The Quality Protocol

For the production of aggregates from inert waste in Scotland

Capellie Recycling Facility

Signed by Site Manager: Bernie Hughes

.....

Contents

Appendices

Appendix A Depot Site Plan

Appendix B Depot Waste Management License

Appendix C Waste Carriers License

Appendix D Waste Transfer Note

Appendix E Method Statement

Introduction

The purpose of the Quality Protocol is to provide uniform control process for producers of recycled aggregates.

It demonstrates to our customers that recycled aggregates produced by J & M Murdoch & Son Ltd (JMM) meet with the quality and conformity requirements for European Standards for Aggregates.

Quality Statement

Recycled aggregate products produced at JMM sites are produced in accordance with the "*Wrap Quality Protocol"*. JMM adheres to the Quality Protocol specification which allows us to provide purchasers with recycled aggregate products that are produced within a quality-managed environment.

In relation to and in addition to the *Quality Protocol*:

- The Board of Directors of JMM recognise that the quality of products & services are essential to success in business & the Company is committed to meeting customer's quality requirements;
- To achieve good quality products the Company will adopt assured methods of working in order to achieve and maintain quality products at all times; and
- Everyone within the organisation is responsible for the quality of their work and quality must be the prime objective of all Management. In order to achieve this, JMM will develop, implement, enforce and provide resources to establish and maintain an effective Quality Protocol for the production of recycled aggregate products.

The Quality Protocol will include and provide:

- The assurance that products produced are of a consistent quality and are in compliance with British Standards;
- A Waste Acceptance Criteria and Waste Acceptance Procedures with suitable corrective/preventive action to avoid the acceptance of non-conforming waste which could result in the contamination of end products;
- Records and test reports made available to customers and third parties, as required. These records will provide an audit trail and record of waste that will demonstrate adherence to regulatory and statuary requirements; and
- Sales records demonstrate that products have a current market.

1.0 Management & Operational staff Responsibilities

The Quality Protocol will be the responsibility of the Environment Department (Tony Cairns) who will manage the development, implementation, enforcement and provide resources to establish and maintain an effective system for the production of recycled aggregate products.

Each employee involved in the recovery process will have an individual responsibility to the Quality Protocol insofar as they are carrying out their job role responsibly and according to procedures. Operational staff will be responsible for informing the management of any anomalies found in the process and to co-operate with procedures set down in the Protocol to achieve and maintain standards.

It is the responsibility of the Material Recycling Facility (MRF) Manager (Bernie Hughes) to ensure procedures are carried out on a day-to-day basis, to record and report information as required. With regards to the Quality Protocol, the O & E Manager (Tony Cairns) will periodically audit the system to ensure that the MRF Manager is implementing the system compliantly.

The MRF Manager will be responsible for ensuring that operational staff have had training to operate the required processing machinery/equipment and that they are competent to carry out processing safely and effectively.

Training records will be filed in the Training Office based on-site.

The Management will be responsible for reviewing the Quality Protocol annually along with legal documentation and BS EN standards to ensure end products are to the most current legal requirements and end product standards.

1.1 MRF Manager's Responsibilities

The Depot Manager must carry out the following procedures in order to facilitate testing for the Quality Protocol.

It is the Depot Manager's responsibility to ensure that:

1. The "Plant Daily Check Sheet" is completed on a daily basis;
2. The "Daily Production Spreadsheet" is completed to show each type of recycled aggregate produced on a daily basis;
4. Stockpiles are not at risk of being contaminated in anyway;
5. The product to be tested is taken from correct stockpile for the Production Period in question. Should there be a product failure, then the material will either be reprocessed or used

for lower quality products. The process will be investigated to determine the likely cause of failure and remedial actions implemented to prevent further failures. A further sample is taken from the new batch and sent for analysis. This process is repeated until compliance is achieved;

6. Stockpiles from different Production Periods are not mixed until the results of sampling have been confirmed;
7. A record is made of any sampling that has taken place and what products were taken for sampling;
8. A copy of this Quality Protocol is filed in the depot office and is readily available for inspection; and
9. Copies of Test Certificates are filed in a manner for them to be readily available for inspection in the depot office.
10. All quality documents are stored electronically in the share drive of the company IT system.

2.0 Resource Management

2.1 Plant and Equipment

All plant and equipment involved in the process will be regularly serviced and maintained by fully trained personnel to ensure a safe working environment and the quality of the end product. Where applicable, plant will be calibrated to ensure regulatory and BSI standard compliance.

Fully trained and competent staff will only operate plant and equipment.

2.2 Process Stocks & Product Stockpiles

A plan of the site has been included in Appendix A. It illustrates the position of stockpiles of waste and other materials to be processed or end products.

3.0 Regulatory Requirements

The site is licensed by SEPA to treat, keep and dispose of "household, commercial or industrial waste" albeit it is not permitted to accept Special Waste (except asbestos), clinical waste, liquids, sludges, putrescible waste and mixed municipal waste.

Appendix B summarises the details of the WML site. A full copy of the Waste Management Licences (WML/W/0022002 & PPC/A/10004259) is available on request.

To demonstrate statutory and regulatory requirements, the site is regularly visited by SEPA who complete "Site Inspection Reports" on a regular basis to assess the site is working in compliance with the licence. These reports are held in the Company's Environmental Department.

Waste is mainly transferred onto the site by JMM transport. JMM is a fully registered waste carrier and a copy of the Waste Carrier Licence is found in Appendix C along with a sample copy of JMM Transfer Note (Appendix D) used to accompany all waste loads. Selected vetted subcontractors can also bring materials onto site – their Waste Carrier details are stored centrally in our Glasgow office.

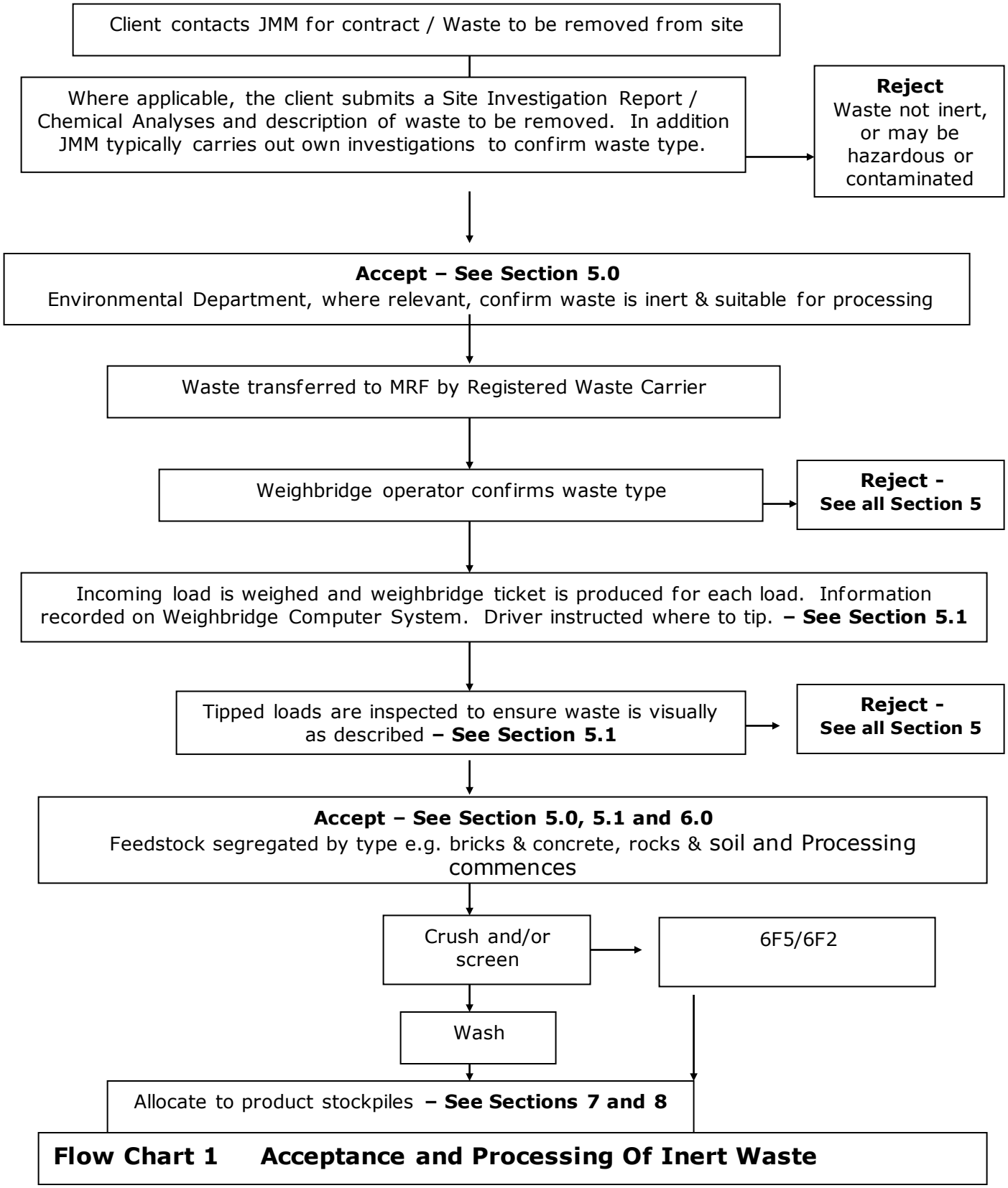
Waste carriers contracted by JMM are vetted prior to use to ensure they are Registered Waste Carriers.

Permits required for the mobile plant used in crushing and screening operations are available for inspection on site. Copies of permits can be viewed on request.

4.0 Implementation of the Method Statement of Production and the Factory Production Control

The following Flow Chart (1) illustrates the "Acceptance and Processing of Inert Waste " coming into the MRF.

The Flow Chart also highlights each section of the Factory Production Control (FPC) in relation to the Method Statements of Production (MSP).



Flow Chart 1 Acceptance and Processing Of Inert Waste

5.0 Waste Acceptance Criteria

Waste is only accepted on site as warranted by the Waste Management Licence, those being, commercial and industrial waste; and typically comprise of waste from the Construction and Demolition industry.

Table 1 presents wastes that may be included in the above acceptable waste groups. These wastes are defined as "inert"[1] and are therefore, acceptable to be part of the recycling process.

European Waste Catalogue Code	**Description**	**Restrictions**
10 11 03	Waste glass based fibrous material	Selected construction and demolition waste acceptable only with low content of other types of materials (like metals, plastics, organics, wood, rubber, etc.)* See Section 6.a. The origin of the waste must be known.
15 01 07	Glass packaging	
17 01 01	Concrete	
17 01 02	Bricks	
17 01 03	Tiles and ceramics	
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	
17 02 02	Glass	
17 05 04	Soils and stones including gravel, crushed rock, sand, clay, road base and planings, and track ballast	Excluding topsoil, peat; excluding soils and stones from contaminated sites.
19 12 05	Glass	
20 01 02	Glass	Separately collected glass only
20 02 02	Soils and stones restricted to park waste	Only from garden and parks waste; excluding topsoil, peat.

Table 1 - Acceptable Inert Waste

[1] Inert as defined in The Landfill (Scotland) Regulation 2003

*See Section 6a for processing method which allows this waste to be screened for suitable material.

5.1 Waste Acceptance Procedures

Wastes will be accepted in accordance with Statutory and Regulatory requirements. Section 3 of the WML – "Waste Reception", outlines the procedures that are carried out by operations in order to comply with regulations and further details are set out in the "Working Plan". Both these documents are available readily to all staff concerned, who are conversant with requirements.

The following outlines the procedures taken when waste is brought to the MRF for processing:

1. All vehicles carrying waste into the site are directed to the weighbridge;
2. The weighbridge operator with the aid of a camera visually inspects each load on the weighbridge. This allows the weighbridge operator to view inside a tipper box/skip;
3. If the load is acceptable, the weighbridge operator weighs the load and a weighbridge ticket is issued;
4. Details of each load are recorded in the weighbridge computer software system from which reports can be compiled to itemise all waste and weights accepted by the site on a daily basis;
5. The driver is instructed where to tip the load;
6. Once the load has been tipped, a suitably trained member of staff will again visually inspect it; and
7. Should any non-conforming waste be found once tipped, the defective load will be immediately removed from the area of acceptable waste and dealt with accordingly. The non-conforming waste will be designated to a quarantined area or another suitable stockpile.

Only waste that can meet the definition of inert prior to processing or after processing shall be accepted for recycled aggregates production. Provided that there is no suspicion of contamination, the wastes listed in Table 1 are considered to be inert.

Flowchart 1 (page 8), summarises the "Acceptance and Processing" procedures of inert waste coming into the MRF.

5.2 "Non-Compliant" Waste Procedures

In order to prevent the production of non-conforming products the following actions will be taken:

Any load containing any amount of hazardous material shall be rejected immediately for processing.

Wastes not permitted by the site licence will not be accepted and the consignment will be logged as a rejected load. The load will be subject to the following procedures:

- retained temporarily in a quarantine area on the site pending inspection by a suitably trained member of staff ; and/or
- removed to a suitably licensed facility under JMM control; or
- returned to the originator of the load, with an explanation as to the reason for rejection and SEPA notified, as required; or
- removed to a third party licensed facility for their acceptance of the load, with notification to SEPA, as required.

To avoid replication of accepting non-conforming waste the following corrective actions may be taken:

- A site investigation may be carried out to identify potential contaminants at source;
- Discuss with supplier reasons for load being rejected and actions he can take to avoid re-occurrence;
- Operational staff will be given further training / guidance to identify non-conforming waste;
- If in any doubt, waste will be chemically tested prior to uplift;
- Vehicle boxes will be washed out thoroughly if carrying hazardous waste. Washing will be carried out at the site in which the waste was disposed of; and
- Operational staff will be instructed to contact a more technically competent person for advice before accepting the waste if they are in any doubt.

6.0 Method Statement of Production / Method Statements

General Front End Processing

1. Material of sufficient size and quality is stockpiled in preparation for screening (no large monoliths of concrete or stones).
2. All other oversize material is stockpiled in preparation for crushing.
3. Screening removes fine granular soil forming components, any oversize and separates the main fractions of particle size distribution suitable for washing.
4. Each fraction from the screener is transferred by front end loader to the respective stockpiles ready for further processing.

Wash Plant Processing

1. The material in stockpile for washing is loaded into a grizzly hopper by 360 tracked excavator or front loading wheeled shovel;
2. Oversize material screened off the grizzly bars is transported by front loading shovel to the crushing stockpile or used for haul road construction on site.
3. All material sub 80mm is processed by the wash plant through a series of particle size separation processes to produce five products (40mm-20mm; 20mm-10mm; 10mm-5mm; coarse sand and fine sand).
4. Each product comes off a conveyor belt and forms mini-stockpiles. When these stockpiles become too large for material to fall from the conveyor without blocking, the front loading shovel will move the product to respective labelled product stockpiles.
5. At regular intervals, product stockpiles are tested in line with WRAP's Quality Protocol requirements.
6. Residual silt is pumped to a holding tank and thereafter to a TEFSA filter press to produce a Class 2 A, B or D material.

6F5/6F2 Production

The Method Statement in Appendix E provides the basis for the Method Statement of Production of recycled aggregates using mobile crushing plant. The statement is issued and readily available for operational staff to refer to.

Also enclosed in Appendix E is the form "Crusher Operators Instructions - Health, Safety and Environmental" that all crusher operators sign to acknowledge training given.

7.0 Inspection & Testing Regime of the Finished Product

7.1 Testing Frequency

The aim of inspecting and testing end products is to ensure the recycled products are of an acceptable standard in accordance to British Standards. A Minimum Test Frequency period would be a "5-day week" as the Company typically operates a 5-day operational week. The minimum test frequencies, in accordance with the FPC system are detailed in Table 2 below.

Property Description	BSEN Test Method	Minimum Test Frequency
General description	-	Every incoming load by visual inspection
Aggregate composition including organics	EN933-11 (Visual sorting of the plus 4mm fraction)	1 per week *
Grading	933 – 1	1 per week *
Fines Content	933 – 1	1 per week *

* Time periods relate to production periods not calendar periods

Table 2: Minimum Test Frequencies for Processed/Recovered Materials

7.2 Methods of Testing of Finished Products

To determine the suitability of an end product, the following test methods shown in Table 3 may be used to demonstrate compliance to a required use. The test methods will be arranged with the laboratory that carries out the sampling and testing.

Sampling of the processed/recovered product is carried out in accordance with BSEN 932-1 by fully trained laboratory staff. Only laboratories accredited to UKAS testing will be contracted.

7.3 Proof of Production to Established Specification/Standards

The accredited laboratory issues JMM with a Test Certificate on completion of the test.

The Test Certificate gives detail including the test standard carried out (BS EN), sample date, product type, test results and statement

if sample has either Passed or Failed the test for the product end use.

The Test Certificates are filed in the Environmental Department and copies issued to the relevant personnel.

	Test Reference	
	BS EN	**BS**
All end uses		
Particle Density	1097-6	
Resistance to Fragmentation:		
Los Angeles	1097-2	-
Bulk Density	1097-3	
Use in concrete / hydraulically bound materials		
Water Absorption	1097-6	
Magnesium Sulphate	1367-2	-
Abrasion Resistance:		
AAV	1097-8	
Drying Shrinkage	1367-4	
Chlorides	1744-1	
Sulphate and Sulphides	1744-1	
Alkali Silica Reaction*	-	-
Organic Contamination	1744-1	-
*All RCA must be classed as highly reactive		
Uses as Fill		
Water Absorption	1097-6	
CBR	-	1377: Part 4
Plasticity of Fines		1377: Part 2
Use as unbound, pipe bedding		
Particle Density	1097-6	
Resistance to Fragmentation:		
Los Angeles	1097-2	-
Plasticity of Fines	-	1377: Part 2
Frost Heave		812: Part 124
Water Soluble Sulphate	1744-1	
Magnesium Sulphate	1367-2	

Use in Asphalt		
Particle Density	1097-6	
Water Absorption	1097-6	
Resistance to Fragmentation:		
Los Angeles	1097-2	-
Abrasion Resistance (AAV)	1097-8	
Polishing Resistance	1097-8	
Resistance to Heat	1367-5	

(Most applicable testing regime for JMM products)

Table 3: Test Methods for Determining a Particular End Use

8.0 Non-Conforming Products

In the event of test failures of product classes, the material will either be used for a lower class of product (where allowable), or reprocessed again as feedstock at the beginning of the process.

When a failure is identified, a local investigation will be conducted to investigate its magnitude and causation factors. If the failure is deemed a localised incident, steps will be taken to minimise repeat incidents (if cause is identified). If the failure is repeated and deemed systemic, then a full review of the manufacturing process will be undertaken to eliminate the cause of failure.

9.0 Finished Products

All recycled aggregates produced on site for external supply will not contain more than 1% by mass of any foreign materials (including wood, plastic and metal) and in any case except for recycled asphalt shall not contain any mineral aggregate with a bituminous binder.

Where applicable, the recycled products comply with the British Standard BS EN 13242 which "specifies the properties of aggregates obtained by processing natural, manufactured or recycled materials for hydraulically bound and unbound materials for civil engineering work and road construction."[2]

Recycled products produced at the Capellie MRF, are described in Table 4:

[2] Aggregates – Part 6: Aggregates for unbound and hydraulically bound materials for use in civil engineering works and road construction – Guidance on the use of BS N 13242.

Product / Material	Description	Product Use
40mm–20mm	Recycled aggregate	Fill and unbound, pipe bedding
20mm-10mm	Recycled aggregate	
10mm–5mm	Recycled aggregate	
Coarse Sand	Coarse, free draining sand. Free from sharp stones and other debris	
Fine Sand	Finer sand fraction than building sand. Free from sharp stones and other debris.	
6F5 (5"Crusher Run – 125mm down)	A selected granular fill material with a coarse grading. Made up from a combination of materials such as crushed brick, concrete and stone.	Typically used for capping and infill. Used widely within the civil engineering and road construction industries.
Class 2A, 2B or 2D	Combination of silt/clay in various proportions in compliance with relevant grading and performance tests	Capping and infill systems, Lining systems with additional performance specification testing.

Table 4 – Recycled Products Produced

10.0 Access to Information

The purchaser may request information with regards to the recycled products.

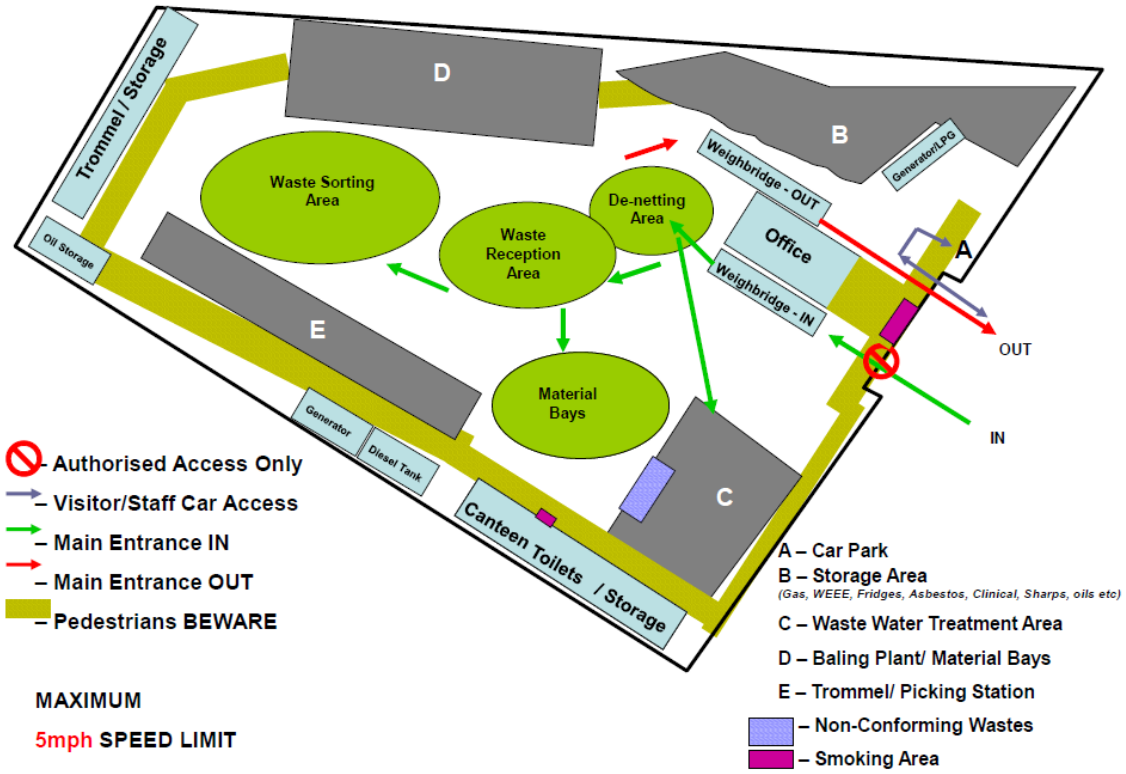
JMM shall provide the following information on request:

a) Test results;

b) Test procedures; and

c) Outline of the details of the Factory Production Control Manual

Appendix A –Depot Site Plan



Appendix B – Depot Waste Management Licences

Reference Number: WML/W/0022002

RECEIVED -7 MAR 2011

SCOTTISH ENVIRONMENT PROTECTION AGENCY

ENVIRONMENTAL PROTECTION ACT 1990 (AS AMENDED)
WASTE MANAGEMENT LICENSING REGULATIONS 1994 (AS AMENDED)

NOTICE OF MODIFICATION OF LICENCE

Licence No:	**WML/W/0022002 (As Modified)**
Modification No:	**4**
To:	**J & M Murdoch & Son Limited**
Address:	**Crofthead Industrial Estate** **Lochlibo Road** **Neilston** **G78 3NA**

Notice is given to J & M Murdoch & Son Limited, Company Registration Number SC057501 ("the Licence Holder") that the Scottish Environment Protection Agency, being a waste regulation authority as defined in Section 30 of the Environmental Protection Act 1990 (the Act), in the exercise of its power under Section 37(1)(b) of the Act, hereby modifies the licence to which this notice refers as specified in the schedule to this notice with effect from the date of this notice.

This notice refers to the licence granted to the Licence Holder under Section 36 of the Act in respect of the area of land at 49 Finglen Place, Darnley Industrial Estate, Darnley, G53 7SP particulars of which are contained in Waste Management Licence WML/W/0022002 (As Modified) dated 25 March 2002.

.....

Authorised to sign on behalf of the
Scottish Environment Protection Agency

Date 04 March 2011

Under Section 43(1)(c) of the Act you may appeal against the terms of this notice to the Scottish Ministers, except where it relates to a direction given by the Scottish Ministers. Your attention is drawn to Regulations 6 to 9 of the Waste Management Licensing Regulations 1994 (as amended) (SI1994 No.1056) which set out the procedure for appealing.

Scottish Environment Protection Agency

SCOTTISH ENVIRONMENT PROTECTION AGENCY

Pollution Prevention and Control Act 1999

Pollution Prevention and Control (Scotland) Regulations 2000 ("the 2000 Regulations")

Landfill (Scotland) Regulations 2003 ("the 2003 Regulations")

PERMIT TO OPERATE A NON-HAZARDOUS WASTE LANDFILL INSTALLATION

Permit Number: PPC/A/1004259

Operator: J&M Murdoch & Son Ltd
Crofthead Industrial Estate
Lochlibo Road
Neilston
G78 3NA

The Scottish Environment Protection Agency ("SEPA"), in accordance with Regulation 7 of the 2000 Regulations, hereby grants a permit to J&M Murdoch & Son Ltd, company registration number SC57501, having its registered office at Crofthead Industrial Estate, Lochlibo Road, Neilston, G78 3NA ("the Operator") to operate an installation, more particularly described in Schedule 1 of this permit, on a site at East Capellie Farm Landfill Site, Freneze Road, Neilston more particularly described in said Schedule 1, subject to the conditions contained in the Schedules to this Permit.

Signed.....
Authorised to sign on behalf of the
Scottish Environment Protection Agency

Date: 30 March 2007

Right of Appeal
Under Regulation 22 of the Regulations you are entitled to appeal to the Scottish Ministers against any condition or conditions of this Permit within six months of the date of this Permit, except where SEPA has granted this Permit in implementation of a direction to SEPA by the Scottish Ministers. The bringing of an appeal will not have the effect of suspending the operation of the said condition or conditions. The procedures for the making of an appeal are set out in Schedule 8 of the 2000 Regulations.

Scottish Environment Protection Agency

Appendix C – Waste Carrier Licence

CERTIFICATE OF REGISTRATION UNDER
THE CONTROL OF POLLUTION (AMENDMENT) ACT 1989
Regulation Authority

Name: SEPA - North Lanarkshire

Address: 6 Parklands Avenue
Eurocentral
Holytown
North Lanarkshire
ML1 4WQ

Tel: 01698 839000 **Fax:** 01698 738155
E-mail: registry@sepa.org.uk

The following information is herby certified by the above mentioned Regulation Authority to be information which at the date of this certificate is entered in the register which they maintain under regulation 3 of the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991:

REGISTRATION NUMBER: SWE/017797 Carrier

Name(s) of Registered Carrier: J & M Murdoch & Son Limited

Business Name (if any): J & M Murdoch & Son Limited

Address of registered carrier's principal place of business: Crofthead Industrial Estate
Lochlibo Road
Neilston
Glasgow
G78 3NA

Tel: 0141 580 6322 **Fax:** 0141 580 6323
E-mail: a.murdoch@jmmurdoch.com

Date of Registration: 01/04/1992

Date of Expiry of Registration*: 02/04/2019

Date of last amendment (if any) made to the carrier's entry in the register: 04/02/2016

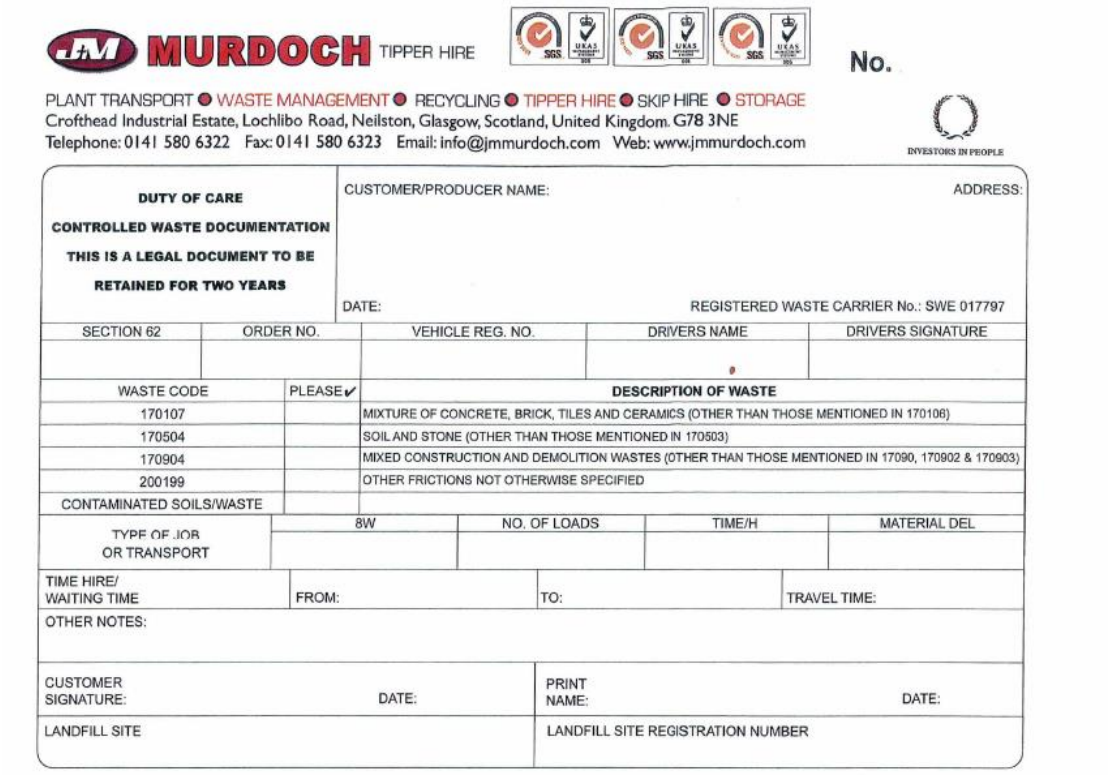
Signature of authorised officer of the regulation authority:

NOTES
You can check whether there has been any change in the information contained in this certificate by contacting the regulation authority detailed above.

*Registration will expire on this date unless-
(a) it is revoked before expiry;
(b) The carrier requests the removal of his name from the register at an earlier time;
(c) an application for renewal is made within the six months ending on the expiry date and the application is still outstanding, or is the subject of an appeal on that date;
(d) in the case of a registered partnership, if any of the partners ceases to be registered of if anyone who is not registered becomes a partner.

Scottish Environment Protection Agency

Appendix D – Waste Transfer Note



MURDOCH TIPPER HIRE No.

PLANT TRANSPORT ● WASTE MANAGEMENT ● RECYCLING ● TIPPER HIRE ● SKIP HIRE ● STORAGE
Crofthead Industrial Estate, Lochlibo Road, Neilston, Glasgow, Scotland, United Kingdom. G78 3NE
Telephone: 0141 580 6322 Fax: 0141 580 6323 Email: info@jmmurdoch.com Web: www.jmmurdoch.com

INVESTORS IN PEOPLE

DUTY OF CARE CONTROLLED WASTE DOCUMENTATION THIS IS A LEGAL DOCUMENT TO BE RETAINED FOR TWO YEARS	CUSTOMER/PRODUCER NAME: ADDRESS: DATE: REGISTERED WASTE CARRIER No.: SWE 017797

SECTION 62	ORDER NO.	VEHICLE REG. NO.	DRIVERS NAME	DRIVERS SIGNATURE

WASTE CODE	PLEASE✔	DESCRIPTION OF WASTE
170107		MIXTURE OF CONCRETE, BRICK, TILES AND CERAMICS (OTHER THAN THOSE MENTIONED IN 170106)
170504		SOIL AND STONE (OTHER THAN THOSE MENTIONED IN 170503)
170904		MIXED CONSTRUCTION AND DEMOLITION WASTES (OTHER THAN THOSE MENTIONED IN 17090, 170902 & 170903)
200199		OTHER FRICTIONS NOT OTHERWISE SPECIFIED
CONTAMINATED SOILS/WASTE		

TYPE OF JOB OR TRANSPORT	8W	NO. OF LOADS	TIME/H	MATERIAL DEL

TIME HIRE/ WAITING TIME	FROM:	TO:	TRAVEL TIME:
OTHER NOTES:			

CUSTOMER SIGNATURE: DATE:	PRINT NAME: DATE:
LANDFILL SITE	LANDFILL SITE REGISTRATION NUMBER

Appendix E – Method Statement

METHOD STATEMENT FOR THE OPERATION OF MOBILE CRUSHING EQUIPMENT

Background:

The crushing of construction and demolition waste material is commonly undertaken to produce a more marketable or useful end product.

Process Operations & Methodology

The following plant is envisaged as being required for the crushing of demolition waste material and concrete at the site:

- 1 No. Mobile Primary Jaw Crusher;
- 1 No. 360° Tracked Excavator;
- 1 No. Wheeled Shovel; and,
- 1 No. Concrete Breaker Impact Hammer (as required).

The methodology typically employed is as follows:

- buildings, hardstanding, reinforced floors, kerbs, and other materials/structures suitable for crushing are excavated, broken up, or demolished, as required, into sections suitable for machine handling and stockpiling;
- once sufficient material has initially been stockpiled, the 360° backactor loads the feed hopper on the crusher from the stockpiled material using all available sighting aids, whilst stockpiling from ongoing clearance works continues via the wheeled shovel;
- items requiring size reduction prior to loading into the crusher hopper are broken using the hydraulic impact hammer. This should be undertaken at a safe distance from the other operations to reduce the risk of flying debris;
- materials resulting from the crushing operation may be removed from the crusher via a series of screens and conveyor belts, with the major product discharged from the central conveyor. Unsuitable materials removed through screening are discharged via side conveyors for onward disposal;

- crushed material is discharged from the conveyors, forming small stockpiles. The wheeled shovel removes this material to

  adjacent locations for bulk stockpiling, prior to further use, on or off site, or off site disposal.

- Care should be taken with the movement of plant in confined spaces by using all available sighting aids and hi-visibility clothing.

The operation is typically undertaken with the aim of reducing the noise, dust and nuisance impact on the surrounding receptors, such as nearby populations, workplaces or the environment and to the satisfaction of the Engineer.

During the crushing operations, unsuitable materials such as reinforcement bars, timber, plastic ducting, etc., are removed either mechanically or manually, to improve the quality of the final crushed product.

CRUSHER OPERATOR INSTRUCTIONS

Health, Safety and Environmental

- **When operating any crusher – wear Earplugs, Hi-viz. clothing, Hard-hat, Gloves and Safety Boots. Wear Goggles, and dust mask if required.**
- **Make sure you know where the emergency stops are – *they could save your life*.**
- **Every 3 hours, check for dust from ALL belts for at least 2 minutes each time. Note any visible dust in the logbook.**
- **If dust visible, switch on the water sprays.**
- **If the crusher is making dust, write down the weather conditions – is it windy, wet, sunny, etc.?**
- **If the crusher or screener breaks down, note *why* and for how long for in the logbook.**
- **Tell Depot Workshop office (0141 580 6322) if the spray bars are not working or if any other part of the crusher/screener gets damaged.**
- **Do not work on the belts unless they have been isolated. Isolate any moving parts before working on them. Remove the key where possible.**
- **Make sure all guards and hoods are fitted and secure.**

The following individual has been instructed to operate and has understood the above instructions.

Name……Signature……Date