO_2. **Step 2**: Take the NOx concentration predicted by the DMRB model and paste it into the "Road increment NOx" column of the NOx to NO_2 calculator (see paragraph 1.07) (the background is added at this stage). **Step 3**: Run the NO_x to NO_2 calculator to calculate total-NO_2.

Background Air Quality

9.5.9 The DMRB Screening Method requires the user to input a value for background pollutant concentrations. Air quality data were taken from the DEFRA website[9] for the area in the vicinity of the development site.

Results from DMRB Calculations

9.5.10 The DMRB screening assessment tool was used to assess the potential impact of emissions from vehicles associated with the comprehensive planning application on local air quality in the vicinity of the transport routes to be taken to and from the development site. It should be noted that Chapel Lane will be widened to a two lane carriageway as part of the comprehensive planning application. In this regard, it is anticipated that the traffic travelling to and from the site should be more free-flowing, with less need for vehicles to stop and accelerate again, which should result in lower vehicular emissions in the vicinity of the site than would otherwise be the case. Accordingly, the following results present an overly conservative assessment of the potential impact on local air quality of vehicular emissions in the vicinity of the development site.

Results for Nitrogen Dioxide

9.5.11 The results from the DMRB assessment of the impact of emissions from vehicles travelling to and from the development site are presented in Table 9.30. The results are based upon the estimated maximum vehicle movements during Phase 1 of the operation of the Resource Recovery Park, projected over a complete year, assuming seven days per week working, and all vehicles travelling along the same route, and therefore represent an absolute worst case basis for assessment.

[9] http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2011

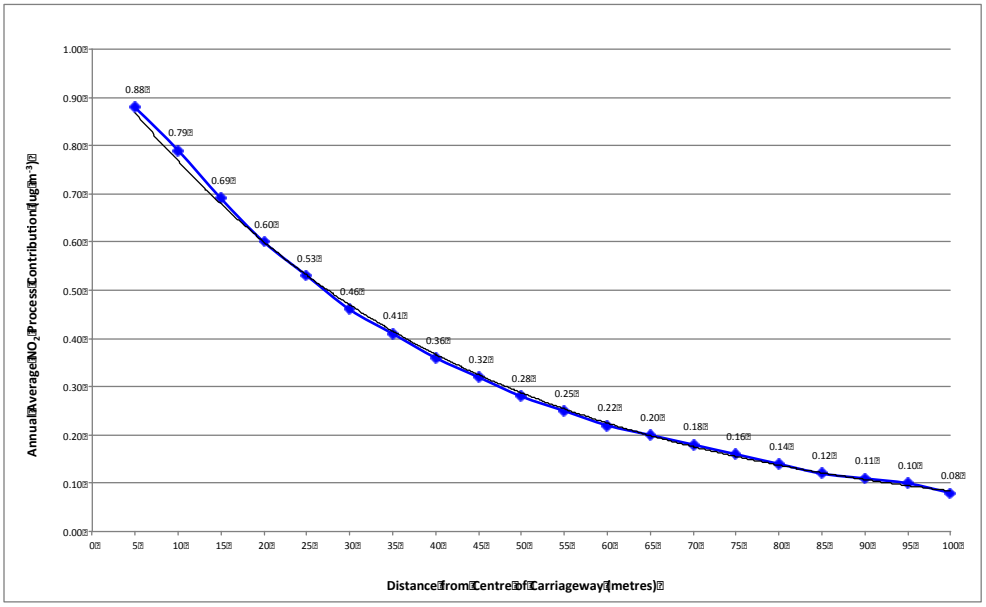
Table 9.30: Results from DMRB Screening Method for Nitrogen Dioxide

Distance from Centre of Carriageway (metres)	Road NO_X ($\mu g\ m^{-3}$)	Background NO_X ($\mu g\ m^{-3}$)	Total NO_X ($\mu g\ m^{-3}$)	Road NO_2 ($\mu g\ m^{-3}$)	Background NO_2 ($\mu g\ m^{-3}$)	Total NO_2 ($\mu g\ m^{-3}$)
5	1.64	17.3	18.9	0.88	12.8	13.7
10	1.48	17.3	18.8	0.79	12.8	13.6
15	1.29	17.3	18.6	0.69	12.8	13.5
20	1.12	17.3	18.4	0.60	12.8	13.4
25	0.98	17.3	18.3	0.53	12.8	13.3
30	0.86	17.3	18.2	0.46	12.8	13.3
35	0.76	17.3	18.1	0.41	12.8	13.2
40	0.67	17.3	18.0	0.36	12.8	13.2
45	0.59	17.3	17.9	0.32	12.8	13.1
50	0.53	17.3	17.8	0.28	12.8	13.1
55	0.47	17.3	17.8	0.25	12.8	13.1
60	0.41	17.3	17.7	0.22	12.8	13.0
65	0.37	17.3	17.7	0.20	12.8	13.0
70	0.33	17.3	17.6	0.18	12.8	13.0
75	0.29	17.3	17.6	0.16	12.8	13.0
80	0.26	17.3	17.6	0.14	12.8	12.9
85	0.23	17.3	17.5	0.12	12.8	12.9
90	0.20	17.3	17.5	0.11	12.8	12.9
95	0.18	17.3	17.5	0.10	12.8	12.9
100	0.16	17.3	17.5	0.08	12.8	12.9

9.5.12 The results show that at the kerbside (~10 metres from the centre of the carriageway), annual average NO2 concentrations may increase by ~0.8 µg m-3 which represents a value of ~2% of the annual Objective Value of 40 µg m-3. In relation to the Environmental Protection UK impact descriptors this would be regarded as a small increase with a negligible impact, based upon the estimated annual average NO2 background concentration of 12.8 µg m-3 taken from the DEFRA background maps website.

9.5.13 When the results for Road-NO2 are presented graphically, the following trend shown is observed.

Figure 9.10: Variation in Road-NO_2 with Distance from the Centre of the Carriageway



9.5.14 As can be seen, the Road-NO_2 value (Process Contribution to background NO_2) decreases markedly with distance from the centre of the carriageway, with values falling to about 0.4 µg m^{-3} (~1% of the Annual Objective Value) at a distance of about 35 metres from the centre of the carriageway. Accordingly, based upon a worst case scenario, any receptor that is situated more than 35 metres from the centre of the carriageway is unlikely to experience a significant increase in annual average NO_2 concentrations as a result of vehicles associated with the comprehensive planning application travelling to and from the development site.

9.5.15 When the results from the DMRB calculations were applied to specific receptor HL08 adjacent to Chapel Lane, the nearest receptor location along the main transport route to be used by vehicles travelling to and from the development site, the increase in annual NO_X and NO_2 concentrations was predicted to be ~1.3 µg m^{-3} and 0.7 µg m^{-3} respectively.

Other Pollutants

9.5.16 The DMRB methodology also provides estimates of the potential increase in background concentrations of other pollutants including carbon monoxide, particles (PM_{10}), benzene and 1,3-butadiene. The following results relate to a receptor 15m from the centre of the carriageway, which represents the case for Receptor HL08.

Table 9.31: Results from DMRB Screening Method for Other Pollutants

Receptor	Particles (PM_{10}) (µg m^{-3})	Carbon Monoxide (mg m^{-3})	Benzene (µg m^{-3})	1,3-Butadiene (µg m^{-3})
15 metres	0.08	0.0015	0.0006	0.007

9.5.17 The results show that the potential increase in annual average concentrations of Particles (PM_{10}) is very small, with values that are ~0.2% of the annual objective value of 40 µg m^{-3} and can be regarded as insignificant in terms of the Environment Agency's significance criteria. The same applies to the increases in annual average concentrations of carbon monoxide, benzene and 1,3-butadiene, which are <0.1% of their respective annual objective values.

9.6 DETAILED MODELLING – HABITATS IMPACT ASSESSMENT

9.6.1 The results of the assessment discussed in Sections 9.3 and 9.4 addressed the potential impact of emissions from the BEF and the clean biomass plant on local air quality in line with national Air Quality Objective Values and the EALs defined in the Environment Agency's Horizontal Guidance Note H1 Annex F. However, it is also important to assess the impact of emissions on the sensitive heathland habitat that surrounds the Eco site. The model was also configured to estimate deposition of nitrogen and acidity based on the emissions data presented in Section 9.2.

9.6.2 The deposition assessment also took into account the fact that the installation of the BEF will also involve the removal of four diesel generators that currently supply the 910 MWhr/annum electricity requirements of the Eco site, and will also remove their associated emissions of NOx from the emissions inventory for the site.

9.6.3 The comprehensive planning application for the Eco site also involves a number of other changes to operations on the site that will impact on current levels of nitrogen and acidity deposition in the surrounding heathland habitat. These include the following:

- The installation of the clean biomass plant that will burn non-waste biomass fuels to generate hot water for process heating applications on site;
- Decommissioning and removal of the In-Vessel composting process equipment from the site, with waste material redirected to the new AD facility and oversize material utilised as fuel for the BEF;
- Reduction in the amount of green waste composting carried out on site, from the current ~35,000 tpa to ~30,000 tpa.

9.6.4 The cumulative reduction in throughput arising from the above changes will result in an ~35% reduction in the current quantities of material being composted across the site. The impact of these changes, in terms of the associated reductions in ammonia release from the composting processes, has been included in the deposition assessment undertaken for the comprehensive planning application.

9.6.5 Planning permission was recently granted for an anaerobic digestion (AD) plant on the Eco site that will generate biomethane for injection into the local distribution network. An air quality assessment was undertaken to assess the potential impact of vehicle emissions associated with deliveries to and from the AD facility, and the conclusions of this assessment were incorporated into the current assessment for the comprehensive planning application.

9.6.6 The cumulative impact of all of the above aspects were included in an assessment of nitrogen and acidity deposition in the adjacent Dorset Heathlands habitat.

Specific Receptors

9.6.7 Fifteen locations within the surrounding Dorset Heathlands habitat were included as specific receptors in the ADMS model.

Assessment Criteria

9.6.8 The assessment was carried out in terms of location-specific Critical Loads for Nitrogen (kgN/ha/yr) and Acidity (keq/ha/yr). Assessment criteria were based on Critical Loads defined by the Air Pollution Information System website, as well as information from the SCAIL (Simple Calculation of Atmospheric Impact Limits) website provided by the Environment Agency for the location of the proposed BEF development. Background air quality data for NOx and SO_2 were taken from the Christchurch BC section of the DEFRA 2010-based Background Maps website, as well as from the SCAIL website.

Nitrogen Deposition

9.6.9 An assessment of nitrogen deposition was undertaken in relation to site-specific Critical Loads. Critical Load data for nutrient nitrogen deposition were obtained from the APIS website and the SCAIL website.

9.6.10 The critical load function for nitrogen deposition at the fifteen ecological receptor locations within the Dorset Heathlands habitat are summarised in the following table.

Table 9.32: Baseline Critical Loads for Nitrogen Deposition

Receptor Number	Distance From Stack (m)	Critical Load (kgN/ha/yr)		Baseline Condition (kgN/ha/yr)*	"Headroom" (kgN/ha/yr	
		Low Limit *	High Limit*		Low Limit	High Limit
HL01	761	10	25	16.4	-6.4	8.6
HL02	845	10	25	16.4	-6.4	8.6
HL03	554	10	25	16.4	-6.4	8.6
HL04	409	10	25	16.4	-6.4	8.6
HL05	93	10	25	16.4	-6.4	8.6
HL06	110	10	25	16.4	-6.4	8.6
HL07	239	10	25	16.4	-6.4	8.6
HL08	230	10	25	16.4	-6.4	8.6
HL09	477	10	25	17.5	-7.5	7.5
HL10	696	10	25	17.5	-7.5	7.5
HL11	707	10	25	17.5	-7.5	7.5
HL12	938	10	25	17.5	-7.5	7.5
HL13	1,025	10	25	17.5	-7.5	7.5
HL14	1,176	10	25	17.5	-7.5	7.5
HL15	1,171	10	25	17.5	-7.5	7.5
Maximum Process Contribution	98	10	25	16.4	-6.4	8.6
Note: * Values taken from the SCAIL website for receptor-specific coordinates						

9.6.11 As can be seen, the data from the SCAIL website indicates that the Lower Critical Load for nitrogen deposition is currently exceeded at all of the ecological habitat receptor locations.

9.6.12 The ADMS model was configured to estimate deposition of NO_2, NH_3, SO_2, HCl and HF at the above ecological habitat locations, due to emissions from the BEF and the clean biomass plant, as well as the cumulative reduction in emissions associated with changes to composting activities on site, decommissioning of the diesel engine generators and vehicle movements associated with deliveries to and from the Eco site.

Critical Levels Assessment

9.6.13 An initial assessment has been undertaken of Critical Levels in line with the recommendations in Table B4 of the Environment Agency's Horizontal Guidance Note H1 Annex F for oxides of nitrogen, sulphur dioxide, ammonia and hydrogen fluoride at the ecological habitat sites. The results are shown in the table below.

Table 9.33: Critical Levels Assessment for Oxides of Nitrogen (NO_X) and Sulphur Dioxide (SO_2) – Cumulative Impact of the BEF and the Clean Biomass Plant

	Annual NOx PC ($\mu g\ m^{-3}$)	% Critical Level	Daily NOx PC ($\mu g\ m^{-3}$)	% Critical Level	Annual SO_2 PC ($\mu g\ m^{-3}$)	% Critical Level
HL01	0.73	2.4%	6.1	8%	0.24	1.2%
HL02	0.99	3.3%	4.8	6%	0.32	1.6%
HL03	1.63	5.4%	10.0	13%	0.55	2.8%
HL04	1.69	5.6%	12.4	17%	0.49	2.4%
HL05	4.65	15.5%	38.6	51%	1.35	6.8%
HL06	1.52	5.1%	29.2	39%	0.43	2.2%
HL07	0.58	1.9%	12.1	16%	0.17	0.8%
HL08	1.80	6.0%	30.8	41%	0.59	2.9%
HL09	0.62	2.1%	11.8	16%	0.20	1.0%
HL10	0.35	1.2%	6.3	8%	0.11	0.5%
HL11	0.34	1.1%	6.0	8%	0.11	0.5%
HL12	0.21	0.7%	5.2	7%	0.07	0.3%
HL13	0.16	0.5%	2.8	4%	0.05	0.3%
HL14	0.14	0.5%	2.5	3%	0.05	0.2%
HL15	0.18	0.6%	2.5	3%	0.06	0.3%

9.6.14 As can be seen, the annual average NOx Process Contribution is greater than 1% of the annual NOx Critical Level at several of the ecological receptor locations. However, with an estimated annual average NOx concentration for the area of ~17 µg m-3, the estimated Process Contributions are unlikely to result in an exceedence of the Critical Level at this location, and can be screened out as insignificant.

9.6.15 A similar situation exists for the daily average NOx Process Contributions where estimated Process Contributions are all well below the Critical Level value of 75 µg m-3.

9.6.16 Annual average SO_2 process contributions are <1% of the 20 µg m-3 Critical Level at all but the nearest receptor locations, and where the Process Contribution is more than 1% of the Critical Level the highest value, which is at Receptor HL05, represents ~7% of the Critical Level. In view of the fact that the estimated annual average SO_2 concentration for the area is ~2.2 µg m-3, the estimated Process Contributions are unlikely to result in an exceedence of the SO_2 Critical Level, and can be screened out as insignificant.

9.6.17 The corresponding values for ammonia and hydrogen fluoride are based upon an assumed ammonia concentration in the emissions to atmosphere of 1 mg Nm-3, and for HF emissions at the IED ELV of 1 mg Nm-3.

Table 9.34: Critical Levels Assessment for Ammonia (NH_3) and Hydrogen Fluoride (HF) Due to Emissions from the Biomass CHP Plant

	Annual NH_3 PC ($\mu g\ m^{-3}$)	% Critical Level	Daily HF PC ($\mu g\ m^{-3}$)	% Critical Level	Weekly HF PC ($\mu g\ m^{-3}$)	% Critical Level
HL01	0.006	0.2%	0.03	0.5%	0.012	2.3%
HL02	0.008	0.3%	0.02	0.4%	0.011	2.3%
HL03	0.012	0.4%	0.04	0.9%	0.017	3.3%
HL04	0.015	0.5%	0.06	1.2%	0.035	7.0%
HL05	0.042	1.4%	0.19	3.9%	0.095	18.9%
HL06	0.014	0.5%	0.14	2.7%	0.049	9.8%
HL07	0.005	0.2%	0.05	1.0%	0.012	2.5%
HL08	0.014	0.5%	0.15	3.0%	0.062	12.4%
HL09	0.005	0.2%	0.05	1.0%	0.021	4.2%
HL10	0.003	0.1%	0.03	0.5%	0.011	2.2%
HL11	0.003	0.1%	0.03	0.6%	0.012	2.5%
HL12	0.002	0.1%	0.02	0.4%	0.008	1.6%
HL13	0.001	0.04%	0.01	0.2%	0.004	0.7%
HL14	0.001	0.04%	0.01	0.2%	0.003	0.6%
HL15	0.001	0.05%	0.01	0.2%	0.004	0.7%

9.6.18 As can be seen in the above table, Process Contributions of ammonia and hydrogen fluoride are well below their respective Critical Levels at all of the above habitat sites, and can be screened out as insignificant.

9.6.19 It should be borne in mind that these results are based upon a series of worst case assumptions that may overestimate their significance by an appreciable margin, as discussed earlier.

Deposition Assessment Relative to Site-Specific Critical Loads

9.6.20 The deposition velocities for NO_2, SO_2, NH_3 and HCl were taken from AQTAG 06, apart from HF (See below). The deposition rates for grassland habitats were used as the basis for assessment for the Dorset Heathland habitat receptor locations.

Table 9.35: Deposition Velocities Used in Calculations

Substance	Deposition Velocity (mm/s)
Nitrogen Dioxide (Grassland)	1.5
Nitrogen Dioxide (Woodland)	3.0
Sulphur Dioxide (Grassland)	12.0
Sulphur Dioxide (Woodland)	24.0
Ammonia (Grassland)	20.0
Ammonia (Woodland)	30.0
Hydrogen Chloride (Grassland)	25.0
Hydrogen Chloride (Grassland)	60.0
Hydrogen Fluoride (Grassland)	2.0
Note: * Reference: Fluorides in the Environment, Weinstein, LH and Davison, AW, CABI Publishing (2004)	

Nitrogen Deposition

9.6.21 An assessment of nitrogen deposition was undertaken in relation to site-specific Critical Loads. Critical Load data for nutrient nitrogen deposition were obtained from the APIS and SCAIL websites. The critical load functions for nitrogen deposition at the various habitat sites, are summarised in Table 9.32.

9.6.22 Nitrogen deposition rates associated with emissions from the BEF and the clean biomass plant were calculated according to the method recommended by the Environment Agency[10] in AQTAG 06, and as used by Laxen and Marner in a study carried out in support of the development of the Dorset and Poole, Local Waste Plan[11]. The method involves the calculation of the annual deposition rate from the annual Process Contribution and the deposition velocity for NO_2 using Equation 3.

[10] AQTAG 06, Technical Guidance on Detailed Modelling Approach for an Appropriate Assessment for Emissions to Air, Ji Ping Shi, Environment Agency Air Quality Monitoring and Assessment Unit, 20th April 2010.
[11] An Assessment of Possible Air Quality Impacts on Vegetation from Processes Set out in the Bournemouth, Dorset & Poole Waste Local Plan, Air Quality Consultants Ltd, April 2005

Equation 1 Calculation of Deposition Rate

$$\text{Deposition Rate}\left(\mu g\, m^{-2} s^{-1}\right) = \text{Deposition Velocity}\left(m s^{-1}\right) \times \text{Concentration}\left(\mu g\, m^{-3}\right)$$

9.6.23 Laxen and Marner commented that NO_X deposits to vegetation mainly via uptake of nitrogen dioxide through stomata, and that nitric oxide does not deposit at a significant rate. Environment Agency guidance recommends using a factor of 70% for the conversion of NO_X to NO_2 to provide a worst case basis for assessment of long term impacts. Accordingly, this conversion rate was used as the basis for calculating the nitrogen deposition rates associated with emissions of NO_X from the BEF and the clean biomass plant. Only dry deposition was considered by Laxen and Marner as wet deposition effects, close to the point of release, are considered to be much less significant than dry deposition mechanisms.

> *Wet deposition of the emitted pollutants this close to the emission source will be restricted to wash-out, or below cloud scavenging. For this to occur, rain droplets must come into contact with the gas molecules before they hit the ground. Falling raindrops displace the air around them, effectively pushing gases away. The low solubility of nitrogen dioxide and nitric oxide means that any scavenging of these gases will be a negligible factor.*

9.6.24 The results from the nitrogen deposition rate calculations are summarised in the following table and are based upon emissions of NO_X and NH_3 from the BEF and the clean biomass plant.

Table 9.36: Process Contribution to Nutrient Nitrogen Deposition at the Ecological Habitat Receptor Locations Due to Emissions of NO_X and NH_3 from the BEF and the Clean Biomass Plant

Receptor Name	Deposition (kgN/ha/yr)	Deposition (kgN/ha/yr) (PC as % Lower Critical Load)
HL01	0.10	1.0%
HL02	0.14	1.4%
HL03	0.23	2.3%
HL04	0.25	2.5%
HL05	0.69	6.9%
HL06	0.22	2.2%
HL07	0.08	0.8%
HL08	0.26	2.6%
HL09	0.09	0.9%
HL10	0.05	0.5%
HL11	0.05	0.5%
HL12	0.03	0.3%
HL13	0.02	0.2%
HL14	0.02	0.2%
HL15	0.03	0.3%

9.6.25 The results show that nitrogen deposition attributable to emissions of NO_X and NH_3 from the BEF and the clean biomass plant is predicted to be less than 1% of the site-specific Lower Critical Load, apart from the nearest receptor locations, where the highest value represents ~6% of the Critical Load. Despite the fact that the Critical Load for nitrogen deposition is currently exceeded at the above locations, the magnitude of the Process Contribution is small and is probably not measurable with any reasonable degree of accuracy, and can be screened out as insignificant.

9.6.26 It should also be noted that exceedence of a Critical Load is not a quantitative estimate of damage to a particular habitat, but represents the potential for damage to occur. There is no evidence in the available literature to indicate that the above habitats are suffering as a consequence of nitrogen deposition from nearby sources. Accordingly, on this basis, the incremental increase in nitrogen deposition attributable to emissions of NO_X and NH_3 from the BEF and the clean biomass plant is small and is unlikely to have a measurable effect on the integrity of the above ecological habitat sites.

9.6.27 The comprehensive development of the Eco site will result in an increase in vehicle movements into and out of the site and, as shown in Section 9.5, worst case increase in NO_X concentration may be ~1.3 $\mu g\, m^{-3}$ at the nearest point within the Parley Common SSSI (Receptor No. HL08), with an associated nitrogen deposition rate of ~0.13 kgN/Ha/yr.

9.6.28 As the basis for a worst case assessment, the estimated increase in nitrogen deposition at Receptor No. HL08 was applied to all of the specific receptors, and added to the process contributions associated with emissions of NO_X and NH_3 from the BEF and the clean biomass plant. The aggregate nitrogen deposition due to these three sources is summarised in the following table.

Table 9.37: Process Contribution to Nutrient Nitrogen Deposition at the Ecological Habitat Receptor Locations Due to Emissions of NO_X and NH_3 from the BEF, the Clean Biomass Plant and Vehicular Emissions Associated with the AD Facility

Receptor Name	Deposition (kgN/ha/yr)	Deposition (kgN/ha/yr) (PC as % Lower Critical Load)
HL01	0.23	2.3%
HL02	0.27	2.7%
HL03	0.36	3.6%
HL04	0.38	3.8%
HL05	0.82	8.2%
HL06	0.35	3.5%
HL07	0.21	2.1%
HL08	0.39	3.9%
HL09	0.22	2.2%
HL10	0.18	1.8%
HL11	0.18	1.8%
HL12	0.16	1.6%
HL13	0.15	1.5%
HL14	0.15	1.5%
HL15	0.16	1.6%

9.6.29 The results show that nitrogen deposition attributable to emissions of NO_X and NH_3 from the BEF and the clean biomass plant and the worst case deposition associated with vehicle movements to and from the development site, is predicted to more than 1% of the site-specific Lower Critical Load, with the highest value representing ~8% of the Critical Load. As stated previously, the fact that the Critical Load for nitrogen deposition is currently exceeded at the above locations, the magnitude of the Process Contribution is small and is probably not measurable with any reasonable degree of accuracy, and can be screened out as insignificant.

Nitrogen Deposition - Cumulative Impact with Emissions from On-Site Diesel Generators

9.6.30 As stated earlier, the BEF development will involve decommissioning of the four large diesel generators that are currently used to provide all on-site electrical requirements, and an ~35% reduction in composting capacity. The 2011 air quality assessment submitted in support of the original planning application for the BEF quantified the potential reductions in nitrogen deposition that would arise due to the decommissioning of the diesel generators and the reduction in composting capacity. These assessments have been updated to reflect the higher level of reduction in the composting activities on the Eco site. The results for the diesel generator are presented in the following table.

Table 9.38: Process Contribution to Nitrogen Deposition at the Ecological Habitat Receptor Locations Due to Emissions of NO_X from the Four Diesel Generators

Receptor Name	Deposition (kgN/ha/yr)	Deposition (kgN/ha/yr) (PC as a Percentage of Lower Critical Load)
HL01	0.02	0.2%
HL02	0.02	0.2%
HL03	0.04	0.4%
HL04	0.05	0.5%
HL05	0.23	2.3%
HL06	0.09	0.9%
HL07	0.05	0.5%
HL08	0.11	1.1%
HL09	0.03	0.3%
HL10	0.01	0.1%
HL11	0.02	0.2%
HL12	0.01	0.1%
HL13	0.004	0.04%
HL14	0.003	0.03%
HL15	0.01	0.05%

9.6.31 The results show that ongoing nitrogen deposition attributable to emissions of NO_X from the diesel generators is predicted to be <1% of the lower and upper Critical Load values. The exceptions are the two highlighted in red, where the Lower Critical Load is marginally exceeded at Receptor HL05 and HL08.

9.6.32 The development of the BEF at the Eco site will eliminate the need for the diesel generators, as the electrical requirements for process activities on-site will be drawn directly from the power output from the turbine associated with the BEF. Accordingly, as the generators will no longer be operational the reduction in emissions of NO_X from the diesel generators can be offset against the increase that will arise from the operation of the BEF, the clean biomass plant and the increased vehicle movements associated with the operation of the AD facility. The cumulative nitrogen deposition values associated with the operation of the BEF, the clean biomass plant and vehicle emissions associated with the comprehensive development, accompanied by the removal of the diesel generators, are presented in the table below.

Table 9.39: Cumulative Process Contribution to Nitrogen Deposition at the Ecological Habitat Receptor Locations Due to Emissions of NO_X from the BEF, the Clean Biomass Plant and Vehicular Emissions Following Removal of the Diesel Generators

Receptor Name	Deposition – BEF, CBP* & AD Facility (kgN/ha/yr)	Deposition – BEF, CBP & AD Facility (kgN/ha/yr) (% of Lower Critical Load)	Reduction Due to Removal of the Diesel Generators (kgN/ha/yr)	Deposition – Cumulative (kgN/ha/yr)	Cumulative Deposition (kgN/ha/yr) (% of Lower Critical Load)
HL01	0.23	2.3%	-0.02	0.21	2.1%
HL02	0.27	2.7%	-0.02	0.25	2.5%
HL03	0.36	3.6%	-0.04	0.32	3.2%
HL04	0.38	3.8%	-0.05	0.33	3.3%
HL05	0.82	8.2%	-0.23	0.59	5.9%
HL06	0.35	3.5%	-0.09	0.25	2.5%
HL07	0.21	2.1%	-0.05	0.17	1.7%
HL08	0.39	3.9%	-0.11	0.28	2.8%
HL09	0.22	2.2%	-0.03	0.19	1.9%
HL10	0.18	1.8%	-0.01	0.17	1.7%
HL11	0.18	1.8%	-0.02	0.16	1.6%
HL12	0.16	1.6%	-0.01	0.15	1.5%
HL13	0.15	1.5%	-0.004	0.15	1.5%
HL14	0.15	1.5%	-0.003	0.15	1.5%
HL15	0.16	1.6%	-0.01	0.15	1.5%

Note: Values in red denote that the deposition rate exceeds 1% of the site-specific Critical Load
* CBP = Clean Biomass Plant

9.6.33 As can be seen from the above results, the cumulative impact of removing the diesel generators as part of the comprehensive development, reduces the potential impact of NO_X emissions from the Eco site on nitrogen deposition within the Dorset Heathlands habitat.

Nitrogen Deposition - Cumulative Impact with Fugitive Emissions from Composting Activities

9.6.34 During pre-application discussions for the BEF with Natural England and the Dorset County Council Ecology Officer, it was recommended that nitrogen deposition due to fugitive emissions of ammonia from the existing composting activities was also taken into account in the deposition assessment for the BEF development.

9.6.35 As part of the ongoing planning consultation process Natural England recommended that there should be no net increase in nitrogen deposition due to the cumulative impact of the existing composting activities, which emit ammonia (NH_3) during the maturation process, and the Process Contribution due to NO_X emissions from the BEF.

9.6.36 As part of the comprehensive planning application there will be a new clean biomass plant operating on the Eco site, with its associated emissions of NO_X. The current IVC operations will be decommissioned and removed, and despite a slight increase in the quantity of green waste composting to be carried out on site, there will be an overall ~35% reduction in compost throughput as a result of the proposed changes. The proposed reduction in composting activities has been factored into the deposition assessment as follows.

9.6.37 Based on information supplied by Eco, there is currently about 35,000 tpa of material treated in the green waste composting process, which will fall to ~30,000 tpa as a result of the proposed changes. There will also be an additional 10,000 tpa of CLO composted on-site, resulting in a net reduction of composting activities of ~22,000 tpa, or ~35% of the current material composted on-site.

9.6.38 The calculation of nitrogen deposition associated with fugitive ammonia release from the composting activities was based upon measured data for ammonia derived from diffusion tube measurements in the vicinity of the Eco site. The results at two locations, one on the eastern boundary of the site with the adjacent Hurn Common SSSI (process plus background), and another at Parley Manor (background) were used to derive a process contribution for ammonia attributable to the composting activities on site. The results are shown in the table below.

Table 9.40: Results from Ammonia Diffusion Tube Monitoring

Location	Ammonia Concentration (µg m^{-3})
Parley Manor (Background)	1.7
East of site – Hurn Common SSSI boundary (Process contribution + background)	2.8

9.6.39 As can be seen, the concentration of ammonia at Parley Manor was 1.7 µg m^{-3} over the exposure period. Parley Manor is regarded as a background monitoring site in view of its south-westerly location, approximately 1.5km upwind of the site in Chapel Lane.

9.6.40 The second monitoring location was situated ~500 metres to the east of the site on the boundary of Hurn Common SSSI. This location is downwind of the site and therefore measurements at his location are considered to be representative of the Process Contribution of the composting activities in addition to the background value for the area. Accordingly, the Process Contribution for ammonia from composting activities at the edge of the Hurn Common SSSI is estimated to be ~1.1 µg m^{-3}.

9.6.41 A consultation response from the Natural Environment Manager at DCC[12] commented that the above value for the Process Contribution to ammonia concentrations from composting may underestimate values at locations closer to the site. In the study by Laxen & Marner[13] (Table 6.2), they estimated the ammonia concentration at the nearest point in the heathland habitat to be in the range 0.55 to 13.13 µg m^{-3}, which is significantly higher than that determined by the diffusion tube measurement to the east of the Eco site.

9.6.42 However, it should be noted that the basis of the nitrogen deposition assessment due to ammonia release from composting is based upon the difference between the background value at Parley Manor and the measured value close to the site. Accordingly, the use of the Process Contribution of 1.1 µg m^{-3}, derived from the measured value to the east of the site, provides a much more conservative estimate of the reduction in fugitive ammonia release that may arise due to the ~35% reduction in composting activities on the Eco site, than would be the case if the Laxen & Marner estimates were used.

9.6.43 For the purpose of the deposition assessment it has been assumed that the Green Waste compost and the CLO compost emit similar levels of ammonia during the maturation process. The ammonia concentration measured in the vicinity of the site of 1.1 µg m^{-3}, is assumed to be the Process Contribution due to the composting activities on the Eco site, and would be expected to vary in relation to the throughput of waste being composted.

9.6.44 Accordingly, the measured Process Contribution value to background ammonia concentrations was adjusted to reflect the ~35% reduction in throughput, giving a revised Process Contribution to background ammonia concentrations of ~0.7 µg m^{-3}. This value was then used to calculate the nitrogen deposition rates due to ammonia at receptor locations within the Dorset Heathland habitat adjacent to the Eco site. The results are presented in the following table.

[12] Consultation Response from Dr Phil Sterling, Natural Environment Manager DCC, 24th March 2011
[13] An Assessment of Possible Air Quality Impacts on Vegetation from Processes Set out in the Bournemouth, Dorset & Poole Waste Local Plan, Air Quality Consultants Ltd, April 2005

Table 9.41: Net Change in Process Contribution to Nitrogen Deposition at the Ecological Habitat Receptor Locations Due to Due to the Comprehensive Re-development of the Eco Site

Receptor Name	A	B	C	(B-C)	A+(B-C)
	BEF, CBP & AD Facility NO_X Emissions (kgN/ha/yr)	NH_3 from Composting (Current Activities) (kgN/ha/yr)	NH_3 from Composting (35% Reduction in Composting) (kgN/ha/yr)	Difference (Composting) (Current Activities & 35% Reduction in Composting) (kgN/ha/yr)	Difference (BEF, CBP & AD Facility & Composting) (35% Reduction in Composting) (kgN/ha/yr)
HL01	0.23	5.71	3.69	-2.03	-1.79
HL02	0.27	5.71	3.69	-2.03	-1.76
HL03	0.36	5.71	3.69	-2.03	-1.67
HL04	0.38	5.71	3.69	-2.03	-1.65
HL05	0.82	5.71	3.69	-2.03	-1.21
HL06	0.35	5.71	3.69	-2.03	-1.68
HL07	0.21	5.71	3.69	-2.03	-1.81
HL08	0.39	5.71	3.69	-2.03	-1.64
HL09	0.22	5.71	3.69	-2.03	-1.81
HL10	0.18	5.71	3.69	-2.03	-1.85
HL11	0.18	5.71	3.69	-2.03	-1.85
HL12	0.16	5.71	3.69	-2.03	-1.87
HL13	0.15	5.71	3.69	-2.03	-1.87
HL14	0.15	5.71	3.69	-2.03	-1.88
HL15	0.16	5.71	3.69	-2.03	-1.87

9.6.45 When the waste composting throughput is reduced by ~35%, the associated reductions in fugitive ammonia release and nitrogen deposition are estimated to be ~2 kgN/ha/yr. Accordingly, the reduction in nitrogen deposition due to the reduced composting capacity, offsets completely the increase due to the NO_X emissions from the BEF and clean biomass plant developments, and the vehicular emissions associated with the comprehensive redevelopment of the Eco site.

9.6.46 The cumulative reduction in nitrogen deposition at Receptor HL05 (the closest section of heathland to the BEF chimney) due to increase in NO_X emissions from the BEF, the clean biomass plant and the AD facility, and the associated reduction in the on-site composting capacity, is estimated to be 1.1 kgN/ha/yr, which is ~12% of the lower Critical Load. Similar reductions are predicted for the other ecological habitat receptors.

9.6.47 The results demonstrate that there will be a net reduction in nitrogen deposition within the Dorset Heathland habitat adjoining the Eco site when the BEF, clean biomass plant and the AD facility become operational, if the proposed reduction in waste composting activities is implemented. This net reduction will be increased further by the elimination of emissions of NO_X from the diesel generators when the site electricity requirements are supplied by the BEF. When the overall cumulative impact of the comprehensive development is considered, the following results are obtained.

Table 9.42: Cumulative Net Change in Process Contribution to Nitrogen Deposition at the Ecological Habitat Receptor Locations Due to the Comprehensive Development of the Eco Site

Receptor Name	Increase Due to BEF, CBP and AD Facility NO_X Emissions (kgN/ha/yr)	Reduction Due to Decommissioning of Diesel Generators (kgN/ha/yr)	Reduction Due to 35% Reduction in Composting (kgN/ha/yr)	Cumulative Impact of Comprehensive Development (kgN/ha/yr)	Cumulative Impact of Comprehensive Development (% Lower Critical Load)
HL01	0.23	-0.02	-2.03	-1.8	-18%
HL02	0.27	-0.02	-2.03	-1.8	-18%
HL03	0.36	-0.04	-2.03	-1.7	-17%
HL04	0.38	-0.05	-2.03	-1.7	-17%
HL05	0.82	-0.23	-2.03	-1.4	-14%
HL06	0.35	-0.09	-2.03	-1.8	-18%
HL07	0.21	-0.05	-2.03	-1.9	-19%
HL08	0.39	-0.11	-2.03	-1.8	-18%
HL09	0.22	-0.03	-2.03	-1.8	-18%
HL10	0.18	-0.01	-2.03	-1.9	-19%
HL11	0.18	-0.02	-2.03	-1.9	-19%
HL12	0.16	-0.01	-2.03	-1.9	-19%
HL13	0.15	-0.004	-2.03	-1.9	-19%
HL14	0.15	-0.003	-2.03	-1.9	-19%
HL15	0.16	-0.005	-2.03	-1.9	-19%

9.6.48 As can be seen, the results indicate that the cumulative impact of the comprehensive re-development of the Eco site developments is likely to result in a significant overall reduction in nitrogen deposition within the surrounding Dorset Heathlands habitat.

9.6.49 The reduction represents on average, a value equivalent to ~17% to ~19% of the Lower Critical Load for nitrogen deposition in the vicinity of the Eco site. If a higher value for the NH_3 Process Contribution due to composting activities had been used, then the estimate of overall reduction in nitrogen deposition would have been even greater. The one exception is Receptor No. HL05, which is closest to the chimney of the BEF, with associated higher deposition rates. Nevertheless, the assessment confirms that nitrogen deposition at Receptor HL05 will still be ~14% lower when the comprehensive redevelopment of the Eco site has been completed, compared to the situation associated with the existing operations.

Acid Deposition

9.6.50 The critical load functions for acid deposition within the ecological habitat sites are summarised in the following table.

Table 9.43: Baseline Critical Loads for Acid Deposition

Receptor Name	Critical Load* (keqS/ha/yr)	Critical Load* (keqN/ha/yr)	Baseline Condition (keq/ha/yr)	"Headroom" (keqS/ha/yr)	"Headroom" (keqN/ha/yr)
HL01	0.25	0.64	1.34	-1.09	-0.7
HL02	0.25	0.64	1.34	-1.09	-0.7
HL03	0.25	0.64	1.34	-1.09	-0.7
HL04	0.25	0.64	1.34	-1.09	-0.7
HL05	0.25	0.64	1.34	-1.09	-0.7
HL06	0.25	0.64	1.34	-1.09	-0.7
HL07	0.25	0.64	1.34	-1.09	-0.7
HL08	0.25	0.64	1.34	-1.09	-0.7
HL09	0.25	0.64	1.66	-1.41	-1.0
HL10	0.25	0.64	1.66	-1.41	-1.0
HL11	0.25	0.64	1.66	-1.41	-1.0
HL12	0.25	0.64	1.66	-1.41	-1.0
HL13	0.25	0.64	1.66	-1.41	-1.0
HL14	0.25	0.64	1.66	-1.41	-1.0
HL15	0.25	0.64	1.66	-1.41	-1.0
Note:	*	Critical Load value obtained from the APIS website			

9.6.51 As can be seen, the data indicate that the Critical Load for acid deposition is currently exceeded at all of the above locations. An assessment of acidity deposition was undertaken based upon Critical Load data for acid deposition from the APIS website. The assessment followed the same procedure that was used in the assessment of nitrogen deposition, and the results from the cumulative impact assessment for the various activities associated with the comprehensive re-development of the Eco site are summarised in Table 9.44.

Table 9.44: Process Contribution to Acid Deposition at the Ecological Habitat Receptor Locations – Cumulative Impact Due to the Comprehensive Re-development of the Eco Site

Receptor Name	Increase in Deposition Due to Emissions of NO_X, SO_2, HCl, HF & NH_3 from the BEF, CBP & ADF (keq/ha/yr)	Reduction in Deposition Due to Decommissioning of Diesel Generators (keq/ha/yr)	Reduction in Deposition Due to 35% Reduction in Composting (keq/ha/yr)	Cumulative Impact of the Comprehensive Re-development (keq/ha/yr)
HL01	0.05	-0.001	-0.144	-0.09
HL02	0.07	-0.001	-0.144	-0.08
HL03	0.10	-0.003	-0.144	-0.04
HL04	0.10	-0.003	-0.144	-0.05
HL05	0.26	-0.016	-0.144	0.10
HL06	0.09	-0.007	-0.144	-0.06
HL07	0.04	-0.003	-0.144	-0.11
HL08	0.11	-0.008	-0.144	-0.04
HL09	0.04	-0.002	-0.144	-0.10
HL10	0.03	-0.001	-0.144	-0.12
HL11	0.03	-0.001	-0.144	-0.12
HL12	0.02	-0.0005	-0.144	-0.12
HL13	0.02	-0.0003	-0.144	-0.13
HL14	0.02	-0.0002	-0.144	-0.13
HL15	0.02	-0.0004	-0.144	-0.13

9.6.52 Values in green represent a decrease when compared to the current situation. As can be seen, as a result of the comprehensive re-development of the Eco site, acid deposition in the surrounding Dorset Heathlands habitat is likely to be significantly lower than that associated with current operations. The one exception is at the nearest receptor location to the chimney of the BEF (Receptor No. HL05), although the estimated increases at this location is small and probably not measurable with any reasonable degree of accuracy.

9.6.53 Exceedence of a Critical Load is not a quantitative estimate of damage to a particular habitat, but represents the potential for damage to occur. There is no evidence in the available literature to indicate that the above ecological receptors are currently suffering as a consequence of acid deposition from nearby sources.

9.7 ODOUR

9.7.1 The comprehensive re-development of the Eco site will result in the removal of the in-vessel composting process, with food waste to be treated by the AD facility in sealed vessels. Accordingly, there will be a significant reduction in fugitive odour release from process activities carried out on the Eco site compared to the current situation, and odour management and control has been an important consideration in the design of the proposed AD facility.

9.7.2 There are two biofilters to be installed to treat potentially odorous building air associated with the operation of the AD facility. Buildings associated with the AD facility operations will be maintained under partial negative pressure by continuously drawing air through a biofilter to minimise the potential for fugitive emissions of odorous air associated with the reception, storage and handling of the feedstocks for the process.

9.7.3 A detailed assessment was undertaken of odour dispersion from the two biofilters to estimate odour concentrations at the site boundary and at nearby sensitive receptor locations. Information on operating conditions for the biofilters (volumetric flowrates, temperatures and odour concentrations) was provided by Eco Sustainable Solutions Ltd and Odournet UK Ltd, and used to calculate the odour discharge rates required for input into the ADMS model. Odournet UK Ltd was commissioned by Eco Sustainable Solutions Ltd to undertake an odour assessment on the biofilter associated with the IVC plant on site, and modelling of the two new biofilters associated with the comprehensive development was undertaken on the basis of the performance of the IVC biofilter.

9.7.4 A detailed modelling scenario was developed for odour release from the biofilters based on a number of assumptions, with the key ones as follows:

- Emissions from the two new biofilters were modelled as area sources, 2 metres in height above ground level.
- The assessment was based upon an odour concentration of 289 OUE m-3 in the biofilter exhaust, taken from the report by Odournet UK Ltd, and results were compared against the expected performance guarantee of a Process Contribution of no more than 1.5 OUE m-3 at the boundary fence.
- A modelling scenario was developed that represents a situation that would occur when the various facilities are operating at their maximum potential normal operating conditions.
- Hourly averaged meteorological data for 2011 from the Bournemouth International Airport measurement station were used in the modelling.
- The Environmental Assessment Level was based on that recommended for highly offensive odours by the Environment Agency in Horizontal Guidance Note H4.

9.7.5 The input data are summarised in the following table.

Table 9.45: Emission Source Parameters for the Biofilters

Parameter	Biofilter 1	Biofilter 2
Height (m)	2	2
Cross Sectional Area (m^2)	247.4	581.7
Efflux Temperature (°C)	6	6
Efflux Velocity ($m\ s^{-1}$)	0.045	0.034
Volumetric Flowrate ($m^3\ s^{-1}$)	11.1	20
Odour Concentration ($OU_E\ m^{-3}$)	289	289
Odour Discharge Rate (OU_E/s)	3,211	5,780
Odour Discharge Rate ($OU_E/m^2/s$)	13	10

9.7.6 The results from detailed modelling are presented in Table 9.46, in terms of the maximum hourly average Process Contribution (PC) for odour, expressed as the 98th percentile value due to emissions from the three biofilters. The maximum reported value is predicted to occur at a location ~120 metres to the north-east of the biofilters, within land under the management of Eco Sustainable Solutions Ltd, and reduces significantly with distance from the site. The results are discussed in the following sections.

Table 9.46: Results of Detailed Modelling –Process Contribution to Ground Level Odour Concentrations Due to Emissions from the Three Biofilters

Pollutant	Statistic	Standard/EAL (Permitted Exceedences)	Unit	Averaging Period	Process Contribution ($OU_E\ m^{-3}$) (Exceedences)
Odour	Annual	-	$OU_E\ m^{-3}$	1hr	~16
	Short Term 98%	1.5			~89

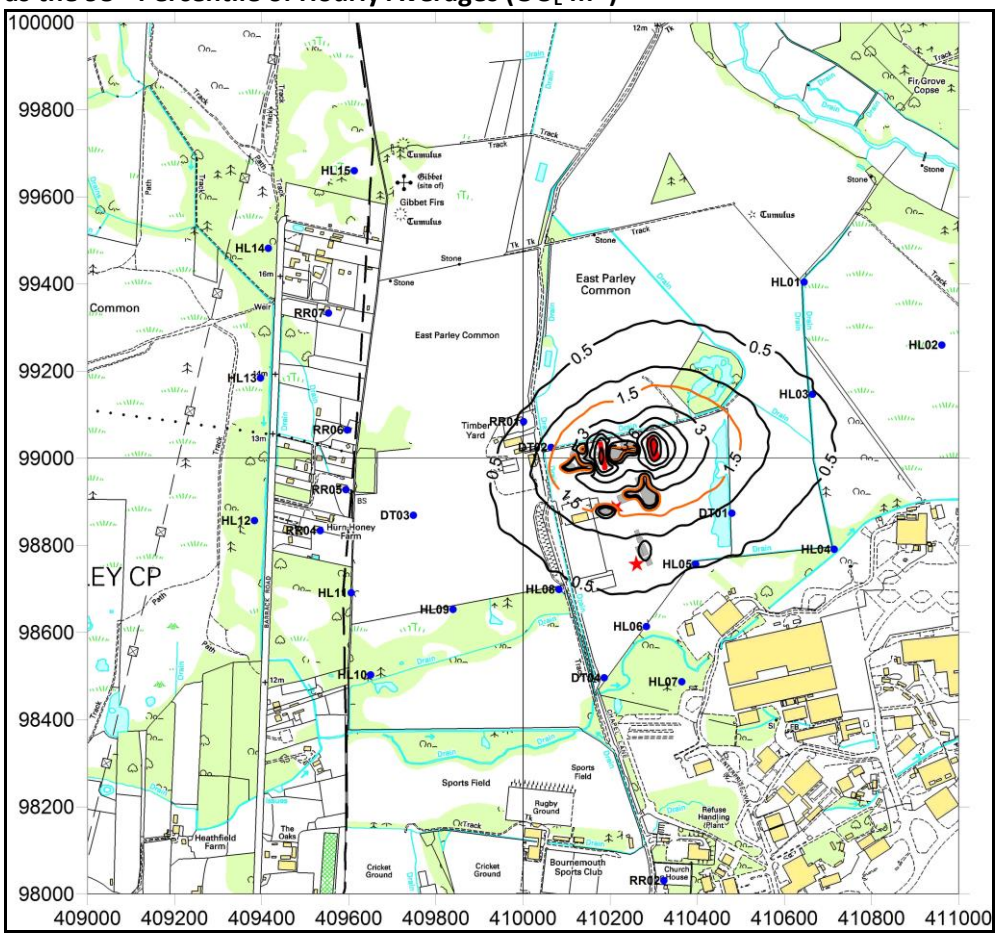
9.7.7 The location of the maximum Process Contribution is predicted to occur within ~120 metres of the site boundary. Process Contributions at the nearest residential premises were predicted to be significantly lower in relation to their distance from the site.

9.7.8 The odour Process Contributions at nearby residences to the east of the development site, was predicted to be ~0.1 $OU_E\ m^{-3}$, which is considerably lower than the Environment Agency EAL for offensive odours (1.5 $OU_E\ m^{-3}$). The exception is Receptor No. RR01 which is a the house near to the site entrance, where the odour concentration was predicted to be ~0.6 $OU_E\ m^{-3}$ (~40% of the EAL).

9.7.9 An odour concentration of 1 $OU_E\ m^{-3}$ is the threshold for detection by members of the general public with a "typically average" sense of smell. Accordingly, the maximum odour Process Contributions at nearby residential properties, as predicted by detailed modelling, will not be a reasonable cause for annoyance for people living and working at these locations.

9.7.10 The maximum hourly average Process Contribution for odour (98th percentile value), associated with the operation of the AD facility, is presented graphically in Figure 9.11. The image has been cropped to show the predicted odour Process Contribution at the nearest residential properties.

Figure 9.11: Predicted Odour Concentrations in the Vicinity of the AD Facility – Expressed as the 98th Percentile of Hourly Averages (OU_E m^{-3})



9.7.11 The orange contour line represents a 98% hourly average odour Process Contribution of 1.5 OU_E m^{-3}, equivalent to the Environmental Assessment Level for offensive odours. The odour Process Contribution at the nearest residential receptors, Receptor No. RR01, is ~0.6 OU_E m^{-3}, expressed as the 98th percentile of hourly average values, and so is likely be imperceptible and will not be a reasonable cause for annoyance or complaint.

Increase in Odour at Specific Receptors

9.7.12 The discussion above relates to the maximum values across the 2km x 2km receptor grid. Specific receptors were included in the detailed atmospheric modelling in order to assess the potential impact of emissions of odour from the biofilter at locations where members of the general public may be present for significant periods of time. The location of the residential receptors is shown in Figure 9.6.

9.7.13 For all of the receptor locations identified, the PC value was <1.0 OU_E m^{-3} and can be screened out as insignificant. The PC values for odour are presented in Table 9.47 for the nearby residential receptors.

Table 9.47: Results of Detailed Modelling of Odour at Specific Receptors

Receptor Number	Distance From Site (km)	Hourly Average Odour PC* (OU_E m^{-3})	% EAL**
RR01	0.2	0.59	39%
RR02	1.0	0.10	7%
RR03	1.0	0.09	6%
RR04	0.7	0.11	8%
RR05	0.6	0.13	9%
RR06	0.6	0.12	8%
RR07	0.7	0.06	4%

Note * Expressed as the 98th percentile of hourly average values
** EAL based upon an odour concentration of 1.5 OU_E m^{-3}, the reference for offensive odours

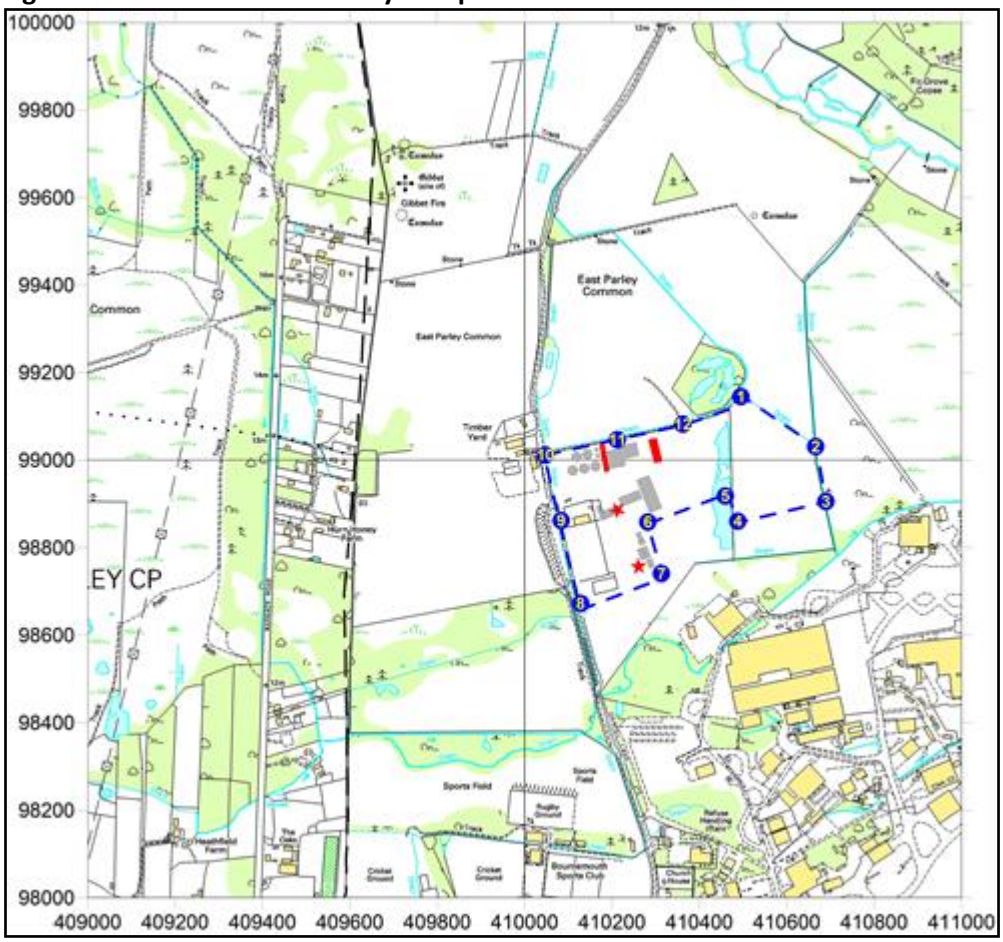
9.7.14 The hourly average odour Process Contribution at all of the above receptor locations is predicted to be 0.6 OU_E m^{-3} or less, with most values considerably below the 1.5 OU_E m^{-3} assessment level recommended by the Environment Agency for offensive odours, and can be screened out as insignificant in line with Environment Agency guidance. Accordingly, there should be no reasonable cause for annoyance at nearby residential and commercial premises due to odour release from the biofilter associated with the proposed AD Facility.

9.7.15 As stated earlier, an odour concentration of 1 OU_E m^{-3} is the threshold for detection by members of the general public with a "typically average" sense of smell. Accordingly, the maximum Process Contribution at the above receptor locations is likely to be imperceptible to all but those with the most sensitive sense of smell.

Odour Concentration at the Site Boundary

9.7.16 It is expected that there will be a condition in the Environmental Permit for the proposed AD Facility to ensure that odour concentrations do not exceed 1.5 OU_E m^{-3} beyond the site boundary. An assessment of the Process Contribution to odour at the site boundary was undertaken for eighteen boundary receptor locations shown in Figure 9.12, and based upon an odour concentration of 289 OU_E m^{-3} in the emissions from the biofilters.

Figure 9.12: Location of Boundary Receptors Included in the Odour Assessment



9.7.17 The results are presented in the following table.

Table 9.48: Results of Detailed Modelling of Odour at the Site Boundary

Receptor Location	Process Contribution (OU_E m^{-3})	Percentage of EAL*
1	1.0	69%
2	0.6	40%
3	0.4	29%
4	0.8	50%
5	1.2	82%
6	1.3	87%
7	0.6	39%
8	0.4	28%
9	0.9	61%
10	1.2	79%
11	6.7	448%
12	4.3	286%
*	EAL = 1.5 OU_E for offensive odours	

9.7.18 As can be seen, the hourly average odour Process Contribution is typically between ~0.4 and ~6.7 OU_E m^{-3} at the boundary of the proposed AD facility, depending upon location of the receptor and relative to the prevailing wind. The highest values are at Receptor Nos. 11 and 12, which are closest to the biofilters. It should be noted that the land to the north of the site is under the management of Eco Sustainable Solutions Ltd and it is unlikely that there will be local residents walking around the northern boundary of the proposed development site.

Mitigation Measures

9.7.19 Although the above assessment indicates that significant odours are unlikely to be released from the proposed AD Facility, a range of measures will be adopted to ensure that adverse impacts are not caused, and do not give rise to reasonable complaints from nearby residents. In particular, as already noted, the building will be maintained under negative pressure to contain any odours.

9.7.20 An odour management plan for the operation of the AD Facility, based upon Environment Agency Technical Guidance Note H4[14], has been prepared as part of the Environmental Permit application process. The odour management plan describes the processes and procedures that will be implemented by Eco Sustainable Solutions Ltd in order to minimise fugitive odour release from the AD Facility.

9.8 CONCLUSIONS

9.8.1 Eco Sustainable Solutions Ltd (Eco) is applying for full planning permission for the following:

"Proposed reconfiguration of existing and consented development; introduction of new plant and processes; increase in permitted throughput; partial widening of access road; partial realignment of Bridleway E62/29; new landscaping and associated matters."

[14] Environment Agency Technical Guidance Note H4 – Odour Management, How to Comply With Your Permit, March 2011

9.8.2 This is referred to as the Comprehensive Planning Application and will broadly comprise of the following elements:

9.8.3 The comprehensive reconfiguration of existing and consented processes, including the rearrangement of the existing Soils Recycling Area and consented Anaerobic Digestion Facility;

9.8.4 The modernisation of on-site processes through the introduction of new plant and processes, including Green Waste Composting Windrows, a Digestate Reprocessing Plant, a Compost Handling Centre, a Road Sweepings Plant, an SRF Processing Plant, and the conversion of the existing IVC barn for clean biomass combustion;

9.8.5 An increase in the overall waste throughput capacity at the site from the currently approved 210,000 tonnes per year to 266,000 tonnes per year;

9.8.6 The widening of part of the existing access road along Chapel Lane to provide a two-way carriageway;

9.8.7 The realignment of part of Bridleway E62/29 to the west of the fencing supplies centre and Whitemere House; and

9.8.8 The provision of a comprehensive landscaping scheme, including the introduction of 7m high screening bunds along the northern and eastern site boundaries, as well as a native tree and shrub planting belt.

9.8.9 The majority of the on-site recycling processes will now be sealed from arrival to dispatch. The comprehensive planning application proposals are intended to provide for the modernisation and efficient operation of the various processes on the Site.

9.8.10 Previous studies undertaken in relation to air quality impacts associated with process operations on the Eco site have considered the impact of emissions from the recently approved Biomass Energy Facility (BEF) and an Anaerobic Digestion (AD) facility. Of particular importance to these studies was consideration of the potential impact of increased levels of nitrogen deposition within the Dorset Heathlands habitat site that surrounds the Eco site. These studies have been updated and amalgamated to take account of changes in the composting of waste and the introduction of the new clean biomass combustion plant that will arise as a result of the comprehensive planning application.

9.8.11 Modelling was based upon the results of a sensitivity analysis undertaken at the time of the original planning application to determine which model parameters (buildings, surface roughness, and meteorological data sets) would produce the most realistic set of predictions and then the set of worst case predictions. In view of the fact that there is no terrain with a gradient of more than 10% in the area, it was concluded that terrain effects should not be incorporated into the model. Adjacent structures were shown to have a significant impact on the dispersion of the plume and therefore the Buildings Effects module was included within the modelling. A surface roughness of 0.3m was used in detailed modelling, as was the 2011 meteorological data for Bournemouth International Airport.

9.8.12 The results from detailed modelling indicate that there will be no exceedences of the objective limits defined within the Air Quality Regulations or Environmental Assessment Levels recommended by the Environment Agency in relevant guidance. The most significant pollutant was NO_2 (annual average) whereby the Predicted Environmental Concentration (including the atmospheric background and the process contribution) was ~18 µg m-3 which equates to ~45% of the annual Objective Value of 40 µg m-3. The maximum annual average process contribution for NO_2 was ~6 µg m-3, equivalent to ~14% of the annual Objective Value.

9.8.13 The model predicted that there would be no significant impact on air quality associated with the atmospheric release of SO_2, Particulates, HCl, HF, CO, VOCs heavy metals and dioxins from the proposed BEF. The results from detailed modelling showed that potential exposure to dioxins via both inhalation and dietary routes was likely to be well below the Tolerable Daily Intake of 2 pg kg-1.

9.8.14 The assessment also considered the potential impact of the comprehensive development on nitrogen and acidity deposition within the sensitive heathland habitat adjacent to the Eco site. Modelling was carried out to assess potential deposition rates for nitrogen and acidity in the vicinity of the Eco site in Chapel Lane due to the increase in emissions from the BEF, the clean biomass plant and reductions due to the removal of the diesel generators and the ~35% reduction in on-site composting activities. The assessment also included the contribution of increased vehicular movements associated with the comprehensive development. The methodology was based upon that recommended by the Environment Agency in AQTAG 06.

9.8.15 When considered cumulatively, the reductions in nitrogen deposition that will occur due to the removal of the diesel generators and the reduced composting capacity will more than compensate for the increase due to the operation of the BEF, the clean biomass plant and increased vehicle movements into and out of the Eco site. Overall, it is estimated that the comprehensive development will result in an overall reduction in the present levels of nitrogen deposition in the adjoining Dorset Heathland habitat, equivalent to ~18% of the Lower Critical Load.

9.8.16 The results from a detailed assessment of odour release from biofilters associated with the AD facility showed that odour concentrations at nearby residential and commercial premises were unlikely to be a reasonable cause for complaint.

9.8.17 It should be noted that an Environmental Permit will be required for the proposed BEF development, to be issued and regulated by the Environment Agency, which will enforce rigorous control of emissions to atmosphere in order to protect the heathland habitat.

9.8.18 The predicted environmental concentrations of all pollutants associated with the comprehensive development of the Eco site in Chapel Lane, Parley were well within relevant Air Quality Standards and Environmental Assessment Levels recommended by the Environment Agency. It is concluded that the associated changes will not have a significant impact on local air quality, and will result in a significant reduction in nitrogen and acid deposition in the adjoining Dorset Heathlands habitat.

Glossary and Abbreviations

The following terms and abbreviations were used in this report:

Air Quality Management Area (AQMA)

If a local authority finds any places where the objectives are not likely to be achieved, it must declare an Air Quality Management Area there. This area could be just one or two streets, or it could be much bigger. Then the local authority will put together a plan to improve the air quality - a Local Air Quality Action Plan

Air Quality Objective

Objectives are policy targets generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedences, within a specified timescale.

Air Quality Standard (AQS)

Standards are the concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on assessment of the effects of each pollutant on human health including the effects on sensitive sub-groups.

Environmental Assessment Level (EAL)

Used to assess the potential impact of pollutant emissions in the absence of a statutory air quality standard or objective level. The most common EALs are those recommended by the Environment Agency, or derived from Occupational Exposure Levels specified by the Health & Safety Executive.

Exceedence

A period of time where the concentration of a pollutant is greater than, or equal to, the appropriate air quality criteria. For air quality standards an exceedence is a concentration greater than the standard value. For air quality bands an exceedence is a concentration greater than, or equal to, the upper band threshold.

Microgramme per cubic metre (µg m^{-3})

A measure of concentration in terms of mass per unit volume. A concentration of 1 µg m^{-3} means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant.

Predicted Environmental Concentration (PEC)

The overall impact of process emissions on local air quality taking into account the contribution of emissions from the process itself, and the existing concentration of a pollutant at a specific location.

Process Contribution (PC)

The contribution of emissions from a process to ground level pollutant concentrations at a specific location, disregarding the existing background concentration.

CERC	Cambridge Environmental Research Consultants
IED	Industrial Emissions Directive
EPR	Environmental Permitting Regulations
HMIP	Her Majesty's Inspectorate of Pollution
US-EPA	United States Environmental Protection Agency
GFE	GF Environmental Ltd
OS	Ordnance Survey
CO	Carbon Monoxide
NO	Nitrogen Monoxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
O_3	Ozone
HCl	Hydrogen Chloride
HF	Hydrogen Fluoride
PM_{10}	Particles (smaller than 10 microns in diameter)
$PM_{2.5}$	Particles (smaller than 2.5 microns in diameter)
min	Minute
mm	Millimetre
ºC	Degrees centigrade
pg/m^3	Picogram per cubic metre
$\mu g/m^3$	Microgram per cubic
SO_2	Sulphur Dioxide
VOCs	Volatile Organic Compounds
TDI	Tolerable Daily Intake
ha	Hectare
hr	Hour
km	Kilometre
LT	Long Term
$m\ s^{-1}$	Metre per second
m	Metre
m^3	Cubic metre
min	Minute
mm	Millimetre
ºC	Degrees centigrade

pg/m^3	Picogram per cubic metre
$\mu g/m^3$	Microgram per cubic metre
µ	micro - 10^{-6}

Appendix 9.1

Detailed Discussion on Model Input Data

Atmospheric Chemistry

A component of the ADMS model contains algorithms to calculate the chemical reactions in the atmosphere between nitric oxide (NO), nitrogen dioxide (NO_2) and ozone (O_3) and the resultant concentration of each pollutant within the plume.

Instead, empirical formulae provided in Environment Agency Guidance[15] was used for calculating annual average and hourly average NO_2 ground-level concentrations from the corresponding values for NO_X, as shown in Equation 2 and Equation 3:

Equation 2 Calculation of Annual Average NO_2 Predicted Environmental Concentration

(Annual $NO_{X\ Modelled}$ x 0.7) + Annual $NO_{2\ Monitored}$

Equation 3 Calculation of Hourly Average NO_2 Predicted Environmental Concentration

(Hourly $NO_{X\ Modelled}$ x 0.35) + (Annual $NO_{2\ Monitored}$ x 2)

Meteorological Data

When modelling plume dispersion, the following meteorological data are required as a minimum:

- wind speed (m s^{-1})
- wind direction (degrees)
- cloud cover (Oktas)
- mixing height

For the purposes of this exercise, meteorological data for 2008 to 2012 from Bournemouth Airport, approximately 1 km from the modelled location, were utilised. These data sets did not contain a full compliment of cloud data and were therefore supplemented with cloud data from the Met Office's nearby Boscombe Down monitoring station. The windrose for 2011 is shown in **Error! Reference source not found.**; the windroses for 2008 to 2012 are presented in Appendix 9.3.

The data indicate a predominance of winds from between a southerly and westerly direction. The data also indicate a significant proportion of winds from a narrow northerly direction. The meteorological data included nine parameters are defined in the assessment.

[15] http://www.environment-agency.gov.uk/static/documents/Conversion_ratios_for__NOx_and_NO2_.pdf

Local Environmental Conditions

Local environmental conditions describe the factors that might influence the dispersion process (such as nearby structures, sharply rising terrain, etc.) and also describe the locations at which pollutant concentrations are to be predicted. These include:

Nearby Buildings and Structures

If the stack is located on the top of a building, or adjacent to a tall building, then the size of these buildings may need to be considered. As a general guide, building downwash problems (where emissions are caught in the turbulent wake caused by wind blowing around the building) may occur if the stack height is less than 2½ times the height of the building upon which it sits. Adjacent buildings may need to be taken into account if they are within about 5 stack heights of the point of release.

To take account of local building effects, models generally require information related to the dimensions and location of the structures with respect to the stack. In reality there are not that many buildings on Site. However, there are a number of stockpiles of materials that will have the same characteristics of a solid building structure, such as compost heaps and wood heaps. Therefore these were also modelled. In this context buildings should be interpreted to be both buildings and other large features.

The proposed main combustion plant building was considered to be the main building which would affect the dispersion characteristics of emissions from the flues.

Surface Roughness

It is sometimes necessary to define a term, which describes the degree of ground turbulence caused by the passage of wind across surface structures, also called the surface roughness. The degree of ground turbulence is much greater in urban areas (due to the presence of tall buildings) than in rural areas (which contain smaller obstacles at the surface). The dispersion model may require the user to select “urban” or “rural” conditions, or to specify a “surface roughness length” according to defined criteria. Calculations of dispersion, which take account of the greater aerodynamic roughness of the surface structures in urban areas, tend to predict higher concentrations closer to the stack than calculations under equivalent conditions, which assume typical rural roughness.

For the purpose of this model a surface roughness factor of 0.3m was chosen, characteristic of parkland and open suburbia. This value was considered applicable for the Site given its setting. A sensitivity analysis was undertaken to determine if different surface roughness would have an impact on the plume dispersion.

Complex Terrain Data

The presence of steep hills in the vicinity of the stack may affect the dispersion of pollutants. During more stable conditions, an elevated plume may impact upon a nearby hillside, resulting in much higher ground level concentrations than would occur over flat terrain. The more sophisticated models can take account of these terrain effects, and require the input of contour heights in the immediate area surrounding the stack. Terrain effects are unlikely to be significant where the hills have a slope of less than about 10%.

The local topography was considered to not meet the above 10% criteria. Therefore the significance of modelling with terrain data was not evaluated.

Output Grid and Specific Points

It is necessary to define the locations at which ground level concentrations are to be calculated by the model. In selecting receptor locations, it is general practice to identify the nearest, sensitive locations to the chimney stack, such as residential housing, hospitals *etc*. Many models allow the user to specify a "grid" of receptor locations. However, when setting up a receptor grid it is important to ensure that there are sufficient receptor points to able to predict the magnitude and location of the maximum concentration. If the grid of receptor points is too widely spaced, the maximum concentration may be missed.

For this modelling exercise a receptor grid covering an area 4km x 4km in a 101x101 grid with 40 metre spacing in order to assess the potential impact of pollutant emissions from the combustion sources on the surrounding communities. In addition, twenty six specific receptor locations were modelled.

Appendix 9.2

D1 Calculation of Stack Height for Clean Biomass Plant

Calculation of Chimney Height Using Method In Technical Guidance Note D1

Uniconfort Boiler Installation
Calculations Based on Data Supplied by Eco Link Ltd
October 22, 2013

Gas Temp C	160
Gas Temp K	433
Stack Diameter	0.70
Gas Rate m3/s	5.919
Gas Velocity m/s	15.4
FG O2 (%)	NA
Building Height m	9
FG H2O (%)	NA
Std O2 (%)	NA

XS Area
0.3849 m²

Heat Release MWth
0.71

If emissions data available, enter in appropriate Cell in Column C (19 to 27). Otherwise Enter Discharge Rates

Q<1	a	-1.08
	b	0.49
Q>1	a	-1.09
	b	0.49
	x	-2.02
	y	4.79
	z	-8.73

	Discharge Conc. (mg/Sm3)		Discharge Conc. (mg/m3)	Discharge Rate (g/s)	Guideline Concentration (mg/m3)	Background Concentration (mg/m3)	Pollution Index (m3/s)	
NOx				0.299	4.40	0.035	68	NOx
NO2				0.150	0.2	0.026	857	NO2
NO				0.150	4.4	0.009	34	NO
CO				0.187	10	0.300	19	CO
PM_{10}				0.037	0.1	0.014	1034	PM10
Total							1034	Total

Case for Single Building

Ub (m)	M (m4/s2)		Min Um (m)	Um (m)	U Corrected Chimney Height (Metres)	Height Above Building (Metres)
2.5	59		3.0	3.0	12	3

Case for Multiple Buildings within 5Um

5Um = 15.2 metres

CHECK THAT D<5Um

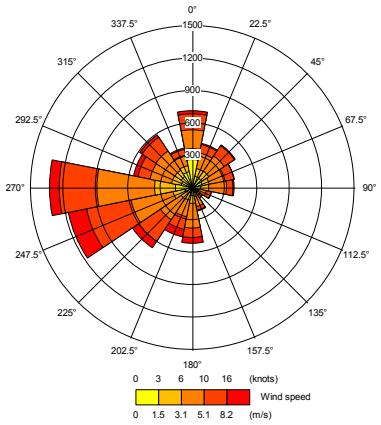
Building No.	Distance (metres)		Height (metres)	Height (H)	Width (B)	Length (metres)	K (Min H & B)	T (H+1.5K)
Main Building	1	1	9	9	18.6	32.0	9	22.5
Fuel Reception	32	0	2	0	8.0	34.0	0	0
SRF Building	80	0	9	0	30	80	0	0
Bagging Barn	20	0	8	0	20	50	0	0

Hm (Hmax)	Tm (Tmax)		U Min Um&Ub	Is U>Tm? (1=Y, 0=N)	Corr. Disch. Ht. (Metres)
9	22.5		2.5	0	12

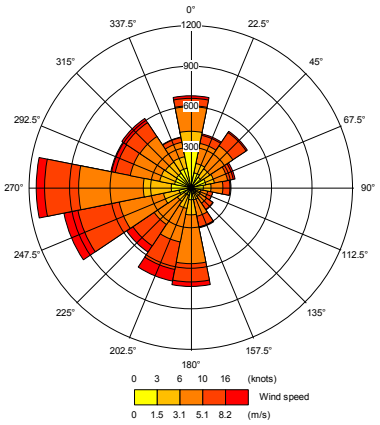
Appendix 9.3

Windroses

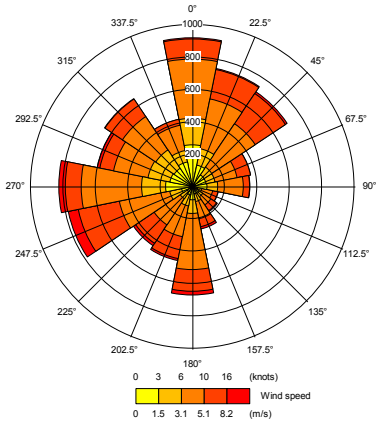
2008



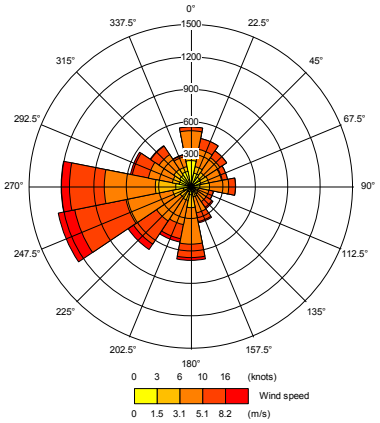
2009



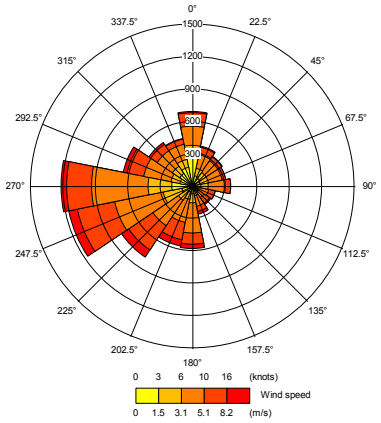
2010



2011



2012



Dust and Bioaerosol Management and Monitoring Plan
Parley Waste Management Facility

Introduction

- Dust and Bioaerosol emissions at composting sites have similar sources and so this management plan will cover both issues.
- Both issues are down to particulates carried by air and so management for both is similar.
- Control for the operations at Parley will be undertaken using the system detailed within this plan.
- This plan will be reviewed annually at a minimum or following a change to work conditions or practices at the site.
- Eco's operations carried out on the Parley site have generated complaints associated with dust nuisance in the past. However, some complaints have been generated by farming operations carried out in neighbouring fields and erroneously attributed to Eco's operations. This Plan will ensure that the site's control measures are maintained and any complaints are investigated and assigned to the correct source so that appropriate action may be taken. The solar generation development of all the fields immediately around the Eco Parley site has effectively removed this potential dust source close to the site now and so will help remove any confusion.

Complaints Procedures

- In the event of complaints occurring, the recording & investigation of environmental complaints procedure (ECOHS01_f) will be followed and site dust control processes will be audited against the procedures set out below.

Wind Direction and Speed Measurement

- The wind direction will be monitored using information gathered from the on-site automated weather station located on the roof of the site office building and www.xcweather.co.uk . A screen print of the web site data is shown in Appendix 1.
- This information will be stored on site and used to correlate any complaints to potential sources on or around site, ensure that dust management is tailored to required control (so saving water resources) and to tailor site activities during periods of high wind to minimise potential generation.
- The forecasted and actual wind direction will be checked during the working day to ensure ongoing operations will not cause dust to be generated due to the wind conditions. This forecast will be noted on the site checklist by the site foreman and/or manager.
- As a second monitoring method, the site has a flag and windsock visible to the operatives. These will be monitored by the operatives themselves. Should the wind change, appear to be gusting or strengthening, the operatives will cease working and report the wind change to the site foreman and/or manager. If required, operations will be amended to reduce potential dust generation.

Monitoring Procedures and Action Trigger Levels

- Routine proactive monitoring as well as reactive monitoring is carried out at Parley.
- Monitoring is used to investigate potential sources, pathways, and destinations of emissions as part of continued control over the site.
- The investigation of potential causes and routine checks enable the appropriate measures to be applied to reduce or eliminate the effect on off-site sensitive receptors as promptly as possible.
- Dust will be monitored through continual observation by the site management, site foreman and site operatives whilst site operations are ongoing.
- As bioaerosols are deemed to be too fine to see (unlike dust), odour is used as an indicator for site staff as to the potential presence of bioaerosol emissions. monitoring is carried out.
- Bioaerosol monitoring is carried out twice a year to comply with the Eco Parley Environmental Permit. The results of these monitoring runs are held on site and reviewed by the site management. The results are made available to stakeholders on request.
- Odour Assessments are used as an indicator of direction of potential bioaerosol dispersion and action required. A daily sniff test is completed around the site (and off site when appropriate) to ensure no odours are detectable at the site boundary and beyond.
- Sniff test results are recorded on the "Parley Site Odour Assessment Form." This is detailed in the Odour Management Plan.
- Trigger levels for emissions management will be:

- The wind speed recorded by the site weather station exceeding 32mph (28 knots).
- Visible dust being generated by an operation or condition on site.
- Odour being apparent outside the site boundary.

Action Level Procedures

- When the above Trigger levels are noted, the following actions will be carried out by the company:
  - Wind Speed exceeding 32mph (28 knots)
    Eco will ensure the following operations are ceased if they have not already been stopped prior to this Trigger Level being met:
    Un-enclosed shredding or screening of any light material (green waste or wood waste)
    Turning of compost windrows if this is causing visible dust generation
    Loading of any light products on site.
  - Visible emissions being generated by an operation or condition on site
    Eco will take the following measures should visible dust be generated on site:
    Small amounts of dust will be dealt with by either damping down the area, operation or material that is causing the dust.
    Large amounts of visible dust will result in the operation being ceased until effective dust suppression measures can be installed and/or, the operation is changed or feed stock damped sufficiently to stop dust generation. The operation will only be restarted when the dust can be successfully managed.
  - The presence of odour will be taken to imply that bioaerosols may also be present in the emissions from site so, on odour being apparent:
    A site deodorising system operates during working hours and a misting fan is suitably located and switched on during unfavourable wind conditions.
    Any odour or sources of odour discovered during the routine monitoring required for the OMP will be investigated and rectified.

Storage and Handling of Materials

- Wastes and other materials will be discharged, moved, processed and stored in such a manner as to minimise dust generation. These measures will include:
  - Ensuring discharge heights from conveyors are kept as low as possible and are covered to prevent windblown dust.
  - Ensuring all conveyors and screens on site are covered where practicable.
  - Ensure all feed stock piles for shredders are damped down as necessary to reduce dust generation.
  - Ensure shredders are fitted with water sprays where practicable, particularly when operating in the wood yard.
  - Ensuring all materials stockpiles are maintained to minimise dust generation from surface.
  - Ensuring plant drivers are trained to keep discharge heights from buckets as low as possible when loading plant and trucks.
  - Ensuring moisture levels are maintained in all compost windrows to stop dust being generated during turning or screening operations, particularly when the material is passed through the litter separation plant.
  - Ensure green waste being shredded is blended to mix wet and dry wastes to minimise dust generation during processing.
  - Ensuring all vehicles entering and leaving the site loaded are covered.
  - Ensuring spreading operations do not take place in times of high winds and that the moisture level of material being spread to fields is maintained to reduce any dust generation.
- Eco will ensure that company operations are carried out in such a manner as to minimise dust and bioaerosol generation and other environmental impacts as far as possible.

Site Management to Reduce Emissions

- Eco will ensure that the site running surfaces and access road will be maintained in such a condition as to reduce any dust generation as far as is practicable. Such maintenance works will include:
  - Ensuring impermeable running surfaces on site are regularly swept and maintained in a debris-free condition to minimise any material available to be ground up by vehicle tyres.
  - Imposing a 5mph speed limit within the site to reduce dust pick up.

  - Ensuring the site access road is regularly swept and maintained in a debris-free condition to minimise any material available to be ground up by vehicle tyres.
  - Ensuring the site has a water bowser on permanent standby to damp down all running surfaces and stockpiling areas on site as required.
  - Ensuring the bowser washes all surfaces first thing every morning to give a clean start to the day.
  - Ensuring the water spray system around the site weighbridge/main traffic area is fully operational through dry periods as necessary. This system is automatic and dampens down the main trafficked areas of the site automatically.
  - Ensuring the surfaces and road are maintained in a good, clean and pothole-free condition to prevent the build up of debris and allow consistent cleaning.
  - Ensuring the site and access road drainage systems are maintained in a good operational condition to prevent ponding and the associated debris and silt build up.
  - Ensure all vehicles leaving the site are clean and debris-free to prevent any material falling from the vehicle onto the road and providing a potential dust source.
- The Eco Parley site no longer operates an ABPR composting system. The Reception Barn for this system is used to receive and bulk up waste prior to dispatch to Piddlehinton AD plant.
  - All loads received at the ABPR Reception Barn arrive in sealed vehicles (as a requirement under ABPR). Food waste material is discharged and inspected inside the enclosed In Vessel barn prior to being reloaded and despatched.
  - The incoming waste is wet in nature, so dust and bioaerosol emissions from this operation will be minimal.
  - The barn is also equipped with a biofilter system, that draws air from the barn (maintaining negative pressure) and passes it through a wood-chip biofilter. This continuous air change reduces the incidence of bioaerosols within the barn and so their potential impact on operators.
- The Eco Parley site no longer operates a block windrow system. The site now operates a windrow composting system. The system is monitored and managed using the *Compost Manager* system to maintain the Quality Protocol-compliant process.
  - Using the Compost Manager monitoring system, the temperature and moisture content of the compost is closely monitored and can be amended as required. This stops the compost drying out.
  - The system also only recommends turning when necessary, reducing the amount of handling the compost requires and so lessening the opportunities for dust and bioaerosol emissions.
- Compost is turned using a straddle turner to work along the windrows in situ. This will work along each windrow as necessary for the process. The turning process is tightly controlled and produces very little emissions.
- All compost on site is screened using plant contained within a building to reduce emissions.
  - The compost is screened wet to reduce emissions further and maintain the quality of the material.
  - Operators working the screening plant have dust filters on the loading shovel cabs.

Other Control Measures

- The site further controls potential emissions sources by ensuring that dusts as waste are not received on site.
- Prior to the delivery of new waste streams the waste haulier or producer must be informed of the site acceptance criteria to ensure the waste is in a suitable form for the site to process it without causing nuisance.
- The foreman and/or site management will undertakes spot checks around the site to ensure no dusts are detectable at the site boundary and beyond on a daily basis.
- The site will maintain a continuous water supply for the site bowser, dust suppression sprays and damping down of materials being processed. This will be in the form of extraction points on the existing 3 lagoons on site or, as a backup system, access to a fill point connected to the mains water supply. These reserves will ensure that the site has a continuous reserve of water to ensure dust suppression and materials conditioning requirements are met.

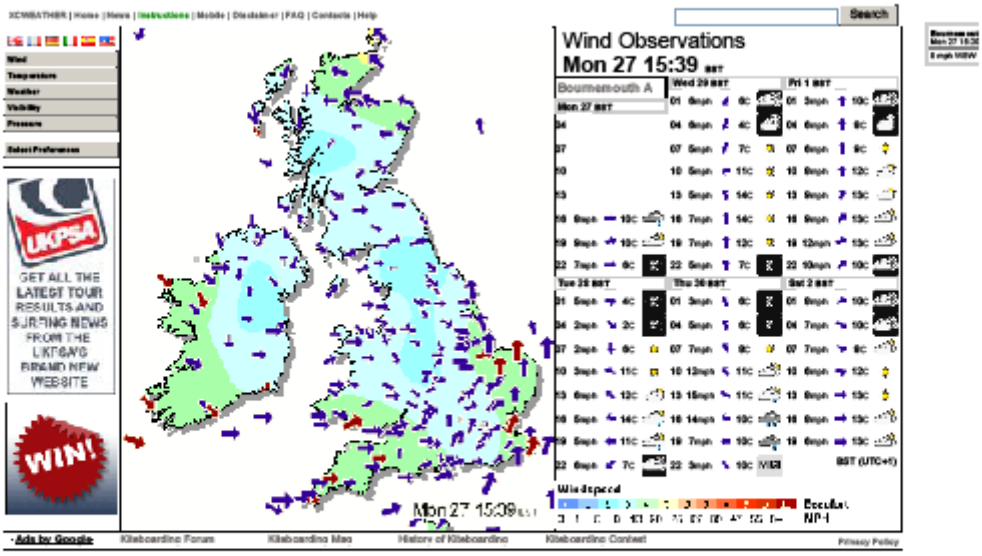
Monitoring and Review of the Management Plan

- This Management Plan will be reviewed and updated annually as a minimum.
- In the event of a change of site operational process or control system, the Plan will be reviewed to ensure it remains a current working document.
- This review was triggered by the closing of the two block composting systems and the adoption of a windrow system for green waste processing on site.

- In the event of a major process failure or dust nuisance being caused by the site or operations, the Plan will be reviewed to ensure the measures set out herein are sufficient to cover the ongoing operations of the site.
- The site diary is used to record any incidents of excessive dust arising and control measures used as well as noting ambient conditions on site.
- Eco has site daily housekeeping and maintenance checklist which includes sweeping of the yard using a forklift attachment.

Appendix 1 – Screen Print from www.xcweather.co.uk

Wind Observation Map - Britain Page 1 of 1



http://www.xcweather.co.uk/GB/observations 27/04/2009

Eco Sustainable Solutions

Environmental Management System

Parley

January 2015

Environmental Permit Variation (EPR/GP3793FY/V010)

1 Contents

1. Introduction

This Environmental Management System (EMS) has been prepared in accordance with the Environmental Permitting requirements and sets out the considerations and operational details that are relevant to the working of the operations carried out at the Eco Sustainable Solutions Ltd site located at Chapel Lane, Parley, Christchurch, Dorset, BH23 6BG.

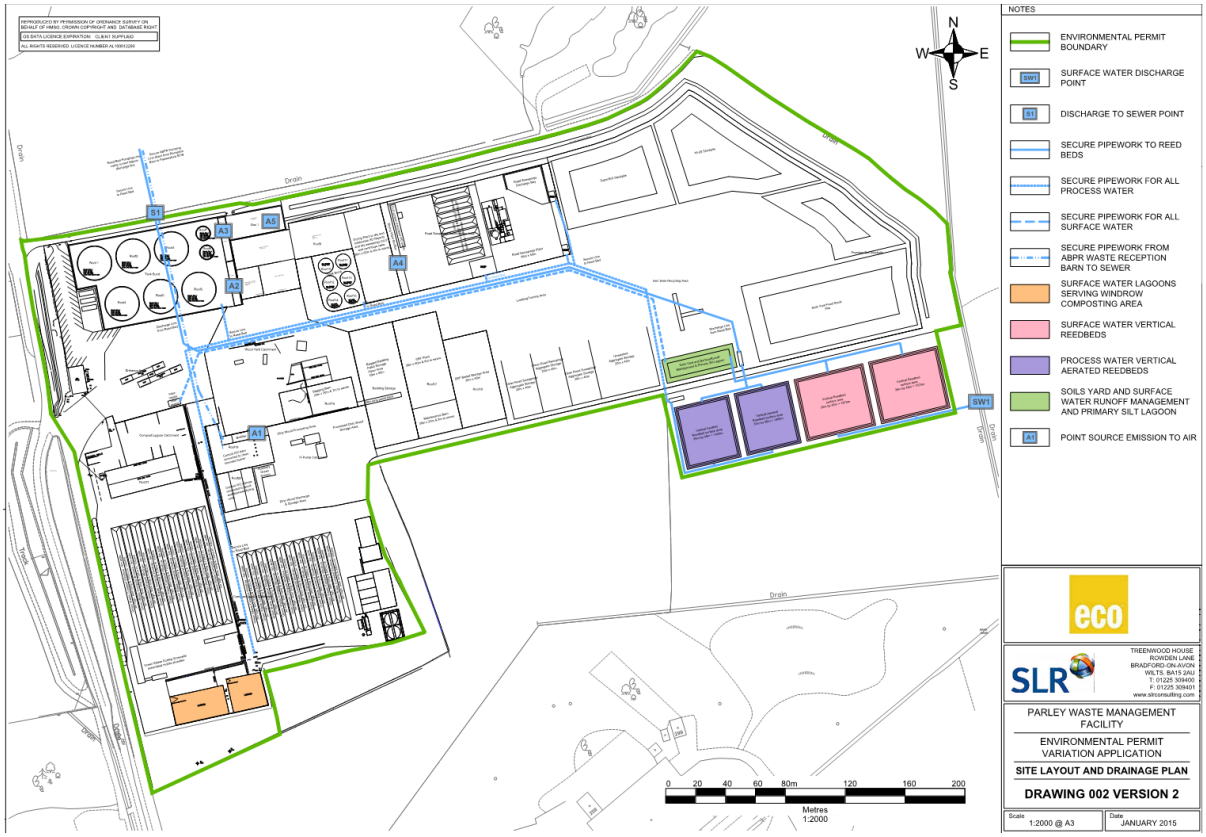
This EMS document must be read in conjunction with the Best Available Techniques and Operating Techniques (BATOT) report included in the Environmental Permit Application (EA Ref: EPR/GP3793FY/V010). This BATOT report is included in Appendix 8 of this EMS.

2 Site Overview

Eco Sustainable Solutions Limited Parley site (Eco Parley), located at:

Eco Sustainable Solutions Limited,
Chapel Lane,
Parley,
Christchurch,
Dorset.
BH23 6BG.
Tel: 01202 593601
E: office@thisiseco.co.uk
Environmental Permit: EPR/GP3793FY. (Appendix 1)
Planning Application: 8/2001/351 (Appendix 2)

2.1 Diagram 1- Site Layout



2.2 Opening hours

The hours of operation for the reception of waste are follows:

Monday – Friday: 07:00 – 17:00

Saturday's & Public Holidays: 07:00 – 12:00

The site operates up until 18.00 Monday to Friday and 13.00 Saturday to allow maintenance works to be carried out but no waste will be accepted, processed or dispatched from site during these times.

2.3 Provision of Site Identification Board

A site information and warning notice is required for each Environmental Permit operated at Parley. The sign carrying this amalgamated information is located at the main entrance to the site. The site notice contains all the required elements as set out within each Environmental Permit, including Permit numbers, opening hours, operator's details (including address and contact telephone numbers), Environment Agency contact details and emergency contact telephone numbers.

2.4 Site Security

The site is surrounded by either a 1.8m high close boarded fence (to the Chapel Lane boundary), or a post and wire stock fence backed in places by replanted hedgerow (to the rear of the site). All gates to the site are kept locked when not in use. The site is monitored out of hours using 2 camera systems, one of which has a dial out facility to a 24 hour monitoring station, so providing continual out of hours coverage of the site. The monitoring station has emergency contact numbers for all the senior management responsible for the operations at the site. The boundary fences, main & access gates and cameras are checked daily for damage or signs of attempted entry. Such occurrences are noted in the site diary and any damage is repaired immediately in the case of minor damage or within a week in the case of major damage. The main access point to the site passes alongside the main office and weighbridge units, which provide continual supervision and video monitoring of all traffic movements in and out of the site.

3 Environmental Policy

Eco Sustainable Solutions are aware, not only of global concerns, but those of our local environment. As members of the local community we also share its concerns and will make every effort to ensure that we minimise any adverse effects that our undertakings and operations may have on the environment.

Eco Sustainable Solutions will achieve the commitment of safeguarding the environment by undertaking and implementing the following:

- Identify environmental impacts of the company.
- Comply with existing legislation as a minimum.
- Implement procedures to minimise pollution to Land, Air and Water.
- Continuously endeavour to reduce the environmental impact of the operations.
- Reduce waste and consumption of energy and natural resources wherever and whenever possible.
- Provide appropriate training and resources to ensure personnel have the required skills to implement the policy
- Work to develop efficient transport systems that have minimal environmental impact and meet the CO_2 emissions requirements as laid down by the Department of Transport for all vehicles
- Communicate the policy to all employees.

4 Scope

This EMS sets out the nature of the site, relevant site and infrastructure works, methods of operation and environmental controls. The permitted waste management operations carried out on the site are detailed in Table 2.

4.1 Waste Management Operations and Material Limits

	Description	As defined in Annex IIB of EC Framework Directive on Waste (91/156/EEC):	Unit Quantity Limits
Composting Unit (inc. associated water storage)	The reception, storage, processing, composting, screening & dispatch of biodegradable wastes through the Composting Unit.	**R3:** Recycling/reclamation of organic substances which are not used as solvents **R13:** Storage of material intended for the operations above	38,250 tonnes per annum (in the interim before the AD plant, clean biomass plant and SRF plant is operating, the annual tonnage received for composting will be up to 55,000. This comprises the currently received green waste and the green waste formerly processed through the IVC system which was blended with the incoming food waste as a moderator))
Soils Recycling Unit	The reception, storage, processing, screening, washing & dispatch of inert soils & inert C&D wastes through the Soils Recycling Unit.	**R3**: Recycling/reclamation of organic substances which are not used as solvents **R5:** Recycling/reclamation of other inorganic materials **R13:** Storage of material intended for the operations above.	100,000 tonnes per annum
Wood Recycling Unit	The reception, storage, processing, shredding, screening and dispatch of mixed and clean wood through the Wood Recycling Unit	**R3:** Recycling/reclamation of organic substances which are not used as solvents **R13:** Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection on the site where it is produced)	33,000 tonnes per annum 2 ,000 tonnes maximum waste in storage at any one time
Food Waste Transfer	The reception, storage & transfer of biodegradable food wastes.	**R13:** Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection on the site where it is produced)	15,000 tonnes per annum 200 tonnes maximum waste in storage at any one time
Road Sweepings Plant	The acceptance and treatment of road sweepings and gulley waste and freshwater and hazardous drilling muds.	**R3:** Recycling/reclamation of organic substances which are not used as solvents **R4:** Recycling/Reclamation of metals and metal compounds **R5:** Recycling/reclamation of other inorganic materials **R13:** Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced	42,000 tonnes per annum 10,000 tonnes per annum of associated CLO composting

Anaerobic Digestion Plant	The reception and treatment of wastes by anaerobic digestion including the acceptance of ABPR waste	Section 5.4, Part A (1) (b) (i) 'recovery or mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities, biological treatment Section 6.8, Part A (1) (c) 'disposing of or recycling animal carcasses or animal waste, other than by rendering or by incineration falling within Section 5.1, at a plant with a treatment capacity exceeding 100 tonners per day of animal carcasses or animal waste or both in aggregate.	33,000 tonnes per annum (includes food waste, green waste and ABPR waste and excludes PAS100 leachate, surface water and maize – non wastes)
Biomass Plant	The reception and treatment by incineration of clean wood.	R1: Use principally as a fuel or other means to generate energy; and R13: Storage of wastes pending any of the operations numbered R1 to R12.	16,250 tonnes per annum
Bedding Plant	The acceptance and treatment by screening, shredding and bagging of clean wood waste.	R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes); R13: Storage of wastes pending any of the operations numbered R1 to R12.	13,300 tonnes per annum of imported clean wood and clean wood from the waste wood reception area
Solid Recovered Fuel (SRF) Plant	Treatment of wastes to produce SRF.	R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes); R5: Recycling or reclamation of other inorganic materials; R13: Storage of wastes pending any of the operations numbered R1 to R12.	9,798 tonnes per annum

Plastics and Rejects Drier	Treatment of residual waste fractions by drying.	R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes); R5: Recycling or reclamation of other inorganic materials; R13: Storage of wastes pending any of the operations numbered R1 to R12.	12,225 tonnes per annum of residual waste
Waste Recovery Operations	The acceptance and recovery of waste by use in construction.	R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes); R5: Recycling or reclamation of other inorganic materials; R13: Storage of wastes pending any of the operations numbered R1 to R12.	25,000 tonnes per annum of waste

5 Legislation

The Site's Environmental Policy statement requires it to comply with existing relevant legislation as a minimum. These are identified and outlined below. The site uses these as a minimum threshold and will aim to exceed these where possible

5.1 List of relevant legislation

Legislation /code of practice	Applicable to which processes/product	Where is a copy held?	Person responsible for compliance
Environmental Permitting Regulations 2010	• All	Site Operations Office	COTC Holder
Groundwater regulations 1998, SI 2746	• All	Site Operations Office	COTC Holder
Water Resources Act 1991,as amended.	• All	Site Operations Office	COTC Holder
Environmental Protection Act 1990	• All	Site Operations Office	COTC Holder
Control of Pollution (Oil Storage) (England) Regulations 2001, SI 2954	• Site general	Site Operations Office	COTC Holder
Hazardous Waste Regulations (2005)	• Site general • Maintenance	Site Operations Office	COTC Holder
Health and Safety at Work Act 1974	• All	Site Operations Office	COTC Holder
COSHH	• All	Site Operations Office	COTC Holder
Non-road Mobile Machinery (Emission of gaseous and particulate pollutants regulations) 1999	• All	Site Operations Office	COTC Holder
Contaminated Land Regulations 2000	• Site general • Maintenance	Site Operations Office	COTC Holder
Town and planning Act 1990	• All	Site Operations Office	COTC Holder

6 Permitted Wastes

The permitted waste types and annual tonnages (tpa) and corresponding EWC for each Environmental Permit can be found in Appendix 3.

The Site accepts waste streams from public utility, local authority, private contractors, companies and general public.

7 Environmental Impacts Plan and Controls

All processes and activities under each of Eco's permitted areas and their potential Environmental impacts are summarised within Table 1. Potential Impacts are categorised into Low, Medium and High.

7.1 Sewer

Eco hold a surface water discharge consent (EA Ref; SW/401724/A001) that was issued 1st June 2004. Any excess rain water will be collected by the lagoon system and discharged via the current private pumping mains to Palmersford Sewage Treatment Works, which is located north of the site.
The site is connected, by permanent pipework, to the local sewage treatment site, located to the north of the site.

7.2 Odour

Eco currently manage odour on site through their Odour Management Plan (OMP).

In addition to this OMP further odour control is as follows;

Controlling Odour from Received Wastes at the AD Plant

Received wastes are visually checked at the weighbridge to ensure they meet the Waste Acceptance Criteria (as defined by the Environmental Permit). This is the first control measure to ensure the conformity of wastes and procedures.

Vehicles enter either the AD or ABPR reception building and the doors are closed prior to the vehicles unloading. The material is unloaded to specific areas depending on the nature of the waste and any packaging in order to ensure the need for double handling is minimised. Material is visually inspected and non-conforming loads or contaminants will be segregated and rejected from the site. Once emptied the vehicles are cleaned as necessary prior to exit from the reception building. Green waste from the green waste reception area will also be transferred to the AD facility.

The AD waste reception area will be housed in an enclosed building with roller shutter doors. All incoming waste will be discharged within the reception area behind closed doors. This ensures no unpasteurised fresh waste is open to the atmosphere, preventing external odours. The reception barn has a biofilter system that draws air out of the building with a pair of fans & then passes it through a 2.0m deep filter bed of shredded wood.

This biofilter draws air through the Reception Barn, so giving the barn a negative pressure and removing any tramp odours and bioaerosols from within the building during the reception, handling, shredding and blending of the waste. The negative pressure ensures that any draughts blow into the barn, so retaining odour and bioaerosols with the building.

The biofilter is equipped with 4 fans so that cover can be maintained at all times during the operating hours of the site, even if one fan has to be taken down to maintain or mend it.

The biofilter is equipped with secure drainage system to ensure that any condensation from within the filter bed is passed to the reception barn drainage system for inclusion with the process slurry in the barn, prior to pasteurisation

The biofilter will change the air volume within the barn four times an hour, so giving enough air flow to even control odour and bioaerosols when the main door is open for short times to allow the access and egress of discharging vehicles.

Outside operating hours, the Reception Barn's negative pressure will be maintained by the biofilter as it will continue to draw air from within the barn.

The bacteria within the biofilter will not only destroy odours but also bioaerosols. The biofilter is maintained in a damp condition to prevent drying of the media and re-entrainment of any bioaerosols from the media itself.

Controlling Odour from Biogas

The digesters are fitted with pressure release valves in case the gas extraction system fails; these are located at the top of the digester to optimise dispersion and are only activated during emergency conditions.

Controlling Odour from Digestate

The facility will be run to comply with the requirements of PAS110. From an odour perspective this is important as PAS110 sets stability requirement for digestate. The digestion process reduces Volatile Fatty Acid (VFA) levels significantly and therefore odour generation and release from digestate is far lower than from the raw materials; effective digestion therefore acts as an odour mitigation process for the digestate. Prior to accreditation, the facility will be run with due regard to minimising odours.

The dewatering of the digestate will occur within the confines of the AD facility.

All storage of digestate will be in sealed tanks.

1.1.1 Odour Control measures for additional Waste Operations

Controlling Odour from the Clean Wood Biomass Plant

Strict waste acceptance procedures within the green waste reception area will ensure only permitted waste will be accepted within the biomass plant.

Clean wood waste will be accepted at the green waste reception area, where the wood will be separated and treated and transferred to the clean biomass reception building.

The drying of all biomass waste will occur within the confines of a building, as illustrated on Drawing 002, where the waste will then be transferred to the clean biomass plant for incineration. The building will also benefit from a biofilter.

Biodegradable waste storage periods will be minimised and wastes subject to a rapid turnover.

The clean wood waste will be fresh green waste, reducing the potential for odour emission.

The acceptance of green waste is already a permitted activity on site, therefore existing management plans will continue to be adopted on site.

Controlling Odour from the SRF Plant

Wastes processed within the SRF plant will comprise litter wastes redirected from the green waste reception and green composting operations as well as residual wastes from other operations on site including rejects from the drier, litter from the CLO composting and dry and sanitised screenings from Eco's existing permitted AD Facility at Piddlehinton.

The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. All operations associated with the SRF, including waste reception, processing and storage will take place within a building.

All SRF that has been treated and baled will be stored within a building, as illustrated on Drawing 002.

Controlling Odour from the Plastics and Rejects Drier

Residual waste arising from the AD plant, CLO Composting plant and centrifuge cake from road sweepings will be processed (dried) within the drier.

The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. The drier will, however, be equipped with a biofilter on the exhaust to condition any exhaust air.

Treated waste from the drier will be stored within the confines of a building, as illustrated on Drawing 002.

Controlling Odour from the ABPR and food waste reception barn

Vehicles entering the site with ABPR and food waste will be covered.

All ABPR and food waste will be unloaded within an enclosed barn under negative pressure to prevent the fugitive emission of untreated odour,. The reception barn benefits from a biofilter.

The barn benefits from automatic roller shutter doors, which automatically closes once the vehicle has passed through.

The barn benefits from an active bio-filtration system.

This type of waste will not be treated at the facility, only stored and then bulked up before transfer off site to a suitably licensed facility.

All ABPR and food waste will be managed as per the sites Odour Management Plan included as Appendix OT1 of this report.

Controlling Odour from Waste Recovery Operations

The waste types used for all waste recovery operations on site, are as per the U1 exemption, and are not deemed to be odorous in nature.

Soil and stones waste is considered to be predominately inert and would not contain a high proportion of biodegradable wastes. Soil is not considered a source of offensive odour and therefore not considered a source of offsite impacts.

Daily olfactory inspection will be carried out by site staff during the course of their normal working activities.

7.3 Dust

Dust is not expected to pose a significant risk due to the mitigation measures in place and the contained process of the road sweepings plant.

The composting of the CLO waste, derived from the road sweepings plant is already a permitted activity on site and will be managed as per the site's current Dust Management Plan (DMP).

In order to minimise the emissions of dust from the waste facility, the following measures will be implemented in conjunction with the DMP:

- all waste activities and storage will occur within the confines of the road sweepings plant area;
- moisture levels at the CLO clamps and open windrow maturation pads will be maintained to prevent dust being generated during turning or screening operations;
- conveyors and screens on site will be covered where practicable;
- shredders are fitted with water sprays where practicable;
- speed limits will be implemented for vehicles using the site;
- all vehicles entering and leaving the site will be covered;
- a water bowser will be on permanent standby to dampen down any surfaces;
- discharge heights to the plant will be kept as low as possible to prevent windblown dust;
- site access & haul roads and operational areas will be maintained and repaired to minimise emissions of dust due to uneven and poor surfacing;
- all roads and operational areas will be swept where necessary to reduce dust emissions;
- all vehicles delivering waste to the site shall be sheeted to minimise emissions of dust;
- daily, visual inspection at all areas of the site and site boundary will be carried out by site personnel;
- in the event that significant visual dust is observed at the boundaries of the operational areas, action will be taken to suppress the dust;
- a record of the inspection findings & remedial action taken will be made in the site diary;
- the Site Manager will be responsible for implementing the dust management, monitoring and action plan.

7.4 Noise

Waste treatment operations will only be carried out during operational hours. All equipment will be maintained and operated in accordance with manufacturer's guidance and will be maintained in good working order.

The site will be operated so as to minimise noise emissions from the site. Measures that will be taken at the site include:

- operations on site are configured to ensure that most treatment processes are either confined within buildings or are bounded by material stockpiles located around the main noise sources, such as shredders and screens.
- where possible locating plant away from noise-sensitive receptors;

- a noise bund is located to the western boundary of the site along Chapel Lane and will be extended during the construction phase of the new development site;
- all plant will be switched off when not in use;
- the imposition of a speed limit for vehicles delivering waste to the site. This will reduce noise associated with high engine speeds;
- all site personnel will be trained in the need to minimise site noise, and will be responsible for monitoring and reporting excessive noise when carrying out their everyday roles;
- all plant and equipment in use at the site will be regularly maintained to minimise noise resulting from inefficient operation of pumps, generators and engines;
- in the event that reversing alarms are found to give rise to complaints, alternative alarms or technology will be investigated;
- the regular maintenance of roads to prevent the development of potholes will significantly reduce the noise generated particularly by empty vehicles exiting the site;
- consideration will be given to the fitting of noise suppression kits on items of plant and equipment; and
- all plant will be maintained in accordance with manufacturer's recommendations to minimise noise emissions.

Any complaint received will be logged in the site diary. The site manager will investigate the complaint and will take action to identify the source of the noise and implement remedial measures where appropriate.

8 Waste Operations

8.1 Wood Recycling Unit

Processing in the wood recycling unit involves the reception, sorting, shredding and removal by vehicle of incoming waste wood and wood products. The wood waste is brought onto site and discharged within the Wood Shredding Unit, onto the sealed concrete pad that underlies this part of the site.

Upon discharge, the waste is sorted and inspected by a site operative driving either a 360o excavator, wheeled loading shovel or a telehandler. Any non-conforming wastes discovered during the shredding, screening or conditioning of permitted waste will be quarantined and removed, following procedures. All incoming waste vehicles are required to proceed to the weighbridge, where details of vehicle registration, source of waste and weight are recorded. From the weighbridge, the vehicles will proceed to the assigned off loading point for the relevant area. All loads are inspected during discharge. Should any such articles be discovered, the driver will be asked to wait while Site Management is informed and the load is thoroughly assessed for further action to be taken and a load inspection sheet is completed. If the material is not as described but falls within the permitted wastes for the unit, the Site Management will inform the haulier and producer of the discrepancy and record the incident on the daily record sheet. Further details regarding rejected loads can be found within Eco's Environmental Management System (Section 4.4).

The waste is sorted on discharge into 3 stockpiles dependant on the type and quality of the incoming material. Mixed wood waste is sorted and graded by hand through a picking station. Good quality wood and end of life pallets are shredded and double screened and then sold direct from site loose or bailed for use as a surfacing material for horse ménages. Poorer quality wood and board products are shredded and screened prior to currently being sent to various biomass plants within Europe. The waste is shredded using a combination of low and high speed shredders, combined with a static, electrically driven screen. These are serviced by operatives using either 360^{o} excavators, wheeled loading shovels or telehandlers. Quality control for this operation is dependent on the operator controlling the input of wood to the various feed piles. Quality of the various outputs is agreed with clients prior to dispatch. This unit also produces fines as part of the screening process. This is sent to the In Vessel Unit for processing (as part of the maturation block) to produce a soil conditioner. Any runoff from this area is carried by gulley to the sealed site drainage and lagoon system.

All plant and machines are serviced and maintained to manufacturers specifications.

8.2 Road Sweepings Plant

The plant will process road sweepings waste and freshwater drilling muds in a close looped cycle as described below;

- the waste will be fed directly into the reception hopper;
- ferrous metals will be removed initially using a belt magnet;
- the remaining feed materials will be transferred to a wash box and fluidised by the addition of the recycled process water and then discharged to the attrition system;
- any contaminated materials will be scrubbed and at the same time any light weight organic waste or plastic will be removed using an integrated upward flow classification system;

- the lightweight organic, plastic and liberated fines will be transferred to a dual 'organic screen; which will remove any water and fines from the road sweepings waste which will then be pumped to the fines washing section. This dewatered material will be discharged into the 'organic matter/trash' bay;
- the remaining aggregate material will be discharged into a a dewatering chute which allows fine aggregate to pass through a screen and then washed. The material will then be separated to produce larger aggregates and sand; and
- the remaining filter cake/sludge will be dewatered and discharged for disposal.

Once the waste has been processed, the following materials will be produced;

- sand and gravel – will be used as aggregate;
- filter cake – will be transferred off site for disposal;
- biodegradable fractions and plastics – will be transferred to the CLO (Compost Like Output) area for further processing, as illustrated on Drawing 002, with a total annual tonnage of less than 10,000 tonnes; and
- metals – will be transferred off site for further recovery.

In the event of a breakdown of the plant, the waste would be composted in open windrows. This activity is already occurring on site and is a proven method for producing CLO compost.

The maximum storage limits for each type of waste at the road sweepings facility is detailed below;

- *Incoming waste:* c.1000 tonnes at any one time (area size = c.1500m3 x 0.74tonnes/m3).
- *CLO windrows (which includes seasonal changes/surges):* c.3500 tonnes (maximum capacity of up to 7 windrows at any one time = 450m3 per windrow x 0.5tonnes/m3).
- *CLO treated material:* 3 – 400 tonnes at any one time.
- *Inert washed products awaiting sale (including gravel, grit and sands);* c.4000 tonnes – however these products will comply with End of Waste legislation and so therefore will not need to be included in the total annual storage capacity for the road sweepings plant once this approval has been gained from the EA.
- *Fines, litter and scrap (awaiting final disposal);* c.50 to 100 tonnes at any one time.

Hazardous waste treatment at the road sweepings plant

The oil contaminated drilling muds will be processed separately to the non-hazardous road sweepings and freshwater drilling muds waste in the road sweepings plant.

The plant will process up to 2,000tpa of this hazardous waste.

Once the hazardous muds have been treated, the plant will be 'flushed' overnight to remove any contaminants and the process water removed and stored in a purpose built tank (separate to that for the storage of the non-hazardous process water).

Two fractions will be produced from the plant;

1. Stone and sand; which will be tested once dried to determine whether the fraction is no longer hazardous. If the test concludes the stone and sands are inert, the fraction will be sold under an End of Waste position, as agreed with the EA. If the fraction test shows it is still non-hazardous in nature, the load will be re-washed in the plant.
2. Dry fine material/filter cake; will contain the contaminants removed from the stone and sand, which is the majority ingredient of the drilling muds. Eco wish to bioremediate this fraction. The filter cake will be transferred to a specified CLO windrow, whereby a nutrient, in this case post production coarse PAS110 compliant certified compost, will be added to the mixture. Over a period of between 12 – 16 weeks under aerobic conditions the windrows will be turned and aerated over this treatment period. Once bioremediation has been completed, the waste will then be tested again and if proves to be non-hazardous will be transferred off site to a suitably licensed facility for disposal.

The total required storage capacity at the road sweepings facility will be a maximum of 9,000 tonnes at any one time. Once End of Waste approval has been given, the maximum of 5,000 tonnes will be required at any one time.

8.3 Anaerobic Digestion including the treatment of ABPR waste

The waste processing plant at Parley will comprise a number of steps, as described below;

Once the waste has been tipped into the discharge hopper, the whole site process is automatic. Unless there is a blockage or failure, the waste will not need to be handled by Eco site operatives or mobile plant again until the material emerges from the digestate storage tank. The whole plant is computer controlled and monitored and these systems will ensure operator intervention is rarely required.

The whole process is monitored and controlled by PC, allowing remote monitoring and control as required. The plant will also dial out and alert Eco should an incident or error occur, causing the plant to fail safe and shut all or part of the operation down.

All incoming waste is discharged within the Reception Barn, behind closed doors. The solid waste will be discharged into the main, sub-floor feed hopper in the reception area whilst the liquid waste will be discharged by pipe into two tanks standing on the Reception Barn bunded floor. This enclosed discharge will ensure that any spills are contained within the building and so no infringements of ABPR occur.

Once the waste has been discharged, the vehicle driver will wash down the vehicle and move out of the shed, closing the door once the vehicle is clear.

The discharged solid waste will be inspected for contamination and non-conforming materials.

Discharged waste is automatically fed to the pre-processing/depackaging plant by auger (solid waste) or dosing pump (liquid waste) under computer control by the plant. All processing takes place within the sealed building.

The storage tanks are equipped with agitators to ensure no settlement or blockages occur. The tanks are also bottom discharge to ensure no silt build up occurs at the base of the tanks.

Once in the feed hopper, the solid waste is passed, via a number of feed augers, to the macerator/litter separator mill. The base of the feed hopper carries 3 augers which pass the waste back to a large single inclined auger that passes material from the back/base of the hopper up to discharge directly into the feed chute of the Haarslev machine. These augers serve to move the solid and semi-solid waste to the Haarslev unit and also to rip any bags contained within the waste.

The macerator/litter separator comprises a large steel shaft, fitted with a number of swinging hammers that rotates inside a perforated steel armour plate screen drum. The apertures in the drum and clearance between drum and hammers determine the sub-12mm requirement for ABPR is met. The plant breaks up the solid waste and blends it with liquid waste that is pumped into the drum to assist in producing a feed "porridge" for the digester.

The macerator also separates plastics and heavy litter from the incoming waste by a washing action within the perforated drum. This plastic waste is discharged from the unit by a small auger, and sent to the on-site drier for drying and sterilising prior to processing by the SRF plant and dispatch from site.

The feedstock falls from the unit into a pit below, from where it is pumped to the AD plant pasteurisation unit.

Batch Pasteurisation

The waste feedstock is pumped from the preparation tank to the pasteurisation plant. This consists of a heat exchanger which heats the digestate to just over 72^{o}C using hot water from the clean biomass burner fed through a bypass heat exchanger.

Once hot, the digestate is passed to an insulated, stirred tank where it is held for a minimum of 1 hour at +70^{o}C to meet the ABPR pasteurisation requirements.

The digestate leaves the pasteuriser and is pumped to the insulated pre-storage tanks to await pumping into the digesters.

Between the pasteuriser and the pre-storage tanks, the feed stock will pass through a further litter and grit separation unit to prepare it for processing in the digester. A mobile boiler can be brought in if necessary to heat the pasteuriser if required.

The plant pasteurises in batches and the system cannot by bypassed so biosecurity is not compromised. The pasteurisation tanks are equipped with opening top doors to facilitate easier cleaning of solids from within the tank.

The temperature and time records for each batch will be kept by the AD plant computer control system as part of the process logging. Records for pasteurisation will be made available as required.

The pasteurisation plant has its own DSEAR rated and ATEX compliant biofilter to remove and deodorise any steam from the plant. This is separate from the main Reception Barn biofilter and the filter is located to the south of the Reception Bran, connected by pipe direct to the pasteurisation tanks.

The pasteurisation plant (and site pumping system) is located within the bunded Reception Building so any spills are retained by the plant.

Pre-Storage

The waste is passed from the preparation unit to the AD plant pre-storage plant.

This is a covered tank with two stirrers inside. The pre-storage at Parley consists of a number of tanks, each holding up to 450 tonnes of semi-liquid feedstock to provide cover for automatic feeding overnight and through periods when the macerator is not running.

These storage tanks also provide a heavy grit drop out point for the plant and helps to balance nutrient loads entering the AD plant, evening out daily waste input by blending them with the tank's existing contents.

Digestion

The feed stock is pumped from the pre-storage tank to the digesters every two hours at a slow rate. This "little and often" method is the most effective way of maintaining a continual consistent gas generation and flow. The pumping in of process slurry and out of finished digestate is computer controlled, as is the withdrawal of gas from the top of the digesters.

The feedstock is pumped into the base of the digesters. As undigested feedstock contains raw fatty material and unbroken organics, it is less dense than the finished digestate and so rises through the digester.

The digester is stirred to maintain a rotational flow to move incoming feedstock away from where the digestate is pumped out.

The digestate is removed every 2 hours, on different hours to the input.

The stirring of the digester is computer controlled to optimise the process through the tank.

The digester is equipped with a double thickness gas membrane roof which incorporates the gas holder required by the plant. This roof comprises a gas envelope with an outer protective shell envelope. In between the two roof membranes, the plant system maintains compressed air using a small electric compressor on the outside of the digester. This air envelope between the two roofs evens out any gas pressure fluctuations and assists in the insulation of the digester. It also stops the outer shell deflating if the gas generation stops and so helps it maintain its strength.

The digester is fitted with 1 side and 1 main agitator (stirrers). These are programmed to run in sequence, maintaining the internal flow of the digester. The digesters may also be fitted with 2 external chopper pump stirrers to assist stirring the digesters as well.

The stirrers can be moved and/or directed to stop matting or surface crust formation within the tank, giving an even blend within the digester.

All the tanks on site are fitted with side hatches to facilitate cleaning and the digester roof can be relatively easily opened to allow for stirrers to be maintained as required.

The digesters are heated using an internal coil carrying hot water from the clean biomass burner and are lagged to retain this heat. The digesters work at around 39-40^{o}C

The digestate is pumped into the digesters and allowed to breakdown under anaerobic conditions, so producing methane gas, which is captured within the membrane roofs of the tanks before being drawn off for use in the generator engines. The residence time for the digestate within the tank is approximately 50 days, depending on the quality and amount of feedstock being passed through the plant and the speed of gas yield.

The digestate is pumped from the digester at the same rate as it is input. It is then passed to the post-digester storage tank.

The performance of the digesters (gas yield, temperature, feed rate, draw off rate, etc) is recorded by the site computer system which monitors and manages the plant continually.

The digesters, as are all the tanks on site, are built over the tank area bentonite mat seal, to provide leak detection and interception should such occur.

The digestion tanks each have a capacity of 2500m^3 of liquid.

To control Hydrogen Sulphide concentrations within the gas sent to the engine, the plant will automatically dose itself with Iron Hydroxide. There is also an air feed into the gas envelope above the digestate. These cause the H_2S to precipitate out as sulphur, which falls into the digestate and leaves the plant as part of the digestate, forming part of the nutrient benefit carried by the digestate.

Storage of Digestate

The digestate will be stored prior to processing by the digestate plant. This will reduce the water content of the material.

This reduction will concentrate the organic matter and nutrient value of the digestate, giving a better product for sale as an organics-rich agricultural fertiliser.

The water drawn off the digestate will be re-used by the AD plant where required, with any excess being discharged to Palmersford STW via the existing discharge pipework. The storage tanks are equipped with 3 stirrers to keep the digestate within mobile, reduce sedimentation, stop crusts forming and improve aeration.

The gas from the AD plant will be passed to a gas upgrading plant prior to being sent to the gas grid line some 400m north of the site. This gas upgrading facility will be operated by a third party, under contract to Eco.

Biogas Upgrade and Grid Injection System

Eco propose to install and operate a system to upgrade biogas to biomethane for injection into the gas grid as part of this variation. It has been estimated that the AD plant will have approximately a flow rate of 880smch.

The biogas upgrading system will remove CO_2, O_2, H_2S and other soluble gases to produce a gas primarily comprised of methane (approximately 97%) which is clean and dry. The gas will be processed by compression, condensation and upgrade by membrane separation.

Compression of the gas raises its pressure to a level suitable for it to be processed in the following stages.

Condensation of the gas will remove a proportion of the water from the saturated biogas.

The membrane separation system upgrades the biogas to biomethane by separating the components of the biogas by the difference of solution-diffusion through a polymer. The differing permeabilities of the gas components mean that CO_2, H_2S and H_2O permeate faster than CH_4.

The technical specification for the Biogas Upgrade System is included as Appendix BATOT2 for reference.

Once the biogas has been upgraded to biomethane, it will be sent to the grid injection system.

A gas analysis system will measure the biomethane for CV, Wobbe Index, O_2, CO_2, H_2O and H_2S. This works with a programmable logic controller which controls the system. The grid injection system will enrich the biomethane by injecting vaporized propane in proportions determined by the calorific value (CV) and volume of the un-enriched biomethane. A Tetrahydrothiophene (THT) odour component will be added to the gas for safety purposes.

Following propane injection, the enriched biomethane will be validated by an Ofgem approved gas chromatograph to confirm suitability for injection into the grid. If the gas quality meets the required standard it will be directed to the main gas network connection.

8.4 Clean Biomass Plant

Wood waste (including Grade A and B wood waste) will be accepted at the green waste reception area, where the wood will be separated and treated and transferred to the clean biomass reception building.

The drying of all biomass waste will occur within the confines of a building, as illustrated on Drawing 002, where the waste will then be transferred to the clean biomass plant for incineration. The building will also benefit from a biofilter.

The energy produced at the clean biomass plant will be transferred to the National Grid, whilst the heat produced will be utilised on site.

8.5 SRF Plant

The SRF plant will process and treat the following types of waste produced on site from other waste operation activities;

- litter from green waste reception;
- litter from green waste composting;
- plastics and rejects from the drier;
- litter from Compost Like Output (CLO) composting;
- incoming litter and plastics; and
- dried and sanitised screenings from Eco's existing and permitted AD facility at Piddlehinton.

The waste will be screened and separated and baled. The baled SRF will be stored in buildings located adjacent to the SRF plant buildings, for removal off site to a suitably licensed facility for further recovery.

8.6 Waste Recovery Operations

All waste destined for on-site recovery will be carried out as per the Waste Recovery Plan included in Section 8 of this application.

Waste will be screened and processed in the soil recycling yard, and transferred to the area of recovery, as illustrated in Drawing WRP1.

8.7 Plastics and Reject Drier

The plastics and reject drier will process up to 12,225 tonnes of residual waste and fractions produced on site from the various waste operations including plastics and rejects from the AD plant, CLO compost and centrifuge cake from the road sweepings plant (currently being determined in a separate EP variation application).

The plastics and reject drier will be located within a building and will be equipped with a large biofilter unit to condition any emissions prior to release.

Once the waste has been treated, the plastics will be transferred to the SRF plant for furthertreatment, whilst the dried CLO compost and centrifuge cake will be sent off site for disposal.

8.8 Table1: Potential Environmental Impacts of Processes & Activities

Area of Site	Process / Activity / Equipment Each process/activity/equipment impact on the environment is considered under normal or abnormal (ab) operations.	A	W	E	D	L	N	R
	Associated Environmental Legislation • The Environmental Permitting (England and Wales) Regulations 2007, SI 3538 • Groundwater regulations 1998, SI 2746 • Water Resources Act 1991, as amended. • Environmental Protection Act 1990 • Control of Pollution (Oil Storage) (England) Regulations 2001, SI 2954 Hazardous Waste Regulations (2005) (applicable activities indicated by an *)	**A** Emissions to Air (including dust) **E** Energy Usage (e.g. electricity, gas, oil) **L** Land Contamination **R** Resource Consumption (e.g. water, chemicals, not energy) **Impact (presuming the worst possible scenario)** **(L)** Low impact: Minimal effects on the environment, short term recovery from effects, nuisance to local inhabitants, small amounts of hazardous waste **(M)** Medium impact: Notable effect on the environment, medium term recovery from effects, warning from statutory bodies, indoor emergency **(H)** High impact: on the environment, long term impact, official complaints or fines, emergency occurring outdoors (including if emergency is only a secondary aspect)				**W** Emissions to Water **D** Waste Disposal **N** Nuisance (i.e. noise or odour)		
Office	Storage and generation of documentation							
Weighbridge	Generation and processing of relevant paperwork e.g. Waste transfer notes							
Site General	Storage of Fuel tank		H			H		
	Filling fuel tank, static and mobile plant		M			M		
	Chemical/Gas storage (for list of specific substances please see COSHH file)							
	Sweeping of yard (vehicle attachment)	L					L	
	Drainage clearance							
	Perimeter odour control misting system (electric)			L			L	L
	Dust suppression misting system			L				L
	Vermin control							
	Generator use and storage	L	L	M		L		
	Storage and Disposal of waste (Scrap metal, plastic and general)				L	L		
Maintenance	Vehicle maintenance and repairs		L					L
	General site maintenance	L						
	Maintenance and cleaning of plant	L				L		
	Disposal and Storage of maintenance waste (Hazardous - waste oil, batteries and waste oil filters)		L		M	L		
Green Compost (Open Windrow)	Tipping green waste (customer)							
	Storage of preshredded green waste					L		
	Operation of two loading shovels (general pushing up of incoming waste, loading shredder and screen), shredder and screen operation	L		M			L	
	Application of odour control product						L	L
	Storage of maturing compost	L	L			L	H	
	Operation of 360 excavator (turning of green waste compost)	L		M			M	
	Lagoon/Pumping & handling of leachate and run off water Discharge to STW			L	L	L	M	
Soils	Operation of loading shovel, 360 excavator and plant	L		M				L
	Soil storage							
Washplant	Recirculation of water		L	L				
	Operation of plant and loading shovel to load hopper and customer vehicles	L		M				
	Operation and cleaning silt lagoons		L	L				
	Aggregate storage							
Wood Unit	Tipping of wood waste (customers)							
	Use of shovel	L		M				
	Storage of pre shredded and shredded wood							
	Use of shredder	L		M				
	Dust supression							
	Loading processed and unprocessed wood to trailors and lorries			L				

8.1 Table 2A. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Air.

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

8.2 Table 4B. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Water

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
General Site	***Storage of Fuel tank***	**High:** A fuel spillage may occur due to impact, vanadlism or tank rupture causing contamination of local water courses.	Yes- Security cameras, secure site, crash barrier in front of tank to minimise risk of impact. Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	
General Site	***Filling fuel tank, static and mobile plant***	**Medium:** Spillage may result in the pollution of local watercourses	Yes- Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	None

Table 4C. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Energy

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Site General	***Generator use and storage***	**Medium:** Fuel consumption contributes towards	No	No	Maintenance Procedure - Regular service	Yes	None
Green Compost	***Operation of two loading shovels (general pushing up of incoming waste, loading shredder and screen), shredder and screen operation***	**Meduim:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU Directive	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Green Compost	***Operation of 360 excavator (turning of green waste compost)***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Soil s	***Operation of loading shovel, 360 excavator and plant***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Washplant	***Circulation of water***	**Low:** Fuel consumption contributes towards depletion of natural resources	No	No	Pumps are regularly serviced	Yes	None
Washplant	***Operation of plant and loading shovel to load hopper and customer vehicles***	**Medium:** Fuel consumption contributes towards depletion of natural resources	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU	Yes	Yes- Vehicles aand machinery not left running when not in use, regular servicing	Yes	None
Wood Waste	***Use of shovel***	**(Medium) Fuel consumption contributes towards depletion of natural resources**	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU directive	Yes	Yes- Vehicles and machinery not left running when not in use, regular servicing	Yes	None
Wood Waste	***Use of shredder***	**(Medium) Fuel consumption contributes towards depletion of natural resources**	Yes- Tier 3 Stage 2 ACERT engines in compliance with EU directive	Yes	Yes- Vehicles and machinery not left running when not in use, regular servicing	Yes	None

8.3 Table 4D. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Disposal

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Maintenance	***Disposal and Storage of maintenance waste (Hazardous - waste oil, batteries and waste oil filters)***	**Medium:** Incorect disposal or treatment could cause water or land contamination or harm to human health	No	No	**Yes-** All appropriate staff are aware of requirements for hazardous waste storage and paperwork	**Yes**	

8.

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Site General	***Storage of Fuel tank***	**High:** A fuel spillage may occur due to impact, vanadlism or tank rupture causing contamination of land	Yes- Security cameras, secure site, crash barrier in front of tank to minimise risk of impact. Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	None
Site General	***Filling fuel tank, static and mobile plant***	**Medium:** Spillage may result in the pollution of local land	Yes -Spill kits	Yes	Procedure for use of Spill kits/sawdust	Yes	None

8.5 Table 4F. Equipment/procedures reducing the risk of medium and high potential environmental impacts on Nuisances

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Green Compost	***Storage of maturing compost***	**High:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes -Perimeter system and topical application of product as well as a mobile fan used when wind is unfavourable.	Yes	Yes- fan located and turned on when unfavourable wind conditions are forecasted and current.	Yes	Eco's Odour Management Plan covers this activity in more detail
Green Compost	***Operation of 360 excavator (turning of green waste compost)***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	No	No	Activity suspended during unfavourable wind conditions. Weather monitoring and assessments by office and site staff	Yes	None
Green Compost	***Lagoon/Pumping & handling of leachate and run off water Discharge to STW***	**Medium:** Section III of the Environmental Protection Act 1990 , odour can be classified as a statutory nuisance	Yes- Aeration pumps used to minimise anaerobic conditions	Yes	Lagoons aerated alternatively. If wind is unfavourable suspend aeration as that itself may cause odour due to agitation	Yes	None

Area	Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9 Site Operational Control Procedures

9.1 Waste Acceptance Control Systems and Procedures

This transfer of waste will be electronically recorded in the site weighbridge Waste Transfer Note system.

All incoming waste vehicles are required to proceed to the sites weighbridge where details of vehicle registration, source of waste and weight are recorded.

Please see appendix 4: Eco Sustainable Solutions Waste Acceptance Procedure

9.2 Waste Quantity Measurement Systems

Any recycled products sold or materials transferred between Environmental Permitted areas are also recorded by the site weighbridge Waste Transfer Note/Sales Ticket system to ensure as far as is reasonably practicable a comprehensive account of stocks can be made when required.

9.3 Storage of Specified Waste

All loads are further inspected for non-conforming wastes following discharge. Processes for dealing with non-conforming wastes are covered in Section 8.1 (Waste Acceptance Control Systems and Procedures) in this EMS.

9.4 Control of Mud & Debris

The access to the site, along with all internal roads are swept daily by the Sites Automated Sweeper Attachment for mud and other debris which may present a hazard to the highway. This is recorded in the Sites Daily Housekeeping & Environmental Sheet (Please see Appendix 5).

Within the Soils Recycling Unit, the site is underlain by roller compacted concrete capable of being scraped free of significant contamination of mud. All other areas covered by Environmental Permits are hard surfaced with either reinforced concrete or tarmac, so providing a road surface that is easily maintainable in a debris-free state with the plant and sweeper.

High pressure washing hoses are available on site for use in cleaning down vehicles leaving the site, where necessary.

All vehicles entering or leaving the site loaded will have their loads sheeted or roped, as necessary, to prevent spillage on the public highway.

9.5 Control, Monitoring & Reporting of Dusts, Fibres and Particulates

The site has a 5mph speed limit and the benefit of a fully surfaced entranceway and internal road system which are maintained free of loose material to minimise the potential for dust generation by vehicle movements.

Water is available on site for dampening any material liable to cause a dust nuisance during shredding, turning or screening. Stockpiles, roadways, product bays and surrounding areas are regularly dampened down during dry periods using a 10,000ltr tanker as well as a timed sprinkler system covering central area.

The site diary is used to record when the site is dampened down. Any incidents of excessive dust arising and control measures used as well as noting ambient conditions on site are also recorded.

An external contractor carries out 6 monthly Bioaerosol monitoring and reports are retained by the Site

9.6 Control of Odours

All measure and procedures to control odours are covered within Eco's Odour Management Plan.

9.7 Control and Monitoring of Noise

All waste management operations on the site shall be conducted so as to prevent or reduce noise nuisance off site, noise shall be limited to such levels that are unlikely to cause pollution of the environment or harm to human health or serious detriment to the amenity of the locality outside the site boundary.

Eco is obliged to ensure that set noise limits, detailed in the Noise Management Plan submitted with the Planning application are not exceeded.

All site operations shall be conducted in such a manner that noise from operations does not give rise to unacceptably high levels of noise.

The main sources of noise are considered to be as follows:

- vehicles using the site;
- noise from operation of equipment – digesters, , flare and pumps;
- reversing bleepers;
- mobile plant, for example on site trucks; and
- fixed plant, such as the clean biomass plant, plastics and reject drier and the SRF plant

It is considered that the generation of vibration as a result of operations at the site will not be significant.

All site operatives will be trained in the need to minimise site noise, and will be responsible for monitoring and reporting excessive noise when carrying out their everyday roles.

All equipment operated by the site is suitably attenuated to reduce noise emissions in line with EEC standards for the mobile plant being operated. All plant operated on site is maintained and serviced in accordance with manufacturer's instructions to minimise noise emissions.

In addition, noise control will be implemented through the following procedures:

- plant exhausts will be properly maintained within statutory levels;
- the doors of the waste reception buildings will be kept closed at all times;
- consideration is given to all plant and equipment used on site being fitted with noise control measures such as silencers if deemed necessary. Where any defects or disrepair is reported to the Site Manager or designated person, the plant or equipment will be repaired and in instances where it cannot be repaired within a reasonable time-scale, the plant or equipment is not be used on site until remedial works are completed.
- all plant and equipment in use at the site will be regularly maintained to minimise noise resulting from inefficient operation;
- regular maintenance of the access roads, including repairing 'pot-holes' will be undertaken;
- in the event that reversing alarms are found to give rise to substantiated complaints, alternative alarms or technology will be investigated;
- when siting noisy equipment consideration is given to the proximity of receptors and also the prevailing wind direction; and
- the imposition of a speed limit of 10mph for vehicles delivering waste to the site aims to reduce noise associated with high engine speeds.
- Vehicles using the site will travel across designated routes that have been designed and located so as to minimise nuisance and hazard to both internal site users and also receptors

located outside the site boundary.

Most processes carried out on site take place either within buildings or behind stockpiles or screening bunds to assist in the reduction of noise apparent outside the site boundary. To further assist in the reduction of noise at local properties, a noise attenuation bund has been raised to the west of Chapel Lane, across from the site boundary.

The site diary is used to record any incidents of excessive noise generation and control measures used as well as noting ambient conditions on site.

Noise monitoring is undertaken by external consultants on a 6 monthly basis.

9.8 Control of Pest Infestations

All waste management operations on the site will be undertaken on site such that infestation or colonization by pests are minimised at the facility. The site is under a vermin control contract which includes regular checks for evidence of vermin (rodents, birds, flies, etc) and remedial action as required. If required, a treatment programme will be undertaken to deal with any infestation by insects, rodents or other pests.

Site operatives will be vigilant and report any potential infestations to the site manager, who will ensure appropriate measures are undertaken.

The following procedures are followed to control and monitor any insect and rodent infestations:

- surfaces within the waste reception building which are used for the storage of waste will be regularly washed down or cleaned;
- all storage of incoming waste from the AD facility will be contained within the waste reception building;
- the site will be monitored on a daily basis for any visible signs of rodent or insect activity, such as burrows, runways, droppings, larvae, and the findings logged in the site diary;
- if any signs of potentially problematic numbers of pests or vermin are discovered at the site, the Site Manager or designated person contact a pest contractor as soon as possible; and
- should the use of pesticides or other means of pest control be recommended, they must only be implemented by persons qualified/trained to carry out the necessary measures.

The Site Daily Record Sheet is used to record any incidents of vermin on site and any control measures used.

9.9 Control of Litter

All waste management operations on the site will be undertaken to minimise windblown litter outside the site boundary. Due to the nature of the wastes accepted at the facility it is not anticipated that excessive litter will be generated. However, the site will be operated to comply with the following principles:

- suitable provision shall be made to prevent the spread of windblown litter, including use of local litter netting if required by wind conditions.
- litter picking will be adopted in the event of any nuisance from litter occurring.
- the boundaries and environs of the site shall be inspected on a regular basis for the presence of litter or any other waste materials resulting from site operations, and shall be removed as required,

Any waste retrieved will be processed by the Permitted or Exempted units on site or removed from site via covered skip or container to a suitably Permitted facility for disposal.

The Daily Housekeeping & Environmental Sheet is used to record any incidents of litter generation and control measures or disposal used.

10 Site Containment and Drainage Systems

The site is constructed on inert fill material laid as part of the old landfill site that the Eco's Parley facility is built on.

The site is bounded to the north, south and west by areas of restored land that are planted with willow woodland or hedgerow and raised slightly above the level of the site. To the west of the site is the main access road, slightly lower than the level of the site. A bund is in place along the edge of the site against the access road to prevent runoff onto the access road.

A ditch runs some 5m away from and parallel to the northern boundary of the site and flows from west to east to join a pool within the landlord's property. To the west of the site lies a drainage ditch between the split site access roads, draining south to a stream within the landlord's property.

10.1 Surface Water Run-off

The surface water run-off and leachate from the organic waste and concreted areas of the site is collected by surface channels and directed to a lagoon system located at the southern end of the site.

This system is fed by 2 inflow drainage channels into 2 concrete-lined lagoons; Lagoon 1 is 24m x 24m and Lagoon 2 is 20m x 37m, both having a depth of 1.5m. In front of each lagoon is a removable screen which prevents large number of solids from entering the lagoon therefore increasing the biological oxygen demand (BOD). The dissolved oxygen (DO) within each lagoon is monitored daily and recorded on the Site Daily Record Sheet.

When necessary, water from the lagoons can be pumped directly to Palmersford STW through the purpose built pumping mains.

10.2 Reedbed System

Surface Water Runoff for Additional Waste Operations

All surface water runoff from soils yard, to the eastern end of the site, will drain to a purpose built silt lagoon. Once the silt has been allowed to settle, the water will be reused and recirculated in the gravel wash plant if required, to reduce the requirement of importing clean water into the system. Surface water runoff from the entrance of the site will flow to an interceptor, where it will be pumped, along secure pipework, to the silt lagoon also. Any excess water from the silt lagoon will be pumped to the two vertical reedbeds. Once the runoff has passed through the reedbed system, it will be discharged to surface water at the surface water discharge point (SW1) to the east, as illustrated on Drawing 002.

The rain water roof system on all the buildings, will catch the water and let it flow to the ditches surrounding the site.

Process Water

Potentially contaminated water from the AD plant area, liquid and digestate storage tank area (and the Road Sweepings Plant – currently being submitted as a separate variation application) will be pumped, via secure pipework, to the two vertical aerated reedbeds, located to the south east of the site. All surface water runoff from the southern lagoons will also be pumped, via secure pipework, to these reedbeds also for further treatment. The runoff from these lagoons will also be used as recirculation liquid in the composting windrows, when required.

After treatment via the reedbeds, this water will be pumped, via a separate secure pipework system, to sewer and onwards to Palmersford Sewage Treatment Works, to the north of the site.

All runoff from the ABPR waste reception barn will be directly linked to secure pipework to be discharged off site at the sewage treatment works.

11 ABPR Contained Drainage System

Leachate from the food waste along with residues from vehicle washings are captured in a sealed drainage system situated next to the Food Waste Transfer Barn.

All of the liquid is pumped directly to Palmersford STW.

11.1 Soils Recycling & Aggregate Washing System

The surface water runoff from the soils recycling unit runs (via constructed curb) to a catch ditch just inside the northern boundary of the site. This ditch flows to a concrete lined lagoon that is used as a water source for the aggregates wash plant. There is no discharge out of the site from this lagoon. Rainfall falling in this area is used to replenish the process water for the aggregates plant. In the unlikely event of there being excessive water, the water from the soils lagoon will be transferred by tanker or pump to the main site water management lagoons that serve the maturation areas.

This lagoon intercepts silt carried by both the runoff water and the process water from the aggregates wash plant. The water within this system will be recirculated through the aggregates washing plant.

The site has a Discharge Consent to the nearby ditch (Discharge Consent Number: 401724) which was used for discharge from the soils lagoon after the silt had settled out. However, the current aggregates plant recirculating system incorporates the old silt lagoon and requires no discharge so this Consent will be maintained but not used.

11.2 Engineered Containment for the Road Sweepings Plant

The surface of the CLO compost area and the road sweepings plant reception, process and storage area comprises of impermeable surfacing with a sealed drainage system which will be subject to a regular inspection and maintenance programme to ensure continued integrity of the surface.

There will be no contaminated process water runoff from the plant, due to the nature of the close looped system.

The road sweepings plant will benefit from an interceptor located at the waste discharge bay. The runoff from the road sweepings waste will be contained within secure pipework and will be pumped to the vertical aerated reed beds located to the south of the site.

Before the construction of the reedbeds has occurred, any potential contaminated or surface water runoff will be contained at the road sweepings plant.

Any surface water runoff from the road sweepings plant yard, will flow to the recirculation interceptor. Any water required in the plant will be utilised if possible, before being released to the reed beds for further treatment and discharge to the local sewage plant.

The CLO composting area also contains a recirculation interceptor, which is connected to the secure pipework as per the road sweepings plant.

The vehicle discharge area will be contained within a bunker, which will contain any potential waste liquid or contaminated runoff which will be collected and processed by the road sweepings plant's water cleaning system.

11.3 Roof Water

Roof water from the Wood Waste Barn along with the Food Waste Transfer Barn are captured and discharged to a ditch South East of the Site.

Roof water from the Compost Screening Barn is captured and discharged to a ditch directly West of the site.

Eco has a facility to be able to block both discharge points in the case of a fire in the building.

12 Maintenance and Operation of Plant and Equipment

The site operates a strict maintenance regime with all plant and equipment being maintained and serviced to the manufacturers recommendation. These are recorded in the Master Service Schedule which is managed by the Site Manager.

As part of the Plant Maintenance System daily checks are undertaken by each operator and defects reported via the Maintenance Schedule Sheet All defects are then prioritised on the Defect Register before being repaired by the Maintenance Engineer.

All operators are fully trained through internal or external training regime before being able to operate and maintain fixed or mobile plant.

All calibration of equipment as required by Quality Control will be undertaken and the certificates retained within the site records system.

13 Staff Responsibilities

The site is operated under the ultimate control of the Managing Director Mr T. Dampney, but day to day operational responsibility rests with the Site Manager.

The Site employs 30 full time personnel. There are currently 5 COTC holders which are identified along with their respective responsibilities in the table below

Name	Role	Part of permit responsible for	COTC
Trelawney Dampney	Managing Director	Over all site responsibility and Control	TMNH 4
Steve Harman	Operations Manager	Operational Control	TMB & LS4
Mike Thompson	Technical Manager	Technical Control	TMB 4 & LS4
Justin Dampney	Site Manager	Operations	4MPTNH6
Mark Dare	Site Supervisor	Site Supervision	4TSMNH6

Unless under extreme circumstance there will always be at least one COTC holder on site at all times

14 Training

All employees shall complete a Company Induction Programme prior to commencing with their designated duties. The induction programme will be relevant to employees' responsibilities.

14.1 Staff Development

Management will regularly identify and review employee-training needs, thus ensuring that all staff receive suitable training to assist them in undertaking their task safely and efficiently.

Eco will continually assess the competence level of all managers, employees and contractors

through, at the very minimum, it's annual appraisal system.

A training matrix is used by Eco to track the training needs of all staff. This allows training to be planned and monitored with refresher courses booked as and when necessary.

15 Environmental Monitoring & Reporting

15.1 Water Monitoring

Ground and surface water monitoring are undertaken on a monthly basis to determine groundwater levels and ground and surface water quality. All field-testing and analysis is undertaken to UKAS accredited standards and reports are retained by the Site.

15.2 Groundwater Monitoring

Groundwater levels and samples are obtained from perimeter groundwater monitoring boreholes, installed to facilitate the monitoring of groundwater present within Quaternary river terrace deposits. There are 4 groundwater monitoring boreholes. Groundwater samples are obtained by bailing or pumping using a Waterra pump system, and sent for analysis on the same day.

15.3 Surface Water Monitoring

Surface water samples are collected from 2 locations; the bridle ditch which is down gradient of the site (to the south), and the Sites lagoon system.

15.4 Noise Monitoring

Noise monitoring is undertaken on a 6 monthly basis by independent consultants. Noise levels are measured at four agreed monitoring locations around the site. These locations were chosen as they were closest to potentially sensitive receptors.

15.5 Bioaerosol Monitoring

Bioaerosol monitoring is undertaken on a 6 monthly basis in accordance to Environment Agency and Association of Organics Recycling (AFOR) guidance.

Reports are retained by Eco and made available to the Environment Agency. Please see Appendix 16 for a summary of the most recent findings.

16 Site Records

All site records are kept in the main site office and can be made available upon written request. Examples of records kept in the main site office include (but not exclusively the following;

- Monitoring Records
- Sampling Records
- Analysis Results
- Daily Site Diary Sheets
- Housekeeping & Environmental Sheets
- Maintenance & Repair Records

The records will be retained, either in paper or digital copy, for a period of 2 years.

16.1 Records of Waste Movements to Exemption and Deployment Areas

Records of waste and product movements to fields covered by exemptions for Deployment Notifications for land spreading will also be kept in the main site office and made available upon

written request. Further detail on spreading waste under deployments is covered by a dedicated Environment Management System. These records are available during normal hours of business.

16.2 Periodic Reporting of Environmental Performance

Sampling and analysis results are reported to the EA and Dorset County Council as the results are received by Eco Sustainable Solutions. The site will provide Quarterly Waste Returns to the EA. The site environmental performance is reviewed by the EA under OPRA system. Other records maintained by the site are available for inspection by the relevant authorities or their representatives during normal working hours.

17 Health & Safety

Eco operates to a strict Health & Safety Policy which all employees are required to comply with. Employees are inducted on the company Health & Safety system & Risk Assessments relevant to their roles on joining the company and are regularly consulted on Health & Safety issues. The full Health and Safety Policy includes all Health and Safety related procedures. Copies of the full policy can be found in the site office and the mess room.

The Directors/Manager will ensure that staff are kept informed about fire exits, procedures, alarms and assembly points.

17.1 Eco's Health & Safety Policy Statement

In accordance with the provision of the Health and Safety at Work Act the Company is committed to the health, safety and welfare at work of its employees. The Company will also ensure that, as far as is reasonably practicable, persons not in its employment are not exposed to risks to their health and safety when they come into contact with the Company or the products it uses.

In particular the Company has a responsibility to:

- Provide and maintain safe and healthy working conditions, taking into account current statutory requirements.
- Provide training and instruction to enable employees to perform their work safely and efficiently.
- Provide and maintain safe plant and equipment and safe systems at work.
- Maintain a constant and continuing interest in health and safety matters applicable to the Company's activities and for the management to set an example in safety behaviour.
- Consult with employees on health and safely arrangements.
- Provide risk assessments covering the Company's work activities.
- Provide COSHH assessments detailing the safe storage, handling and disposal of hazardous substances.

Whilst the Company accepts its prime responsibility for ensuring the health, safety and welfare for its employees, it is expected that all employees accept their responsibilities under the Health and Safety at Work Act to:

- Take care of their own health and safety and that of others who may be affected by their acts or omissions.
- Co-operate with management to enable the Company to fulfil its legal obligations.
- Not interfere with, or misuse anything provided in the interests of health, safety and welfare.

The Company is committed to a programme of continual improvement, and will provide the necessary resources to ensure the full implementation of the Policy and the Proprietor will give full backing to all those committed to achieving the policy objectives.

This policy will be subject to an annual review or when process conditions change.

17.2 16.2 Personnel

17.3 Staff

All staff are issued with and are required to wear Personal Protective Equipment as deemed necessary for their role.

Staff health and safety is the responsibility of the line manager and directors as laid out in the Health & Safety Policy Statement.

Washroom (including showers) and mess room facilities are available to all working on the site.

17.4 Contractors

All contractors working on site must comply with the company rules and provide copies of relevant certification, safe systems of work and insurance details (third party & employer's liability) prior to work commencing on site.
Contractors must be inducted and familiarised with the site 'Emergency Procedures' together with the location of any first aid facilities and assembly point adjacent to the entrance of the main office.

17.5 Visitors

All visitors and contractors must register in the visitor's book when entering the premises and sign out when they leave. All visitors must be accompanied whilst on premises.

17.6 Equipment

All equipment used on site must comply with the relevant Health & Safety legislation and regulations, in particular:

- HASAWA 1974
- PUWER 1998
- Noise at Work Regulations 1989
- COSSH
- PPEWR 1992

18 Emergency Preparedness and response plans

Eco has developed appropriate considerations for potential emergencies which include cover planned and unplanned maintenance, plant break down, exhaustion of storage capacity and fire. Table 9 shows graded responses to maintain or regain control depending on the severity of potential situations. In all instances the control of the emergency or incident is the main priority and where applicable the Environment Agency is notified.

Table 9 Contingency measures to maintain or regain control in event of an emergency or incident.

Emergency/Incident	Contingency/Options
Fire or maintenance of essential machinery or plant,	Hire of machinery. Closing of operational areas of non DCC contracted waste. Diversion to alternative site Diversion to landfill.
Absence of multiple operators due to sickness.	Staff drafted from other Eco Operated Sites Sub contracted staff can be obtained Diversion to alternative site Diversion to landfill
Overfill of lagoons	Pump to Palmersford STW Removal of leachate out of operational hours if required.
Storage capacity exhausted	Diversion to alternative site Diversion to landfill

The Site holds a separate Emergency Plan document which covers emergency procedures in greater detail.

The Site has also undertaken a Fire Premises Risk Profile which has been made available to the Environment Agency and local fire department.

A list of Key Site and Emergency Contacts can be found in Table 10.

SITE DETAILS			
Location: Chapel Lane, Parley, Christchurch, Dorset, BH23 6BG			
Site Access Grid Reference: 410126 / 98859			
SITE CONTACTS	**Name**	**Office Hours (specify)**	**Out of hours**
Owner:	Trelawney Dampney	07785308255	07785308255
Site Manager	Justin Dampney	07789 998258	07789 998258
Operations Manager:	Steve Harman	07881517851	07881517851
Site Supervisor:	Mark Dare	07979364544	07979364544
Landowner/Agent:	Trelawney Dampney	07785308255	07785308255
EMERGENCY SERVICES		**Office Hours**	**Out of hours**
Emergency		999	999
Medical:		Bournemouth Hospital: 01202 303626 Bournemouth Eye Hospital: Before visiting telephone: 01202 704181 (8:00am – 9:00pm)	Bournemouth Hospital: 01202 303626
Police:		01202 222222	01202 222222
Fire:		Non- emergency 01305 252040	Non- emergency 01305 252040
REGULATORS		**Office Hours**	**Out of hours**
Health and Safety Executive (HSE)		0845 345 0055	01519 229235. If unobtainable 01519 221221 (Duty Press Officer). **Only in cases:** following a work-related death, or strong likelihood of death, following a serious accident to gather details of physical evidence that would be lost if waited until normal working hours; following a major incident where the severity of the incident, or the degree of public concern, requires an immediate public statement
Local Authority (Christchurch):		01202 495000	01202 495000

Environment Agency (Local)		08708 506506	-
EA (24 hour emergency hotline)		0800 807060	0800 807060
Natural England		08456 003078	-
UTILITY/KEY SERVICES	**Name**	**Office Hours**	**Out of hours**
Water undertaker:	Wessex Water	0845 600 4600 (8am-6pm)	Emergency Services
Sewerage undertaker:	Wessex Water	0845 600 4600 (8am-6pm)	Emergency Services
Gas supplier:	N/A	N/A	N/A
Electricity supplier:	SSE	0800 111 999	0800 111 999
Security Contact:	Secure Alarms	01202 737025	01202 737025

18.1 Potentially Polluting Leaks & Spillages

Eco Sustainable Solutions operate a number of items of mobile plant for the processing, shredding, screening and loading of materials. These are all maintained to the manufacturer's recommendations thereby minimising the potential for any breakdowns, which may lead to pollution from engine or hydraulic oils or antifreeze. Servicing and maintenance of plant and equipment is carried out on hard surface within the site, except in cases of immovable breakdown. All used consumables including oils are disposed of to a suitable facility.

Two spill response kits are kept on site in strategic locations for use in the event of accidental oil or fuel spillages. All oils, greases and chemicals are stored within an 1100 litre bunded chemical Store. Table 11 lists liquids and powders that are stored on site and could be harmful to the environment if they escape. Fuel is stored in a double skinned tank, conforming to the relevant fuel storage regulations.

As referred to in Section 9.1, all site drainage is contained and is directed to Palmersford STW via the engineered site lagoon. All drainage gullies feeding this lagoon are inspected daily and cleaned whenever necessary to ensure that at no time does any surface water or composting liquors escape site in an uncontrolled manner.

Material	Max Quantity (L)	Type and size of storage	Secondary Containment Type &size
Red Diesel/Gas oil	24950L	Above ground double skinned & Bunded	N/A
	1500L	Portable, steel 3mm	N/A
Phosphoric Acid	250L	25L pails	Chem Store
Acetylene	96kg	Gas Cylinder	Cage
Propane	96kg	Gas Cylinder	Cage
Odour Major	500L	IBC container	
Odour Sergeant	80L	Pail	Chem Store
Automatic Transmission Fluid (Volvo)	40L	Pail	Chem Store
Hydraulic oil 46	410L	Oil Drum	Chem Store
Bitumen	5L	Tin	Chem Store
Dyna Trans MPV (Total)	208L	Oil Drum	Chem Store
GP3 Antifreeze	40L	Bedon	Chem Store
Deionised water	25L	Pail	Chem Store
Rimula-Heavy Duty Engine Oil (RT4)	209L	Oil Drum	Chem Store
Coolant VCS ready mixed (Volvo)	40L	Pail	Chem Store
Universal Antifreeze BS 6580:1992 EMPA	60L	Pail	Chem Store
Shell OMALA 220	40L	Pail	Chem Store
DYNA TRANS MPV (Total)	60L	Pail	Chem Store
Unipart – Fully Synthetic Engine Oil 5W/30	5L	Pail	Chem Store
Acid Dilute - Ethanoic	5L	Pail	Chem Store
Greccote	4L	Pail	Chem Store
Wet brake oil Allison C-4 WB101, Volvo	25L	Pail	Chem Store
Quick dry Zinc Phosphate Primer	20L	Pail	Chem Store

OK 48.00, OK 68.81, OK 83.50 (Arc Welding)	100L	Box	Workshop
Disinfectant (IV barn)	100L	Pail	Chem store

Appendix 1: Environmental Permit

Notice of variation and consolidation

Environmental Permitting
(England and Wales) Regulations 2010

Permit number
EPR/GP3793FY

The Environment Agency in exercise of its powers under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 (SI 2000 No 675) (the Regulations) varies the environmental permits as set out below and in exercise of its powers under Regulation 18 of the Regulations replaces them with a consolidated environmental permit in the form set out in schedule 2.

Permit	Site address	Type of regulated facility	Original permit number
A	Eco Sustainable Solutions Ltd Chapel Lane Parley Christchurch Dorset	Waste Facility A16	EPR/GP3793FY (EAWML 23710)
B	Eco Sustainable Solutions Ltd Chapel Lane Parley Christchurch Dorset	Waste Facility A23	EPR/KP3293FE (EAWML 23717)
C	Eco Sustainable Solutions Ltd Chapel Lane Parley Christchurch Dorset	Waste Facility A22	EPR/WP3797HQ (EAWML 23545)

The conditions of environmental permits A, B & C, held by:

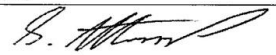
Eco Sustainable Solutions Limited ("the operator"),

whose registered office is
Redcotts House, 1 Redcotts Lane, Wimborne, Dorset, BH21 1JX

company registration number **03119513**

are varied to the extent set out in the Schedule 1 to this notice and replaced with a consolidated environmental permit in the form set out in Schedule 2.

This notice shall take effect from **08/10/10**

Name	Date
	08/10/10

Authorised on behalf of the Environment Agency

Appendix 2: Grant of Planning

DORSET COUNTY COUNCIL
COUNTY HALL
DORCHESTER
DORSET DT1 1XJ

Tel : 01305 or 01202 251000
Fax: 01305 or 01202 224835
Minicom: 01305 267933
Email: planning@dorsetcc.gov.uk
DX: DX 8716 Dorchester
Web Site: www.dorsetcc.gov.uk

TOWN & COUNTRY PLANNING ACT 1990

TOWN & COUNTRY PLANNING (GENERAL DEVELOPMENT PROCEDURE) ORDER 1995

Application N°	8/2001/351
Date Received	27 October 2000

GRANT OF PLANNING PERMISSION

LOCATION OF DEVELOPMENT: **LAND AT ECO-COMPOSTING
CHAPEL LANE
EAST PARLEY
HURN**

DESCRIPTION OF DEVELOPMENT: **EXTENSION AND RATIONALISATION OF EXISTING COMPOSTING FACILITY AND SOILS RECYCLING, INCLUDING LANDSCAPING, ACCESS, OFFICES AND EDUCATIONAL CENTRE AND PART RESTORATION TO HEATHLAND AND WILLOW WOODLAND**

In pursuance of their powers under the above mentioned Act, the DORSET COUNTY COUNCIL being the Local Planning Authority, HEREBY GRANT PLANNING PERMISSION for the development described above in accordance with the details given in the application number above, as amended by letter dated 21 August 2002 and drawing No. EC148/03 rev C and subject to the following 17 conditions:-

Standard

1. The development to which this permission relates shall be begun not later than the expiration of five years from the date of this permission.

Relationship to related applications

2. No development, the subject of this permission, shall be commenced unless and until such time as the bridleway, subject of planning application No. 8/2002/429, has been laid out and constructed in accordance with the submitted plans and supporting statement, and the Traffic Regulation Order, diverting the bridleway from Chapel Lane to the new route, has been confirmed.

TO: Steven Fidgett
Alliance Environment & Planning Ltd
276 High Street
GUILDFORD
Surrey
GU1 3JL

SIGNED : Andrew Rice
Head of Planning

DATED : 18 November 2003

PLEASE SEE OVERLEAF

Appendix 3: Parley Site Permitted Wastes & EWC Codes

Open Windrow Composting

Part A Open Windrow composting – maximum of 35,000 tonnes per year	
Waste Code	Description
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning
02 01 03	plant-tissue waste
02 01 07	wastes from forestry (comprising wood and plant tissue)
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	wastes from wood processing and the production of panels and furniture
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing
03 03 01	waste bark and wood
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	wood, glass and plastic
17 02 01	wood (untreated)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste plant matter only

Invessel Composting

Part B In vessel Composting – maximum of 45,000 tonnes per year	
01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**
01 05	drilling muds and other drilling wastes
01 05 04	freshwater drilling muds and wastes
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning
02 01 02	animal tissue waste
02 01 03	plant-tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw)
02 01 07	wastes from forestry (comprising wood and plant tissue)
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 01	sludges from washing and cleaning
02 02 02	animal tissue waste (excluding animal blood).
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 03 05	sludges from on-site effluent treatment
02 05	wastes from the dairy products industry
02 05 01	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 05 02	sludges from on-site effluent treatment
02 06	wastes from the baking and confectionery industry
02 06 01	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 06 03	sludges from on-site effluent treatment
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
02 07 99	Wastes not otherwise specified (includes spent grains, hops and whisky filter sheets/cloths only allowed if biodegradable with no chemical agents added and no toxin residues present)
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	wastes from wood processing and the production of panels and furniture
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	wastes from pulp, paper and cardboard production and processing
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 10	fibre rejects (not containing hazardous substances)
04	**WASTES FROM THE LEATHER FUR AND TEXTILE INDUSTRIES**
04 01	wastes from the leather and fur industry
04 01 01	fleshings and lime split wastes

04 01 09	wastes from dressing and finishing
04 02	Waste from the textile industry
04 02 10	organic and natural products (un-dyed and untreated)
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
07	**WASTES FROM ORGANIC CHEMICAL PROCESSES**
07 01	wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 02	wastes from the MFSU of plastics, synthetic rubber and man-made fibres
07 02 13	waste plastic (only certified biodegradable plastic to be accepted)
07 03	wastes from the MFSU of organic dyes and pigments (except 06 11)
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11
07 06	wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11
08	**WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS**
08 04	wastes from MFSU of adhesives and sealants (including waterproofing products)
08 04 16	aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	packaging (including separately collected municipal packaging waste)
15 01 01	paper and cardboard packaging not containing veneers or plastic coated.
15 01 02	plastic packaging (only certified biodegradable plastics)
15 01 03	wooden packaging (untreated)
15 01 05	composite packaging only biodegradable organic packaging
15 01 09	textile packaging
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 03	off-specification batches and unused products
16 03 06	organic wastes other than those mentioned in 16 03 05
16 10	aqueous liquid wastes destined for off-site treatment
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	wood, glass and plastic
17 02 01	wood (untreated)
17 05	Soil (including excavated soil from contaminated sites) stones and dredging spoil
17 05 06	Dredging spoil other than that containing dangerous substances (only from top 300mm of dredged surface. Anything below this will not contain compostable material)
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE**
19 02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 03	stabilised/solidified wastes
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 05	wastes from the aerobic treatment of solid wastes
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost (only from a process operated according to PAS 100 and QP requirements or another approved standard)
19 05 99	Wastes not otherwise specified

19 06	waste from the anaerobic treatment of waste
19 06 03	liquor from anaerobic treatment of municipal waste (source segregated municipal waste only)
19 06 04	digestate from anaerobic treatment of municipal waste (source segregated municipal waste only)
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 01	paper and cardboard
19 12 07	wood other than wood containing dangerous substances
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard (where no non-biodegradable coating or preserving substance present)
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 01 38	wood other than that mentioned in 20 01 37 (where no non-biodegradable coating or preserving substance present)
20 01 39	plastics
20 01 99	Wastes not otherwise specified
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste (comprising wood and plant tissue)
20 03	other municipal wastes
20 03 02	biodegradable waste from markets
20 03 03	street-cleaning residues

Soils Recycling

Part C Soils recycling Unit – maximum of 50,000 tonnes per year	
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	concrete, bricks, tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
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
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 08	wastes from waste water treatment plants not otherwise specified
19 08 99	wastes not otherwise specified (UV treated sewage effluent only)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 02	garden and park wastes (including cemetery waste)
20 02 02	soil and stones

Wood Recycling

03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD
03.01	**Wastes from wood processing and the production of panels and furniture**
03.01.05	**Sawdust, shavings, cuttings, wood, particle board and veneer other than those *containing dangerous substances.***
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17.02	**Construction and demolition wood, glass and plastic**
17.02.01	**Wood**
19	WASTES FROM WASTE MANANGEMENT FACILITIES , OFF SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19.12	**Waste from the mechanical treatment of waste**
19.12.07	**Wood other than that *containing dangerous substances***
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPERATELY COLLECTED FRACTIONS
20.01	**Municipal Wastes**
20.01.38	**Wood other than that *containing dangerous substances.***

PART F ROAD SWEEPINGS PLANT

01	**Wastes resulting from exploration, mining, quarrying, physical and chemical treatment of minerals**
01 05	**Drilling muds and other drilling wastes**
01 05 04	freshwater drilling muds and waste
01 05 05*	oil-containing drilling muds and waste
20	**Municipal wastes (including separately collected fractions)**
20 03	**Other municipal wastes**
20 03 03	Street cleaning residues

PART E ANAEROBIC DIGESTION

02	**Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing**
02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	Sludges from washing and cleaning
02 02 02	Animal tissue waste
02 01 03	Plant-tissue waste
02 01 06	Animal faeces, urine & manure (including soiled straw), effluent, collected separately & treated off site
02 01 07	Wastes from forestry
02 01 99	Residues from commercial mushroom cultivation
02 02	**Wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 01	Sludges from washing and cleaning
02 02 02	Animal-tissue waste
02 02 03	Materials unsuitable for consumption or processing
02 02 99	Sludges from gelatin production and animal gut contents
02 03	**Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 01	Sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	Sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	Materials unsuitable for consumption or processing
02 03 05	Sludges from on-site effluent treatment
02 04	**Wastes from sugar processing**
02 04 03	Sludges from on site effluent treatment
02 04 99	allowed only if no chemical agents added and no toxin residues
02 05	**Wastes from the Dairy Products Industry**
02 05 01	Wastes unsuitable for consumption or processing

02 05 02	Sludges from on-site effluent treatment
02 06	**Wastes from the baking and confectionary industry**
02 06 01	Materials unsuitable for consumption or processing
02 06 03	Sludges from on site effluent treatment
02 07	**Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	Wastes from spirits distillation
02 07 04	Materials unsuitable for consumption or processing
02 07 99	Malt husks, malt sprouts, malt dust; spent and sludge from breweries; sludge from wine making; yeast and yeast-like residues; waste types in this section allowed if biodegradable material only, no chemical agents added
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and Cardboard**
03 03	**Wastes from pulp, paper and cardboard production & processing**
03 03 02	Green Liquor Sludge
03 03 08	Wastes from sorting of paper and cardboard destined for recycling
03 03 10	Fibre rejects, fibre and filler sludges from mechanical separation
04	**Leather, fur and textile industry**
04 01	**Wastes from the leather & fur industry**
04 01 01	Fleshings and lime split wastes
04 01 05	Tanning liquor free from chromium
04 01 07	Sludges, in particular from on site effluent treatment free of chromium
04 02	**Wastes from the textile industry**
04 02 10	Organic matter from natural products
04 02 99	Waste biodegradable plastic
15	**Packaging, absorbents, wiping cloths and filters**
15 01	**Waste packaging (including separately collected municipal packaging waste)**
15 01 01	Paper and cardboard packaging (biodegradable faction only)
15 01 02	Plastic Packaging (biodegradable faction only)
15 01 03	Wooden packaging (biodegradable faction only)
15 01 05	Composite Packaging (biodegradable faction only)
19	**Materials from Waste and Water Treatment**
19 02	**Wastes from physico/chemical treatments of waste**
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 02 06	Sludges from physico/chemical treatment other than those containing dangerous substances
19 02 10	Combustible wastes other than those containing dangerous substances
19 05	**Wastes from aerobic treatment of solid wastes**
19 05 01	Non-composted fraction of municipal & similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 05 03	Off specification compost
	All waste types in 19 05 allowed as long as from a source separated origin
19 06	**Wastes from anaerobic treatment of solid wastes**
19 06 03	Liquor from anaerobic treatment of municipal waste
19 06 04	Digestate from anaerobic treatment of municipal waste
19 06 05	Liquor from anaerobic treatment of animal and vegetable waste
19 06 06	Digestate from anaerobic treatment of animal and vegetable waste
	All waste types in 19 06 allowed as long as from a source separated origin
19 08	**Waste from waste water treatment plants not otherwise specified**
19 08 09	Grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	Sludges from biological treatment of industrial waste water other than those containing dangerous substances
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**Separately collected fractions of municipal wastes**
20 01 01	Paper & Cardboard
20 01 08	Biodegradable kitchen and canteen waste
20 01 25	Edible oil & fat
20 01 38	Wood other than that containing dangerous substances
20 02	**Garden and park wastes**
20 02 01	Biodegradable waste
20 03	**Other Municipal Wastes**
20 03 01	Mixed municipal waste
20 03 02	Wastes from markets

PART F CLEAN BIOMASS PLANT

02	**Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02.01.03	Plant-tissue waste
02.01.07	Wastes from forestry
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and Cardboard**
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	Waste bark and cork
03 01 05	Untreated sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
17	**construction and demolition wastes (including excavated soil from contaminated sites)**
17 02	**Wood, glass and plastic**
17 02 01	wood (untreated)
19	**Wastes from waste management facilities off-site waste water treatment plants and preparation of water intended for human consumption / industrial use.**
19 12	**wastes from mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified.**
19 12 07	Untreated wood other than wood containing dangerous substances
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 38	Untreated wood other than that mentioned in 20 01 37
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste

PART G ABPR

02	**Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 02 99	wastes not otherwise specified (sludges from gelatin production and animal gut contents)
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing
02 06 03	sludges from on-site effluent treatment
04	**Wastes from the leather, fur and textile industries**
04 01	**wastes from the leather and fur industry**
04 01 01	fleshing and lime split wastes
04 01 07	sludges, in particular from on site effluent treatment free of chromium
04 01 09	wastes from dressing and finishing
04 02	**waste from the textile industry**
04 02 10	organic matter from natural products, e.g. grease, wax
19	**Wastes from waste management facilities, off site waste water treatment plants and** the preparation of water intended for human consumption and water for industrial use
19 05	**wastes from aerobic treatment of solid waste**
19 05 02	non-composted faction of animal and vegetable waste

19 05 03	off specification compost
19 06	**wastes from anaerobic treatment of solid waste**
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**separately collected fractions of municipal wastes**
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 03	**other municipal waste**
20 03 02	wastes from markets – allowed only if source segregated biodegradable fractions e.g. plant material, fruit and vegetables.

Part H SRF Plant

15	**Packaging, absorbents, wiping cloths and filters**
15 01	**Waste packaging (including separately collected municipal packaging waste)**
15 01 01	Paper and Cardboard Packaging
15 01 02	Plastic Packaging
15 01 03	Wooden Packaging
15 01 05	Composite Packaging
15 01 06	Mixed Packaging
15 01 09	Textile Packaging
17	**Construction and Demolition Wastes (including excavated soil from contaminated sites)**
17 02	**Wood, Glass and Plastic**
17 02 01	Wood
17 02 03	Plastic
19	**Materials from Waste and Water Treatment**
19 02	**Wastes from physico/chemical treatments of waste**
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 05	**Wastes from aerobic treatment of solid wastes**
19 05 01	Non-composted fraction of municipal & similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 05 03	Off specification compost
19 05 99	Wastes not otherwise specified Compost Oversize Rejects Reject Plastic Contamination
19 06	**Wastes from anaerobic treatment of solid wastes**
19 06 04	Dry Digestate from anaerobic treatment of municipal waste
19 06 06	Dry Digestate from anaerobic treatment of animal and vegetable waste
19 06 99	waste not otherwise specified*[Note 1]
19 12	**Wastes from the Mechanical Treatment of Waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	Paper and Cardboard
19 12 04	Plastic and Rubber
19 12 07	Wood other than mentioned in 19 12 06
19 12 08	Textiles
19 12 10	Combustible Waste (Refuse Derived Fuel)
19 12 12	Other Wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) Including separately collected fractions**
20 01	**Separately Collected Fractions (except 15 01)**
20 01 01	Paper and Cardboard
20 01 10	Clothes
20 01 11	Textiles
20 01 38	Wood other than those mentioned in 20 01 37
20 01 39	Plastics
20 02	**Garden and park wastes**
20 02 01	Biodegradable waste
20 02 03	Other non-biodegradable wastes Packaging Litter
20 03	**Other Municipal Wastes**
20 03 01	Mixed Municipal Wastes Packaging litter
20 03 02	Waste from Markets
20 03 03	Street-Cleaning Residues litter & plastics

Note 1 – Dried and sanitized screenings from Eco Sustainable Solutions Limited Piddlehinton Anaerobic Digestion Facility

Appendix 4: Eco Sustainable Solutions Waste Acceptance Procedure

Eco Sustainable Solutions Ltd
Waste Acceptance Procedure

1.0 APPLICABILITY

This procedure applies to all waste recycling sites operated by Eco Sustainable Solutions Ltd. It details how waste is managed from initial delivery to the site and how checks for compliance with company policy and governing legislation are completed.

2.0 RESPONSIBILITY

It is the responsibility of the Operations Manager to ensure this procedure is complied with.

It is also the responsibility of the Site Manager / Supervisor to ensure this procedure is complied with.

3.0 PROCEDURE

3.1 WASTE ARRIVAL

3.1.1 All waste vehicles arriving at the site are directed to the Weighbridge/ Ticket Office, by the use of sign etc, and ordered to stop.

3.1.2 The haulier is checked for this compliance with the 'Controlled Waste (regulation of carriers and seizure of vehicles) Regulations 1991'.

3.1.3 Eco Sustainable Solutions Ltd, have established a list of registered carriers with registration numbers to speed up the checking process.

3.1.4 If the haulier does not appear on this list he is asked for proof of registration. If the driver can provide this information the waste carriers licence is photocopied and details are added to the registered carriers list.

3.1.5 If the driver insists they are registered but cannot provide proof of registration, the site staff contact the Environment Agency (EA) and ask for registration details. Once confirmed, the details are added to the list to be updated.

3.1.5 Should the haulier confirm they are not registered, and is not subject to an exemption, the site staff shall inform the haulier he is not legally registered to carry waste and shall provide the haulier with details of how to register for Waste Carriers Licence online or by post.

3.1.6 The waste is accepted on this occasion to avoid the risk of fly tipping but no waste will be accepted in future unless proof of application can be provided.

3.1.7 If required the driver shall be provided with the appropriate Personal Protective Equipment (PPE), Site Rules and other Health & Safety Information.

3.1.8 Photographic Plate Showing Eco's Weighbridge at the Parley Site

3.2 DESCRIPTION & TRANSFER NOTES

3.2.1 The haulier is asked for a description and transfer note, or the details of a repeat transfer note, to cover the waste transaction. This number is cross referenced with the Eco Sustainable Solutions Ltd tip ticket/ WTN to be issued.

3.2.2 The description of waste is checked, where possible, against the visual appearances of the load. (Loads are periodically subjected to a full inspection section 3.7) On most sites CCTV facilities are provided to aid and record inspection.

3.2.3 If no description and transfer note (WTN) can be supplied or a repeat transfer note does not exist, a completed ticket from Eco Sustainable Solutions Ltd will be supplied to ensure compliance, including EWC Code.

3.3 TIPPING TICKETS

3.3.1 At this point Eco Sustainable Solutions Ltd will action a tipping ticket formulation. This ticket details: -

- For Eco's Site:
  - The address and contact details
  - The Environmental Permit Number
  - The Company VAT Registration Number
  - The individual weighbridge ticket number
- For the Waste itself
  - The type of the waste
  - The EWC for the waste
  - A description of the delivery containment
  - The amount of waste delivered
- For the Waste Source Site:
  - The origin of the waste (this will include individual contract details, if necessary)
  - The SIC code for the source operation/site
  - The customer who is depositing the waste or on whose behalf the waste is being hauled

- Tor the Haulier/Customer (as applicable):
    - The Registered Waste Carrier's Number
    - The name and signature of the driver
    - The name of the haulage company
    - The registration of the vehicle bringing the waste to Eco's site

3.3.2 Should the haulier not have agreed credit account with Eco Sustainable Solutions Ltd the driver is informed he will have to pay by credit card or cash if the driver decides not to use the facility the ticket is cancelled.

3.4 WASTE DISCHARGE

3.4.1 Once the necessary documentation is complete, detailed in 3.2 above the driver is authorised to continue to the appropriate discharge area.

3.4.2 Should a load be sheeted, the driver must use his automated de-sheeting system or if this is not available place the container/ skip on the ground before unsheeting. In the case of bulk lorries, artic trailers and rollonoff containers drivers should use the automated de-sheeting system or overhead harness or sheeting gantry where available.

3.4.3 The operative then directs the vehicle to an appropriate discharge point. The operative visually inspects the load whilst being tipped. Looking for any substances or articles which contravene the site licence. On some company sites CCTV facilities may be provided to aid and record inspection.

3.4.4 If appropriate the operative may use the on-site plant to 'disturb' the load to ensure the inspection is thorough.

3.4.5 Should the operative discover any items which cause him concern ie. undeclared Hazardous Waste or large amounts of contamination he will inform the weighbridge either in person or via radio and adopt the procedure details in Clause 3.7.4.

3.5 DOCUMENTATION COMPLETION

3.5.1 The waste delivery driver returns to the ticket office / weighbridge to complete the documentation.

3.5.2 The waste delivery driver signs the ticket, either electronically or as a hard copy and is given a copy for this records. Another copy is retained by Eco, again (depending on the site) in either hard or electronic format.

3.5.3 If the haulier delivering the waste to the site does not have an account with Eco Sustainable Solutions Ltd the ticket produced also details the cost of disposal.

3.6 VEHICLE DEPARTURE

3.6.1 Only when the weighbridge operator has completed the documentation is the waste delivery driver authorised to depart.

3.7 LOAD INSPECTION/REJECTION

3.7.1 All loads will be inspected by an operative prior to being combined with other wastes.

3.7.2 Should the load be found to be heavily contaminated (typically over 10% visual contamination) or unacceptable to the process, it will be rejected by the site.

3.7.3 When a load has been rejected the Site's Supervisor or Manager will document it in the Site Load Rejection Record Sheet and where appropriate keep photographic evidence.

3.7.4 The customer/haulier will be notified by Eco's Sale's Team of the Rejected Load.

3.7.4 If practicably possible the rejected load will be re-loaded onto the delivery vehicle.

3.7.5 If not practicably possible then the load will be put to one side and clearly labelled and stored to await disposal at an alternative permitted facility or retrieval by the customer in an appropriate vehicle.

3.7.6 If the load contains a percentage of contamination but the operator does not deem it excessive then he will remove it either by hand or using mechanical plant and store it in waste bins located at all discharge points.

3.7.7 An arrangement is in place with a local collection/disposal facility to remove this waste on a bi-weekly basis or more frequently if required.

N.B: - Ticket procedure may vary from site to site

Appendix 5: Site Daily Housekeeping & Environmental Check Sheet

Eco Sustainable Solutions
Parley Site Daily Housekeeping & Environmental Check Sheet

Week Commencing:
Completed By:

Entrance Area & Lane	**Frequency**	**Mon**	**Tues**	**Wed**	**Thurs**	**Fri**	**Sat**
Check Entrance Area & Product Bays	Daily						
Clean Around Weighbridge	Weekly						
Sweep Around Offices	Weekly						
Sweep Lane / Clear Litter / Clean Signs	Weekly						

Site General

Clear Gulleys	Daily						
Clear Lagoon Screens	Daily						
Tidy Around Lagoons	Weekly						
Check Site Signs	Weekly						
Check all Wheelie Bins	Weekly						
Site Storage Area Checked & Tidied	Weekly						
Site Delivery Container Checked & Tidied	Weekly						
Perimeter of Site Checked & Litter Collected	Weekly						
Clean Around Diesel Tank	Weekly						

Sweeping

Around Weighbridge & Site Roads	Daily						
Wood Yard	Weekly						
Erins Yard	Weekly						
Around Compost Pads	Weekly						
Around Leachate Lagoons	Weekly						
Chapel Lane	Weekly						

Food Waste Barn

Fans Checked & Working	Daily						
Entrance area Cleaned	Daily						
Foot Dip Checked & Replenished if Necessary	Daily						
Barn Washed Down	Weekly						
Clean Perimeter of Barn	Weekly						

Additional Jobs / Notes

Any Potential Environmental or Housekeeping Issues Witnessed Must be Reported to Site Manager

Signed Operator:

Signed Manager:

Appendix 7: Parley Site Daily Record Sheet

Eco Sustainable Solutions
Parley Site Daily Record Sheet

		Wind	Conditions
Date:	**Forecasted Weather:**		
Completed By:	**Actual Weather:**		

Odour Assesments

Time of Test	Location	Weather Condition	Temp (C)	Wind Speed	Wind Direction	Lenght of test	Odour Detected?	Intensity	Constant / Intermitant	Description of Odour	Is the Source Evident?
Notes											
Notes											
Notes											
Notes											

Dust Surpression Used?		**Site Security Checked?**	
Levels of Lagoons OK?		**IV Biofilter Temp**	
Deodorisor System Used?		**IV Biofilter Damp & Media OK?**	
Aerators On?		**IV Abstraction System On & Working OK?**	
Pumped leachate?		**IV Barn Integraty Checked & OK?**	
Pumped to Palmersford?		**All Gulleys & Drains Running?**	
Rodents/Birds Detected?		**Lagoon DO Level?**	

Any Environmental/Health & Safety Issues Throughout the Day?

SECTION 11 – NOISE

11.1 INTRODUCTION

11.1.1 This section of the ES has been prepared by Royal HaskoningDHV and considers noise associated with the proposed development and the effect on the surrounding environment. It provides details of the noise assessment, including the methodology, a description of the baseline environment and result of a noise survey, an assessment of the likely impact from construction and operation of the development and discussion of mitigation.

11.2 POLICY AND LEGISLATION

11.2.1 This assessment draws upon a wide range of published guidance and reference documents including:

The Control of Pollution Act, 1974 (COPA)

11.2.2 Section 60 of the Act provides powers to local planning authority officers to serve an abatement notice in respect of noise nuisance from construction works, whilst Section 61 of the Act provides a method by which a contractor can seek consent to undertake construction works in advance of their commencement. If consent is given, and the stated method and hours of work complied with, then the local planning authority cannot take action under Section 60 of the Act.

Environmental Protection Act, 1990 (EPA)

11.2.3 Section 79 of the Act defines statutory nuisance with regard to noise and determines that local planning authorities have a duty to detect such nuisances in their area.

11.2.4 The Act also defines the concept of "Best Practicable Means" (BPM) as:

> *"'practicable' means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications;*
>
> *the means to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and structures;*
>
> *the test is to apply only so far as compatible with any duty imposed by law; and*

the test is to apply only so far as compatible with safety and safe working conditions, and with the exigencies of any emergency or unforeseeable circumstances."

11.2.5 Section 80 of the Act provides local planning authorities with powers to serve an abatement notice requiring the abatement of a nuisance or requiring works to be executed to prevent their occurrence.

National Planning Policy

National Planning Policy Framework

11.2.6 The National Planning Policy Framework was introduced in March 2012 and the former Planning Policy Guidance 24: Planning and Noise was thereby replaced. Paragraph 123 of the National Planning Policy Framework states that planning policies and decisions should aim to:

"avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;

recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and

identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."

11.2.7 The National Planning Policy Framework also refers to the Noise Policy Statement for England.

Noise Policy Statement for England (NPSE)

11.2.8 This document was published by DEFRA in 2010 and states three policy aims:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

• avoid significant adverse impacts on health and quality of life;

- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

11.2.9 The first two points require that significant adverse impact should not occur and that, where a noise level falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect:

> *"… all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."*

Guidance

11.2.10 IPPC Technical Guidance Note S5.01 refers to H3 Part 1 that details the guidance of permitted emissions of noise and vibration under the Pollution Prevention & Control (England & Wales) Regulations 2000.

11.2.11 British Standard (BS) 7445: Parts 1 and 2 - Description and measurement of environmental noise. The Standard provides details of the instrumentation and measurement techniques to be used when assessing environmental noise, and defines the basic noise quantity as the continuous A-weighted sound pressure level (L_{Aeq}). Part 2 of BS 7445 replicates ISO standard 1996-2.

11.2.12 BS8233: 2014 – Guidance on sound insulation and noise reduction for buildings - Code of practice. This Standard gives recommendations for the control of noise in and around buildings, and suggests appropriate criteria and limits for different situations. These criteria and limits are primarily intended to guide the design of new or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise level. It covers room acoustics for simple situations, but not the design of buildings where the acoustics are critical, such as auditoria.

11.2.13 BS5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites - Part 1. This document provides recommendations for basic methods of noise and vibration control relating to construction and open sites where work activities/operations generate significant noise and/or vibration levels. The legislative background to noise and vibration control is described and recommendations are given regarding procedures for the establishment of effective liaison between developers, site operators and local authorities. This British Standard provides guidance on methods of predicting and measuring noise and assessing its impact on those exposed to it.

11.2.14 World Health Organisation (WHO) Guidelines for community noise. These guidelines present health-based noise limits intended to protect the population from exposure to excess noise. It presents guideline limit values at which the likelihood of particular effects, such as sleep disturbance or annoyance, may increase. The guideline values are 50 or 55dB L_{Aeq} during the day, related to annoyance, and 45 dB L_{Aeq} or 60dB L_{Amax} at night, related to sleep disturbance.

11.3 METHODOLOGY

Baseline Noise Survey

11.2.15 A baseline noise survey was undertaken on the 12th and 13th of June 2012. The survey comprised measurements of the existing noise climate at three locations around the proposed development site. These locations are shown in **Figure 11.1** and described in **Table 11.1**.

Table 11.1: Equipment used for the baseline noise survey

Location ID	Distance from proposed development	Description
N1	230m	On Chapel Lane, to the north of existing ECO Solutions site. Close to an isolated property on the west side of the lane.
N2	950m	On Chapel Lane, to the south of the airport. Adjacent to Church House.
N3	700m	On Barrack Road, close to Hum Honey Farm.

11.2.16 Measurements were undertaken during both day and night time, comprising multiple 15-minute measurements at each location. The equipment listed in Table 2 was used during the survey:

Table 11.2: Equipment used for the baseline noise survey

Equipment	Serial Number	Calibration Date
Rion NL-32 Sound Level Meter	00620155	23/03/2012
Rion NC-74 Sound Calibrator	01020506	23/03/2012

11.2.17 Weather conditions were suitable for noise measurements during the survey period, with wind speeds below 5m/s^{-1} and no rain.

Figure 11.1: Noise Survey Monitoring Locations

Assessment

11.2.18 The assessment comprises a qualitative assessment, based on the existing noise climate, proposed design and processes and proximity of the development to nearby receptors. With the exception of plant referenced in Section 11.3.5, all existing plant, as permitted under the previous planning approval, will be relocated to ensure all are contained within buildings to prevent all nuisances, i.e. noise, dust and odour.

11.2.19 In relation to changes to the current proposal against the previously permitted scheme, the only significant external noise source proposed will be the Road Sweepings Plant (RSP) and noise emission data has been provided. This has allowed a detailed assessment of the noise impact. Planning permission was granted in January 2014 for a Road Sweeping and Gully Waste Recycling Plant for a temporary period of 12 months (Planning Ref: 8/13/0403). This

plant deals with the aforementioned waste stream and meets the needs of Dorset County Council's Waste Management Division. The application for the Road Sweeping and Gully Waste Recycling Plant was considered with reference to the plans for the comprehensive reconfiguration of the wider site.

11.3 DESCRIPTION OF BASELINE CONDITIONS

11.3.1 The proposed development will be located to the north east of the existing ECO Solutions site, to the east of Chapel Lane in East Parley. The development is not located close to any noise sensitive receptors, with the closest, at the north of Chapel Lane, being approximately 230m away. A description of the baseline conditions at each location is included below.

11.3.2 Noise Monitoring Location 1:

Table 11.3: Survey results from location N1[1]

Meas. No.	Period	Time	L_{Aeq} (dB)	L_{Amin} (dB)	L_{Amax} (dB)	L_{A10} (dB)	L_{A90} (dB)
13	Day	12:45	66	63	84	67	65
19	Day	14:00	58	57	74	59	58
25	Day	15:25	66	63	74	67	64
Day		*Mean L_{Aeq}:*	*65*		*Minimum L_{A90}:*		*58*
1	Night	23:25	35	30	52	36	33
3	Night	23:50	34	30	54	36	31
Night		*Mean L_{Aeq}:*	*34*		*Minimum L_{A90}:*		*31*

11.3.3 The daytime noise climate at location N1 was dominated by noise from a nearby fuel powered pump or generator, located adjacent to the property to the north of Chapel Lane. The Sound Level Meter was located approximately the same distance from the pump as the property, in order to represent an equivalent level. Other intermittent noise contributions were made by heavy vehicles and farm vehicles using Chapel Lane, the existing commercial premises on Chapel Lane and aircraft from Bournemouth Airport.

11.3.4 At night, the noise environment was relatively quiet, as the pump/generator was not operational. One heavy vehicle was observed passing by on Chapel Lane; its source and destination could not be determined at the time, however it was noted that it was not associated with the existing Eco Solutions site.

[1] Note that the average L_{Aeq} value is a logarithmic average, whereas the minimum L_{A90} value was chosen; as the averaging of percentile measurements is not valid, it is typical to take the minimum value.

11.3.5 Noise Monitoring Location 2:

Table 11.4: Survey results from location N2

Meas. No.	Period	Time	L_{Aeq} (dB)	L_{Amin} (dB)	L_{Amax} (dB)	L_{A10} (dB)	L_{A90} (dB)
15	Day	13:05	61	41	79	63	43
21	Day	14:25	62	42	82	62	44
27	Day	15:50	58	39	76	60	42
Day		*Mean L_{Aeq}:*	*61*		*Minimum L_{A90}:*		*42*
5	Night	00:10	42	31	71	43	34
7	Night	00:30	35	30	53	37	32
Night		*Mean L_{Aeq}:*	*40*		*Minimum L_{A90}:*		*32*

11.3.6 During the day, noise from vehicle movements dominated the noise environment at this location, with contributions also from the nearby recycling centre and aircraft from Bournemouth Airport.

11.3.7 During the night road traffic was still the main source of noise, with occasional heavy vehicles observed arriving and departing from Bournemouth Airport.

11.3.8 Noise Monitoring Location 3:

Table 11.5: Survey results from location N3

Meas. No.	Period	Time	L_{Aeq} (dB)	L_{Amin} (dB)	L_{Amax} (dB)	L_{A10} (dB)	L_{A90} (dB)
17	Day	13:30	49	42	65	51	45
23	Day	14:55	45	40	62	48	42
29	Day	16:15	46	41	68	48	42
Day		*Mean L_{Aeq}:*	*47*		*Minimum L_{A90}:*		*42*
9	Night	01:00	45	41	69	45	43
11	Night	01:15	43	42	67	48	43
Night		*Mean L_{Aeq}:*	*44*		*Minimum L_{A90}:*		*43*

11.3.9 The noise environment at this location was relatively tranquil, with occasional light vehicles on Barrack Road providing the main intermittent noise source. Other sources of noise noted to contribute to the noise environment were aircraft from Bournemouth Airport, a nearby river and nearby birdlife.

11.4 PROPOSED DEVELOPMENT

11.3.10 The proposed development will in summary comprise of the revision of the following existing or consented processes and facilities:

11.3.11 The planning application seeks full planning permission for the following:

> *"Proposed reconfiguration of existing and consented development; introduction of new plant and processes; increase in permitted throughput; partial widening of access road; partial realignment of Bridleway E62/29; new landscaping and associated matters."*

11.3.12 The proposed development will in summary comprise of the revision of the following existing or consented processes and facilities:

- the relocation and reconfiguration of the existing soils recycling area, aggregates area and wash plant and silt lagoon;
- the relocation and revision of the existing in-vessel composting (IVC) barn to form a fully sealed Compost Handling Centre;
- the relocation and revision of the permitted Anaerobic Digestion Facility, including revised digestate storage (now in tanks rather than covered lagoon);
- the upgrading of the Green Waste Composting system;
- the conversion of the existing IVC barn for clean biomass production (currently undertaken in the open);
- the conversion of the existing IVC clamps to wood drying units and a revised clean wood animal bedding processing area;
- a relocated treated wood biomass production area (now adjacent to the permitted Bio-Energy Facility); and
- the retention of the Road Sweeping and Gully Waste Recycling Plant.

11.3.13 The proposals also include the following new processes and facilities:

- a new Solid Recovered Fuel Processing Plant;
- a Drying Plant to dry and pasteurise AD rejects and dry sweepings Compost-Like Output;
- windrows to process leaf sweepings removed from the Road Sweeping and Gully Waste Recycling Plant;
- an increase in the overall waste throughput capacity at the site from the currently approved 210,000 tonnes per year to 266,000 tonnes per year;

- the widening of the existing access road along part of Chapel Lane to provide a two-way carriageway;
- the realignment of part of Bridleway E62/29 to the west of the fencing supplies centre and Whitemere House;
- the provision of a comprehensive landscaping scheme, including landscape screening bunds along the northern and eastern site boundaries, as well as native tree and shrub planting; and
- The provision of reedbeds to assist with the drainage strategy for the site.

11.3.14 The proposals seek to ensure that wherever possible, waste operations on site are enclosed within plant or buildings from the point of delivery to the export of finished products, thereby eliminating any impacts associated with the treatment of waste at the site. Most of the on-site recycling processes will now be sealed from arrival to dispatch.

11.3.15 The Combined AD Facility will include Digesters that will collect methane that will be transferred as renewable biogas to the local distribution grid via a new sub-surface pipe connection located immediately to the north of the site.

11.3.16 A full description of the proposed processes on site is provided in Section 3.3 of the Planning Statement.

11.5.8 The site process will be controlled by an integrated Environmental Permit control system to ensure that the plant and processes are operated in an environmentally sound and efficient manner. The single and biggest step change for the site will be the complete covering of most organic waste processing activities. The AD Facility is sealed as a matter of course, but the proposed development also includes a fully covered processing system for all food waste composting activities taking place on-site.

11.5.9 A related Environmental Management Plan and active management by the company, supported by monitoring by the Environment Agency to ensure compliance, is proposed to control and prevent nuisance to neighbours or risk to the environment.

11.4 CONSTRUCTION IMPACTS

11.4.1 The construction of the Bio-Energy Facility is planned to commence in 2014 and will take a maximum of six months to complete. The plant and equipment intended for use during the construction phase will include: excavation machinery, dumper trucks, a mobile crane, and delivery vehicles.

11.4.2 The construction method will broadly comprise of digging and cast concrete. The surface will be stripped off and then c.300mm of rubble will be placed prior to 200mm of cast concrete. Plant used will be of similar size to current site plant and the development will be very low level to reduce impact from noise and dust.

11.4.3 The construction will be fairly low key and will involve the use of plant similar to that already on site. The process of earthmoving will be in two phases - late 2014 with remainder in 2015.

11.4.4 The boundary bunds will be erected first to minimise noise propagation.

11.4.5 The proposed construction plant will be a small loading shovel, small soils screen and small bulldozer (D8). As soil is removed, the exposed area will have hardcore laid using the small bulldozer. This will then be followed by a concrete pour over as required, using Readymix deliveries.

11.4.6 Any stockpile areas will be located on roller compacted concrete and hardcore.

11.4.7 All buildings will be of steel span construction, erected as required and as the site progresses down to its full extent.

11.4.8 No piling works are proposed.

11.4.9 Due to the distance of the nearest residential property to the development site and the relatively high existing daytime noise levels, it is unlikely that significant noise impacts will result from construction operations, however typical construction noise mitigation measures, referred to as Best Practicable Means (BPM), should be applied to the construction process to minimise the likelihood of noise disturbance. Typical BPM mitigation measures are defined below:

- Restricting working hours to typical daytime construction hours, in agreement with the Local Planning Authority;
- Where possible, locating plant so that it is screened from receptors by on-site structures, such as site cabins;
- Using mobile screening to shield receptors from particularly noise equipment/activities;
- Using the modern, quiet equipment and ensuring such equipment is properly maintained and operated by trained staff;
- Applying silencers/enclosures to particularly noise equipment where possible;

- Ensuring that mobile plant is well maintained such that loose body fittings or exhausts do not rattle or vibrate;
- Ensuring plant machinery is turned off when not in use;
- Orientating plant that is known to emit noise strongly in one direction so that the noise is directed away from local houses, where possible;
- Lowering materials, whenever practicable, and not dropping them; and
- Keeping local residents informed of the type and timing of works and any particularly noisy operations expected or out of hours working.

11.4.10 It is expected that with the adoption of BPM mitigation measures, noise from the construction of the development will result in a negligible impact.

11.5 OPERATIONAL IMPACTS

11.5.1 The following information was provided by Eco Sustainable Solutions Ltd, regarding proposed operations and the potential for noise generation:

Feed Hopper in the IVC unit

11.5.2 The food waste arriving on the site is deposited into a feed hopper in the IVC building, which separates litter. This is a quiet process, as the base of the feed hopper comprises electric augers, and the process benefits from acoustic enclosure of the IVC building.

Screw Conveyor

11.5.3 The food waste is then passed from the feed hopper to the preparation plant via a screw conveyor. Again, this is a quiet process as the screw conveyor comprises electric augers and is completely enclosed within the IVC building.

Shredding/blending unit for maize

11.5.4 A shredding/blending unit will be used for the maize. This is electric driven and located inside a loading bay, which will provide acoustic screening in the direction of residential properties, and so should not generate significant noise levels.

Blending unit for the food waste and maize

11.5.5 The blending unit for the food waste and maize will comprise electric pumps and will benefit from acoustic enclosure as it is entirely contained within the processing building, and so is not expected to result in significant noise levels.

Transfer system between the digester and pasteurisation tanks

11.5.6 The transfer system between the digester and pasteurisation tanks will use electric pumps and will be completely enclosed by the process building, and should therefore not result in significant noise levels.

Screw press used to separate the solid and liquid digestate

11.5.7 The screw press used to separate the solid and liquid digestate comprises an electric cowl, and so should therefore not generate high levels of noise.

De-packaging/waste blending plant

11.5.8 Although the running of the machine is relatively quiet, the short start-up and shut-down procedures – lasting approximately 15 seconds – are comparatively loud. However, the plant will be located within the IVC building and should not generate noise levels high enough to be noticed outside the building, which currently houses an operating shredder.

Gas upgrade compound

11.5.9 The pumps and associated equipment within the gas upgrade compound will be enclosed within a containerised unit, designed to provide noise suppression.

11.5.10 In addition to the operations/equipment listed above, there will be an emergency gas flare on site, to void venting gas if problems arise. Due to the relatively low volume of gas produced by the plant, the flare is unlikely to generate significant levels of noise, as the noise level from a flare is linked to the flow rate of gas. A flare at a similar AD facility was observed to be just audible at a distance of 50m.

11.5.11 As the potentially noisy processes and equipment are all housed within buildings/enclosures, it is not expected that noise from these activities will be audible at the residential properties. However, the relevant buildings should be carefully designed to ensure that the acoustic properties of the materials are sufficient to keep noise break out sufficiently low.

11.5.12 Once received into the facility the digestate will be moved between the various processing areas via a combination of pipes and sealed vehicles. The movement of vehicles within the site will generate noise, however this is currently an active waste management site and the vehicles used for movement of materials will be similar in nature to the mobile plant currently used on site. As the operations at the existing facility were not audible at the nearest residential property, it is anticipated that noise from the proposed operations will

not be distinctly audible and will not lead to an increase in noise level at that or any other residential property.

Road Sweeping and Gully Waste Recycling Plant

11.5.13 Noise emission data has been provided for the proposed Road Sweeping and Gully Waste Recycling Plant and a quantitative assessment of the potential noise impact is set out below.

11.5.14 A noise report detailing the noise emissions from a Road Sweeping and Gully Waste Recycling Plant was produced by Noise and Vibration Consultants Ltd in August 2012; report reference R12.0805/DRK.

11.5.15 This report concluded that the indicative noise levels at a 10m position and central to the plant were between 75-78dB L_{Aeq} and an approximate sound power level of 101dB when the plant was operating under load.

11.5.16 The above sound power level was entered into the SoundPLAN noise model and propagated levels were predicted at various locations around the site boundary as shown below in Figure 11.2, and then calculated at distance to the predetermined receptor locations, as outlined in Figure 11.1. The noise contour plan is also shown in Figure 11.3.

Figure 11.2: Site Boundary Locations

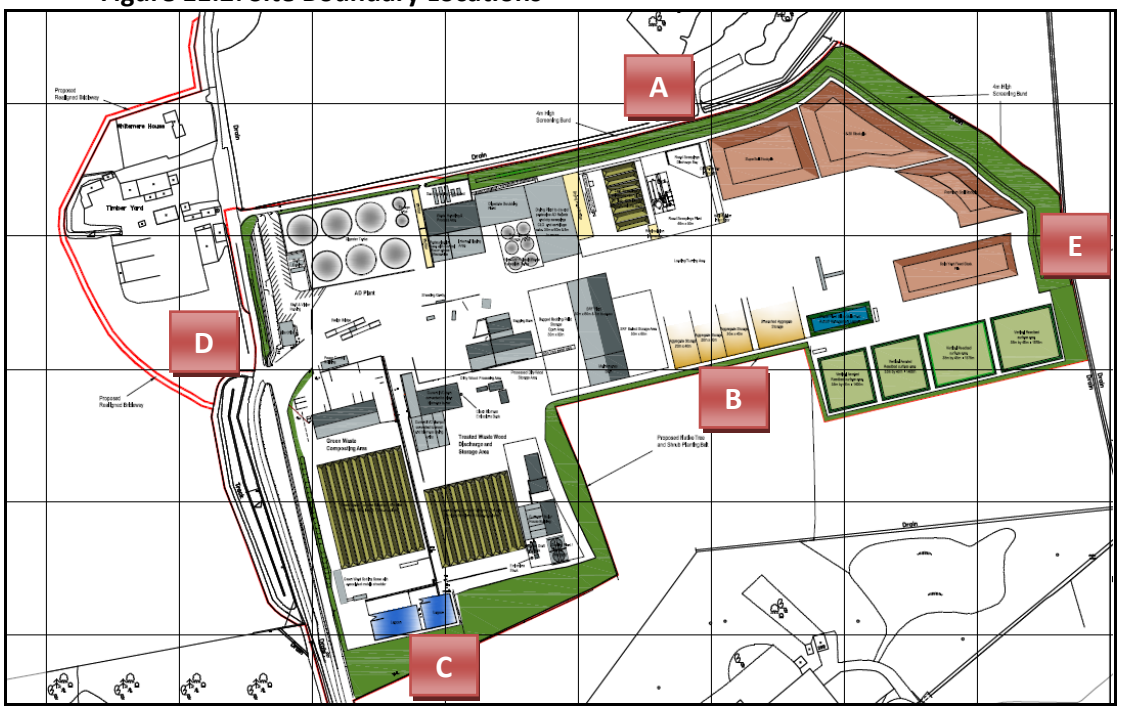
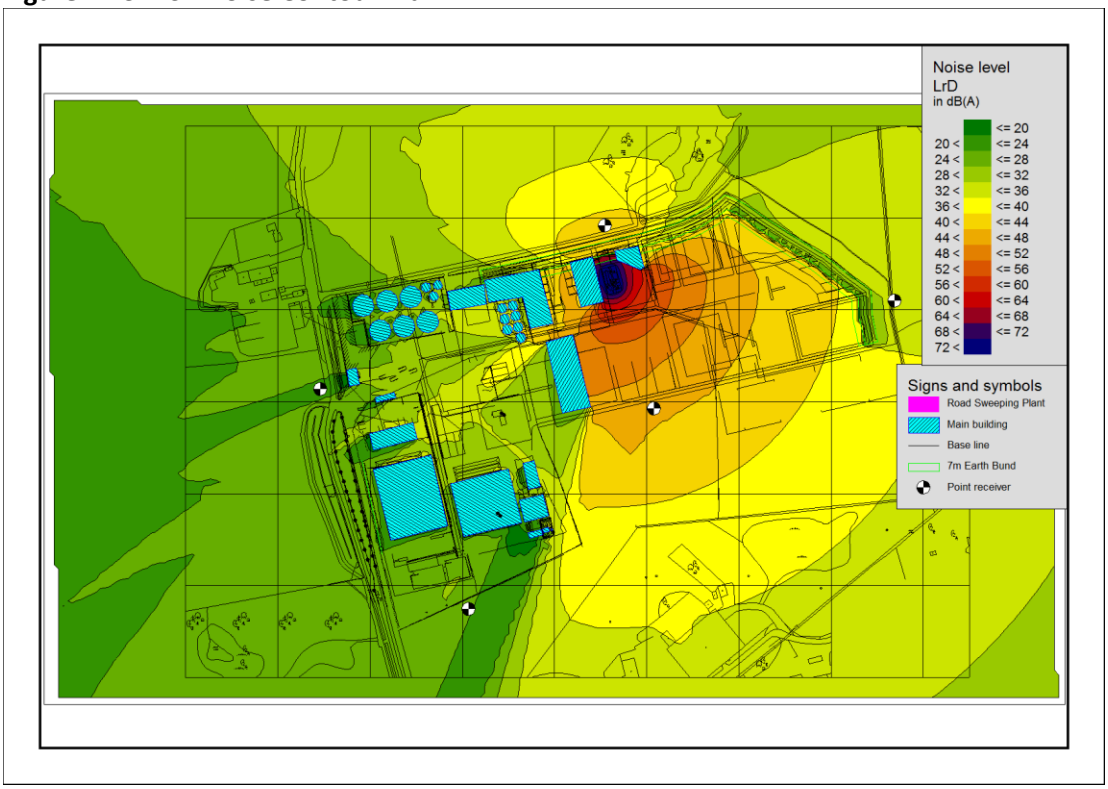


Figure 11.3: RSP Noise Contour Plan



11.5.17 SoundPLAN noise prediction software directly implements the calculation algorithm described in International Standard (ISO) 9613[2]. The calculation method takes account for air absorption, distance attenuation, barriers and topography, and light downwind conditions from source to receptor.

11.5.18 The operation of the RSP on full load is expect to result in the following noise levels at the site boundary and receptor locations (the model has incorporated the proposed 7m high screening bund along the northern and eastern site boundaries):

Table 11.6: SoundPLAN Predicted RSP levels

Receptor Location	Predicted RSP Noise Level $L_{Aeq\ 5mins}$
Site Boundary A	41
Site Boundary B	45
Site Boundary C	25
Site Boundary D	21
Site Boundary E	32
Residential Receptor Location N1	<0
Residential Receptor Location N2	<0

[2] International Standards Organisation (1996) *ISO 9613-2: 1996 - Acoustics - Attenuation of sound during propagation outdoors – Part 2: General method of calculation*. Geneva, ISO.

Residential Receptor Location N3	<0

11.5.19 On the basis of the preceding information, including the incorporation of a 7m high earth bund along the northern and eastern site boundaries, the large separation distances between the facility and the nearest residential properties, the concurrent operation of the proposed development (all internal noise sources) and the external RSP are expected to have a negligible noise impact. Predicted operational levels at the nearest residential receptors would be significantly below the measured prevailing background noise levels.

11.6 DECOMMISSIONING IMPACTS

11.6.1 The proposed development has been designed for an operational lifetime of 25 years.

11.6.2 Decommissioning will follow the cessation of operations and will involve the dismantling of the plant and buildings. This will essentially involve a reversal of the construction techniques, including the removal of cladding systems and dismantling of the steel frames, together with the removal off-site of all related plant and equipment. It will be a temporary operation of 8 to 12 weeks.

11.6.3 Most plant and equipment will be dismantled within the buildings/structures and will hence benefit from acoustic enclosure during this process prior to dismantling of the buildings themselves. The Site forms an extension to an active waste management and recycling facility and with the exception of a temporary crane, the dismantling activities are likely to use many of the same items of plant and machinery as currently exists at the facility. As such, noise impacts during decommissioning would be expected to be negligible.

11.7 CUMULATIVE IMPACTS

11.7.1 The impact of the operation of the proposed development in combination with the existing permitted process has not been assessed quantitatively. However, mitigation measures described in this chapter include limiting noise breakout from buildings/enclosures and the maintenance of an earth bund along the northern and eastern site boundaries, based on the background (L_{A90}) noise levels measured during the baseline noise survey. With these measures in place, it is not expected that any cumulative impacts would occur.

11.8 MITIGATION MEASURES

11.8.1 The following mitigation measures have been proposed in this assessment:

- Adoption of all BPM construction working methods, described earlier in **Section 11.6.9**, including limiting noisy construction works to daytime hours;

- Ensure all buildings have a suitable acoustic mitigation performance and are designed as per the Piddlehinton facility, i.e. no noise audible outside of a building;
- Buildings should have the following design as a minimum:

Table 11.7: Sound Reduction Indices for Building Construction Materials

Component and Material	Frequency (Hz) – Sound Reduction Index					
	125	250	500	1k	2k	4k
Fuel store main building walls – 100mm thick concrete block	27	32	37	40	41	45
All other walls – King Span Architectural Wall Panel, 60mm thick KS1000	16	19	23	26	22	39
Standard industrial doors	16	21	24	24	28	30
Roof – King Span 1000RW Trapezoidal	17	20	23	23	23	41

- Design of buildings/enclosures within which process equipment, such as pumps, is to be located, to ensure that noise breakout from buildings/enclosures will be sufficiently low that the existing background noise level at the noise monitoring locations will not be exceeded;
- Install/maintain a 7m high site boundary earth screening bund (north and east perimeter) and acoustic fence (west perimeter) to reduce noise breakout beyond the site boundary; and
- Limiting of delivery/reception of waste for the plant and the movement of waste internally in the site using mobile plant to daytime hours only.

11.9.2 It should be noted that the development will be operated under an Environmental Licence, and as such will be required to undertake on going measures to avoid pollution, including noise pollution. Such measures typically include a noise management plan, monitoring and a maintenance plan, to avoid old plant becoming noisy.

11.9 RESIDUAL IMPACTS

11.9.1 Following the adoption of the mitigation measures described previously, the residual impact of construction, operation and decommissioning of the site is negligible.

11.12 SUMMARY

11.12.1 Due to the large separation distance between the site and the nearest residential property, and the relatively high existing baseline noise levels at that location, the construction of the proposed development is expected to have a negligible impact.

11.12.2 The operation of the proposed development is expected to have a negligible impact, due to the relatively large separation distance between the site and nearby residential properties and the fact that all new potentially noisy processes associated with the operation, with the exception of the RSP, will be housed within buildings or enclosures. Noise emissions from the RSP are effectively contained within the site through the proposed location/orientation of the plant and the 7m high earth bund immediately to the north. The maintenance of this site boundary earth screening bund (north and east perimeter) and acoustic close-boarded fence (west perimeter) will significantly reduce noise breakout beyond the site boundary and remove any direct line of sight between receiver and the site. External noise emissions from the RSP can be suitably contained within the site perimeter through the use of screens and site boundary noise barriers.

11.12.3 Decommissioning of the development would be anticipated to use similar method as the construction, and is therefore expected to result in a negligible impact.

global environmental solutions

Parley Waste Management Facility, Parley, Christchurch

Environmental Permit Variation Application

Non Technical Summary

SLR Ref: 407.03407.00003/NTS

Eco Sustainable Solutions Limited

January 2015
Version 2

NON TECHNICAL SUMMARY

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Drawing 003	Sources, Pathways and Receptors
Drawing 004	Cultural and Natural Heritage
Drawing WRP1	Illustrative Cross Sections

1.0 INTRODUCTION

Eco Sustainable Solutions Limited (Eco) has retained SLR Consulting Limited (SLR) to prepare an application to vary the Environmental Permit, EA reference EPR/GP3793FY for the Parley Waste Management Facility, Parley, Christchurch in Bournemouth.

The existing Environmental Permit is for the operation of open windrow composting, in vessel composting, soil recycling and wood recycling, processing a wide range of non-hazardous biodegradable wastes. Eco propose to expand and redevelop the site to include a wider range of activities and waste types, as set out in detail in Section 2 of this report below.

To support this variation application, the following supporting documentation is submitted in addition to this Non-Technical Summary (NTS):

- Application Forms (Parts A, C2, C3, C4 and F1) and supporting documentation;
- OPRA Spreadsheet;
- Site Condition Report;
- H1 Environmental Risk Assessment;
- Best Available Technique and Operating Techniques;
- Waste Recovery Plan; and
- Supporting Drawings

Environment Agency (EA) application forms require a Non-Technical Summary to be submitted with each new and variation application. EA guidance *Part C: Variation permit guidance notes* requires the following to be included:

- An explanation of exactly what is being applied for;
- A summary of the regulated facilities; and
- A summary of the key technical standards and control measures arising from the risk assessment.

1.1 Site Location

The site is located in Parley in Christchurch, north of the centre of Bournemouth. The site lies within a predominately rural setting with Bournemouth International Airport and Aviation Business Park located 130m to the south of the site. The entrance to the facility lies adjacent to the access road Chapel Lane to the west. The national grid reference for the site is SZ 102 989 and the site location is illustrated on Drawing 001 dated July 2014.

The closest residential property lies 60m to the north of the site, along Chapel Lane. Further properties are located 450m to the west along Barrack Road which include Hurn Honey Farm.

The site lies in close proximity to a number of national and European designated sites within 2km of boundary. The Dorset Heath SAC, the Dorset Heathlands SPA and the Hurn Common SSSI all lie adjacent to the eastern boundary of the site, and extend to the south and west. Parley Common SSSI and the Dorset Heathlands Ramsar lies 20m to the west.

Surrounding land-use and receptors are identified on Drawing 003 - Sources Pathways and Receptors, and Drawing 004 - Cultural and Natural Heritage dated July 2014.

1.2 Current Site Activities

The site is currently permitted under a Consolidated Permit issued by the Environment Agency on 8th October 2010 (EA Reference; EPR/GP3793FY). The site previously operated under three different permits:

- EAWML 23710 issued 22nd December 2003;
- EAWML 23717 issued 18th May 2004; and
- EAWML 23545 issued 26th January 1996.

The current permitted activities comprise of four different waste operations:

- **A1: Open Windrow Composting** – physical treatment, composting and maturation of the types of waste included in Table S2.1 Part A of the permit.
- **A2: In Vessel Composting** - physical treatment, composting and maturation of the types of waste included in Table S2.1 Part B of the permit.
- **A3: Soil Recycling** – treatment including sorting, separation, screening, blending of compost and soils, washing of oversized gravels of the types of waste included in Table S2.1 Part C of the permit.
- **A4: Wood Recycling** – treatment of wood wastes included in Table S2.1 Part D, consisting only of sorting, separation, cutting, pulverising, shredding and chipping for recovery.

2.0 PROPOSED VARIATIONS

2.1 Revision to Permit Boundary

Eco wishes to revise the permit boundary to incorporate an additional area of land (the extension). The proposed extension is illustrated on Drawing 002.

2.2 Proposed Additional Activities

The site is currently permitted as a Waste Facility, as the existing activities set out in Section 1.2 above did not previously fall within Schedule 1 of the Environmental Permitting (England and Wales) Regulations 2013 (EP Regulations) as a Listed Activity.

Eco propose to develop land at their existing waste management facility as a multi activity installation, including the following additional permitted activities:

- Anaerobic Digestion (AD) plant – to process agricultural crops, animal by-products and a range of non-hazardous waste types to produce biogas for the production of electricity and ultimately for export to the National Grid and inclusion of a biomethane plant;
- The acceptance and transfer of Animal By Product waste and source segregated food waste for bulking and transfer to alternative AD facilities;
- Digestate processing – the resulting product from the AD process which can then provide agricultural benefits by spreading to land under a mobile plant permit off site;
- Clean Biomass Plant – to process virgin wood accepted at the site to produce heat and energy to supply all operations on site;
- Bedding Plant – to produce animal bedding from clean wood waste imported and accepted on site;
- Solid Recovered Fuel (SRF) Plant – to produce a SRF product for recovery purposes off site;
- Plastics and Reject Drier – to be able to treat and dry plastics, green waste, litter and compost from waste operations on site;
- Recovery of waste for the construction of the required engineered surfacing in the new area of the site (based on the U1 exemption – use of waste in construction); and
- Treatment of one hazardous waste code at the road sweepings plant (operations of which are included in a variation currently being determined, EA Ref: EPR/GP3793FY/V009).

In addition the discharge of water from the composting area via the reed bed system to sewer will be a permitted activity.

The location of each of the proposed activities is detailed on Drawing 002. The drawing also illustrates the new locations for the existing waste operations currently permitted on site.

2.2.1 Anaerobic Digestion

The following activities will be listed activities under Schedule 1 of the Environmental Permitting Regulations (2010), as amended;

- Addition of an AD Installation falling under Section 5.4 Part A(1) b) i) of the EP Regulations, *'Recovery or a mix of recovery and disposal of non-hazardous waste*

with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if only waste treatment activity is anaerobic digestion) involving one or more of the following activities; (i) biological treatment; and

- Addition of a further AD Installation falling under Section 6.8 Part A(1) (c) of the EP Regulations, *'Disposing of or recycling animal carcasses or animal waste, other than by rendering or by incineration falling within Section 5.1, at a plant with a treatment capacity exceeding 10 tonnes per day of animal carcasses or animal waste or both in aggregate'.*

2.2.2 Open Windrow Composting

In addition to the inclusion of the above new activities that require an installation permit, due to the implementation of the Industrial Emissions Directive (IED), the existing composting activities, with a treatment capacity of over 75 tonnes per day, also now fall within Schedule 1 of the Environmental Permitting Regulations. Therefore, this variation also seeks to amend the current open windrow composting waste operation to become a listed activity, under Section 5.4 Part A (1) b) i).

As Eco's open windrow composting is an existing permitted activity, it has already been assessed by the EA to be managed with due regard to appropriate measures (Best Available Technique (BAT). No changes are proposed to the operation of this existing activity, other than the change in the regulations to include it as a Schedule 1 Listed Activity rather than a waste operation. Therefore, the accompanying assessments and application reports focus on the newly proposed activities and do not consider open windrow composting any further. The composting of waste will continue to be managed by the Environmental Permit.

2.2.3 Directly Associated Activities

As discussed with Jim Wilkinson of the EA, the wood biomass plant and the treatment and storage of digestate will be permitted as a Directly Associated Activities (DAA). The biomethane plant will also be included as a non-listed DAA to the AD Plant.

It is proposed that the storage and treatment of digestate will be permitted as a non listed Directly Associated Activities to the Anaerobic Digestion Installation. It is also proposed that the clean biomass plant will be permitted as a non listed DAA to the site. Inclusion of the digestate processing and clean biomass plant as a non listed DAA is supported by Regulatory Guidance Note RGN2, 'Understanding the meaning of Regulated Facility', Appendix 2, 'Defining Scope of the Installation' (April 2010).

In relation to Directly Associated Activities (Limb (ii) test), the Guidance states that, 'the purpose of the Limb (ii) test is to determine whether any other activities that are being carried out in conjunction with the Activity amount to DAA's. If they do, they will be included within the Installation'.

The Guidance sets out three criteria (2A), (2B) and (2C), that must all be met before an activity will be regarded as a DAA. The criteria are as follows;

- (2A) the activity must be directly associated with the stationary technical unit;
- (2B) the activity must have a technical connection with the listed activities carried out in or by the stationary technical unit; and
- (2C) the activity must be capable of having an effect on emissions.

In addition, it is proposed that the discharge to sewer of water resulting from the composting area via a reedbed system is permitted as a listed Directly Associated Activity under Section 5.4 Part A (1) a) (i) of the EP Regulations, 'Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment - (i) biological treatment'.

2.3 New Waste Operations

SRF Plant

The production of SRF will be permitted as a waste operation, as the daily capacity for the proposed plant falls below 75 tonnes per day, and therefore does not fall within Schedule 1 of the EP Regulations. The applicable waste recovery waste operations codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R5: Recycling or reclamation of other inorganic materials;
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Plastics and Reject Drier

The plastics and reject drier will process up to 12,225 tonnes of residual waste and fractions produced on site from the various waste operations including plastics and rejects from the AD plant, CLO compost and centrifuge cake from the road sweepings plant (currently being determined in a separate EP variation application).

Once the waste has been treated, the plastics will be transferred to the SRF plant for further treatment, whilst the dried CLO compost and centrifuge cake will be sent off site for disposal.

The applicable waste recovery waste operations codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R5: Recycling or reclamation of other inorganic materials;
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Bedding Plant

The bedding plant will process up to 13,300 tonnes per annum (tpa) of imported clean wood and clean wood from the waste wood reception area. The wood will be shredded, screened and bagged to produce products that will be sold. The products will include horse bedding, fine bedding and sawdust. The applicable waste recovery waste

operations codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);

R13: Storage of wastes pending any of the operations numbered R1 to R12.

Waste Recovery Operations

The interim waste recovery operations, for the construction of the engineered surfacing for the extension to the site will see the importation of 25,000 tpa of waste (tonnages have been adjusted in the submitted Environmental Permit Variation ref: EPR/GP3793FY/V009).The applicable waste recovery operation codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R5: Recycling or reclamation of other inorganic materials;
R13: Storage of wastes pending any of the operations numbered R1 to R12.

All waste recovery operations will be carried out in accordance with the Waste Recovery Plan (WRP) included in Section 8 of this application.

The approximate area of waste recovery is illustrated on Drawing WRP1.

ABPR and food waste bulking and transfer

The site will import 15,000tpa of ABPR and source segregated food waste which will be brought to site, and tipped in the reception barn. The waste will be stored and the bulked up for transfer off site to a suitably licensed facility for recovery. The applicable waste recovery operation codes for this activity will be:

R13: Storage of wastes pending any of the operations number R1 to R12

2.4 Additional Waste Types

Eco proposes to accept additional waste codes for the AD Plant, ABPR waste acceptance, the clean biomass facility and the SRF plant, as illustrated in Appendix D of the Application Forms.

2.5 Additional Waste Type at the Road Sweepings Plant

Eco wishes to begin accepting and treating one hazardous EWC waste code, 01 05 05* oil containing drilling muds, at their road sweepings plant facility. The plant would treat up to 2,000 tpa of this waste code for recovery. The daily tonnage for the site, therefore, does not fall within the EP Regulations and is not deemed to be a listed activity. Annual Tonnage

2.6 Site Tonnage Limit

Eco wish to increase the sites annual permitted tonnage to 315,000.

The total tonnage by facility will be as follows;

Waste Facility	Waste Imports - tonnes per annum
Open Windrow Composting	38,250 (in the interim before the AD plant, clean biomass plant and SRF plant is operating, the annual tonnage received for composting will be up to 55,000. This comprises the currently received green waste and the green waste formerly processed through the IVC system which was blended with the incoming food waste as a moderator))
Soils Recycling	100,000
Wood Recycling	33,000
Road Sweepings Plant	42,000
Anaerobic Digestion	33,000 (includes food waste, green waste and ABPR waste and excludes PAS100 leachate, surface water and Maize (non-waste)
ABPR Waste Acceptance/Transfer	15,000
Clean Biomass Plant	16,250
Bedding Plant	13,300 (10,000 clean wood from imports and 3,300 from the wood recycling reception area)
Plastic and Reject Drier	10,000 incoming plastics, plus internally sourced.
SRF Plant	9,798
TOTAL TONNAGE	**315,000**

2.7 Type of Variation Assessment

The proposed variation will be governed by the EA's OPRA waste facility and installation spreadsheet, included in Section 2 of this application. The fee for this application, as per the EA's 2014 Fees and Guidance, will be based on the existing OPRA profile times by the variation multiplier. In addition, as the site will become an installation the new application fee for the listed activities will also be included plus the advertisement fee as the site is deemed to be a site of high public interest.

Waste Facility Variation fee: £8,400

Installation Application fee: £26,986

Advertisement fee: £500

Total fee: £35,886

A summary of the proposed changes to the Environmental Permit conditions are presented in Table 2-2, below.

Table 2-2 Proposed Variations to Environmental Permit Conditions

Permit Condition	Issue	Proposed Change
Schedule 1Table S1.1	Activity Reference	Change tonnages for each existing waste operation as per Section 2.8 of this NTS
Schedule 1 Table S1.1	Listed activities	Addition of Listed Activities as per Sections 2.2.1, 2.2.2 and 2.2.3 of this report
Schedule 1 Table S1.1	Directly Associated Activity (DAA)	Addition of Directly Associated Activities as per Section 2.2.3 of this report
Schedule 1 Table S1.1	Waste Operations	Addition of Waste Operations as per Section 2.3 of this report
Schedule 2 Table S2.1	Annual permitted tonnage	Update to 315,000
Schedule 2 Table S2.1	Waste Types	Addition of waste types illustrated in Appendix D included in Section 1 of this application
Schedule 7	Site Plan	Update with Drawing 002 'Environmental Permit Boundary and Indicative Site Layout'.

3.0 ASSESSMENT

3.1 Site Condition Report

A site condition report (SCR) is submitted as part of this application to summarise the baseline environmental conditions within the proposed extension to the permit boundary. The SCR has been prepared in accordance with Environment Agency (EA) guidance H5 (version 2), August 2008.

The facility will operate with due regard to the conditions of the Environmental Permit and all relevant environmental legislation to ensure that the site does not pose a significant risk to the surrounding human and natural environment.

The SCR (reference 407.03407.00003/SCR) is enclosed as Section 5 of this Environmental Permit variation application.

3.2 H1 Environmental Risk Assessment (H1)

An H1 Environmental Risk Assessment (including all appropriate annexes) has been carried out to assess the environmental risk posed by the proposed permit variation.

Operational procedures will be implemented at the site to monitor and manage amenity risks from the permitted waste management activities and include provision for the management of birds, vermin, insects, litter, mud on road, odour and noise. The impact of the site on surrounding human and environmental receptors is set out in the H1 assessment and the potential receptors are illustrated on Drawing 004, *'Sources, Pathways and Receptors'.*

Subject to the implementation of management measures, it is concluded that the proposed permit variation is unlikely to result in a significant accident risk or risk to the amenity of the local environment or human health.

The H1 Risk Assessment (reference 407.03407.00003/H1) is enclosed as Section 6 of this Environmental Permit application.

The main source emission to air will be from the AD plant, from the biogas engines located at the Combined Heat and Power Plant (CHP). However, the plant will be separately permitted and operated by an external contractor as chosen by Eco.

Therefore, this variation application does not evaluate this emission to air.

3.3 Operating Techniques Document

The site will be operated in accordance with the Best Available Techniques and Operating Techniques (BATOT) document which details the following:

- Management;
- Site operations; and
- Emissions and Monitoring.

Operational management procedures will ensure that:

- the risks that the activities pose to the environment are identified;
- the measures that are required to minimise the risks are identified;
- the activities are managed in accordance with the management system and BATOT document;
- performance against the management system is audited at regular intervals; and
- the Environmental Permit is complied with.

The proposed mitigation measures are outlined in the BATOT document and in the H1 assessment. Some of the mitigation measures are outlined below:

- all areas of the site used for the storage and / or treatment of waste destined for the AD plant, SRF plant and plastics and reject drier will be provided with impermeable surfacing;
- the road sweepings plant area of the site will benefit from separate storage areas for the hazardous waste type and all other non-hazardous waste;
- the facility will benefit from separate potentially contaminated and clean surface water drainage systems as illustrated on Drawing 002;
- any tanks or containers used for the storage of any liquid fuel oil or other potentially polluting liquids shall at all times be labelled as to its contents, and will be fit for purpose;
- any tanks or containers used for the storage of any waste e.g. digestate, shall at all times be labelled as to its contents, and will be fit for purpose;
- all digestate tanks will cited in a bunded area (impermeable surface with sealed construction joints) which will have a capacity of at least 100% of the largest vessel or 25% of the total tankage volume, whichever is greatest;
- the AD facility and ABPR/Food Waste Transfer Barn will benefit from a biofilter; and
- vehicles and plant will be appropriately maintained to ensure that the operation of the site will not give rise to unacceptable noise or vibration levels.

The Best Available Techniques and Operating Techniques document (reference 407.03407.00003/BATOT) is enclosed as Section 7 of this Environmental Permit application.

3.4 Waste Recovery Plan

A legal test derived from the Waste Framework Directive and European Case Law is used to decide whether an activity constitutes disposal or recovery. The Environment Agency guidance states that "*Waste recovery is about using waste to replace other non-waste materials to achieve a beneficial outcome in an environmentally sound manner".*

This WRP has been developed in order to demonstrate that the proposed construction of engineered surfacing constitutes recovery and not disposal by satisfying the requirements of the Environment Agency Guidance Defining Waste Recovery: Permanent Deposit of Waste on Land (EPR13). The WRP specifically addresses the questions as set out in Section 4 of the EA guidance, and also demonstrates that the

proposals satisfy the specific criteria outlined in Appendix 1 of EPR13: Applying the Recovery Test in Practice.

The Waste Recovery Plan document (reference 407.03407.00003/WRP) is enclosed as Section 8 of this Environmental Permit application.

4.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Eco Sustainable Solutions Limited; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR. SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Eco Sustainable Solutions

Odour Management Plan
Parley

January 2015

1 Contents

2 Introduction

Odour control for operations at Eco's Parley site is an integral part of the sites Environment Management System.

This plan will focus specifically on how the site intends on preventing or where that is not practicable minimising offsite odour throughout all of its biological treatment processes.

It will detail specifically but not exclusively systems employed, technologies utilised, management and control processes and where appropriate third party collaborations.

This plan will be reviewed annually at a minimum or following the implementation of any new management measures or a change to work practices at the site.

3 Definition of Terms

3.1 Malodour

An odour that is deemed by an individual to be unpleasant and offensive in its nature*

3.2 Odour

A volatile substance or mixture of volatile substances that are perceived through a person's sense of smell*

3.3 Non-conform waste/materials

A waste that is contaminated with material that is unsuitable or inhibiting for the composting process or is deemed to have the potential to cause a nuisance level off site odour.

3.4 Sensitive Receptor

Person(s) or businesses which are particularly susceptible to the potential effects of offsite odour.

***** *An industry guide for the prevention and control of odours at biowaste processing facilities, Jeremy Jacobs, Nick Sauer and E.Jane Gilbert, The Composting Association, 2007*

****** *PAS 100:2005, Specification for composted materials, WRAP, The Composting Association, 2005*

4 Site Overview

Eco Sustainable Solutions Limited Parley site (Eco Parley), located at:

Eco Sustainable Solutions Limited,
Chapel Lane,
Parley,
Christchurch,
Dorset.
BH23 6BG.

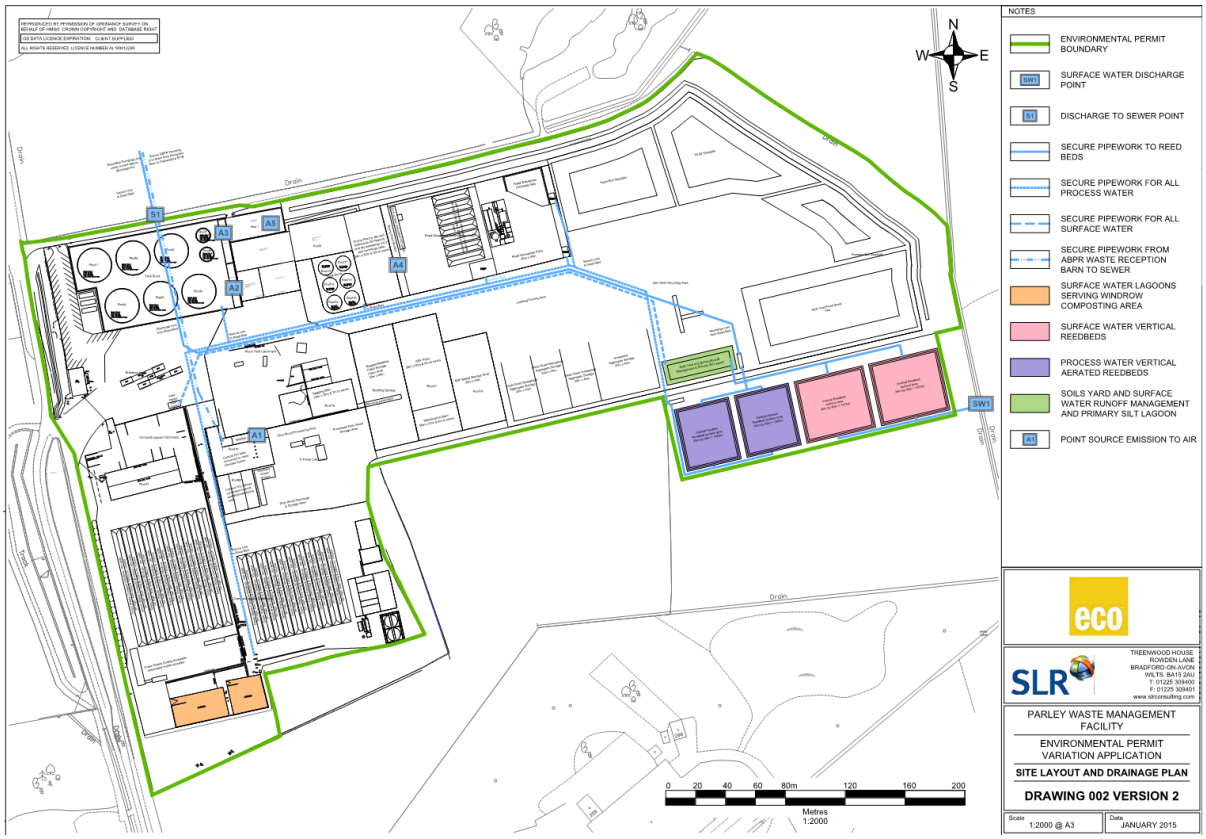
Tel: 01202 593601

E: office@thisiseco.co.uk

Environmental Permit: EPR/GP3793FY. (Appendix 1)

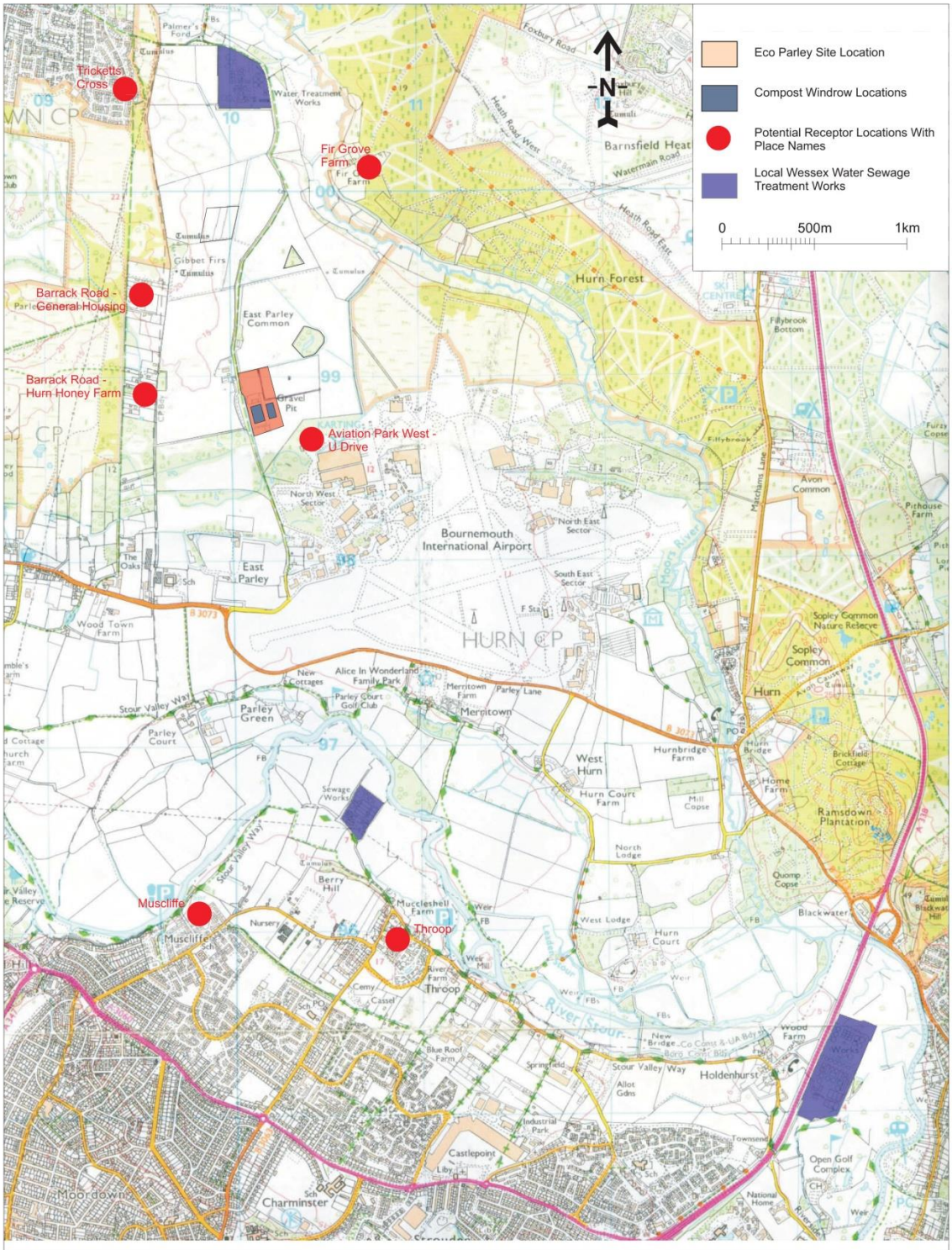
Planning Application: 8/2001/351 (Appendix 2)

4.1 Diagram 1- Site Layout



4.2 Diagram 2- Arial View of Site

The site most sensitive receptors are situated directly to the West of the site (Residents of Barrack Road, West Parley) and South East of the site (U-Drive, Aviation Park West).



5 Daily Odour Monitoring

Routine proactive monitoring as well as reactive odour monitoring is carried out at Parley. Monitoring is used to investigate potential sources, pathways, and destinations of odour dispersion as part of continued odour control over the site. It can also identify specific causes of odour following reports or complaints. The investigation of potential causes and routine checks enable the appropriate measures to be applied to reduce or eliminate the effect on off-site receptors as promptly as possible when required. Measures might include the removal of odorous material from the site or the use of abatement equipment.

Wind conditions will be monitored daily by the Site Manager or another appropriate member of staff and will be recorded in the Parley Site Diary (See appendix 3).

Where appropriate, offsite odour assessments will also be conducted so as to ensure that the site is fully aware of any potential nuisance and can react accordingly. The results along with any actions will also be recorded in the Parley Site Diary. If the potential for offsite odour is high then more than one assessment may be required per day.

Odour reports are recorded and analysed on a monthly basis to track odour control performance at Parley and identify priority areas/activities for improvement. Results are held in graph form, displayed on the wall in the Operations Office and measured as part of the Company's KPI analysis.

6 Main Odour Sources and Management Measures at Parley

6.1 Food Waste Transfer Station

The site has recently ceased to compost food waste, instead opting to process it through an Anaerobic Digestion facility Eco operates near Dorchester. However, local food waste is still accepted at Parley in the transfer barn before it is delivered to the AD facility.

The Transfer Barn is 20 x 45m and has a cubic capacity of c.6,800m3.

It has it's a standalone drainage system with all residues being pumped directly to Palmersford SWT (See Appendix 4 for Parley Site Drainage Plan).

6.1.1 Material Waste Acceptance

The majority of input materials are from Local Authority collections of source-separated material. All loads received at the Food Waste Transfer Station arrive in sealed vehicles (as a requirement under ABPR) to reduce the odour generation potential of incoming food waste.

Civic Amenity and Local Authority wastes are delivered to site under the auspices of the contract with the relevant Local Authority.

Please see appendix 5 for Parley Site Waste Acceptance Procedure

6.1.2 Storage & Transfer Procedures

Deliveries of food out of the Transfer Station will be undertaken daily and will broadly match the input volumes.

There are 2 bays within the Transfer Station and these are filled and emptied alternately to ensure a first in first out policy when it comes to stock rotation.

Please see appendix 6: Photographic Record Plates: Plate 1 Photographic Plate of inside Food Waste Transfer Station

No more than 200t of food waste will be stored in the Transfer Station at any one time.

6.1.3 Abatement Measures and Monitoring Process

The barn is maintained as an enclosed area under negative pressure to prevent the fugitive emission of untreated odour.

An automatic roller shutter door is used to access the building. This is either opened by an operator using a remote control or a delivery driver pushing a button. The door automatically closes once the vehicle has passed through.

Air ingress rates will be monitored and reported on by an MCERT approved external engineer on an annual basis. Records will be retained by Eco and made available to the local Environment Agency officer.

The Food Waste Transfer Station has an active bio-filtration system that consists of a pair of radial abstraction fans which draw air out of the Food Waste Transfer Station, providing 4 air changes per hour. This action maintains negative pressure within these buildings, so ensuring any draughts are into the buildings, not out. (Vents are used to ensure that safe levels of oxygen are maintained in the barn at all times)

Abstracted air from the building is fed through a pair of 900mm square ducts which then passes the air to 120mm diameter flexible drainage pipe that lies under the bed of the bio-filter. The bio-filter material comprises 150mm gravel (to provide drainage) overlaid by 2m of shredded, seasoned wood. Residence times within the bio-filter are approximately 30-40 seconds.

The bio-filter is equipped with an automatic sprinkling system which is utilised during the summer months to ensure the surface is kept moist.

See appendix 6 Plate 2 (Photographic Plate of bio-filter)

The integrity and temperature of the bio-filter is checked daily and recorded on the Parley Site Diary.

To prevent degradation of the bio-filter media, the media is tightly monitored and if required partially changed once a year. A full change is never carried out as this would destroy the bacterial colony within the filter media.

To ensure the bio-filter is performing adequately odour sampling is conducted every 6 months by an MCERTS accredited sampling technician using techniques that comply with the British Standard for Olfactometry BSEN 13725: 2003. The results of which will be made available to the local EA officer. See appendix 7 for a copy of the findings from the most recent report.

6.1.4 Odour Risk Assessment: Food Waste Transfer Station

The Risk Assessment for Food Waste Transfer Station can be found on the next page.

The Risk Assessment Key can be found in Appendix 8.

Eco Sustainable Solutions Ltd
Site:Parley
Risk Assesment: Odour Emission Food Waset Transfer Station
Date: Feb 2014

Potential Cause of Odour Emision	Nature/Cause of Emission	Potential Outcome if Emission Occurs	Likelyhood	Consequence	Risk	Control Measures	Contingency
Roller Shutter Door Malfunction	Odour Released Through Large Void	Local residents / businesses may experience short term nuisance odour	4	2	8	6 mth Service Barn Operating under Negative Pressure	N/A
Abatement Fan Malfunction		Local residents / businesses may experience short term nuisance odour	3	2	6	Annual Service 2no Fans Roller Shutter Door	Hold Replacement Parts in Stock
Pump Malfunction	Pooling Surface Water	Local Residents / Businesses may experience short term nuisance odour	2	1	3	Service Pumps Annually Pump Chambres easily Accessible	24hr Emergency Call Out Available

6.2 Green Waste Composting

The site operates a PAS100 accredited green waste composting system.

The site has recently changed from a bloc compost system turned using 360 excavators to a windrow system turned by a dedicated compost turner.

6.2.1 Material Waste Acceptance

The majority of input materials (c.70%) are from Local Authority collections of source-separated material.

Civic Amenity and Local Authority wastes are delivered to site under the auspices of the contract with the relevant Local Authority.

The remaining 30% of the input materials are received from local landscapers. Details of all of Eco's customers are retained.

Please see appendix 5 for Parley Site Waste Acceptance Procedure.

Each accepted load is assessed to identify the processing requirements and any potential problems. For example, any moist or wet loads discharged are routinely blended with other woody inputs or oversize material upon discharge to reduce the possibility of anaerobic conditions developing and so causing and odour release. Bagged material which has the potential to be highly anaerobic and odorous is identified during the sorting process, the bags split and the material mixed with amendment material (woodchip for example) to ensure that the optimum structure for oxygen flow is attained and odour mitigated. Some input materials are stored for blending with other incoming wastes, although this storage is only for a short time to comply with Permit requirements.

Delivered waste is held in the green waste reception area before being processed. The area available for the storage of green waste feedstock is 60m by 20m, up to 4m high and located between the processing area and the sleeper wall that defines the end of the composting area.

See appendix 6 Plate 3 (Photographic Plate of Green Waste Acceptance Area)

Waste accepted and stored for composting shall not be stockpiled in a quantity that exceeds 1,200m^3 as outlined in Eco's Environmental Permit. The maximum quantity equates to a tonnage of approximately 480 tonnes at 400kg/m^3.

6.2.2 Green Waste Processing

Eco's green waste processing plant is capable of processing 400 tonnes per day, this permitted stockpile is therefore of a manageable size. The maximum storage duration for input materials prior to shredding should not exceed 72 hours during normal operations. This storage duration may be exceeded in the event of mechanical failure or severe weather conditions. If this is the case feedstock material can be mixed once a day using a 360^o excavator to promote airflow to ensure minimal instances of odour generation. In the unlikely event that this occurs the local EA officer will be notified.

Eco use a Jenz BA 725 shredding unit and Komptech Multistar Screen. This setup offers an extremely flexible approach to creating the best C:N ratio and porosity to optimise the composting process. See appendix 6 Plate 4 (Photographic Plate of Green Waste processing plant)

The Jenz shredder has a number of variables which can be modified to suit the input material such as the size of the rear gate, the number of hammers and the speed at which the rotor is driven which all have a bearing on the output material.

The Komptech Star Screen allows the operator to determine the porosity of the product. By speeding up or slowing down the stars the operator can increase or decrease the amount of woody material which goes into each batch. This is extremely important as the makeup of the windrow can have a significant effect on its ability to performance. For example, too much course material will increase the available oxygen but may have a negative effect on the temperature of the windrow, likewise its ability to hold moisture. The operator will construct each windrow/batch with this in mind.

6.2.3 Batch Formation, Turning & Process Monitoring

Each batch/windrow is c.6m wide and 3m in height and typically contains 3-400t (6-800m3) of processed material. Once the batch is complete it is given a unique identification barcode and monitored using CompostManager.

CompostManager allows the operator to probe the material daily (at 250m3 intervals as per PAS 100 requirements) and measures the levels of Oxygen, Carbon Dioxide, Moisture and Temperature and how these parameters are working together. The system then informs the operator of how best to treat the batch, for example, whether to turn, irrigate or leave alone to ensure optimum conditions are maintained in the windrow. A screenshot of the operating system can be found on appendix 7.

If turning is required, the site operates a dedicated Backhus 17.60 Windrow Turner. This machine has a capacity of over 2,000m3/hr so turning can be undertaken swiftly thus minimising potential odour emissions. Where practicably possible the site will turn when the wind is from a favourable direction (i.e. not North West or directly East) however not turning the compost for long periods can increase the potential of odour so a common sense approach will be required in order to minimise the risk.

See appendix 6 Plate 5 (Photographic Plate of Backhus Windrow Turner)

If a batch is not performing to meet PAS 100 requirements, for example not reaching the stabilisation requirements of 65c for 4 days then the batch will need to be reformed and the conditions improved.

6.2.4 Odour Risk Assessment: Green Waste Composting

The Risk Assessment for Green Waste Composting can be found on the next page.

The Risk Assessment Key can be found in Appendix 8.

Eco Sustainable Solutions Ltd
Site:Parley
Risk Assesment: Odour Emission Food Waset Transfer Station
Date: Feb 2014

Potential Cause of Odour Emision	Nature/Cause of Emission	Potential Outcome if Emission Occurs	Likelyhood	Consequence	Risk	Control Measures	Contingency
Delivery of an Odourous Load	Wet/Anearobic Load	Local residents / businesses may experience short term nuisance odour	4	2	8	Waste Acceptance Procedure	Machines Available to Blend Material. Use of Atomiser System
Build up of Unprocessed Material	Wet/Anearobic Conditions	Local residents / businesses may experience short term nuisance odour	3	2	6	High Capacity Processing Plant Site Maintenance Regime to Reduce Breakdowns Service Engineers Close By	Bring Shredder from other Department Hire Plant Process without Screening Plant
Windrow	Wet/Anearobic Windrow due to Lack of Tunring/Porosity	Local residents / businesses may experience short term nuisance odour	3	2	6	PAS 100 Standard Operating Procedures Staff Training Advanced Screening System	Use of Atomiser System Reforming or Removing of Windrow
Turning Windrow	Release of Odour due to Necessary Disturbance of Windrow	Local residents / businesses may experience short term nuisance odour	5	2	10	PAS 100 Standard Operating Procedures. Dedicated High Speed Machine to Reduce Turning Time. Weather Forecasting. CompostManager Control System	Use of Atomiser System
Watering Windrow with Leachate	Release of Odour from Leachate when Sprayed over Compost Windrows	Local residents / businesses may experience short term nuisance odour	5	1	5	Wastewater Treatment Industry Standard Aeration System in Lagoons. CompostManager Control System	Use of Atomiser System
Screening Compost	Release of Odour from Disturbing Windrow. Release of Odour in Screening Plant	Local residents / businesses may experience short term nuisance odour	5	2	10	PAS 100 Standard Operating Procedures. CompostManager Control System	Use of Atomiser System

6.3 Road Sweeping Processing

Eco have recently purchased a road sweepings plant to enable 30,000 tonnes per annum of road sweepings waste derived from local authority street sweepings to be treated and recycled on site. The plant will also process gulley washings and freshwater drilling muds. The plant will operate by separating the organic element (mainly leaves) from the grit, stones and sediments through a washing, screening and centrifugal system. No odour is anticipated from the plant as it is firstly a closed loop system using only water and flocculants that are continually recycled through the plant, and secondly no putrescible or readily degradable wastes will be processed through the plant that could generate any odours. Strict waste acceptance procedures will be adhered to, to ensure only permitted wastes are accepted and processed through the plant.

All road sweepings waste, gulley washings and drilling muds will be tipped into the road sweepings discharge bay before transfer to the plant. The different fractions removed from the plant will be stored within the confines of the road sweepings treatment area. The treated leaf litter and freshwater drilling muds will be transferred to the CLO pads. Once the waste materials have been treated through the compost process, the CLO will be stored within the confines of the area before removal off site as soon as possible.

Eco are aware that if the CLO compost is left out in the elements for a long period of time, the load will become heavier and will increase the cost for recovery off site. The total storage capacity for the road sweepings treatment plant area will be 10,000 tonnes.

Please see appendix 5 for Parley Waste Acceptance Procedure

The cleaned stones and aggregates are sold as a cleaned recycled product, with the residual sediment landfilled. The leaf litter/plastics fraction from the road sweepings waste and the treated freshwater drilling muds once cleaned and screened through the process will be composted in active open windrows to produce a Compost Like Output (CLO).

The designated area for CLO composting will benefit from up to 7 windrows (6m wide, 3m high and 25m long), but will depend on the quantity of materials composted. This will provide a capacity of 225 cubic metres.

CLO cannot be produced to PAS100 due to the input parameters not meeting the quality standard, and the product is therefore prohibited from being composted within a green composting system and spread to agricultural land. The product can only be sold as an infill to land regeneration and capping within brown field sites. The CLO product at ECO is therefore kept fully separated and processed as a unique product within separate windrows located close to the road sweepings plant.

Although the CLO product will not meet PAS100 quality, the windrows will be managed using the exact technique as the green composting described in section 6.2.3 of this Odour Management Plan to ensure the mitigation of any odours associated with the process. This is achieved through the utilisation of the full CompostManager system. The waste material will be composted for approximately 6 to 8 weeks.

To prevent low levels of nitrogen forming in the windrows, PAS100 compost will be added to the waste material to prevent the composting rate from slowing down. In addition, Eco will either use a site straddle turner or a loading shovel to turn the windrows and promote the introduction of carbon in the process which will in turn balance the ratio of carbon to nitrogen (C:N).

Storage arrangements: all solid road sweepings waste on arrival on site will be stored within separate bays within the waste reception area. If the waste has a higher content of liquid, the loads will be pre-booked with the site office and transferred off the vehicle directly to the plant for treatment or the storage tank located on impermeable surfacing and bunded appropriately.

After treatment of the waste in the plant each separated fraction will be managed differently. Metals will be stored in a skip and sent off site for recovery once a suitable quantity has been produced. Stones, gravel and sand will in the interim be stored on the CLO windrow pads prior to sampling and sold. The centrifuge cake will be sampled and if the tests show the material to be non-compliant will be transferred to a dedicated storage bay and transferred off site for disposal. If tests show the material to be compliant it will be composted in the CLO windrows with PAS100 compost. Leaf litter and plastics fraction will be stored in a dedicated bay below the plant and will be transferred to the CLO windrows for treatment. Once the material has been treated in the windrows, it will be stored on these pads in the interim before removal offsite.

The road sweepings plant will not operate at full capacity, so therefore seasonal fluctuations will not affect the operation of the plant. However, if required, further windrows will be compiled to treat the leaf litter and drilling muds. In light of a breakdown or if the plant cannot operate due to over capacity, the road sweepings waste will be directly composted in open windrows without pre-treatment, as currently treated on site.

Eco have an existing long term disposal route for the CLO compost, as this type of waste has been historically produced on site. The CLO will continue to be transferred off site by a suitably licensed contractor to be utilised in landfill land quarry restorations.

The Risk Assessment for Green Waste Composting can be found on the next page.

The Risk Assessment Key can be found in Appendix 8.

6.4 Anaerobic Digestion Odour Sources

There are three primary potential odour sources associated with the AD facility and acceptance of ABPR waste;

- wastes as received;
- AD biogas; and
- Digestate.

Odour Control Measures

Eco strive to control odour to the requirements set out in the Environmental Permit.

Controlling Odour from Received Wastes at the AD Plant

Received wastes are visually checked at the weighbridge to ensure they meet the Waste Acceptance Criteria (as defined by the Environmental Permit). This is the first control measure to ensure the conformity of wastes and procedures.

Vehicles enter either the AD or ABPR reception building and the doors are closed prior to the vehicles unloading. The material is unloaded to specific areas depending on the nature of the waste and any packaging in order to ensure the need for double handling is minimised. Material is visually inspected and non-conforming loads or contaminants will be segregated and rejected from the site. Once emptied the vehicles are cleaned as necessary prior to exit from the reception building. Green waste from the green waste reception area will also be transferred to the AD facility.

The AD waste reception area will be housed in an enclosed building with roller shutter doors. All incoming waste will be discharged within the reception area behind closed doors. This ensures no unpasteurised fresh waste is open to the atmosphere, preventing external odours. The reception barn has a biofilter system that draws air out of the building with a pair of fans & then passes it through a 2.0m deep filter bed of shredded wood.

This biofilter draws air through the Reception Barn, so giving the barn a negative pressure and removing any tramp odours and bioaerosols from within the building during the reception, handling, shredding and blending of the waste. The negative pressure ensures that any draughts blow into the barn, so retaining odour and bioaerosols with the building.

The biofilter is equipped with 4 fans so that cover can be maintained at all times during the operating hours of the site, even if one fan has to be taken down to maintain or mend it.

The biofilter is equipped with a secure drainage system to ensure that any condensation from within the filter bed is passed to the reception barn drainage system for inclusion with the process slurry in the barn, prior to pasteurisation

The biofilter will change the air volume within the barn four times an hour, so giving enough air flow to even control odour and bioaerosols when the main door is open for short times to allow the access and egress of discharging vehicles.

Outside operating hours, the Reception Barn's negative pressure will be maintained by the biofilter as it will continue to draw air from within the barn.

The bacteria within the biofilter will not only destroy odours but also bioaerosols. The biofilter is maintained in a damp condition to prevent drying of the media and re-entrainment of any bioaerosols from the media itself.

Controlling Odour from Biogas

The digesters are fitted with pressure release valves in case the gas extraction system fails; these are located at the top of the digester to optimise dispersion and are only activated during emergency conditions.

Controlling Odour from Digestate

The facility will be run to comply with the requirements of PAS110. From an odour perspective this is important as PAS110 sets stability requirement for digestate. The digestion process reduces Volatile Fatty Acid (VFA) levels significantly and therefore odour generation and release from digestate is far lower than from the raw materials; effective digestion therefore acts as an odour mitigation process for the digestate. Prior to accreditation, the facility will be run with due regard to minimising odours.

The dewatering of the digestate will occur within the confines of the AD facility.

All storage of digestate will be in sealed tanks.

6.5 Odour Control measures for additional Waste Operations

Controlling Odour from the Wood Biomass Plant

Strict waste acceptance procedures within the green waste reception area will ensure only permitted waste will be accepted within the biomass plant.

Clean wood waste will be accepted at the green waste reception area, where the wood will be separated and treated and transferred to the clean biomass reception building.

The drying of all biomass waste will occur within the confines of a building, as illustrated on Drawing 002, where the waste will then be transferred to the clean biomass plant for incineration. The building will also benefit from a biofilter.

Biodegradable waste storage periods will be minimised and wastes subject to a rapid turnover.

The clean wood waste will be fresh green waste, reducing the potential for odour emission.

The acceptance of green waste is already a permitted activity on site, therefore existing management plans will continue to be adopted on site.

Controlling Odour from the SRF Plant

Wastes processed within the SRF plant will comprise litter wastes redirected from the green waste reception and green composting operations as well as residual wastes from other operations on site including rejects from the drier, litter from the CLO composting and dry and sanitised screenings from Eco's existing permitted AD Facility at Piddlehinton.

The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. All operations associated with the SRF, including waste reception, processing and storage will take place within a building.

All SRF that has been treated and baled will be stored within a building, as illustrated on Drawing 002.

Controlling Odour from the Plastics and Rejects Drier

Residual waste arising from the AD plant, CLO Composting plant and centrifuge cake from road sweepings will be processed (dried) within the drier.

The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. The drier will, however, be equipped with a biofilter on the exhaust to condition any exhaust air.

Treated waste from the drier will be stored within the confines of a building, as illustrated on Drawing 002.

Controlling Odour from the ABPR and food waste reception barn

Vehicles entering the site with ABPR and food waste will be covered.

All ABPR and food waste will be unloaded within an enclosed barn under negative pressure to prevent the fugitive emission of untreated odour. The reception barn benefits from a biofilter.

The barn benefits from automatic roller shutter doors, which automatically closes once the vehicle has passed through.

The barn benefits from an active bio-filtration system.

This type of waste will not be treated at the facility, only stored and then bulked up before transfer off site to a suitably licensed facility.

Controlling Odour from Waste Recovery Operations

The waste types used for all waste recovery operations on site, are as per the U1 exemption, and are not deemed to be odorous in nature.

Soil and stones waste is considered to be predominately inert and would not contain a high proportion of biodegradable wastes. Soil is not considered a source of offensive odour and therefore not considered a source of offsite impacts.

Controlling Odour from the Biomethane Plant

Biomethane will be contained on site and not released to atmosphere. A number of safety features will be incorporated into grin injection system, including:

Over-pressure Protection

A slam shut valve fitted with an alarm switch prevents downstream over pressurization. A pressure transmitter will monitor upstream pressure.

Emergency Stop

An emergency stop push button will be installed which will close a valve to stop gas flow to the grid and raise an alarm when pushed.

Fail Safe Operation of Motor Operated Valves

The system's motor operated valves will shut in the event of a power outage.

Pressure Control

In case of exceeding the design pressure of the skid the inlet valve for gas to grid will be closed automatically and an alarm will be raised.

In case of too low or too high outlet pressure the inlet valve will be closed automatically and an alarm will be raised.

For further information regarding the Grid Injection System, refer to the technical specification included as Appendix BATOT2.

An Odour Risk Assessment was carried out for all additional activities (EA Ref: EPR/GP3793FY/V010) in the H1 Environmental Risk Assessment included in this application.

Eco Sustainable Solutions Ltd

Site: Parley

Risk Assessment: Odour Emission from Road Sweepings Process

Date: August 2014

Potential Cause of Odour Emission	Nature/Cause of Emission	Potential Outcome if Emission Occurs	Likleyhood	Consequence	Risk	Control Measures	Contingency
Delivery of an Odorous Load	Wet/Anaerobic Load	Local residents/businesses may experience short term nuisance odour	4	2	8	Waste acceptance Procedure	Machines available to blend material
Windrow	Wet.Anaerobic Windrow due to lack of turning/porosity	Local residents/businesses may experience short term nuisance odour	3	2	6	Manage using PAS100 template of Standard Operating Procedures	Reforming or removing Windrow
Turning Windrow	Release of Odour due to necessary disturbance of windrow	Local residents/businesses may experience short term nuisance odour	5	2	10	Template PAS100 management. Dedicated high speed machine to reduce turning time. Weather forecasting.CompostManager control system.	
Watering Windrow withLeachate	Release of Odour from leachate when sprayed over compost windrows	Local residents/businesses may experience short term nuisance odour	5	1	5	Monitor DO levels in lagoon prior to consent to discharge point	

6.6 Site Lagoons

The surface water run-off and leachate from the organic waste and concreted areas of the site is collected by surface channels and directed to a lagoon system located at the southern end of the site.

This system is fed by 2 inflow drainage channels into 2 concrete-lined lagoons; Lagoon 1 is 24m x 24m and Lagoon 2 is 20m x 37m, both having a depth of 1.5m. In front of each lagoon is a removable screen which prevents large number of solids from entering the lagoon therefore increasing the biological oxygen demand (BOD).

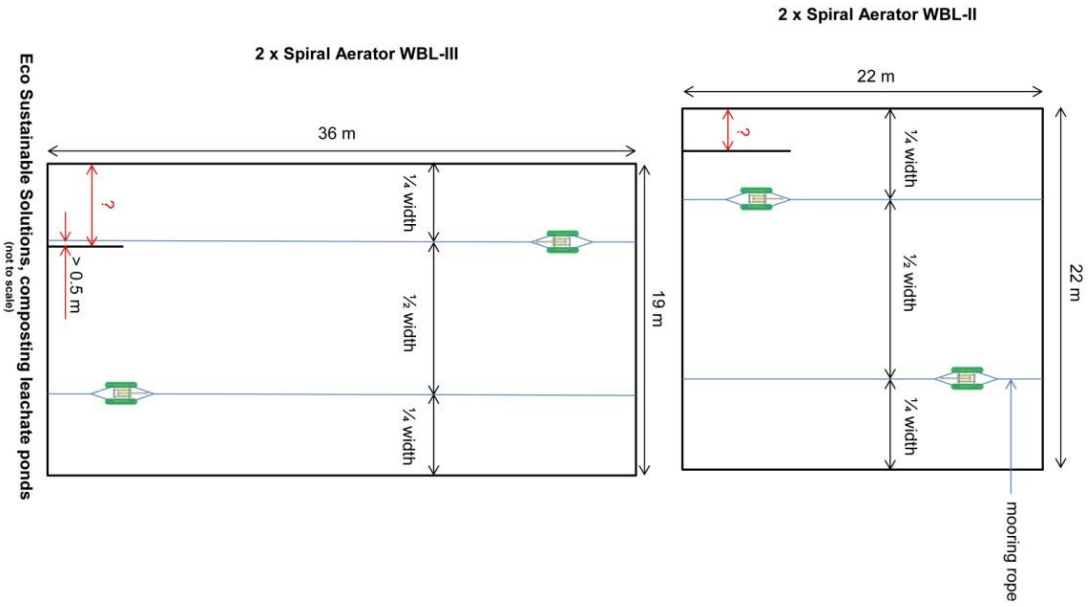
When necessary, water from the lagoons can be pumped directly to Palmersford STW through the purpose built pumping mains. Please see appendix 9 for a copy of Eco's Trade Effluent agreement with Wessex Water.

The site recently commissioned a consultant to offer advice on managing aerobic conditions within both lagoons. Details of this report have been retained by Eco and made available to the Environment Agency. As recommended by the report the site has recently purchased 4no Spiral Aerators. 2no. 3kW float-mounted Spiral Aerators are used and for the smaller lagoon and 2no, 2.2kW Spiral Aerators providing 400m3/hr of air to each lagoon. Please see Appendix 6 Plate 6 (Photographic Plate of Lagoon Aeration Pumps)

Spiral Aerators are ideally suited to lagoon installations with their high mixing capacity and efficient oxygen transfer. They create a strong horizontal flow pattern ensuring uniform oxygenation of the main water column over the whole lagoon, to maintain aerobic conditions and prevent the release of odours. Spiral Aerators also do not cause surface splashing or spray with associated bio-aerosol issues.

The diagram below shows the layout of the aerators within the lagoon system.

6.6.1 Odour Risk Assessment: Lagoons



The Risk Assessment Key can be found in Appendix 8.

Eco Sustainable Solutions Ltd

Site:Parley

Risk Assesment: Odour Emission Food Waset Transfer Station

Date: Feb 2014

Potential Cause of Odour Emision	Nature/Cause of Emission	Potential Outcome if Emission Occurs	Likelyhood	Consequence	Risk	Control Measures	Contingency
Lagoons Become Anearobic	Release of Odourous Gases such as Hydrogen Sulphide / Methane	Local residents / businesses may experience short term nuisance odour	3	3	9	Wastewater Treatment Industry Standard Aeration System in Lagoons. BOD Measured Daily. Annual Equipment Service	Hire Equipmnt Available within 24hrs Direct Pumping line to Palmersford SWT

6.6.2 Lagoon Monitoring & Cleaning

Ensuring that the lagoons do not cause odour issues will largely be down to keeping them aerobic. Typically a lagoon is considered to be aerobic if the DO (dissolved oxygen) level recorded within it is excess of 0.5mg/L.

Monitoring for DO is undertaken daily by the Site Manager or Site Supervisor using hand-held monitoring equipment and the results recorded in the Parley Site Diary.

If the DO falls below 0.5mg/L then the site will increase the frequency of the aeration which is managed on a timer system.

If required temporary additional aerators are available to hire within 24hrs. Each aerator is individually powered so if one fails others can remain in operation.

Once a year the aerators will be removed and the lagoons will be cleaned out using a wheeled loading shovel.

In-flow drainage channels are maintained daily and recorded as part of the Parley Daily Housekeeping Sheet (appendix 10)

7 Mushroom Composting

Spent mushroom compost (SMC) is bagged by a third party on the Parley site. The bagging of SMC can lead to the generation of odours if material which has been undisturbed for a period of time is moved and agitated. Volatile sulphur compounds and other volatiles including cresol can exist in the air space above stored SMC which can be particularly odorous also.

SMC material received to the bagging area is bagged within 24 hours of arrival to ensure that material is not stored in an undisturbed state for excessive periods of time, which may result in anaerobic conditions and odour generation.

If the compost is left overnight before being bagged then it will be sheeted down.

8 Site General

As part of additional on site abatement measures the site operates a deodorising system which focuses in key areas such as around the green waste composting pad and the lagoons. This system, made up of over 70 atomisers, releases a chemical mixture of water and Airborne 10 SIAT (the site has found that this particular product works well although others are available and may be used) into the environment to help break down any potential odour particles before leaving site.
See appendix 6 Plate 7 (Photographic Plate of Site Atomisers)

These can be turned on as and when required and can be localised to specific areas of the site.

Site Housekeeping is a basic yet fundamental aspect of Odour and Site Management.

The Parley Weekly Housekeeping & Environmental Sheet (appendix 10) keeps a record of all daily maintenance checks which are undertaken by a dedicated Site Operative.

All drainage gullies feeding the lagoons are inspected and cleaned daily, to prevent the potential over-flow of surface water or leachate and the pooling of liquids on-site, which may give rise to odour.
The site is swept daily to keep it clean and again prevent surface water pooling. See appendix 6 Plate 7 (Photographic Plate of Site Sweeper)

The Site Manager or, in his absence, the Site Supervisor will inspect the site and sign off the Housekeeping Sheet on a weekly basis to ensure that the necessary checks have been undertaken and standards are sustained.

9 Stakeholder engagement

Eco seeks to engage with neighbours and to maintain a positive relationship with residents and businesses in the surrounding area at all times. The company understands that not all local stakeholders are willing to engage but a proactive and open door policy has always been adopted.

Given the significant recent changes to on site operations Eco have endeavoured to communicate formally with local stakeholders at least once a quarter (though informal face to face meetings often occur much more regularly). This is something the site is keen to continue though the medium of stakeholder liaison meetings as well as through email and letter correspondence.

Eco also hold regular Open Days and invite all local stakeholders.

It is important that the surrounding community is engaged and made aware of the operations at Eco and the measures in place to manage odour.

10 Appendix 1: Environmental Permit

Notice of variation and consolidation
Environmental Permitting
(England and Wales) Regulations 2010

Permit number
EPR/GP3793FY

The Environment Agency in exercise of its powers under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 (SI 2000 No 675) (the Regulations) varies the environmental permits as set out below and in exercise of its powers under Regulation 18 of the Regulations replaces them with a consolidated environmental permit in the form set out in schedule 2.

Permit	Site address	Type of regulated facility	Original permit number
A	Eco Sustainable Solutions Ltd Chapel Lane Parley Christchurch Dorset	Waste Facility A16	EPR/GP3793FY (EAWML 23710)
B	Eco Sustainable Solutions Ltd Chapel Lane Parley Christchurch Dorset	Waste Facility A23	EPR/KP3293FE (EAWML 23717)
C	Eco Sustainable Solutions Ltd Chapel Lane Parley Christchurch Dorset	Waste Facility A22	EPR/WP3797HQ (EAWML 23545)

The conditions of environmental permits A, B & C, held by:

Eco Sustainable Solutions Limited ("the operator"),

whose registered office is
Redcotts House, 1 Redcotts Lane, Wimborne, Dorset, BH21 1JX

company registration number **03119513**

are varied to the extent set out in the Schedule 1 to this notice and replaced with a consolidated environmental permit in the form set out in Schedule 2.

This notice shall take effect from **08/10/10**

Name	Date
	08/10/10

Authorised on behalf of the Environment Agency

11 Appendix 2: Grant of Planning

DORSET COUNTY COUNCIL
COUNTY HALL
DORCHESTER
DORSET DT1 1XJ

Tel : 01305 or 01202 251000
Fax: 01305 or 01202 224835
Minicom: 01305 267933
Email: planning@dorsetcc.gov.uk
DX: DX 8716 Dorchester
Web Site: www.dorsetcc.gov.uk

TOWN & COUNTRY PLANNING ACT 1990

TOWN & COUNTRY PLANNING (GENERAL DEVELOPMENT PROCEDURE) ORDER 1995

Application N°	8/2001/351
Date Received	27 October 2000

GRANT OF PLANNING PERMISSION

LOCATION OF DEVELOPMENT: **LAND AT ECO-COMPOSTING CHAPEL LANE EAST PARLEY HURN**

DESCRIPTION OF DEVELOPMENT: **EXTENSION AND RATIONALISATION OF EXISTING COMPOSTING FACILITY AND SOILS RECYCLING, INCLUDING LANDSCAPING, ACCESS, OFFICES AND EDUCATIONAL CENTRE AND PART RESTORATION TO HEATHLAND AND WILLOW WOODLAND**

In pursuance of their powers under the above mentioned Act, the DORSET COUNTY COUNCIL being the Local Planning Authority, HEREBY GRANT PLANNING PERMISSION for the development described above in accordance with the details given in the application number above, as amended by letter dated 21 August 2002 and drawing No. EC148/03 rev C and subject to the following 17 conditions:-

Standard

1. The development to which this permission relates shall be begun not later than the expiration of five years from the date of this permission.

Relationship to related applications

2. No development, the subject of this permission, shall be commenced unless and until such time as the bridleway, subject of planning application No. 8/2002/429, has been laid out and constructed in accordance with the submitted plans and supporting statement, and the Traffic Regulation Order, diverting the bridleway from Chapel Lane to the new route, has been confirmed.

TO: Steven Fidgett
Alliance Environment & Planning Ltd
276 High Street
GUILDFORD
Surrey
GU1 3JL

SIGNED : Andrew Rice
Head of Planning

DATED : 18 November 2003

PLEASE SEE OVERLEAF

12 Appendix 3: Parley Site Diary

Eco Sustainable Solutions
Parley Site Daily Record Sheet

	Wind	Conditions
Forecasted Weather:		
Actual Weather:		

Date:

Completed By:

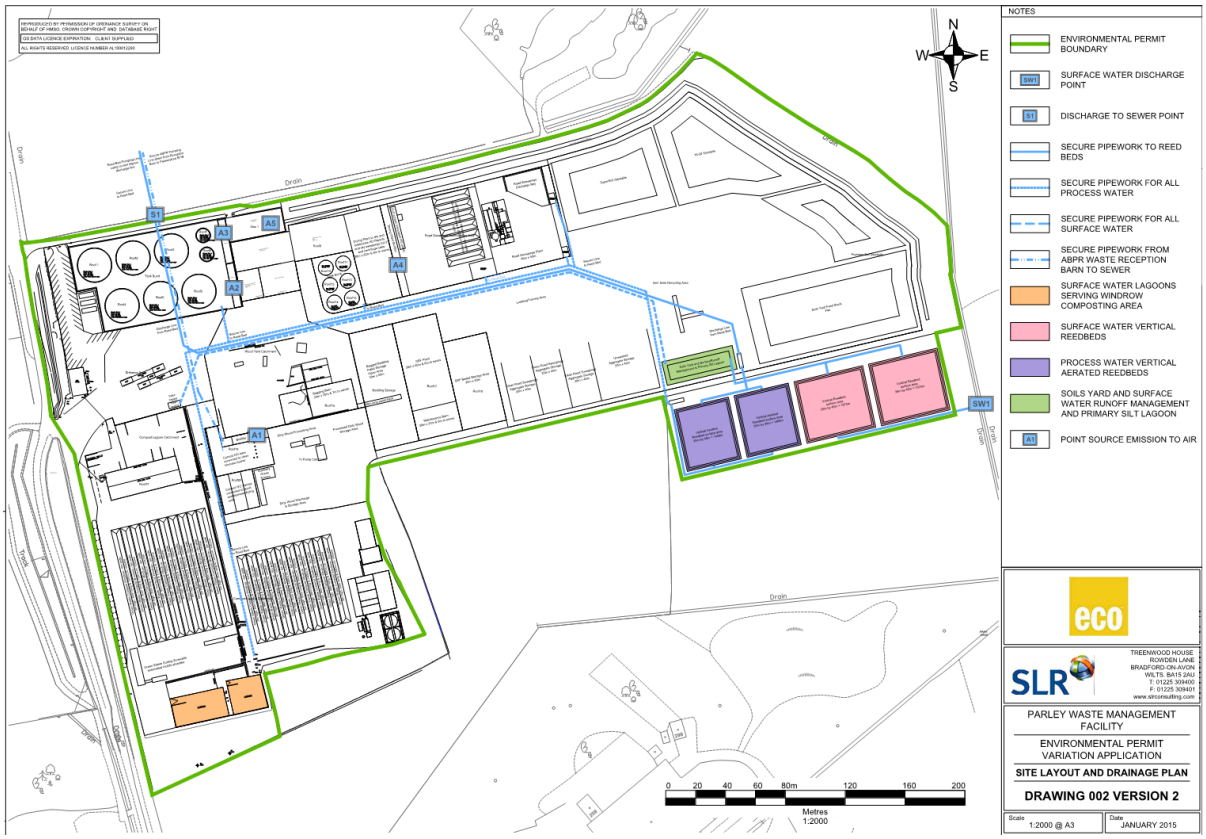
Odour Assesments

Time of Test	Location	Weather Condition	Temp (C)	Wind Speed	Wind Direction	Lenght of test	Odour Detected?	Intensity	Constant / Intermitant	Description of Odour	Is the Source Evident?
Notes											
Notes											
Notes											
Notes											

Dust Surpression Used?		**Site Security Checked?**	
Levels of Lagoons OK?		**IV Biofilter Temp**	
Deodorisor System Used?		**IV Biofilter Damp & Media OK?**	
Aerators On?		**IV Abstraction System On & Working OK?**	
Pumped leachate?		**IV Barn Integraty Checked & OK?**	
Pumped to Palmersford?		**All Gulleys & Drains Running?**	
Rodents/Birds Detected?		**Lagoon DO Level?**	

Any Environmental/Health & Safety Issues Throughout the Day?

13 Appendix 4: Parley Site Drainage Plan



Appendix 5: Parley Site Waste Acceptance Procedure

Eco Sustainable Solutions Ltd
Waste Acceptance Procedure

1.0 APPLICABILITY

This procedure applies to all waste recycling sites operated by Eco Sustainable Solutions Ltd. It details how waste is managed from initial delivery to the site and how checks for compliance with company policy and governing legislation are completed.

2.0 RESPONSIBILITY

It is the responsibility of the Operations Manager to ensure this procedure is complied with.

It is also the responsibility of the Site Manager / Supervisor to ensure this procedure is complied with.

3.0 PROCEDURE

3.1 WASTE ARRIVAL

3.1.1 All waste vehicles arriving at the site are directed to the Weighbridge/ Ticket Office, by the use of sign etc, and ordered to stop.

3.1.2 The haulier is checked for this compliance with the 'Controlled Waste (regulation of carriers and seizure of vehicles) Regulations 1991'.

3.1.3 Eco Sustainable Solutions Ltd, have established a list of registered carriers with registration numbers to speed up the checking process.

3.1.4 If the haulier does not appear on this list he is asked for proof of registration. If the driver can provide this information the waste carriers licence is photocopied and details are added to the registered carriers list.

3.1.5 If the driver insists they are registered but cannot provide proof of registration, the site staff contact the Environment Agency (EA) and ask for registration details. Once confirmed, the details are added to the list to be updated.

3.1.5 Should the haulier confirm they are not registered, and is not subject to an exemption, the site staff shall inform the haulier he is not legally registered to carry waste and shall provide the haulier with details of how to register for Waste Carriers Licence online or by post.

3.1.6 The waste is accepted on this occasion to avoid the risk of fly tipping but no waste will be accepted in future unless proof of application can be provided.

3.1.7 If required the driver shall be provided with the appropriate Personal Protective Equipment (PPE), Site Rules and other Health & Safety Information.

3.1.8 Photographic Plate Showing Eco's Weighbridge at the Parley Site

3.2 DESCRIPTION & TRANSFER NOTES

3.2.1 The haulier is asked for a description and transfer note, or the details of a repeat transfer note, to cover the waste transaction. This number is cross referenced with the Eco Sustainable Solutions Ltd tip ticket/ WTN to be issued.

3.2.2 The description of waste is checked, where possible, against the visual appearances of the load. (Loads are periodically subjected to a full inspection section 3.7) On most sites CCTV facilities are provided to aid and record inspection.

3.2.3 If no description and transfer note (WTN) can be supplied or a repeat transfer note does not exist, a completed ticket from Eco Sustainable Solutions Ltd will be supplied to ensure compliance, including EWC Code.

3.3 TIPPING TICKETS

3.3.1 At this point Eco Sustainable Solutions Ltd will action a tipping ticket formulation. This ticket details: -

- For Eco's Site:
  - The address and contact details
  - The Environmental Permit Number
  - The Company VAT Registration Number
  - The individual weighbridge ticket number
- For the Waste itself
  - The type of the waste
  - The EWC for the waste
  - A description of the delivery containment
  - The amount of waste delivered
- For the Waste Source Site:
  - The origin of the waste (this will include individual contract details, if necessary)
  - The SIC code for the source operation/site
  - The customer who is depositing the waste or on whose behalf the waste is being hauled
- Tor the Haulier/Customer (as applicable):
  - The Registered Waste Carrier's Number
  - The name and signature of the driver
  - The name of the haulage company
  - The registration of the vehicle bringing the waste to Eco's site

3.3.2 Should the haulier not have agreed credit account with Eco Sustainable Solutions Ltd the driver is informed he will have to pay by credit card or cash if the driver decides not to use the facility the ticket is cancelled.

3.4 WASTE DISCHARGE

3.4.1 Once the necessary documentation is complete, detailed in 3.2 above the driver is authorised to continue to the appropriate discharge area.

3.4.2 Should a load be sheeted, the driver must use his automated de-sheeting system or if this is not available place the container/ skip on the ground before unsheeting. In the case of bulk lorries, artic trailers and rollonoff containers drivers should use the automated de-sheeting system or overhead harness or sheeting gantry where available.

3.4.3 The operative then directs the vehicle to an appropriate discharge point. The operative visually inspects the load whilst being tipped. Looking for any substances or articles which contravene the site licence. On some company sites CCTV facilities may be provided to aid and record inspection.

3.4.4 If appropriate the operative may use the on-site plant to 'disturb' the load to ensure the inspection is thorough.

3.4.5 Should the operative discover any items which cause him concern ie. undeclared Hazardous Waste or large amounts of contamination he will inform the weighbridge either in person or via radio and adopt the procedure details in Clause 3.7.4.

3.5 DOCUMENTATION COMPLETION

3.5.1 The waste delivery driver returns to the ticket office / weighbridge to complete the documentation.

3.5.2 The waste delivery driver signs the ticket, either electronically or as a hard copy and is given a copy for this records. Another copy is retained by Eco, again (depending on the site) in either hard or electronic format.

3.5.3 If the haulier delivering the waste to the site does not have an account with Eco Sustainable Solutions Ltd the ticket produced also details the cost of disposal.

3.6 VEHICLE DEPARTURE

3.6.1 Only when the weighbridge operator has completed the documentation is the waste delivery driver authorised to depart.

3.7 LOAD INSPECTION/REJECTION

3.7.1 All loads will be inspected by an operative prior to being combined with other wastes.

3.7.2 Should the load be found to be heavily contaminated (typically over 10% visual contamination) or unacceptable to the process, it will be rejected by the site.

3.7.3 When a load has been rejected the Site's Supervisor or Manager will document it in the Site Load Rejection Record Sheet and where appropriate keep photographic evidence.

3.7.4 The customer/haulier will be notified by Eco's Sale's Team of the Rejected Load.

3.7.4 If practicably possible the rejected load will be re-loaded onto the delivery vehicle.

3.7.5 If not practicably possible then the load will be put to one side and clearly labelled and stored to await disposal at an alternative permitted facility or retrieval by the customer in an appropriate vehicle.

3.7.6 If the load contains a percentage of contamination but the operator does not deem it excessive then he will remove it either by hand or using mechanical plant and store it in waste bins located at all discharge points.

3.7.7 An arrangement is in place with a local collection/disposal facility to remove this waste on a bi-weekly basis or more frequently if required.

N.B: - Ticket procedure may vary from site to site

14 Appendix 6: Photographic Record Plates

Plate 1 Photographic Plate of Inside Food Waste Transfer Station

Plate 2 Photographic Plate of Bio-filter

Plate 3 Photographic Plate of Green Waste Acceptance Area

Plate 4 Photographic Plate of Green Waste Processing Plant

Plate 5 Photographic Plate of Backhus Windrow Turner

Plate 6 (Photographic Plate of Lagoon Aeration Pumps)

Plate 7 (Photographic Plate of Site Atomisers)

Plate 8 (Photographic Plate of Site Sweeper)

15 Appendix 7: Biofilter Performance Testing (Feb 14) Summary of findings

ODOURNET
sensory experts since 1980

4 Summary of findings

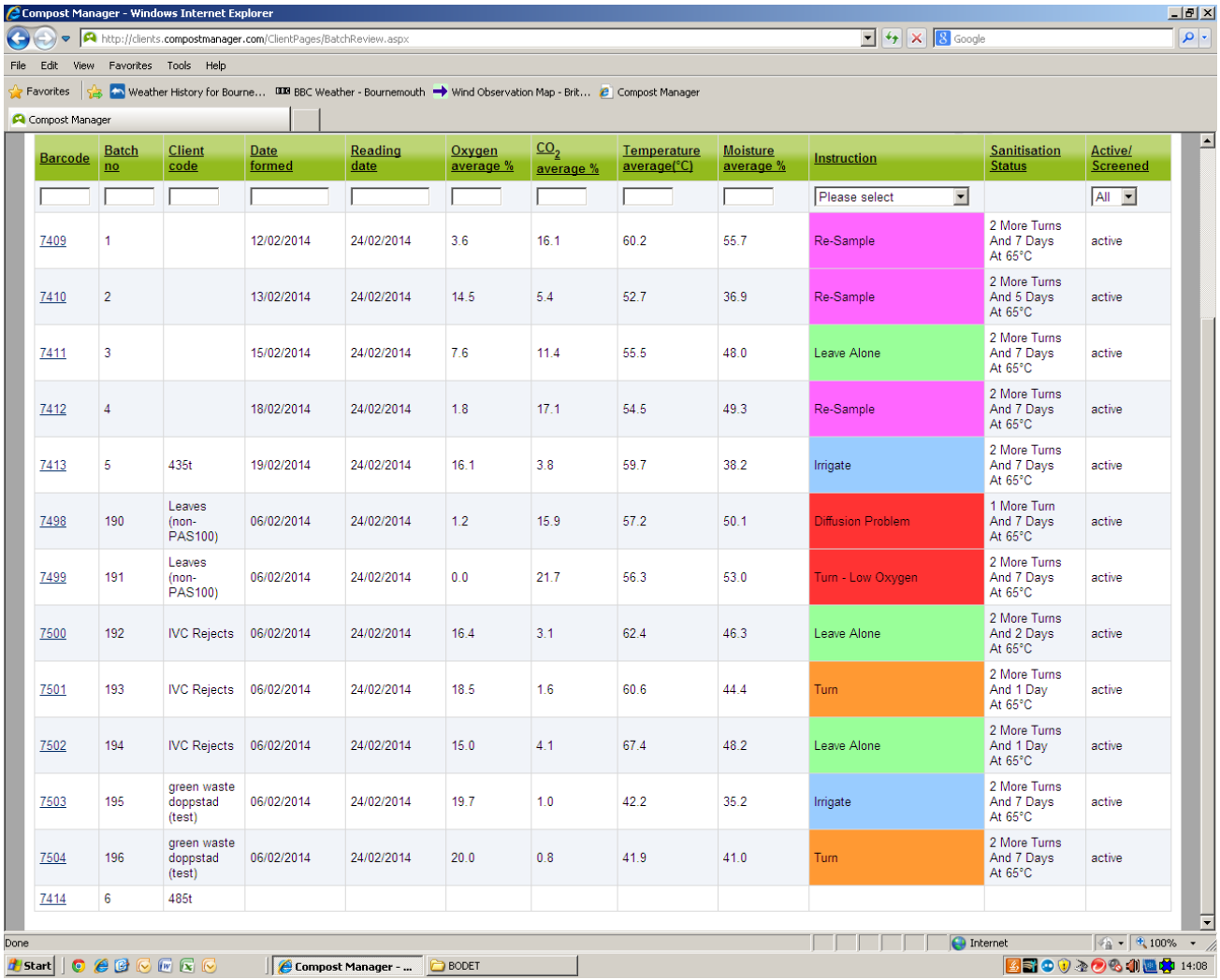
The findings of the study can be summarised as follows:

- At the time of sampling, the inlet odour emission rate to the biofilter was 9319 ou_E/s, and the outlet odour emission rate was 2746 ou_E/s. Based on these emission rates, the calculated overall odour abatement efficiency of the unit is approximately 71%.
- It should be noted however that of more relevance when assessing the performance of the unit is the odour concentration of the treated (outlet) air. The low odour concentration of the treated air, geometric mean of 289 ou_E/m^3, is indicative of a unit that is operating optimally (for comparison typical outlet concentrations for optimally performing biofilters range from approximately 1000-5000 ou_E/m^3).
- Given the relatively low odour concentrations of the inlet airstreams presented to the biofilter for treatment, the achievement of an overall odour abatement performance of 90% is unlikely to be achievable in practical terms, despite the optimal performance of the unit.

16 Appendix 8: Risk Assessment Key

		Major Environmental Effect	Significant Environmental Effect	Minor Environmental Effect	No Potential Environmental Effect
Likelihood (L)	**Score**	**4**	**3**	**2**	**1**
Likely (1:10)	**5**	20	15	10	5
Probable (1:100)	**4**	16	12	8	4
Possible (1:1000)	**3**	12	9	6	3
Remote (1:10,000)	**2**	8	6	4	2
Improbable (1:100,000)	**1**	4	3	2	1

17 Appendix 9: Screenshot of CompostManager System



18 Appendix 10: Trade Effluent Discharge Consent

Wessex Water Services Limited

WATER INDUSTRY ACT 1991

CONSENT TO THE DISCHARGE OF

TRADE EFFLUENT

TO: ECO Composting Ltd
39 East Street
Wimborne
Dorset

WHEREAS:

I You have served on us Wessex Water Services Limited (*hereinafter referred to as "the Company"*) a Trade Effluent Notice in pursuance of the provisions of the Water Industry Act 1991 dated the 4th April 2003 in respect of trade premises situated at ECO Composting Ltd, Chapel Lane, Parley, Christchurch, , Dorset, BH23 6BG.

II In pursuance of the provisions of the Water Industry Act 1991, the discharge of trade effluent in accordance with the said trade effluent notice would not be lawful without the Consent of the Company.

III The Company is prepared to give such consent but subject to the conditions hereinafter set forth and to be observed by you.

IV Any connection of your drain to the public sewer necessitated by this consent shall be made at your own expense and to the satisfaction of the Company.

NOW THEREFORE WE HEREBY GIVE YOU NOTICE that the Company's consent to the discharge of trade effluent from the above mentioned premises is subject to the following condition and not otherwise:-

Sewers Affected 1 The public sewer into which the trade effluent may be discharged is the foul sewer situated at Private sewer connection direct to Palmersford STW.

Provision of drains for trade effluent only 2 If required by the Company, drains, sampling and testing points shall be provided through which trade effluent and nothing else shall pass.

Change in the point(s) of discharge 3 No change shall be made in the point or points at or through which the trade effluent is to be discharged to the public sewer except with the consent in writing of the Company.

Matters to be eliminated prior to discharge to the sewer 4 The trade effluent shall not include any substances of a nature, composition or quantity likely, either alone or in combination with the contents of the sewer, to:-

(a) injure the public sewers into which it is discharged or by which it is conveyed, or
(b) interfere with the free flow of the contents of the public sewers aforesaid, or
(c) injure the sewage treatment works or any machinery or equipment installed thereat, or
(d) interfere with any processes of purification of sewage or trade effluent, or
(e) cause a nuisance or give off a vapour or harmful substance, or
(f) affect prejudicially the quality of the watercourse receiving the purified sewage effluent.

19 Appendix 11: Parley Site Daily Housekeeping Sheet

Eco Sustainable Solutions
Parley Site Daily Housekeeping & Environmental Check Sheet

Week Commencing:
Completed By:

Entrance Area & Lane	**Frequency**	**Mon**	**Tues**	**Wed**	**Thurs**	**Fri**	**Sat**
Check Entrance Area & Product Bays	Daily						
Clean Around Weighbridge	Weekly						
Sweep Around Offices	Weekly						
Sweep Lane / Clear Litter / Clean Signs	Weekly						

Site General

Clear Gulleys	Daily						
Clear Lagoon Screens	Daily						
Tidy Around Lagoons	Weekly						
Check Site Signs	Weekly						
Check all Wheelie Bins	Weekly						
Site Storage Area Checked & Tidied	Weekly						
Site Delivery Container Checked & Tidied	Weekly						
Perimeter of Site Checked & Litter Collected	Weekly						
Clean Around Diesel Tank	Weekly						

Sweeping

Around Weighbridge & Site Roads	Daily						
Wood Yard	Weekly						
Erins Yard	Weekly						
Around Compost Pads	Weekly						
Around Leachate Lagoons	Weekly						
Chapel Lane	Weekly						

Food Waste Barn

Fans Checked & Working	Daily						
Entrance area Cleaned	Daily						
Foot Dip Checked & Replenished if Necessary	Daily						
Barn Washed Down	Weekly						
Clean Perimeter of Barn	Weekly						

Additional Jobs / Notes

Any Potential Environmental or Housekeeping Issues Witnessed Must be Reported to Site Manager

Signed Operator:

Signed Manager:

global environmental solutions

Parley Waste Management Facility,

Parley, Christchurch

Best Available Techniques and Operating Techniques

SLR Ref: 407.03407.00003/BATOT
Version 2

Eco Sustainable Solutions Limited

January 2015

CONTENTS

APPENDICES

DRAWINGS

TABLES

1.0 INTRODUCTION

SLR Consulting Ltd (SLR) has been instructed by Eco Sustainable Solutions Limited (Eco) to prepare an environmental permit (EP) variation application for its waste management facility at Parley, Christchurch, Bournemouth. The site is currently permitted under a consolidated Permit issued by the Environment Agency (EA) on 8th October 2010 (EA Reference; EPR/GP3793FY), which permits open windrow composting, in vessel composting, wood and soil recycling.

This variation seeks to include the following new activities in the permit:

- Anaerobic Digestion (AD) plant – to process agricultural crops, animal by-products and a range of non-hazardous waste types to produce biogas for the production of electricity and ultimately for export to the National Grid including a biomethane plant.
- The acceptance and transfer of Animal By Product waste and source segregated food waste for bulking and transfer to alternative AD facilities;
- Digestate processing – the resulting product from the AD process which can then provide agricultural benefits by spreading to land under a mobile plant permit off site.
- Biomass Plant – to process clean wood accepted at the site to produce heat and energy to supply all operations on site.
- Bedding Plant – to produce animal bedding from clean wood waste imported and accepted on site;
- Solid Recovered Fuel (SRF) Plant – to produce a SRF product for recovery purposes off site;
- Plastics and Reject Drier – to be able to treat and dry plastics, green waste, litter and compost from waste operations on site;
- Recovery of waste for the construction of the required engineered surfacing in the new area of the site (based on the U1 exemption – use of waste in construction); and the
- Treatment of one hazardous waste code at the road sweepings plant (operations of which are included in a variation currently being determined, EA Ref: EPR/GP3793FY/V009).

In addition the discharge of water from the composting area via the reed bed system to sewer will be a permitted activity.

The site location is illustrated on Drawing 001 included in Section 4 of this EP application.

1.1 Report Structure

This report has been drafted to satisfy the requirements of Environment Agency Guidance, 'How to comply with your environmental permit,' version 4 dated April 2011 and is divided into the following sections:

- section 1 Introduction;
- section 2 General Management;
- section 3 Accident Management
- section 4 Operations;
- section 5 Emissions and Monitoring;
- section 6 Information; and
- section 7 Closure

Information has been prepared with due regard to demonstrating Best Available Techniques (BAT) described in Environment Agency Sector Guidance Note IPPC S5.06, 'Guidance for

the Recovery and Disposal of Hazardous and Non Hazardous Waste', Environment Agency, Issue 5, May 2013.

Assessment of the potential impact of potential emissions to air, land and water is discussed in the H1 Environmental Risk Assessment (Annex A, reference 407.03407.00003/H1).

1.2 Proposed Development

Eco propose to develop land at their existing waste management facility as a multi activity installation, including the following waste operation activities:

- Anaerobic Digestion (AD) plant;
- Biomethane plant;
- acceptance of Animal By-Product (ABPR) waste at the AD Plant;
- the processing and storage of digestate (dewatering);
- the operation of a Clean Biomass Plant;
- the operation of a Bedding Plant;
- the operation of a Solid Recovered Fuel Plant;
- the acceptance, storage and bulking and transfer off site for recovery of ABPR and source segregated food waste;
- waste recovery operations in the site extension;
- the acceptance of oil containing drilling muds and waste (EWC code 01 05 05*) at the road sweepings plant; and
- a Plastics and Reject Drier.

Eco also wish to vary in this application:

- the Environmental Permit Boundary, to include the extension to the east of the site, illustrated on Drawing 002;
- increase the total permitted annual tonnage of the site to 315,000 tonnes per annum; and
- amend current tonnages for the existing waste operations on site to reflect the overall changes at the waste management facility.

In addition to this, due to the implementation of the Industrial Emissions Directive (IED), composting activities, with a treatment capacity of over 75 tonnes per day, fall within Schedule 1 of the Environmental Permitting Regulations. Therefore, this variation seeks to amend the current open windrow composting waste operation to a listed activity, under Section 5.4 Part A(1) b) ii), as described in the Non Technical Summary.

As Eco's open windrow composting is an existing permitted activity, it has already been assessed by the EA to be managed with due regard to appropriate measures (Best Available Technique BAT). No changes are proposed to the operation of this existing activity, other than the change in the regulations to include it as a Schedule 1 Listed Activity rather than a waste operation. Therefore, this BATOT document focuses on the newly proposed activities and does not consider open windrow composting any further. The composting of waste will continue to be managed by the Environmental Permit.

1.3 The Site Setting

The site is located in Parley in Christchurch, north of the centre of Bournemouth. The site lies within a predominately rural setting with Bournemouth International Airport and Aviation Business Park located 130m to the south of the site. The entrance to the facility lies adjacent

to the access road Chapel Lane to the west. The national grid reference for the site is SZ 102 989 and the site location is illustrated on Drawing 001 dated August 2013.

The closest residential property lies 60m to the north of the site, along Chapel Lane. Further properties are located 450m to the west along Barrack Road which include Hurn Honey Farm.

The site lies in close proximity to a number of national and European designated sites within 2km of boundary. The Dorset Heath SAC, the Dorset Heathlands SPA and the Hurn Common SSSI all lie adjacent to the eastern boundary of the site, and extend to the south and west. Parley Common SSSI and the Dorset Heathlands Ramsar lies 20m to the west.

Further detail relating to the site setting is given in the H1 Environmental Assessment (reference 407.03407.00003/H1) which is submitted in Section 7 of this EP application.

2.0 GENERAL MANAGEMENT

This section describes the system of management that will be implemented at the Parley site to ensure that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis.

2.1 Design and Construction Quality Assurance

All relevant elements of the facility will be designed in accordance with recognised standards, methodologies and practices.

The design process will use a risk based approach and will be appropriately documented using drawings, specifications and method statements to provide an adequate audit trail.

Construction Quality Assurance (CQA) plans will govern all construction activities. These CQA plans will be prepared by competent and suitably qualified persons and will detail the assurance and validation process for relevant elements of the facility, which shall include:

- material selection;
- handling, storage and installation;
- conformance and performance testing; and
- Inspection and validation.

A competent and suitably qualified person will supervise the construction activities, and prepare a validation report confirming that the construction activities have been carried out in accordance with the CQA plan.

2.2 Environmental Issues

Environmental issues will be taken into account during the construction phase of the project and where possible, recycled and “environmentally friendly” products will be used, for example recycled/reclaimed hardcore and rubble will be used as filler in the foundations of the composting pads on site.

Details on waste streams, recycling opportunities, disposal routes and responsibilities will be included in a site waste management plan which will be implemented to cover all construction activities.

2.3 Management Systems

Eco will operate their own management system which will ensure that:

- the risks that the activities pose to the environment are identified;
- the measures that are required to minimise the risks are identified;
- the activities are managed in accordance with the management system;
- performance against the management system is audited at regular intervals; and
- the environmental permit is complied with.

The management system will be reviewed at least once every four years or in response to significant changes to the activities, accidents or non compliance. The management system will be supplemented by this BATOT document which outlines the proposed operating

techniques at the site and demonstrates conformance with the requirements of Environment Agency guidance.

A summary of Eco's environmental management system is included in Appendix C of the Application Forms (Section 1 of this EP application).

2.4 Management Structure and Responsibilities

The site manager will have overall responsibility for the establishment of environmental policy, objectives and allocation of resources for the operation of the site.

The site manager will be responsible for ensuring that:

- operational personnel are trained and familiar with procedures and requirements;
- operations comply with regulation and permit conditions;
- activities conform with company policy;
- procedures, logs and records are followed and maintained, as required; and
- aspects for potential improvement are identified and reported back to the site manager.

The site manager will also be responsible for ensuring:

- awareness of potential environmental consequences of activities and operations;
- familiarity with site procedures and work instructions;
- working in compliance with procedures;
- reporting unsafe conditions and potential or actual release arising from unsafe or insecure operational procedures; and
- cleaning up and reporting spillages or releases.

In addition to the site manager, each individual waste operation will have a designated supervisor who will be responsible for control of operations at that part of the site.

2.5 Technically Competent Management

The Parley site will be supervised by designated technically competent managers who hold the appropriate certificate of technical competence issued by the Waste Management Industry Training and Advisory Board. A copy of the relevant WAMITAB certificates is included in Appendix B of the Application Forms (Section 1 of this EP application).

2.6 Environmental Policy, Objectives and Targets, Improvement Programmes

Details including environmental targets and objectives and the company's environmental policy and improvement programme will be contained within the management system.

2.7 Management Techniques

2.7.1 Operational Control, Preventative Maintenance and Calibration

Compliance with operating procedures will ensure effective control of site operations.

As part of the environmental management system, procedures will be established covering the following general topics:

- management and training;
- environmental protection and risk assessment;
- equipment registers and calibration;
- defects, non-conformance and complaints; and
- operations control and equipment maintenance.

A preventative maintenance programme for all equipment will be implemented at the site. This will follow the inspection and maintenance schedule recommended by the manufacturer. The maintenance programme will be reviewed annually to ensure any necessary changes are implemented.

Also held on site will be any operation and maintenance manuals as provided by the equipment manufacturer covering:

- machinery associated with the operation of all plant located on site;
- routine maintenance procedures and requirements;
- environmental protection; and
- emergency procedures.

Where necessary, all monitoring and process control equipment will be calibrated in accordance with manufacturers' recommendations.

2.7.2 Monitoring, Measuring and Reviewing Environmental Performance

A formalised management structure will review environmental performance and ensure any necessary actions are taken.

The site manager will review the facility's environmental performance on a regular basis to ensure policy commitments are met, that policy remains relevant, and to ensure that actions to improve environmental performance are identified. Records of environmental performance will be maintained within an appropriate filing system at the site managers' allocated office, or on an electronic system.

2.7.3 Staffing Competence and Training

The site manager will be responsible for ensuring that training levels for operational staff are adequate, relevant and up to date.

Staff employed on site will benefit from training, which will ensure their professional and technical development. There will be a commitment for staff at all levels to continual improvement, prevention of pollution and compliance with legislation. The training will ensure that staff are aware of:

- the skills and competencies required for each site job;
- regulatory implications of the permit for the site and their specific work activity;
- potential environmental effects from operations under normal and abnormal circumstances; and
- prevention of accidental emissions and action to be taken should accidental emissions occur.

Staff will receive training in:

- control of point source and fugitive emissions to air;

- control of odour;
- waste handling, minimisation, recovery and/or disposal;
- noise;
- monitoring; and
- health and safety.

Training records will be maintained by the site manager and held in the site office.

2.7.4 Communication & Reporting of Actual or Potential Non-Compliance & Complaints

All staff will report non-compliances to the site manager, whose responsibility it will be to ensure that these are rectified and future incidents prevented. The following aspects will be considered:

- actual or potential non-compliance;
- suppliers or subcontractors breaking agreed operating rules;
- incidents, accidents, and emergencies; and
- other operational system failure.

The remedial actions taken in response to the non-compliance may include:

- obtaining additional information on the nature and extent of the non-compliance;
- discussing and testing alternative solutions;
- modifying procedures and responsibilities;
- seeking approval for additional resources and training;
- contacting suppliers and contractors to seek alterations to the way they operate; and
- informing the Environment Agency.

2.7.5 Auditing

A formal internal audit will be carried out by the site manager, or suitably qualified nominated personnel to check that all activities are being carried out in conformity with the requirements of the environmental permit. Site audits will ensure that the progress of corrective and preventative action are regularly monitored and reviewed.

2.7.6 Corrective Action to Analyse Faults and Prevent Recurrence

The site manager will deal with all environmental complaints and other incidents of non-conformance. These include:

- system failure discovered at internal audit;
- incidents, accidents, and emergencies; and
- other operational system failures.

Environmental non-compliances, including remedial action taken and any changes to operation made to avoid re-occurrence will be recorded. Complaints will be reported to and investigated by the site manager and remedial measures implemented as required. Changes to prevent future complaints will be proposed and implemented where appropriate. Written records of non-conformances, complaints and other incidents will be maintained in the site log in which the date, time and nature of the event, together with the results of investigations and remedial action taken, will be recorded.

2.7.7 Reviewing and Reporting Environmental Performance

Senior management and the site's compliance manager will review environmental performance annually and ensure that action is taken to ensure that policy commitments are met and that policy remains relevant.

2.7.8 Managing Documentation and Records

The site manager will be responsible for ensuring commitments to site audits and reviews and for ensuring that documents relevant to the environmental permit are issued, revised and maintained in a consistent fashion.

An appropriate filing system will be maintained to ensure that all records relating to environmental monitoring, maintenance, reviews and audits are adequately maintained and updated. All records will be held within the site office.

2.8 Maintenance

Eco acknowledges that poor maintenance can be the cause of environmental incidents. As the potential of failure of plant (e.g. pasteuriser) or infrastructure (e.g. sealed drainage system) at the site could lead to fugitive emissions to the environment, Eco will carry out a programme of Planned Preventative Maintenance (PPM). All items of plant and equipment will be regularly inspected and maintained in accordance with the manufacturer's specifications and Eco's programme of plant maintenance, included within the site's EMS.

2.9 Incidents and Non Conformances

Eco will have in place procedures to account for the potential for incidents and non-conformances which may affect the environmental performance of the facility. The procedures (contingency action plan) will set out how any abnormal operation including malfunction, breakdown or failure of plant, equipment or techniques will be dealt with to ensure that normal operation of the facility is regained promptly.

As a minimum, procedures will set out how Eco will;

- detect abnormal operation and investigate the causes;
- assess the information and decide on the appropriate course of action;
- retain normal operation in the short term;
- prevent against the reoccurrence of the problem in the long term; and
- set out an official complaints procedure for the general public.

As will be detailed further in Eco's EMS, the procedures will ensure that non-conformances are reported, investigated and rectified, and that failures and weaknesses are prevented.

Eco's EMS will provide a means for the management system and the environmental performance of the facility to be evaluated. This will be accomplished through regular internal audits and accredited external auditors and will include, where appropriate, the identification of areas where improvements are required. The regular review of the EMS and its procedures will form an essential role in ensuring that the systems and procedure remain appropriate to the site activities and legal requirements (including compliance with the Environmental Permit) throughout the life time of the biomass facility.

To assist in the reporting of incidences, Eco will display a notice at or near the site entrance with the following information clearly visible;

- company name;
- permit number;
- emergency contact name and the permit holders (i.e. Eco) telephone number;
- a statement that the site is permitted by the Environment Agency; and
- Environment Agency national number (08708 506506) and incident hotline number (0800 807060).

2.10 Site Security

The site will benefit from the security measures already in place at Eco's waste management facility, which include:

- stock fencing will be in place around the entire site;
- a lockable gate is present at the entrance to the site and will be locked whenever the site is not accepting waste;
- CCTV cameras and an alarm have been fitted on site, which are monitored 24 hours a day.

All components of the security system shall be designed to meet the level of security required.

2.11 Permit Surrender

At the time that the Permit is surrendered the Operator must demonstrate that the site will be returned to a satisfactory state. During the operation of the waste management facility, Eco will ensure that emissions to land, air and water are carefully controlled to meet the conditions of the Environmental Permit and do not have a significant environmental impact at the site.

A Site Condition Report (Ref: 407.03407.00003/SCR, dated October 2014) has been produced to provide a baseline description of environmental conditions in the vicinity of the site prior to operation of the additional infrastructure proposed as part of the variation application.

2.12 Displaying the Environmental Permit

Eco will ensure that all staff and contractors working at the facility will have readily available access to a copy of the Environmental Permit governing operations at the site.

3.0 ACCIDENT MANAGEMENT

Eco recognises the importance of the prevention of accidents that may have environmental consequences and that it is important to limit those consequences. Eco will develop a system to identify, assess and minimise the environmental risks and hazards of accidents and their consequences as part of their EMS.

Staff will have the responsibility to report all conditions that could result in a potential environmental accident. Key staff will meet several times per year to review potential environmental incidents and the requirement for control. Environmental support staff will be in frequent contact with the site manager to discuss potential concerns. Staff training will take place (as detailed in above) to ensure that all staff are aware how to operate the facility correctly.

The Environment Agency will be advised of incidents likely to result in a breach of permit conditions, or to have a significant impact on the environment including accidental releases due to spillage or abnormal operating conditions.

As the AD activity to be undertaken at the site is listed in Schedule 1 of The Environmental Permitting (England and Wales) Regulations 2013, the plant design is likely to undergo a Hazard Operations and Operability Study (HAZOP) during the detailed design stage, which will identify the hazards resulting from potential malfunctions in the process. The purpose of this HAZOP will be to systematically assess the plant and its operation through deviations from the intended design, and any subsequent consequences. As a result, any hazards or operability issues that are uncovered will lead to the identification of the need for appropriate corrective measures.

The requirement for an Accident Management Plan will be incorporated into the EMS. The Accident Management Plan will be reviewed at least every four years or as soon as practicable after an incident with changes made accordingly to minimise the risk of occurrence.

The following Accident Management Plan (Table 1) is a summary of the techniques proposed to minimise the risks to the environment. Activities affecting the health and safety (H&S) of operatives, contractors and visitors will be separately managed in compliance with H&S regulations and company H&S Policy.

The following foreseeable accidents have been identified in the H1 Assessment as per the Environment Agency's template (reference 407.03407.00003/H1);

- unauthorised waste receipt and processing;
- fire;
- leaks and spills;
- security and vandalism;
- plant failure; and
- flooding.

Eco's EMS will incorporate a system for recording all incidents, complaints and near misses at the facility and any results following investigation. The system will be designed to prevent the re-occurrence of any incident through implementation of improved systems.

Table 1: Accident Management Plan

Accident Scenario	Risk Management Measures to Reduce Likelihood of Occurrence
Unauthorised waste receipt and processing	On site mitigation and management methods will include; • only waste authorised by the permit will be accepted at the site; • hazardous waste will be tested before accepted on site; • upon delivery hazardous and non-hazardous waste will be subject to strict waste acceptance procedures to identify, reject and / or segregate potentially non-conforming wastes; • all waste will be subject to inspection and checking against the declaration on the waste transfer note or the consignment note in regards to hazardous waste; and • in the event that unauthorised waste is delivered to the site, the waste will be segregated, contained & stored in a designated quarantine area prior to export from site. The Site Manager will be responsible for implementing risk management measures to prevent the acceptance of unauthorised wastes.
The following sources of fire hazard have been identified for the proposed facilities: • electrical equipment that could provide an ignition source; • electrical appliances and other sources of ignition together with materials that may burn; • waste oil that may support combustion; • hazardous waste storage of oil containing drilling muds that may support combustion; and • maintenance activities on plant and equipment that may represent a potential fire risk if necessary precautions are not taken.	On site mitigation and management methods will include; • incompatible materials will be stored apart: • hazardous waste will be stored separately from non-hazardous waste; • all hazardous waste will be clearly marked with the appropriate hazard identification; • the plant inspection schedule will include checks of electrical equipment within the site to ensure that any faults are identified and repaired: • fire extinguishers will be provided at designated locations: • smoking will not be permitted in the operational areas of the site: • the operators working practices will ensure assessment of fire hazards & training of employees in fire prevention, e.g. in the use of fire extinguishers and emergency procedures: and • no wastes will be burned on site and any fire at the site will be treated as an emergency. In the event of fire the following action will be taken: • fire brigade will be notified immediately and EA as soon as practicable; • area burning will be isolated and if safe to do so attempts made to extinguish the fire

Accident Scenario	Risk Management Measures to Reduce Likelihood of Occurrence
	utilising on site fire extinguishers; • contaminated site drainage will be prevented, if possible, from entering any un surfaced ground; • if the fire cannot be contained the site will be evacuated. Records of incidences of fire will be kept on site, together with a summary of remedial action taken. Fire protection and control measures will include both passive and active measures. Passive fire-protection measures will include adequate vehicle access for fire appliances, access for firefighting personnel, and provision of fire mains within the building, venting for heat and smoke from basement areas and adequate means of egress for personnel. Active fire-protection measures will include use of appropriate types of automatic fire alarm/detection systems in areas identified under the fire assessment, automatic extinguishing equipment comprising automatic sprinklers, water spray, water mist system, foam-water sprinklers or gaseous total flooding system(s) as appropriate. The main fire-fighting fluid will be based on water.
Spills and Leaks/ Loss of Containment/ Transfer of Substances/ Overfilling of Vessels: Spillage and leakage can occur during refuelling of vehicles, fuel deliveries, vehicle servicing, vehicle breakdowns, accidents and/or damage to tanks and bunds. Loss of containment could result in potentially polluting liquids, including liquids containing oil, being discharged to groundwater or surface water. During the filling or emptying of tanks with potentially polluting substances such as fuel oil, there is a potential risk of spillage and leaks from the transfer from one tank to another and the overfilling of vessels.	**The following methods will be implemented to ensure against loss of containment on site;** • containment system: tanks containing potentially polluting liquids will be constructed so that any leaks/spillages will be contained. Tanks will be surrounded by a leakage containment bund capable of containing at least 110% of the volume of the largest tank within the bund; • storage vessels: storage tanks will be constructed to the appropriate British Standards; • inspection: tanks will be inspected visually on a daily basis by the site staff to ensure the continued integrity of the tanks and will identify the requirement for any remedial action; • spill kits: materials suitable for absorbing and containing minor spillages for both hazardous and non-hazardous waste will be maintained on site; • monitoring techniques: the site staff will undertake daily monitoring for evidence of spillage and leakage. Alongside regular visual inspections, the tanks will be fitted with level indicators to prevent overfilling; and • building design: the site's buildings, in which potentially polluting materials will be

Accident Scenario	Risk Management Measures to Reduce Likelihood of Occurrence
	located, will drain directly to a sealed drainage system. In the event of any potentially polluting leak or spillage occurring on site, the following action will be taken: Minor spillages will be cleaned up immediately, using sand or proprietary absorbent. The resultant materials will be placed in a container for off-site disposal to a suitable facility as appropriate. In the event of a major spillage, which is causing or is likely to cause polluting emissions to the environment immediate action will be taken to contain the spillage and prevent liquid from entering surface water drains and un surfaced ground. The spillage will be cleared immediately and placed in containers for off-site disposal, and the EA will be informed. Records of spillages and incidents will be kept on site together with a summary of the remedial action taken.
Security and Vandalism	The following security measures will be implemented at the site: • lighting: the site will benefit from security lighting, which only switches on when movement is detected; ; • security staff: the CCTV cameras are manned 24 hours a day 7 days a week; • fencing: stock fencing will extend around the perimeter of the site; • security gates: lockable gates will be located at the entrance to the site, the gates will be locked whenever the site is closed; • inspection: gates and fencing will be inspected daily by the operations staff to identify deterioration and damage, and the need for any repairs; • maintenance and repair: fencing and gates will be maintained and repaired to ensure their continued integrity. In the event that damage is sustained repairs will be made by the end of the working day. If this is not possible, suitable measures will be taken to prevent any unauthorised access to the site and permanent repairs will be affected as soon as practicable; • authorised access system: all visitors to the site will be required to register in the visitor's book and sign out again on exit. This minimises the risk of unauthorised visitors being present on site; and, • monitoring techniques: operational procedures, including regular inspections, ensure continual monitoring of security provision at the site.

Accident Scenario	Risk Management Measures to Reduce Likelihood of Occurrence
	In the event of a breach of security at the site, the cause will be investigated and appropriate mitigation measures implemented. Records maintained will include inspections and maintenance of security fencing and gates, breaches of security, investigations and actions taken. Records of incidents of vandalism will be kept on site together with a summary of remedial action taken.
Plant Failure Breakdown of clean biomass plant, SRF plant, road sweepings plant and plastics and reject drier and the AD plant	Should any problems, malfunctions or breakdowns occur within the clean biomass plant, SRF plant, plastics and reject dried and the AD treatment process, treatment will be stopped until such time as the problems are rectified. If necessary waste will be diverted to alternative facilities to prevent any build up within reception halls. The site manager will be responsible for ensuring regular checks and maintenance is carried out on all plant and machinery, as per the sites EMS.
Flooding Flood water resulting from overburdening of the drainage system	The site is located within close proximity to, but not within, a flood plain. Notwithstanding this, the design of the drainage and attenuation system will be such that flooding resulting from the overburdening of the drainage system will be mitigated. The site manager will be responsible for implementing flood management techniques.

4.0 OPERATIONS

4.1 Permitted Activities

4.1.1 Current Permitted Activities

The current permitted activities comprise of four different waste operations (as per Environmental Permit Ref: EPR/GP3793FY/V007):

- **A1: Open Windrow Composting** – physical treatment, composting and maturation of the types of waste included in Table S2.1 Part A of the permit.
- **A2: In Vessel Composting** - physical treatment, composting and maturation of the types of waste included in Table S2.1 Part B of the permit.
- **A3: Soil Recycling** – treatment including sorting, separation, screening, blending of compost and soils, washing of oversized gravels of the types of waste included in Table S2.1 Part C of the permit.
- **A4: Wood Recycling** – treatment of wood wastes included in Table S2.1 Part D, consisting only of sorting, separation, cutting, pulverising, shredding and chipping for recovery.

4.1.2 Addition of Listed Activities

The following permitted activities will take place at the facility, as detailed in Schedule 1, of the Environmental Permitting (England & Wales) Regulations 2013:

AD Plant and Open Windrow Composting

The AD plant and all open windrow composting and Compost Like Output (CLO) composting on site will be permitted as:

Section 5.4, Part A (1) (b) (i) 'recovery or mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities, biological treatment – for the AD plant and all composting activities on site.

Animal By-product (ABPR) Acceptance

The acceptance of ABPR waste at the AD plant will be permitted as:

Section 6.8, Part A (1) (c) 'disposing of or recycling animal carcasses or animal waste, other than by rendering or by incineration falling within Section 5.1, at a plant with a treatment capacity exceeding 100 tonners per day of animal carcasses or animal waste or both in aggregate – for the acceptance of ABPR waste on site at the AD plant.

4.1.3 Additional Waste operations

The waste management operations to be carried out at the site as detailed in Annex IIB of the Waste Framework Directive are listed below:

Clean Biomass Plant

The clean biomass plant will be permitted as a non listed Directly Associated Activity (DAA) to the site, with the following recovery waste operation codes:

R1: Use principally as a fuel or other means to generate energy; and
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Digestate Processing

The processing of digestate on site (dewatering) will be permitted as a non listed DAA to the AD facility, with the following recovery waste operation codes;

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Biomethane Plant

The biogas (methane rich gas mixture with carbon dioxide) produced in the AD plant will be used to generate heat and/or electricity or be further treated for input direct to the mains gas work. The plant will be permitted as a non-listed DAA to the AD plant.

SRF Plant

The production of SRF will be permitted as a waste operation, as the daily capacity for the plant falls below 75 tonnes per day, so therefore does not fall within Schedule 1 of the EP Regulations. The recovery waste operations codes for this activity will be;

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R5: Recycling or reclamation of other inorganic materials;
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Plastics and Reject Drier

The plastics and reject drier will process up to 12,225 tonnes of residual waste and fractions produced on site from the various waste operations including plastics and rejects from the AD plant, CLO compost and centrifuge cake from the road sweepings plant (currently being determined in a separate EP variation application).

Once the waste has been treated, the plastics will be transferred to the SRF plant for further treatment, whilst the dried CLO compost and centrifuge cake will be sent off site for disposal.

The applicable waste recovery waste operations codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R5: Recycling or reclamation of other inorganic materials;
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Bedding Plant

The bedding plant will process up to 13,300 tonnes per annum of imported clean wood and clean wood from the waste wood reception area. The wood will be shredded, screened and bagged to produce products that will be sold. The products will include horse bedding, fine bedding and sawdust. The applicable waste recovery waste operations codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R13: Storage of wastes pending any of the operations numbered R1 to R12.

Waste Recovery Operations

The interim waste recovery operations, for the construction of the engineered surfacing for the extension to the site will see the importation of 25,000 tonnes of waste (tonnages have been adjusted in the submitted Environmental Permit Variation ref: EPR/GP3793FY/V009).The applicable waste recovery operation codes for this activity will be:

R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
R5: Recycling or reclamation of other inorganic materials;
R13: Storage of wastes pending any of the operations numbered R1 to R12.

The additional listed activities and waste operations will be operated using the techniques and in the manner described in this BATOT document.

The approximate area of waste recovery is illustrated on Drawing WRP1.

ABPR and food waste bulking and transfer

The site will import 15,000tpa of ABPR and source segregated food waste which will be brought to site, and tipped in the reception barn. The waste will be stored and the bulked up for transfer off site to a suitably licensed facility for recovery. The applicable waste recovery operation codes for this activity will be:

R13: Storage of wastes pending any of the operations number R1 to R12

4.2 Waste Types and Tonnage

The total waste acceptance tonnage for the site will increase to 315,000 tonnes per annum.

Eco will accept additional waste codes for the AD Plant, road sweepings plant, ABPR waste acceptance, the clean biomass facility and the SRF plant, as illustrated in Appendix E of the Application Forms.

4.3 Incoming Waste and Raw Material Management

A list of waste types proposed to be accepted at the facility in accordance with the European Waste Catalogue is included in the supporting information supplied with the application forms within Section 1.

Management of incoming wastes and raw material management will be essential to provide for efficient operation of the AD plant and to reduce production of residues requiring treatment and disposal.

Eco will;

- maintain a list of the raw materials and their associated properties; and

- regularly review any new, less polluting, raw materials and will implement them if they reduce their environmental impact.

Summary of Compliance with Indicative BAT on Incoming Waste and Raw Material Management

- a high standard of housekeeping will be maintained in all areas and suitable equipment to clean up spilled materials will be provided;
- vehicles will be loaded in designated areas;
- roofing and drainage segregation will be provided to minimise contamination of rainwater;
- delivery and reception of wastes will comply with legislative requirements;
- waste acceptance procedures and procedures for dealing with non-conforming waste will be produced;
- storage of fuels and treatment chemicals in appropriately bunded tanks or containers; and
- shredding of oversized waste.

4.4 Pre-acceptance procedures to assess waste

4.4.1 Non-hazardous waste

The Site Manager will, at certain times, request that the waste carrier or producer provide a spot sample for an appropriate analysis. These analysis reports will be filed with the appropriate waste producer's documentation in the site office.

4.4.2 Hazardous waste

The following information will be gathered for each load accepted on site;

- the type of process producing the waste;
- the specific process from which the waste derives;
- the quantity of waste;
- chemical analysis of the waste;
- the form the waste takes (solid or liquid); and
- hazards associated with the waste.

4.4.3 Waste Acceptance Procedures

The site will comply with Eco's existing waste acceptance procedure, already in place at site.

Computerised weighbridges will be present at the entrance of the site to the north west of the facility where the waste will be weighed before being transferred to the appropriate area. The computerised weighing control system will record the following:

- vehicle weights;
- issued transfer ticket numbers;
- tare weights;
- gross weights;
- net weights;
- waste type;
- waste carrier identification;
- vehicle registration; and
- vehicle type.

Wastes will be characterised, as required under the Duty of Care Regulations, prior to acceptance of the delivery. Non-conforming wastes will be removed off-site for disposal at a suitably licensed facility. Records of the waste characteristics and origin of the waste will be kept in accordance with Duty of Care requirements.

Wastes will undergo a visual inspection during deposition in the feedstock storage areas. Operational procedures at the site will include specific procedures for waste reception, checking and handling of non-conforming loads/items as detailed in Eco's EMS for the site. These procedures will be developed to ensure that the requirements of the Duty of Care Regulations, the Environmental Permit Regulations, IED and any other relevant published and finalised legislation are met.

The following steps will be followed to ensure that waste accepted on site is done so correctly;

1. on arrival vehicles will supply the site weighbridge office with the relevant paperwork for initial checks. Any discrepancies will be resolved before the waste is accepted on site. The load will be weighed and checked at this point.
2. checks on storage capacity will take place to ensure that suitable space is available for incoming wastes.
3. the vehicle will be directed by the weighbridge operative to the discharge area relevant to that waste.
4. A visual load inspection will take place, before the waste is unloaded, by a technically competent site operative or other designated person, to ensure consistency with the waste delivery/acceptance/rejection note. If this is not possible, the waste will be inspected immediately after offloading in the waste reception area.
5. the waste will be unloaded or tipped in the appropriate area, and then the vehicle will leave the site via the weighbridge.

4.4.4 Animal By Product (ABPR) Waste

Eco is currently permitted to accept ABPR waste at their waste management facility. Approval from the Animal Health and Veterinary Laboratories Agency (AHVLA) has already been given. Therefore, Eco propose to continue to manage the acceptance and treatment of ABPR waste to satisfy the requirements of the Environmental Permitting Regulations and the AHVLA.

In summary, the treatment process will be anaerobic digestion to the EU standard of 70°C for 1hour with a particle size of <12mm (Cat 3 wastes)

4.4.5 Hazardous Waste

The acceptance of the hazardous waste code, 01 05 05* (oil containing drilling muds and wastes) will be subject to strict waste acceptance procedures.

No waste will be accepted unless it has been pre-booked with the following information:

- date of proposed arrival on site;
- producers details; SIC (Standard Industry Codes) are a requirement of WAP (Environmental Permitting Regulations, 2010);
- source;
- physical and chemical composition (an appropriate analysis);
- hazard characteristics;
- handling requirements; and

- chain of custody notes will accompany loads (for hazardous/non-hazardous waste).

Waste acceptance for hazardous waste will follow the procedure set out in section 4.5.

Waste acceptance procedures will be conducted by competent trained personnel. Acceptance of waste will be decided on the basis of laboratory analyses that evidence the nature of waste and confirm that it is within treatable ranges.

All hazardous waste arriving on site will be covered and transported separately to other non-hazardous waste destined for treatment at the road sweepings plant.

All waste will be accompanied by a Consignment Note.

4.4.6 Waste Delivery/Acceptance/Rejection Note

Eco will have a clear and unambiguous criterion for the rejection of wastes, together with a written procedure for tracking and reporting such non-conformance. This will include notification to the customer/waste producer and the Environment Agency. Written/computerised records will form part of the waste tracking system information.

Eco will also have a clear and unambiguous criterion for the subsequent storage and disposal of such rejected wastes. This policy will achieve the following:

- identifies the hazards posed by the rejected wastes;
- labels rejected wastes with all information necessary to allow proper storage and segregation arrangements to be put in place; and
- segregates and stores rejected wastes safely pending removal.

4.4.7 Waste Carrier Check

Every vehicle which transfers waste material which arrives on site, must have a Waste Carriers Licence if required by legislation. Before the waste vehicle arrives on site, a check will be made to ensure that the waste carrier is properly licensed. This will be checked either:

- by phoning the Environment Agency on 08708 506506 and requesting an instant Waste Carrier Validation Check; or
- checking online on the Environment Agency's waste carrier register on the website at http://www2.environment-agency.gov.uk/epr/search.asp?type=register

4.4.8 Waste Quarantine Procedures

Wastes identified as non-permitted will either be rejected and sent off-site before tipping, or if not identified until after tipping, collected and sent to the designated quarantine area in the facility for future removal off-site.

A record shall be kept of all non-conforming wastes.

4.5 Waste Treatment

The additional treatment activities proposed to be included in the permit: are;

- *Anaerobic Digestion;* treatment by anaerobic digestion;
- *Digestate Processing; treatment (dewatering);*
- *Biogas Upgrade and Grid Injection;*

- *Clean Biomass Plant;* the incineration of virgin wood to produce power to the National Grid, heat to the Parley Waste Management Facility;
- *SRF Plant;* screening, separation and baling;
- *Bedding Plant;* screening, shredding and bagging;
- *Waste recovery:* screening and recovery;
- *ABPR and food waste:* stored and bulked up; and
- *Plastics and Rejects Drier;* drying.

Anaerobic Digestion including the treatment of ABPR waste

The waste processing plant at Parley will comprise a number of steps, as described below;

Once the waste has been tipped into the discharge hopper, the whole site process is automatic. Unless there is a blockage or failure, the waste will not need to be handled by Eco site operatives or mobile plant again until the material emerges from the digestate storage tank. The whole plant is computer controlled and monitored and these systems will ensure operator intervention is rarely required.

The whole process is monitored and controlled by PC, allowing remote monitoring and control as required. The plant will also dial out and alert Eco should an incident or error occur, causing the plant to fail safe and shut all or part of the operation down.

All incoming waste is discharged within the Reception Barn, behind closed doors. The solid waste will be discharged into the main, sub-floor feed hopper in the reception area whilst the liquid waste will be discharged by pipe into two tanks standing on the Reception Barn bunded floor. This enclosed discharge will ensure that any spills are contained within the building and so no infringements of ABPR occur.

Once the waste has been discharged, the vehicle driver will wash down the vehicle and move out of the shed, closing the door once the vehicle is clear.

The discharged solid waste will be inspected for contamination and non-conforming materials.

Discharged waste is automatically fed to the pre-processing/depackaging plant by auger (solid waste) or dosing pump (liquid waste) under computer control by the plant. All processing takes place within the sealed building.

The storage tanks are equipped with agitators to ensure no settlement or blockages occur. The tanks are also bottom discharge to ensure no silt build up occurs at the base of the tanks.

Once in the feed hopper, the solid waste is passed, via a number of feed augers, to the macerator/litter separator mill. The base of the feed hopper carries 3 augers which pass the waste back to a large single inclined auger that passes material from the back/base of the hopper up to discharge directly into the feed chute of the Haarslev machine. These augers serve to move the solid and semi-solid waste to the Haarslev unit and also to rip any bags contained within the waste.

The macerator/litter separator comprises a large steel shaft, fitted with a number of swinging hammers that rotates inside a perforated steel armour plate screen drum. The apertures in the drum and clearance between drum and hammers determine the sub-12mm requirement for ABPR is met. The plant breaks up the solid waste and blends it with liquid waste that is pumped into the drum to assist in producing a feed “porridge” for the digester.

The macerator also separates plastics and heavy litter from the incoming waste by a washing action within the perforated drum. This plastic waste is discharged from the unit by a small auger, and sent to the on-site drier for drying and sterilising prior to processing by the SRF plant and dispatch from site.

The feedstock falls from the unit into a pit below, from where it is pumped to the AD plant pasteurisation unit.

Batch Pasteurisation

The waste feedstock is pumped from the preparation tank to the pasteurisation plant. This consists of a heat exchanger which heats the digestate to just over 72^{o}C using hot water from the clean biomass burner fed through a bypass heat exchanger.

Once hot, the digestate is passed to an insulated, stirred tank where it is held for a minimum of 1 hour at +70^{o}C to meet the ABPR pasteurisation requirements.

The digestate leaves the pasteuriser and is pumped to the insulated pre-storage tanks to await pumping into the digesters.

Between the pasteuriser and the pre-storage tanks, the feed stock will pass through a further litter and grit separation unit to prepare it for processing in the digester. A mobile boiler can be brought in if necessary to heat the pasteuriser if required.

The plant pasteurises in batches and the system cannot by bypassed so biosecurity is not compromised. The pasteurisation tanks are equipped with opening top doors to facilitate easier cleaning of solids from within the tank.

The temperature and time records for each batch will be kept by the AD plant computer control system as part of the process logging. Records for pasteurisation will be made available as required.

The pasteurisation plant has its own DSEAR rated and ATEX compliant biofilter to remove and deodorise any steam from the plant. This is separate from the main Reception Barn biofilter and the filter is located to the south of the Reception Bran, connected by pipe direct to the pasteurisation tanks.

The pasteurisation plant (and site pumping system) is located within the bunded Reception Building so any spills are retained by the plant.

Pre-Storage

The waste is passed from the preparation unit to the AD plant pre-storage plant.

This is a covered tank with two stirrers inside. The pre-storage at Parley consists of a number of tanks, each holding up to 450 tonnes of semi-liquid feedstock to provide cover for automatic feeding overnight and through periods when the macerator is not running.

These storage tanks also provide a heavy grit drop out point for the plant and helps to balance nutrient loads entering the AD plant, evening out daily waste input by blending them with the tank's existing contents.

Digestion

The feed stock is pumped from the pre-storage tank to the digesters every two hours at a slow rate. This "little and often" method is the most effective way of maintaining a continual consistent gas generation and flow. The pumping in of process slurry and out of finished digestate is computer controlled, as is the withdrawal of gas from the top of the digesters.

The feedstock is pumped into the base of the digesters. As undigested feedstock contains raw fatty material and unbroken organics, it is less dense than the finished digestate and so rises through the digester.

The digester is stirred to maintain a rotational flow to move incoming feedstock away from where the digestate is pumped out.

The digestate is removed every 2 hours, on different hours to the input.

The stirring of the digester is computer controlled to optimise the process through the tank.

The digester is equipped with a double thickness gas membrane roof which incorporates the gas holder required by the plant. This roof comprises a gas envelope with an outer protective shell envelope. In between the two roof membranes, the plant system maintains compressed air using a small electric compressor on the outside of the digester. This air envelope between the two roofs evens out any gas pressure fluctuations and assists in the insulation of the digester. It also stops the outer shell deflating if the gas generation stops and so helps it maintain its strength.

The digester is fitted with 1 side and 1 main agitator (stirrers). These are programmed to run in sequence, maintaining the internal flow of the digester. The digesters may also be fitted with 2 external chopper pump stirrers to assist stirring the digesters as well.

The stirrers can be moved and/or directed to stop matting or surface crust formation within the tank, giving an even blend within the digester.

All the tanks on site are fitted with side hatches to facilitate cleaning and the digester roof can be relatively easily opened to allow for stirrers to be maintained as required.

The digesters are heated using an internal coil carrying hot water from the clean biomass burner and are lagged to retain this heat. The digesters work at around 39-40^{o}C

The digestate is pumped into the digesters and allowed to breakdown under anaerobic conditions, so producing methane gas, which is captured within the membrane roofs of the tanks before being drawn off for use in the generator engines. The residence time for the digestate within the tank is approximately 50 days, depending on the quality and amount of feedstock being passed through the plant and the speed of gas yield.

The digestate is pumped from the digester at the same rate as it is input. It is then passed to the post-digester storage tank.

The performance of the digesters (gas yield, temperature, feed rate, draw off rate, etc) is recorded by the site computer system which monitors and manages the plant continually.

The digesters, as are all the tanks on site, are built over the tank area bentonite mat seal, to provide leak detection and interception should such occur.

The digestion tanks each have a capacity of 2500m^3 of liquid.

To control Hydrogen Sulphide concentrations within the gas sent to the engine, the plant will automatically dose itself with Iron Hydroxide. There is also an air feed into the gas envelope above the digestate. These cause the H_2S to precipitate out as sulphur, which falls into the digestate and leaves the plant as part of the digestate, forming part of the nutrient benefit carried by the digestate.

Storage of Digestate

The digestate will be stored prior to processing by the digestate plant. This will reduce the water content of the material.

This reduction will concentrate the organic matter and nutrient value of the digestate, giving a better product for sale as an organics-rich agricultural fertiliser.

The water drawn off the digestate will be re-used by the AD plant where required, with any excess being discharged to Palmersford STW via the existing discharge pipework. The storage tanks are equipped with 3 stirrers to keep the digestate within mobile, reduce sedimentation, stop crusts forming and improve aeration.

The gas from the AD plant will be passed to a gas upgrading plant prior to being sent to the gas grid line some 400m north of the site. This gas upgrading facility will be operated by a third party, under contract to Eco.

Biogas Upgrade and Grid Injection System

Eco propose to install and operate a system to upgrade biogas to biomethane for injection into the gas grid as part of this variation. It has been estimated that the AD plant will have approximately a flow rate of 880smch.

The biogas upgrading system will remove CO_2, O_2, H_2S and other soluble gases to produce a gas primarily comprised of methane (approximately 97%) which is clean and dry. The gas will be processed by compression, condensation and upgrade by membrane separation.

Compression of the gas raises its pressure to a level suitable for it to be processed in the following stages.

Condensation of the gas will remove a proportion of the water from the saturated biogas.

The membrane separation system upgrades the biogas to biomethane by separating the components of the biogas by the difference of solution-diffusion through a polymer. The differing permeabilities of the gas components mean that CO_2, H_2S and H_2O permeate faster than CH_4.

The technical specification for the Biogas Upgrade System is included as Appendix BATOT2 for reference.

Once the biogas has been upgraded to biomethane, it will be sent to the grid injection system.

A gas analysis system will measure the biomethane for CV, Wobbe Index, O_2, CO_2, H_2O and H_2S. This works with a programmable logic controller which controls the system. The grid injection system will enrich the biomethane by injecting vaporized propane in proportions determined by the calorific value (CV) and volume of the un-enriched biomethane. A Tetrahydrothiophene (THT) odour component will be added to the gas for safety purposes.

Following propane injection, the enriched biomethane will be validated by an Ofgem approved gas chromatograph to confirm suitability for injection into the grid. If the gas quality meets the required standard it will be directed to the main gas network connection.

Clean Biomass Plant

Virgin wood will be accepted at the green waste reception area, where the wood will be separated and treated and transferred to the clean biomass reception building.

The drying of all biomass waste will occur within the confines of a building, as illustrated on Drawing 002, where the waste will then be transferred to the clean biomass plant for incineration. The building will also benefit from a biofilter.

The energy produced at the clean biomass plant will be transferred to the National Grid, whilst the heat produced will be utilised on site.

SRF Plant

The SRF plant will process and treat the following types of waste produced on site from other waste operation activities;

- litter from green waste reception;
- litter from green waste composting;
- plastics and rejects from the drier;
- litter from Compost Like Output (CLO) composting;
- incoming litter and plastics; and
- dried and sanitised screenings from Eco's existing and permitted AD facility at Piddlehinton.

The waste will be screened and separated and baled. The baled SRF will be stored in buildings located adjacent to the SRF plant buildings, for removal off site to a suitably licensed facility for further recovery.

Hazardous waste treatment at the road sweepings plant

The oil contaminated drilling muds will be processed separately to the non-hazardous road sweepings and freshwater drilling muds waste in the road sweepings plant.

The plant will process up to 2,000tpa of this hazardous waste.

Once the hazardous muds have been treated, the plant will be 'flushed' overnight to remove any contaminants and the process water removed and stored in a purpose built tank (separate to that for the storage of the non-hazardous process water).

Two fractions will be produced from the plant;

1. Stone and sand; which will be tested once dried to determine whether the fraction is no longer hazardous. If the test concludes the stone and sands are inert, the fraction will be sold under an End of Waste position, as agreed with the EA. If the fraction test shows it is still non-hazardous in nature, the load will be re-washed in the plant.
2. Dry fine material/filter cake; will contain the contaminants removed from the stone and sand, which is the majority ingredient of the drilling muds. Eco wish to bioremediate this fraction. The filter cake will be transferred to a specified CLO windrow, whereby a nutrient, in this case post production coarse PAS110 compliant certified compost, will be

added to the mixture. Over a period of between 12 – 16 weeks under aerobic conditions the windrows will be turned and aerated over this treatment period. Once bioremediation has been completed, the waste will then be tested again and if proves to be non-hazardous will be transferred off site to a suitably licensed facility for disposal.

Waste Recovery Operations

All waste destined for on-site recovery will be carried out as per the Waste Recovery Plan included in Section 8 of this application.

Waste will be screened and processed in the soil recycling yard, and transferred to the area of recovery, as illustrated in Drawing WRP1.

Plastics and Reject Drier

The plastics and reject drier will process up to 12,225 tonnes of residual waste and fractions produced on site from the various waste operations including plastics and rejects from the AD plant, CLO compost and centrifuge cake from the road sweepings plant (currently being determined in a separate EP variation application).

The plastics and reject drier will be located within a building and will be equipped with a large biofilter unit to condition any emissions prior to release.

Once the waste has been treated, the plastics will be transferred to the SRF plant for further treatment, whilst the dried CLO compost and centrifuge cake will be sent off site for disposal.

4.6 Waste Storage

Waste will be stored within the Environmental Permit boundary within the following areas;

- green waste reception area;
- AD facility main reception hall – enclosed building served by ventilation system;
- ABPR reception barn – enclosed building which benefits from a biofilter and a sealed drainage system;
- primary and secondary digesters (6 in total) – enclosed;
- digestate storage tanks (6 in total) – enclosed;
- SRF storage barns;
- soil recycling yard;
- road sweepings storage area including hazardous and non-hazardous waste; and
- dirty/clean wood waste reception area.

Waste will also pass through the buffer storage tank and pasteurisers.

The total waste storage capacity of the site at any one time, outside of the immediate processing plant of digesters and pasteurizers and associated tanks and compost pads, is approximately 100,000 tonnes.

Once the digestate in the storage tanks is accredited to PAS110 standard then it will no longer be considered a waste.

Storage in Tanks

The tanks will be constructed on an impermeable surface (a permeability of at least 10^{-9} m/s) with sealed construction joints within a bunded area. The bunded area shall have a capacity

of at least 110% of the largest vessel or 25% of the total tankage volume, whichever is greatest. Connections and fill points will be within the bunded area and no pipework will penetrate the bund wall.

The tanks will be visually inspected on a regular basis and any loss of integrity will be reported immediately to the site manager. In the event of significant tank deterioration the contents will be transferred to an alternative storage tank of an appropriate nature.

The tanks will be resistant to attack by the contents stored and fit for purpose. They will not be used beyond the specified design life or used in a manner or for substances that they were not designed.

Eco will have due regard to all relevant Health and Safety legislation.

Monitoring

The tanks will be fully enclosed. Liquid will enter and exit the tanks via permanently connected pipework.

The digester tanks will be de-sludged as required, but not less than bi-annually.

All process equipment will be part of a routine operations and maintenance plan checking lubrication and greasing, replacement of wear parts, checking of clearances on the macerator and calibration of measuring devices. The tanks will have a tank level meter.

Logging of all times/temperatures of the pasteurisers will be achieved through the process control software that will log continuously all process data e.g. pump run times, temperatures and tank levels. Calibration of all process measurement devices will be at least annually if required and in accordance with the manufacturer's recommendations. The digesters and the storage tanks will also be monitored manually on a daily basis.

All connections to and from the tank will be capable of being closed via suitable valves. Any overflow pipes will be directed to the contained drainage system.

Tank labeling - BAT

The tanks will be clearly signed as to its contents and capacity and will have a unique identifier. Written records of the tanks will be kept and will detail the following;

- unique identifier;
- capacity;
- construction including materials;
- maintenance schedules and inspection results;
- fittings (including joints and gaskets etc); and
- waste types that may be stored/treated in the vessel including flashpoint limit

All valves will be tagged with a unique identifier and all connections will be correctly sized and maintained in an undamaged state.

4.7 Site Drainage System

The site will benefit from an engineered sealed drainage system, serving the entire site as illustrated on Drawing 002.

Surface Water Runoff

All surface water runoff from soils yard, to the eastern end of the site, will drain to a purpose built silt lagoon. Once the silt has been allowed to settle, the water will be reused and recirculated in the gravel wash plant if required, to reduce the requirement of importing clean water into the system. Surface water runoff from the entrance of the site will flow to an interceptor, where it will be pumped, along secure pipework, to the silt lagoon also. Any excess water from the silt lagoon will be pumped to the two vertical reedbeds. Once the runoff has passed through the reedbed system, it will be discharged to surface water at the surface water discharge point (SW1) to the east, as illustrated on Drawing 002.

The rain water roof system on all the buildings, will catch the water and let it flow to the ditches surrounding the site.

Process Water

Potentially contaminated water from the AD plant areas, liquid and digestate storage tank area will be pumped, via secure pipework, to the two vertical aerated reedbeds, located to the south east of the site. All surface water runoff from the southern lagoons will also be pumped, via secure pipework, to these reedbeds also for further treatment. The runoff from these lagoons will also be used as recirculation liquid in the composting windrows, when required.

After treatment via the reedbeds, this water will be pumped, via a separate secure pipework system, to sewer and onwards to Palmersford Sewage Treatment Works, to the north of the site.

All runoff from the ABPR waste reception barn will be directly linked to secure pipework to be discharged off site at the sewage treatment works.

4.8 Hazardous waste storage

Hazardous waste accepted at site, will be stored separately to non-hazardous waste at the road sweepings site. The storage area will benefit from a concrete sided bay and tarpaulins will be used, as and when required, to limit the runoff of potentially contaminated surface water.

The road sweepings plant area benefits from impermeable surfacing and a sealed drainage system. All hazardous waste will be stored in a recessed area, to limit the amount of runoff from the muds. Once the waste has been processed through the road sweepings plant, the waste will be non-hazardous and will benefit from the existing drainage system. All surface water will pass through an interceptor before discharge to dedicated secure pipework to the reedbeds, as illustrated on Drawing 002. After treatment in the reed beds, the runoff will be discharged, again via secure pipework, to the local sewage treatment facility.

4.9 Control of Major Accident Hazards (COMAH) Regulations

It is not anticipated that the operations will require the storage of any materials specified in the Control of Major Accident Hazards (COMAH) Regulations in quantities above qualifying thresholds. Consequently the COMAH Regulations are not applicable to the proposed operations.

4.10 Energy Efficiency

Eco will, as already required by the existing Environmental Permit;

- take appropriate measures to ensure that energy is used efficiently in the activities;
- review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- take any further appropriate measures identified by a review.

Basic, low cost physical techniques, which will avoid inefficiencies on site; such as insulation, containment methods (such as seals and self-closing doors) and the reduction of unnecessary releases of heated water or air through fitting simple control systems such as timers and sensors will be favoured on site.

In terms of energy efficiency the design of the facility takes due regard of the energy efficiency techniques outlined H2 Energy efficiency for IPPC, namely:

- motors and drives i.e. use of VSDs;
- heat recovery e.g. gas engine waste heat in the pasteurizer;
- water minimisation i.e. re-cycling of digestate to dilute feedstock materials;
- use of low-energy technology e.g. wet digestion compared to dry digestion process;
- optimised design and layout to minimise unnecessary movement of materials;
- use of process control and instrumentation; and
- specification of equipment with low energy consumption where possible.

4.11 Efficient Use of Raw Materials

Eco will take appropriate measures to ensure that raw materials are used efficiently, and will maintain records of raw materials used on site. Materials used on site will be recycled and re-used, wherever possible, for example hardcore fill will be placed underneath the concrete.

Where possible, raw materials that minimise environmental impact will be selected. Consideration will be given to such factors as degradability, bioaccumulation potential and toxicity.

A regular review will be undertaken to ensure raw materials are appropriate for use, consumption optimised and opportunities for reduction of use and improvements identified. Alternative raw materials will be evaluated for their environmental impact on an on-going basis and subject to specific quality requirements; substitution will be given appropriate consideration.

Any additional raw materials will be recorded and assessed for their environmental impact prior to use. Relevant Materials Safety Data sheets will be held by the Site Manager and located at the facility. Raw materials will be reviewed periodically to identify potentially safer alternatives. Where appropriate such alternatives may be trialled or tested to further reduce potential environmental impacts. Where less harmful alternatives are identified as potentially suitable, studies and trials may be undertaken to determine actual feasibility. Where appropriate, these would be undertaken in conjunction with the Environment Agency.

All chemicals will be stored in drums, sacks or other suitable containers on sealed surfaces within contained areas or structures. Raw materials will be stored in designated, bunded areas to minimise environmental risks. These areas will be clearly marked and maximum storage capacities clearly stated.
Internal procedures, comprising purchasing of materials from approved suppliers and periodic checks, will ensure raw materials are appropriate for use in the process.

4.12 Efficient Use of Water

With regard to the potential to reduce use of water, Eco will consider the following techniques;

- use of water efficient techniques at source;
- recycle water within the process;
- use of uncontaminated roof and surface water in the process;
- separate contaminated and non contaminated streams of water;
- direct measurement of fresh water consumption at a significant usage point;
- consider vacuuming, scraping or mopping in preference to hosing down; and
- use of trigger controls on all hoses and washing equipment.

Any process water generated will be recycled where possible.

Reuse and recycling of water around the site will be implemented wherever possible.

Water usage will be subject to continual review, including the evaluation of options for reuse and recycling.

Due to the installation layout and plant controls, routine cleaning will be minimal (although some wash down will be required). Where spillages / clean down is required, dry methods of cleaning will be used preferentially over high pressure lower volume spray guns or over unpressurised hoses.

Water consumption will be monitored on a regular basis and these data will be used as part of the ongoing review of water efficiency and the water minimisation audit.

Summary of Compliance with Indicative BAT on Efficient Use of Water

- quantity of water usage to be monitored;
- recirculation of water where possible;
- use of trigger controls on all hoses and washing equipment;
- direct measurement of fresh water consumption;
- separate contaminated and non-contaminated streams of water; and
- use of uncontaminated site drainage and run-off water in the process.

4.13 Waste Minimisation Audit

Eco will review and record every 4 years whether there are any suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water usage and will take any appropriate further measures identified by a review.

The first waste minimisation audit will take place within two years of the facility becoming operational and will be made available to the Environment Agency. The audit will consider the following;

- process mapping;
- materials mass balance; and
- action plan for agreement with the Environment Agency.

A full water minimisation audit will be undertaken within 2 years of receipt of the permit, reviewing all users and identifying options for reducing water consumption. The audit will consider the following;

- inspection of pipework;
- establish water efficiency objectives, based on benchmarks in sector specific guidance or the relevant BAT Reference (BREF) note;
- identify constraints on reducing water use beyond a certain level;
- consider use of water pinch techniques to identify opportunities for maximising reuse and minimising use of water; and
- establish the water quality needs of each use to identify opportunities for recycling.

4.14 Avoidance, Recovery and Disposal of Wastes

Eco will take appropriate measures to ensure that waste produced by their activities is avoided or reduced and recovered wherever practicable and will ensure that;

- the waste hierarchy (referred to in Article 3 of the Waste Framework Directive) is applied to in the generation of waste on site by the activities;
- any waste generated by the activities is treated in accordance with the waste hierarchy; and
- where disposal is necessary, as opposed to recovery, that it will be undertaken in a manner which minimises its impact on the environment.

Records will be kept on site of wastes generated including type, quantity, source and management option taken. All waste will be dealt with in accordance with the Waste (England and Wales) Regulations 2011, and the Environmental Permitting (England and Wales) Regulations 2013, and where appropriate with due regard to the Hazardous Waste (England and Wales) Regulations 2005.

Eco will develop procedures for the disposal of waste generated by the site and in the process will identify suitable local facilities that will be able to accept the waste. Where possible site generated waste will be recycled. Procedures will include ensuring that the appointed waste carrier has the correct registration certificate and that a waste transfer note is completed.

Eco will regularly audit waste management options through its EMS at least every 4 years. This process will also highlight waste prevention and waste minimisation opportunities at the site.

Waste will be stored in suitable sealed storage facilities in a designated area of the site until removal by a specialist contractor. Where appropriate, waste will be segregated to allow for recycling.

Waste oil will be disposed of by an off site specialist contractor to an appropriately permitted facility. If possible empty drums and containers will be returned to the supplier for re-use.

Summary of Compliance with Indicative BAT on Avoidance, Recovery and Disposal of Wastes

- waste acceptance procedures will help to minimise the delivery of waste that cannot be processed at the facility;
- provision will be made for the safe storage of rejected loads;
- minimise the amount of waste delivered that cannot be processed at the facility; and

- recover waste where practicable – if recovery is not possible, ensure that waste is disposed of to an appropriate licensed facility. Regularly audit waste disposal/recovery routes to ensure waste is being properly dealt with.

4.14.1 Disposal Options and Controls

Consideration will be given to the most appropriate disposal route for each waste arising, with disposal and recovery being as close to the facility as possible. Where practicable recycling and reuse of materials and equipment/plant will be undertaken.

5.0 EMISSIONS AND MONITORING

This section of the report details the emissions that may result from the proposed new operations at the facility. The emissions from the facility will continue to be monitored and regulated in accordance with the conditions of the Environment Permit for the site. The techniques for pollution control described below conform to the indicative BAT requirements container within the IPPC S5.06, 'Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste', Issue 5, May 2013.

5.1 Point Source Emissions to Air

There will be no point source emissions to air.

5.2 Point Source Emissions to Groundwater

There will be no point source emissions to groundwater from the facility

5.3 Point Source Emissions to Surface Water

Eco currently hold a surface water discharge, EA Ref: 401724, originally issued 1st June 2004 for the discharge from the site to a tributary of the Moors River. This variation seeks to move this discharge point, to a drain still connected to the Moors River, to the east of the site which is illustrated on Drawing 002. The discharge of surface water will be via secure pipework from the vertical reedbed system, designated for some surface water from the site.

Surface water runoff would be managed in accordance with the principles of SUDS so that the rate of runoff would be no greater than the existing (pre-development) situation.

All surface water runoff will be directed to Eco's engineered sealed drainage system, as described in Section 4.7 of this document.

5.4 Point Source Emissions to Sewer

Eco currently hold a discharge consent to sewer, issued by Wessex Water Services Limited as a Trade Effluent Notice (Ref: 51792). The site will continue to discharge some surface water to sewer at the location illustrated on Drawing 002.

4.5.1 Monitoring and Reporting Emissions to Sewer

In the event that emissions to sewer are required, the proposed monitoring regime, including the monitoring frequency and emission limit values will be agreed with the sewage undertaker / relevant authority in the terms of the Trade Effluent Discharge Consent.

5.5 Point Source Emissions to Land

There will be no point source emissions to land.

5.6 Fugitive Emissions to Surface Water and Sewer

5.6.1 Sources of Emissions

Clean surface water from the site is separately managed via the surface water management system detailed in Section 4.7 of this report. Any failure of the engineered drainage system or of the containment structures (process water tanks and fuel tank) at the site may lead to

fugitive or diffuse emissions to surface water. In addition, failure of the secure pipework is a potential emission source.

5.6.2 Control of Fugitive Emissions to Surface Water

Surface water from hard surfaces at the site will be intercepted by the site surface water drains and directed to the surface water management scheme as described in Section 4.7.

5.6.3 Monitoring of Fugitive Emissions to Surface Water and Sewer

Daily checks will be made to ensure that there is no contaminated water entering the surface water system. Checks will comprise ensuring the integrity of the bunded area, the drainage system and of any tanks and containers holding potentially polluting substances.

In the event of a significant release of fugitive emissions to surface water, Eco will record the occurrence and take remedial action in accordance with the EMS the Environmental Permit.

5.7 Fugitive Emissions to Land

5.7.1 Sources of Emissions

There may be the following sources of fugitive or diffuse emissions to land;

- surface water attenuation areas: aqueous emissions to land;
- digester tanks: aqueous emissions to land; and
- fuel storage tank: aqueous emissions to land.

5.7.2 Control of Fugitive Emissions to Land

The site will be operated to reduce fugitive emissions to land, as detailed in the previous section. The engineered drainage systems and on site containment systems at the site shall be constructed, operated and maintained in order to mitigate against the potential release of substances which may be harmful to the receiving environment.

5.7.3 Monitoring of Fugitive Emissions to Land

Monitoring procedures at the site will be in place to ensure that emissions (dust, particulate, litter from waste packaging etc) from the site do not escape on to neighbouring land.

Monitoring for fugitive emissions to land will include the daily visual inspection of the facility (including bunded areas) by site operatives, and will be in accordance with Eco's EMS and the conditions of the Environmental Permit.

In the event of a significant release of fugitive emissions to land, Eco will record the occurrence and take remedial action in accordance with the EMS and the Environmental Permit.

5.8 Odour

5.8.1 Potential Odour Sources

There are three primary potential odour sources associated with the AD facility and acceptance of ABPR waste;

- wastes as received;
- AD biogas; and
- digestate

5.8.2 Odour Control Measures

Eco strive to control odour to the requirements set out in the Environmental Permit.

Eco currently manage odour on site through their Odour Management Plan (OMP), included as Appendix BATOT1.

In addition to this OMP further odour control is as follows;

Controlling Odour from Received Wastes at the AD Plant

Received wastes are visually checked at the weighbridge to ensure they meet the Waste Acceptance Criteria (as defined by the Environmental Permit). This is the first control measure to ensure the conformity of wastes and procedures.

Vehicles enter either the AD or ABPR reception building and the doors are closed prior to the vehicles unloading. The material is unloaded to specific areas depending on the nature of the waste and any packaging in order to ensure the need for double handling is minimised. Material is visually inspected and non-conforming loads or contaminants will be segregated and rejected from the site. Once emptied the vehicles are cleaned as necessary prior to exit from the reception building. Green waste from the green waste reception area will also be transferred to the AD facility.

The AD waste reception area will be housed in an enclosed building with roller shutter doors. All incoming waste will be discharged within the reception area behind closed doors. This ensures no unpasteurised fresh waste is open to the atmosphere, preventing external odours. The reception barn has a biofilter system that draws air out of the building with a pair of fans & then passes it through a 2.0m deep filter bed of shredded wood.

This biofilter draws air through the Reception Barn, so giving the barn a negative pressure and removing any tramp odours and bioaerosols from within the building during the reception, handling, shredding and blending of the waste. The negative pressure ensures that any draughts blow into the barn, so retaining odour and bioaerosols with the building.

The biofilter is equipped with 4 fans so that cover can be maintained at all times during the operating hours of the site, even if one fan has to be taken down to maintain or mend it.

The biofilter is equipped with secure drainage system to ensure that any condensation from within the filter bed is passed to the reception barn drainage system for inclusion with the process slurry in the barn, prior to pasteurisation

The biofilter will change the air volume within the barn four times an hour, so giving enough air flow to even control odour and bioaerosols when the main door is open for short times to allow the access and egress of discharging vehicles.

Outside operating hours, the Reception Barn's negative pressure will be maintained by the biofilter as it will continue to draw air from within the barn.

The bacteria within the biofilter will not only destroy odours but also bioaerosols. The biofilter is maintained in a damp condition to prevent drying of the media and re-entrainment of any bioaerosols from the media itself.

Controlling Odour from Biogas

The digesters are fitted with pressure release valves in case the gas extraction system fails; these are located at the top of the digester to optimise dispersion and are only activated during emergency conditions.

Controlling Odour from Digestate

The facility will be run to comply with the requirements of PAS110. From an odour perspective this is important as PAS110 sets stability requirement for digestate. The digestion process reduces Volatile Fatty Acid (VFA) levels significantly and therefore odour generation and release from digestate is far lower than from the raw materials; effective digestion therefore acts as an odour mitigation process for the digestate. Prior to accreditation, the facility will be run with due regard to minimising odours.

The dewatering of the digestate will occur within the confines of the AD facility.

All storage of digestate will be in sealed tanks.

5.8.3 Odour Control measures for additional Waste Operations

Controlling Odour from the Clean Wood Biomass Plant

Strict waste acceptance procedures within the green waste reception area will ensure only permitted waste will be accepted within the biomass plant.

Clean virgin wood will be accepted at the green waste reception area, where the wood will be separated and treated and transferred to the clean biomass reception building.

The drying of all biomass waste will occur within the confines of a building, as illustrated on Drawing 002, where the waste will then be transferred to the clean biomass plant for incineration. The building will also benefit from a biofilter.

Biodegradable waste storage periods will be minimised and wastes subject to a rapid turnover.

The clean wood waste will be fresh green waste, reducing the potential for odour emission.

The acceptance of green waste is already a permitted activity on site, therefore existing management plans will continue to be adopted on site.

Controlling Odour from the SRF Plant

Wastes processed within the SRF plant will comprise litter wastes redirected from the green waste reception and green composting operations as well as residual wastes from other operations on site including rejects from the drier, litter from the CLO composting and dry and sanitised screenings from Eco's existing permitted AD Facility at Piddlehinton.

The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. All operations associated with the SRF, including waste reception, processing and storage will take place within a building.

All SRF that has been treated and baled will be stored within a building, as illustrated on Drawing 002.

Controlling Odour from the Plastics and Rejects Drier

Residual waste arising from the AD plant, CLO Composting plant and centrifuge cake from road sweepings will be processed (dried) within the drier.

The non-biodegradable and pre-treated nature of the waste types to be processed are not considered to pose a risk of odour. The drier will, however, be equipped with a biofilter on the exhaust to condition any exhaust air.

Treated waste from the drier will be stored within the confines of a building, as illustrated on Drawing 002.

Controlling Odour from the ABPR and food waste reception barn

Vehicles entering the site with ABPR and food waste will be covered.

All ABPR and food waste will be unloaded within an enclosed barn under negative pressure to prevent the fugitive emission of untreated odour,. The reception barn benefits from a biofilter.

The barn benefits from automatic roller shutter doors, which automatically closes once the vehicle has passed through.

The barn benefits from an active bio-filtration system.

This type of waste will not be treated at the facility, only stored and then bulked up before transfer off site to a suitably licensed facility.

All ABPR and food waste will be managed as per the sites Odour Management Plan included as Appendix OT1 of this report.

Controlling Odour from Waste Recovery Operations

The waste types used for all waste recovery operations on site, are as per the U1 exemption, and are not deemed to be odorous in nature.

Soil and stones waste is considered to be predominately inert and would not contain a high proportion of biodegradable wastes. Soil is not considered a source of offensive odour and therefore not considered a source of offsite impacts.

5.9 Dust

Dust is not expected to pose a significant risk due to the existing mitigation measures in place on site.

The composting of the CLO waste, derived from the road sweepings plant is already a permitted activity on site and will be managed as per the site's current Dust Management Plan and EMS.

In order to minimise the emissions of dust from the waste installation as a whole, the following measures will be implemented:

- all waste activities and storage will occur within the confines of buildings whenever possible;
- speed limits will be implemented for vehicles using the site;
- all vehicles entering and leaving the site will be covered;
- a water bowser will be on permanent standby to dampen down any surfaces;
- discharge heights to the plant will be kept as low as possible to prevent windblown dust;
- site access & haul roads and operational areas will be maintained and repaired to minimise emissions of dust due to uneven and poor surfacing;
- all roads and operational areas will be swept where necessary to reduce dust emissions;
- all vehicles delivering waste to the site shall be sheeted to minimise emissions of dust;
- daily, visual inspection at all areas of the site and site boundary will be carried out by site personnel;
- in the event that significant visual dust is observed at the boundaries of the operational areas, action will be taken to suppress the dust;
- a record of the inspection findings & remedial action taken will be made in the site diary; and
- the Site Manager will be responsible for implementing the dust management, monitoring and action plan.

Dust will be managed on site by the existing Dust Management Plan.

5.10 Noise and Vibration

The H1 Environmental Risk Assessment submitted in support of this variation application (reference 407.03407.00003/H1) considers the amenity type risk in a qualitative manner and considers noise at receptors within 500m of the proposed boundary that may result from the proposed permit variation. In summary, it is concluded that there will be no significant impact on surrounding sensitive receptors.

5.10.1 Noise Control and Minimisation Strategies

All waste management operations on the site shall be conducted so as to prevent or reduce noise nuisance off site, noise shall be limited to such levels that are unlikely to cause pollution of the environment or harm to human health or serious detriment to the amenity of the locality outside the site boundary.

Eco is obliged to ensure that set noise limits, detailed in the Noise Management Plan submitted with the Planning application are not exceeded.

All site operations shall be conducted in such a manner that noise from operations does not give rise to unacceptably high levels of noise.

The main sources of noise are considered to be as follows:

- vehicles using the site;
- noise from operation of equipment – digesters, , flare and pumps;

- reversing bleepers;
- mobile plant, for example on site trucks; and
- fixed plant, such as the clean biomass plant, plastics and reject drier and the SRF plant

It is considered that the generation of vibration as a result of operations at the site will not be significant.

All site operatives will be trained in the need to minimise site noise, and will be responsible for monitoring and reporting excessive noise when carrying out their everyday roles.

5.10.2 Plant and Equipment

Where practicable, the selection and use of quieter equipment or alternative working methods is adopted by the Site Manager or designated person to minimise the generation of noise at acceptable levels. Inspection and repairs are noted on service / maintenance reports or in the site diary.

Noise control is implemented through the following procedures:

- plant exhausts will be properly maintained within statutory levels;
- the doors of the waste reception buildings will be kept closed at all times;
- consideration will be given to all plant and equipment used on site being fitted with noise control measures such as silencers if deemed necessary. Where any defects or disrepair is reported to the Site Manager or designated person, the plant or equipment will be repaired and in instances where it cannot be repaired within a reasonable time-scale, the plant or equipment will not be used on site until remedial works are completed.
- all plant and equipment in use at the site will be regularly maintained to minimise noise resulting from inefficient operation;
- regular maintenance of the access roads, including repairing 'pot-holes' will be undertaken;
- in the event that reversing alarms are found to give rise to substantiated complaints, alternative alarms or technology will be investigated;
- when siting noisy equipment consideration will be given to the proximity of receptors and also the prevailing wind direction; and
- the imposition of a speed limit of 10mph for vehicles delivering waste to the site will aim to reduce noise associated with high engine speeds.

Vehicles using the site will travel across designated routes that have been designed and located so as to minimise nuisance and hazard to both internal site users and also receptors located outside the site boundary.

5.10.3 Monitoring

If a noise problem is noticed or a complaint is received by site personnel, it will be immediately reported to the Site Manager or the designated person. The source of the problem will then be investigated, and appropriate corrective action will be taken.

In the event that noise derived from the site is detected beyond the site boundary by the Site Manager or designated person which in their opinion could give rise to complaints, investigation action will be taken without delay. The nature of the investigation will take into consideration the meteorological conditions prevailing at the time and any operational issues together with the nature of the receptors. The following remedial action may be appropriate;

- relocate plant and equipment to less sensitive locations;
- construct or erect acoustic bunds, barriers or screens if deemed necessary;
- replace noisy plant and equipment with quieter models;
- undertake maintenance on equipment that will reduce noise levels; and
- modify plant to incorporate noise suppression equipment.

5.10.4 Complaint Records

A record relating to the management and monitoring of any noise complaints will be maintained. The information required to complete the complaint form is as follows;

- telephone number and location of caller (if provided);
- date, time and duration of offending noise;
- callers description of the noise and any other comments;
- weather conditions;
- wind strength and direction;
- detail any other complaints about the noise;
- potential noise sources that could give rise to the complaint;
- operating conditions at the time of the noise issue;
- any follow up taken with the caller; and
- any amendments to the noise management plan.

5.11 Pest Control

5.11.1 Pest Control and Minimisation Strategies

All waste management operations on the site will be undertaken on site such that infestation or colonization by pests are minimised at the facility. The site will be inspected for pests daily by the Site Manager or designated person and recorded in the Site Diary. If required, a treatment programme will be undertaken to deal with any infestation by insects, rodents or other pests.

Site operatives will be vigilant and report any potential infestations to the site manager, who will ensure appropriate measures are undertaken.

The following procedures will be followed to control and monitor any insect and rodent infestations:

- surfaces within the waste reception building which are used for the storage of waste will be regularly washed down or cleaned;
- all storage of incoming waste from the AD facility will be contained within the waste reception building;
- the site will be monitored on a daily basis for any visible signs of rodent or insect activity, such as burrows, runways, droppings, larvae, and the findings logged in the site diary;
- if any signs of potentially problematic numbers of pests or vermin are discovered at the site, the Site Manager or designated person will contact a pest contractor as soon as possible; and
- should the use of pesticides or other means of pest control be recommended, they must only be implemented by persons qualified/trained to carry out the necessary measures.

5.12 Litter

5.12.1 Litter Control and Minimisation Strategies

All waste management operations on the site will be undertaken to minimise windblown litter outside the site boundary. Due to the nature of the wastes accepted at the facility it is not anticipated that excessive litter will be generated. However, the site will be operated to comply with the following principles:

- suitable provision shall be made to prevent the spread of windblown litter, including use of local litter netting if required by wind conditions.
- litter picking will be adopted in the event of any nuisance from litter occurring.
- the boundaries and environs of the site shall be inspected on a regular basis for the presence of litter or any other waste materials resulting from site operations, and shall be removed as required,

All waste management operations shall be carried out in a manner to ensure that windblown litter is prevented from escaping the site. On-site inspections for litter shall be made regularly and more frequently as necessary. All on-site inspections shall be recorded in the site diary.

5.13 Mud on Road

The site will comprise hardstanding which will be maintained free of potholes to prevent the pooling of surface water.

Should mud on road be attributable to operations at the site Eco will take remedial action (road sweeping, washing of vehicles on site) as necessary in accordance with the procedures set out in the EMS and the conditions of the Environmental Permit.

5.14 Monitoring and Reporting of Waste Emissions

Waste management will be the responsibility of the Site Manager and will be undertaken as detailed in Eco's EMS. On-going monitoring will be addressed as part of a waste minimisation audit and implemented through the EMS.

5.14.1 Monitoring of Process Variables

Monitoring of conditions within the AD process will be the responsibility of the Site Manager and will be undertaken in line with the manufacturers recommendations, the EMS and the requirements of the Environmental Permit.

Keeping a close watch on the process variables will be important from both an environmental and a commercial point to optimise the AD process.

6.0 INFORMATION

6.1 Records

Eco will keep records of a number of performance indicators and environmental indicators (e.g. monitoring records). Records will be legible and easily retrievable on request (either in hard copy or electronically). Records will be kept in line with the conditions of the Environmental Permit issued for the site. For example, the following records will be kept:

- computerised weighing control system will be provided, recording vehicle weights and enabling issuing of waste transfer notes;
- detailed records will be maintained of all wastes produced at the installation, including amount produced, type, destination and treatment;
- records of all wastes sent off-site will be maintained, in line with Duty of Care requirements. Duty of care records will be kept for a minimum of 2 years;
- records of potentially polluting events will be kept at the facility during the life of the permit;
- waste inputs to the AD plant and composting windrows will be recorded en masse via the weighbridge.
- a record of the routing of all installation drains and subsurface pipe work will be generated at the detailed design stage as will a record of the build materials and areas at which potentially pollution substances are held. In addition, records of potentially polluting events will be kept at the facility during the life of the permit.

The above list is not exhaustive. Records will be kept to satisfy the requirements of the Environmental Permit and all other relevant statutory legislation.

Eco will ensure that all documents are issued, revised and maintained in a consistent fashion and will adequately record all details necessary to satisfy the conditions of the Environmental Permit once issued. The procedure for managing documentation and records will be set out in Eco's EMS.

6.1.1 Decommissioning

The installation will be constructed in a manner that enables decommissioning with minimal environmental impact. Wherever possible, tanks, bunds and pipe work will be above ground to facilitate easy access. Where this is not possible additional containment will be provided and regular monitoring and leak checks will ensure that potential environmental harm from fugitive emissions is minimised. All plant items and equipment will be subject to preventative maintenance.

Vessels and pipe work will be situated in areas that enable drain down of contents over areas of contained concrete hard standing, thereby minimising environmental impacts in the event of losses of containment.

Building insulation materials will be selected that present the minimal environmental risk, both in terms of use during plant operations and decommissioning. Building construction materials will be selected to combine operational efficiency with future requirements and demands.

6.1.2 Closure Plan

Eco will be the sole occupiers of Parley Waste Management Facility, apart from the operators of the gas upgrading plant.

The site closure plan will be drafted upon completion of the detailed design and finalised and agreed with the Environment Agency prior to commencement of operations. The key aspects to be included in the plan are:

- maps and plans showing areas containing potentially polluting substances over the life of the plant;
- details of storage vessels and pipe work that will hold potentially polluting substances;
- records of building and plant materials and constructions;
- location of records of pollution incidents to ensure that contamination is addressed as part of decommissioning;
- location of the Environment Permit, including the Site Condition Report that provides the soil and groundwater baseline conditions;
- safe removal of chemicals and reagents from site;
- decontamination and deconstruction of site infrastructure;
- use of recyclable materials where possible; and
- methodology for decommissioning will minimise dust, odour; noise and other possible sources of nuisance.

Above all protection of human health, groundwater and the wider environment will be paramount when decommissioning the site.

6.2 Reporting/Notification

Reporting and Notification will be in line with the requirements of the Environmental Permit and all relevant legislation.

In line with the Environmental Permit for the site and good practice, the Environment Agency will be notified as soon as is practicable of the following:

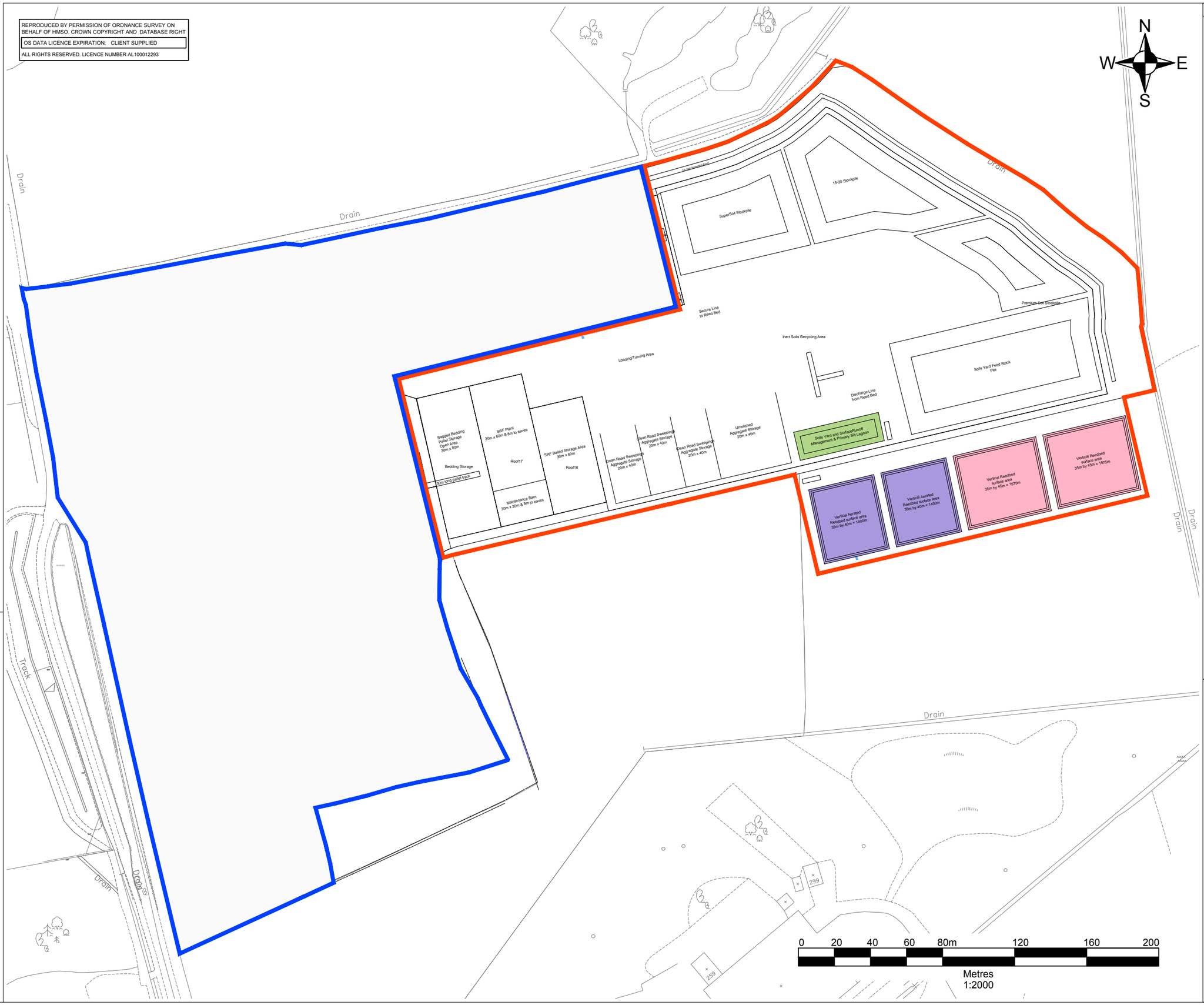
- any malfunction, breakdown or failure of equipment;
- any techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
- the breach of a limit specified in the Environmental Permit; and
- any significant adverse environmental and health effects.

7.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use Eco Sustainable Solutions Limited; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.



NOTES

- EXISTING ENVIRONMENTAL PERMIT BOUNDARY
- EXTENSION AREA TO THE EXISTING PERMIT BOUNDARY
- SURFACE WATER VERTICAL REEDBEDS
- PROCESS WATER VERTICAL AERATED REEDBEDS
- SOILS YARD AND SURFACE WATER RUNOFF MANAGEMENT AND PRIMARY SILT LAGOON

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PARLEY WASTE MANAGEMENT FACILITY

ENVIRONMENTAL PERMIT VARIATION APPLICATION

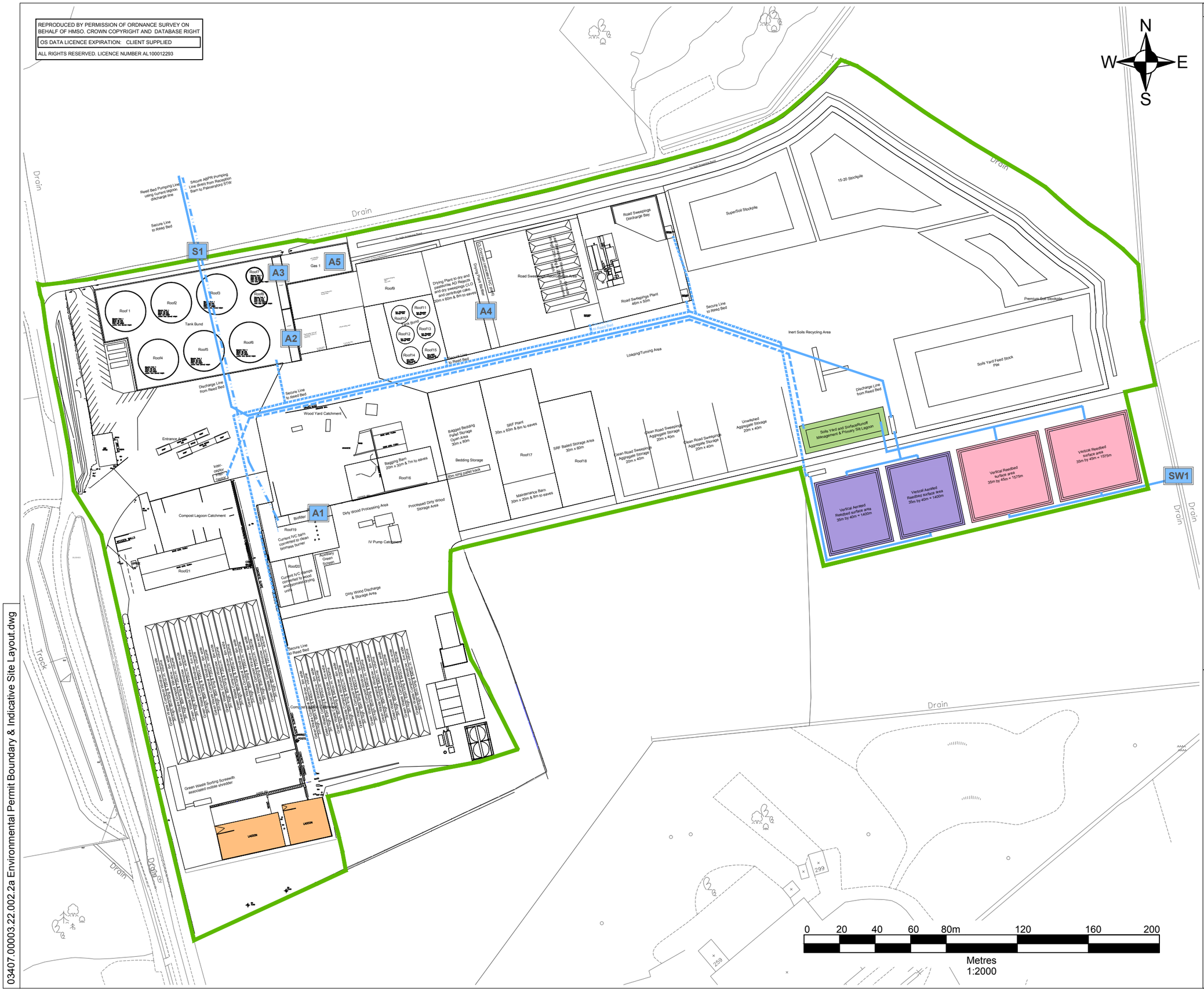
EXTENSION TO PERMIT BOUNDARY

DRAWING 005

Scale: 1:2000 @ A3

Date: JANUARY 2015

03407.00003.22.005.0 Extension to Permit Boundary.dwg



NOTES

- ENVIRONMENTAL PERMIT BOUNDARY
- SW1 — SURFACE WATER DISCHARGE POINT
- S1 — DISCHARGE TO SEWER POINT
- SECURE PIPEWORK TO REED BEDS
- SECURE PIPEWORK FOR ALL PROCESS WATER
- SECURE PIPEWORK FOR ALL SURFACE WATER
- SECURE PIPEWORK FROM ABPR WASTE RECEPTION BARN TO SEWER
- SURFACE WATER LAGOONS SERVING WINDROW COMPOSTING AREA
- SURFACE WATER VERTICAL REEDBEDS
- PROCESS WATER VERTICAL AERATED REEDBEDS
- SOILS YARD AND SURFACE WATER RUNOFF MANAGEMENT AND PRIMARY SILT LAGOON
- A1 — POINT SOURCE EMISSION TO AIR

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PARLEY WASTE MANAGEMENT FACILITY

ENVIRONMENTAL PERMIT VARIATION APPLICATION

SITE LAYOUT AND DRAINAGE PLAN

DRAWING 002 VERSION 2

Scale	Date
1:2000 @ A3	JANUARY 2015

03407.00003.22.002.2a Environmental Permit Boundary & Indicative Site Layout.dwg

From: Samantha Pople
Sent: 03 February 2015 17:37
To: Alexander, Mike
Subject: RE: Eco Sustainable Solutions Ltd - EPR/GP3793FY/V010, Not Duly Made response

---

Hi Mike,

Please find our responses to your queries;

1. *National Grid References for the 7 residential receptors (RR01-RR07) and the 15 ecological receptors (HL01-HL15) used in the air emissions assessment:*
   Please see table below;

Receptor name	X(m)	Y(m)
HL01	410644	99404
HL02	410960	99260
HL03	410663	99147

HL04	410713	98791
HL05	410395	98757
HL06	410282	98614
HL07	410363	98487
HL08	410081	98699
HL09	409838	98653
HL10	409649	98503
HL11	409604	98691
HL12	409382	98857
HL13	409396	99184
HL14	409414	99482
HL15	409611	99660
DT01	410478	98874
DT02	410063	99025
DT03	409747	98869
DT04	410185	98496
RR01	410000	99084
RR02	410322	98031
RR03	410332	97990
RR04	409533	98834
RR05	409592	98928
RR06	409595	99065
RR07	409552	99333

2. *The actual oxygen content and actual moisture content of the flue gas from the clean biomass plant prior to standardisation;*
   Please find attached Enclosure 1 and 2 which provides this information.
3. *The short term 'modelled emissions data' used in the assessment. Table 9.4 in Section 9 (Air Quality and Odour) shows the long term data but not the short term data.*
   Only long term data was provided by the technology provider. The short term data is in direct reference to the Biomass Plant which will accept 'dirty' wood and is WID compliant. This plant is not being applied for in this variation application.
4. *Justification for the use of the emission limit values (ELV's) used in modelling of the clean biomass plant. The IED Chapter IV (former WID) ELV's used in your assessment do not apply to virgin wood combustion. Are you saying that emissions from the plant will be at these levels?*
   The Air Quality assessment for the clean biomass plant was not applied to IED Chapter IV, but the lower emission levels provided by the technology provider, as shown in Enclosure 1 above. Section 9.2.18 of the Air Quality assessment justifies why the assessment criteria for the non-waste biomass plant is different to that of the larger biomass plant. Table 9.4 also does not refer to IED limits.

Additional information;

As discussed, please also find attached the amended Drawing 002 which illustrates emission point A6 for the non-waste biomass plant.

I do hope we will hear imminently that this application has now been duly made.

Thanks

Sam.

From: Alexander, Mike
Sent: 27 January 2015 11:05
To: Samantha Pople
Subject: Eco Sustainable Solutions Ltd - EPR/GP3793FY/V010, Not Duly Made response

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Hi Sam

Further to my email of 21st January 2015, I have had comments from AQMAU regarding their duly making checks of your air emissions assessment and odour assessment. They are satisfied that they would have enough information to commence audit of the odour assessment, but have requested some additional information regarding the air emissions assessment. Can you please therefore provide the following information:

1. National Grid References for the 7 residential receptors (RR01-RR07) and the 15 ecological receptors (HL01-HL15) used

in the air emissions assessment;

2. The actual oxygen content and actual moisture content of the flue gas from the clean biomass plant prior to standardisation;

3. The short term ‘modelled emissions data’ used in the assessment. Table 9.4 in Section 9 (Air Quality and Odour) shows the long term data but not the short term data.

4. Justification for the use of the emission limit values (ELV’s) used in modelling of the clean biomass plant. The IED Chapter IV (former WID) ELV’s used in your assessment do not apply to virgin wood combustion. Are you saying that emissions from the plant will be at these levels?

Best Regards
Mike

From: Samantha Pople
Sent: 30 January 2015 15:09
To: Alexander, Mike
Subject: RE: Eco Sustainable Solutions Ltd - EPR/GP3793FY/V010, Not Duly Made response

---

Hi Mike,

Please see our comments below:

Question 5: Please find attached the amended Drawing 005.

Question 6: The clean biomass plant would use either a boiler or heat exchanger to generate heat through an Organic Rankine Cycle (ORC) power plant. The ORC unit will be sealed and so no emissions would be generated.

Question 9: I can confirm the following;
A1: biofilter serving the IVC barn.
A2 and A3: the biofilters will have the capacity to handle odours from both buildings to the eastern side of the biofilters. Including two biofilters in the design ensures that the site can still process waste in light of maintenance schedules and potential breakdowns.
A4: biofilter for the drying plant.
A5: gas flare stack for the biomethane plant.

Question 13: The biomethane plant will benefit from an independent safety flare operating system to burn off the biogas generated during periods where the plant is off-line for routine maintenance or in the unlikely event of a breakdown. The flare is only likely to operate intermittently, for less that approx. 5% of the year, as the AD facility is expected to have an operational availability of around 92% and will be equipped with gas storage within the roofs of the digester tanks. Accordingly, the likely air quality impacts associated with emissions from the flaring of biogas will be insignificant.

Additional Comment: I can confirm that this variation is not looking to include a CHP at the AD facility.

Please let me know if you require any further information – the air quality queries will be responded to later this afternoon.

I hope to hear then that the application can be duly made.

Kind regards
Sam.

From: Alexander, Mike
Sent: 21 January 2015 14:32
To: Samantha Pople
Subject: RE: Eco Sustainable Solutions Ltd - EPR/GP3793FY/V010, Not Duly Made response

Hi Sam

Thank you for the additional information submitted on 16th January 2015 in response to our Not Duly Made letter dated 18th December 2014.

This is an interim reply because our Air Quality Modelling and Assessment Unit (AQMAU) are currently undertaking duly making checks on the odour assessment (Q.4) and the air quality assessment (Q.6). I am expecting their recommendations by the end of the week. With respect to the other information you provided we require further clarification regarding some of your responses, as detailed below:

Response to Q5:
Site plan ref. 005 showing the area of the site extension – the colours used in the 'Key' are the wrong way round, with respect to the red and blue boundary lines. Can you please submit a revised version of the site plan which rectifies this error.

Response to Q6:
It is stated in the air quality modelling report that the proposed clean biomass plant (Uniconfort Global 500, thermally rated at ~7MWth) will generate energy for transfer to the national grid and heat for on-site use. According to the manufacturers website this is not a co-generation plant. Please therefore confirm how electricity will be produced by the clean biomass plant and include details of any additional emissions / emission points associated with the proposed technology. Details of any additional emissions should be accompanied by a risk assessment.

Response to Q9:
It is not entirely clear from the information supplied which activity / plant the air emission points A1-A5 relate to and these need to be confirmed. Queries are as follows:

- A1 - is this the biofilter which formally served the IVC barn, or is A1 the flue gas exhaust from the clean biomass plant?
- A2 & A3 - these appear to be the biofilters serving the AD waste reception barn and the ABPR and food waste transfer barn. Please confirm which biofilter serves which barn?
- A4 (biofilter serving the drying plant) and A5 (gas flare stack) - are these correct?

Response to Q13:
Please provide details of the gas flare and describe the situations under which it may be required to operate.

Additional comment:
Your revised Non Technical Summary refers to the production of electricity from the biogas coming off the AD process, for export to the National Grid. For the avoidance of doubt can you please confirm that AD CHP is not proposed under this variation

application.

As soon as I hear back from AQMAU I'll let you know.

Best Regards
Mike

From: Lisa Foyster
Subject: RE: Emissions Data for Eco Clean Biomass Plant
Date: 24 September 2013 13:54
To: Alan Hannify Ken Smithers

LF

Alan,

The Biomass plant will operate at the following emissions. These are compared to the Waste Incineration Directive Emission Limit Values.

			Waste Incineration Directive Emission Limit Values (i)	
Substance – Emissions mg/m³	**Direct from Uniconfort Burner**	**Emissions with Additional Emissions Technology**	**Daily Average Values**	**Half-Hourly Average Values**
Particulate	30	10 (Achieved with Multicyclone Bag Filter)	10	30
VOCs (as TOC)	10	10	10	20
HCI	10	10	10	60
HF	1	1	1	4
SO2	50	50	50	200
NOx	400	80 (Achieved with Urea Injection)	200	400
CO	50			

Kind Regards, Lisa

Lisa Foyster
Eco Link

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Registered in England and Wales No: 6705808
VAT Registration Number: 943 2789 93

eco link
www.eco-link.co.uk

From: Alan Hannify
Sent: 20 September 2013 17:32
To: Ken Smithers; Lisa Foyster
Cc: Geoff Fynes
Subject: Emissions Data for Eco Clean Biomass Plant

Dear Ken and Lisa,

Further to our recent telephone correspondence, we have not yet received the data for the clean biomass burner for Eco Sustainable Solutions. I should be obliged if you could send this information to Geoff Fynes as soon as possible, as it is required for an Air Quality Assessment.

Kind Regards,

Alan

Alan Hannify
Principal Planning Consultant

AlliancePlanning