ODOUR MANAGEMENT PLAN

FOR JM Envirofuels Barry Limited

BY
JM Envirofuels Limited
Hollybush Farm
Warstone Road
Shareshill
Wolverhampton
WV10 7LX

BY

[redacted]

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Document Author	[redacted]
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JM Envirofuels Barry Limited
Berth 31 Wimborne Road, Barry,
Glamorgan, CF63 3DH

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1. Introduction

1.1 Background

- JM Envirofuels Barry facility receives inert wastes for recycling and is to be permitted to take in up to 150,000 tonnes per annum of source segregated civic amenity and commercial wastes for the production of biomass fuel for power stations. Also, taking wastes for bulking up and transfer (glass, metal, plasterboard, tramp) for offsite recovery.

- JM Envirofuels Barry Limited has prepared an odour management plan to ensure that emissions from the activities on site are free from odour at levels likely to cause annoyance outside the site, as perceived by an authorised officer of Natural Resource Wales. An odour management plan has been prepared in line with NRW guidance 'How to Comply with your permit' V8 October 2014.

- The Odour Management Plan has been prepared to set out how the appropriate methods, monitoring and contingencies are employed to control and minimise odour pollution from the site. The plan will address issues regarding: the prevention of unacceptable odour pollution; the reduction of the risks of odour releasing incidents; and appropriate and measured contingency planning.

1.2 Site Description

- JM Envirofuels Barry facility situated off Wimborne Road, just north of the Docks at Berth 31 is a working wood recovery facility and JM Envirofuels Barry Limited's site is a permitted wood facility for the handling of wood waste and also for the temporary storage and transfer of glass, metal, plasterboard and tramp for recovery off site. The site location is shown on Figure 1, in an industrial setting adjacent to the Dock.

- The site boundary is made up in part with a Soil bund wall (3m high). Where there is no soil bund wall, the boundary has palisade fencing and is open to the dock. Air movement across the site is restricted by the boundary walls, as well as concrete block walls.

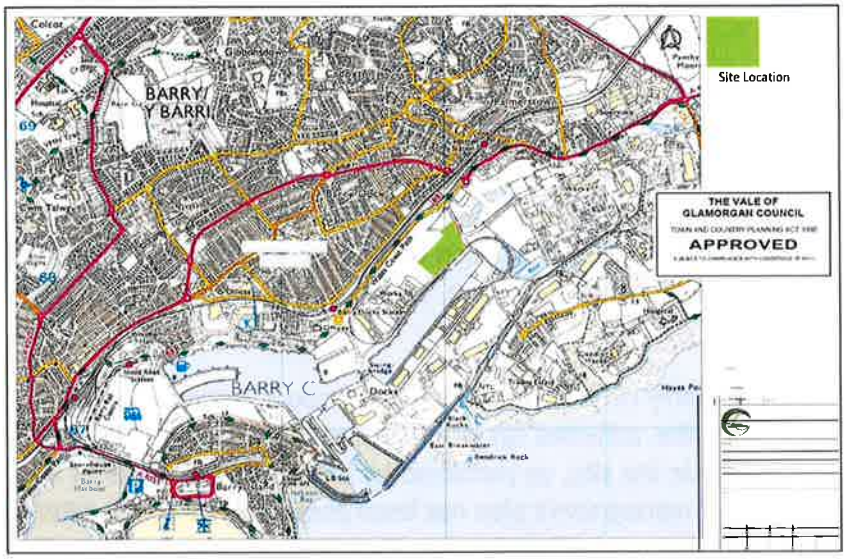

Figure 1. Location map for JM Envirofuels Barry

Table 1. Potential receptors at JM Envirofuels Barry Facility

Ref	Name	Direction	Distance (m)
1	Harris Pye Marine	South West	166
2	Container Storage	East South East	320
3	Industrial	South East	371
4	Residential	North West	330

1.3 Site Process

- The current site layout is shown in drawing (Appendix B). The process will be actively managed (by a competent operator) with routine process monitoring providing feedback information on the material.

- Wood waste grade A, B and C and oversize material will be processed through shredding and screening to provide a suitable reprocessed material for use as a fuel. This product is then stockpiled.

It is anticipated that the total amount of wood waste grade A, B and C and oversize material to be processed will not exceed 130,000 tonnes per annum. The storage requirements for this material will be 20,000 tonnes to provide sufficient buffer during the winter periods when the demand for supply is expected to increase.

Inert wastes (metal, glass, ash, plasterboard) will be accepted on site to be stored in bays for bulking up prior to removal off site for recovery.

1.4 Structure of the Odour Management Plan

- The structure of the odour management plan is in accordance with the NRW guidance 'How to comply with your Permit' V8 October 2014. This odour management plan has been designed to address:
- Activities that have the potential to produce odour and sources of release
- Process/control failures or abnormal events that could lead to an increased level of emission or exposure
- Potential outcomes of each failure scenario in respect to odour impact
- Actions to mitigate the effect of odour release during normal and abnormal operations
- The odour management plan considers sources, releases and impacts, and use these to identify cost-effective solutions for odour management. This document is a 'live' document: the monitoring procedures, responsibilities and compliance actions will be updated as appropriate.

2. Activities and Odour Assessment

2.1 Reception and management of odorous materials

- The inert materials to be accepted for storage, processing and bulking up typically generate very little odour.
- The quality of waste inputs from customers will be carefully controlled by J M Envirofuels Barry Limited at both the contract stage (specifying limits on contamination levels) and at waste reception where every load will be inspected prior to tipping. The characteristics of the waste (e.g. how the waste appears, its odour note etc.).
- The management system used by J M Envirofuels Barry Limited provides control systems to handle the of input materials. Through routine monitoring and active management of the process and input material, the potential for odours is considered to be negligible. The potential sources of odour have been set out in Table 1 below.

Table 1. Potential sources of odour at the Barry facility

Source Term	Description
Waste reception	There is very little potential for material to be received on site that is odorous.
Waste storage	The storage and management of inert waste for periods (prior to use on site / transfer off site) is unlikely to give rise to odours.
Screening & material movement	Whenever the material is moved or displaced on site during moving, screening, placing the potential risks of odour being generated rises. However owing to the material being inert, the actual generation of odour generation is minimal.
Storage of screened material and material for transfer	The storage of material is not likely to be associated with odour release.
Drainage / surface water storage	The collection, storage and reuse of surface runoff water from the site activity is not likely to be odourous.

- A list of odour source points have been set out in Table 2 and would form the basis for routine odour monitoring carried out at the site.

Table 2. Odour source release points

Source	Description
Waste storage area	Vehicles entering and leaving the facility. Stockpiling of received inert waste.
Screening	Movement of material from the stockpile to the screener and during the screening process.
Material storage	Stockpiling and movement of products and material for transfer.
Drainage & standing water	Storage tanks, ditches and standing water.

2.2 Pathways

- In the event that an odour source is generated on site, it is typically considered to be at ground level (circa 3m) and is considered a low level area source term with negligible upward velocity or discharge. The pathway for any odours from the site is atmospheric dispersion and the climatic conditions will affect odour release from the site. Quiescent conditions may be unlikely to release or transmit significant quantities of odour (but have a low dilution factor) as opposed to highly turbulent conditions that would results in rapid dispersion from the site (but also a high factor of dilution).
- The general direction of the wind at the Barry facility is from the south west.

2.3 Receptors

- The potential receptors within the vicinity of the Barry site are set out in the table 3 below

Table 3. Potential receptors at the Barry Facility

Ref	Name	Direction	Distance (m)
1	Harris Pye Marine	South West	166
2	Container Storage	East South East	320
3	Industrial	South East	371
4	Residential	North West	330

3. Control Measures

3.1 Introduction

- J M Envirofuels Barry Limited has consistently taken a systematic approach to the development of control measures for over more than a decade of recycling activities. With considerable operational experience and know-how, the use of inert waste and the potential for odour release from the material is continuously reviewed as new developments in technology become available. Where appropriate, the early implementation or intervention of specific strategies will be made to avoid or prevent any potential release of odour.

- JM Envirofuels Barry will operate to the sites permit and EMS and will adhere to the principles of the Standard Operating Procedures.

- J M Envirofuels Limited operating procedures for inert waste are set out in the EMS to ensure that good operational practices are employed. The effective management and control through standard practices and procedures will ensure efficient operation of the facility and minimise the potential for odour generation. The following sections 3.2 to 3.6 detail management techniques, procedures, and odour control measures to minimise the potential for odour generation for each aspect of the operation.

- The quality of the waste types does not vary considerably through the year and being source segregated reduces the likelihood of contamination.

- The management system used by J M Envirofuels Barry Limited provides control systems to handle the waste input materials. Through routine monitoring of the waste processing facility, the potential for odour can be virtually eliminated throughout the year. The potential sources of odour have been set out in Table 4 below.

Table 4. Potential sources of odour at the Barry processing facility

Source Term	Description
Reception of waste	The type of wastes accepted at the Barry facility do not typically give rise to odour. The materials comprise of wood, metal, glass, plasterboard and tramp, and the only potential source of odour with these materials is contamination which is checked and verified with every load received on site.
Processing	The processing of wood waste does not generally give rise to odour. The material is inherently stable. The process of storage for bulking up of glass, metal, plasterboard and tramp likewise does not generally give rise to odour and the materials are stable.
Material and product storage	The waste products are stored in dedicated areas and only moved when being removed from site.

3.2 Feedstock and Physical Characteristics

- At the Barry facility, the feedstock material will be monitored with every incoming load consistent with EMS (waste acceptance and control). Each load weight will be recorded at the weighbridge as the material enters the site (the first point of control). The material will be inspected and directed to the waste reception area where upon tipping, the material is further inspected for contrary or odorous materials. The trained operatives will evaluate each load for odour, quantities of putrescible matter, admixture.

- The incoming material sources will be from municipal household waste recycling centres and industrial/commercial contracts.

3.3 Storage

- The storage of waste material prior to and post screening will be carefully managed to ensure the material is moved regularly in a consistent manner (i.e. old material moved out of storage areas before new material is placed in storage). This will allow good stock control and ensure consistency of material and minimise the potential for odour generation.

4. Odour Control during Abnormal events

4.1 Introduction

- Under the requirements of NRW's Guidance, a number of abnormal events have been considered in relation to the potential of odour being released from the facility. The abnormal events have been identified as abnormal meteorological conditions and failure of certain aspects of the inert process.

4.2 Abnormal Meteorological Conditions

- The development of extreme meteorological conditions (e.g. high pressure, high temperature stable conditions) may result in the increased risk of odour generation at the site and at receptor locations.
- Applying control measures, such as using meteorological forecasts and good site management will minimise the potential impact of abnormal meteorological conditions. However, should extreme circumstances occur potential odour impact may be more likely.

4.3 Process Equipment – Mechanical Failure

- The breakdown of key processing equipment or control systems has minimal potential to raise the risk of odour impact at the receptor locations. Potential failures in the process have been set out in sections 4.3.2 to 4.3.4 (and see table 5).
- The extent of the impact will be influenced by the down time of the machine, the type and volume of waste being received and the prevailing meteorological conditions.
- The surface water storage develops septic conditions; This event could be readily contained by ensuring the water is not used in dust suppression control and some simple aeration equipment installed to maintain aerobic condition in the water storage tank

Table 5. Abnormal event management system

Odour generating process	Release points	Abnormal situation & failure	Potential outcome	Control measure	Action (responsible person)
Waste reception, screening, storage, loading for offsite transfer	Reception area, processing area and storage area	Extended duration of abnormal (e.g. stable) meteorological conditions	Elevated odour at sensitive receptors	Weather forecast, manage reception, Olfactory survey and complain forms.	Progressive initiation of control measures as necessary and complaint investigation (site manager)
Surface water storage	Tank surface	Septic conditions develop	Elevated odour at sensitive receptor	Monitor odour levels, potential to install aeration system	Consider installation of aeration system (site manager)

5. Monitoring Plan

5.1 Introduction

- The monitoring plan (set out herein) will assess and evaluate the conditions that may affect the inert waste process and may indicate the potential for generation of odour and elevated odour levels at the sensitive receptors. Monitoring will be carried pre-emptively and will continually assess the conditions of the inert material (essentially critical control points under HACCP) as opposed to monitoring odour once it has been generated.

5.2 Monitoring Potential Sources of Odour

- Composition: material will be monitored on a daily basis for potential odour and any presence of potentially odorous material (i.e. high percentage of putrescible waste, wet waste,) will be recorded in the site diary.

- Olfactory analysis will be carried out once a week and more frequently when required. Monitoring will be carried out at established points on the site boundary and at sensitive receptor locations where necessary. Additional locations beyond the site boundary may include upwind and down positions. At each location, the standard sniff test and odour report forms will be used to record the data, Appendix A). In addition to these observations, the meteorological conditions will be described together with the current activities both on and off site (see odour complaint form, Appendix A).

- All collated data will be entered into a site odour diary that will be held at the site office (see odour diary, Appendix A).

- The odour assessor will be selected on criteria set out in the guidance notes that include not being subject to significant odour within 30 minutes of carrying out the assessment and shall be compliant with the requirements laid down in the Olfactory Survey procedure. This will ensure that monitoring staff are not suffering from odour fatigue but will be sensitive to any odours.

5.3 Monitoring Potential Pathways

- Meteorological monitoring will be routinely carried out on site (with the use of weather station data). This data will provide vital evidence of potential pathways for any odour generated on site. This data will include but not limited to: wind speed, wind direction, temperature, barometric pressure, humidity, cloud cover, rainfall.

5.4 Monitoring Potential Receptors

- Daily monitoring records will be maintained at the site as a requirement under the Environmental Permit. The records will include inspections, olfactory monitoring and weather conditions. Any operational problems will be recorded and will include date, time, duration and prevailing weather conditions. The cause of any problems, any complaints received, details of any corrective action taken and subsequent change to operational procedures will all be recorded in site records.

- The NRW guidance states that engaging neighbours should be an important component of the odour management plan. J M Envirofuels Barry Limited will seek to inform the surrounding neighbours of its current activities, its proposed developments and how it seeks to continually improve its operations. J M Envirofuels Barry Limited may hold open days (when appropriate) to show how the site is being worked / progressed. As part of its complaint's procedure, J M Envirofuels Barry Limited will seek to take immediate action to define the problem and once the potential cause has been identified, to resolve the problem without undue delay.

5.5 Responding to Complaints

- J M Envirofuels Barry Limited has set up a complaints procedure for any issues that may arise from the site. These may include odour, dust, noise etc. All complaints will be investigated promptly and where remedial action is required, it shall be carried out without delay. A complaints procedure has been included in the appendices and shall be used anytime an odour complaint is raised.

5.6 Complaints Data & Sniff Testing

- A formal complaints procedure for reporting odour related to J M Envirofuels Barry Limited has been set out in appendix A.

- The sniff test is the basic form of odour monitoring and the procedure has been set out in appendix A. The monitoring will be carried out by a representative not working directly with the waste operation.

5.7 Actions & Abatement System

- Following the identification of odour generation at the site, an action plan will be set out as part of the odour complaint form. A description of the odour source will be included together with the nature of the odorous material, the containment or release point and a description of the odour. The intensity of the odour at or near the source will be determined together with a pattern for release.
- The type of action will depend on the cause of odour. As set out in Table 5 (see section 3.5), a number of controls will be confirmed and if required amended to address and prevent the cause of odour from site.
- The abatement system will follow a logical response to the odour complaint. Following the recording and verification of the complaint, the source of the odour will be investigated. This will include a thorough review of the site and the current processes being undertaken. Grab samples will be taken if required for further analysis.
- Once the source of the odour has been identified, a correction action plan will specifically address the cause of the odour. Typically the action plan may include a number of items address in Table 5 (control strategies).

5.8 Cold Drainage

- Cold drainage flow occurs on cool, clear nights when cooled air flows downhill at slow speeds, normally 3-5m/s. It is responsible for frost pockets and can cause pockets of odour released from ground sources to accumulate in low lying areas. The site typography and creation of sizeable perimeter bunding will minimise the potential for cold drainage.

6. Review Procedure for the Odour Management Plan

6.1 Introduction

- The odour management plan for the Barry facility will be reviewed annually or when significant changes to site operations or infrastructure have been made.
- J M Envirofuels Barry Limited will ensure that all its employees receive basic training on the inert waste activities, the principles of odour management and good site practice.

7. Actions and Contingencies

7.1 Introduction

- In accordance with the NRW's guidance, a series of actions have been described that may be triggered in response to situations when site monitoring has indicated a potential source of odour is not completely under control, or adverse weather conditions or specific operational circumstances on site may exacerbate a potential odour source (see table 5).

7.2 Waste Composition

- The site acceptance procedures will prevent the acceptance of odorous material. On occasions, odorous material may only be identified once it has been tipped and on discovery of this material, site management will decide whether to blend in additional materials to abate the odour or to reject the odorous waste from site.

7.3 Emergency Plans

7.3.1 The implementation of an emergency plans seeks to minimise the impact on site of any breakdowns, incidents or accidents. The breakdown of any processing equipment -loading shovel(s) and screening equipment may result in a delay to operations or processing the material. The magnitude of the impact will depend on the severity of the breakdown but J M Envirofuels Barry Limited has emergency call out for its plant and machinery.

7.3.2 The potential failure of the equipment is effectively managed at the Barry facility through standard repair and maintenance contract with equipment suppliers. These contracts include cleaning, regular servicing, routine repairs and emergency call with vehicle replacement where required.

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Appendix A – Odour Complaint Forms

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Odour Complaint Form

Barry Facility ODOUR COMPLAINT FORM	
Time and date of complaint:	
Name of complainant:	
Address of complainant:	
Telephone No of complainant:	

Date and time when odour detected	
Location of odour	
Weather conditions (e.g. dry, wet, foggy)	
Temperature (from weather station)	
Wind strength (from weather station)	
Wind direction (from weather station)	
Complainants description of odour	
- description of the type of odour	
- intensity (1 – not detectable, 5 very strong)	
- duration	
- constant or intermittent	
- other information on odour	
Have any other complaints been made	
Any other relevant information	
Define likelihood of odour occurring at your site	
What activities were being carried out at the time of the odour complaint?	
Describe the remedial action taken	
Form completed by (sign and date)	

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Barry Facility ODOUR DIARY	
Time and date of inspection	
Name of inspector	
Activities being carried out on site	
Locations inspected	
Weather conditions (e.g. dry, wet, foggy)	
Temperature (from weather station)	
Wind strength (from weather station)	
Wind direction (from weather station)	
Odour characteristics	
- description of the type of odour	
- intensity (1 – not detectable, 5 very strong)	
- duration	
- constant or intermittent	
- other information on odour	
Have any other complaints been made	
Any other relevant information	
Define likelihood of odour occurring at your site	
Describe any the remedial action taken	
Form completed by (sign and date)	

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Complaint, Actions and Outcome Record Sheet

Complainant
Record name, or 'withheld' if requested but not given by complainant, or 'not supplied' if was not requested by person receiving the complaint.

Name of person	
Organisation name	
Address	
Telephone	
Fax	
E-mail	

Complaint about

Organisation name	
Site process location	
Material	
Other	

Nature and record of complaint

Product / Service / Action / Document / Other (describe):

Person who used / expected it:

Date used / expected:

Nature of the deficiency:

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Complaint number: __ __ __

Complaint handled by

Name of person	
Role	
Received by	Letter / email / telephone / fax / meeting
Date received	

Actions and issues being investigated
[Record details of any another organisation / external person involved, if applicable. Add more action rows if necessary.]

Action 1 (description)	
Action by (name of person)	
Date by	
Action 2 (description)	
Action by (name of person)	
Date by	
Action 3 (description)	
Action by (name of person)	
Date by	

Outcome

Communicated to:

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Date complainant notified	
Date any other relevant parties notified	
Names of any other relevant parties (for each, state person and organisation)	

Keep a copy of this record file with it any other documents associated with the complaint, actions taken and the outcome.

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Appendix B – Site Layout Drawing

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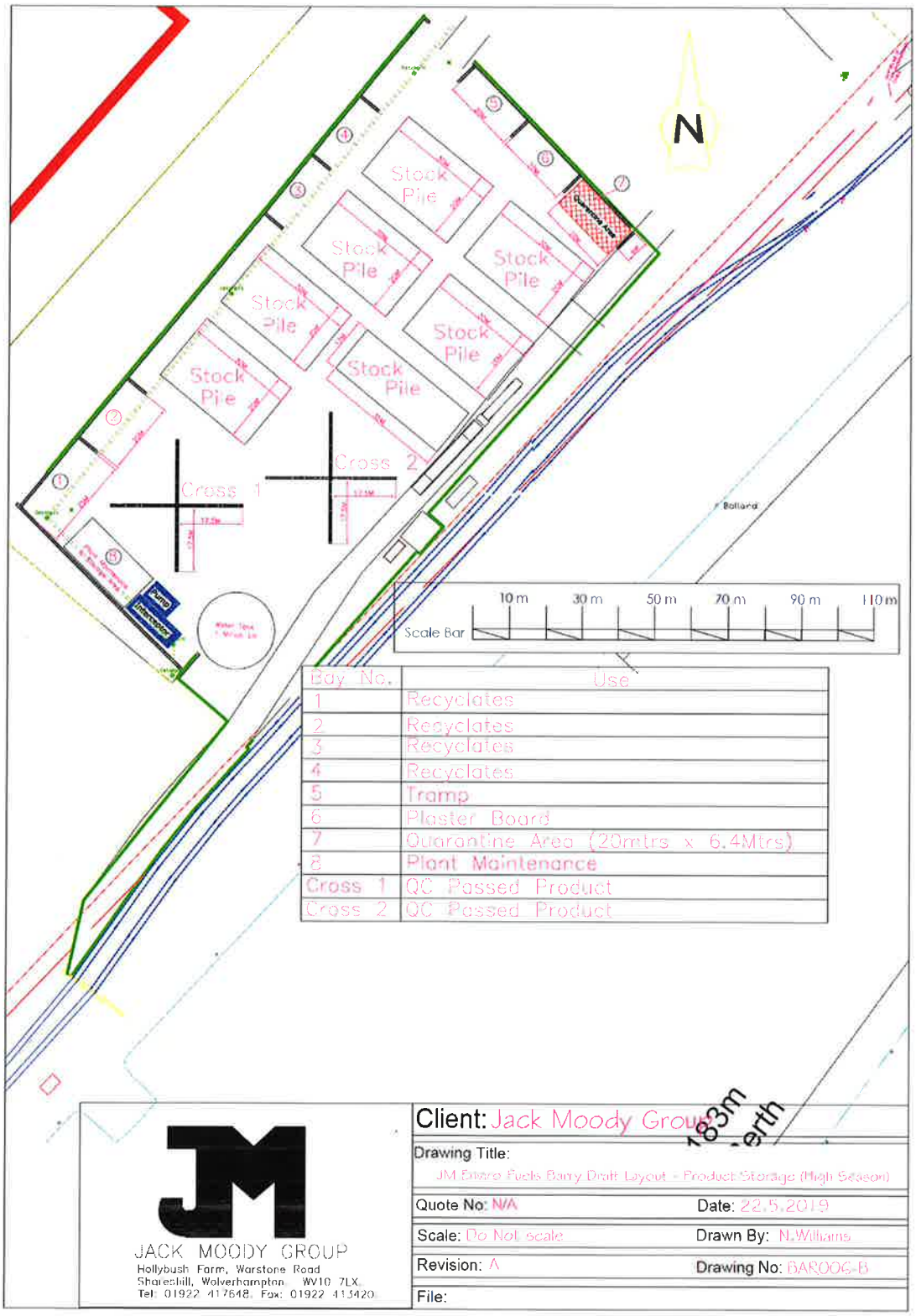

Bay No.	Use
1	Recyclates
2	Recyclates
3	Recyclates
4	Recyclates
5	Tramp
6	Plaster Board
7	Quarantine Area (20mtrs x 6.4Mtrs)
8	Plant Maintenance
Cross 1	QC Passed Product
Cross 2	QC Passed Product

JACK MOODY GROUP
Hollybush Farm, Warstone Road
Shareshill, Wolverhampton. WV10 7LX.
Tel: 01922 417648. Fax: 01922 413420

Client: Jack Moody Group

Drawing Title:
JM Enviro Fuels Barry Draft Layout - Product Storage (High Season)

Quote No: N/A Date: 22.5.2019

Scale: Do Not scale Drawn By: N.Williams

Revision: A Drawing No: BAROOG-B

File:

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Appendix C – Site Monitoring Plan

Barry Facility INFRASTRUCTURE MONITORING PLAN		
Date		**Inspection by:**
Conditions of visit		
Reference	**Parameter**	**Comments**
1	Site roads	
2	Site building	
3	Site storage areas	
4	Site processing area	
5	Site drainage	
6	Pipes, gullies and ducts	
7	Surface water storage	
8	Control equipment	
9	Process equipment all functional	
10	Site security	