2.0 DESCRIPTION OF THE EXISTING SITE & PROPOSED DEVELOPMENT

2.1 Site Selection and Alternative Locations

The site was chosen based on the following:

- The policies and strategies of the Cork County Development Plan 2004 in establishing sustainable development,
- The policies of the Waste Management Plan for Cork County 2004,
- Road network and access,
- Land-use zoning,
- Utilisation of brownfield sites for further development,
- Adjacent to an existing landfill,
- Proximity to sources of waste.
- Selection of a location with Planning Permission for *the construction of a waste transfer station*,
- Selection of a location with a Waste Management Permit to operate a Waste Recycling/Transfer Station,
- Existing Planning Permission (ref: S/00/7093) for *the construction of a waste transfer station*,
- An existing Waste Management Permit (ref: CK(S) 23/03) for a "Waste Recycling/Transfer Station" at the site,
- Proximity to sources of waste.

AVR – Environmental Solutions Ltd. carried out an extensive survey of industry/enterprise zoned lands in Cork County suitable for waste activities. The selection criteria included proximity to waste sources, proximity to a developed transportation network, suitable zoned and compatible surrounding land use, distance from potential sensitive receptors, distance from historic sites and monuments, environmental designated areas and availability of sites with planning permission to undertake waste management operations.

The site assessment was examined utilising Geographical Information Systems (GIS) and illustrated that the site is meets the criteria for the proposed development.

2.2 Technology Selection

2.2.1 Waste Recovery/Transfer

The selection of technology was based on Best Technology Available (BAT) including design to prevent impacts and nuisances during installation, commissioning and operations phases.

2.2.2 Sludge Drying

A comprehensive review of sludge treatment type processes was considered in the technology selection and evaluation process. A summary of the treatment options considered is available in Table 2.1 Sludge Treatment Alternatives Summary.

Process	Sludge Reduction %	Benefit	Limitations
Landspreading	N/A	Cheap method of disposal. Soil fertilized for agriculture.	Can be odorous and requires large areas to process. Potential for water body pollution. Activity limited by meteorological conditions. Limited increasingly by environmental legislation.
Composting	25	Simple process. Relatively cheap to build and run. Product can meet biosolids standards.	Can be odorous. Requires large area. Outlets may be limited for Pharmaceutical sludge. Bulking media supply required. Market for final product not certain if using sludge from the pharmaceutical/industrial sectors. The nutrient value of compost from sludge is too low to be classified as a fertiliser. There are concerns about heavy metals.
Anaerobic Digestion	50	Produces stable, odour-free product. Reduces the mass of sludge to 50%. Biogas by-product.	Large sludge volumes have to be further processed after digestion.
Aerobic Digestion	50	Is considered more readily controlled than Anaerobic process.	More applicable to dilute biological rather than primary sludge. Sludge has to be further processed after digestion. More suited to internal sludge solution rather than commercial facility. Dewatering facility required.
Pyrolysis	N/A	Gas suitable as fuel may be produced.	Ash product needs disposal route. Waste needs to be homogenised for this treatment. Application outside the petrochemical sector not yet proven to be commercially viable.
Autothermal Thermophilic Aerobic Digestion (ATAD)	50	No external heating source required. 30-40% reduction in solids. Sludge more amenable to dewatering than anaerobic treatments.	50% of sludge remains for disposal. Dewatering facility required.

Process	Sludge Reduction %	Benefit	Limitations
Advanced Fluidised Composting (AFC).	90	Minimum of 90% destruction of organics. The ammonia by-product is recoverable. Potential for heat recovery in system. Secondary biological treatment of effluent not required. Reduces wastes being sent for incineration and organic waste to landfill.	New technology to Ireland. It has been tested in the University of Ulster Coleraine, and at a pharmaceutical site in Cork.
Chemical Stabilisation	N/A	Addition of lime/chlorine disinfects sludge. Low capital costs.	Produces an organic/inorganic residue that has to be disposed to landfill. In addition the lime reduces fertiliser value. Costs associated with acquisition of lime. Safety problems with storage of chlorine. Addition of chlorine produces high level of chlorinated organics.
Incineration	90	Complete destruction of Sludge.	High energy requirement. Large capital cost. Ash results from process must go to landfill.
Thermal Treatment	80-90	Pathogen-free sterilised product. Potential supplementary bio-fuel due to high calorific value.	High energy requirements. Dewatering facility may be required.

Table 2.1 Sludge Treatment Alternatives Summary

The preferred chosen technology is thermal treatment using an indirect fully enclosed method of drying. The benefits of thermal treatment include:

- Proven in the field of industrial, pharmaceutical and municipal sludge drying nationally (sewage sludge) and internationally (all sludge types),
- High sludge volume reduction,
- Pathogen-free, sterile product,
- An end product with a market use,
- In-line with regional sludge management policy.

2.3 The Existing Site & Proposed Facility

The site of the proposed development is located 2km North of Youghal town in the townland of Foxhole (refer to Figure 1.1 Site Location Plan). Figure 2.1 shows an existing view of the site.

Figure 2.1 View of Existing Site

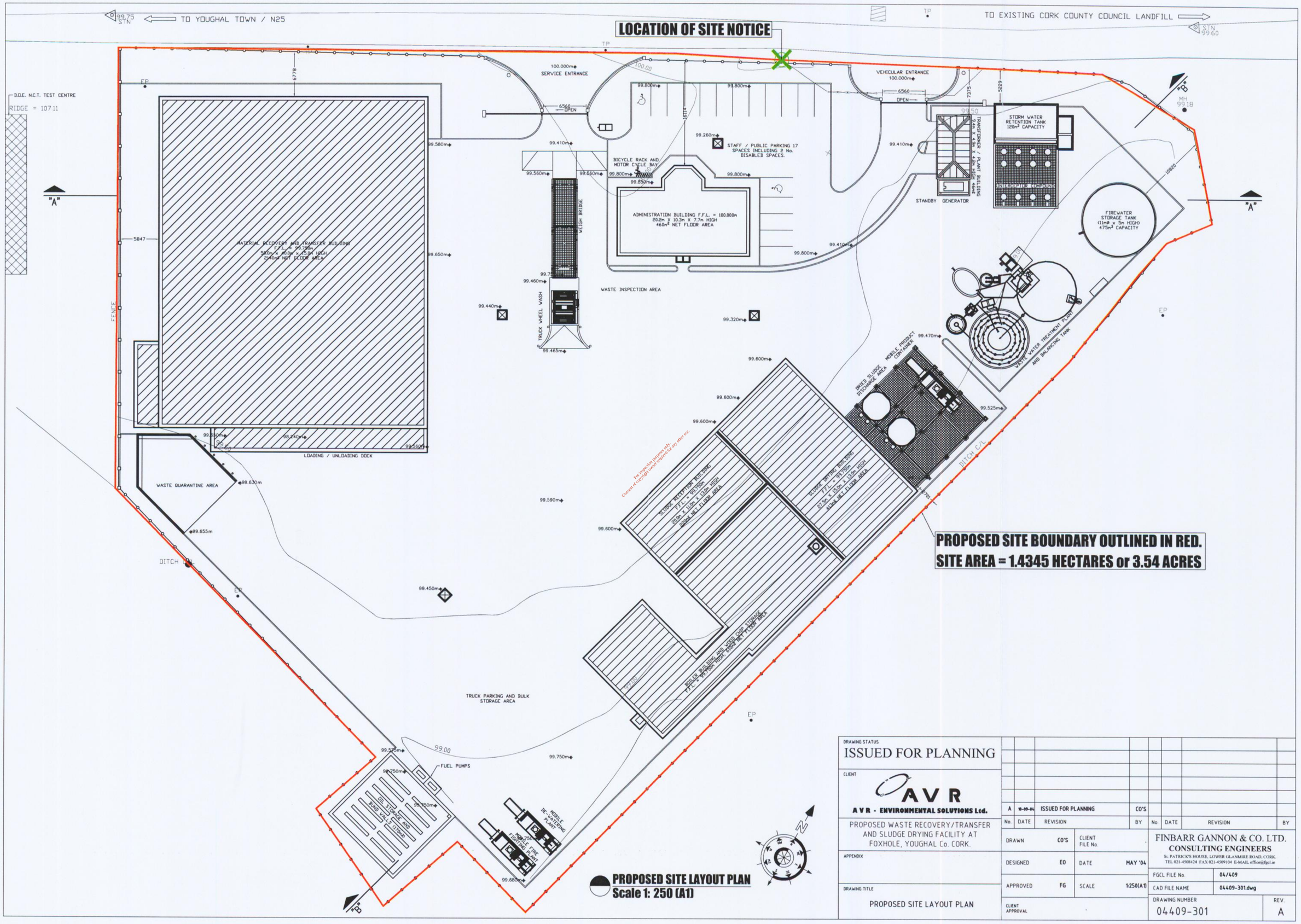
The area of the proposed development is zoned Industrial/Enterprise in the Cork County Development Plan 2003 (refer to Fig. 1.2 Cork County Planning Zones).

Youghal Landfill and Civic Amenity Centre which is operated by Cork County Council is adjacent to the site. Other facilities in the vicinity of the site include the Youghal National Car Test Centre, Foxhole IDA Industrial Estate c.350m away on the R634 out of the town and the Foxhole Business Park incorporating Millennium Court office buildings. The nearest dwelling house is at the junction of the site access road and the R634. The site is a brownfield site and currently used to store empty skips and containers.

The site of the proposed development has full Planning Permission (ref: S/00/7093) for *the construction of a waste transfer station* and also holds a Waste Management Permit (ref: CK(S) 23/03) for a Waste Recycling/Transfer Station.

The site is listed in Table 4.1 Cork County Waste Permit Holders of the Waste Management Plan for Cork County 2004. Therefore the activity of waste treatment has been established in principal at the site.

Drawing 04409 - 301 shows the proposed site layout.



DRAWING STATUS: ISSUED FOR PLANNING							
CLIENT: AVR - ENVIRONMENTAL SOLUTIONS Ltd.							
PROPOSED WASTE RECOVERY/TRANSFER AND SLUDGE DRYING FACILITY AT FOXHOLE, YOUGHAL Co. CORK.	A	18-09-04	ISSUED FOR PLANNING	CO'S			
APPENDIX	No.	DATE	REVISION	BY	No.	DATE	REVISION / BY
DRAWING TITLE: PROPOSED SITE LAYOUT PLAN	DRAWN CO'S		CLIENT FILE No.				
	DESIGNED EO		DATE MAY '04				
	APPROVED FG		SCALE 1:250(A1)				
	CLIENT APPROVAL						

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2.4 Waste Recovery/Transfer Facility Process Description

The Waste Recovery and Transfer building with a net floor area of 2,140m^2 has been designed to ensure that all waste reception, tipping, segregation, storage and transfer operations take place internally. Figure 2.3 describes the process description at the Waste Recovery and Transfer building.

The Waste Recovery/Transfer and Sludge Drying Facility is envisaged to be an on-going development with expansion scaled over a five year period. The designs and layouts for this facility were considered with this in mind. It is intended that at full operating capacity the proposed Waste Recovery and Transfer building will manage up to 70,000 tonnes per annum of commercial/enterprise and industrial waste including 10,000 tonnes per annum of woodchip.

The plant and equipment proposed at the Waste Recovery and Transfer building has been proven in waste management. A state of the art picking station is proposed to provide a comfortable, safe and healthy work place.

The following plant and equipment will be used at the Waste Recovery and Transfer building:

- Materials Handling Grab (Leibherr or similar),
- Dosing Intake Conveyor,
- Transfer Belt during phase 1 up to approximately 15,000 tonnes per annum,
- Trommel Drum Screen or similar (Powerscreen, Boa or similar) during phase 2 when throughput tonnages increase beyond approximately 15,000 – tonnes per annum,
- Picking Station, Sorting Belt and Overband Magnet (Boa, Powerscreen or similar), fully air-conditioned with high lux fluorescent lighting,
- Infloor Conveyor to Compactor (Konti, Powerscreen, Boa or similar),
- Baler (Weima, Boa or similar),
- Shredder (Boa or similar),
- Woodchipper (Weima, Doppstadd, Boa or similar),
- Forklift or loading shovel (Manitou, Caterpillar or similar).

The Waste Recovery and Transfer building will only operate between 8:00am and 9:00pm Mondays to Fridays, set-up and clean-up will take place between 7:00am and 8:00am and 9:00pm and 10:00pm Mondays to Fridays. On Saturdays operations will take place between 8:00am and 1:00pm, with set-up and clean-up between 7:00am and 8:00am and 1:00pm and 2:00pm.

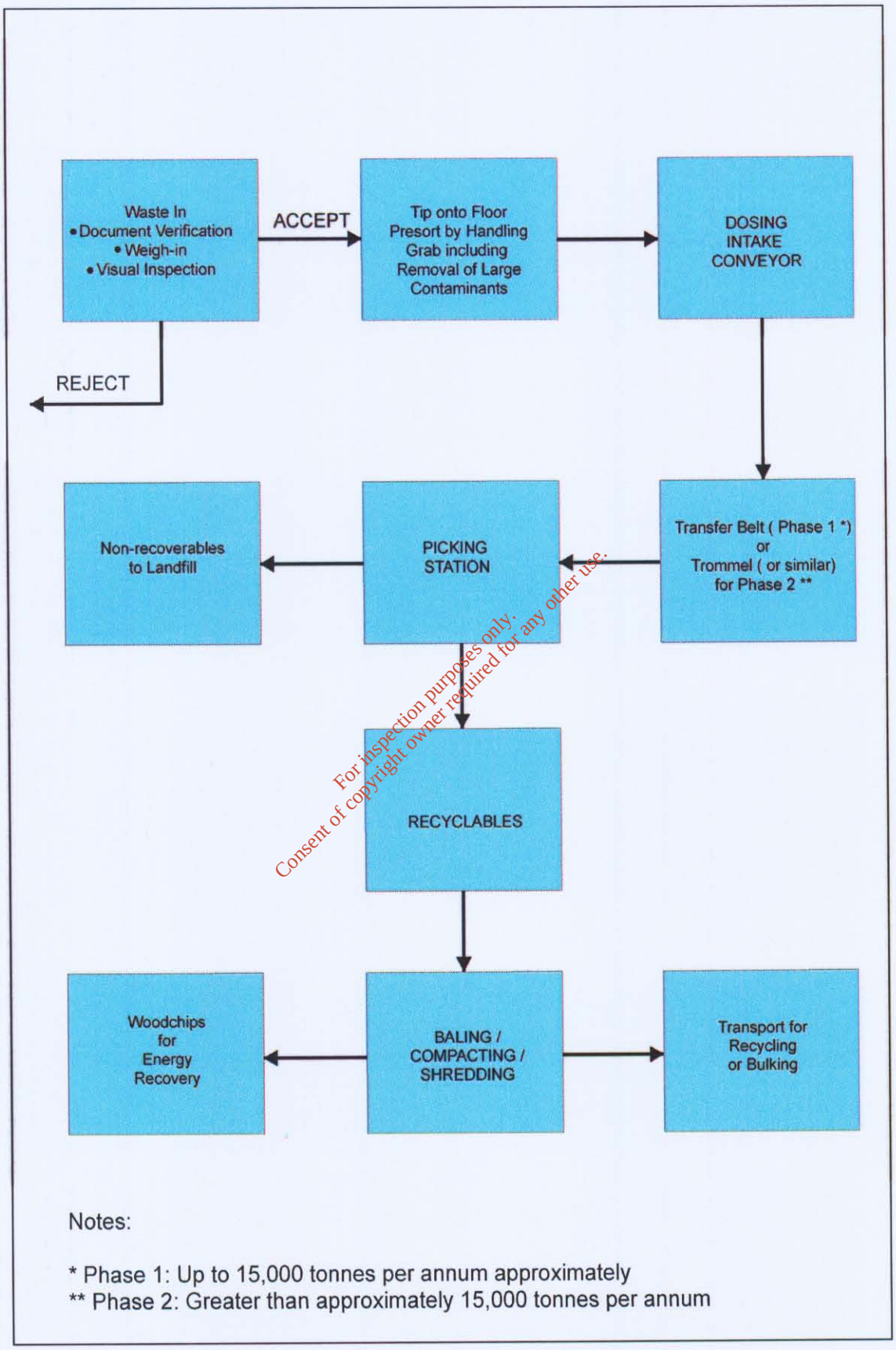

Figure 2.3 Waste Recovery and Transfer Building Process

2.5 Sludge Drying Facility Process Description

It is proposed to manage a maximum design capacity of 30,000 tonnes of non-hazardous biological sludge from waste water treatment plants per annum.

Figure 2.4 describes the process of waste treatment and management at the sludge drying building. Wet sludge (with a minimum Dry Solids (DS) content of 10%) on arrival at the facility will be weighed and randomly sampled for analysis. The wet sludge is then tipped into sludge reception bins (covered with hydraulic lids and gratings) in the fully enclosed Sludge Reception building. The sludge is then pumped to a dosing/mixing bin that controls the flow of sludge into the dryer. The dryer is heated using a totally indirect method of heating; various energy sources are available to operate the dryer including biomass (woodchip) and light diesel oil. The dryer will be insulated, except at the ends, to minimize heat loss, thus reducing energy usage and provide for very safe working conditions.

The drying process creates steam; which is carried via the off-gas duct to the scrubber/separator or similar type plant, where it is condensed. Any fine particulate matter is returned to the dryer and the condensed effluent is sent to the hooded waste water treatment plant where it is treated to according EPA effluent discharge limits. Purge stream off-gas, volatile organics evaporating from the hooded waste water plant and odours from the sludge reception bin will be treated by a standalone odour abatement technology such as a biofilter or thermal oxidiser.

The dried sludge is received onto a discharge conveyor and transferred to a product cooling conveyor, and indirectly cooled. The product with a moisture content of less that 10% is then screened to separate the fines, which are returned by the fines conveyer to the front of the dryer. The end-product is a sterilised granulate.

This facility will run on a 24 hour basis 7 days a week including holidays. It will be shut down for maintenance.

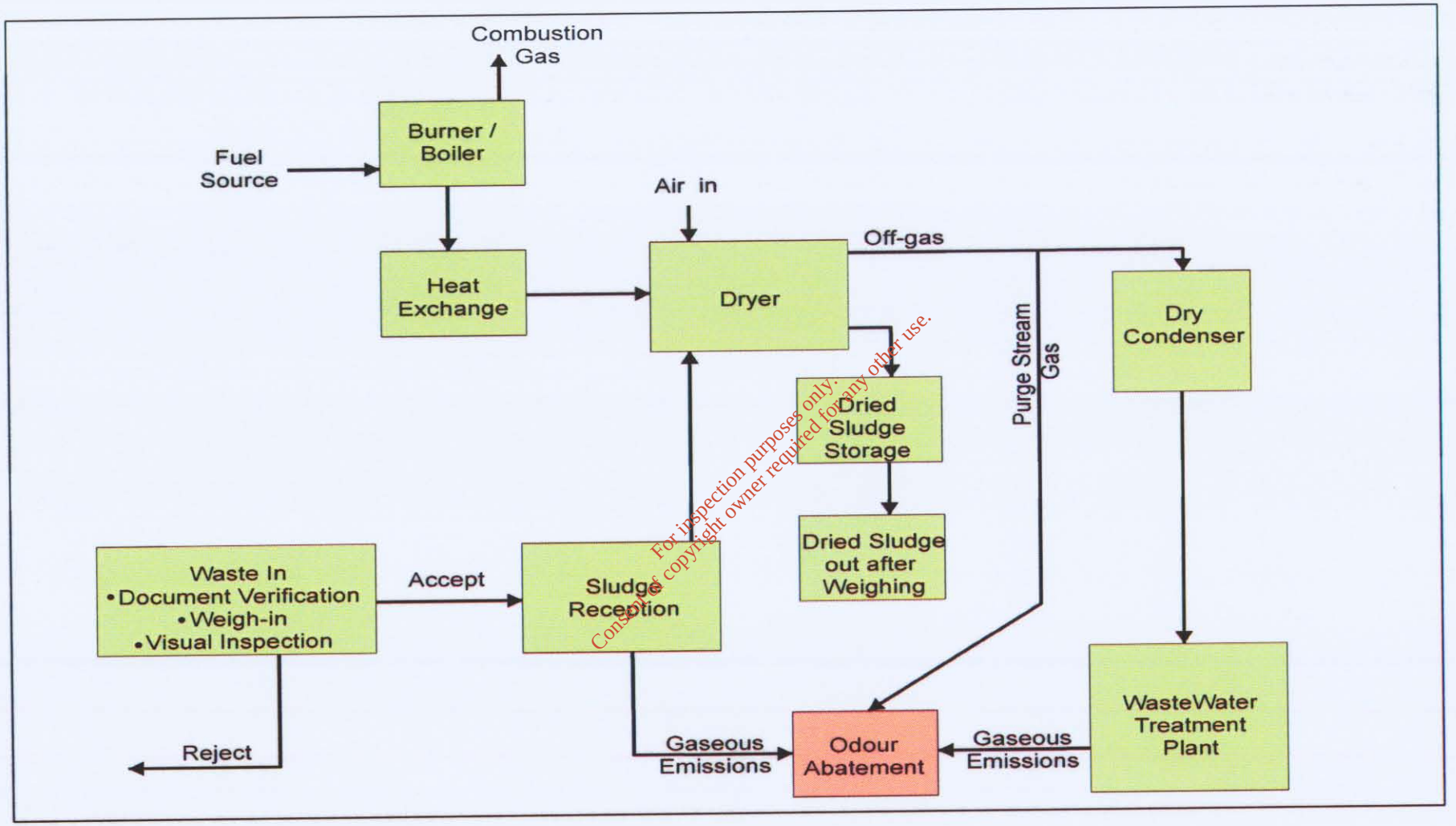

Figure 2.4 Sludge Drying Process

2.6 Ancillary Facilities Description

The ancillary facilities include:

- Administrative Building including SCADA centre, laboratory; canteen; sauna; toilet and shower facilities, parking including disabled parking bays; cycle racks and motorcycle bay,
- Weighbridge,
- Wheelwash,
- Transformer/Plant Building,
- Standby Generator,
- Truck Parking and Bulk Storage Area,
- Material Inspection Area,
- Waste Quarantine Area,
- Bunded Fuel Storage Area,
- Boiler and Woodchip Storage Building,
- Stormwater Retention Tank,
- Interceptor Compound,
- Firewater Storage Tank,
- Sludge Reception Building,
- Dried Sludge Discharge Area,
- Mobile Dewatering Plant,
- Mobile Fire Fighting Plant,
- Waste Water Treatment Plant and Balancing Tank.

These ancillary facilities are shown in Drawing 04409 – 301 Proposed Site Layout Plan. It is proposed to treat 10,000 tonnes per annum of leachate and 500 tonnes annum of washings at the waste water treatment plant.

2.7 Construction Phase Site Management

The control of all waste generating activities during the construction phase will be managed in accordance with best practice. Any spoil excavated from the site will be disposed at a waste permitted or licensed facility in accordance with the Waste Management Acts 1996 to 2003.