
ATTACHMENT C1 MANAGEMENT STRUCTURE AND ORGANISATION CHART

Site Management Structure

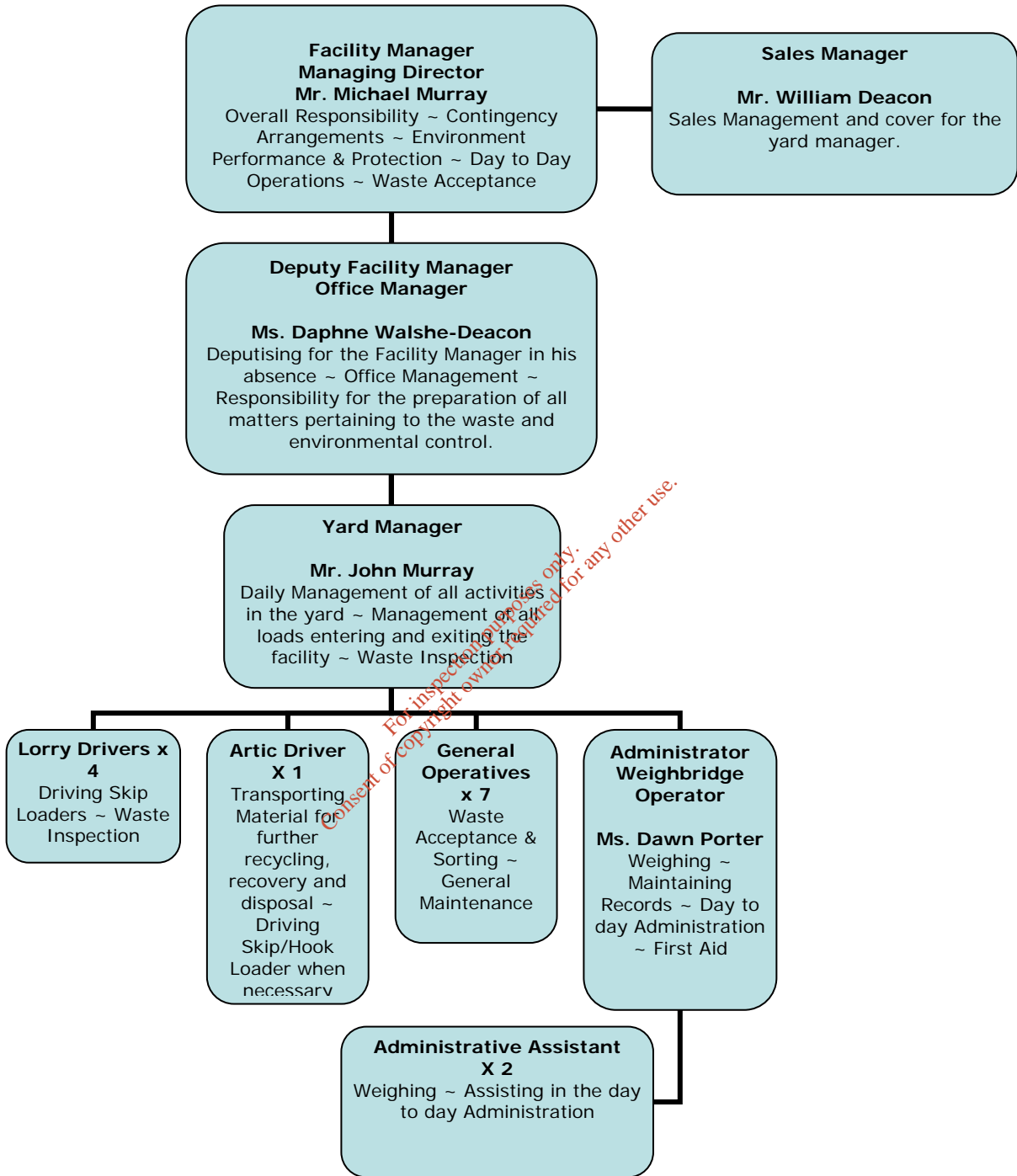
The day to day management of the facility and supervision of waste activities are the responsibility of the Facility Manager, nominated Deputy Manager(s) and the site operatives. The positions and names of the persons who provide management and supervision are set out below: -

- Facility Manager, Michael Murray
- Deputy Facility Manager, Daphne Walshe-Deacon
- Sales Manager, William Deacon
- Yard Manager, John Murray
- Drivers, Michael Murray, James Harris, Thomas Guinnan, Karl Sweeney, Russell Burke
- Yard Operatives, Mieczyslaw B Leszczynski, Wronowski Przemyslaw, Krzysztof Solak, Roman Stankiewicz, Iweneusz Solak, Piotr Chmiel, Andrew Murray
- Administrator, Dawn Porter
- Administrative assistant, Jennifer Breen, Karen Kehoe

The organisation chart is presented overleaf.

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FIGURE 1 ORGANISATION CHART SHOWING ON-SITE MANAGEMENT STRUCTURE



Responsibilities

Murray Waste Recycling Ltd is responsible for ensuring that the requisite resources are provided to operate the facility in accordance with the objective of the Environmental Management Plan (EMP) and the Waste Licence conditions.

- The General Manager or nominated Deputy is responsible for ensuring that the day to day operation of the facility is carried out in accordance with the EMP, the Waste Licence conditions and the Operating Procedures.
- The General Manager or nominated Deputy is responsible for ensuring that the environmental monitoring programme is carried out and reports are submitted to the Agency in accordance with the schedule in the EMP and the Waste Licence conditions.
- The General Manager or nominated Deputy is responsible for arranging that the specified engineering works and the restoration programmes are properly implemented.
- The General Manager or nominated Deputy is responsible for ensuring that the Corrective Action Procedures, Emergency Response Procedures and Contingency Arrangements specified in the EMP and the Waste Licence are implemented.
- The General Manager or nominated Deputy is responsible for arranging appropriate training programmes for all facility personnel and for maintaining training records.
- The General Manager, nominated Deputy and designated staff are responsible for implementing the waste acceptance procedures, including the assessment of suitability of the waste for disposal and recording the data specified in the Waste Licence. They are responsible for receiving and recording complaints from members of the public at the facility and informing the Facility Manager or nominated Deputy of the complaints.
- The General Manager, nominated Deputy, Yard Manager and designated staff are responsible for ensuring compliance with conditions relating to waste inspection, placement and nuisance control (e.g. litter, dust, vermin and birds).

Staff Training

Any facility staff performing duties which involve interpretation of monitoring results or site inspections receive the appropriate training by the General Manager or nominated deputy, prior to carrying out such duties. All facility staff will receive further training in their individual areas of activity. This training will comprise theoretical sessions as well as practical training. All such training will be recorded and documented in individual training files.

ATTACHMENT C2 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The Environmental Management System was prepared in accordance with the requirements of the waste permit and based on ISO 14001. This system is not externally accredited.

A copy of the EMS will be submitted in accordance with the waste licence.

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ATTACHMENT C3 HOURS OF OPERATION

(a) Proposed hours of operation

The proposed hours for waste management operations are

- 06:30 to 21:00, Monday to Saturday and Bank Holidays

(b) Proposed hours of waste acceptance/handling

The proposed hours for waste acceptance are

- 07:30 to 20:00, Monday to Saturday and Bank holidays

(c) Proposed hours of any construction and development works at the facility and timeframes

The proposed hours for construction/maintenance operations are:

- 07:00 to 20:00, Monday to Friday
- 07:30 to 18:00, Saturday

(d) Any other relevant hours of operation expected

Not applicable

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ATTACHMENT D1 INFRASTRUCTURE

D.1.a Facility Security Arrangements

The facility operation can be seen in Drawing CE07-253-01_206 which illustrates the layout of the site. Access to the facility will be restricted by means of existing gates and constructed 1 m stone wall. An additional second set of gates is set approximately 70 m back from the site boundary. The height of the stone wall and gates at this entrance is approximately 2.5 m. The recycling building will remain secured when the facility is unsupervised. Palladin fencing or similar will be used around the southern and western boundaries as shown in Drawing CE07-253-01_206. This fencing will tie in to the existing boundary fence where applicable, making the site secure. The existing boundary fence consists of stone embankment with mature hedgerow and trees. An existing chain link runs between the dwelling and the facility in the northeast corner of the site. Any defect in the gates and/or fencing shall be temporarily repaired by the end of the working day and reinstated fully within one week. Site infrastructure is shown in Drawing CE07-253-01_206.

D.1.b Site roads

The site is located approximately 2 km south east of Ferns via the R745. The facility office and recycling building is accessed via a concrete road with surface water draining to oil/water interceptor gullies on the roadway. The area outside the recycling building is currently hardcore, however it is planned to concrete this area upon completion of an extension to the recycling building as shown in Drawing CE07-253-01_206.

D.1.c Specifications of Hard Standing Areas

The concrete hard standing area runs from the main gate to the recycling building. The area to front of the recycling building is currently hardcore, which stores empty waste skips. It is planned that this area and the area reserved for C&D recovery will be finished with concrete with provision for surface water drainage to the full oil/water interceptor on site.

D.1.d Plant

The plant at the site will consist of the following: -

Computerised Weighbridge

An electronically controlled weighbridge is installed at the facility. It is 18.0 metre in length and is controlled by Enterprise-Advanced Weighbridge software.

Trommel

Viper (40' x 10') trommel and 4 bay picking station

Trailers

1 no. ejector trailer (BMI 110 cubic yard - BD10025)

Loading Shovel

1 no. Volvo L90 loading shovel

1 no Atlas 1705 Rubber duck with sorting grab

Excavator

1 no. Hitachi EX200 360 degree excavator and 2 x JCB backhoe excavator

Skip Lorries

4 no. skip lorries and 2 no roll on/off lorries (MERC 1823, IVECO 180E24, DAF FA55, DAF 85, VOLVO FM 9, HINO 700)

Tractor

1 no articulated tractor unit (Volvo FM 12 (6 x 4))

Timber shredder

2 no timber shredders

Baler

1 no. Gradeall 600 horizontal baler

Fork lift

1 no. fork lift truck

Road Cleansing

1 no. road sweeper

Mobile Concrete Crusher and Screener

On an intermittent basis, 1 no. Terex Mobile Jaw Crusher and Screener (or similar)

D.1.e Wheel Cleaner

There is no wheel wash installed at the facility. It is not proposed to install a wheel wash. All HGV's entering and exiting the site traverse on concrete hard standing. In addition there is a considerable length of concrete road within the site that allows for detritus matter to fall from the HGV wheels.

D.1.f Laboratory Facilities

There are no laboratory facilities on site

D.1.g Fuel Storage

The following quantity of fuels is stored on site:

Derv (Road Diesel)	15,000 litres
Marked Gas (Agri Diesel)	10,000 litres
Diesel Additive AdBlue	1,000 litres
Kerosene	1,000 litres

With the exception of the kerosene tank, which is used for heating the administration building, all fuels are stored in a concrete bunded area, located to the rear of the recycling building. Fuel dispensing pumps and nozzles are located within the concrete bund wall. The location of the bunded area is shown in Drawing CE0725301_206.

D.1.h Waste Quarantine Area

A waste quarantine area has been designated in the current recycling building. The location of the waste quarantine area is shown in the site layout plan.

D.1.i Waste Inspection Area

Waste characterisation and inspection is conducted in accordance with the Waste Acceptance Procedures (January 2009), contained in Attachment H of the application.

D.1.j Traffic Control

All traffic entering the site will be from the local road R745. The location of the site entrance is clearly shown by the Murray Waste Recycling sign which was erected in accordance with the waste permit. An automatic barrier is provided for allowing access onto and off the weighbridge. Parking is provided for adjacent to the site office and caters for approximately 20 no. vehicles. It is envisaged that future developments at the site may also consist of a civic amenity facility at the site. An area has been reserved for such a facility to the north end of the site.

D.1.k Surface Water Drainage and Sewerage Infrastructure

Prior to discharge of rain water from the roof, the water from the existing roof will keep the fire water retention supply tank topped up. The roof water and the overflow from the fire water supply tank will discharge to the stream.

Surface water generated from concrete hardstanding areas of the site drain to surface water gullies from the road way to a full oil/water interceptor at the western boundary of the site, prior to discharge to the stream. Details of this oil water interceptor are attached overleaf.

Foul water is generated from the onsite toilets and canteen in the administration building. This foul water firstly settles out in a sludge settlement tank adjacent to the site office. The effluent from this settlement tank discharges to an oil water interceptor at the western end of the site and this effluent discharges to Bio-Crete Wastewater and Sewage Treatment System. The effluent from the WWTP discharges to a raised percolation bed. Details of this system are provided overleaf.

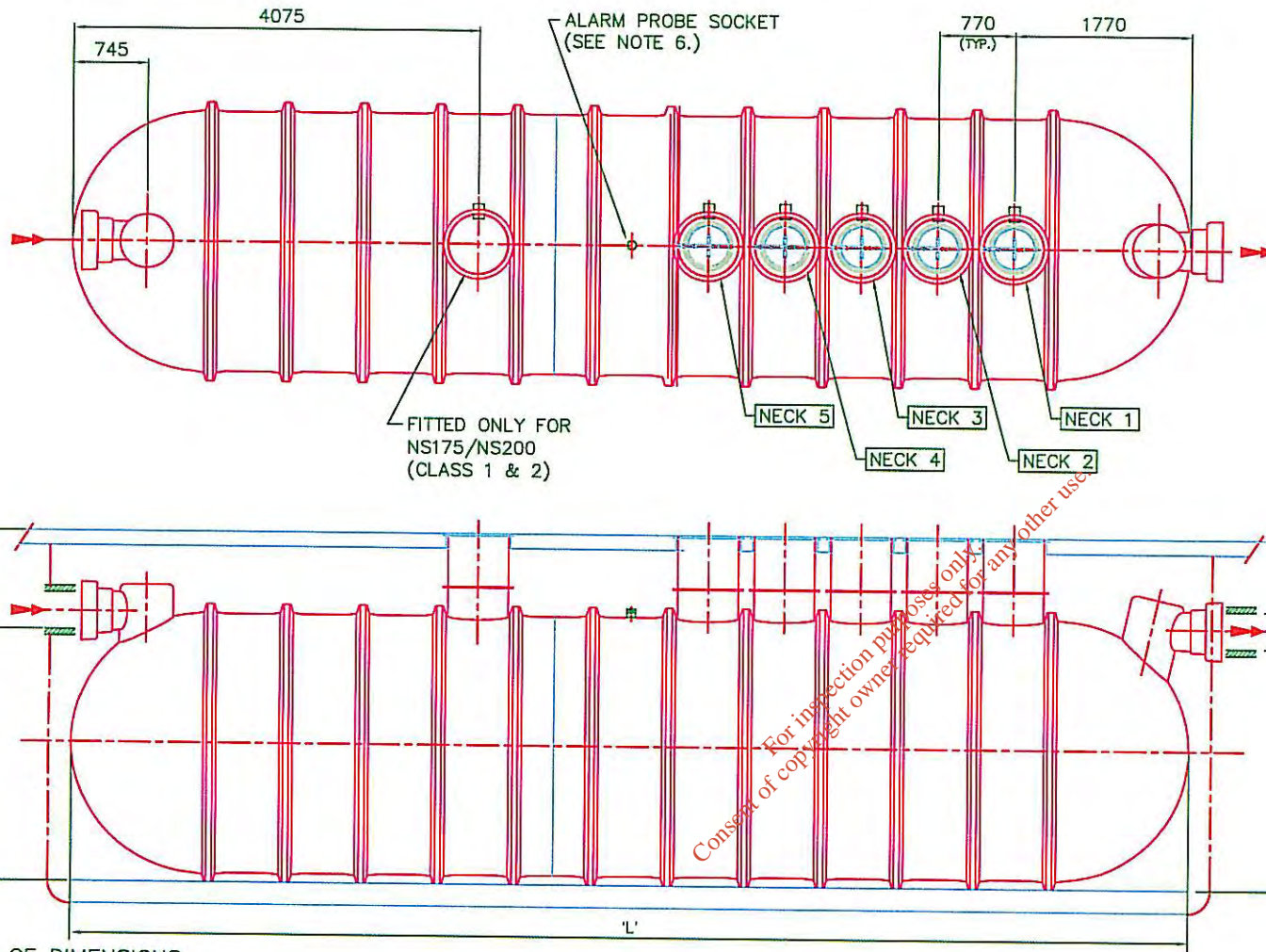
It is intended to install an underground effluent holding tank for any leachate emanating from the waste and from wash down water used for cleaning the floor of the recycling building. The effluent tank will be capable of holding approximately 6,000 litres of effluent. The effluent (emanating from inside the recycling building) will be sent off site to a WWTP. The WWTP for the treating of the leachate will be agreed in advance with the Agency.

The location of the drainage network and wastewater treatment system is shown in Drawings CE07-253-01-205 (existing) and CE07-253-01-206.

D.1.l All Other Services

Site services are shown in Drawing CE0725301_205. Electricity is mains supplied. On site water is from an onsite groundwater well located in a shed near the main entrance as shown in Drawing CE0725301_206. The site has telephone and broadband connection.

Figure 2: Details of Surface Water Oil/Water Interceptor



NOTES

- 1.) PLEASE REFER TO TABLE FOR RECOMMENDED STANDARD PIPE SIZES. ALTERNATIVE CONNECTORS MAY BE ORDERED.
- 2.) EXTENSION NECKS FOR DEEPER INVERTS CAN BE PROVIDED IN 0.5m INCREMENTS FOR ON SITE ASSEMBLY. MAX 2.0m INVERT RECOMMENDED.
- 3.) ALL UNITS REQUIRE APPROPRIATE COVER & FRAME TO SUIT APPLIED LOADINGS.
- 4.) THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY. IT IS ESSENTIAL THAT THIS DRAWING IS READ IN CONJUNCTION WITH INSTALLATION GUIDELINES PD0312 (SUPPLIED WITH UNIT).
- 5.) STANDARD PIPE ORIENTATION SHOWN. FOR OTHER AVAILABLE OPTIONS SEE TDS0033.
- 6.) AN ø82mm SOCKET CAN BE SUPPLIED AS AN OPTIONAL EXTRA TO HOUSE AN OIL ALARM PROBE. SEE DRAWINGS DS0591 & PD0323 FOR FURTHER DETAILS.
- 7.) THIS DRAWING IS ALSO AVAILABLE ON OUR WEBSITE www.klargester.com

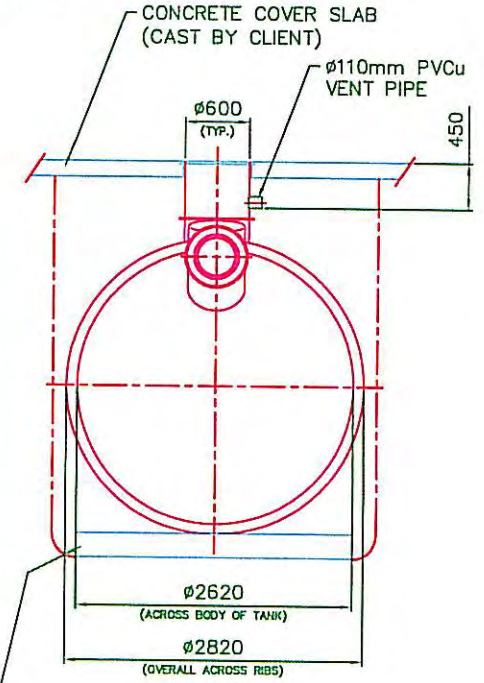


TABLE OF DIMENSIONS

UNIT REF.	UNIT CLASS	NOMINAL FLOW RATE (L/s)	APPROX. EMPTY WEIGHT (Kg)	'L' OVERALL LENGTH	'A' BASE TO INLET INVERT	'B' OUTLET INVERT	'C' STD. PIPE DIA.	TYPE STD. PIPE MATERIAL	NECK 1 FITTED	NECK 2 FITTED	NECK 3 FITTED	NECK 4 FITTED	NECK 5 FITTED
NS80	1	80	1400	5700	2500	1050	315	PVCu				✓	✓
	2												
NS100	1	100	1500	6200	2500	1050	400	PVCu				✓	✓
	2												
NS125	1	125	1850	7365	2500	1050	450	GRP			✓	✓	✓
	2												
NS150	1	150	2200	8675	2550	1100	500	GRP		✓		✓	✓
	2												
NS175	1	175	2400	9975	2550	1100	550	GRP		✓		✓	✓
	2												
NS200	1	200	2800	11280	2550	1100	600	GRP		✓		✓	✓
	2												

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CONCRETE BASE SLAB (CAST BY CLIENT)

1	20.02.06	P.T.	Initial Issue (CC322)
ISSUE	DATE	DRAWN	MODIFICATION
This drawing is copyright and may not be reproduced or used without the written permission of Klargester Environmental.			
KLARGESTER RESERVE THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.			

ALL DIMENSIONS ARE IN MILLIMETRES - DO NOT SCALE

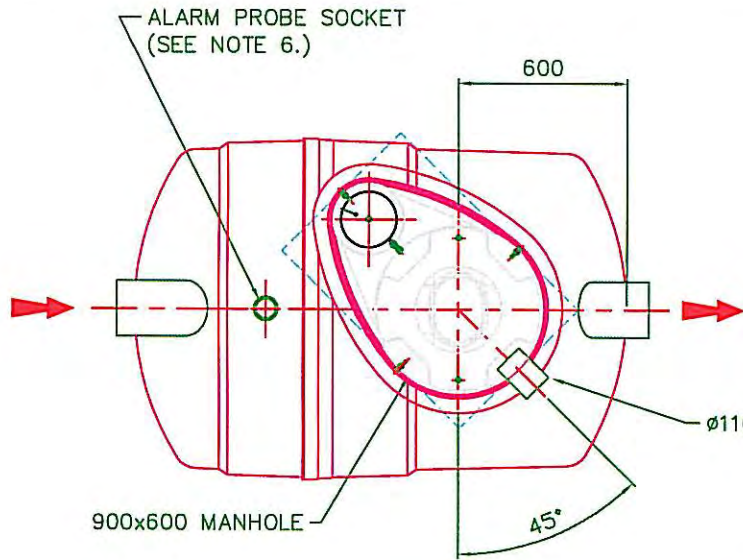
NS80-NS200 CLASS 1 & 2 FULL RETENTION SEPARATORS

Scale: 1:25 Sheet Size: A1

Model: DS0612K-1

Website: www.klargester.com

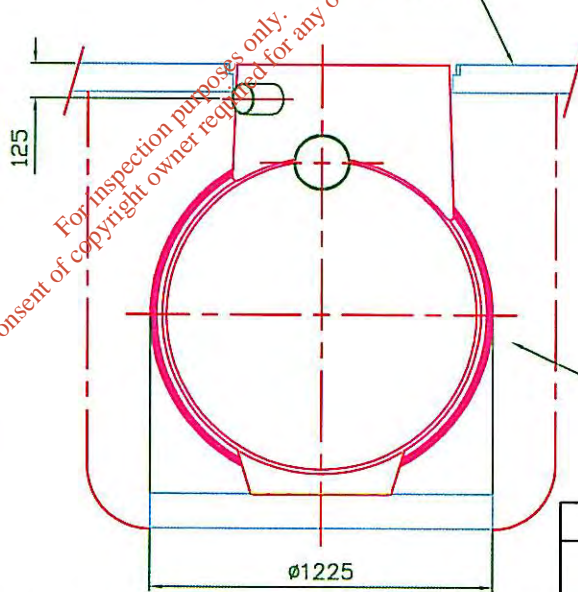
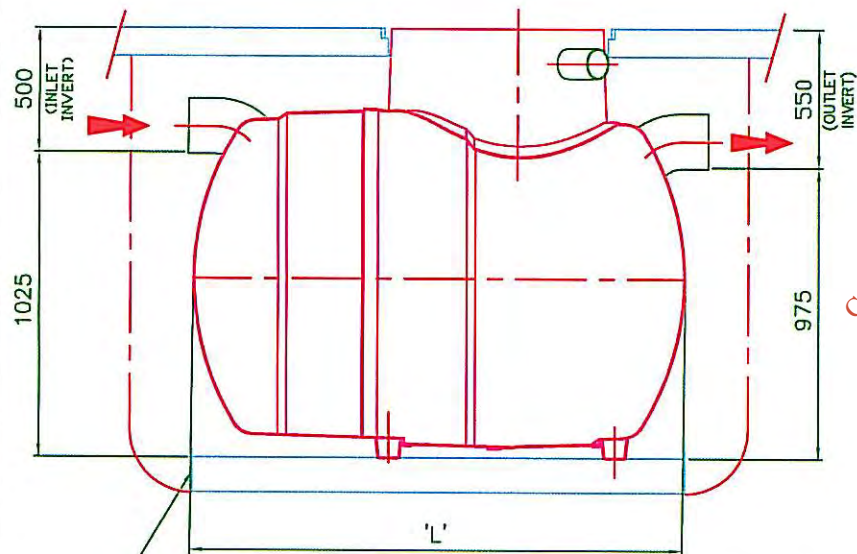
Figure 3: Details of Foul Line Treatment System



UNIT REF No.	NOMINAL FLOW	DIM 'L'	APPROX EMPTY WEIGHT (Kg)	FALL ACROSS UNIT
NS3	3 L/S	1760	110	50
NS6	6 L/S	1760	110	50
NS10	10 L/S	2610	130	50
NS15	15 L/S	3910	167	50

NOTES

1. INLET/OUTLET PIPES ARE PLAIN PIPE ø200mm PVCu.
2. PLEASE NOTE A CLASS 1 SEPARATOR INCLUDES A COALESCER, CLASS 2 SEPARATORS DO NOT.
3. EXTENSION NECKS FOR DEEPER INVERTS CAN BE PROVIDED IN 0.5m INCREMENTS FOR ON SITE ASSEMBLY. THE FIRST 0.5m IS A PUSH-FIT SPIGOT. THE NEXT 0.5m IS FLANGED AND SUPPLIED WITH A MASTIC KIT AND NUTS AND BOLTS. MAX 2.0m INVERT RECOMMENDED.
4. ALL UNITS REQUIRE APPROPRIATE COVER & FRAME TO SUIT APPLIED LOADINGS.
5. THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY. IT IS ESSENTIAL THAT THIS DRAWING IS READ IN CONJUNCTION WITH INSTALLATION GUIDELINES PD0300 (SUPPLIED WITH UNIT).
- 6.) AN ø82mm SOCKET CAN BE SUPPLIED AS AN OPTIONAL EXTRA TO HOUSE AN OIL ALARM PROBE. SEE DRAWINGS DS0591 & PD0323 FOR FURTHER DETAILS.
7. REDUCERS ARE AVAILABLE AT EXTRA COST TO SUIT ALTERNATE PIPEWORK REQUIREMENTS.
8. THIS DRAWING IS ALSO AVAILABLE ON OUR WEBSITE www.klargester.com



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CONCRETE BASE SLAB CAST BY CLIENT (TO SUIT SITE CONDITIONS)

CONCRETE COVER SLAB CAST BY CLIENT (TO SUIT SITE CONDITIONS).

6	09.11.05	SnP	CC306 - Note 8 Added
5	09.02.05	A.L.	DIMENSIONS AMENDED Ref:- ECO232-05
4	14.10.04	A.L.	BORDER UPDATE
3	02.10.02	A.L.	DIMENSIONS AMENDED
2	17.09.02	A.L.	FEET / ARTICLE CODES AMENDED
ISSUE	DATE	DRAWN	MODIFICATION

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TITLE		SCALE		SHEET SIZE	
NS3-NS15 CLASS 1 & 2 FULL RETENTION SEPARATOR		1:20	A3		
DRAWING No.	ISSUE	DS0598		6	

**IRISH
AGRÉMENT
BOARD**



BUILDING PRODUCT CERTIFICATION

CERTIFICATE No. 01/0120

Bio-Crete, Delaney Concrete Limited, Clonroche, Co. Wexford, Ireland.
Tel: 053 9244767 Fax: 053 9244764
e-mail: info@biocrete.ie

Bio-Crete Wastewater & Sewage Treatment System

Systèmes de Traitement des Eaux Résiduaires. Abwasser Aufbereitung

The Irish Agrément Board is designated by Government to issue European Technical Approvals.

Irish Agrément Board Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2000**.

The Irish Agrément Board operates in association with the **National Standards Authority of Ireland (NSAI)** as the National Member of UEAtc.



PRODUCT DESCRIPTION

The Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings is a combined aerobic/anaerobic system to serve a population equivalent of up to 10 persons. It is manufactured from a nylon fibre reinforced concrete, is rectangular in shape and has five operating zones. It is designed to treat all liquid wastewater from the household (bathroom toilet, kitchen and laundry). After treatment the clear liquid is discharged by gravity to a percolation area or pumped if a raised bed percolation system is required.

MANUFACTURE AND MARKETING

The product is manufactured and marketed by:

**Bio-Crete
Delaney Concrete Limited
Clonroche
Co. Wexford, Ireland.
Tel: (053) 9244767 Fax: (053) 9244764**

USE

The product is for use in sewage treatment systems and for sewage collection systems designed in accordance with BS 6297: 1983 *Code of practice for design and installation of small sewage treatment works and cesspools*, for the collection of domestic sewage.

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings is satisfactory for the purpose defined above, and meets the requirements of the Building Regulations 1997 to 2000 as indicated in Section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS 1997 to 2000**Requirement:****PART D - MATERIALS AND WORKMANSHIP.**

D3 – Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings as certified in this Irish Agrément Board Certificate, is composed of "proper materials" and is fit for its intended use (see Part 4 of this Certificate).

D1 – Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings, used in accordance with this Irish Agrément Board Certificate, meets the requirements for materials and workmanship.

PART H - DRAINAGE AND WASTE DISPOSAL**H1 Drainage Systems:**

The Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings is easily installed and incorporated with soil percolation to meet Building Regulation requirements.

H2 Septic Tanks:

The Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings has been designed for use in wastewater treatment systems, for the collection and treatment of domestic wastewater when installed in accordance with the recommendations of BS 6297:1983: *Code of practice for design and installation of small sewage treatment works and cesspools* and the EPA wastewater treatment manual – *Treatment Systems for Single Houses*.

The quality of treated wastewater from Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings exceeds that of the effluent from a septic tank and will meet the Building Regulation requirements.

Information on the design capacity, ventilation, safety and location requirements is given in this Irish Agrément Certificate (see sections 2.4, 3.2 and 4.6 of this certificate). The Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings can be used in domestic situations where septic tank systems are not acceptable, where sites do not comply with the recommendations of S.R.6. 1991 *Septic Tank Systems Recommendations for Domestic Effluent Treatment and Disposal from a Single Dwelling House* and/or where septic tank systems have been known to fail.

2.1 DESCRIPTION

The Bio-Crete Wastewater & Sewage Treatment System for Single Dwellings is a combined aerobic/anaerobic system to serve a population equivalent of up to 10 persons. It is manufactured from a nylon fibre reinforced concrete, rectangular in shape, has a low profile design and has five operating zones. It is designed to treat all liquid wastewater from the household (bathroom, toilet, kitchen and laundry). After treatment the clear liquid is discharged to a percolation area either by gravity or pumping.

The inlet and outlet pipes are 110mm diameter and the internal pipework system is constructed from 19mm diameter PVC-U except for the air supply for the sludge return which is a 10mm flexible pipe. The air blower is fitted in a chamber which is attached to the concrete cover of the system. The control unit for the system is located in the dwelling being served by the system.

Table 1. Bio-Crete Wastewater Treatment System – basic information

Capacity (litres)	Total 4900
Primary Tank (litres)	2600
Aeration (twin zone) litres	1080
Clarifier (litres)	1040
Population served	10
Weight (kg)	4930
Inlet invert pipe depth	± 80 mm on entry of sewer pipe
Tank bottom	1580 mm below invert
Outlet pipe depth below invert of inlet	50 mm
Overall width (mm)	1200
Overall length (mm)	3400
Overall height (mm)	1930
Discharge pump rating (required for raised percolation only)	300W

Ancillary Items:

- Pre assembled plumbing
- Airpump
- Diffusers
- Media
- In-house control unit
- Distribution Box
- Sump pump (required for raised percolation bed only)
- Air hose
- Sealants
- SS Anchors
- SS Hose clips
- Connections and internal tee's
- PVC-U inlet and outlet sockets
- PVC-U underground drain pipes and fittings
- Distribution chamber
- Connection to vitrified clay pipes (where required)
- Connections and ventilating pipes

The waste treatment is carried out in five stages in the various sections of the system as follows:

Section 1 is a septic settlement and sludge storage zone where normal anaerobic reduction in biochemical oxygen demand (BOD) takes place. It is fitted with baffles and a scum board.

Section 2 is an active biological aeration zone for treatment of residual solids and further reduction in BOD.

Section 3 is a further active biological aeration zone which effects nitrification and the conversion of ammonia to nitrate. Oxygen is fed to Sections 2 and 3 using fine bubble diffusers.

Section 4 is a clarification zone where the converted activated sludge/solids are allowed to settle out and the clear liquid discharged. The settled activated sludge is continually re-circulated by airlift to the primary chamber.

Section 5 is an anoxic zone designed to encourage denitrification by heterothopic bacteria. Disposal to the irrigation system is normally by gravity but may also be pumped where this is deemed necessary.

The Bio-Crete Wastewater Treatment System is designed for below ground installation and the tank is supplied with removable covers to permit inspection and maintenance. A schematic layout of the system is shown in figure 1.

The system is supplied with float switch operated alarms that indicate both pump failure and high water level.

2.2 MANUFACTURE

The Bio-Crete tank unit is rectangular in shape and is manufactured in a single pour from nylon fibre reinforced concrete and the cover is manufactured from conventional reinforced concrete. When the tank is cured the divider walls are inserted, chemically sealed and mechanically anchored. All plumbing joints are mechanically abraded and solvent sealed. Pre jig cut media are assembled at the works and the cover fitted and sealed. The air pump is fitted in the cover with its air hoses and stainless steel hose clips. The concrete tank is checked by visual inspection and the plumbing assemblies are live tested under working pressure before installation in the tank.

Quality Control

Quality control includes industry standard cube testing, wall thickness checks on concrete components, and the checking of bought-in components against specification. Each completed unit is inspected before delivery.

2.3 DELIVERY, STORAGE AND MARKING

The tanks are completed ready for delivery at the manufacturer's works. The Bio-Crete Wastewater Treatment System must be lifted with slings at the points recommended by the manufacturer. Off-loading must be carefully supervised using chains, steel cables or lifting bars rated in excess of 5 tonnes. Lifting equipment should be selected by taking into account the unit weight, dimensions and the distance of lift required. The weight of each unit empty is given in

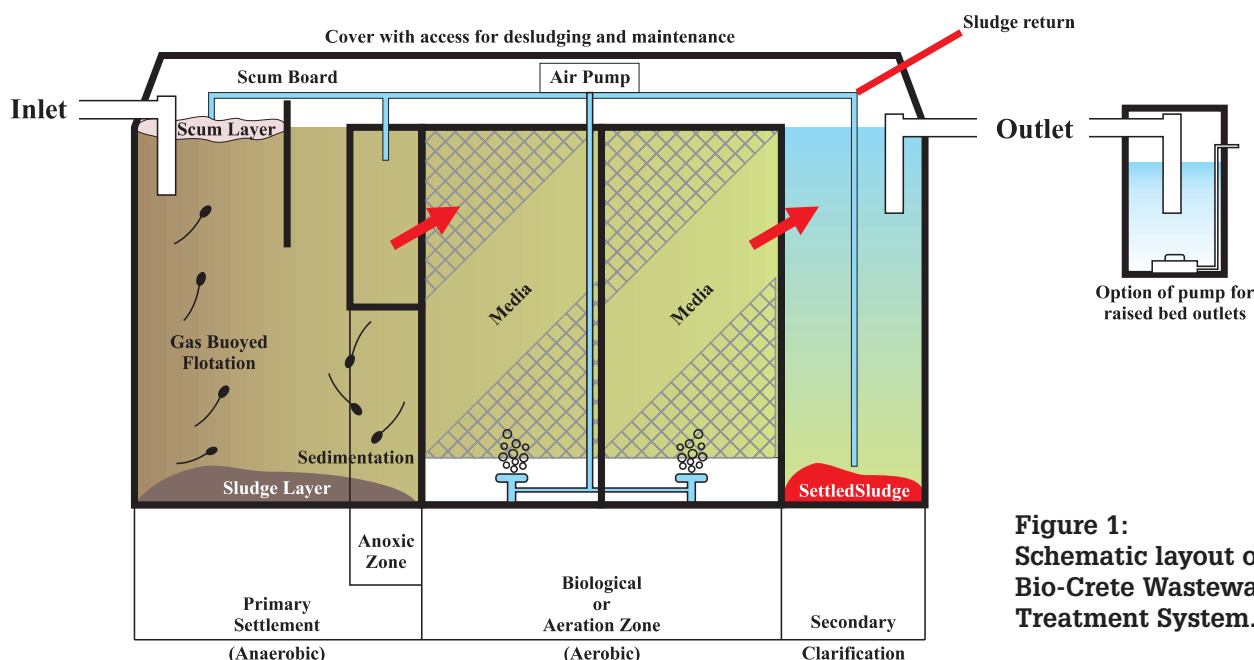


Figure 1:
Schematic layout of the Bio-Crete Wastewater Treatment System.

Table 1 and should conform with the requirements of the Safety Health and Welfare at Work Act, 1989. The manufacturer's instructions must be followed to avoid damage to the tanks during off-loading and placing in the excavation. A crane or other suitable lifting equipment must be employed. It is the manufacturer's policy to deliver and install each unit using factory transport complete with a lifting crane.

The product bears the manufacturer's name, labels denoting the inlet and outlet, a list of all the items supplied, installation and operating instructions, the product specification code, serial number and the inspection date. An external label indicates the IAB identification mark incorporating the certificate number.

2.4 INSTALLATION PROCEDURE

2.4.1 GENERAL

Delaney Concrete Limited provide a service for the design, site survey and installation of Bio-Crete Wastewater Treatment System units. They will also advise clients of the installation requirements, or provide supervision of installations carried out by others.

Electrical connections to the Bio-Crete Wastewater Treatment System from the control box must be carried out by a competent qualified person using material suitable for the purpose.

Electrical connections must be in strict accordance with the manufacturers instructions and must comply with The National Rules For Electrical Installations (ETCI), published by the 'Electro-Technical Council of Ireland' (Document No. ET101 : 2000).

The electrical control panel is located in the dwelling served by the unit. However, electric cables to the unit must be protected from accidental damage by a suitable conduit or other means of protection.

The Bio-Crete Wastewater Treatment System must not be installed in areas liable to localised flooding without adequate protection as specified by the manufacturers.

Also storm water drainage from the dwelling must be excluded from the unit.

It is essential to take precautions to prevent damage by site traffic.

Superimposed loads from vehicles etc. should not be permitted within a distance equal to the depth of excavation, unless suitable structural reinforcement is provided. A suitable fence should be erected to prevent vehicles and farm animals from approaching too close to the unit.

The Bio-Crete Wastewater Treatment Unit may be installed buried up to 2m below ground level (modular risers are available when the unit is installed at depths below 1m). The excavation must be large enough for easy placement of the unit, to permit subsequent backfilling and to allow timbering and sheeting as required to meet The Safety, Health and Welfare at Work Act, 1989.

The units may be bedded on firm excavated ground or where necessary onto concrete, which is haunched up

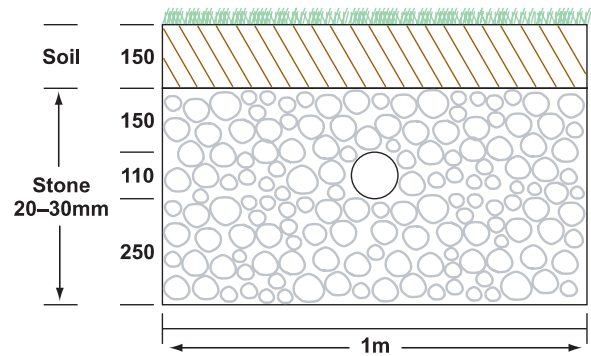


Figure 2: Showing a cross-section through a percolation trench.

around the base of the unit. The concrete must be of sufficient thickness (minimum 150mm) and grade 25N to ensure that the unit is adequately supported with due regard to sub-soil conditions and loads imposed by the Bio-Crete Wastewater Treatment System when full. (Care must be taken to eliminate voids). All water and boulders must be removed from the excavation before installation of the unit. When installed the top flange must be level.

The backfill must be carefully consolidated around the Bio-Crete unit with all large stones/boulders removed to ensure even transfer of ground loads and to prevent localised stress concentrations. The Bio-Crete Wastewater Treatment System should be ballasted while backfilling with water keeping the water level just above the backfill level as work progresses.

Pipe Connections

The tank is connected to 110mm PVC-U pipes as required at the inlet and outlet. For other types of pipe such as vitrified clayware etc. suitable adapters are used with short lengths of PVC-U pipe as necessary. A short length of pipe with flexible joints must be used adjacent to the Bio-Crete Wastewater Treatment System, to allow for differential movement between the tank unit and adjacent pipe runs.

2.4.2 LOCATION

The Bio-Crete Wastewater Treatment System location should be chosen so that adequate access is available for site installation and subsequent maintenance and desludging of the unit. Desludging should be carried out by means of a desludging tanker which requires access to within 10m of the unit, whilst maintaining appropriate separation distances from the Bio-Crete Wastewater Treatment System unit and the effluent percolation system given in Table 2. Ventilation must be provided in accordance with the Building Regulations 1997 to 2000.

2.4.3 TREATED WASTEWATER DISPOSAL

General Principles

The Bio-Crete Wastewater Sewage Treatment System for single dwellings produces treated water, (BOD 20mg/l, suspended solids < 30mg/l), which is more easily absorbed into soil strata than septic tank effluent.

Table 2

FEATURE	MINIMUM SEPARATION (m)	
	Bio-Crete	Irrigation Area
Dwelling served	7 ⁽¹⁾	10 ⁽³⁾
Adjacent dwelling	7 ⁽¹⁾	10 ⁽³⁾
Wall	3 ⁽¹⁾	3
Road	4 ⁽¹⁾	4
Site boundary	3 ⁽¹⁾	3
Potable water source	10	30—100 ⁽²⁾
Watercourse	10	10

(1) The depth of excavation to accommodate the Bio-Crete Unit must be taken into account when determining this distance. The separation distance should be such that the excavation does not undermine adjacent buildings, roads or walls. This distance should be not less than 1.5 times the excavation depth.

(2) The separation distance should be not less than 30 metres except in the case of very free draining soils or gravels, where a minimum distance of 40 metres should be maintained. The irrigation area should be down hill of any nearby well. Where this is not possible, a separation distance of at least 100 metres must be maintained.

(3) These are minimum permissible distances. However, where the site permits, irrigation areas should be located at greater distances from the dwelling. Also where practicable on sloping sites the irrigation area should slope from the dwelling.

The choice of disposal method will be largely determined by the percolation characteristics of the site soil which can be quantified by various criteria notably the “T” value resulting from a percolation test, as set out in SR6: 1991.

There are three possible methods for disposal of the treated wastewater

- Sub-Surface percolation, or
- Raised percolation bed, or
- Discharge to surface water, either directly or following a polishing filter. (A licence must be obtained from the relevant local authority if this option is chosen).

In the event of the site failing the “T” test it may be necessary to construct a raised percolation area.

In any event a site suitability report including a detailed visual inspection of the site, inspection of a trial hole for soil profile, depth of water table, and percolation value, should be carried out together with local knowledge as

appropriate. This report should be used to ascertain the size and type of percolation area required.

The results of this assessment will enable the selection of the most suitable method for disposing of the final treated effluent, having regard to soil type, percolation characteristics, water table level and other factors. The disposal method will be either to sub-surface percolation, raised percolation area or direct to surface waters by licence. This licence should be obtained from the relevant local authority. Reference should also be made to the following publications:

(a) Wastewater Treatment Manual – *Treatment Systems for Single Houses* published by the EPA.

(b) *Ground Water Protection Responses for On-Site Wastewater Systems for Single Houses* published by EPA/DOELG/GSI (2001).

Guidance for sizing of the percolation area is set out in Table 3. Treated wastewater is discharged from the Bio-Crete Wastewater Treatment System by gravity or by pumping if a raised bed facility is required.

(a) Sub-surface percolation

Where sub-surface irrigation is to be used the extent of the treated wastewater disposal area will be based on the results of percolation tests.

The treated wastewater discharges, by gravity, into a network of perforated 110mm diameter pipes laid in stone filled trenches (see Fig. 2 and Fig. 3). The objective is to spread the treated wastewater as evenly as possible over the required land area, thus minimising the possibility of the ground becoming over-saturated.

The discharge from the Bio-Crete Wastewater Treatment System has minimal suspended solids and is, therefore, much more readily absorbed than septic tank effluent. The extent of the irrigation system may be determined by the site assessment, taking into account the soil type and percolation test results, as well as the population to be served. The values listed in Table 3 are given for guidance only, the layout and size of the percolation area should be established on the basis of the results of a site survey carried out by a competent person.

The percolation area will be equivalent to the linear pipe length as shown in Table 3.

Trenches are generally 450-1000mm wide with the pipes laid on 250mm of clean 15-25mm stone and covered with a polyethylene or geo-textile soil barrier. Layout of

Table 3: Guidance for sizing of percolation area (in linear metres of percolation pipe)

Estimated maximum number of people in the house based on number of bedrooms	Required length of trench in (m) for “T” values 21-50* (loading at 25 l/m ² .d)		Required length of trench in (m) for “T” values 5-20†† (loading at 50 l/m ² .d)	
	Trench width		Trench width	
(2 persons per bedroom)	450mm	1m	450mm	1m
4	64	29	32	14
6	96	43	48	22
8	128	58	64	29
10	160	72	80	36

†† For percolation values “T” <5

* For percolation values “T” >50

} consult the manufacturer for details of the percolation area required.

the trenches will be determined by site topography, the overall fall of the pipes should be not more than 1 in 200. The pipes should be at least 1 metre above the highest water table level, fissured rock strata or impermeable soil layer.

(b) Raised percolation bed

Where the irrigation pipes have to be above existing ground level: e.g. thin topsoils and/or rock or water table close to the surface, a raised or banked-up irrigation system may be suitable. In this situation a pumped discharge would be required (see Figure 3).

(c) Discharge to a watercourse

Where poor soil percolation or other factors make a subsurface irrigation system impractical; discharge to a watercourse may be considered. This will require a licence from the relevant local authority, setting the minimum acceptable discharge quality. The treated wastewater is filtered through a layer of sand or topsoil before passing to the watercourse.

Inspection access to all treated wastewater irrigation systems should be provided at the end of the percolation system via a suitably constructed inspection chamber.

Further treatment

In some instances (e.g. proximity to a drinking water source), the wastewater may require 'polishing' before discharge to reduce coliform bacteria levels. A commonly used method is to pass the discharge through a stratified sand filter. The Bio-Crete Wastewater Treatment System discharge is pumped to the filter. Polishing filters can be provided on request as an additional item with the system

2.5 COMMISSIONING

Commissioning by a competent person should be carried out after installation and this service is available from the installer or designated service provider.

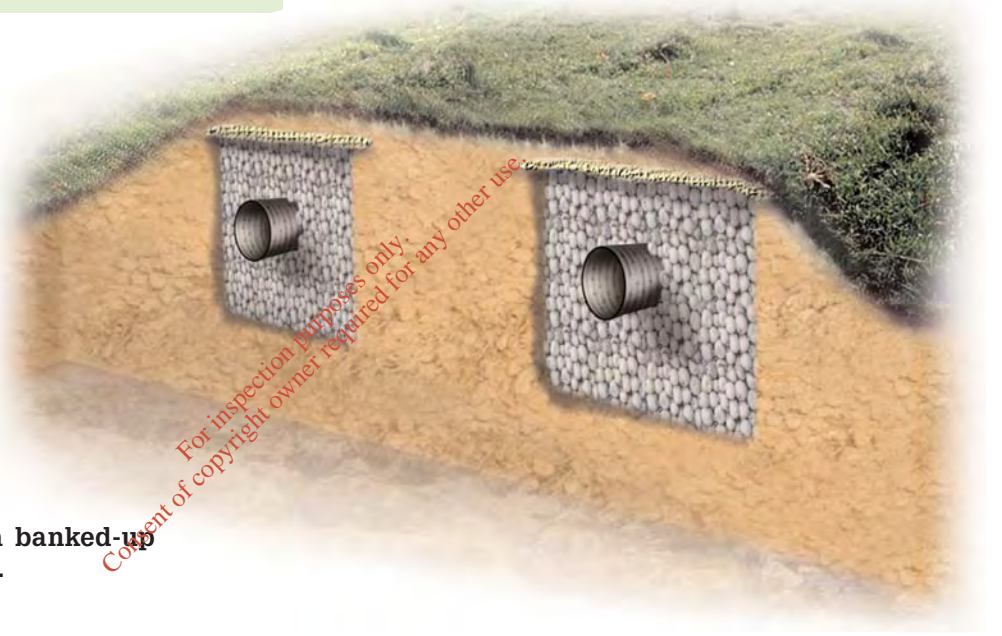


Figure 3. Section through a banked-up percolation trench.

PART

3

DESIGN DATA

3.1 GENERAL

The Bio-Crete Wastewater Treatment System is suitable for the collection and treatment of domestic sewage and should be installed in accordance with the manufacturer's instructions and to conform with the recommendations of BS 6297: 1983 *Code of practice for the design installation of small sewage treatment works and cesspools*. It is important that the loadings are based on the maximum population to be served.

Bio-Crete Wastewater Treatment System should be sited in accordance with the relevant Building Regulations.

Ground water and flood levels should always be below plant outlet level.

The discharge from the Bio-Crete Wastewater Treatment System must be to a suitable sub-soil percolation system, raised percolation bed, or watercourse to the requirements of the Local Authority.

The treated wastewater resulting from the sewage treated by the Bio-Crete Wastewater Treatment System will normally have the characteristics shown in Table 4 (i.e. suspended solids content less than 30 mg per litre and Biochemical Oxygen Demand (BOD) less than 20 mg per litre) provided that the hydraulic and BOD loadings are within the limits recommended by the manufacturer for the unit installed (180 litres per head per day and 60 grammes per head per day, respectively). Under certain unusual conditions the resulting wastewater may be in excess of this. This is normal for any biological sewage treatment process, and can be caused by unusual hydraulic or BOD loading, weather conditions, contamination by excessive quantities of (a) offal and grease, (b) household disinfectants, (c) detergents or poisoning of microbiological flora and fauna by other chemicals.

3.2 DESIGN BASIS

The relevant dimensions and capacities of the Bio-Crete Wastewater Treatment system covered by this Irish Agrément Board certificate are shown in Table 1.

System Alarm – Water level

All units are fitted with a warning device, connected to an alarm. This alarm system will be activated by a power surge, power failure or high water level within the unit.

A short period of acclimatisation must be allowed after commissioning of the unit before a full level of treatment can be expected. This period is generally a few weeks and is normal for any biological treatment plant.

3.2.1 WASTEWATER QUALITY

Table 4: Treated wastewater characteristics:

	Standard
pH	6 - 9
Biochemical Oxygen Demand	<20 mg/l
Suspended Solids	<30 mg/l
Ammonia	<10 mg/IN
Total Phosphorus	5mg/IP *
E. coli (by soil treatment or disinfection)	

* This number will depend on the use and quantities of detergents used in the dwelling served by the system and could result in a higher figure.

PART 4 TECHNICAL INVESTIGATIONS

4.1 ENVIRONMENTAL ASSESSMENT

The treated wastewater from a number of working installations has been comprehensively monitored for 12 months. The test results show that values stated for the parameters listed in Table 4 are consistently achievable over a range of operating conditions.

4.2 STRENGTH

The manufacturer's design has been assessed as satisfactory. The tank has adequate resistance to withstand impacts during handling and placing and should prove satisfactory when installed in accordance with this Certificate. The manhole covers are suitable for pedestrian traffic.

4.3 LIQUID WATER PENETRATION

The tank with its pipe connections, when correctly installed, has been assessed as fully capable of preventing seepage either into or from the surrounding soil. The pipe joints, when correctly made, will be watertight.

4.4 DURABILITY

The Bio-Crete Wastewater Treatment System when installed, used and maintained in accordance with the requirements of this Irish Agrément Board Certificate, will have a life in excess of 60 years in normal soil conditions. Sites with aggressive soil conditions such as landfill sites or sulphate bearing soils will require an appropriate cement type and content, reinforcement type and concrete strength as specified by the manufacturer.

4.5 CLEANING AND MAINTENANCE

Cleaning and maintenance should be carried out in accordance with the Operation and Maintenance Instructions supplied by Delaney Concrete Ltd. The manufacturer also provides a maintenance contract.

Summary of maintenance instructions

The Bio-Crete Wastewater Treatment System is desludged by a suction tanker. Care must be taken to avoid damage by the hose nozzle. The primary settlement zone only must be desludged in accordance with the manufacturer's recommendation. For the average dwelling this may require cleaning once every 12 months.

4.6 SAFETY

4.6.1 SAFETY OF PERSONNEL

The tank cover is securely fixed to prevent unauthorised access. The cover must not be left off an unattended tank. Tanks are potentially dangerous, particularly when being desludged. Desludging must never be carried out alone. Tank entry should not be attempted except by trained personnel. Naked flames, which can cause explosions, must not be used in the vicinity at the tanks.

All Bio-Crete Wastewater Sewage Treatment systems should be located, positioned and marked to prevent superimposed loading or accidental impact by vehicles.

4.6.2 SAFETY OF SYSTEM

The Bio-Crete Wastewater Treatment System has a holding capacity of 1.8m³ to cater for breakdown. All Bio-Crete Wastewater Treatment units are fitted with a warning and alarm system. The alarm will be activated by a power surge, power failure or high water level within the unit.

4.7 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE

Watertightness.
Strength of covers.
Resistance of units to hydrostatic and ground pressure.
Resistance to flotation
Environmental performance

4.8 OTHER INVESTIGATIONS

- (i) Existing data on the history of use of previous installations.
- (ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.
- (iii) Site visits were conducted to assess the practicability of an installation.
- (iv) A user survey and visits to established sites were conducted to evaluate environmental performance in use.
- (v) To date no failures of the product in use have been reported to the IAB.

5.1 CONDITIONS OF CERTIFICATION

The National Standards Authority of Ireland (“NSAI”) following consultation with the Irish Agrément Board (“IAB”) has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this certificate and in accordance with the manufacturer’s instructions and usual trade practice. This certificate shall remain valid so long as:

- (a) the specification of the product is unchanged;
 - (b) the Building Regulations, 1997 to 2000 and any other regulation or standard applicable to the product/process, its use or installation remain unchanged;
 - (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI;
 - (d) no new information becomes available, which in the opinion of the NSAI would preclude the granting of the certificate;
 - (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- 5.2 The IAB mark and certification number may only be used on or in relation to products/processes in respect of which a valid certificate exists. If the certificate becomes invalid, the certificate holder must not use the IAB mark and certification number and must remove them from products already marked.
- 5.3 In granting this certificate, the NSAI makes no representation as to:

- (a) the presence or absence of patent rights subsisting in the product/process; or
- (b) the legal right of the certificate holder to market, install or maintain the product/process; or
- (c) whether individual products have been manufactured or installed by the certificate holder in accordance with the descriptions and specifications set out in this certificate.

5.4 This certificate does not comprise installation instructions and does not replace the manufacturer’s directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this certificate relating to the safe use of the certified product or process are preconditions to the validity of the certificate. However, the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act, 1989 or of any other current or future statute or current or future common law duty of care owed by the manufacturer or by the certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage, including personal injury, arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this certificate to any Act of the Oireachtas, regulation made thereunder, statutory instrument, code of practice, national standards, manufacturer’s instructions or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this certification.

THE IRISH AGRÉMENT BOARD

This Certificate No. 01/0120 has been granted by the NSAI to Bio-Crete, Delaney Concrete Limited on behalf of The Irish Agrément Board.

DATE OF ISSUE: April 2001.

Signed: _____



Chief Executive, NSAI

Readers may check that the status of this Certificate has not changed by contacting the

Irish Agrément Board,
NSAI, Glasnevin, Dublin 9. Ireland.

Telephone: (01) 807 3800.
Telefax: (01) 807 3842.



BUILDING PRODUCT CERTIFICATION

**Irish Agrément Board,
NSAI,
Glasnevin,
Dublin 9.
Ireland.**

**Telephone: (01) 807 3800.
Telefax: (01) 807 3842.**

D.1.m Plant sheds, garages and equipment compound

Currently static plant is located within the recycling building. A container may be used for the storage of minor plant equipment and storing maintenance equipment. The location of any proposed plant sheds or containers will be agreed in advanced with the Agency.

D.1.n Site Accommodation and Compounds

The office building is located adjacent to the weighbridge. The administration area includes for a reception area, office areas, conference room, a canteen and toilet facilities. Drawing CE0725301_206 Site Plan provides details.

D.1.o Fire Control Systems

It is intended to use fire extinguishers on site and provision of a firewater retention supply tank on site for fire fighting purposes. The proposed location of this tank is to the rear of the recycling building. This tank will be kept topped up using rainwater from the roof of the recycling building. It is proposed to supply fire hydrants for fire fighting purposes from this tank.

D.1.p Civic Amenity Site and Location

To facilitate local demand, it is proposed in the future that a civic amenity facility for general public use be provided for to the rear of the administration building. The area will consist of an designated area (agreed with the Agency) for the recovery of timber, metal, plastics, glass, textiles paper, cardboard, WEEE, batteries, minor residual household hazardous waste, and residual waste. Metal and timber will be deposited in open ended covered skips. Glass recycling banks will be provided for bottles. Textile recovery will be in dedicated units. Plastics and residual waste will be stored in 600 to 1,000 litre covered bins. All residual waste bins will be removed to the recycling shed and returned empty the following day. Waste oil, batteries and household hazardous waste will be stored in an enclosed container. The waste oil container will be banded. Opening hours for the civic amenity facility will be 08:00 to 17:00, Monday to Saturday.

D.1.q Any other waste recovery infrastructure

A trommel will be used to separate recoverable, organic fractions of waste/recyclables. A timber shredding machine is used on site to shred timber. Baling of metals, cardboard, paper and plastics is also undertaken at the site where they are stockpiled prior to removal off site.

D.1.r Composting Infrastructure

Not applicable

D.1.s Construction and Demolition Waste Infrastructure

C&D waste will be deposited on the floor of the recycling building. Waste will be separated accordingly by sorting larger items by mechanical grab, screening material using the static trommel and picking line, crushing and sorting to remove large items, screening and removal of light oversized items from the heavier oversize items. The clean concrete, shredded timber, soil and stone fraction will be temporarily stored outdoors and processed for recycling and recovery in the area demarcated for C&D recovery as shown in Drawing CE07-253-01-206.

D.1.t Incineration Infrastructure

Not applicable

D.1.u Incineration Infrastructure

Not applicable

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ATTACHMENT D2 FACILITY OPERATION

This Waste Licence Application relates to the existing recycling building and the proposed extension to the existing Material Recovery Facility (MRF).

Currently Murray Waste Recycling Ltd. (MWR) operates a MRF from their site in Coolatore, Ferns, Co. Wexford. The site infrastructure consists of an office building, internal access road and recycling building. It is proposed that an extension to existing recycling building and a centre for the public to conduct recycling and associated works be undertaken in the near future.

An annual intake of 24,500 tonnes per annum is proposed at the facility. It is envisaged that the maximum annual tonnage will be reached in 2011. Currently material entering the facility can be broken down as the following approximate figures:

- 498 tonnes of metal waste
- 50 tonnes of plastic/rubber waste
- 181 tonnes of cardboard waste
- 3,848 tonnes of C&D waste
- 214 tonnes of plasterboard
- 117 tonnes of biological compostable waste
- 17 tonnes of glass waste
- 3,325 tonnes of mixed dry recyclables
- 6,571 tonnes of mixed municipal waste and residual
- 2,075 tonnes of wood waste
- 3 tonnes of textiles

Details on the Site Plan and the internal layout of the MRF building are shown on Drawing CE07-253-01-206. It is proposed that the processing of mixed municipal waste will take place in the recycling building. Source separated waste (mixed dry recyclable) will be stockpiled on site pending further recovery using the picking line. The baling of plastics and metal recovery will take place within the recycling building. Waste skips will be tipped out onto the floor of the recycling building and recoverable materials mechanically removed. Residual waste from the skips will be shovelled into the articulated lorry for disposal to landfill. C&D recovery will take place on the proposed hardstanding area at the western side of the site, as shown in Drawing CE07-253-01-206.

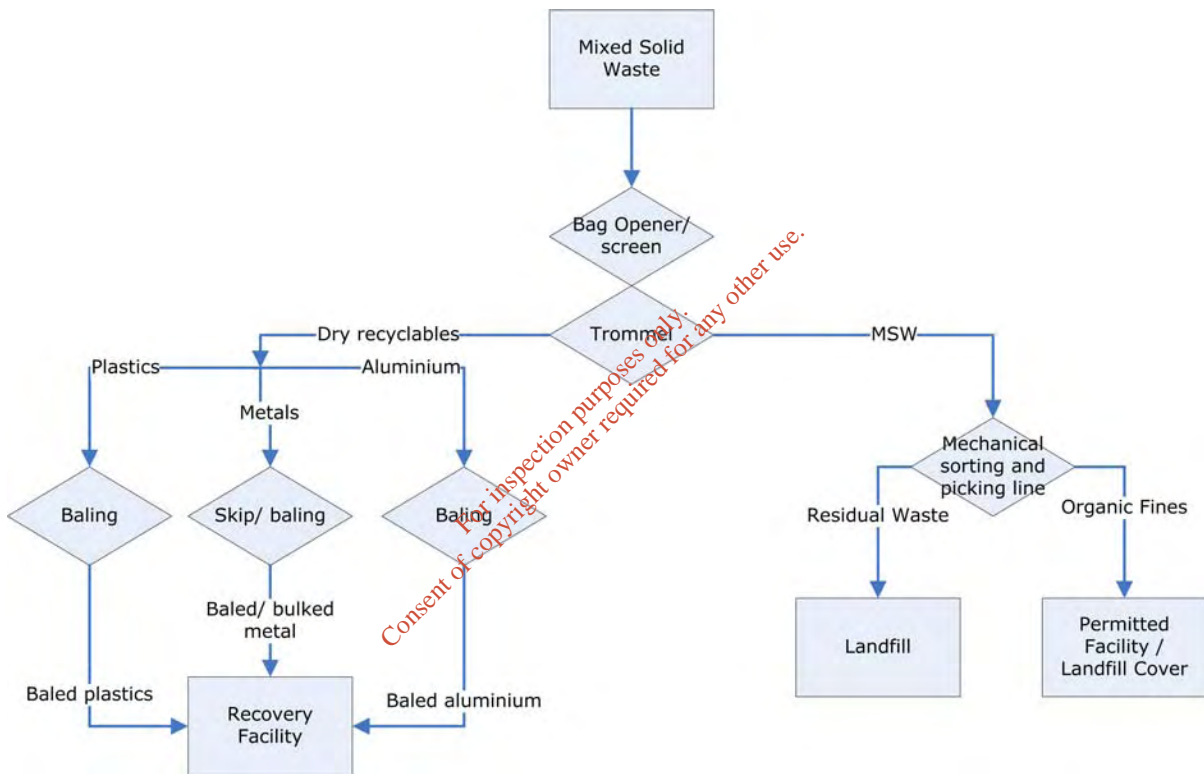
The following describes the facility operation in greater detail.

Mixed Solid Waste

Mixed solid waste will be tipped on the floor of the MRF building from the refuse collection vehicle. The waste will be inspected for non conforming waste on the floor of the recycling building. The remainder of the material will then be transferred to a bag opener and screener (trommel) where it will be mechanically and manually sorted. The three waste outputs will be organic fines, dry recyclables and residual waste.

The organic fines and dry recyclables will be sent to permitted/licensed facility. Residual waste will be sent to licensed facility for disposal. The mixed municipal waste stream treatment process is described in the attached flow diagram.

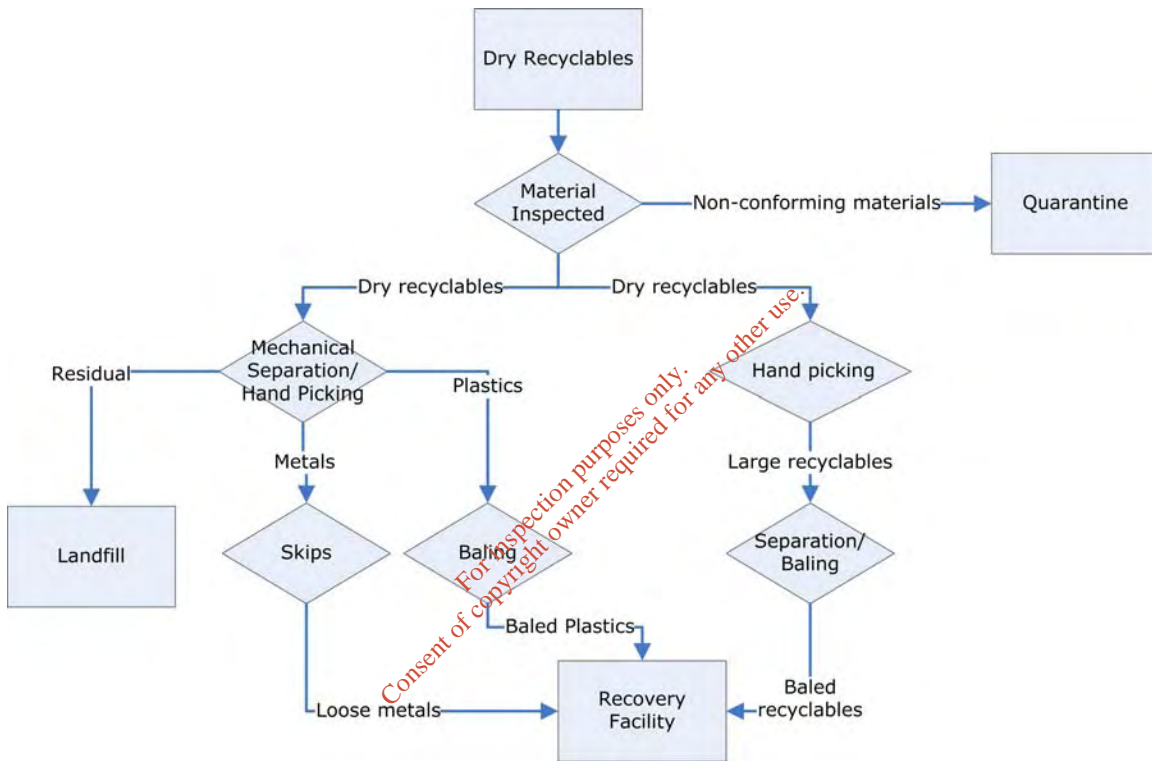
FIGURE 4 DETAILS OF MIXED SOLID WASTE STREAM TREATMENT PROCESS



Mixed Dry Recyclables

This material will be tipped onto the floor of the MRF building for inspection. The dry recyclables will be sorted either by mechanical and/or by manual means. The different fractions of dry recyclables will be sent to a baler to produce bales of dry recyclables or stockpiled for removal to a recovery facility. The process for treatment of dry recyclables is shown below.

FIGURE 5 DETAILS OF MIXED DRY RECYCLABLES STREAM TREATMENT PROCESS



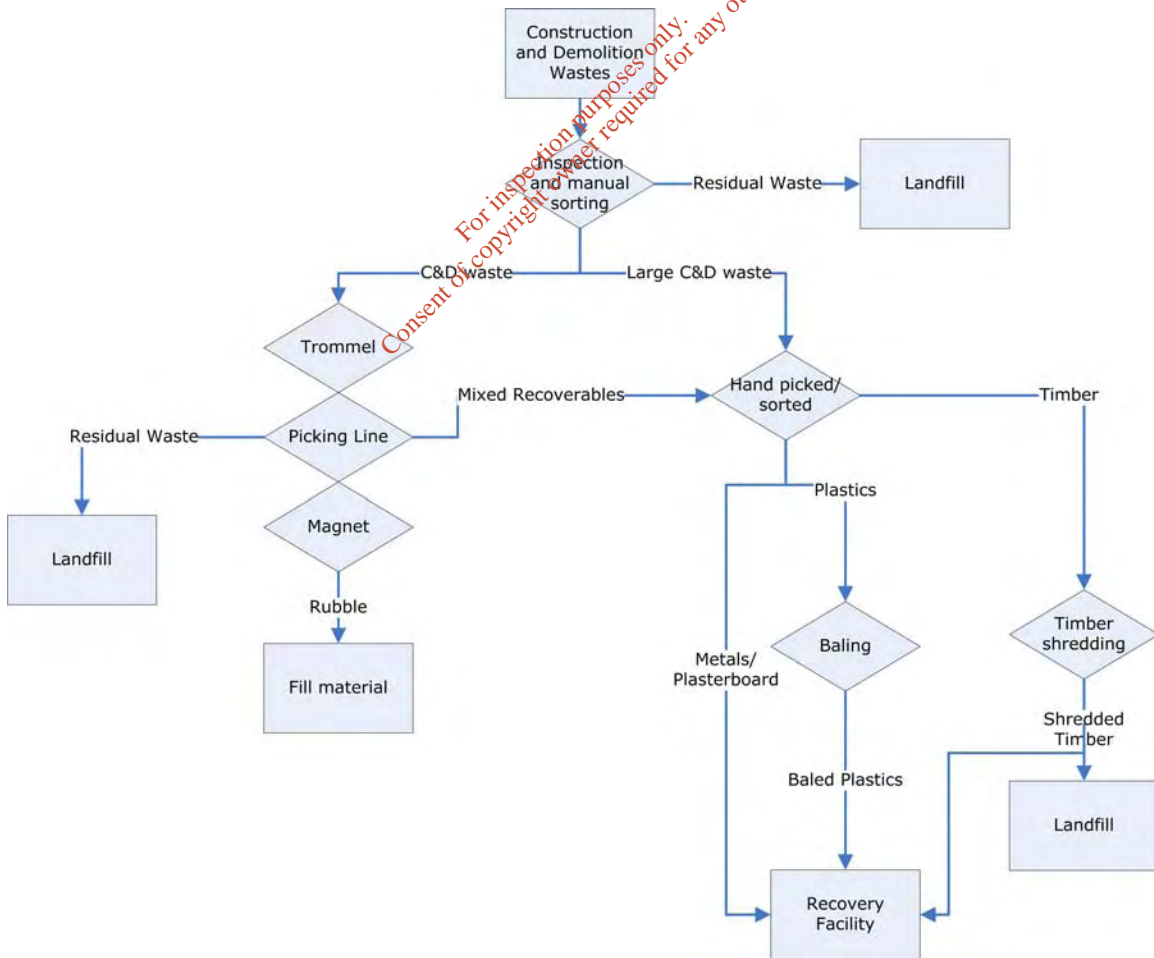
Construction & Demolition Waste (C&D)

C&D waste will be tipped onto a proposed designated concrete area inside the recycling building where it will be inspected and sorted to remove large items. Material such as plastics, metal, timber and plaster board will be manually removed while been run through the trommel and picking line. Plaster board will be removed and stockpiled indoors on site prior being sent to an authorised recovery facility. The wood fraction and will be sent to the shredder at the facility before being sent to an authorised recovery facility. The remaining material which will consist of concrete will then pass through a rental crusher and screener where fines and oversize will be extracted for reuse as fill material. The magnet will remove any surplus metal fraction and this will be sent onto an authorised recovery facility. Clean rubble will remain at the end of the process and this will be sold for reuse as engineering fill. It is intended that a mobile concrete crusher be utilised at the site on a monthly basis for approximately two days per month. This unit (Terex Mobile Jaw Crusher or similar) will be rented and brought to the site when required. Details will be forwarded to the Agency prior to operation of the crusher. Concrete for crushing will be stored outdoors in the area designated for C&D recovery. Crushed and screened concrete will be stored in this areas ending reuse.

Surface water runoff from the C&D recovery area will be directed to surface water gullies. The surface water will flow to the oil/water interceptor on site before discharge.

The following line diagram illustrates the process.

FIGURE 6 DETAILS OF C&D STREAM TREATMENT PROCESS



D2c EMISSIONS

There is potential for the following emissions;

- Air (dust and odour)
- Noise from operational plant traffic and construction plant
- Leachate from stored waste
- Uncontrolled emission to surface or ground from spillages
- Litter from transport of waste

Comprehensive environmental controls and monitoring are presently in operation to mitigate the occurrence of any of the above emissions. The mitigation measures are described in attachment F Control and monitoring.

D2d Laboratory

There is no laboratory on site; however, Murray Waste Recycling Ltd employs contract laboratories to undertake routine analyses of surface water, groundwater, and air (dust) in compliance with the permit.

D2e Incineration

This section is not applicable.

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ATTACHMENT E EMISSIONS

Emission points are presented in Drawing CE07-253-01_207.

E1 Emissions to Atmosphere

The main potential environmental emissions to air from the facility are:

- Odour
- Dust

The waste recycling building is a fugitive odour emission point. Municipal solid waste will be trommelled upon arrival at the facility. The recoverable fraction will be removed. Residual waste will be placed in an ejector trailer for shipping to landfill. The ejector trailer will be stored indoors. It is envisaged that the ejector trailer with waste will not be stored for period's greater than 48 hours, thus keeping odour build up to a minimum.

The yard is a fugitive dust emission area. Monitoring of total dust deposition will be conducted in accordance with the waste licence. Any noticeable dust emissions at the site will be dealt with immediately by either removing the source of the dust or spraying water.

There is also a minor emission from the boiler used to heat the administration offices on site.

E2 Emissions to Surface water

There are two surface water emission points at the site. There is one emission point for surface water from the oil/water interceptor (SW3). There is another emission point (SW4) which discharges the roof water from the recycling building to the stream running adjacent to the recycling building. The locations of these emission points are shown on Drawing CE07-253-01_207 and detailed in Table E.2 (i).

Potential emissions to surface water include:

- Suspended solids
- Leachate-related contamination
- Fuel and other oils-related contamination

With the exception of roof water, all surface water generated on site is routed through an oil-water interceptor prior to discharge.

The leachate drainage system in the shed will be completely isolated from the surface water drainage network and will be routed to a leachate collection tank, pending collection to an off site approved WWTP.

All roads and parking areas flow to the interceptor thus any spillages are held back from the stream. The on-site diesel tanks are fully bunded.

E3 Emissions to sewer

There is no mains sewer connection therefore no discharge to sewer.

E4 Emissions to Groundwater

There is one emission to groundwater at the site (GWE1) as shown in Drawing CE07-253-01_207. This is a raised percolation area from the on site WWTP. This WWTP deals only with the wastewater from the administration building toilets, and canteen. The location of the WWTP and associated infrastructure is shown in Drawing CE07-253-01_206. The specification of the treatment system is shown in Attachment D1.

E5 Noise emissions

- Noise
 - On-site machinery (Timber shredder, Baler, Trommel and Picking Line, C&D recovery plant)
 - Delivery vehicles
 - Construction plant

There are two potential noise emission points. These are N1 and N2 as shown in Drawing CE07-253-01-207 and refer to the concrete crusher/screener and the wood shredder respectively. The concrete crusher/screener will be used on an intermittent basis (approximately 2 days per month) and the wood shredder approximately two days per week depending on quantities accepted on site. The equipment will be maintained to manufactures standards and the plant will not be operated at unreasonable hours. This standard extends to hired-in plant; any unduly noisy plant is prohibited from site.

Noise from delivery vehicles is mitigated by speed control and also by the presence and continuing development of screening mounds.

Noise monitoring has been conducted at the facility in accordance with the waste permit. These results are summarised in Tables 16 in attachment I.

Attachment E6 Environmental Nuisance

E.6.1 Bird Control

Birds will not pose a significant risk at the facility as the final products are of low nutritional value to macro-organisms. Municipal solid waste material will be processed and stored inside the recycling building. Residual waste will be stored in an ejector trailer in the truck bay inside the building until it is ready for transfer to a licensed landfill or other appropriate licensed facility.

E.6.2 Dust Control

Internal access road is concrete and all waste activities will be conducted on concrete hardstanding areas. Any dust arising on the access road on site will be suppressed with water and swept with a road sweeper with dust suppression system. Mist air dust suppression systems are utilised within the main recycling building to minimise dust. Any dust arising from the recovery of C&D material at the site will be minimised by the used of dust suppression sprays as deemed necessary. Monitoring of total dust deposition levels will continue.

E.6.3 Fire Control

Emergency response procedures are in place as part of the Environmental Management Programme. All site operator and staff will be made aware of the dangers of fires and how to treat them. A fire Safety Certificate application is currently with the Wexford County Council fire safety officer. Provision has been made for the supply of a 240m³ fire water supply tank. The location of this tank is shown in drawing CE07-253-01-206. Precautions to be taken in order to ensure fire safety:

- All operatives will receive basic instructions on fire safety and protocol.
- A number of operatives are to attend fire officer training courses. At least one of these fire officers will be on-site at all operational times.
- A Fire Safety Drill and a Code of Practice will be developed by the site management. All staff will be fully trained with this code.
- The phone number of the local fire station will be posted in prominent positions throughout the various buildings on site.

E.6.4 Odour control

Operations at the facility involve the collection of recyclable material and the compaction and transfer of solid waste. No liquids, agricultural or sewage sludges will be accepted at the site.

Waste accepted at the facility will have generally undergone relatively little decomposition and so will have little potential for odour generation.

For the fraction of domestic/municipal waste that is deposited on site which does have odour generation potential, odour is actively controlled at the recycling building with odour neutralising spray mist. Waste is stored in the building and is removed from site every two days to minimise potential for odour generation.

E.6.5 Litter control

Implementation of the following control measures will minimise the potential for litter problems:

- All waste handling and processing (with the exception of C&D recovery) will be carried out in the enclosed facility only.
- All incoming and outgoing vehicles carrying waste will be covered.
- A daily litter patrol of the site and nearby roads will be carried out by a site operator, and a daily inspection sheet completed.
- Regular sweeping of the tipping floor and good housekeeping practices will prevent windblown materials.
- Waste will be baled, tied and placed in enclosed articulated lorries or appropriately covered vehicles before exiting the facility.

E.6.6 Traffic

The traffic management system will include speed restrictions and warning notices. The traffic will be separated by means of road markings to ensure vehicles stay within their designated movement streams and lanes.

The following additional measures will be used to control the traffic into and out of the site.

- The weighbridge operator will monitor the access and egress of vehicles.
- There are adequate parking spaces on the site of the facility.
- The traffic control point is set back from the main entrance which will prevent the queuing of vehicles on the entrance road.
- A clean and well serviced fleet will be maintained at all times.

E.6.7 Vermin control

Vermin will not pose a significant risk at the facility as the materials are of low nutritional value to macro-organisms. A pest control management system will be implemented. Murray Waste Recycling Ltd. currently employs a subcontractor (Rentokil) to be responsible for pest control on the site. They visit the site on a monthly basis.

Insecticide will be used if necessary to control fly infestations that may occur.

Residual waste is removed from site within 48 hours to prevent the attraction of vermin to the site.

Emission points are presented in drawing CE07-253-01-207.

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2.33

2.33

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PROPOSED DISCHARGE FOR ROOF WATER

SW 4

MA01

WEIGHBRIDGE

MOBILE CONCRETE CRUSHER AND SCREENER

EXISTING SITE SURFACE WATER DISCHARGE POINT

GWE1 (PERCOLATION AREA)

TIMBER SHREDDER

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LEGEND:

- SURFACE WATER EMISSION POINT
- GROUND WATER EMISSION POINT
- MINOR AIR EMISSION POINT
- NOISE EMISSION POINT

EMISSION POINT	EASTING	NORTHING
GWE1	303880	148578
MA01	304077	148676
SW3	303856	148583
SW4	303988	148665
N1	303915	148597
N2	303911	148553

Rev. No.	Drawn	Check	Appd.	Rev Origin	Date	Description
A				Cork	09.02.09	ISSUE FOR WASTE LICENCE APP NOT FOR CONSTRUCTION

Name of Client

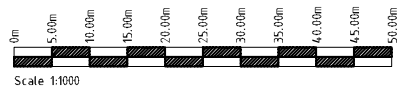
Name of Job
 WASTE LICENCE APPLICATION
 FERNS, CO. WEXFORD

Title of Drawing
 1:1000
 EMISSION POINTS

Scales Used
 1:1000
 Dwg. No. Ce07-253-01-207
 Rev. A

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SITE PLAN
 Scale 1:1000



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