

Penyfan Processing and Recycling Ltd
Waste Transfer Station and Recycling Facility
Manmoel, Oakdale, Blackwood

Operational Plan

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1 Introduction

1.1 General

This site Operational Plan (OP) has been prepared by Penyfan processing and Recycling as a supporting document to the Environmental Permit (EP) application for recycling activities at Penyfan Processing and Recycling's facility in Oakdale. The location of the site is shown on Drawing No. OP/01.

Penyfan Processing and Recycling originally operated this waste transfer station and construction and demolition waste recycling facility under a Waste Management Exemption (under paragraph 13(3) of schedule 3). In 2010 the company identified opportunities to grow its business and made a bespoke EP application to regulate new Tier 3 recycling activities being proposed on the site. This EP application included the exempt activities, and in addition, new recycling operations for wood, bitumen-bound asphalt, sewer grit, sludges and wet granular materials, and the manufacturing of soils.

This company now wishes to include the separation of mixed C&D waste using a trommel, air separation and picking station and the operational plan and risk assessments are being updated to reflect this inclusion. Although the site is permitted for a number of recycling operations, the facility's predominant operation remains the crushing and screening of C&D waste to manufacture certified aggregate products in accordance with the WRAP Aggregates protocol.

The site OP is considered a 'live' document and as such has been presented in a way which can be easily amended by adding to, or removing superseded information. Each change to the plan shall be subject to EAW approval prior to insertion in the document. The plan presents the general engineering details of the site, along with proposed working arrangements, infrastructure, environmental controls, monitoring and site management procedures.

Various guidance documents and statutory instruments have been used to produce this OP. These documents are listed as follows:

- Environmental Permitting Regulations 2007
- Environmental Permitting Guidance the IPPC Directive Part (A)1 Installations April 2008
- The Environmental Permitting Core Guidance April 2008
- Getting The Basics Right – How to comply with your environmental permit April 2008
- Environment Agency Guidance, Working Plan and Specification, Volume 1: Waste Management Licences, August 1999
- Environment Protection Act 1990
- Waste Management Licensing Regulations 1994
- WRAP Aggregates Protocol

2 Site Location and Description

2.1 Site Location and Layout

Penyfan Processing and Recycling operates a waste transfer station and aggregate recycling facility from a site located on the Western edge of the Pen-y-fan Industrial Estate, Oakdale, Blackwood. The site is bounded to the North, East and South by industrial units on the Pen-y-Fan Industrial Estate. To the North-West lies open land and to the South-West the currently unused development plateau for the Oakdale Industrial Estate. 160m from PPR's Northern Boundary lies Pen-y-Fan Country Park, and the closest residential property is over 400m to the North-East.

The site is located approximately 2km North-West of Blackwood, at National Grid Reference SO196002 and comprises an area of approx 1.5 hectares. The location of the site is shown on Drawing No. OP/01.

The site's primary access is via Pen-y-fan Pond Lane off Manmoel Road. Manmoel Road connects with the B4251 and then to the A472.

The extent of the proposed Environmental Permit (EP) area is shown in drawing OP/02.

The permitted area lies wholly within the existing Penyfan Processing and Recycling waste transfer station. The site currently processes around 60,000 tpa of Construction and Demolition (C&D) materials into certified aggregate products for use in construction and highways. The current operations and locations will remain unchanged and an area at the southern end on the existing concrete processing pad will be used for separation of mixed C&D waste using a trommel and picking station.

A series of settlement ponds (with interceptor) and a small watercourse lie to the East of the site.

The site comprises 4 areas shown schematically in Drawing OP/03:

- Goods Inwards, Dispatch, Offices and Staff facilities
- Inert C&D Waste Processing and Storage Area
- A non-hazardous waste Processing and Storage area comprising an impermeable pad and dewatering lagoon.
- Workshop and Equipment Storage Area

A more detailed drawing of the site, showing the processing and storage areas for the permitted activities is shown in Drawing OP/04.

2.2 Geology

The site is underlain by the rocks of the Grovesend Beds, of the Grovesend Formation, Upper Carboniferous in age. This is the youngest unit in the South Wales Coalfield.

These rocks comprise predominantly argillaceous Mudstone and Siltstone with well developed coals and minor lithic ("Pennant") Sandstone.

The Lower Boundary of the Grovesend Formation is marked by the Mynyddislwyn Seam, where it overlies a possible unconformity (with the underlying Hughes Beds).

The solid geology is indicated to dip in a south-easterly direction.

Approximately 100m West of the site is the conjectured crop of a roughly northeast-southwest trending fault within the Mynyddislwyn seam, which is the shallowest coal seam to underlie the site. The vertical section indicates this coal seam to have a thickness of 1.5m in two leaves.

A second fault at depth within the Nine Feet coal seam is conjectured to pass approximately north to south through the site itself.

Overlying the solid geology is Glacial Boulder Clay, of Quarternary Age.

A significant thickness of Made Ground overlies the Superficial Deposits, attaining a thickness of between approximately 3m and 5m comprising a mixture of reprocessed granular materials.

2.3 Hydrogeology

In general shallow groundwater flow within Superficial Deposits is controlled by the topography. The site has a southerly to south-westerly dip. The general area slopes in a south-westerly direction. Shallow groundwater flow is therefore expected to flow towards the southwest.

The relationship between the stream that flows alongside the site's eastern margin and the groundwater regime beneath the site is not known. Both water regimes may be in hydraulic continuity with each other, so the groundwater beneath the site and surface runoff may flow into the stream, prior to entering a culvert beneath the remainder of the site area.

Deeper groundwater will be controlled by the structure of the rock and in particular, by fractures, faults and joints.

The hydraulic gradient will be at its steepest during periods of heavy rainfall and aquifer recharge.

2.3.1 Groundwater Vulnerability

The Groundwater Vulnerability 1:100,000 Map Series published by the Environment Agency shows the underlying bedrock to be a minor aquifer, a fractured or potentially fractured rock. Although minor aquifers do not hold significant amounts of groundwater for abstraction, they are important for local supplies and in providing base flow for rivers.

The overlying soils are classified as having low leaching potential – soils in which pollutants are unlikely to penetrate the soil layer because water movement is largely horizontal or the soils have an ability to attenuate diffuse pollutants. Lateral flow from these soils may contribute to groundwater recharge elsewhere in the catchment. These soils generally have a high clay or organic matter content. In addition, low permeable drift cover is indicated.

2.3.2 Groundwater Quality

The Environment Agency “What’s in your backyard” database was consulted and the following information extracted.

Water body ID	GB40902G201900
Water body name	SE Valleys Carboniferous Coal Measures
River Basin District	Severn
Current quantitative status	Good
Current chemical status	Poor
Upward chemical trend	No
2015 predicted quantitative status	Good
2015 predicted chemical status	Poor
Overall risk	At risk
Protected area	Yes

2.3.3 Surface Water

Within 500m of the site are a number of surface water bodies:

- Approximately 150m north of the site is Pen-y-fan Pond, a large body of surface water of approximately 6.5ha. The pond is one of the last remaining canal feeder reservoirs in Wales, and sits within a recreational area.
- An unnamed stream that flows in a south-westerly direction alongside the eastern site margin. The stream comprises water from a number of collects located approximately 152m to the east of the northeast site corner which issue in a westerly direction, from a spring/issue in the far northeast corner of the site flowing south, and from an issue alongside the eastern margin in the central site area. As the stream approaches the south-eastern site area it enters a culvert, passes beneath the site in a south-westerly direction and reappears to the southwest of the site beyond Manmoel Road with the adjacent field land. The stream continues to flow in a southerly direction.
- A stream or drain to the West of the site along the verge of Pen-y-fan Pond Lane which flows in a south-westerly direction, passes into a culvert beneath Manmoel Road and reappears in the adjacent field land. This stream originates from Pen-y-fan Pond.
- A stream or drain located in the field land to the southwest of the site, flowing in a southerly direction.

These streams flow southwards for approximately 540m before turning westwards and flowing towards the Sirhowy River.

The typical groundwater regime of the South Wales Valley's river systems is groundwater flow perpendicular to the direction of river flow, providing a large amount of base flow. Further afield are two major river systems:

- The Sirhowy River situated approximately 1.5km West of the site at its closest point. The river flows in a southerly direction. The Environment Agency river quality data concludes the river water samples to have a Grade A and B (very good and good) chemistry, Grade B and C (good and average) biology, Grade 1 (very low) nitrate levels, and Grade 1 and 2 (very low to low) phosphate levels.
- The Ebbw Fach is situated approximately 2.3km East of the site and flows in a southerly direction. The Environment Agency river quality data concludes the river water samples to have a variable rate of chemistry between Grade A (very good) and Grade F (bad), Grade A to Grade C (very good and average) biology, Grade 1 (very low) nitrate levels, and Grade 1 to Grade 5 (very low to high) phosphate levels.

2.3.4 Flooding

The site is not within any defined flood zone.

2.4 Further Information

Further information can be found in Document PPR EPR SCR1.0 Site Conditioning Report (includes Environmental Audit).

3 Specified Waste Management Operations

3.1 Summary

The waste management operations proposed for Penylan Processing and Recycling will comprise the existing waste transfer station and recycling of inert construction and demolition waste (C&D), as well as new recycling activities including separation and recovery of materials from mixed C&D waste (typically received on-site in skips), asphalt recycling, sewer grit recycling, dewatering of construction and demolition and dredging materials, wood chipping and soils manufacturing.

3.2 Permitted Activities

The waste management operations to be undertaken at the proposed transfer station are identified in Table 1.

Description of Activities	Restrictions
D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced) R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	
D14: Repackaging prior to submission to any of the operations numbered D1 to 13 D9: Physico-chemical treatment not specified elsewhere in Annex IIA which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D8 and D10 to D12 R1 Use principally as a fuel or other means to generate energy R3: Recycling/reclamation of organic substances which are not used as solvents R4 Recycling/reclamation of metals and metal compounds R5: Recycling/reclamation of other inorganic materials	Treatment consisting only of manual sorting, separation, compaction, baling, grading, screening, crushing, blending, chipping, thermal processing, melting or dewatering of waste into different components for disposal or recovery.

Table 1. Waste management operations to be undertaken

3.3 Inert C&D Waste Recycling

3.3.1 Summary of Waste Management Process

Crushing and screening of mixed inert waste soil, demolition waste and other inert fractions to recover suitable clean aggregate and fill materials for use in construction or the manufacture of soil substitutes (for use on-site or sale off-site).

3.3.2 Description of Waste Management Process

Inert construction and demolition waste will be delivered to PPR by C&D, utilities and highways contractors within around a 15 mile road haulage radius of the site. The material is received via the weighbridge, where it is inspected for contamination.

PPR follows the WRAP Aggregates Quality Protocol and Processing of inert materials is carried out in accordance with PPR's Quality Management System (Appendix B - Quality Management System) and relevant procedures.

3.4 Separation and Recovery of Materials from Mixed C&D Waste

3.4.1 Summary of Waste Management Process

Physical processes, such as cutting, crushing, compaction or breaking designed to reduce in size or allow separation of fractions of recyclable or re-useable waste. Aggregate and soils will be separated for further processing through the Aggregate recycling Process (3.3). Clean wood would be separated for further processing (3.5). Metal, plastics, potentially contaminated wood and other fractions would be separated for off-site recycling/recovery or disposal to landfill. The residual material will be processed through a trommel, air separation and picking station to enable the removal of further recyclable fractions.

3.4.2 Description of Waste Management Process

The deposit of liquid wastes of any form in hire skips delivered to the site is clearly prohibited in the company contracts and during booking procedures. Despite this, there is a small risk that a skip may contain a liquid waste, e.g. old oil can, which liberates oil when tipped onto the concrete sorting pad. For this reason, skips will be tipped and sorted on an impermeable concrete pad with a sealed drainage system to avoid contamination of the adjacent watercourse.

Builder's skips delivered to PPR by waste management contractors will be received via the weighbridge, where it will be inspected for contamination and compliance with the specified waste descriptions that may be accepted on-site (3.11).

Drivers will be directed to the unloading area where the contents of skip will be tipped. Tipping onto the concrete sorting pad will be closely supervised to ensure that any potentially polluting liquid matter is identified and wherever possible isolated and dealt with to avoid release onto the concrete pad. Tipped materials will be re-inspected as a further check to ensure that they comply with the acceptance criteria. Any loads found not complying with this criterion are reloaded and rejected from site. A record of rejected loads is made in the site diary.

Aggregate and soils materials will be separated and transferred by front loading shovel to the appropriate stockpile for further processing through the Aggregate recycling Process (3.3). Wood would be manually separated as clean (untreated or packaging) material for further processing (3.5), and potentially contaminated material for disposal at a licensed landfill or WID-compliant combustion facility. Metal, plastics and other fractions would be manually separated into skips or containers for off-site recycling or disposal to landfill. Skips/containers for each material would be clearly labelled and removed off-site when full.

The residual fraction would be loaded into a trommel for further processing. The trommel will be used to separate out fine materials, leaving larger fractions suitable for sorting. The fines will be collected in skips or containers for off-site disposal at landfill. Skips/containers for each material would be clearly labelled and removed off-site when full.

The larger fractions will exit the trommel, passing through an air separation assembly to remove light fractions before being transferred onto a picking belt. The blown light materials will be captured in a cage before being transferred for off-site recycling or disposal to landfill.

Waste on the picking belt will be hand picked to separate wood, plastic, cardboard and metals. These would be dropped into chutes, falling by gravity into receiving skips/containers below the picking station. Skips/containers for each material would be clearly labelled and removed off-site when full. Cardboard and plastics would be baled before being transferred offsite for recycling. Plastic, metals and wood would be loaded loose into containers for off-site recycling, disposal to landfill or delivery to a suitably licensed energy from waste facility.

3.5 Chipping of Non-Virgin Wood

3.5.1 Summary of Waste Management Process

Cutting and chipping of wood and wood containing materials for sale off-site for animal bedding, mulch/decorative woodchip, wood chip based products (such as panels) or biofuels (where wood is not contaminated with halogenated organic compounds or heavy metals).

3.5.2 Description of Waste Management Process

Non-virgin wood delivered directly to PPR, or segregated from skip waste will be visually inspected and any treated or painted wood removed. These will be stored separately for disposal off-site to a suitably licensed waste management facility.

The inspected material will be passed through a wood chipper to produce a chip of appropriate size to meet customer requirements. After chipping the material passes a magnet to remove any metal particles (which will be placed in a skip and sent for off-site recycling) before being screened (as necessary) to remove oversize or undersize fractions.

Processed woodchip will be loaded into containers by front loading shovel for dispatch.

Chipping will be undertaken on demand to avoid the need to store chipped material on site. Temporary storage of woodchip will be in covered containers to keep it dry and avoid the potential for composting within the container.

3.6 Recycling of Bitumen-bound Asphalt

3.6.1 Summary of Waste Management Process

Re-cycling of waste bitumen-bound asphalt to produce a useable product complying with appropriate highway or civil design specifications. These specifications will typically relate to binder content, sieve testing, softening point and density.

This practice is a widespread in the USA and parts of Europe and has recently been adopted by local authorities in Leicestershire, Staffordshire, Cambridgeshire, Devon, Cornwall and several other UK regions.

3.6.2 Description of Waste Management Process

Waste asphalt will be delivered to PPR by utilities and highways contractors within around a 15 mile road haulage radius of the site. The material is received via the weighbridge, where it is inspected for contamination.

Tar containing asphalt (that may have been used on roads laid prior to around 1980) will not be processed through the asphalt recycling system. This will be controlled by an olfactory inspection both when receiving material at the weighbridge, and prior to deposit in the recycling system. If in doubt the material can be using a solubility test procedure described below.

To perform the test, samples of material randomly collected from within the load will be placed in a small amount of petrol or diesel oil. Since asphalt is derived from petroleum, it will dissolve in the petroleum distillate. If the material is an emulsion, it can be detected by the appearance of small black globules, or beads, which fall to the bottom of the container. Tar will not dissolve. If the sample is an asphalt, the sample-distillate mix will be a dark, uniform liquid. If it is a road tar, the sample will be a dark, stringy, undissolved mass in the distillate. This can be checked by spotting a piece of paper or cloth with the mix. If no stain results, the material is a tar; however, if a brown to black stain appears, then it is asphalt.

Any material suspected of containing tar binders will not be subject to thermal processing and will be transferred to the appropriate stockpile for inert C&D waste processing (3.3).

Once inspected waste asphalt for recycling will be stockpiled prior to plant processing. When materials are tipped they are inspected as a further check to ensure that they comply with the acceptance criteria. Any loads found not complying with this criterion are reloaded and rejected from site. A record of rejected loads is made in the site diary.

Road breakout may be crushed and screened before use to separate fractions suitable for reuse as base course (typically <20mm) or wearing course (typically <10mm).

Recycling of waste asphalt will be carried out using a Bagela 10000 Asphalt Recycler, RSL Plant VEB 20000 or similar mobile plant. These systems are capable of recycling up to 10 and 15 tonnes per hour respectively depending on material and ambient temperature. Asphalt Recyclers are designed to use road breakout, chunks or millings and recycle material into usable hot mix. The process, from an operating standpoint, is quite simple. Chunks or separated material is loaded into the self-contained machine, and through a heating process, is recycled back into viable hotmix.

Waste asphalt from the stockpile will be transferred by front loading shovel onto the loading platform or feed hopper of the Asphalt Recycler. The Asphalt Recycler will pre-heated to a temperature of between 130 and 150 degrees centigrade. Once at temperature the waste asphalt is deposited into a flighted drum for recycling. The flighted drum rotates whilst the asphalt is kept from coming into direct contact with any flame by drum design or steam barriers. If the processed material fails to meet a suitable design specification, further tests with the additional of will be undertaken.

The introduction of additional bitumen, PEN200, RAPbond 240, sharp sand or stone may be required to adjust the characteristics of the product.

Asphalt is processed at a consistent temperature, which is monitored by electronic controls. Once the asphalt has remelted and been completely mixed the hot mix will be discharged into a front loading shovel for transfer to a receiving vehicle for dispatch.

These mobile systems may be used roadside, often purchased by larger companies with significant volumes to justify the capital expenditure. In this case the system will be located at PPR's facility and used by a limited number of smaller companies.

It is understood that heating of bituminous materials may be a Part B activity regulated by the local authority. Such a permit will be obtained if this is required.

3.6.3 Process Validation and Testing

During commissioning of the process trials will be carried out on up to 12 x 3 tonne batches of waste asphalt to validate the proposed process in advance of full scale operations. The details of each process will be discussed with the Environment Agency Wales in advance and Officers from the Environment Agency Wales will be invited to witness the trials.

The Asphalt Recycler will be pre-heated to the required processing temperature. Once at temperature the waste asphalt will be deposited into the asphalt recycler for recycling. The material will be held at temperature for the appropriate time to melt the waste asphalt. The remelting of waste asphalt produces a material that is suitable for use as a road basecourse if it contains either basecourse or mixed basecourse and wearing course, or a wearing course if material is screened to separate out <10mm fractions. Initial trials will involve the processing of only waste asphalt. The introduction of additional bitumen, PEN200, RAPbond 240, sharp sand or stone may be required to adjust the characteristics of the product.

Once the asphalt has been processed the hot grit will be discharged into a front loading shovel where its temperature will be measured using a thermocouple or non-contact

system. Material will be loaded into a vehicle for transport to a testing area where it will be laid as a conventional road basecourse and/or wearing course. This may be within the boundary of PPR's, or at a nearby test site. Any permits or exemptions required by the Environment Agency Wales to undertake these trials will be secured in advance of work taking place.

Additional material may be formed into test samples for transfer to a recognised testing house. Once laid, core samples will be extracted from the material for testing.

If the processed material fails to meet a suitable design specification, further tests with the additional of a rejuvenator (RAPBOND 240) will be undertaken.

The final process to be run at PPR will be determined from the results of the trials and agreed with the Environment Agency Wales.

3.7 Sewer Grit Recycling

3.7.1 Summary of Waste Management Process

Heat treatment of sewer grit to sterilise the material and make it suitable for inclusion within the inert aggregate recycling process (3.3).

3.7.2 Background

As received sewer grit poses a risk to human health as a consequence of surface contamination by pathogens during transit through the sewerage network. The underlying granular aggregate material is in itself inert and following sterilisation, the Environment Agency Wales has confirmed they would consider the material to be inert. As a consequence of this, it is suitable for inclusion within PPR's aggregate recycling activity (subject to acceptance under the WRAP protocol).

According to studies undertaken by the US EPA¹ *"Properly conducted heat drying will reduce pathogenic viruses, bacteria, and helminth ova to below detectable levels. Four processes are commonly used for heat drying sewage sludge: flash dryers, spray dryers, rotary dryers, and steam dryers. Flash dryers used to be the most common heat drying process installed at treatment works, but current practice favors rotary dryers."*

The definition of heat drying is *"Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content to 10% or lower. Either the temperature of the sewage sludge particles exceeds 80°C (176°F) or the wet bulb temperature of the gas in contact with the sewage sludge as it leaves the dryer exceeds 80°C (176°F)."*

Test carried out on samples of Sewage Grit from Welsh Water's Cardiff Treatment Works have confirmed that key pathogen indicators found in sewage sludge are also found in sewer grit. We propose therefore that treatment process given in the EPA report for the sterilisation of sewage sludge are equally applicable to the treatment of sewer grit.

¹ EPA/625/R-92/013, *Environmental Regulations and Technology, Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage) Under 40 CFR Part 503*, (Revised July 2003)

The EPA report also indicates that *“Rotary dryers function as horizontal cylindrical kilns. The drum rotates and may have plows or louvers that mechanically mix the sewage sludge as the drum turns. There are many different rotary kiln designs, utilizing either direct heating or indirect heating systems. Direct heating designs maintain contact between the sewage sludge and the hot gases. Indirect heating separates the two with steel shells.”*

The Bagela 10000 Asphalt Recycler and RSL Plant VEB 20000 Asphalt Recycler are in effect an indirect heating rotary kiln with an operating temperature range of 138 - 177 degrees centigrade.

3.7.3 Description of Waste Management Process

Sewer Grit will be delivered to PPR from Sewage Treatment facilities across S.E. Wales. The material will be transported in covered vehicles and received via the weighbridge, where it will be inspected for contamination.

Once inspected sewer grit for recycling will be stockpiled on a concrete pad with a total retention drainage system prior to plant processing. When materials are tipped they are inspected as a further check to ensure that they comply with the acceptance criteria. Any loads found not complying with this criterion are reloaded and rejected from site. A record of rejected loads is made in the site diary.

Odour from sewer grit is only considered to be an issue in close proximity to sewer grit during loading/unloading and when stored in large quantities. A maximum of 40 tonnes of sewer grit will be stored at any one time and will be processed within 48 hours of being received on-site. Small batches of up to 3 tonnes will be processed at any one time to further minimise any odour release.

Sewer grit recycling will be carried out using a Bagela 10000 Asphalt Recycler, RSL Plant VEB 20000 or similar mobile plant. Sewer grit from the stockpile will be transferred by front loading shovel onto the loading platform/hopper of the Asphalt Recycler. Following transfer the front loading shovel will remain in the processing area in order for its bucket to be washed using clean water (to be discharged onto the pad for retention in the sealed sump). This will reduce the chance of cross-contamination with processed materials.

The Asphalt Recycler will be pre-heated to a temperature of 138 to 177 degrees centigrade (to be determined by trials discussed in 3.7.4). Once at temperature the sewer grit will be deposited into a flighted drum for recycling. The material will be held at a temperature above 80°C for sufficient time for the moisture in the grit to be reduced to <10% (to be determined by trials discussed in 3.7.4) to ensure complete sterilisation of the material.

Once the sewer grit has been processed the hot grit will be discharged into a front loading shovel. Moisture content of the treated sewer grit will be measured using an appropriate handheld moisture meter such as the Hydramotion MicroLance that is specifically designed for measuring moisture content in aggregate materials.

Measured moisture contents below 9.5% (assuming a probe accuracy of $\pm 0.5\%$) will deem the material sterilised and it will be transferred to the receiving stockpile within the inert

processing area. If the moisture content is measured to be greater than 9.5%, the material will be returned to the asphalt recycler and the process repeated until a moisture reading below 9.5% is achieved.

3.7.4 Process Validation

During commissioning a trial will be carried out on 3 x 3 tonne batches of sewer grit to validate the proposed process in advance of full scale operations. Officers from the Environment Agency Wales will be invited to witness the trials.

A sample of sewer grit will be taken before testing and sent for laboratory analysis to identify pathogens present within the material.

Batches will be processed at a temperature of 150°C for a duration of 15, 30 and 60 minutes.

The Asphalt Recycler will be pre-heated to the required processing temperature. Once at temperature the loading platform will be elevated, depositing the sewer grit into a flighted drum for recycling. The material will be held at temperature for the appropriate time. Once the sewer grit has been processed the hot grit will be discharged into a front loading shovel where its temperature will be measured using a thermocouple or non-contact thermometer to ensure it is above 80°C. This measurement will be taken as validation that the thermocouple within the asphalt recycler can be considered sufficiently reliable in ensuring a processing temperature above 80°C is maintained.

Moisture content of the treated sewer grit will be measured using a handheld moisture meter such as the Hydramotion MicroLance. The treated sewer grit will be allowed to cool to a temperature within the operating range of the measurement equipment (in the case of the Hydramotion MicroLance, -20 to 60 °C).

Measured moisture contents below 9.5% (taking into account the probe accuracy of $\pm 0.5\%$) will deem the process completed. A representative sample from the batch will be collected and sent away for laboratory testing to identify whether pathogens originally present have been reduced to below detectable levels.

Treated materials will be retained onsite until results of the laboratory tests are received.

Should the results of the tests show that the sewer grit has not been sterilised further trials will be carried out on a new batch of sewer grit. These samples will be subject to higher temperatures and or longer treatment durations (to be determined following the findings of the first series of trials).

The final process to be run at PPR will be determined from the results of the trials and agreed with the Environment Agency Wales.

Once operational, a sample of treated sewer grit will be taken each month for a period of 3 months and sent for laboratory testing to ensure ongoing sterilisation of the material. The findings of these tests will be presented to local Officers from the Environment Agency Wales. Assuming that the results of these test demonstrate the sewer grit has been sterilised an annual validation test will be carried out thereafter.

3.8 Dewatering of Sludges and Wet Granular Materials

3.8.1 Summary of Waste Management Process

Dewatering of sludges and granular materials from construction and demolition and dredging sources for further processing through PPR's aggregate (3.3) or soil manufacturing activities (3.9).

3.8.2 Description of Waste Management Process

Construction and demolition related sludges will be delivered to PPR by tanker. The material is received via the weighbridge, where it is inspected for contamination. The characteristics of the sludges, namely liquids containing fine solids (sludges), or wet granular solids, will be determined by visual inspection.

Sludges will be directed to the dewatering lagoon into which the load will be discharged. The design of the processing lagoon is discussed in 4.2.2.4. Once dewatered, solids will be removed from the lagoon by excavator shovel and introduced to the aggregate or soils stockpiles for further processing.

Wet granular solids will be directed to the non-inert processing pad where they will be tipped. Water will drain from the pile by gravity. Once dewatered the solids will be removed from the lagoon by front loading shovel and introduced to the aggregate stockpile for further processing.

3.9 Manufacturing of Soils

3.9.1 Summary of Waste Management Process

The facility will blend 6F product from its aggregate process line with imported soil, soil improvers and composts (exc. sewage pellets) to manufacture a range of top soil products.blend

3.9.2 Description of Waste Management Process

6F product will be removed from its stockpile by front loading shovel and transferred to the soils processing pad for processing. Imported soil, soil improvers (exc. sewage pellets), dewatered sludges (from 3.8) and composts will be added to the 6F material to produce a product compliant with customer's requirements. The materials will be mixed using the front loading shovel to produce a homogenous mix.

3.10 Acceptance Procedures

The acceptance criteria for incoming waste are that it must be within the list of permitted materials (3.9.1), be free of significant contamination and not contain hazardous substances. For C&D inert waste, very minor contamination of wood, plastic and metal is permitted, provided it does not exceed 1% by mass.

On arrival at site, all notes are inspected and the information is recorded. Each load is inspected to ensure they comply with the acceptance criteria. If in doubt materials are rejected from site and loads that are contaminated or deemed as unacceptable are also rejected from the site. Records of rejected loads are made in the site diary.

When materials are acceptable, PPR take responsibility for the duty of care of the waste, and the driver is issued with a conveyance note confirming receipt of the waste.

When material is tipped it is inspected as a further check to ensure that they comply with the acceptance criteria. Any loads found not complying with this criterion are reloaded and rejected from the site. Records of rejected loads are made in the site diary.

3.11 Waste Types and Quantities

The following table summarises the permitted waste types, their European Waste Catalogue Codes (EWC) and the maximum annual throughput that will be accepted on site. To date EWC codes shown in bold have not been accepted at the site.

EWC Code	Description	Maximum Annual Throughput (Tonnes)
17 01 01	Concrete including solid dewatered concrete process waste	150,000
17 01 02	Bricks	
17 01 03	Tiles and ceramics	
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	
17 05 04 17 05 08	Soils and stones including gravel, crushed rock, sand, clay, road base and planings, and track ballast	
20 02 02	Soils and stones restricted to parks waste	
01 05 04	Freshwater drilling muds and wastes	50,000
10 11 03	Waste glass based fibrous materials	
15 01 03	Wooden packaging	
15 01 07	Glass packaging	
17 02 01	Wood	
17 02 02	Glass	
17 02 03	Plastic	
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01	
17 04 07	Mixed Metals	

EWC Code	Description	Maximum Annual Throughput (Tonnes)
17 04 01	Copper, bronze, brass	cont.
17 04 02	Aluminium	
17 04 03	Lead	
17 04 04	Zinc	
17 04 05	Iron and steel	
17 04 06	Tin	
17 04 07	Mixed metals	
17 04 11	Cables other than those mentioned in 17 04 10	
17 05 06	Dredging spoil other than those mentioned in 17 05 05	
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03	
17 08 02	Gypsum-based construction materials other than those mentioned in 17 08 01	
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	
19 08 02	Waste from desanding	
19 12 05	Glass	
20 01 02	Glass	

Table 2. Wastes to be accepted at the site.

3.12 Non-Waste Processes

3.12.1 Batch Civil Concrete Manufacture

3.12.1.1 Summary of Process

Manufacture of batch civil concrete.

3.12.1.2 Description of Process

Dust and pipe bedding products are mixed with imported sand, cement and water in a batch concrete mixer to produce a range of concrete mixes.

3.13 Operational Overview

The block diagram presented as Figure 1 in provides a summary of processes and materials flows to be undertaken at the facility.

3.14 Hours of Operation

Penyfan Processing and Recycling's facility will be open for the receipt of waste at the following times:

Monday - Friday	Saturday	Sunday/Bank Holidays
07:30 – 17:00hrs	08:00 – 12:00hrs	Closed

Table 3. Hours of operation

3.15 Site Personnel

Technically competent staff will supervise the site and ensure that it is operated in accordance with the EP, this OP and current legislation.

The site Manager will ensure that sufficient competent staff are present on-site to manage and operate the sites activities without causing pollution. Staff will be competent in the activities they are expected to carry out. Staff will be expected to not only be competent in normal situations but also be adequately trained so that they are competent in abnormal situations such as plant failures or accidents.

The CoTC holder is Carl Davies who is in the process of securing WAMITAB accreditation.

The site will be operated by a 6 person crew, a Site Manager/Director and 5 full time Machine Operators. The site will be managed remotely by the Managing Director, although this individual spends much of his time on-site.

Staff roles and responsibilities will be clearly defined and names will be placed against each role and responsibility (e.g. technically competent person). Documentation stating who is in charge of ensuring compliance with each part of the permit and other relevant

legislation and guidance will be kept and updated at least every 6 months, or if staff change roles or leave the organisation.

Any person with duties that are controlled by the permit will have convenient access to a copy of it, kept at or near the place where they work. This includes not only staff but any contractors that may be working on the site as well. The copy may be in paper form or electronically available. Staff and contractors will be made aware of the permit, what is contained in it, what their obligations are under it and where and how to access it.

3.16 Staff Training

New employees will be given full induction training by site managerial staff or other appropriately qualified persons and records will be kept of all staff training in relation to operation of the site, site specific emergency procedures and the content and requirements of the EP and OP.

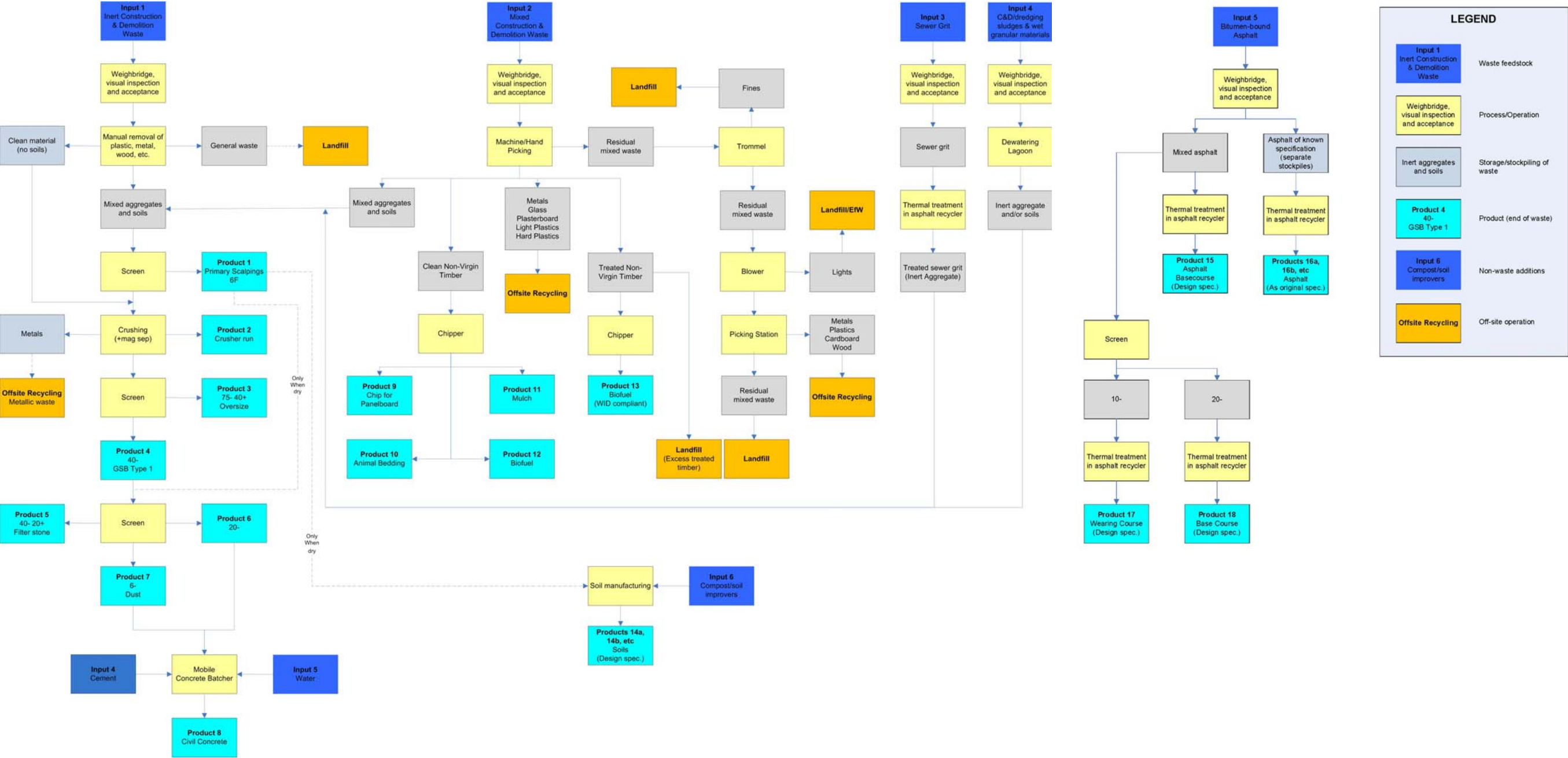


Figure 1. Process overview

4 Site Engineering for Pollution Prevention and Control

4.1 Design, Construction and Quality Assurance

Technical specifications for all aspects of engineered containment and drainage will be derived from engineering and environmental risk assessments to make sure pollution prevention and control measures are designed to meet with industry standards. Construction will be subject to Construction Quality Assurance (CQA), where appropriate to make sure construction is compliant with the technical specifications.

Information provided within this section is not intended to represent detailed design.

4.2 Engineered Site Containment and Drainage Systems.

4.2.1 Design and Construction of Existing Inert Processing Area

4.2.1.1 General

Inert materials will represent the majority of waste types dealt with at the site will be in solid form and generally be incapable of creating polluting liquids. These will be processed in the Inert Processing Area. The main risk arising from this area is the potential that suspended solids, or oil from accidental leaks will be transferred to the adjacent watercourse through storm water runoff.

4.2.1.2 Construction & Material

Vehicle access areas within the existing site are covered by an asphalt hardstanding 150mm thick dense asphalt on consolidated sub-base 200mm thick or reinforced concrete hardstanding 150mm thick. These areas are shown in Drawing No. OP/02. The hardstandings are laid with a 1:60 gradient directing storm water to settlement lagoons and a bypass interceptor in the Southeast corner of the site.

Processing and storage areas are largely unsurfaced. Materials in these areas do not pose an environmental hazard if they come into contact with run-off water and consequently, run will soak away naturally within these areas.

4.2.1.3 Drainage Design

A drainage plan for the site is included as OP/05.

Storm water run-off drains by gravity to a cut off land drain at the southern end of the inert processing area. The land drain then discharges to a silt trap and settlement lagoons before being discharged into the adjacent watercourse.

Water from the silt settlement tank is removed and reused onsite for dust suppression.

A class 1 bypass separator is installed at the outflow of the settlement lagoons to ensure no oil contamination of the adjacent watercourse occurs in the event of leaks or spillage.

The EAW has confirmed that a discharge consent is not required for these rain dependant discharges.

4.2.2 Design and Construction of Separation and Processing Area

4.2.2.1 General

The separation and processing area comprises;

- **Separation, Processing and Storage Area:** an impermeable concrete pad (4.2.1.2), for sorting of mixed C&D waste, storage of skips and segregated waste, storage and processing of bitumen-bound asphalt, manufacturing of soils and storage and wood chipping. These areas are connected to the existing site drainage system (4.2.1.3) that passes through an oil interceptor before discharging into the adjacent watercourse.
- **Sewer Grit Storage and Processing area:** an impermeable concrete pad (4.2.2.3.1) for storage and processing of sewer grit with drainage to a sealed sump (4.2.2.3.2).
- **Dewatering Area:** an impermeable concrete lagoon (4.2.2.4.1) for dewatering of silt, sludge and granular materials from construction and demolition and dredging with drainage to a sealed sump (4.2.2.4.2).

4.2.2.2 Separation, Processing and Storage area

4.2.2.2.1 Construction & Materials

Separation, Processing and Storage will take place on a concrete slab, with approximate dimensions of 60m x 17.5m. The slab will have a composite jointless construction consisting of a 150-200mm thick concrete pad, laid on Type 1 Sub-base 150-250mm thick. The slab is laid to a 1:40 gradient sloping downwards in the direction of a linear cut-off drain running West to East. The slab is designed in accordance with BS 8007:1987 Code of practice for design of concrete structures for retaining aqueous liquids.

4.2.2.2.2 Drainage Design

The drainage system is a gravity based system which consists of a linear cut-off drain comprised of open rectangular reinforced concrete channels which run approximately West to East, along the northern edge of the slab. The capacity of the channel is appropriate to accommodate a rainfall intensity of approximately 75mm per hour (as BS EN 752-4:1998). An allowance has been made for the loss of capacity due to a degree of build up of material in the channel although there will be an operational requirement for regular removal of debris to maximise operational performance. The size and shape of the channel is favourable in allowing manual maintenance. The drainage channel drains by gravity into the silt settlement lagoons, filter beds and bypass interceptor discussed in 4.2.1.3. The drainage channels will be designed in accordance with BS 8007:1987 Code of practice for design of concrete structures for retaining aqueous liquids.

4.2.2.3 Sewer grit storage and processing area

4.2.2.3.1 Construction & Materials

All recycling of sewer grit will take place on a concrete slab, with approximate dimensions of 20m x 20m. The slab will have a composite jointless construction

consisting of a 150-200mm thick concrete pad, laid on Type 1 Sub-base 150-250mm thick. The slab will be laid to a 1:40 gradient sloping downwards in the direction of a linear cut-off drain running West to East through the approximate centre of the pad. The slab will be designed in accordance with BS 8007:1987 Code of practice for design of concrete structures for retaining aqueous liquids.

4.2.2.3.2 Drainage Design

The drainage of the slab has been considered in accordance with the guidance contained in “BS EN 752-4:1998 Drain and Sewer Systems Outside Buildings – Part 4 Hydraulic Design and Environmental Considerations” and details are shown on Drawing No. OP/02. The drainage performance of the slab under the 1 in a 100 year rainfall event has also been considered using rainfall data obtained from the Flood Estimation Handbook.

The drainage system is a gravity based system which consists of open rectangular reinforced concrete channels which run West to East, through the approximate centre of the slab. The capacity of the channel is appropriate to accommodate a rainfall intensity of approximately 75mm per hour (as BS EN 752-4:1998). An allowance has been made for the loss of capacity due to a degree of build up of material in the channel although there will be an operational requirement for regular removal of debris to maximise operational performance. The size and shape of the channel is favourable in allowing manual maintenance. The drainage channel drains by gravity through a two stage interceptor and silt trap into a sealed sump that will be emptied by tanker for off-site treatment. The drainage channels will be designed in accordance with BS 8007:1987 Code of practice for design of concrete structures for retaining aqueous liquids.

The sealed sump will be inspected no less frequently than daily and after rain, emptied when the collected liquids reach 80% of the capacity of the sump as measured using a dipstick, electronic level monitoring system or equivalent gauge, and constructed and maintained so as to collect and contain all liquids which run off the pavement. Inspections and emptying of the sealed sump shall be recorded in the site diary.

The facility would be designed so that the 1 in a 100 year rainfall event will be contained within the slab structure/sealed sump to avoid potentially polluting material being washed off the working area.

4.2.2.4 Dewatering Area

4.2.2.4.1 Construction & Materials

Drawings OP/08 shows the design of the dewatering lagoon.

The dewatering lagoon will be constructed from reinforced concrete and have dimensions of approximately 6.4m x 14.4 m and 1m in depth.

The dewatering lagoon will function in one of two ways:

- 1) Through the settlement of solids under gravity and subsequent removal of water through a perforated baffle wall and stone filter (OP/08). Further drying by evaporation may be required before removal of solids.
- 2) As above with water removal by lowering an adjustable height dam wall.

The process used will be determined by trials during commissioning and the nature of the material being dewatered.

The dewatering lagoon will be designed in accordance with BS 8007:1987 Code of practice for design of concrete structures for retaining aqueous liquids.

Dewatered material will be removed from the lagoon using an excavator shovel and introduced into the inert aggregate recycling process (3.3).

4.2.2.4.2 Drainage Design

Water from the dewatering lagoon will drain via gravity to the same sealed sump as that utilised by the sewer grit storage and processing area (4.2.2.3.2). Drainage to the sump will be through impermeable pipes, or through concrete channels. The slab will be designed in accordance with BS 8007:1987 Code of practice for design of concrete structures for retaining aqueous liquids.

4.2.3 Foul Drainage

Domestic Sewage (foul water not including trade effluent) arising from lavatories and wash basins in the workshop area is transferred via underground drains to a septic tank located towards the north-western boundary of the site. This tank processes less than 2m³/day of water. A discharge exemption will be applied for to cover this discharge to ground.

4.2.4 Design and Construction of the Fuel and Oil Storage Tanks

The following fuel and oil storage is present on-site:

- 3000 gallon Derv + 3000 gallon Gas Oil tanks within a walled concrete pad area (capable of holding >110% of the capacity of the fuel tanks) located to the rear of the workshop.
- 2000 gallon Gas Oil tank within a steel containment tank (capable of holding >110% of the capacity of the fuel tank) located at the storage area to the East of the workshop.
- 440 gallon double-lined mobile bowser containing Gasoil.
- 3 x 200l oil drums storage containing engine oil within a walled concrete pad area (capable of holding >110% of the capacity of the oil drums)

4.2.5 Maintenance Procedures for the Engineered Site Containment and Drainage Systems.

All site containment (e.g. sealed sump, fuel and oil storage tanks) and drainage systems will be inspected at least weekly, throughout the operational life of the site for cracks, defects and cleanliness, by appropriate site staff. The results of each site inspection shall be recorded in the site diary. All maintenance and repair works will be carried out within one week of its discovery. EAW shall be informed of all remedial works.

In the event that a storage tank is found to be leaking, arrangements will be made to have the contents transferred to an alternative container, pending completion of repairs. Any water contaminated with fuel and oil in the bunded area will be removed by an appropriately registered waste removal contractor.

5 Site Infrastructure and Records

5.1 Site Entrance

An identification sign shall be erected and maintained in a prominent position at the site entrance. The sign shall be approximately 1m by 1m and display the following information.

- Site name and address
- Name of site operator
- Name of EP holder
- EP number
- Emergency contact telephone number
- Statement that the site is licensed by the EA
- EA contact details
- Operational site hours

5.2 Site Accommodation

The site is/will be equipped with the following facilities:

- Site office facilities
- Welfare/Mess facilities
- Workshop
- Storage areas
- Fuel oil storage tanks
- Wheel wash
- Weighbridge
- Total retention system

The site office will be positioned at the main entrance next to the weighbridge, and will be equipped with a telephone line, suitable for emergency calls. The office will provide suitable space to permit secure short-term record keeping. All records specifically relating to recycling operations shall be retained on-site, or at the nearby offices at Penryfan Leisure Park. The site office will keep a copy of the EP conditions and the most up-to-date approved copy of the OP. All site staff shall be made aware of the EP and OP, and will be required to be aware of the documents' contents.

Appropriate welfare facilities will be provided at site and maintained by site staff. A hardstanding area for car parking will be provided for staff members and site visitors in the vicinity of the site office. This area will be maintained to minimise surface water ponding and to direct surface water to the sites' drainage system.

With the exception of large recycling plant and vehicles, all site equipment and machinery will be securely stored within the existing workshop.

5.3 Lighting

No recycling activities will be carried out during the hours of darkness. As a result, no consideration has been given to the provision of keeping lighting equipment on site for use in the recycling area. The existing lighting is considered adequate for the activities proposed.

5.4 Site Security

Suitable fencing is erected around the Environmental Permit boundary and will be regularly inspected and maintained.

5.5 Maintenance Procedures for Site Infrastructure

The integrity of the sites' infrastructure shall be inspected daily by an appropriate member of staff and any issues or concerns will be recorded in the site diary.

A maintenance schedule identifying items of plant, location of maintenance instructions and responsibilities will be kept and maintained.

5.6 Site Health and Safety

PPR's Health and Safety Policy, employee handbook and training programmes provide significant information relating to on-site Health and Safety duties.

5.7 Availability of Records

All wastes delivered to the facility will be weighed and a ticket shall be issued to the vehicle transporting the material, with a copy of the ticket filed at the site office.

EAW will be provided with a summary of types of quantities of wastes received at the site. These records will be relayed to EAW in an agreed format and at an agreed frequency. The site diary will be stored in a lockable cabinet at the site office at all times. The diary will be used to record site activity and any unusual events. The diary will be made readily available for inspection by any EAW officer at any reasonable time.

Written details of site visitors will include;

- Name (including signature) and company/organisation
- Reason for visit
- Time of arrival and departure

The time (when necessary) and the date of the following events shall also be recorded in the site diary;

- Start and finish of any construction/engineering works within the site boundary
- Start and finish of any management processes carried out on site
- All maintenance

- Breakdowns
- Emergencies and environmental incidents and remedial actions taken
- Problems with waste received and action taken
- Evidence of all waste entering and leaving the site; where from, date, time, weight
- Site inspections; Who carried out the site inspection, date and time, why and the consequent actions carried out by the operator
- Attendance of technically competent management on site and the date and time of departure of the technically competent manager
- Despatch of records to the EAW
- Extreme weather conditions
- Complaints and actions taken

6 Site Operational Procedures

6.1 General

The site shall be operated and managed within the terms contained within this OP and conditions imposed by the EP. Only material complying with the EP shall be accepted at the site.

The appropriate protective clothing shall be worn by all persons on site, including all visitors. All clothing must conform to the Health and Safety Policy and/or Employees Handbook. Defects to such equipment or clothing shall be immediately reported to the site supervisor.

Inert waste shall be processed in accordance with both the following operational procedures and the Quality Protocol included as Appendix B - Quality Management system.

Procedure PPR1 - Waste Acceptance Procedure

Upon arrival at site, vehicles transporting the waste will be assessed for suitability prior to being directed to the appropriate area of site for off-loading and storage prior to further treatment. Any material deemed unsuitable for site acceptance will be rejected by the operator.

Waste shall only be accepted if:

- It is of a type and quantity listed in section 3.2 of the OP and the EP; and
- It conforms to the description in the documentation supplied by the producer and holder.
- All waste received at the facility shall be visually inspected by an appropriate PPR member of staff prior to and immediately following deposit/delivery, to confirm the waste description and composition. Basic characterisation will involve the provision by the waste producer/carrier of;
 - A description of the waste; and
 - Information on the process that produced the waste.
- All vehicles used to deliver waste will hold valid registration certificates under the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (1991). Records will be kept of all waste received at the site (see Section 5.9)
- Waste shall be disposed of in accordance with the Environmental Protection (Duty of Care) Regulation (1991) waste transfer note system.
- If waste appears acceptable the load will be transferred to the appropriate stockpile (in the case of loads of inert material containing <1% contaminants), or onto the impermeable concrete hardstanding for loads that require sorting. Sewer grit will be discharged into the identified storage area.
- Once discharged, the load will again be visually examined to check for the presence of any non-permitted wastes, particularly any liquid or otherwise hazardous wastes. If the waste is acceptable, at that point they will be deemed to have been accepted and sorting will commence.

- Any load containing dry dusty materials or loose light materials will be held over in the holding area if the wind speed is greater than 20 mph to avoid release of dust or litter from the tipping/sorting operation.

Procedure PPR2 - Procedure for Dealing with rejected wastes

Reasons for rejecting a load and refusing access to the site are:

- Waste Carriers Registration or exemption certificate not available;
- Waste is not accepted at the site (does not conform to EP); and
- No transfer note is available.

Waste types not included under the EP shall be rejected and the incident recorded in the site diary. All rejected loads shall follow the procedure below:

- The senior member of staff on the site will immediately be advised;
- The vehicle registration number and the name of the company delivering the load shall be recorded in the site diary;
- If it is safe for the load to leave the site it shall be instructed to do so; and
- Establish where the load shall be taken to if it leaves the site.
- The Site Manager will determine whether the incident is sufficiently serious to warrant informing the Environment Agency

Procedure PPR3 - Waste Storage Procedure

The available information on the nature of each waste type and its chemical and physical properties should be assessed by an authorised person in order to determine the appropriate storage requirements whilst the waste is on-site. Waste stores will be clearly marked to show their contents and specific warning notices placed to indicate any hazardous properties (e.g. flammable) according to appropriate regulations. Waste stores and storage areas will be designed and maintained to take into account the following:

- Non-hazardous waste as defined in Table 2 must be stored on an impermeable base, steel container or other form of base and should be adequately located in order to ensure containment of any surface water runoff.
- Incompatible wastes must not be stored together, e.g. concrete must not be allowed to mix with wood intended for shredding.
- Where appropriate, waste stores should be protected from rain and strong winds (through sheeting or netting).
- Skips will be labelled to show what types of waste can be placed in them.
- In general, the quantities of waste in storage at the site will be kept to a minimum feasible level as determined by the quantity that is practical and economic to consign for disposal, recovery operations or off-site recycling.

- Waste storage areas will be maintained to allow easy and safe access for personnel and for waste handling and removal.

Procedure PPR4 - Recycling Operational Procedures

Appropriate consideration to Moving and Handling/Health and Safety Directives should be given when physically sorting by-hand. If a member of staff is unsure whether hand sorting is appropriate they should discuss this with the site manager.

Procedure PPR4.1 - Sorting

- All sorting of non-hazardous materials will be undertaken on the impermeable concrete slab.
- When sorting with mechanical plant (excavators equipped with claw grabs or similar) no other staff will be allowed in the sorting area.
- No staff shall use mechanical sorting equipment, the trommel, air separation and picking station unless they have received suitable training.
- Sorted waste will be placed into appropriately labelled skips or stockpiles.
- No site personnel will be allowed to physically climb into a skip once waste has been deposited within it.
- Non-recyclable material should be placed in clearly labelled skips.
- Putrescible contaminants should be placed in sealed containers and disposed of at the earliest opportunity.
- Fines and residual waste from the picking line shall not be introduced into the aggregates recycling operation.

Procedure PPR4.2 - Processing of Inert Waste

- All processing of inert materials will be carried out in the specified area.
- Equipment will be inspected before use to ensure noise suppression covers are closed and features necessary for operator safety are correctly installed.
- The waste to be screened or crushed will be fed into the screen using a mechanical excavator.
- Contaminants removed during processing will be placed into appropriately labelled skips or stockpiles.
- Product will be visually or laboratory tested as required by appropriate specifications.

Procedure PPR4.3 - Processing of Clean Wood

- Chipping will be undertaken on demand to avoid the need to store chipped material on site.
- All chipping of wood will be carried out in a specified area.
- Equipment will be inspected before use to ensure noise suppression covers are closed and features necessary for operator safety are correctly installed.
- The wood chipper will be loaded either by hand or mechanical plant. Two members of staff should be present at all times when loading by hand.
- Metal particles removed by the overband magnet will be placed in a skip (and sent for off-site recycling).
- Wood will be chipped into an appropriate container or stockpile.
- Product will be visually or laboratory tested as required by appropriate specifications.

Procedure PPR4.4 - Processing of Bitumen-Bound Asphalt

- Tar containing asphalt will not be processed through the asphalt recycling system.
- An olfactory inspection both when receiving material at the weighbridge, and prior to deposit in the recycling system will be carried out to detect the presence of tar. If in doubt the material should be tested using a tar identification spray or solubility test.
- To perform a solubility test, place an unknown in a small amount of petrol or diesel oil. If the material is an emulsion, it can be detected by the appearance of small black globules, or beads, which fall to the bottom of the container. Tar will not dissolve. If the sample is an asphalt, the sample-distillate mix will be a dark, uniform liquid. If it is a road tar, the sample will be a dark, stringy, undissolved mass in the distillate. Check this by spotting a piece of paper or cloth with the mix. If no stain results, the material is a tar; however, if a brown to black stain appears, then it is asphalt.
- Any material suspected of containing tar binders will not be subject to thermal processing and will be transferred to the appropriate stockpile for inert C&D waste processing (Procedure PPR4.2 - Processing of Inert Waste).
- Processing of asphalt will take place on demand.
- All asphalt processing will be carried out in a specified area.
- Equipment will be inspected before use to ensure noise suppression covers are closed and features necessary for operator safety are correctly installed.
- The asphalt recycler will be preheated to the appropriate temperature.
- Waste material will be loaded onto the loading platform/hopper of the asphalt recycler by front loading shovel.

- Once the correct operating temperature is reached material be transferred from the loading platform/hopper into the processing chamber.
- Once processing is complete the hot asphalt will be discharged into a front loading shovel for loading onto customer vehicles.
 - Staff will take all necessary precautions when dealing with hot asphalt.
 - Customer vehicles will be inspected to ensure they are suitable for transporting hot asphalt.
- Product will be visually or laboratory tested as required by appropriate specifications.

Procedure PPR4.5 - Processing of Sewer Grit

- The transport of sewer grit will be in a covered vehicle;
- Material received on site shall be inspected prior to acceptance (see Procedure PPR1 - Waste Acceptance Procedure);
- Sewer grit will be sheeted in high wind speeds that could increase odour release off-site
- Moving or processing of sewer grit will not be undertaken in conditions that could increase odour release offsite towards nearby receptors (i.e. high winds from the West/South West).
- All sewer grit processing will be carried out in a specified area.
- Processing of sewer grit will take place within 48 hours of arrival, or at such a time where stored sewer grit amounts to 40 tonnes.
- Equipment will be inspected before use to ensure noise suppression covers are closed and features necessary for operator safety are correctly installed.
- Drains and sealed sump should be inspected prior to processing.
- The processing equipment (asphalt recycler) will be preheated to the appropriate temperature specified in the environmental permit.
- Only when the correct operating temperature is reached will sewer grit be transferred from the loading platform/hopper into the processing chamber.
- Waste material will be loaded onto the loading platform/hopper of the asphalt recycler by front loading shovel. The bucket of the front loading shovel is to be maintained on the pad and washed with clean water after use.
- The sewer grit will be processed for the appropriate time and temperature specified in the environmental permit. If for any reason the time/temperature cycle is not carried out according to the environmental permit requirements the load will be discharged into a front loading shovel and the cycle repeated.

- Once processing is complete the hot sewer grit will be discharged into a front loading shovel where it will be cooled to a temperature of <60 degrees centigrade.
- Staff will take all necessary precautions when dealing with hot sewer grit.
- Once cooled, the moisture content of the material will be measured with appropriate handheld monitoring equipment. If the moisture content meets that indicated in the environmental permit processing will be completed.
- Processed material will be introduced into the Inert Material Process (Procedure PPR4.2 - Processing of Inert Waste).
- The sewer grit processing pad is to be washed down with clean water after use.
- Liquids draining from sewer grit will be contained in a covered total retention system (see 4.2.2.3 Sewer grit storage and processing area);
- Use of odour neutraliser if deemed necessary.

Procedure PPR4.6 - Dewatering of Sludges and Wet Granular Materials

- All dewatering will be carried out in a specified area.
- The water level in the dewatering lagoon and sealed sump should be inspected before discharge to ensure sufficient capacity to accommodate the discharged load.
- All drivers discharging loads will take appropriate precautions to minimise spillage.

Procedure PPR4.7 - Manufacturing of Soils

- All soils processing will be carried out in a specified area.
- Blending/mixing of fines and chipped/shredded wood/compost will be carried out using a front loading shovel.
- Product will be visually or laboratory tested as required by appropriate specifications.

Procedure PPR5 - Storage of End Product

- Stockpiles will be measured and re-profiled as necessary to maintain their stability.
- Product will be visually inspected following processing and laboratory tested according to the requirements of appropriate specifications or legislation.
- If any of the analysis results are outside of the standards set for off-site end use, the material will either be returned to the beginning of the recycling process or sent to landfill for disposal.

Procedure PPR6 - End Product Dispatch

- Product will be loaded into containers by front loading shovel for dispatch.

- All product (or waste), which is transported from site, will be weighed and a record kept detailing the following:
 - Date and removal of each container/skip;
 - Quantity removed; and
 - Destination and company removing the material.

Procedure PPR7 - Transport of Waste in Company Vehicles

The site operator is responsible for ensuring that a clear system of responsibilities are in place to ensure that all waste that is transported in Company controlled vehicles is transported safely and in accordance with regulations.

The site operator must ensure that there are clearly defined responsibilities for the following:

- Assessing whether any wastes are suitable for transport in Company controlled vehicles/skips (i.e. secure, not overloaded, free of excessive moisture or contamination, sheeted to contain debris).
- Determining who produced the waste and whether a transfer note is available.
- Determining what specific regulations apply to the transportation of the waste.
- Ensuring that the waste is transported safely and in accordance with regulations.

Where wastes are transported, they must be securely packaged, labelled in accordance with regulations and safely handled.

Procedure PPR8 - Training

The site Manager will ensure that sufficient competent staff are present on-site to manage and operate the sites activities without causing pollution. Staff will be competent in the activities they are expected to carry out. Staff will be expected to not only be competent in normal situations but also be adequately trained so that they are competent in abnormal situations such as plant failures or accidents.

All site operatives and new employees shall be trained and made aware of the EP criteria and OP. Operatives shall be trained in:

- How to minimise risk and the impact on people and the environment;
- The waste acceptance criteria for the site;
- The information required on documentation;
- Identification for non-conforming wastes;
- The procedures for dealing with non-conforming wastes;
- How to safely operate equipment;
- How to comply with the law and government policies; and

- The location of sensitive sites which may be affected by site operations and the pathway by which the emissions could get to them.

PPR shall carry out regular reviews of staff training and instigated appropriate additional training as and when necessary (for example as a result of technical or legislative change). A record of staff training will be kept on the attached Staff Training Record template.

A qualified first aider will be present on-site at all times.

Procedure PPR9 - Recording of Staff Responsibilities

A record of staff roles and responsibilities will be maintained clearly defining roles and responsibilities (e.g. technically competent person). This document will state who is in charge of ensuring compliance with each part of the permit and other relevant legislation and guidance. This document will be kept and updated at least every 6 months, or if staff change roles or leave the organisation.

Procedure PPR10 - Site Emergency Plan

A Site Emergency Plan will be maintained indicating potential incidents that could arise on site, preventative actions and actions to be undertaken in the event of an incident.

The Site Emergency Plan will be reviewed every 6 months, or when new plant or processes are brought on-site.

Procedure PPR11 - Recording and Reporting of Environmental Incidents

All employees are responsible for reporting environmental incidents to the site operator or nominated manager. Where procedures or Permit Conditions require additional, specific records to be maintained, a written incident report must be provided to the site manager on the attached Accident and Incident Report template as soon as possible after the verbal report has been made.

Where an incident is serious, the Environment Agency must be informed immediately by telephone or other agreed mechanism. A serious incident would include:

- Actual or imminent risk of significant environmental pollution.
- Breach of statutory limits or Site Licence Conditions.
- Any incident that must be reported to the enforcing authorities.
- Deposit of significant amounts of a non-permitted waste in skips or directly at the site.
- Any incident that could foreseeably lead to serious public complaint or media enquiries.
- Major damage to plant, equipment, premises including fires on-site.
- Serious injury of the public.
- Serious near-misses which could have foreseeably lead to any of the above.

A central file containing all Incident Reports will be maintained and will be reviewed at regular intervals to identify whether any trends or patterns can be discerned.

Where an incident is required to be reported to the enforcing authorities, the site operator must ensure that this report has been made within the required time period and in the specified format.

Procedure PPR12 - Maintenance

The integrity of the sites' infrastructure shall be inspected daily by an appropriate member of staff and any issues or concerns will be recorded in the site diary.

A maintenance schedule identifying items of plant, location of maintenance instructions and responsibilities will be kept and maintained.

A separate Maintenance Record will be kept for each item of plant identified in the Maintenance Schedule. Maintenance undertaken on any plant will be recorded in the relevant Maintenance Record.

Procedure PPR13 - Environmental Audits

The site will be subject to regular environmental audits.

- Compliance audits to ensure that Environmental Permit and other consent/permit requirements are being met will be undertaken on at least a bi-annual cycle.
- Audits must be undertaken by properly trained persons.
- Audit reports must be made held on file and available for inspection by customers and the Environment Agency as required.

Procedure PPR14 - Complaints

In the event of a complaint being made a written report must be provided to the site manager on the attached Complaint Report template as soon as possible after the verbal report has been made.

If the Complainant is on-site the Site Manager is responsible for discussing the nature of the complaint and, if the complaint relates to an activity falling outside of standard operating parameters), immediately taking steps to address the complaint.

Depending on the nature of the complaint the Site Manager is responsible for informing the Environmental Health Department of Caerphilly CBC, the Environment Agency Wales or other parties as appropriate.

Procedure PPR11 - Recording and Reporting of Environmental Incidents should be followed if the complaint relates to activities described therein.

A central file containing all Complaint Reports will be maintained and will be reviewed at regular intervals to identify whether any trends or patterns can be discerned.

Procedure PPR8 - Staff Training Record

Employee Name:				Job Title		
Training Required	Date due	Date completed	Passed as competent? yes/no	Reviewers Signature	Date for Refresher	Comments

Procedure PPR9 - Staff Responsibilities

Name	Role	Part of permit responsible for	Any other legislative responsibilities?	Required training received?

Procedure PPR10 - Site Emergency Plan

1 Key Site Information

SITE LOCATION DETAILS		
Unit phone no.:	Mobile contact:	
Grid Reference of Unit:		
Grid Reference of Access		
EMERGENCY CONTACT DETAILS		
Emergency services:		
Local police:		
Environment Agency hotline: 0800 80 70 60 (24 hour emergency hotline)		
	Office hours	Out of hours
Electricity supplier:		
Gas supplier:		
Local authority:		
Oil supplier:		
Water undertaker:		
COMPANY CONTACTS (Out of hours)		
Owner:		
Unit Manager:		
Head Office Contact:		
	Date	Signature
Date of Plan:		
Date of subsequent review:		

2 Emergency Procedures

Accident Type	Anticipated Consequences	Actions to Prevent	Action to be taken (listed in order of priority)
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•

3 Details of Tanks, Stores and Their Contents

Location/Building	Maximum Quantity	Tank/Store	Containment

4 Site Plan

Site plan identifying key services and emergency equipment.

Procedure PPR11 - Accident and Incident Report

Date and time of the incident	
What happened, what was it about?	
Was anyone else aware of this – other witnesses? If so who?	
What caused it?	
What action did you take to fix the problem? Were external agencies involved?	
What have you done to make sure that it does not happen again?	
Was there any significant pollution – for example: oil entering a surface water drain. If so what?	
If there was then you must notify the Environment Agency on 0800 807060 ASAP. Have you done so?	Yes/No/not applicable Time: Date: E.A Incident number:
Please print your name and sign	

Procedure PPR12 - Maintenance Schedule

Item requiring maintenance	How often? (tick the appropriate box)						Where are maintenance instructions?	Who is responsible?
	Day	Week	Month	Year	2 years	5 years		

Procedure PPR12 - Maintenance Record

[illegible]

Procedure PPR14 - Complaints Report

Who made the complaint? Name:	
Address	
Phone No	
Date and time they made the complaint	
What happened, what was it about?	
Was anyone else aware of this – other neighbours or your staff? If so who?	
Assuming the complaint relates to your site, what was the problem, what went wrong? If you can't find the source of the problem you should contact a suitably qualified person to do so and record who they were and what the problem was.	
What have you done to make sure that it does not happen again?	
Was there any significant pollution – for example: excessive odour which can be smelt off site or spillage of untreated sewage onto the ground into a drain or a watercourse? If so the Environment Agency must be informed.	
If there was then you must notify the Environment Agency on 0800 807060 ASAP. Have you done so?	Yes/No/not applicable At what time did you phone?
You must also write or send an email to confirm this to the local office (see your accident management plan for the address). Have you done so?	Yes/No/not applicable Time: Date: EA incident number:
Please print your name and sign:	

5 Monitoring and Environmental Controls

5.1 Risk Assessment

A site specific risk assessment has been undertaken to cover the risks to sensitive receptors from the operation of the recycling facility. The risk assessment is contained in Document Ref: PPR EPR ERA1.0 and should be referred to in addition to the following sections.

5.2 Management of Dust

The Shift manager will ensure wind strength and direction is measured and recorded in the site diary each day before commencing operations. Operations will not begin if wind speed and direction is likely to cause dust nuisance to neighbouring receptors.

Visual dust monitoring shall be carried out no less than twice daily by the Site Manager to establish if dust arising from screening/crushing or from mud on site/approach roads are likely to cause dust nuisance to neighbouring receptors.

If the Shift Manager determines dust nuisance is likely they will deploy dust suppression spray and/or road cleaning equipment until such time as the problem is reduced to an acceptable level.

The following control measures will be implemented to minimise potential impacts on surrounding receptors:

- The Weighbridge Operator will ensure that material is sheeted and secured when leaving the site as necessary.
- Deposition at the waste reception area shall occur in a controlled manner i.e. no tipping into the wind.
- Moving and screening of material shall not be undertaken during excessive wind speeds.
- All staff to be trained to understand when dust levels are likely to cause nuisance to neighbouring receptors and are to inform the Site Manager if they consider the potential exists for dust nuisance to be caused.

The risk assessment has concluded that the overall risk from dust will be LOW.

5.3 Control of Mud and Debris

The main site access road leads from a minor road, Pen-y-fan Pond Road, a short distance from its junction with Manmoel Lane.

In order to limit the transfer of mud or debris a good standard of cleanliness will be maintained at the site. A wheel wash will be available for removal of mud and debris from vehicles prior to leaving the site. In addition, dust suppression measures referred to in the accompanying risk assessment contained shall be implemented, when appropriate.

Prior to leaving the site, vehicles will be inspected and all waste vehicles leaving the site will be sheeted as appropriate to prevent debris falling onto the public highway.

To ensure that the site access road remains effective, the access road shall be inspected at least once a day by a competent staff member. Any discrete areas of mud or debris shall be immediately removed. The road shall be cleaned at least twice per week, with additional cleaning undertaken as and when required.

5.4 Control of Odours

Industrial units, approximately to the North, West and South of the site, are the closest receptors that could be impacted from airborne transport of odour. The predominant wind direction is from the west to southwest, as such, the potential for odour impact is related to receptors located principally to the east and northeast, of which the Abingdon Carpets building, 130m from the centre of the sewage grit treatment pad is the closest.

It is considered that good site management practices, the sites distance from sensitive receptors and the prevailing wind direction will help to ensure that the risk of impact from releases of odours is minimal.

The following sources and activities have been identified as the main sources of odour during recycling operations:

- Transport and acceptance of waste material (sewer grit);
- Dewatering of materials (sewer grit);
- Recycling of materials (sewer grit);
- Removal of liquids from the sealed sump for off-site disposal.

The following control measures will be implemented to minimise potential impacts on surrounding receptors:

- The transport of sewer grit will be in a covered vehicle;
- Material received on site shall be inspected prior to acceptance (see Procedure PPR1 - Waste Acceptance Procedure);
- Sewer grit will be sheeted in high wind speeds that could increase odour release off-site
- Moving and recycling of sewer grit shall not be undertaken in high wind speeds that could increase odour release off-site;
- Sewer grit will be dewatered for a maximum of 48 hours before treatment;
- Wash down of dewatering areas once materials are removed;
- Regular maintenance of operational areas such as drainage channels;
- Liquids draining from sewer grit will be contained in a covered total retention system (see 4.2.2.3 Sewer grit storage and processing area);
- Use of odour neutraliser if deemed necessary.

The operational area of site will be inspected daily by the site manager, and the site boundary will be inspected regularly for any noticeable or persistent odours. All inspections will be recorded in the site diary.

The risk assessment has concluded that the overall risk from odours will be LOW.

5.5 Control of Noise

An auditory inspection will be carried out by the site manager at least twice per day. Noise levels which are considered higher than usual shall be investigated and recorded in the site diary. Activities to be reduced or stopped until operations are able to commence without elevated noise levels.

Several mitigation measures will be implemented to reduce the level of noise emitted from site. These include:

- Restricted site working hours;
- Screening bunds to North and East of site to reduce off-site noise have been created and will be maintained;
- Haul roads regularly maintained to minimise potential noise from vehicles;
- All plant machinery will be switched off when not in use;
- All plant machinery will be subject to regular maintenance;
- Installed noise reducing equipment to be used and maintained; and
- Recycling operations arranged in such a way as to minimise noise production as far possible.

The risk assessment has concluded that the overall risk from noise will be LOW.

The site has been in operation for a number of years and no complaints regarding noise by neighbours, or visitors to the nearby Pen-y-fan Pond have been received.

5.6 Control of Vermin, Scavengers, Insects Infestations and other Pests

All necessary steps will be taken to control and eradicate vermin or insect infestation at the site. The risk assessment has concluded that the overall risk from vermin, scavengers and insect infestation is LOW.

To minimise the risk of vermin, scavengers, insect infestation and other pests from the arising due to the recycling operations, the following operational procedures shall be implemented:

- Material received on site shall be inspected for putrescible materials prior to acceptance (see Procedure PPR1 - Waste Acceptance Procedure);
- Caerphilly CBC Environmental Health Department Officers will carry out regular inspections within the site boundary for vermin. Should remedial action be required, the actions will be carried out as soon as is practically possible to eradicate the problem.
- Isolation and securing/removal of wastes that could attract scavengers; and
- Use of pest control professionals as necessary.

5.7 Control of Litter

The risk assessment has concluded that the segregation of skip waste is the most significant activity that could give rise to litter (predominantly from C&D plastics). Due to the nature of the received waste materials and proposed means of storage, problems arising from windblown litter will be minimal and it is not anticipated that additional procedures will be required for high wind conditions.

The risk assessment has found that the overall risk from litter escaping is LOW. To minimise the risks of litter arising the following mitigation measures will be implemented.

- All wastes will be sheeted and secured during transport to and from the site;
- Fencing will be erected and maintained;
- Cages associated with air separation shall be inspected daily and maintained to ensure to light materials are permitted to escape.
- Visual monitoring will be undertaken daily to confirm that the site and its associated operations are not generating unacceptable quantities of litter.

The results of visual litter monitoring will be recorded in the site diary. Any litter that is blown outside of the site boundary will be collected no later than 1 hour after the end of the working day. Any litter that is blown from containers at the site into adjoining parts of the site will be collected at no greater than daily intervals. Any actions carried out to identify and rectify the cause of escaping litter will also be recorded in the site diary.

5.8 Cleaning and Waste Storage Areas

Wash down of the sewer grit processing pad area will be undertaken immediately following removal of waste materials.

Routine of clearing and cleaning the waste storage areas will take place at a minimum frequency of every three months. Records of this will be recorded in the site diary and in accordance with Section 5 of the Operation Plan.

5.9 Control of Leaks and Spills

All fuels and oils will be stored in double lined bunded fuel tanks. Delivery of fuels will be supervised by a responsible member of staff. The quantity of fuel in storage will be checked, either using a sight glass or by dipping, prior to the fuel delivery being made. The maximum residual capacity of the tank will be determined prior to the commencement of re-filling, so as to prevent overflow.

All hydraulic, lubricating and waste oils will be stored in a lockable container, complete with a suitable spillage containment tray, which will collect any leaks from the drums. All drums and similar containers stored within the facility will have their contents and capacity clearly marked. To prevent spillages, drum openings will be carried out on a spillage tray.

Sand and absorbent granules are to be kept on site at all times for immediate use to soak up minor spillages. In the event of a major spill, immediately action will be taken to contain the spillage and prevent contamination of surface water receptors. Once contained, the spillage

will be treated with absorbent and removed to a sealed container for disposal at a licensed facility. The stock of sand and granules shall be replenished as soon as possible.

Records shall be contained within the site diary of how the spillage occurs (if known), what the spillage was and the remedial actions taken.

5.10 Control of Other Fugitive Emissions

The following measures will be taken to control other fugitive emissions.

- Vehicles to be compliant with relevant exhaust emissions standards;
- All plant machinery will subject to regular inspection and maintenance;
- To limit VOC emissions tar containing asphalt will not to be subjected to thermal processing. Olfactory, chemical identification and solubility tests to be used. If in doubt material is to be transferred to the appropriate stockpile for inert processing.
- Temperature controlled will be used to heat bitumen-bound asphalt to the minimum required to produce suitable hot mix (~130-150C).

5.11 Fire Prevention and Control

No material of any kind shall be burned within the boundaries of the site.

In the event of a fire the site will be evacuated and all non-essential personnel, including all members of the general public. The appropriate emergency services will be called to attend to, or be informed of, any outbreak of fire.

Suitable and adequate fire fighting materials and equipment will be maintained and kept at appropriate locations on the site as advised by the local fire service.

All site staff will be trained in the use of onsite fire fighting equipment and all fire fighting equipment will be replaced/refilled immediately after use. Scheduled maintenance, inspection and overhauling of all fire fighting equipment will be carried out on an annual basis.

EAW will be informed of any fire arising on site as soon as is practicable. Any incidents will be recorded in the site diary, along with the details of any actions taken.

Smoking is only permitted in the designated area.

Appendix A - Drawings

OP/01. Site Location Plan

OP/02. Licensed Area Plan

OP/03. Site Area Plan

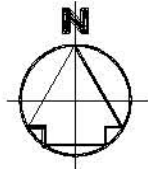
OP/04. Site Layout Plan

OP/05. Site Drainage Plan

OP/06. Segregation Pad Design

OP/07. Sewer Grit Pad Design

OP/08. Dewatering Lagoon Design



LEGEND



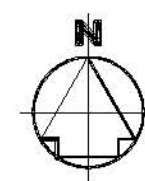
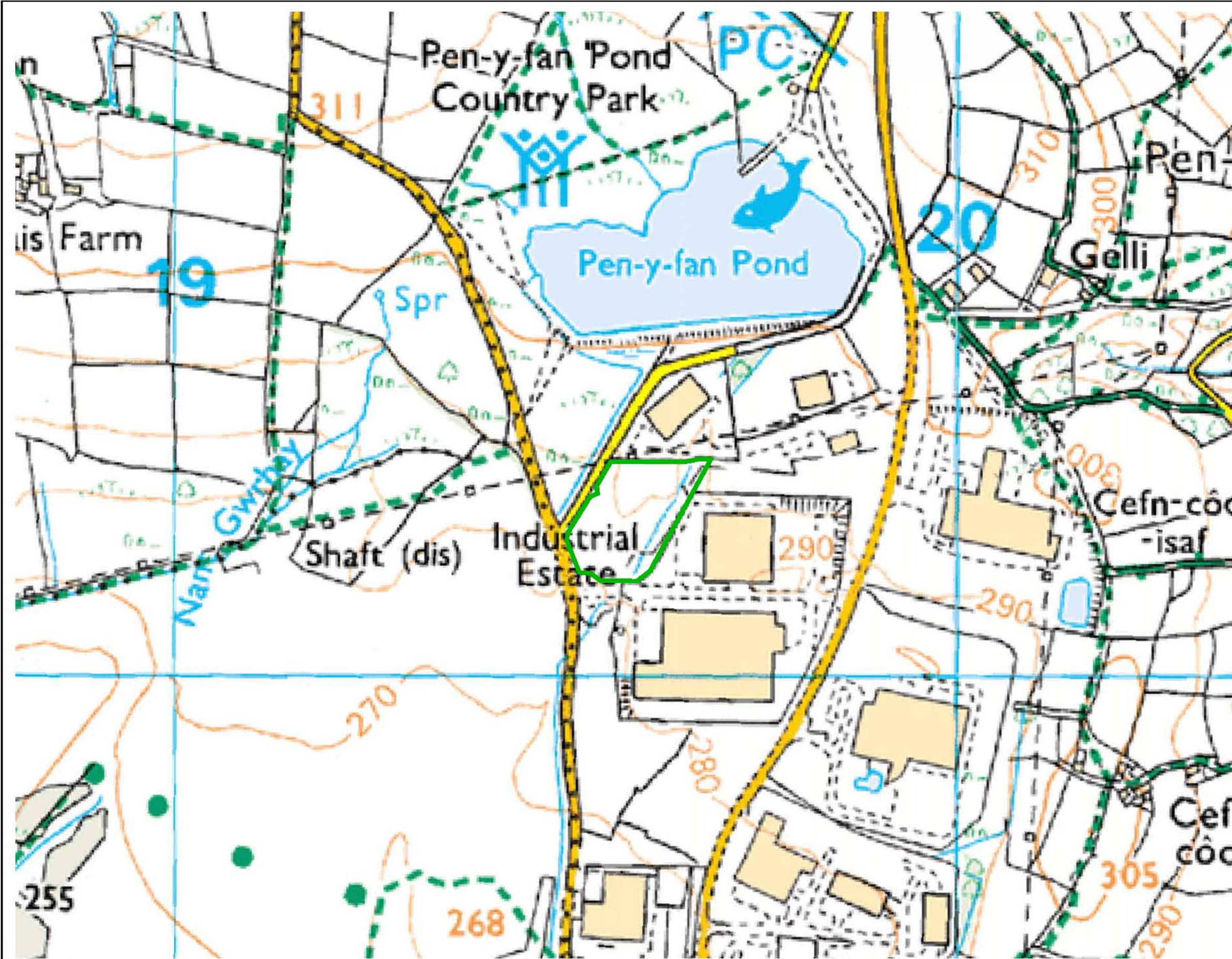
Site
(shaded for clarity)

AMENDMENTS	REV	REF	DETAILS		DATE	MADE BY	CHKD BY



PENYFAN PROCESSING AND RECYCLING LTD
PEN-Y-FAN POND LANE, OFF MANMOEL ROAD
OAKDALE, BLACKWOOD
CAERPHILLY
NP12 0HY

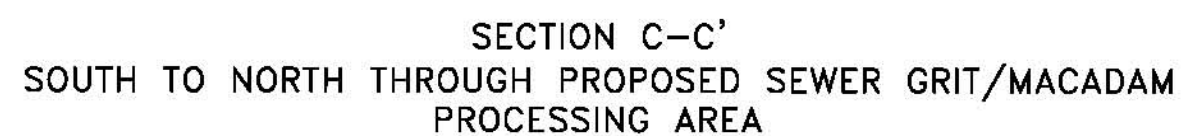
				Drawn	SCW	Scale 1:25,000
				Ch'kd	GD	
LOCATION PLAN				App'r'd	GD	@A3
				Date	21/09/09	
Job No.	EPR	Drg No.	OP/01			



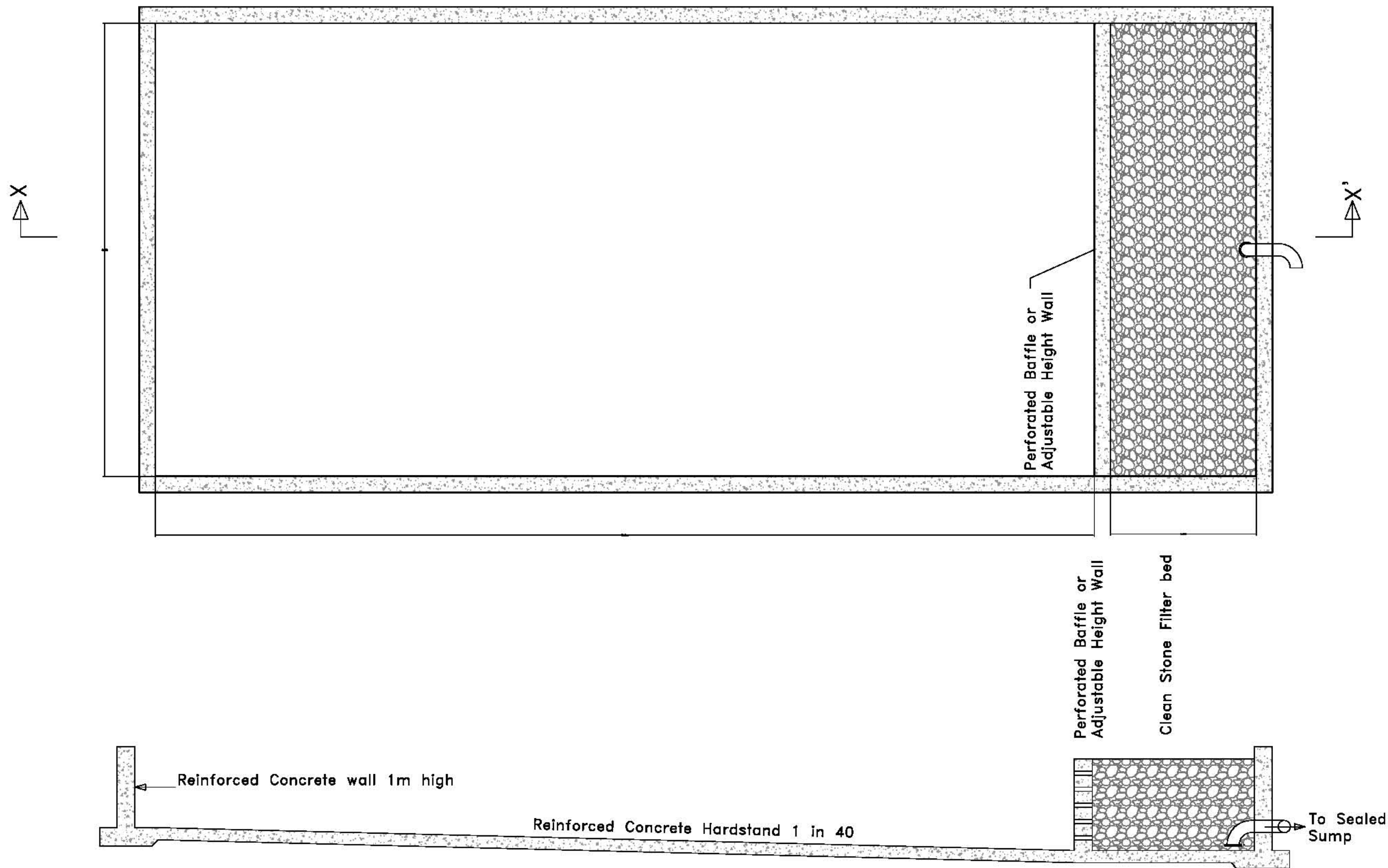
LEGEND

- Site Boundary and Licensed Area

AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY	 PENYFAN PROCESSING & RECYCLING LIMITED PENYFAN PROCESSING AND RECYCLING LTD PEN-Y-FAN POND LANE, OFF MANMOEL ROAD OAKDALE, BLACKWOOD CAERPHILLY NP12 0HY						Drawn	SCW	Scale
										Ch'kd	GD	1:5,000		
										SITE BOUNDARY AND LICENSED AREA		Appr'd	GD	@A3
									Date	21/09/09				
							Job No.	EPR	Drg No.	OP/02				



AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY					Drawn	SCW	Scale	
										Ch'kd	GD	NTS	
										Appr'd	GD	@A3	
										Date	08/11/09		
										Job No.	EPR	Drg No.	OP/07



AMENDMENTS	REV REF	DETAILS	DATE	MADE BY	CHKD BY	 PENYFAN PROCESSING & RECYCLING LIMITED PENYFAN PROCESSING AND RECYCLING LTD PEN-Y-FAN POND LANE, OFF MANMOEL ROAD OAKDALE, BLACKWOOD CAERPHILLY NP12 0HY				DESIGN OF DEWATERING LAGOON			Drawn	SCW	Scale 1:500 @A3
													Ch'kd	GD	
													App'r'd	GD	
													Date	08/11/09	
								Job No.	EPR	Drg No.	OP/08				

Appendix B - Quality Management System

***Pen-y-Fan Processing & Recycling
Ltd***

**Quality Management System for the
Manufacture Aggregates from Inert
Waste**

Version No 3

Date of Issue: 20th September 2006

Issued by: Graham Davies

1 Scope

Pen-y-Fan Processing & Recycling Ltd has introduced this systems manual for the quality management and Factory Production Control of aggregates, produced from inert waste, which will be sold as construction products, or as constituents within products, e.g. unbound materials.

This manual is designed to give our customers the confidence that products are manufactured in accordance with the requirements of "Quality Protocol for the Production of Aggregates from Inert Waste"

Minimum frequencies of inspection and testing are specified within the manual, to ensure our products conform to any relevant technical specifications.

2 References

The manual has been written to comply with the "Quality Protocol for the Production of Aggregates from Inert Waste" issued by the Waste and Resources Action Programme (WRAP) in June 2004, ISBN 1-84405-119-6

3 Definitions

Waste:

Waste is defined as any substance or objects that the holder discards, intends to discard or is required to discard. Once a substance or object has become waste, it will remain waste until it has been fully recovered and it no longer poses a potential threat to the environment or human health.

The Environment Agency takes the view that waste remains waste until it is fully recovered. The Agency considers that, as a starting point, waste which is used as aggregate/construction material will only cease to be waste when it is incorporated into a structure such as a road or building, even if it has been through a recovery process such as screening or crushing. (The use of such waste would need to be carried out in compliance with waste management legislation, including licensing or registered licensing exemption, registration of carriers and duty of care, for example.)

However; the Agency also considers that it is possible, in some cases, for certain wastes to be fully recovered and cease to be waste, before they are actually used as aggregate.

Pen-y-Fan Processing & Recycling Ltd has determined that waste ceases to be waste after the material has been fully recovered, in accordance with the Quality Management Scheme, and is placed into aggregate stockpiles.

Aggregate:

Granular material used in construction. Aggregate may be natural, manufactured or recycled.

Recycled Aggregate:

Operational Plan

Aggregate manufactured from the processing of inorganic material, which has previously used in construction.

RA: (for Concrete manufacture)

A designation used in BS 8500 for recycled aggregate principally comprising crushed masonry (brickwork and blockwork).

RCA: (for Concrete manufacture)

A designation used in BS 8500 for recycled aggregate principally comprising crushed concrete.

RAP:

Recycled aggregate consisting of crushed or milled asphalt. This may include millings, planings, returned loads, joint offcuts and plant waste.

Inert Waste:

Provided that there is no suspicion of contamination, the wastes listed below are considered to be inert wastes.

European Waste Catalogue Code	Description	Restrictions
10 11 03	Waste glass based fibrous materials	Only without organic binders
15 01 07	Glass packaging	Selected construction and demolition waste acceptable only with low content of other types of materials (like metals, plastics, organics, wood, rubber etc). The origin of the waste must be known.
17 01 01	Concrete including solid dewatered concrete process waste	
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 soil and stones from contaminated sites
17 05 08		
19 12 05	Glass	
20 01 02	Glass	Separately collected glass only
20 02 02	Soils and stones restricted to parks waste	Only from garden and parks waste; excluding topsoil, peat.

The following definition of inert is taken from the Landfill (England and Wales) Regulations 2002 and is included for clarity.

Waste is inert if:

- (a) it does not undergo any significant physical, chemical or biological transformations;
- (b) it does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and
- (c) its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater.

4 Management Responsibility

4.1 Responsibility and Authority

The Managing Director is responsible for:

- the effectiveness of the quality management system
- ensuring that sufficient financial, human and physical resources are available for implementation of the system
- implementing of the quality management system
- compliance with the quality management system
- appointing responsible persons for duties specified within the manual
- carrying out an audit of the system on an annual basis, to check for compliance with the system

Responsible persons:

- are accountable for all aspects of the implementation of the quality management system within their designated areas of responsibility

All Employees:

- ensure the effective implementation of the quality management system within the sphere of their job responsibility.

4.2 Management Review

The Managing Director carries out an annual review of the Quality Management System, to ensure the continuing suitability of and effectiveness of the system and manual.

5 Control Procedures

The acceptance criteria for incoming waste is that it must be inert as described in Clause 3 of this manual, very minor contamination of wood, plastic and metal is permitted provided that it does not exceed 1% by mass.

The unacceptable criterion for incoming waste is any hazardous material or material which is not listed in Clause 3 of this manual.

Most larger contracts have a site visit by PPR management to assess the quality of the waste to be processed prior to delivery of waste to PPR.

On arrival at site all conveyance notes are inspected and information recorded. Each load is then inspected to ensure they comply with the acceptance criteria. If in doubt materials are rejected from the site. Loads which are contaminated or deemed as unacceptable are also rejected from the site. A record of rejected loads is made in the site diary.

Where materials are acceptable PPR take responsibility for the duty of care of the waste, and the driver is issued with a docket confirming receipt of the waste.

Inert materials, under the descriptions used in the quality protocol, are then categorised as either suitable for processing into high value product through the crushing and screening plant or as inert stone, (very low value material, which has no British or European Standard, other than that it is to be inert). Inert Engineering Stone requires no plant processing, and can either be stockpiled for use as product by other companies, or redirected to Penyfan Leisure Park as product, under their planning approval.

All vehicles redirected to Penyfan Leisure Park are issued with a delivery docket, with the product description: "Inert Engineering Stone".

Materials which are to be crushed and screened into high value end product are then placed into the waste stockpile prior to plant processing.

When materials are tipped they are inspected as a further check to ensure that they comply with the acceptance criteria. Any loads found not complying with these criteria are reloaded and rejected from site. A record of rejected loads is made in the site diary.

After tipping, large pieces of wood, plastic or metal are removed by hand and placed into skips for recycling elsewhere.

Materials processed through the crushing and screening plant are placed over a grid to remove low value engineering stone, referred to as 0-40mm Scalpings. Scalpings also have no British or European Standard to test compliance against. Scalpings are provided as product to customers, including Penyfan Leisure Park.

After the scalping process the material passes a magnet to remove metal particles, which are placed in skips and sent off-site for recycling. The +75mm material is passed through the crusher; the 40-75mm materials may be sold as product on its own, or blended with the scalping

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or other materials to meet customer requirements, e.g. 75mm scalping, general fills, crusher run, etc. The 40-75mm may be placed through the crusher to produce smaller size products.

The material passing through the crusher is screened into 3 products, including Granular Sub-base Type 1. These products may be blended to satisfy customer requirements.

Scalpings may also be rescreened into three further products, 0-8mm, 8-15mm & 15mm+.

Prior to operating the screening plants an inspection takes place to ensure screens are not damaged and are in good working order. Any damaged screens are repaired prior to production.

The acceptance criteria for final products are that they must contain no more than 1% contamination of foreign matter, including wood, metal or plastic. If this is in doubt a separation test is carried out.

All products are inspected prior to loading for normal appearance. If materials appear different from normal they may be sold as an alternative product or reprocessed through the plant again.

Products are placed into separate stockpiles which are labelled with the product description.

All operatives are trained in the requirement of this manual by management.

Where products are sold to a European Standard, such as SHW, Clause 803, Type 1 Sub-base; they are tested in accordance with the requirements in the appropriate standard and Clause 7 of this manual.

5.1 Document and Data Control

The Managing Director, or his delegate, issues all documents used by the quality managements system, including: the manual, work instructions and record forms.

All documents show the version number, date of issued and name of person who issued the document.

Records are maintained for a period of 5 years and are filed so they are easily retrievable.

5.2 Sub-contract Services

Should Sub-contractors be used in any part of the process, they will operate under the requirements of this quality management system.

Management ensure that sub-contractors meet all specified requirements.

5.3 Knowledge of the Raw Materials

Records are maintained of all incoming waste materials used in the manufacture of aggregates.

6.0 Management of Production

The quality management system identifies the method of inspection of incoming waste, its acceptance criteria, types of approved waste and method of acceptance. All statutory and regularity requirements are met within the system, including those specified in the waste management licence or registered licensing exemption, and the duty of care.

It also includes a method statement for all processing procedures. **See Clause 5**

As waste is processed and separated, materials are placed into individual containers or storage bays. These are clearly signposted showing their contents.

Aggregate recovered from the process is stockpiled into appropriate type/grade/size and is clearly signposted.

7.0 Inspection and Test

7.1 General

Inspections are carried out by plant operatives in accordance with **Clause 5**

Testing is carried out by an approved test house. Basic sieve analyses may be carried out on site.

7.2 General Testing Requirements

Property Description	BS EN Test Method	Minimum Test Frequency
General description	-	Every incoming load by visual inspection
Aggregate composition including organics	Visual sorting of the plus 10mm fraction*	1 per week**
Grading	933-1	1 per week**
Fines Content	933-1	1 per week**
Particle Shape***	933-3	1 per month**
*Test procedure detailed in Highways Agency Specification for Highway Works Clause 710. **Time periods relate to production periods not calendar periods. ***For unbound aggregates PD 6682-6 recommends that 'no requirement' be adopted in the UK for particle shape.		

7.4 Testing for Aggregate Properties

The following test methods may be used as a means of either deciding or illustrating suitability of aggregate for a particular end use.

	Test Reference	
	BS EN	BS
All end uses		
Particle Density	1097-6	
Resistance to Fragmentation:		
Los Angeles	1097-2	
Bulk Density	1097-3	
Constituent Materials		(SHW Cl. 710)
Use in Concrete / Hydraulically bound materials:		
Water Absorption	1097-6	
Magnesium Sulfate	1367-2	
Abrasion Resistance:		
Abrasion Resistance (AAV)	1097-8	
Drying Shrinkage	1367-4	
Chlorides	1744-1	
Sulfate and Sulfides	1744-1	
Alkali Silica Reaction*	-	-
Organic Contamination	1744-1	
<i>* All RCA must be classed as highly reactive</i>		
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 Sulfate	1367-2	
Magnesium Sulfate	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	

8 Control of Records

Quality records are identified within the quality manuals and are maintained, providing evidence of the operation of the quality system.

Quality records may be either paper or electronic media. In either case quality records are maintained in a good condition, readily identified and easily retrievable. Electronic data is backed up.

Example record forms are issued with this manual. Electronic or alternative versions of forms are permitted. Alternative forms are uncontrolled documents and are retained for the appropriate period, as specified below.

Quality records are held for the following periods:

- records relating to management review, complaints, internal audits and inspection and testing of final aggregate products are held for a minimum of ten years
- records relating to inspection and testing of incoming waste materials are held for a minimum of three years
- all other quality records are kept until the end of the succeeding year and for a minimum of 18 months.

Records are disposed of in such a manner to avoid loss of security of information.

9 Control of Non-conforming Product

Following an inspection or test that indicates that a product does not conform, the affected material is either:

- reprocessed
- diverted to another application for which it is suitable
- rejected, isolated and marked as nonconforming

In all cases of nonconformity, records are maintained of the investigation and any necessary corrective action and preventive actions taken.

These are recorded in the plant diary.

10 Handling, Storage and Conditioning in Production Areas

During the processing of input materials, and the handling and storage of products, facilities are in place to ensure that such materials are stored separately by the means of containers, bins, bays, etc, which are clearly signposted with the contents.

Care is taken to avoid contamination and segregation of products, especially with the cleanliness of handling equipment and storage facilities.

11 Transport and Packaging

11.1 Transport

The Company's responsibility under the scheme for handling, storage and delivery of products is up to the point of supply. (i.e. Delivered materials to site and collected materials to the issue of the delivery docket).

11.2 Packaging

In general all aggregates are dispatched by lorry.

Should any aggregates be supplied in bags, these are labelled on the packaging or the accompanying documentation.

12 Training

All personnel are trained in the procedures for which they are responsible, including backup procedures.

Records are maintained of all training.

Form No 1 – Register of Supplies									
ID Code	Supplier	Contact Details	Waste Licence	Waste Broker Registration Number	Waste Carrier Registration Number	Waste type	Location of arisings	Start of supply	End of supply

[illegible]

Form 3 - Daily Process Control										
Date	Time	Location of Inspection / Sample	Feedstock	ID Code if applicable	Deteriorated	Acceptable	Oversize or Undersize	Water or Moisture Content	Operator Signature	Notes

[illegible]