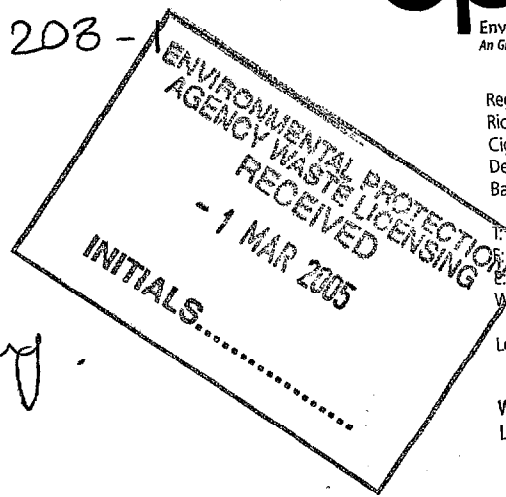
Eve,

Attachments for section 52 letter for Oxigen Reg 203-1 enclosed.

Thank you.

Emer Cooney.

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With Compliments
Le Dea-Mhéin

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Mr G Keogh
Senior Administrative Officer
South Dublin County Council
PO Box 4122
Town Centre
Tallaght
Dublin 24

1 March 2005 Reg No: 208-1

Dear Mr Keogh

I am to advise you that the Agency has received an application for a Waste Licence from Oxigen Environmental Ltd, for a facility located at Oxigen Environmental Ltd, Ballymount Road Lower, Clondalkin, Dublin 22.

The applicant proposes, as part of this application, to provide for the discharge of process effluent to a sewer, which the applicant has stated is vested in, or controlled by, your Council. Process effluent includes trade effluent or other matter (other than domestic sewage or storm water). I enclose copy extracts from the application form, which detail proposed discharges.

The provisions of Section 52 of the Waste Management Acts, 1996 to 2003, provides that the Agency shall obtain the consent of the sanitary authority to the proposed discharge from an activity which involves the discharge of trade effluent or other matter (other than domestic sewage or storm water), to a sewer vested in or controlled by a sanitary authority.

In order to expedite the Agency's consideration of this waste licence application, I am to request your authority's consent to the proposed discharge/s. It should be noted that, your authority's consent may be subject to such conditions as your authority considers appropriate as provided for in Section 52 of the Waste Management Acts, 1996 to 2003 and Section 99E (3) of the Environmental Protection Agency Acts, 1992 and 2003. Your attention is drawn to paragraphs (3) and (4) of the attached copy of the relevant section of the Act. For your convenience please find attached a reply form including a list of draft conditions compiled by the Agency.

In accordance with paragraph (2) of this section of the Act, you are requested to forward your response within 5 weeks of the date of this letter. Please note that any decision given after the expiry period shall be invalid and in those circumstances the Agency may proceed to determine the application concerned as if consent was obtained.

Your co-operation in this matter is appreciated.

Yours sincerely

fp Eve O'Sullivan
**Programme Officer**
**Licensing Unit**
**Office of Licensing & Guidance**

## 3.3 Soil & Geology

Desk-based information relating to the substrata underlying the site of the proposed development was obtained through the Geological Survey of Ireland (GSI), Environmental Protection Agency (EPA) and from information held on file within Bord na Móna Technical Services.

The site is located within an industrial area and as such it is likely that the upper soil horizons beneath the site were altered during construction works. Quaternary sediments underlying the site are glacial in nature, these sediments are referred to as the Dublin Till. They consist of firm to stiff sandy gravely clays with clast (varying in size from cobbles to boulders) present.

Published Geological data of the study area identify the bedrock geology as the Calp Limestones of Lower Carboniferous period. The formation consists of dark grey, fine grained, graded limestones with interbedded black, poorly fossiliferous shales. The Clondalkin Formation, within the immediate vicinity of the site, is karistified and dolomitised in certain areas

Mitigation Measures

All wastes and fuels will be stored in fully bunded areas in accordance with relevant environmental guidelines and recognised standards. All bunds will be tested in accordance with the waste licence conditions. In addition, oil absorbent materials will be kept on site in close proximity to any fuel storage tanks or bowsers during site development works. The refuelling of vehicles will be undertaken in a designated area, which will be fully contained to prevent spillage into the surface water network.

All wastes being delivered to or removed from site will be loaded/unloaded in fully bunded areas. New leachate drains installed on site will be constructed in accordance with all applicable building standards thereby minimising the potential for leaks in underground pipes.

## 3.4 Hydrology

The study area is located within the EPA Hydrometric Area No. 9, namely the River Liffey catchment. Within the Liffey catchment the site lies in the sub-catchment of the River Camac. There are no existing surface water bodies on-site. All surface water run-off from the site discharges to a surface water sewer serving the Ballymount Industrial Estate which ultimately discharges to the River Camac.

The site currently drains to a surface water sewer within the Ballymount Industrial Estate. This surface water sewer also takes surface waters from numerous other premises within the

industrial estate. The surface water sewer discharges to the Ballymount Stream, which discharges into the Camac River, which is a tributary of the River Liffey.

**Potential Impacts of the Proposed development**

1. Surface water from hardstanding areas will pass through an oil interceptor prior to discharge to the surface water sewer and subsequently to the Ballymount Stream. Given that all waste loading/unloading and storage operations will take place within bunded areas the potential for spillages to impact on surface water quality is considered to be low.
2. Leachate and process wastewater will be discharged directly to the foul sewer, and will not enter the surface water drainage network.

**Mitigation Measures**

An oil interceptor with a manual shut-off valve will be placed on the surface water drainage system which will minimise the potential for hydrocarbon emissions to surface water. All waste storage and loading/unloading will take place in bunded areas which will reduce the potential for spillages to occur.

Separate surface water and foul sewage drainage systems will be installed in accordance with building standards. This will eliminate the potential for any interaction between surface water and foul sewage. All below ground drainage will be designed, detailed and constructed in accordance with good practice in hydraulics and in compliance with relevant British and Irish Standards and Local Authority requirements.

All newly constructed and existing drains within or near to the development site are to be cleared on completion of works by power jetting and all drains to be CCTV surveyed to ensure removal of construction spill and sediment.

Bunded tanks will be used during site development work to store fuel oil and to collect any waste oil arisings. Any waste oils arising will be disposed of by a licensed waste disposal contractor. Accordingly, seepage into surface water will not occur.

## 3.5 Hydrogeology

Desk-based and site specific information on the underlying hydrogeological characteristics of the site was obtained through the following:

- Research review of data held within the Geological Survey of Ireland;
- Research review of date held within the Environmental Protection Agency

Chemical parameters associated with organic pollution, namely Biochemical Oxygen Demand ($BOD_5$) (2 mg/l), Chemical Oxygen Demand (COD) (<10 mg/l), Total Organic Carbon (TOC) (<5 mg/l), Ammonia (0.05 mg/l), Nitrate (1.06 mg/l) and Nitrite (0.03 mg/l) were detected at relatively low levels, which would suggest that the stream at this location is relatively clean.

The anion (namely Chloride, Sulphate and Fluoride) and cation (namely Calcium, Sodium, Magnesium and Potassium) results were detected at low concentrations, and were well below the emission limit values.

The metal scan indicated that Manganese (0.06 mg/l), and Boron (0.60 mg/l) results were all marginally above their respective emission limit values, with the remaining metal parameters being well below the limit values.

Organics (namely Diesel Range Organics and Mineral Oil) were not detected at this location.

### 3.4.3 Potential Impacts of the Proposed Development

The proposed development includes for the installation and operation of a surface water drainage system as shown in Drawing D.1 in Appendix 2. There will be no noticeable increase in the volume of surface waters discharged from the site as the existing site is already almost fully covered with hardstanding (concrete). All process waters i.e. leachate and foul waters, shall be collected separately and discharged to the County Council foul water sewer system.

The surface water drainage system will be fitted with an oil interceptor prior to discharge to the surface water system. The oil interceptor will have an automatic shut-off valve fitted which will stop emissions to the local surface water network if oil is detected in the run-off.

The environmental impacts associated with the proposed development at Ballymount Industrial Estate on the local surface water regime are considered below:

Given the nature of activities on site and vehicle movements required to successfully operate the site, the potential exists for uncontrolled discharge of materials such as fuels, lubricants and hydraulic fluids to the surface water drainage network. Imprudent storage and handling of such oil-based materials can result in uncontrolled discharges that can significantly impact on the receiving environment.

### 3.4.4 Proposed Mitigation Measures

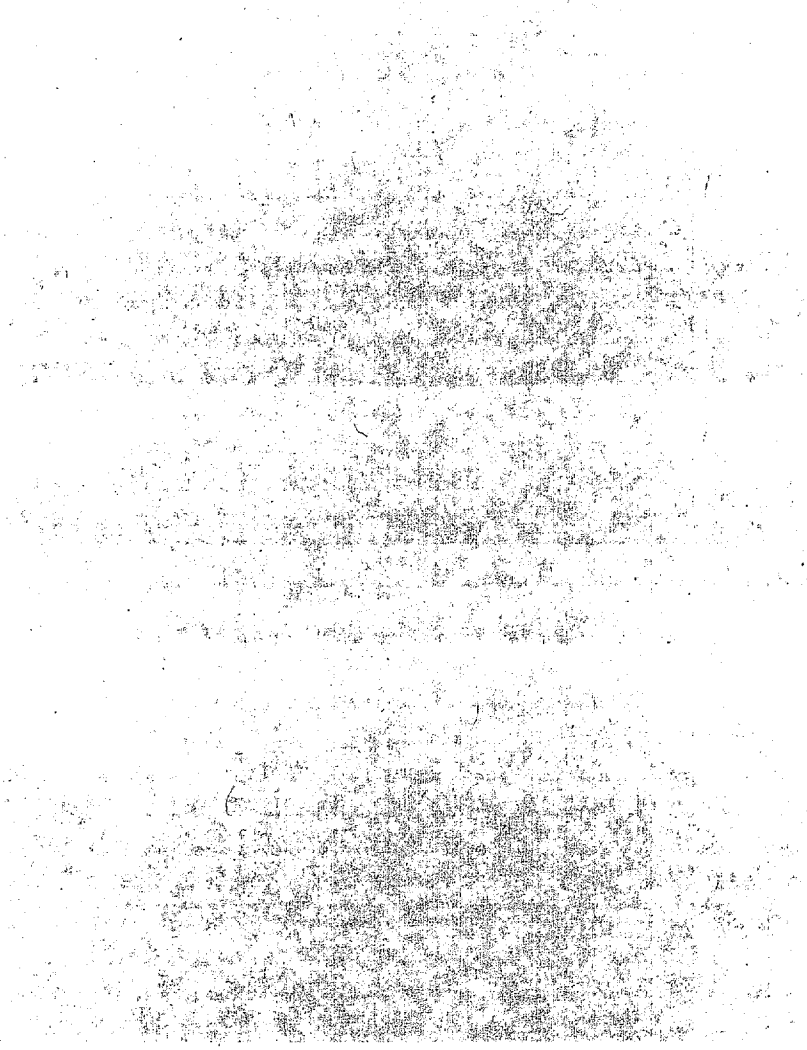
All newly constructed and existing drains within the facility shall be cleared on commencement of operations within the site by power jetting and all drains to be surveyed by CCTV to ensure removal of any residual matter.

During construction bunded tanks will be used during site development work to store fuels, oils, and lubricants. Strict building practices shall be adhered to to ensure that there is no uncontrolled discharges during the construction phase of the proposed development.

Fuel tanks will be located within fully reinforced concrete bunded areas that conform to the standard bunding specification (BS8007-1987) with the capacity of holding 110% of the tank capacity. The tank will be finished with a suitable sealant resistant to chemical attack/corrosion. A paved area will be provided around the storage tank for fuel dispensing. This area will be surrounded by a safti kerb for the collection of any spillages and leakages and for the collection of surface water run-off. Surface water run-off generated within this channel will be directed to the oil interceptor prior to discharge. Spill kits (absorbent materials) will be located at strategic positions throughout the facility, with each member of staff having received spill prevention and containment training.

## F.7 ROAD CLEANSING

The entire site will be/is comprised of hardstand and will be routinely cleaned. Therefore the potential for the generation of mud is eliminated. During the routine inspections for litter, an inspection of the access road and the facility will be inspected for mud deposition, especially during periods of wet weather. Any mud will be removed through the washing of the area. Any waste material collected from the road sweepers will be treated on site, with the liquid fraction being discharged to sewer.



## J.9 SURFACE WATERS

The proposed surface water monitoring locations are shown on Drawing No. J.1. SW-1 is located after the oil interceptor at the discharge point to the Ballymount Industrial Estate Surface Water Sewer which ultimately discharges to the Ballymount stream.

The range of parameters analysed for will be as set in the Waste Licence conditions but may include:

- pH,
- Biochemical Oxygen Demand,
- Chemical Oxygen Demand,
- Suspended Solids,
- Ammonia,
- Phosphate

It is proposed to conduct surface water monitoring on a quarterly basis.

## J.5 SEWER DISCHARGE

Discharges to sewer will be monitored monthly using a flow proportional sampler and flow meter at SE-1. The effluent will be analysed for the following parameters (unless otherwise specified in the Waste Licence): -

- pH,
- Temperature,
- Biochemical Oxygen Demand,
- Chemical Oxygen Demand,
- Suspended Solids,
- Oils, Fats and Greases,
- Phosphate.

Monitoring will be carried out at SE-1 as shown on Drawing No. J.1.

## H.10 Discharges to Sewer

A revision of Table H.10 is given below which details an estimate of the volume of water that will be discharged from the site.

*Table H.10: DETAILS OF DISCHARGES TO SEWER*
**(ONE TABLE PER EMISSION POINT)**

| | | | |
|---|---|---|---|
| **Emission Point Ref. N$^{o}$:** | SE-1 | | |
| **Name of emission point:** | Emissions to Foul Sewer | | |
| **Source of emission:** | Process waste water | | |
| **Location of sewer connection:** | Ballymount Road Lower | | |
| **Grid Ref. (12 digit, 6E, 6N):** | E309600, N230736 | | |
| **Date of commencement:** | Not known | | |
| **Name of sewer undertaker:** | South Dublin County Council | | |
| **Periods of emission (avg.):** | 60 min/hr | 24 hr/day | 351 day/yr |
| **Volume to be emitted:** | Average/day: | | $8m^3/d$ |
| | Maximum rate/hour: | | $2m^3/h$ |
| | Maximum rate/day: | | $10m^3/d$ |
| **Name of receiving water:** | Not Applicable | | |
| **Flow rate in receiving water:** | .....$m^3.sec^{-1}$ Dry Weather Flow<br>.....$m^3.sec^{-1}$ 95%ile flow | | |
| **Available waste assimilative capacity: g/day** | | | |

Floor washings in the skip waste, dry recyclables and waste transfer buildings

It is proposed that due to the dry nature of the waste that the waste transfer buildings shall be primarily swept as opposed to be washed on a regular basis. The floors will be washed when deemed necessary by the Facility Manager, but at a minimum once a month. It is therefore proposed that a maximum contribution that will have originated from the floor washings will be <10 $m^3$/month

Dust and odour suppression systems

These units will use minimal volumes of water and will be primarily absorbed by dust and dirt within the buildings. These systems shall only be operational when required and not used continuously. The volume of water that will be contributed to the discharge from these systems will be <1$m^3$/day.

Washings of plastics

As detailed above it is not proposed to undertake this activity on site.

Any vehicle washing to take place on site

Vehicle and primarily bin washings shall take place on site, within the designated area. The volume of water that will be contributed to the discharge from this activity shall be <5 $m^3$/day

## K.1 Contingency Arrangements

The 'newly installed leachate containment provisions' are the drains that will be installed into all the waste transfer buildings for the collection of leachate. Details of this drainage have been detailed in Drawing D.1, as provided in the original application.

| Rev. | DESCRIPTION | DATE |
|---|---|---|
| | | |


BORD NA MÓNA

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Project

# Waste Licence Application

Client

## Oxigen Environmental Ltd.

Drawing Title

## Site Infrastructure/Layout

| Date | Scale | Drawn by | Checked by | Approved by |
|---|---|---|---|---|
| June 2004 | 1:1000 (A1) | NC | GL | DH |

Status

PLANNING ☐ FOR APPROVAL ☒

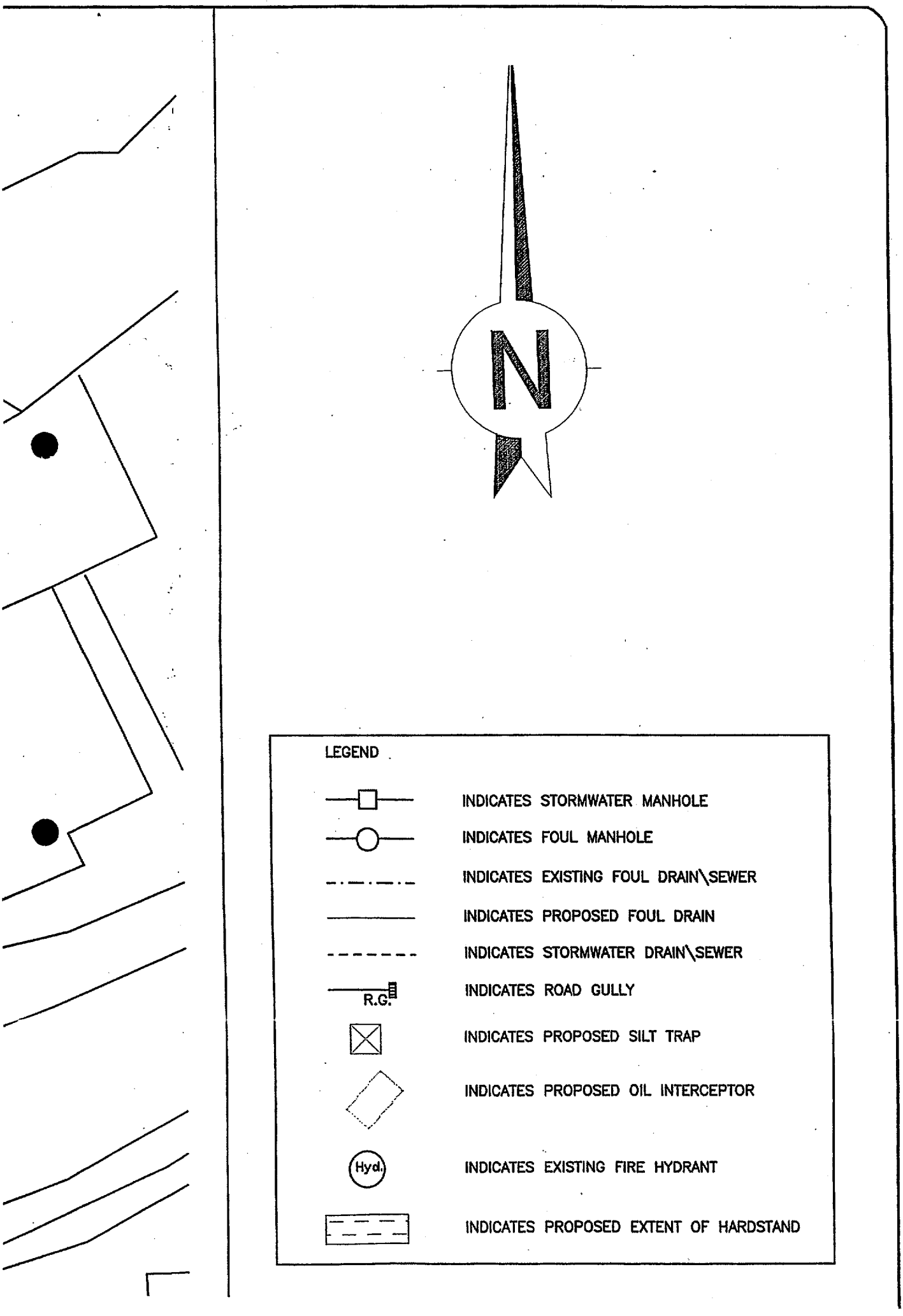
TENDER ☐ FOR CONSTRUCTION ☐

AS BUILT ☐

Dwg. No.

D.1

eland
502


N
LEGEND
INDICATES STORMWATER MANHOLE
INDICATES FOUL MANHOLE
INDICATES EXISTING FOUL DRAIN\SEWER
INDICATES PROPOSED FOUL DRAIN
INDICATES STORMWATER DRAIN\SEWER
R.G.
INDICATES ROAD GULLY
INDICATES PROPOSED SILT TRAP
INDICATES PROPOSED OIL INTERCEPTOR
Hyd.
INDICATES EXISTING FIRE HYDRANT
INDICATES PROPOSED EXTENT OF HARDSTAND

Palisade Fence

Proposed Maintenance Building

Area = 2,132m2

Proposed car park for operational vehicles e.g. road sweepers etc.

Employee Entrance

Tank

UND

Site Office

Proposed Extent of Hardstand

Skip Waste Building

Existing fuel storage

Area = 6,008m2

Proposed Silt Trap

Proposed Silt Trap

Proposed Oil Interceptor

Existing Weighbridges

TURNPIKE ROAD

Proposed Waste Transfer Building

Area = 3,657 m2

Proposed Additional Site Entrance

Proposed location for storage of waste containers e.g. clean wheelie bins, skips etc.

Proposed Silt Trap

Dry Recyclables Building

Area = 4,055m2

Proposed Extent of Hardstand

BALLYMOUNT ROAD LOWER

that approximately 80 – 90 % of all waste accepted will be segregated for recovery or recycling.

Raw materials used on-site for plant equipment and for vehicles will be stored in a bunded tank on-site. This fuel will be stored in the existing tanks subsequent to the tanks and the bund being integrity tested to known construction standards (namely BS8007:1987). In the event that the tanks do not pass the integrity test they will be fully upgraded prior to any fuel being stored on site.

Hazardous waste

Hazardous waste will be accepted on site, in a specially constructed and bunded building that will ensure that the impact on the surrounding environment will be minimal. All processes and procedures shall be agreed with the Agency prior to the acceptance of hazardous waste on site.

*Emissions*

Oxigen Environmental Ltd. will ensure that recovery of waste at the Ballymount Industrial Estate site will be carried out in a safe and environmentally sound manner, such that:

- Emissions from on-site recovery activities will not result in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any other enactment.

- On-site recovery activities will be carried out in accordance with such conditions as may be attached to the Waste Licence, and not cause environmental pollution.

- BAT technologies will be used, if practicable, to prevent/eliminate or, where this may be deemed not practicable, limit/abate/reduce emissions of environmental concern resulting from on-site disposal and recovery activities.

In order to predict the impacts of on-site operations on the existing site and its environs an appropriate environmental baseline monitoring programme was developed. Bord na Mona were commissioned to conduct all required assessments.

Potential air emissions are examined under two separate headings:

i. Traffic Emissions
ii. Dust

*Traffic Emissions:* Atmospheric emissions relating to the movement of traffic were monitored at the facility. This assessment identified that the predicted emissions from traffic would be negligible and as such did not present an environmental impact. A predictive model of the potential impacts also revealed that the atmospheric emissions in ten years (i.e. 2013) that would be as a result of traffic movements associated with the facility would be negligible.

*Dust:* The monitoring of the dust levels at the facility indicated that the predicted impact from dust generation on site would be negligible due to all waste handling activities would be undertaken within large buildings.

Surface water run-off from all hardstanding areas is in a northern eastern direction towards the site entrance. Drainage water is then directed towards a silt trap and oil interceptor prior to discharge to the adjacent surface water sewer system that discharges into the Ballymount Stream.

The results of the surface water investigation conducted at the Oxigen Ltd. site indicated that due to the proposed stringent operational practises on site and the separate collection of all leachate generated at the site, the impact that the facility will have on the local surface water will be negligible.

All foul wastewater, process wastewater and leachate generated on site will be separately collected and discharged into the South Dublin County Council foul sewer system that serves the Ballymount Industrial Estate. This water will be generated from the tipping and operational areas of the two waste process buildings, from the road sweepings operation, and vehicle washing on site. This foul wastewater will be treated at the Ringsend Wastewater Treatment facility.

A preliminary investigation of the Cultural Heritage of the site and surrounding environs was carried out. Due to the fact that the site is located within a heavily industrialised area, and that nearest historical site is located over 500m from the facility, it is anticipated that the operation of the waste recycling and processing facility will not impact on the Cultural Heritage of the area.

A baseline ecological survey was conducted at the site. As all the species identified within the site are common throughout the Irish countryside and that neither the site nor its surrounds are designated as a conservation area, it is deemed that the site is of low conservation value. Species composition in the area is relatively common and as such on-site activities would not be expected to impact in any way on current habitat conditions. The existing environment is not designated as a Natural Heritage Area or a Special Protection Area under the Birds Directive or as a Special Conservation Area in accordance with the Habitats Directive, nor, is it designated under any of the other nature conservation designations currently used.

A noise survey was conducted at the Oxigen Environmental Ltd. site incorporating both day time and night time baseline noise levels. Predictions of the contribution arising from site operations to the noise levels at the nearest noise sensitive location (approximately 180 m to the north east of the facility) indicated that the impact of the facility would be minimal. The predicted noise levels were well below the current baseline noise level (contributed mainly by the heavy traffic movements). Abatement measures introduced and the specific machinery that has been purchase by Oxigen Environmental Ltd. will ensure that the impact of noise emissions will be minimal.

It is considered that the Oxigen Environmental Limited site does not visually impact on the surrounding areas. The site is located within an industrial estate, with the buildings on site being of similar nature and structure of the other buildings on site.

The activities do not appear to have impacted on changes in land use activity. Furthermore, current procedures e.g. continued enclosure/covering of waste material; efficient/immediate sorting and recycling ensure that potential nuisances from e.g. odours, dust and pests are not likely.

Contingency arrangements at the site are considered sufficient to deal with any unexpected/uncontrolled event. If a situation arises that has not been foreseen in the above, then the appropriate arrangements and actions will be decided by the Facility Manager at the time of the occurrence. Furthermore, the preparation of an emergency response plan is being proposed for the site, as part of an overall Environmental Management System. This plan shall list contact names and telephone numbers of key people in the organisation and key external organisations to deal quickly and efficiently with any emergency on-site.

The function of the Oxigen Environmental Ltd. plant will develop such that the maximum recycling/recovery potential of all waste coming onsite will be assessed. The operation of this site in Ballymount is important both for the continued success and

expansion of the green bin initiative throughout the household within Dublin city, but is also required to help all four Local Authorities achieve their targets as set out in the Dublin Waste Management Plan.

# Attachment B

# Classification of each waste type

## Specification breakdown of acceptable Waste Types

## Municipal

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

| | |
|---|---|
| **20 01** | **Separately collected fractions (except 15 01)** |
| 20 01 01 | Paper and Cardboard |
| 20 01 02 | Glass |
| 20 01 10 | clothes |
| 20 01 11 | textiles |
| 20 01 13* | solvents |
| 20 01 21* | fluorescent tubes and other mercury-containing waste |
| 20 01 23* | discarded equipment containing chlorofluorocarbons |
| 20 01 27* | paints, inks, adhesives and resins containing dangerous substances |
| 20 01 28 | paint, inks, adhesives and resins other than those mentioned in 20 01 27 |
| 20 01 29* | detergents containing dangerous substances |
| 20 01 30 | detergents other than those mentioned in 20 01 29 |
| 20 01 31* | cytotoxic and cytostatic medicines |
| 20 01 32 | medicines other than those mentioned in 20 01 31 |
| 20 01 33* | batteries and accumators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries |
| 20 01 34 | batteries and accumulators other than those mentioned in 20 01 33 |
| 20 01 35* | discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components |
| 20 01 36 | discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 |
| 20 01 37* | wood containing dangerous substances |
| 20 01 38 | wood other than that mentioned in 20 01 37 |
| 20 01 39 | plastics |
| 20 01 40 | metals |
| 20 01 41 | wastes from chimney sweeping |
| 20 01 99 | other fractions not otherwise specified |
| | |
| **20 02** | **garden and park wastes (including cemetery waste)** |
| 20 02 01 | biodegradable waste |
| 20 02 02 | soil and stones |
| 20 02 03 | other non-biodegradeable wastes |
| | |
| **20 03** | **other municipal wastes** |
| 20 03 01 | mixed municipal waste |
| 20 03 03 | street cleaning residues |
| 20 03 99 | municipal wastes not otherwise specified. |

## Commercial

**15 WASTE PACKAGING; ABSORBANTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**

**15 01 Packaging (including separately collected municipal packaging waste)**
15 01 01 Paper and Cardboard Packaging
15 01 02 Plastic Packaging
15 01 03 Wooden Packaging
15 01 04 Metallic Packaging
15 01 05 Composite Packaging
15 01 06 Mixed Packaging
15 01 07 Glass Packaging
15 01 09 Textile packaging

**15 02 absorbents, filter materials, wiping cloths and protective clothing**
15 02 03 absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02

**18 WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH CARE)**

**18 01 wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 01 sharps (except 18 01 03)
18 01 02 body parts and organs including blood bags and blood preserves (except 18 01 03)
18 01 03* wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 01 04 wastes whose collection and disposal is not subject to special requirement in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
18 01 06* chemicals consisting of or containing dangerous substances
18 01 07 chemicals other than those mentioned in 18 01 06
18 01 08* cytotoxic and cytostatic medicines
18 01 09 medicines other than those mentioned in 180108
18 01 10* amalgam waste from dental care

**18 02 wastes from research, diagnosis, treatment, or prevention of disease involving animals**
18 02 01 sharps except 18 02 02
18 02 02* wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 02 03 wastes whose collection and disposal is not subject to special requirements in order to prevent infection
18 02 05* chemicals consisting of or containing dangerous substances
18 02 06 chemicals other than those mentioned in 18 02 05
18 02 07* cytotoxic and cytostatic medicines
18 02 08 medicines other than those mentioned in 18 02 07

**16 02 wastes from electrical and electronic equipment**

16 02 09* transformers and capacitors containing PCBS.
16 02 11* discarded equipment containing chlorofluorocarbons, HCFC, HFC.
16 02 14 discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16 components removed from discarded equipment other than those mentioned in 16 02 15

**16 03 off specification batches and unused products**

16 03 04 inorganic wastes other than those mentioned in 16 03 03
16 03 06 organic wastes other than those mentioned in 16 03 05

**Industrial**

**03 WASTE FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**

**03 01 wastes from wood processing and the production of panels and furniture**

03 01 05 sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances.
03 01 99 wastes not otherwise specified.

**03 03 wastes from pulp, paper and cardboard production and processing**

03 03 07 mechanically separated rejects from pulping of waste paper and cardboard
03 03 08 wastes from sorting of paper and cardboard destined for recycling.
03 01 10 fibre rejects, fibre-, filler – and coating-sludges from mechanical separation.

**07 WASTES FROM ORGANIC CHEMICAL PROCESSES**

**07 02 wastes from the MFSU of plastics, synthetic rubber and man-made fibres**

07 02 13 waste plastic.

**10 WASTES FROM THERMAL PROCESSES**

**10 11 waste from the manufacture of glass and glass products**

10 11 12 waste glass other than those mentioned in 10 11 11.

**10 12 wastes from manufacture of ceramic goods, brick, tiles and construction products**

10 12 08 waste ceramics, bricks, tiles and construction products (after thermal processing)

**10 13 wastes from manufacture of cement, lime and plaster and articles and products made from them**

10 13 14 waste concrete and concrete sludge

**19 Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**

| | |
|---|---|
| **19 08** | **Wastes from waste water treatment plants not otherwise specified** |
| 19 08 01 | screenings |
| 19 08 02 | waste from desanding |
| **19 10** | **Wastes from shredding of metal-containing wastes** |
| 19 10 01 | Iron and Steel waste |
| 19 10 02 | Non-ferrous waste |
| **19 12** | **Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified** |
| 19 12 01 | Paper and Cardboard |
| 19 12 02 | Ferrous metal |
| 19 12 03 | Non-ferrous metal |
| 19 12 04 | Plastic and Rubber |
| 19 12 05 | Glass |
| 19 12 07 | Wood other than that mentioned in 19 12 06 |
| 19 12 08 | Textiles |
| 19 12 09 | minerals (for example sand, stones) |
| 19 12 10 | combustible waste (refuse derived fuel) |
| 19 12 11* | Other waster (including mixtures of materials) from mechanical treatment of wastes containing dangerous substances. |
| 19 12 12 | Other waster (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 |
| **19 13** | **wastes from soil and groundwater remediation** |
| 19 13 01* | solid wastes from soil remediation containing dangerous substances |
| 19 13 02 | solid wastes from soil remediation other than those mentioned in 19 13 01 |

**16 WASTES NOT OTHERWISE SPECIFIED IN THE LIST**

| | |
|---|---|
| **16 01** | **end of life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)** |
| 16 01 03 | End-of-life tyres |
| **16 06** | **Batteries and accumulators** |
| 16 06 01* | Lead Batteries |
| 16 06 02* | Ni-Cd Batteri es |
| 16 06 03* | Mercury-containing batteries |
| 16 06 04 | Alkaline batteries |
| 16 06 05 | Other batteries and accumulators |

## Construction & Demolition

### 12 WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS

**12 01 wastes from shaping and physical and mechanical surface treatment of metals and plastics**

12 01 01 ferrous metal filings and turnings
12 01 02 ferrous metal dust and particles
12 01 03 non-ferrous metal filings and turnings
12 01 04 non-ferrous metal dust and particles
12 01 05 plastics shavings and turnings
12 01 13 welding wastes

### 17 CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SIL FROM CONTAMINATED SITES)

**17 01 Concrete, bricks, tiles and ceramics**

17 01 01 Concrete
17 01 02 Bricks
17 01 03 Tiles and Ceramics
17 01 07 Mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06

**17 02 Wood, glass and plastic**

17 02 01 Wood
17 02 02 Glass
17 02 03 Plastic
17 02 04* glass, plastic and wood containing or contaminated with dangerous substances

**17 03 bituminous mixtures, coal tar and tarred products**

17 03 01* bituminous mixture containing coal tar
17 03 02 bituminous mixtures containing other than those mentioned in 17 03 01
17 03 03* coal tar and tarred products

**17 04 Metals (including their alloys)**

17 04 01 copper, bronze, brass
17 04 02 aluminium
17 04 03 lead
17 04 04 zinc

**17 04 Metals (including their alloys) (cntd.)**

17 04 05 iron and steel
17 04 06 tin
17 04 07 Mixed metals
17 04 09* metal waste contaminated with dangerous substances
17 04 10* cables containing oil, coal tar and other dangerous substances
17 04 11 cables other than those mentioned in 17 04 10

| | |
|---|---|
| **17 05** | **soil (including excavated soil from contaminated sites), stones and dredging spoil** |
| 17 05 03* | soil and stones containing dangerous substances |
| 17 05 04 | soil and stones other than those mentioned in 17 05 03 |
| 17 05 05* | dredging spoil containing dangerous substances |
| 17 05 06 | dredging spoil other than those mentioned 17 05 05 |
| 17 05 07* | track ballast containing dangerous substances |
| 17 05 08 | track ballast other than those mentioned in 17 05 07 |
| **17 06** | **insulation materials and asbestos-containing construction materials** |
| 17 06 03* | other insulation materials consisting of or containing dangerous substances |
| 17 06 04 | insulation materials other than those mentioned in 17 06 01 and 17 06 03 |
| **17 08** | **gypsum-based construction material** |
| 17 08 01* | gypsum based construction materials contaminated with dangerous substances. |
| 17 08 02 | gypsum based construction materials other than those mentioned in 17 08 01 |
| **17 09** | **other construction and demolition waste** |
| 17 09 01* | construction and demolition wastes containing mercury |
| 17 09 02* | construction and demolition wastes containing pcb (for example pcb-containing sealants, pcb-containing resin based floorings, pcb containing sealed glazing units, pcb-containing capacitors) |
| 17 09 03* | other construction and demolition wastes (including mixed wastes) containing dangerous substances |
| 17 09 04 | mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 |

# Attachment C
# Waste Acceptance Procedures

# EP 02 Receipt, Processing and Dispatch of Skip Waste

Oxigen

**APPROVED**

## 1 Scope / Purpose

The purpose of this document is to describe the methods involved in the receipt, processing and despatch of waste. This document refers solely to the reception of waste in the COES ROAD depot of Bambi Bins & Oxigen Environmental Ltd.

## 2 References

Oxigen Environmental Safety Statement

## 3 Records

Approved Suppliers List, Doc E05

Unacceptable Waste List, Doc E02

## 4 Procedures

### 4.1 Receipt of Waste

4.1.1 Waste may be delivered to Coes Road depot by Oxigen Environmental drivers or by direct customer delivery. The customer must seek permission from the facility manager prior to any waste delivery and the Facility Manager must ensure that they have a waste collection permit..

4.1.2 Waste shall only be received in Oxigen Environmental skips, containers or in approved customer vehicles. Where skips are collected from customers, the

driver of the collection vehicle shall perform a cursory inspection of the skip as per the Waste Acceptance Procedure, EP 01.

4.1.3 Waste shall only be accepted by Oxigen Environmental when adequately covered or netted. It is the responsibility of the Driver to ensure this is done and the Facility Manager and Weighbridge Operative to ensure that each delivery enters in this manner.

4.1.4 **ALL** vehicles delivering waste to Oxigen Environmental shall park on the weighbridge for docket generation.

4.1.5 Once parked on the weighbridge, the driver of the vehicle or his representative (whilst wearing the appropriate personal protective equipment) shall report to weighbridge operative to confirm vehicle/customer details and receive further instruction.

4.1.6 When initial weighing is completed the weighbridge operator shall direct the driver to the Facility Manager or his appointee.

4.1.7 The Facility Manager or his appointee shall conduct a rudimentary examination of the waste material and make a judgement as to the waste type.

4.1.8 Should any materials cited on the Unacceptable Waste List, Doc E02 or any other non-conforming material be discovered, the facility manager shall be notified immediately.

4.1.9 On the basis of this judgement the Facility Manager shall instruct the driver of the vehicle to tip his load in the designated area.

Designated areas include :

A. Predominantly metallic waste

B. Predominantly wood waste

C. C&D/soil waste

D. General waste sorting area (shed)

E. Quarantine

F. Glass

4.1.10 Once tipped the driver shall return to the weighbridge and report to the weighbridge operator for issuance and signing of the weighbridge dockets. All duplicate dockets, once signed shall be forwarded to head office for processing.

## 4.2 Processing of Waste

4.2.1 Waste shall be processed in accordance with Bambi Bins & Oxigen Environmental Ltd. Safety Statement.

4.2.2 Waste shall only be sorted and/or segregated by trained operatives employing the correct personal protective equipment.

4.2.3 It shall be the policy of Bambi Bins & Oxigen Environmental Ltd., to separate, recover and recycle as much skip waste as is reasonably possible without entailing excessive cost.

4.2.4 Waste shall be sorted into wood waste, steel/metal waste, waste for recycling and waste for disposal respectively by the Operatives.

4.2.5 Wood and steel waste shall be loaded into the designated roll-on/roll-off skips respectively.

4.2.6 All recycling waste shall be loaded into the compactor and compressed into the ejection trailer attached for off site recovery

4.2.7 Non recyclable waste will be segregated and compacted separately for landfill.

4.3 **Dispatch**

4.3.1 Once any/all of the roll-on/roll-off skips or ejection trailers are loaded, the Facility Manager shall designate alternate skips for loading.

4.3.2 At the earliest convenient time, the Facility Manager shall instruct a driver to load the full skip, or trailer as appropriate. Should no driver be available the supervisor shall consult the skip hire manager to make alternative arrangements.

4.3.3 Once the driver is loaded he shall drive onto the weighbridge, and consult the weighbridge operator for docket generation.

4.3.4 The weighbridge operator shall instruct the driver to take the load to a supplier on the APPROVED SUPPLIERS LIST, Doc. E05

4.3.5 On a monthly basis the weighbridge operator shall consult the Skip Hire Manager for any updates to the approved suppliers list.

**5 Persons Responsible**

Weighbridge Operator

Facility Manager

All drivers

Operatives

Skip Hire Manager

Environmental Manager

# Method Statement for Dry Recyclables Collection and Processing

Oxigen

SCHEDULE X

## 1 Purpose / Scope

The purpose of this document is to describe the methods involved in the distribution of green wheeled bins to households, the collection of dry recyclable material in these wheeled bins and the processing of that material.

It shall also detail the methods employed in collection glass and/or cans from bring banks.

## 2 Distribution of Wheeled Bins

2.1 Route Selection and Data Generation

2.1.1 Route Selection

2.1.1.1 The general area and size of area selected for the distribution of bins shall be determined by the responsible person within the contracting Local Authority. Once the area has been determined then a route shall be designed around this area to incorporate the number of households required (nominally 6,250). The selected area shall be further divided into smaller daily collection routes (nominally 1,250).

2.1.2 Project Data Generation

2.1.2.1 The data required for the determination of routes is the household address, nominally the house number, street name and estate or general area. This data can be collected by either manually 'walking' all the streets and recording all the houses on that street or from the relevant GIS data for the area involved..

2.1.2.2 Corresponding street lists and area maps (ie. generated project data) shall be generated and verified by the responsible person within the contracting Local Authority and amendments shall be made where appropriate. The street lists and area maps shall have a date identifier marked on them to indicate revision level.



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2.1.2.3 Once the household data is available then a collection sequence can be generated. The sequence of travel shall take into account one-way streets, blind roadways and other traffic limitations involving a large truck. Specifically where bins have to be emptied on both sides of a main road this road shall be sequenced in both directions as a safety precaution to avoid the crossing of the road by the bin operatives.

2.1.2.4 Collection day scheduling shall be selected to minimise any conflict between the normal waste collection day and the Dry Recycling collection days.

2.1.3 Final Data Verification

2.1.3.1 The Bin Distribution / Collection Route control sheet shall be used to verify that all the necessary steps have been completed by the responsible person involved.

2.2 Stock Control of Bins

2.2.1 Receipt of stock

2.2.1.1 Shipments of bins received shall be checked against the delivery documentation for correct purchase order number, quantity and type of bins. These shall be entered in the stock control book against the PO number. The relevant delivery note shall be signed by the Distribution Supervisor and copied and sent to admin for processing. Any discrepancies found between the documentation and the shipment shall be resolved by the Distribution Supervisor.

2.2.2 Stock monitoring

2.2.2.1 Bins issued daily for distribution shall be recorded against the stock item in the stock control book. Reject bins shall also be recorded on the stock control book. The stock shall be counted at least once every week and reconciled against the stock control book. Any discrepancies to be reported to the Operations Manager immediately.

2.3 Distribution of Bins

2.3.1 General

The general resources engaged to achieve a distribution rate of 600 bins per day.



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2.3.2 Preparation

2.3.2.1 Each day's distribution schedule will comprise the following types and formats of data. A master schedule that contains the street names to be covered for that day and the sequence in which they are to be covered. This master schedule will also list the quantity of the different size bins for each street or street segment as gathered from existing data or the public awareness campaign. The master schedule shall be accompanied with a detailed street map of the area concerned.

2.3.2.2 Before leaving the depot the depot, the distribution team shall ensure they are equipped with the necessary equipment and data;

2.3.3 Distribution team Operations

2.3.3.1 The distribution team shall travel to the first street listed on the street schedule. If unsure about the location of the street a team member must confirm with a local householder.

2.3.3.2 The truck shall unload the number of each type of bins in appropriate groups and locations as indicated on the Route Collection Sequence report.

2.3.3.3 The bins are to be secured by a chain and lock preferably to a street fixture, unless the relevant distribution team is visible. This is to prevent over enthusiastic householders taking the bins before data capture.

2.3.3.4 The quantity of each bin size dropped off will be recorded on the main route schedule for stock reconciliation purposes.

2.3.3.5 The two distribution teams shall work different areas of the same route but shall keep as close as practical. This allows the truck to keep ahead of the teams and maintain closer control over the bin distribution.

2.3.3.6 In addition to the requirements for health and safety as addressed in the Health & safety plan for the distribution of bins, at least one person from each team (Data Capture Person) shall wear a minimum of a company branded jacket and also carry a company photo identification. This person will be the nominated spokesperson and shall deal with any queries with the public. This is to minimise the risk of impostors and fraud relating to the collection scheme.

2.3.4 Bin Assembly

2.3.4.1 The Bin Assembler removes the two wheels and axle from the bin and connects one wheel into the axle until it clicks. The wheel is pulled slightly outwards to ensure that it is secured. The axle is then passed through the axle housing and the second wheel connected until it clicks. Again the wheel is pulled outwards slightly to ensure that the wheel is secure. If any wheel does not remain secured, it is to be rejected and a replacement wheel used instead.



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2.3.4.2 The bin is then placed upright and the lid is closed. Use of a timber beam across the opening of the bin placed towards the hinge of the lid whilst closing the lid will be used for those lids that do not fully sit closed.

2.3.4.3 Any bin that is damaged shall not be issued and marked with a reject sticker and returned to the yard and placed in the quarantine area for further processing.

2.3.5 Label Application

2.3.5.1 Before label application the area to be labelled is wiped with a cloth to ensure it is dry and free of dust. All labels shall be applied straight i.e. relative to the sides of the bin and shall not interfere with any brand logos or existing markings on the bin.

2.3.5.2 Materials Allowed labels identifying waste products that can be placed in the bin, are placed on the outside of the bin lid, either on the left or right section of the lid. They are orientated to allow reading from the front of the bin.

2.3.5.3 First collection labels are placed on the outside of the bin lid, towards the front edge

2.3.6 Bin Delivery

2.3.6.1 The Runner delivers the bin to the address as specified on the Bar Code label. The bin is placed inside the gate of the premises where possible, in such a way that it does not obstruct the path of householders. The runner must place the bin to allow convenient access to the bin handles.

2.3.6.2 The Runner shall also put a collection calendar and other leaflets if required into the letter-box of each household that receives a bin.

2.3.6.3 The Runner shall ensure that each household receives a bin within the street and shall report any houses not issued with bins to the Data Capture Operative to issue a bin.



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## 3 Collection of materials

3.1 General

3.1.1 Scheduling of collection of dry recyclable material

3.1.1.1 The scheduling of vehicles for the collection shall be such that each household shall have a collection once every four weeks. The collection days shall be the same day of the week and shall be indicated on the collection calendars distributed to each household. Any change to the collection frequency shall be arranged and agreed between Oxigen and the Local Authority.

3.1.1.2 The collection times shall be scheduled such that bins are nominally emptied between the hours of 7:00 am and 10:00 pm.

3.1.1.3 Any changes to the collection day or time shall be communicated to the individual householder by means of individual leaflet / calendar drops to the respective households.

3.2 Preparation

*3.2.2 Resources and responsibility for collection of dry recyclable material & glass*

3.2.2.1 It is the responsibility of the Operations Supervisor or his deputy to ensure that the collection Vehicles required are available and operational and that they are adequately staffed. Only fully qualified drivers are allowed to drive the refuse collection vehicle.

3.2.2.2 For the collection of dry recyclable material the team shall consist of one Driver and a minimum of one bin collection operative. The glass collection vehicle is usually manned by the driver alone but an operative may be assigned to this vehicle at the discretion of the operations supervisor

3.2.2.3 Before leaving the depot, the Driver shall carryout the checks as detailed on the 'Daily Checklist' . Any items requiring maintenance shall be handled as outlined in section 3.5.

3.2.2.4 Before leaving the depot, the Driver shall ensure that he is equipped with the days 'Route Collection Sequence' and 'Route Map' as outlined in the 'Vehicle Collection Schedule' and the required 'Collection Follow-Up Report'. All these reports are available from the Administrator. The Driver shall also ensure that there is an adequate supply of 'Non-Conformance Record Sheets', 'Non-Conformance Notification Sheets' and 'Reject' stickers for the day's collection.



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3.3 Waste Inspection

3.3.1 Role of the waste inspector

3.3.1.1 A Waste Inspector shall operate independently of the collection crew and shall inspect all the bins on the assigned route prior to waste collection to ensure that the contents are conforming to requirements. The Waste Inspector is not a full time member of the collection crew and only goes out on new routes or routes that are known to be problematic. At least Quarterly , the waste inspector shall inspect waste on established routes. These routes shall be selected at random.The Operations Supervisor shall assign the routes to the Waste Inspector. For glass collection, cursory inspection is performed by the driver.

3.3.2 General

3.3.2.1 The purpose of waste inspection is to ensure the quality of the dry recyclables being collected so as to minimise unnecessary sorting and contamination of the segregated dry recyclables whilst at the same time having due regard for the effort that is put in by the householder.

3.3.3 Inspection technique

3.3.3.1 The bins are inspected by lifting the lid and upsetting the uppermost materials if necessary, in order to see the top third material of the bin. It is important that if any material is spilled during this process that it is picked up and placed back in the bin.

3.3.4 Non-conformance handling

3.3.4.1 Where some of the materials presented for collection are unsuitable for dry recycling, the Waste Inspector shall record the details of the bin into the handheld scanner as described below or record on the 'Non-Conformance Record Sheet'.

3.3.4.2 The Waste Inspector shall also place a 'Non Conformance Notification' indicating the non-conformance into the letterbox of the offending household. In extreme cases where a significant proportion of the material being presented is non-conforming then this shall be handled as above as well as a reject sticker placed on the lid of the bin to notify the Bin Operatives of the non-conforming materials and not to empty the bin.

*3.3.5 Recording of Bin Details on 'Non-Conformance Record Sheet' ;*

3.3.5.1 The address, six digit bin number along with the code corresponding to the non-conformance found are recorded.



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3.3.5.2 These Non Conformance Codes are as follows;

| | |
|---|---|
| Bin No + .1 | Glass (Rejected) |
| Bin No + .2 | Plastic (Rejected) |
| Bin No + .3 | Organics (Rejected) |
| Bin No + .4 | Miscellaneous (Rejected) |
| Bin No + .5 | Mixed (Rejected) |
| Bin No + .6 | Glass (Warning) |
| Bin No + .7 | Plastic (Warning) |
| Bin No + .8 | Organic (Warning) |
| Bin No + .9 | Miscellaneous (Warning) |

3.3.5 Non-conformance monitoring

3.3.5.1 On a weekly basis, based on the Waste Inspectors schedule a route specific 'Waste Inspection Follow Up Report' shall be generated by the Customer Relations person. This report indicates those households on the route that have previously presented materials unsuitable for collection for a minimum period of 3 months previous.

3.3.5.2 The waste inspector is obliged to pay specific attention to those houses listed and ensure that the materials presented are conforming. Should the materials presented not conform then the bin shall be rejected as outlined above. Each house as they are found to be conforming will be ticked off the list.

3.3.5.3 At the end of the week the Waste Inspector will return the 'Waste Inspection Follow Up Report' to the Customer Relations person who will update the computer system accordingly.

3.3.5.4 The Bin Operatives may also inspect bins particularly any suspect bins and record any seriously non-conforming 'reject' bins on the 'Non-Conformance Record Sheet' as indicated above. All data collected from the handheld scanners and Non-Conformance Record Sheets shall be dealt with in accordance with the Customer Care Procedure.

3.3.5.5 Bins are not to be rejected without a reject sticker and a non-conformance report being attached indicating the reason for rejection. If there is no 'Materials Allowed Sticker' on the bin, the bin cannot be rejected and a sticker should be placed on the lid of the bin.



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3.4 Waste Collection

3.4.1 Commencement

3.4.1.1 The Driver drives to the beginning of his route as indicated on the 'Route Map' and 'Route Collection Sequence' and continues to follow the route in sequence as outlined on the Route Map and 'Route Collection Sequence'.

3.4.1.2 The Bin Operative wheels the bin to the rear of the refuse collection vehicle and attaches the bin to the lift. Once secured the bin should automatically lift and empty into the hopper. If the bin is not emptied the operator must re-engage the lift mechanism and manually operate the lift if necessary. The bin is removed from the lift only when the bin has returned to the ground. Any bins with 'reject' stickers will not be emptied.

In the case of bring banks, the Driver/Bin Operative unlocks the bin from its frame and wheels the bin to the specific compartment of the collection vehicle and attaches the bin to the lift. Once secured the lift is engaged and the bin emptied into the hopper. The bin is removed from the lift only when the bin has returned to the ground. The empty bin is placed back onto the centre frame. Once all the bins have been emptied the frame lock shall be engaged again.

3.4.1.3 Any spillage of litter that occurs during waste collection shall be cleared away immediately by the Bin Operatives. Under no circumstance should material be removed from the bin.

3.4.2 Bin Placement

3.4.2.1 The empty bin shall be left on the edge of the pavement outside the house it came from, with the handles facing inwards, in a location where it presents no obstruction to vehicles or pedestrians alike. Where bins are presented for collection in groups as at small cul-de-sacs, these bins shall be returned to this position following emptying.

3.4.3 Damage to Bins

3.4.3.1 If a bin is damaged during collection or engulfed in the hopper, a Non-Conformance Notification detailing same shall be issued to that specific household and the address and bin number recorded on the 'Non-conformance Record Sheet'.A New Bin will be issued to the householder and notification of the damage advised to the Local Authority.



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3.4.4 Bags

3.4.4.1 The Bin Operatives shall continue to empty all green bins presented for collection. If there is a bag of recyclable materials placed beside the green bin for collection then the bin shall be emptied first and the plastic bag emptied into the bin (inspected) and the bin emptied again. The collection of dry recyclables in plastic bags is not a standard practice and is only permitted to those households that were previously 'missed bins' as showing on the Collection Follow-Up report, or where the householder has accumulated exceptionally large quantities of recyclable materials.

For glass collection the Driver//Bin Operative shall also be obliged to empty any overflow bags or other containers of recyclables placed beside the bins by emptying into the respective bins and then discharging into the respective truck compartment.

3.4.5 The Collection follow-up report

3.4.5.1 The 'Collection Follow-Up' report indicates where a customer has previously complained about their bin not being emptied 'missed bin' or some other complaint. This report is route specific and is used to pay particular attention to those customers and check that their bins are emptied according to this procedure. Should it be found that a household on the 'Collection Follow_Up' report did not present their bin for emptying then the Bin Operative shall place a Non-Conformance Notification in their letterbox indicating such.

3.4.5.2 The Collection Follow-Up report shall be completed to indicate the action taken, whether it was emptied or not presented etc.

3.4.6 Responsibilities

3.4.6.1 The Bin Operatives are responsible for ensuring that all bins presented for collection are emptied. The Driver is responsible for ensuring that no part of the route is left incomplete.

3.4.7 Restricted access

3.4.7.1 Should the Vehicle not be able to access certain roads due to road construction or parked vehicles, that part of the route shall be put on 'hold'. When the normal route is complete the driver shall return to the section put on hold. Should access still be a problem and it is not feasible to walk the bins to the truck, then the Bin Operatives shall distribute a Non-Conformance Notification to the relevant houses indicating the problem with non-collection. The driver shall notify the Customer



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Services person as to the nature and extent of the restriction, who shall then notify the Local Authority of same.

3.4.7.2 These houses shall be recorded on the 'Non-Conformance Record Sheet' along with the reason for non-collection.

3.4.8 Completion of Route

3.4.8.1 All routes are to be completed on the day scheduled. No routes are to be left incomplete without the authority of the Operations Supervisor. The Operations supervisor shall treat all such circumstances as urgent, and endeavour to have the route completed at the earliest convenience.

3.4.8.2 If parts of a route are not completed due to road access problems i.e. road works repeated attempts will be made within that same week of collection. If this does not allow for collection then the bins will only be emptied on the next scheduled collection, and the householders affected shall be notified accordingly.

3.4.8.3 Should routes not be completed due to poor weather conditions then these routes will be serviced as soon as the weather permits on a second shift basis as the scheduled collections are maintained.

3.4.8.4 Should a section of a route not be emptied due to Driver neglect then the driver shall complete that section either on the day or the following day of being notified.

3.4.8.5 Should an individual bin be missed due to failure on the part of the householder to present the bin for collection on time, the driver shall be notified. If feasible he may decide to return to collect the bin. Should an individual bin be missed due to an oversight by any member of the collection crew, the driver shall be notified. In such circumstances the bin shall be collected within 48 hours.

*3.4.9 Complaints*

3.4.9.1 All missed bin complaints received are logged and followed up and also used for the measurement of collection crew performance and bonus.

*3.4.10 Customer Handling*

3.4.10.1 Any encounters with the customers are to be handled with the utmost courtesy. Any complaints received are to be referred to the 'help line' giving your full name as reference.



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*3.4.11 Incident reporting*

3.4.11.1 Any incidents or accidents are to be handled in accordance with the accident reporting procedure, as set out in the Health & Safety Plan

3.4.11.2At all times during the collection of waste, attention must be paid to the hazards involved as outlined in the health & Safety plan.

3.5 Checklist & Breakdown Handling

3.5.1 Maintenance Request Form

3.5.1.1 All breakdowns shall be recorded on the Maintenance Request form, including breakdowns involving the Identification and Weighing System or Truck Navigational System.

3.5.1.2 Intermittent problems shall also be recorded on the Maintenance Request' form.

3.5.1.3 The 'Maintenance Request' form shall be initiated by the responsible driver and shall detail the problem as accurately as possible, the vehicle registration number, driver's name and the date and time the problem was first noted.

3.5.2 Reporting

3.5.2.1 One copy of the Maintenance Request' form shall be given to the Operations Supervisor or Maintenance Person in charge the same day and the original copy kept in the vehicle log.

3.5.2.2 The Operations Supervisor or Maintenance Person in charge shall examine the Maintenance Request form and obtain clarification from the driver if necessary, and forward it to the maintenance manager or his representative.

3.5.3 Sign-Off

3.5.3.1 Once the repairs have been completed in accordance with the 'Maintenance Procedure' the Maintenance Person shall sign off the 'Maintenance Request' form in the vehicle log. The Driver shall verify that the work was completed satisfactorily and sign the 'Maintenance Request' form.

3.5.3.2 Intermittent problems shall only be verified after a reasonable period of operation. Completed 'Maintenance Request' forms shall be filed at regular intervals and all incomplete 'Maintenance Request' forms shall remain in the Vehicle Log which is kept in the vehicle at all times.



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3.5.4 Checklist & Vehicle Log

3.5.4.1 Before leaving the depot, the Driver shall check any outstanding 'Maintenance Request' forms and verify any work completed. The driver shall also check that there is no 'Lockout'* for that vehicle. If there is a 'Lockout' indicated on a Maintenance Request' form then the vehicle shall **not** be moved without permission from the Maintenance Person that initiated the 'Lockout'.

{*: *in accordance with the maintenance procedure, should an authorised member of the maintenance team deem a vehicle unfit / unsafe for road usage he must forbid any staff member from using it ie. as if they were locked out of the cab* }

3.5.4.2 Before leaving the depot, the Driver shall also carryout the checks as detailed on the 'Vehicle Daily Checklist'. Any items requiring maintenance shall be recorded on a 'Maintenance Request' form as indicated above as well as being verbally communicated to the Operations Supervisor for processing.

3.5.4.3 Any maintenance problems involving brakes, transmission or steering shall be reported immediately and recorded as above and the truck shall **not** leave the depot without the permission of the Maintenance Person in charge. This permission shall be recorded on the 'Maintenance Request' form.

3.5.4.4 The Vehicle Log shall be signed by the Driver to indicate that the daily checks as detailed on the 'Vehicle Daily Checklist' were carried out. The Vehicle Log shall also indicate the start and finish mileage for each day as well as the mileage and litres at diesel fills. Any breakdown that incurs overtime shall also be recorded on the Vehicle Log detailing the hours of overtime and the 'Maintenance Request' form number.

3.5.5 Breakdowns

3.5.5.1 If the event of a breakdown after the truck has left the depot, the Operations Supervisor shall be notified immediately and a 'Maintenance Request' form initiated.

3.5.5.2 The Operations Supervisor shall ensure that the truck is fixed immediately or a replacement truck is sent out as soon as possible. In the event of a breakdown 'after hours' and the Driver shall return to the depot and collect a replacement truck. Should the truck be immobile or unsafe to move then a towing service shall be called and the truck towed back to the depot and a replacement truck taken out to complete the route.

3.6 RCV Unloading:

*3.6.1* Frequency

3.6.1.1 When the refuse collection vehicle is full or at a convenient interval before, the Driver shall return to the recycling depot.



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3.6.2 At the depot

3.6.2.1 The Driver shall enter the recycling depot and stop on the weighbridge. The weighbridge shall be operated in accordance with the 'Weighbridge Operation Procedure'.

3.6.2.2 The Driver shall then unload the recyclables in an area indicated by the Depot Supervisor.

3.6.3 Laving the depot

3.6.3.1 The Driver shall ensure that the vehicle tailgate is fully closed before attempting to exit the building.

3.6.3.2 The driver shall then return to the weighbridge for the empty (tare) reading. The Driver shall sign the weighbridge docket issued and mark it with the truck number assigned and present it to the Operations Supervisor at the end of the day.

3.7 Complaints Handling:

*3.7.1 General*

3.7.1.1 All complaints are handled in accordance with the 'Customer Care Procedure'

3.7.1.2 Any complaints received by the Driver, Bin Operatives or Waste Inspector shall be recorded on the Non-Conformance Record Sheet' and given to the Customer Service Representative along with the completed Collection Follow-Up reports for further processing.

## 4 Customer Care

4.1 Receipt of Query / Complaint

4.1.1 General

4.1.1.1 Queries / Complaints are generally received by telephone.

4.1.1.2 Queries or complaints may also be received through letters, faxes, e-mails or by direct contact with the householder.

4.1.2 Reporting

4.1.2.1 All operatives must report any complaints received to the Customer Relations person as outlined in the Procedure for Collection of Dry Recyclables.



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4.2 Recording of Query / Complaint

4.2.1 General

4.2.1.1 On receipt of a query / complaint (or as soon as is practicably possible) the Customer Relations person shall search the GIPPO database using the address and record the following data on the computer;

- Name of person
- Contact number (if applicable)
- Nature of the query / complaint being made.

4.2.1.2 Once entered onto the query handling system the address is automatically matched to the corresponding route, collection day, bin number and other data relevant to that address.

4.2.2 New/Unusual complaints

*4.2.2.1* Where possible all queries / complaints are to be recorded in this manner. For miscellaneous queries or complaints that fall outside the scope of the GIPPO system then these complaints are to be recorded on the Non-Conformance Report.

4.3 Corrective Action

4.3.1 Collection related complaints

4.3.1.1 On receipt of a complaint of a 'missed bin'(i.e. failure to empty bin on schedule) or poor placement of bin on roadway, the Customers Relation person shall "apologise for any inconvenience" to the complaining party and make assurances that every effort will be made to ensure that this oversight will not occur again.

4.3.1.2 In the case of an individual 'missed bin' being reported, the driver shall be notified by phone and given necessary details. It is up to the Driver's discretion whether to go back and empty that particular bin or not.

4.3.1.3 If a complete road or part of a route has been missed due to driver neglect, poor weather or access problems then the Driver and Operations Supervisor shall be notified and those bins shall be emptied either on the scheduled day, or on the subsequent day.

4.3.1.4 The Customer Representative shall notify the relevant Local Authority about the alternate arrangements. The complaining person(s) shall be notified of any alternate arrangements.



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4.3.1.5 Where a complaint is received for alleged rudeness of staff or littering on the road, the complaint is reported to the Operations Supervisor for immediate investigation and subsequent disciplinary action if necessary.

4.3.1.6 Within 7 days of receiving a 'collection related' complaint an appropriate letter of an apology is generated indicating Oxigen's company policy and procedure and is posted to the person in question.

4.3.2 Distribution related queries / complaints

4.3.2.1 On receipt of a request / complaint for an incorrect, non-received or lost calendar, the Customer Relations person shall record the details on the computer system and notify the person of the next scheduled collection and that the appropriate calendar shall be posted out within 7 days.

4.3.2.2 On receipt of a request for a change of bin size, bin to be removed, or bin replacement, the Customer Relations Person shall record the details of the householder and the specific request on the computer system. Where a change of bin size is requested, the householder shall be notified that their request will be handled as soon as possible and if a scheduled date is already allocated to this specific area, this date will be given to the person.

4.3.2.3 Where the householder wishes to return the bin, the Customer Relations Person shall endeavour to persuade the householder to retain the bin avail of the service provided. Where the householder remains adamant the Customer Service Person shall contact the local authority for instruction.

4.3.2.4 If the person requests an exchange of bin or the bin to be taken away they are to be advised to place their existing bin empty in an accessible place for collection.

4.3.3.4 The Bin Distribution Supervisor and the Customer Relations person shall on a weekly basis schedule the areas that will be serviced for 'call backs'. This schedule shall be based on the 'Outstanding Call Backs Report' and the 'Outstanding Late Call Backs Report'.

4.3.3 Inspection related queries / complaints

4.3.3.1 On receipt of a complaint regarding a 'rejected bin'(ie. failure to empty bin due to contaminants being placed in the bin) the Customer Relations person shall "apologise for any inconvenience" to the complaining party and explain to the householder why a contaminated bin cannot be emptied.

4.3.3.2 All bins that are 'rejected' or 'warned' due to contaminants in the bin are scanned and recorded and an appropriate letter is generated indicating Oxigen's company policy and operating procedure is posted to those persons.



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4.3.3.3 No other specific corrective action is taken for those that phone in to complain about our procedure in this regard and the complaints are logged for trend analysis purposes.

4.3.4 Miscellaneous queries / complaints

4.3.4.1 Miscellaneous complaints recorded on the non-conformance report are to be given daily to the Operations Supervisor.

4.3.4.2 The Operations Supervisor shall determine the appropriate corrective action necessary.

4.3.4.3 It is the responsibility of the Operations Supervisor to ensure that the action required is carried out and verifies that the action taken was effective.

4.3.4.4 The Operations Supervisor shall complete and 'sign off' the various sections of the non-conformance report as required.

4.4 Verification

4.4.1 Collection queries / complaints verification

4.4.1.1 If a 'missed bin' either individual or as an incomplete route, has been reported and that bin has been subsequently emptied within the week then the GIPPO system shall be updated to indicate that the date actioned is recorded as the verified date against the complaint.

4.4.1.2 This is for the purposes of reporting 'missed bins' as being only those that have not been serviced within one week whilst still recording the complaint for corrective action as described in section 4.3

4.4.1.3 On a weekly basis a truck specific "Collection follow-up report" is generated indicating the households due for servicing the following week that have complained within the previous three months. The driver and operatives are obliged to pay specific attention to those houses listed and ensure that the houses in question are correctly dealt with.

4.4.1.4 Each house as they are dealt with will be ticked off the list. Each household that has complained will remain on the list for a minimum of three months after they complained.

4.4.1.5 Should an operative find a householder listed on the 'Collection Follow Up Report' that has not presented its bin for collection, a non-conformance notification detailing the same will be issued by the bin operatives to that specific household.

4.4.1.6 At the end of the week the Driver will return the 'Collection Follow Up Report' to the Customer Relations person who will update the computer system accordingly.



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4.4.1.7 Where the Customer Relations person finds a reoccurring collection complaint and previous corrective action appears ineffective, then the details of the complaint are brought to the attention of the Operations Supervisor for further investigation and appropriate action.

4.4.2 Distribution queries verification

4.4.2.1 Based on the schedule, the appropriate 'Call Back Reports' are generated the previous day by the Customer Relations person and given to the Bin Distribution Supervisor.

4.4.2.2 The Bin Distribution Supervisor allocates the Call Back Reports' to his personnel for appropriate action.

4.4.2.3 Each house as they are dealt with by the 'Call Back' crew will be ticked off the list. Should the Call Back crew be unable to change/remove the bin, the crew may call back again at a later date.

4.4.2.4 After two such unsuccessful attempts to change/remove the bin, the query may be considered 'actioned'. At the end of each day the designated member of the call back crew shall sign and date the 'call-back' report. This report shall then be given to the bin distribution supervisor.

4.4.2.5 The Bin Distribution Supervisor shall fax or copy and return the completed 'Call Back Reports' to the 'Customer Relations' person who will update the 'date actioned' field on the system with the date recorded on the call back report accordingly.

4.4.2.6 Where 'call backs' have been unsuccessful these shall be marked as 'called' in the comments field as well as having the 'date actioned' field completed. The call back report shall be signed and dated by the 'Customer Relations' person and filed.

4.4.3 Inspection verification

4.4.3.1 On a weekly basis based on the Waste Inspectors schedule a route specific 'Waste Inspection Follow Up Report' shall be generated by the Customer Relations person. This report indicates those households on the route that have previously presented materials unsuitable for collection for a minimum period of 3 months previous.

4.4.3.2 The waste inspector is obliged to pay specific attention to those houses listed and ensure that the materials presented are conforming. Should the materials presented not conform then the bin shall be rejected in accordance with the 'Collection of Dry Recyclables Procedure'. Each house as they are found to be conforming will be ticked off the list.



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4.4.3.3 At the end of the week the Waste Inspector will return the 'Waste Inspection Follow Up Report' to the Customer Relations person who will update the computer system accordingly.

4.5 Assessment and Review

4.5.1 Communications

4.5.1.1 Drivers and operatives receive feedback on the level of complaints recorded against them via the Collection Complaints Bonus Calculation report. This report is distributed to all operatives concerned and is used in part to determine their monthly bonus.

4.5.2 Management Review

4.5.2.1 On a monthly basis management shall review all complaints received and where possible identify trends and the appropriate corrective action.

4.5.2.2 At the Management Review meetings formal reports shall be generated detailing number, nature and trend of queries / complaints. Any changes in Quality targets, policies, procedures and long term corrective action shall be noted in the meeting minutes.

4.5.2.3 Where there are 'repeat offenders' presenting non-conforming materials these will be logged and also reviewed at the Management Review meetings

## 5 Processing

5.1 Weighing In

5.1.1 The truck pulls onto the weighbridge and a buzzer sounds in the processing area to notify the shift operations supervisor that a truck has arrived. The weight of the incoming vehicle is noted by the shift supervisor and recorded in the incoming materials register.

5.1.2 Once the weight is recorded the shift supervisor instructs the driver to move off the weighbridge.

5.1.3 The truck is reversed, with the aid of a bin collection operative into the recycling centre.



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5.2 Tipping of load

5.2.1 The supervisor directs the truck driver to the designated tipping area on the factory floor.

5.2.2 Once in the designated area, the driver disembarks from the vehicle and moves to the rear. The driver, and only the driver is authorised to empty the contents of the vehicle.

5.2.3 Once at the tailgate control panel, the driver ensures the surrounding area is clear of obstruction and other personnel. He then engages the mechanism and the tailgate raises, all the while ensuring adequate clearance between the tailgate and the roof of the recycling facility.

5.2.4 Once completely open, the driver engages the discharge ram and the contents of the vehicle are tipped in the designated area. Once the vehicle is entirely empty, he closes the tailgate. Having ensured the tailgate is completely closed the driver then re-enters the cab.

5.3 Weighing Out

5.3.1 Employing standard driving safety precautions he drives the vehicle back onto the weighbridge.

5.3.2 The shift supervisor notes the empty weight of the vehicle and records it in the incoming materials register.

5.3.3 The weighbridge software subtracts the 'second' weight of the vehicle from the initial weight and yields the net weight of the trucks cargo. This weight is then verified by the shift operation supervisor and is logged into the incoming materials register.

5.3.4 The weighbridge docket, detailing the registration, date, time, route number and weights is printed off in duplicate. The vehicle driver and the shift operations supervisor sign off both copies respectively.

5.3.5 The vehicle then pulls off the weighbridge and departs. The copy retained at the recycling centre is logged on the production database by the production manager. The customer services representative also logs this data on the GIPPO database to facilitate handling of any customer queries.



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## 5.4 Plant Loading

5.4.1 Once the refuse collection vehicle has departed the driver of the skid steer loader (mustang 2070) commences 'loosening' of the compacted materials. This is achieved through shunting of the materials using the bucket of the vehicle.

5.4.2 Once crudely loosened, the material is scooped up in the bucket of the skid steer loader. This is then deposited on the in-feed conveyor. This material is then transported upwards via the conveyor until it reaches the *speed up conveyor*.

5.4.3 The materials are further loosened through deposition onto the faster moving *speed up conveyor*. Materials move along the speed up conveyor to initial processing.

## 5.5 Initial Processing

5.5.1 The method of segregation is quite simple, we endeavour to extract out the large bulky material out of the material stream first.

5.5.2 This is done using the OCC Star Screens; these machines consist of a series of shafts along which are large rubber star shaped discs.

5.5.3 These shafts rotate at a designated speed and the configuration of the stars is such that material larger than A3 bounces over the top of the rotating stars while the other material, which is anything smaller than A3 falls through the gaps in the shafts and falls onto a collection conveyor below.

5.5.4 By extracting the biggest materials out first it makes the material more manageable for sorting at later stages.

5.5.5 This large material is transported via conveyors to the main baler and baled up as mixed waste.

## 5.6 Secondary Processing

5.6.1 The material that falls through these OCC Screens is transported via conveyor to secondary screening. ONP screens further segregates the material stream. These screens are some what similar to the OCC screens however there are a lot more shafts and stars on these screens and the diameter of the stars is much smaller.

5.6.2 As the material falls onto these screen the configuration and angle of the screen is such that papers and magazines climb up the screen, cans fall through the gaps in the stars and the heavier card etc falls off the back of the screen, small particles or fines also fall through the screen and are collected on a collection conveyor below.

5.6.3 The material which travels over the top which is mainly newspapers and magazines along with some contamination this is then sent on via conveyor for further processing.



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5.6.4 The materials and cans etc which fall through and off the back of the ONP screen are also collected on a separate conveyor and are also sent off for further processing.

5.7 Tertiary/Final Processing

5.7.1 The News and Pams material then are further 'cleaned up' by passing this material through a paper spike or automatic sorting machine. A paper spike is a mechanical machine which consists of a number of chains with spikes on which puncture the material as it passes through the machine newspapers and magazines fall off the spikes but cardboard does not and sticks to the spikes and is extracted out of the material stream.

5.7.2 The Auto sort machine is a scanning unit which detects non conforming materials and extracts those using jets of air at the end of the conveyor. The extracted materials are fed via conveyor back into the mixed paper stream, and the cleaned newspapers and magazine are fed via conveyor to Quality control whereby one to two people check the material as it passes by on the conveyor and ensure that no non conforming materials are left in the material stream. This material is then transported via conveyor to the news and pams baler and baled.

5.7.3 The remaining materials which consist of card, cans, tetra pak, and residues such as plastics or items which should not have been placed into the green bin in the first place are sent via conveyor for further processing. These materials are passed over a third screen which removes the fines or small particles which fall through the small apertures in the screen and these fines are transported via conveyor to a waste skip.

5.7.4 The cans and Tetra pak along with some residue and large card fall off the back of the screen while the rest of the light card passes over the top of the screen. The Light card is transported via conveyor to the mixed waste baler and baled.

5.7.5 The Cans, Tetra pak, large card and residue travel on for further processing. The material passes under an industrial electro magnet which extracts out all ferrous items from the material stream, these ferrous items and dropped into a fed hopper which feeds an automatic can baler which bales the ferrous items into biscuit tin size bricks which are the palletized and strapped ready for shipping.

5.7.6 The remaining material then falls onto an eddy current which ejects any non ferrous items, such as drink cans etc. these items fall into a feed hopper which feeds an automatic can baler which bales the non ferrous items into biscuit tin size bricks which are the palletized and strapped ready for shipping.

5.7.7 The remaining material passes over another automatic sorting machine which detects non conforming materials and extracts those using jets of air at the end of the conveyor. This machine will extract all tetra pak and residues from the conveyor leaving only mixed card which is transported via conveyor to the mixed waste baler and baled.



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5.7.8 The extracted tetra pak is segregated from the residue and the residue is sent to a waste skip. The tetra pak is stored in a conveyor bunker until there is enough to make one bale; the material is then sent to the mixed waste baler and baled.

5.8 Baling

5.8.1 This material is passed into the along the infeed conveyor into the main Bolengraph baler. This serves to compress and bind materials into bales weighing approximately 700-750 kgs (Bale size is approx. 1.5m X 1.0m).

5.8.2 Once these bales are discharged by the baler they are transported by the forklift to the designated storage area where they are stacked (no more than 4 high ), to await despatch.

5.8.3 Periodically, the gates of the self contained storage bays containing cardboard and debris are individually released and pushed via skid steer loader onto the Bolengraph Baler infeed conveyor. These materials are baled in similar fashion.

5.8.4 These bales too, are transported by forklift to the designated storage area.

5.8.5 Periodically steel cans are baled into steel bales approx. 12 $in^2$ by the McIntyre can baler. As quantities dictate a 3 tonne forklift is employed to deposit these cans into a designated 12yd cubed skip.

5.9 Despatch Weigh-in

5.9.1 On a regular basis 40ft box container vehicles arrive at the recycling centre. Scheduling of these vehicles is organised by Bailey Waste Recycling Limited.

5.9.2 Upon arrival the container truck drives onto the weighbridge, where a buzzer sounds to notify the shift operations supervisor of it's arrival. The weight of the incoming vehicle is noted by the shift supervisor and recorded in the outgoing materials register.

5.9.3 Once the weight is recorded the shift supervisor instruct the driver to move off the weighbridge. The supervisor directs the truck to the designated loading area.



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5.10 Loading

5.10.1 Under the instruction of the shift operation supervisor the truck is reversed against one of eight loading bays, and the driver opens the container door.

5.10.2 The forklift loads the container with bales of the designated product. Up to 25 tonnes can be loaded onto each container, depending on the product. Once loaded the driver closes the container door and re-enters the vehicle.

5.11 Despatch Weigh-out

5.11.1 Employing standard driving safety precautions he drives the vehicle back onto the weighbridge.

5.11.2 The shift supervisor notes the empty weight of the vehicle and records it in the outgoing materials register.

5.11.3 The weighbridge software, subtracts the 'initial' weight of the vehicle from the second weight and yields the nett weight of the trucks cargo.

5.11.4 This weight is then verified by the shift operation supervisor and is logged into the outgoing materials register.

5.11.5 The weighbridge docket, detailing the registration, date, time and weights is printed off in duplicate. The vehicle driver and the shift operations supervisor sign off both copies respectively.

5.11.6 The vehicle then pulls off the weighbridge and departs the premises. The copy retained at the recycling centre is logged on the production database by the production manager.

## 6 Reporting

6.1 On a monthly basis, the production manager produces generates a detailed report. This report shall include as a minimum;

- The total quantity of incoming materials throughout the previous month
- The total quantity of incoming materials from each respective route collected
- The total quantity of each product type despatched throughout the previous month
- Details of all scheduled maintenance



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- Details of all plant breakdowns and resulting unscheduled maintenance
- Details of plant throughput and operational hours
- Details of all staff issues including absenteeism, extra-shifts, staff productivity etc.

## 7 Marketing of Materials

7.1 When the separation process is complete, the processed materials are ready for disposal /sale to recyclable markets. This is carried out by Bailey Waste Recycling Ltd.

7.2 The material is marketed in three areas: UK, mainland Europe and the Far East

7.3 The only material currently disposed of in Ireland is steel cans.All materials leaving the processing plants are accompanied by all necessary transport documentation.

7.4 The following details are kept for each and every load by Bailey Waste Recycling Ltd:

1) Haulier
2) Destination
3) Order Number
4) Mill / Mill Agent
5) Value (if any)/cost

7.5 All materials are consigned either directly to the paper/processing mills, or to their recognised agent.

7.6 A return P.O.D. is filed for all loads exported to verify its destination.

## *8 Paper trail*

*8.1 Retention & Inspection of documentation*

8.1.1 The weigh bridge dockets for both the incoming and out going materials, P.O.D's, consignment details and other significant documentation shall be filed and retained for the full period of the contract and shall be available for examination/audit by the local authority/repak following reasonable notice.



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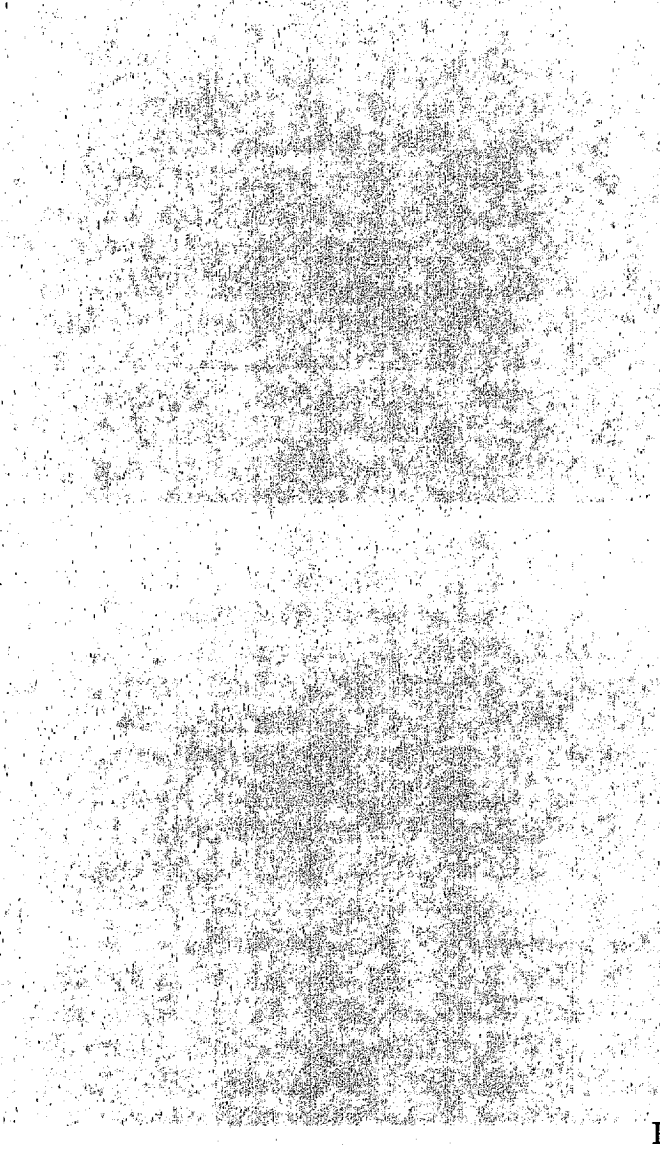
8.1.2 A detailed quarterly report will be produced that will reflect the quantities collected processed and marketed. Materials marketed shall be supported by the appropriate document to verify that the materials have been reused or recycled. These documents will be made available to REPAK for inspection by Bailey Waste Recycling Ltd.





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# Attachment D
# Layout and description of C & D waste building

Our design is based the input composition provided by Oxigen on the 30th June, our drawing 9940199B applies.

## General information

### Capacity installation

| | |
|---|---|
| Capacity installation | - Approx 40 to 50 Tons per Hour |
| Production per annum | - From 70,000 ton increasing to 150,000 ton |
| Max material in feed size | - 1,400 mm |
| Max piece weight | - 50 kg |

Our labour total is estimated, based on experiences in similar installations that have no Air separation on the coarse line. We have shown Air separation for the coarse line as an option. If taken, it would reduce the required manpower level by 1.

### 1st line sorting aggregate negative sorted

| | |
|---|---|
| Pre-sorting | - 1 man # FTE |
| Post sorting | |
| Coarse line sorting wood | - 2 men |
| OCC | - 1 man |
| Mixed Non ferrous / ferrous | - 1 man |
| Residuals | - 2 men (reduce by 1 man if option of Air separation on coarse line is taken) |

### 2nd line sorting

| | |
|---|---|
| Post sorting wood | - 1 man (cleaning small wood fraction from small floating plastics) |
| Post sorting aggregates | - 2 men (cleaning aggregates from PVC/non floating plastics and Non-ferrous) |

### Material breakdown as submitted by Oxigen

| | |
|---|---|
| Pre-sorted residuals (large plastics) | 3 % |
| Fines | 25 % |
| Aggregates | 10 % |
| Wood | 12 % |
| Cardboard | 7 % |
| Ferrous metal | 10 % |
| Non Ferrous | 3 % |
| RDF | 20 % |
| Rubbish | 10 % |
| Total | 100 % |

**Expected final breakdown**

We anticipate that more saleable commodities would be produced after the separation process, principally from RDF and Rubbish.

| | |
|---|---|
| Pre-sorted residuals | 3 % |
| Fines | 25 % |
| Aggregates | 12 % less aggregates will be lost in the sorting process |
| Wood | 25 % smaller wood to be sorted by the water bath separator |
| Cardboard | 7 % |
| Ferrous metal | 10 % |
| Non-ferrous | 3 % |
| RDF mixed Plastic / Paper | 10 % |
| Residuals (gypsum, PVC, asphalt's) | 5 % |
| Total | 100 % |

## TECHNICAL SECTION

### Pos 01. Bunker 1400 VF x 10,000

Vibrating feeder with an inside width of 1,400mm and a length of 10,000mm. The feeder is specially designed for C&D material and consists of two Sidewalls and a vibrating gutter.
The Sidewalls are specially designed for loading with a wheel-loader or a hydraulic excavator. The feeder is driven by an E-motor and the speed is variable by means of a frequency control situated in the main control-panel.

| | |
|---|---|
| Drive | - 7.5 kW |
| Speed | - Variable by means of frequency control |

### Pos 02. Incline conveyor 1,400 TB 18° x 21,500 / 6,500

Inclined conveyor with a length of 21,500 mm which is running under an angle of 18° and has a horizontal length sorting part of 6,500 mm, with a belt width of 1,400 mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster.
The belt is supplied with support and side guide plating over the full length and belt safety covers where necessary.

| | |
|---|---|
| Drive | - 7.5 kW |
| Belt type | - EP 500/3-4+2 |
| Conveyor speed | - 20 - 40 M/min |
| Belt cleaning | - Self-tensioning scraper |

### Pos 03. StarScreen 1,440 x 6,500 / 660 – 4 x 5.5kW

StarScreen® with a length of 6,500mm and a screen deck width of 1,440mm. The screen is equipped with 660mm LUBO stars and is placed in a solid frame, build from heavy 6-mm sheet plate.

The screen is fully enclosed to prevent dust coming out of the screen and inside the screen a crane trolley beam is mounted for service purposes, (no crane in the delivery).
The screen housing is executed with (one) service door with a service lock E-switch on the door.

The screen is driven by 4 x E- motors with gearbox

| | |
|---|---|
| Drive(s) | - 4 x 5.5kW |
| Isolation class | - IP55 |
| Speed control | - Variable by frequency control |
| Screen size | - 0 – 200 to 400 mm (variable by speed variation) |
| Screen position | - Horizontal |

## Pos 04. Sorting Conveyor 1,400 SB x 29,000

Rubber belt sorting conveyor with a length of 29,000 mm and a belt width of 1,400 mm.
A shaft-mounted gearbox with E-Motor drives the belt and tail pulley is provided with a tension adjuster for belt tensioning.
The belt is designed with an extra strong impact plate to avoid damage stones coming out of StarScreen Pos 3 and further complete with required supports and side plating and wood rail as cold barrier at the sorting positions where necessary.

Along side the sorting belt there are 4x3 (a total of 12) sorting chutes situated executed with hardwood cold barrier.

| | |
|---|---|
| Drive | - 3.0 kW, drum motor |
| Belt type | - EP 500/3 4+2 |
| Conveyor speed | - 20 - 40 M/min (variable speed by frequency control) |
| Belt cleaning | - Self-tensioning scraper |

## Pos 05. Belt Conveyor 1,400 TB x 6,500 (screen fines conveyor)

Rubber belt conveyor with a length of 6,500mm, with a belt width of 1,400mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and guide plating where necessary.
The belt has a special steel in-layer to avoid length cut by sharp material.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 500/3-4+2 with steel in-layer |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

## Pos 06. Long material separator

This separator is positioned at the end of conveyor (pos. 05) from the Unders to separate the long material (+400 mm) which passes through the screen (pos. 03) to avoid jamming in the 2nd line.
The separator consists of a material aligning tool on the conveyor and pulling roller, which dumps the material through a chute in a bunker.

| | |
|---|---|
| Drive | - 1.1 kW |
| Speed | - 20 rpm |

**Pos 07. Belt Conveyor 1,200 TB 18° x 5,500 (Transfer conveyor to 2nd line)**

Rubber belt conveyor with a length of 5,500mm, with a belt width of 1,200mm, the belt has an incline an angle of 18°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with chute; supports and side guide plating where necessary.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 400/3-4+2 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 08. Belt Conveyor 1,200 TB 12° x 13,000**

Rubber belt conveyor with a length of 13,000mm, with a belt width of 1,200mm, the belt has an incline angle of 12°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster.
The belt is supplied with chute, support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 400/3-4+2 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 09. StarScreen 1,240 x 5,000 / 235 – 3 x 5.5kW**

StarScreen® with a length of 5,000mm and a screen deck width of 1,240mm.
The screen is equipped with 235mm LUBO self cleaning stars with quick disconnect type shafts and are mounted in a solid frame build from heavy 6-mm sheet plate.
The top of the screen has covers with hinges to prevent dust coming out of the screen

The screen is driven by 3 off E-motors with gearbox

| | |
|---|---|
| Drive(s) | - 3 x 5.5kW |
| Isolation class | - IP55 |
| Speed control | - Variable by frequency control |
| Screen size | - 0 – 40 / 60 mm minus (variable by speed variation) |
| Screening angle | - 6 degrees positive |

**Pos 10. Belt Conveyor 1,200 TB 19° x 6,000**

Rubber belt conveyor with a length of 6,000mm, with a belt width of 1,200mm, the belt has an incline angle of 19°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 250/2-3+1 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

## Pos 11. Belt Conveyor 1,200 TB x 3,500 (screen Unders conveyor)

Rubber belt conveyor with a length of 3,500mm, with a belt width of 1,200mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster.

The belt is supplied with support and side/chute plating connected to the screen Pos 9.

| | |
|---|---|
| Drive | - 2.2kW |
| Belt type | - EP 250/2 4+2 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

## Pos 12. StarScreen 1,240 x 6,000 / 165 – 3 x 5.5kW

StarScreen® with a length of 6,000mm and a screen deck width of 1,240mm. The screen is equipped with 165mm LUBO self cleaning stars with quick disconnect type shafts and are mounted in a solid frame build from heavy 6-mm sheet plate.
The top of the screen has top covers with hinges to prevent dust coming out of the screen.

The screen is driven by 3 E- motors with gearbox.

| | |
|---|---|
| Drive(s) | - 3 x 5.5kW |
| Isolation class | - IP55 |
| Speed control | - Variable by frequency control |
| Screen size | - 0 – 16mm minus (variable by speed variation) |

## Pos 13. Belt Conveyor 1,200 TB 20° x 10,500

Rubber belt conveyor with a length of 10,500mm, with a belt width of 1,200mm, the belt has an incline angle of 20°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with chute, support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 250/2-4+2 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

## Pos 14. Belt Conveyor 1,200 TB x 3,500

Rubber belt conveyor with a length of 3,500mm, with a belt width of 1,200mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating /chute connected to the screen position 12.

| | |
|---|---|
| Drive | - 2.2kW |
| Belt type | - EP 250/2- 3+1 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper, type "Martin" |

**Pos 15. Vibrating flexible deck screen 1,300 x 5,000**

The flex deck screen has a screen deck length of ± 5,000 mm and a width of approx. 1,300-mm. By means of the unique screen flex deck principal what minimises the material clocking the screen deck, the screen can separate down to very small fractions.

| | |
|---|---|
| Drive | - 11 kW |
| Screening size | - 0 – 4mm fines (screen configuration to be determined in relation to the moisture content of the material due to seasonal reasons) |
| Screen angle | - 12° downward |
| Machine weight | - 3,866 kg |

**Pos 16. Belt Conveyor 1,000 TB x 4,500 (2x)**

Rubber belt conveyor with a length of 4,500mm, with a belt width of 1,000mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 400/3-4+2 |
| Conveyor speed | - 40 M/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 17. Belt Conveyor 1,000 TB 18° x 3,500**

Rubber belt conveyor with a length of 3,500mm, with a belt width of 1,000mm, the belt has an incline angle of 18°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster.

| | |
|---|---|
| Drive | - 2.2kW |
| Belt type | - EP 250/2-3+1 |
| Conveyor speed | - 40 m/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 18. Belt Conveyor 1,000 TB -7° x 15,000**

Rubber belt conveyor with a length of 15,000mm, with a belt width of 1,000mm, the belt has an incline angle of 8°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.0kW |
| Belt type | - EP 250/2-3+1 |
| Conveyor speed | - 40 m/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 19. Belt Conveyor 1,000 TB 18° x 16,000**

Rubber belt conveyor with a length of 16,000mm, with a belt width of 1,000mm, the belt has an incline angle of 13°. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.3kW |
| Belt type | - EP 250/2-3+1 |
| Conveyor speed | - 40 m/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 20. Belt Conveyor 1,200 TB x 9,500**

Rubber belt conveyor with a length of 9,500mm, with a belt width of 1,200mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

| | |
|---|---|
| Drive | - 3.5kW, Drum Motor |
| Belt type | - EP 250/2-3+1 |
| Conveyor speed | - 20 - 40 m/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 21. Sorting Conveyor 1,000 SB x 7,500**

Rubber belt sorting conveyor with a length of 7,500 mm and a belt width of 1, 000 mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

In line with the sorting belt there are 1x2 (a total of 2) sorting chutes situated.

| | |
|---|---|
| Drive | - 5.5 kW, Drum Motor |
| Belt type | - EP 250/2-3+1 |
| Conveyor speed | - 20 - 40 m/min |
| Belt cleaning | - Self-tensioning pulley scraper |

**Pos 22. Sorting Conveyor 1,000 GRB x 6,500**

Rubber belt sorting conveyor with a length of 6,500 mm and a belt width of 1,000 mm. A shaft-mounted gearbox with E-Motor drives the belt. The tail pulley is provided with a tension adjuster. The belt is supplied with support and side plating where necessary.

In line with the sorting belt there are 1x2 (a total of 2) sorting chutes situated.

| | |
|---|---|
| Drive | - 3.0 kW |
| Belt type | - EP 400/3-4+2 |
| Conveyor speed | - 40 m/min |
| Belt cleaning | - Self-tensioning pulley scraper |

## Pos 23. Movable belt conveyor 1,400 TRB 5° x 9,000

Rubber belt conveyor with a width of 1,400 mm and length of 9,000 mm positioned at an inclined angle of 2° and is movable with a stroke of 2,000 mm
The conveyor is designed with an impact plate due to absorb possible impact from large stones or large wood discharged from the coarse post-sorting conveyor.

The conveyor is mounted on a base frame with a track and can be manually moved with a cable winch in a position with its discharge into a residual bunker or onto the conveyor to the water bath system.

This possibility in the design is to change the sorting in at the 1st from a positive residue picking into a negative picking or from a negative stone picking to a positive stone picking.

| | |
|---|---|
| Drive | - 2.2 kW |
| Belt type | - 250/2 4+2 |
| Conveyor speed | - 40 m/min |

## Pos 24. Magnet

A permanent magnet is placed over conveyor Pos 20 and separates the Ferrous metals < 300 mm and discharges with a (SS) chute into a container or the bunker at ground floor level.
This magnet is mounted in its own substructure.

| | |
|---|---|
| Total length | - 2,090 mm |
| Magnet | - 1,040 x 810 x 350mm |
| Rubber belt width | - 900 mm |
| Catch depth | - 360 mm |
| Drive motor | - 2.2 kW |
| Rubber type | - 250/2 4+2 Rubber belt executed with vulcanised cleats |
| Weight | - Circa 1,622kg |

## Pos 25. Waterbath separator

### Principle

The Waterbath separator exists out of a process-tank where the materials heavier than 1,000 kg/m3 are separated from the materials lighter than 1,000 kg/m3. and a water storage tank combined with a sand pump, coarse StarScreen and a vibrating fluid screen.

### Process tank

The separation process takes place in the process-tank, by means of a vertical and horizontal water-flow .

The floating-light materials flow towards the StarScreen and are dragged out by a 165 StarScreen® (screen-size: 0-15mm).

The fines of this screen, containing small light floating material and the water flow are diverted to a vibrating fluid screen with a fine mesh to clean the water from its contamination. (Screening size < 0.5 mm)

The light material over fraction > 15 mm from the StarScreen® will join the over-fraction of the vibrating fluid screen, and the under-fraction (clean processing water) from the Fluid screen will be discharged into to the storage tank.

The heavy material (non-floating) drop down onto a conveyor placed on the bottom of the process tank and will be dragged out the process tank by this conveyor.

**Storage tank**

The water from the process tank will pass two settling compartments and flows into to a pump compartment from where the water is pumped back to the process-tank.

**Storage tank cleaning**

During periodic installation stop period all water from the process tank will be discharged into the storage tank and the contamination of fines in the water will settle on the bottom of the settling compartment

**Waterbath separator production capacity and performance**

The input capacity of the Waterbath separator is approximately 40 tons per hour with a maximum of floating wood fraction of 15 tons per hour.

Estimated water consumption due to water sucked up by the aggregates is approx. 250-300 lt. per hour
(These figures are based on the use of an air system in front of the Waterbath)

Estimated sludge production due to fines added to the aggregate approx. 0.5 m3 per day based on 8-hour operation.
(These figures are based on former experiences and can vary due to variation in input materials)

**OPTIONAL**

For easier operation we can deliver an automatically operated cleaning/circulation/discharge system whereby, after a defined period the process tank starts its circulation-cleaning process and automatically discharges the water into the storage tank after this circulation cleaning period.

**Technical specification of Waterbath separator components**

**Sand pump**

| | |
|---|---|
| Type pump | - Sand pump, with a special rubber-lining |
| Pump capacity | - Max 300m3 per hour |
| Power | - 30kW |

**Discharge belt heavy parts**

Rubber belt conveyor with a width of 1,400mm has an effective working width of 1,170mm.
At the end of the conveyor (outside the tank) there is a tension adjuster mounted.

The drive pulley is executed with a self-tensioning cleaning scraper with a water return chute to the processing tank.

| | |
|---|---|
| Drive | - 3.7kW |
| Belt type | - EP315/3 - 4+2 |
| Drums | - Diameter circa 250 mm, executed with an anti-slip cover |

For cleaning the conveyor return pulley area in the process tank 2 off cleaning gates projected.

StarScreen® 2500x1200 x 165
StarScreen® with a screen-length of 2,500mm and a screen-width of 1,200mm.
The StarScreen® is executed with Ø165mm Lubo stars and the shafts executed with quick disconnect

| | |
|---|---|
| Drive | - 1*5.5kW |
| Isolation class | - IP60 |
| Speed control | - Fixed speed |
| Screen size | - 0-15mm |

**Fluid screen**

| | |
|---|---|
| Type | - Vibrating screen, with (2) unbalanced vibrator motors |
| Screen deck | - Exchangeable wire mesh screen |
| Clamping system | - Manual bolted |
| Width | - Approx. 1,200 mm |
| Length | - Approx. 2,000 mm |
| Drive(s) | - 2*2.8kW |
| Screen size | - Approx. 0.5 mm |

## Pos 26 General system description Air-separation system

**Principle**

**A direct E-motor, especially for the C&D ventilator to circulate the air in a closed loop. The closed loop system basically consists of an under-pressure part (suction line) and an over pressure part (blowing line) and an air discharge in the pressure system to an air filter.**

In this lope a wind sifter is placed where the material stream is passing, and the air takes up the light fraction such as paper/plastics

**Dust prevention in the system**

By discharging approx. 20 % air from the blowing section to the dust filter the circulating air is cleaned continuously and creates the under pressure at the sifter point and in the screen housing and eliminates dust production from the screen and the sifter unit.

**Material-separator (separates the air from the light material)**

The material-separator consists out of a partly perforated casing made of sheet steel with a rotary valve.
The light fraction, dust and air will be blown into this material-separator and the air is suction line is connected to the perforated area

The separated light fraction will be transported by the rotary valve to the discharge opening in the separator and discharges directly into a bunker or onto a conveyor.

**Pos 26. Coarse fraction wind sifter 78,000 > 300 mm separator**

**Ventilator**

| | |
|---|---|
| Type | - D700/55.0-4-S |
| Volume | - 33,500 $m^3/h$ |
| Pressure difference | - 3,500 pa |
| Suck / pressure socket | - Ø 700 mm |
| Drive | - 55.0 kW, IP 54, 2,940 $min^{-1}$, 480V, 60Hz |
| Weight | - 1,310 kg |

**Material-separator**

| | |
|---|---|
| Type | - PMA-F 200/25/4.00 – 15H |
| Amount of air | - Max 78,000 $m^3/h$ |
| Measurements | - 3,700 x 2,350 mm |
| Height | - 2,600 mm |
| Sealing lip | - 150 mm with |
| Drive | - 4 kW, 7.1 $min^{-1}$, IP 54, 480V, 60Hz |
| Weight | - 3,540 kg |

Discharge into Bunker

**Pos 27. Middle fraction Wind sifter 50,000 < 60 to 300 mm separator**

**Ventilator**

| | |
|---|---|
| Type | - D560/37,0-4-S |
| Volume | - 23,000 $m^3/h$ |
| Pressure | - 3,500 pa |
| Suck/pressure socket | - Ø 560 mm |
| Drive | - 37.0 kW, IP 54, 2,940 $min^{-1}$, 480V, 60Hz |
| Weight | - 1,024 kg |

**Material-separator**

| | |
|---|---|
| Type | - PMA - F 160/19/13, 0 – 15H |
| Amount of air | - Max 50,000 $m^3/h$ |
| Measurements | - 2,950 x 1,800 mm |
| Height | - 2,100 mm |
| Sealing lip | - 150 mm breed |
| Drive | - 3.7 kW, 7.1 $min^{-1}$, IP 54, 480V, 60Hz |
| Weight | - 1,057 kg |

Discharge onto conveyor Pos 22

**Sifter unit**

The Sifter unit is mounted at the end of screen Pos 09 to separate the light fraction from the screened
0-300 to 0-60 mm (main objective is taking out mostly paper/ plastics)

**Pos 28. Middle/Fine fraction Wind sifter 20,000 <15 to 60 mm separator**

**Ventilator**

| | |
|---|---|
| Type | - D400/18,5-2-S |
| Volume | - 11,000 $m^3/h$ |
| Pressure | - 3,500 pa |
| Suck/pressure socket | - Ø 400 mm |
| Drive | - 18.5 kW, IP 54, 2,940 $min^{-1}$, 480V, 60Hz |
| Weight | - 394 kg |

**Material-separator**

| | |
|---|---|
| Type | - PMA - F 120/12/1.50 – 15H |
| Amount of air | - Max 20,000 $m^3/h$ |
| Measurements | - 2,130 x 100 mm |
| Height | - 2,100 mm |
| Sealing lip | - 150 mm breed |
| Drive | - 1.5 kW, 6.1 $min^{-1}$, IP 54, 480V, 60Hz |
| Weight | - 1,057 kg |

Discharge onto conveyor Pos 22

**Sifter unit**

The Sifter unit is mounted at the end of screen Pos 12 to separate the light fraction from the screened
0-40 to 0-15 mm (main objective is taking out mostly paper/ plastics)

**Pos 29. Fines fraction wind sifter 12,000 >4mm to 15 mm separator**

**Ventilator**

| | |
|---|---|
| Type | - D300/15-2-S |
| Volume | - 6,500 $m^3/h$ |
| Pressure | - 3,500 pa |
| Suck/pressure socket | - Ø 300 mm |
| Drive | - 15.0 kW, IP 54, 2,940 $min^{-1}$, 480V, 60Hz |
| Weight | - 260 kg |

**Material separator**

| | |
|---|---|
| Type | - PMA - F 95/12/0.75 |
| Amount of air | - Max 12,000 $m^3/h$ |
| Measurements | - 2,050 x 1,350 mm |
| Height | - 1,450 mm |
| Sealing lip | - 150 mm breed |
| Drive | - 0.75 kW, 6.1 $min^{-1}$, IP 54, 480V, 60Hz |
| Weight | - 767 kg |

Discharge onto conveyor Pos 22

**Sifter unit**

The Sifter unit is mounted at the end of conveyor no. 17 to separate the light fraction from the screened
0-4 to 0-15 mm (main objective is taking out mostly polyurethane)

**Pos 30. Steel construction, platforms, stairs etc.**

Contents all required structural steelworks stairs and service platforms and steel supports for all components of the installation.

The vibrating feeder and incline conveyor are placed on ground level and the complete sorting-installation will be placed on a concrete first floor level that again is placed on concrete bunker walls (civil works not part of Lubo delivery)

The required handrail and stairs to reach the second floor are part of the Lubo delivery.

The Sorting cabins shown on the drawing are not included in this quotation if required, we recommend making this a part of the civil works.

**Total electrical installation**

**Description**

The E-system is split into 2 parts with 2 control boxes with separate main power supply.

Control box no.1 includes the operator's panel executed with a touch screen and is situated near the sorting station at the coarse sorting line.
Oxigen will supply the power supply to this control box

Control box no. 2 is activated from control box no.1 and is situated near the post sorting from the water bath separator.

The installation can be started manually on the touch screen panel in service mode and automatically according to a fixed starting sequence by the PLC program.
The speed of all variable speed motors from control box no.1 such as the feeder; sorting belts and star-screens® are controlled from the touch screen panel.

The speed of all variable speed motors from control box no.2 such as the post sorting belts and the water bath components such as the star-screen® are controlled from the panel with potentiometers.

During start up in automatic mode and manual mode a start signal is given in the installation and at start stop of the sorting conveyor at the coarse line a local sound signal in the sorting cabin and a light signal will be shown near the feeder.

All drive motors have an overload protection and when triggered a sound signal will be given.

At approx. 12 positions in the installation an emergency stop will be placed to stop the full installation in case of emergencies.

On each drive-motor a service-switch is mounted, which allows the service engineer to operate each motor individually in service mode, without the possibility for others to start the installation.

All sorting conveyors have a Stop / Start pull-wire switch to Stop / Start the sorting conveyors, feeder and the incline conveyor. All other sorting conveyors can be stopped for a limited period without stopping the whole feeding process of the installation. Thereby avoiding build-up of materials on these conveyors.

**Installation isolation class for the installation**

Isolation class IP55 for inside use. (no additional air-conditioning on the control boxes included)

The water bath E-components will be executed with isolation class IP 55 (spray water protection)

| | |
|---|---|
| Input voltage | - 440V, 50Hz, zero, earth |
| Control voltage | - 220V, 50Hz, +24V DC |

Electrical installation includes full engineering drawings system PLC-programme

**Paint system**

All construction parts will be shot-blasted; SA 2.5.
All construction parts will be coated in a desired colour (to be laid down by the client upon order)

Dry film thickness coating 100 microns

Assembly, commissioning and training
Installation will be turnkey delivered.

## GENERAL INFORMATION

The installation will comply with European CE standards.

We ask that Oxigen recognise and respect our intellectual rights on our system design, and be aware that we have many Patents, Models and Brands therein.

At the ' final ' engineering stage, to achieve the best configuration, some of the above measurements above may change,

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## Requested Information 2-Drawing-1

Licence: W0208-01

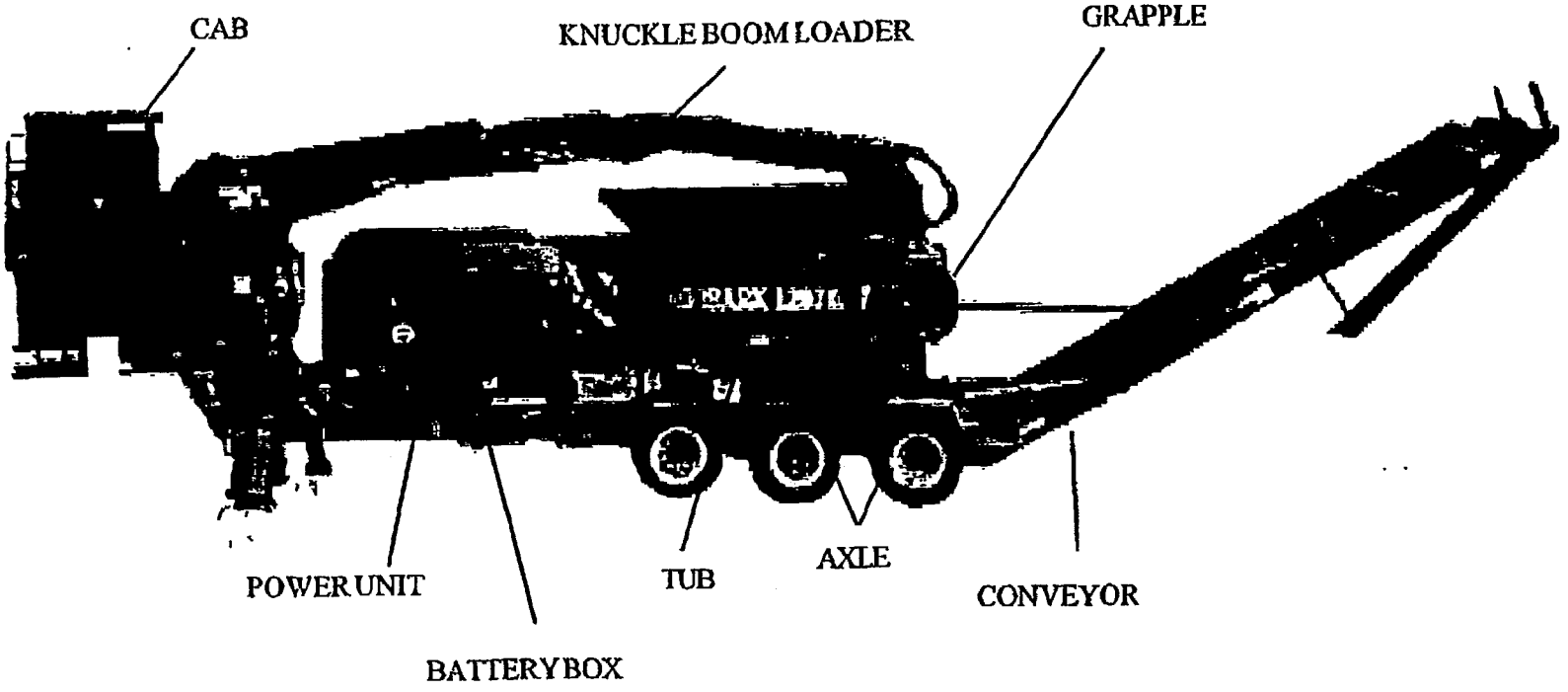
# Attachment E

# Specification for the wood shredder

# Morbark Tub Grinder Model 1100

**Power** 460 - 575 HP
**Length** 37'
**Height** 13'4"
**Width** 11'
**Gross Weight** 50,000 lbs.
**Tongue Weight** 15,000 lbs.
**Axle Weight** 35,000 lbs.
**Hammermill Opening** 26" x 52"
**Discharge** Dual auger to belt
**Trailer** Dual-axle; 45,000 lbs. Suspension
**Tires** (8) 225-70R x 22.5, 16 ply radial
**Brakes** Air
**Stabilizer Legs** (2) Hydraulic
**Towing Arrangement** Fifth wheel
**Engine** Caterpillar,
**Drive** Direct with torque limiter
**Fuel Tank Capacity** 160 gallon
**Hydraulic Oil Tank Capacity** 170 gallon
**Auxiliary Air Compressor** 11 HP
**Standard Features** Tub cover for debris containment

# MAIN COMPONENTS



# Attachment F
# Environmental Monitoring Map (revision 1)

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## Requested Information 2-Drawing-2

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# Attachment G

# Site Infrastructure/Layout (revision 1)

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## Requested Information 2-Drawing-3

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