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DESCRIPTION OF DEVELOPMENT 3

INTRODUCTION

General Description

3.1 The proposed development would consist of the following:

- a 8MWe Pyrolysis Advanced Conversion Technology (ACT) plant with front end autoclave plant, which is capable of treating up to 100,000tpa of residual non hazardous Municipal Solid Waste (MSW) and Commercial and Industrial (C&I) Waste; and
- a 2MWe AD facility which is capable of treating up to 54,000tpa of organic, digestible waste (food waste, green waste etc).

3.2 The proposed purpose designed waste reception and processing building is 130 metres long and 40 metres wide. It is 9 metres high to the ridge.

3.3 Auxiliary and support infrastructure would include;

- weighbridge and offices – for monitoring and recording all wastes coming onto and leaving the site;
- a gasmeter for gas storage (6m diameter and 9m high);
- a stack for the pyrolysis ACT plant (20m high and max 120cm diameter);
- gas engines;
- a stack for each of the 3 engines (20m high and max 100cm diameter) arranged in a group within an architecturally designed enclosure;
- an emergency flare;
- an electricity sub station (5m by 3 m and 3 m high)
- two AD digester tanks (20m diameter) and two AD digestate tanks (25m diameter) all 9.5m high;
- 250m2 of solar panels situated on the roof; and
- new access road and car parking for visitors and staff.

3.4 Buildings and operational areas would be situated on an impermeable concrete pad. A significant amount of water from the operations would also be re-circulated through the process. There would be no discharges to controlled waters. Rainwater falling onto buildings would be harvested for use in steam generation.

3.5 The above has been summarised into the following description of development:

3.6 “The construction and operation of a 8 MWE Pyrolysis Advanced Conversion Technology (ACT) plant including a 2 MWE Anaerobic Digestion Plant associated office, visitor centre, with new access road and weighbridge facilities, solar panels, associated landscaping and surface water attenuation features”

Process Description

ZONE 1 - Waste reception

3.7 Vehicles would enter the site via the main entrance roadway from Overton Road over a weighbridge in accordance to the vehicle movement plans (refer to Dwg 10-01). Vehicles would be directed from the weighbridge to the relevant reception areas for each of the wastes. The reception of all non hazardous wastes and appropriate biomass containing commercial waste would take place within the main waste reception area.

3.8 The waste reception area is a purpose built, sealed internal reception area which would be operated under negative pressure in order to mitigate potential odour dispersion impacts.

3.9 Vehicles would access the internal waste reception and dispatch areas of the internal waste reception area (refer to Drawing 10-01) by a number of doorways, comprising externally mounted heavy duty metal roller shutter doors (for overnight site security), with internally mounted rapid-closing heavy-duty polyethylene roller shutters to permit access in and out of the building by vehicles during normal working hours.

3.10 The reception area would comprise a number of sealed isolated bays fitted with push floor transfer system.

3.11 The physical reception area would be designed in order to accommodate Rear End Loader (REL) vehicles (which would form the typical ‘bin wagon’ vehicles used for domestic and commercial waste collection) and comprise of an initial holding bay and associated transfer systems.

3.12 Wastes would initially be discharged onto the reception area and undergo initial inspection, prior to being transferred directly into the loading system of the autoclave for steam sterilization.

3.13 The waste reception area and loading system would comprise of the following:

- weighbridge (capable of taking the full range of delivery vehicles);
- in-feed ferrous magnet (for the removal of oversized metals);
- in-feed shredder (capable of shredding c.30 Tonnes per hour);
- grab crane (capable of lifting c.4 Tonnes of waste per grab);
- in-feed conveyor system (capable of delivering full load to autoclave in approx 15 minutes);
- in-feed weighing system (to register accurate batch weights);
- hydraulic moving floor; and
- segregation area for rejected / quarantined waste.

3.14 Once unloaded, vehicles would be inspected and returned to the weighbridge.

3.15 Any wastes which do not conform to the requirements of the site, i.e. contain specific hazardous contaminants (oil, solvents, car batteries, WEEE etc), exceed the size requirements etc, would be segregated and isolated / quarantined. All non conforming wastes would be rejected in accordance with the site waste rejection procedures.

3.16 In addition a dedicated internal reception bay would be provided for the Anaerobic Digestion plant and all pure biomass matter would be macerated, blended and pumped directly to the digestion tanks.

3.17 A figure showing the Waste Reception and Processing Building Layout is provided in Drawing 10-01.

Details of venting/odour abatement

3.18 The Waste Reception and Processing Building would be operated under negative pressure system, drawing air from within the building and extracted to the main engine room for use as combustion air. All air would be treated by ultra-violet (UV) odour treatment plant.

3.19 This system would use conventional steel ductwork and extractor fans to maintain a slight negative pressure (nominally maintained at approximately -50 Pa) through the building, thus minimising the potential escape of odour from the building.

3.20 The building would also incorporate vapour capture and extraction canopies over the doors of the steam sterilisation units.

ZONE 2 - Steam Sterilisation and Segregation

3.21 The use of the Autoclave in the waste treatment system is key to the preparation of a homogenous biomass feedstock, the autoclave process also sterilises and cleans all of the recyclable materials ensuring that any possible waste contamination or pathogens are removed.

3.22 The Autoclaves would be constructed and operated in compliance with the UK boiler and pressure vessel regulations. A high level of safety has been designed into the vessels and operation is monitored both on site and from a remote location on a 24 hour a day basis.

3.23 Each Autoclave would be approximately 18 -20 metres long x 4 metres wide and would be loaded via an Archimedes screw. The Autoclaves are designed to operate on a 24 hour a day basis and the maintenance schedules would allow for at least one Autoclave operating at all times.

3.24 The steam sterilisation units comprise sealed, rotating stainless steel drums with a superheated steam injection system. They provide two methods of waste treatment, these being;

- Steam sterilisation of wastes; and

- Physical agitation, resulting in homogenisation of treated waste, removal of labels and print.

3.25 Wastes would be transferred from the reception hopper into the steam sterilisation area. The hoppers are effectively telescopic conveyors which load directly into the entry door of the autoclave.

3.26 The two autoclaves would be located in the approximate centre of the building. Each unit has an operating capacity of approximately 20 tonnes. When loaded, the autoclave units are sealed and the sterilisation process begins.

3.27 Each unit is rotated slowly (along the long, horizontal axis) at a rate of approximately 10 revolutions per minute.

3.28 Internal helical fins turn, mix and break up the waste. The movement of waste within the unit as it rotates also contributes to the breaking up and compression of wastes.

3.29 Each vessel would be mounted upon a heavy-duty steelwork structure, which is mechanically driven to position the vessels for loading, unloading and rotation during the autoclaving / pressure-cooking period. The mechanical system also drives the rotational mechanism of the vessels. An automatic control system dictates the sequenced operation and controls the steam pressurisation, steam venting and vessel depressurisation procedures via a steam distribution system.

3.30 Steam for the treatment would be supplied from a heat recovery steam generator (HRSG) system connected to the pyrolysis unit. Steam would be delivered to the steam storage system charged to 16 Bar and dry saturated steam at 5 Bar is supplied to the relevant Autoclave via a steam distribution system under the supervision of the central control system. Pressurised steam (c. 140 – 160°C) is introduced into the units, at approximately 5 bar, which effectively sterilises all materials within the autoclave vessel.

3.31 The autoclaving process reduces the original volume of the waste materials by approximately 80%. The other components within the waste are clean and sanitised, plastics shrink and form a generally spherical shape due to the temperature within the autoclave.

3.32 The sterilisation phase would be carried out at 160oC (for a duration of approximately 1 hour), after which the waste would be reduced to a loose mixture of glass cullet, plastic fractions, metal and sterilised organic residue.

3.33 Throughout the sterilisation process the autoclave is rotated, ensuring that mixing and homogenisation of the waste materials occurs. The rotation, sterilization and mixing at high temperature and pressure facilitates the conversion process of the biomass into cellulose fibres. At this temperature any oil or volatile content present in the waste feedstock is volatilized and captured within the steam.

3.34 Following completion of the process cycle the autoclave would be automatically depressurised. The exhaust steam is condensed and all waste heat is recovered through a large plate heat exchanger. The condensate is then processed by the main water treatment system and reused as boiler feed water.

3.35 When the autoclave doors are opened flash steam vapour (c.90 – 100°C) would be released and extracted by the autoclave door hoods. This steam is also condensed by passing through the plate exchanger and the water is subsequently reprocessed through the water treatment plant.

3.36 Once the steam has been evacuated from the autoclave chamber, the doors are opened to permit discharge of treated wastes. Discharge is driven by the rotation of the cylinder and the internal fins.

3.37 The treated waste is discharged from the autoclave and onto a moving floor conveyor for transport to the segregation area.

Autoclave Ancillary Plant

Water Treatment Plant

3.38 All process water used by the plant is recycled and recovered within the central water treatment and recovery plant. The plant has been designed to recover all grey water as well as utilise all water from the building operations, internal drains and rain water.

3.39 The system has been designed such that all process and chemical tanks are located with secondary containment bunds, fitted with level gauges and alarms. The system will be fully automated and will operate continuously.

3.40 The system has been designed to be closed loop and comprises the following:

- process drain storage tank;
- steam condenser;
- condensed water storage tank;
- transfer pumps;
- pH monitoring and correction;
- separation of flocculated suspended solids;
- sludge storage tank;
- clarified water storage tank;
- sand and carbon filtration;
- reverse Osmosis for removal of trace metals and salts;
- clean process water storage tank; and
- grey water storage tank.

3.41 The treatment plant would provide clarified, deionised water for supply to the main clean water storage tank. All flocculated suspended solids would be pumped and re-introduced to the Autoclave.

3.42 The discharge from the defined unit would be used to provide grey water for process wash down, floor cleaning and vehicle wash etc.

Autoclave Steam Production

3.43 Steam would be generated in the pyroliser heat recovery steam generation ('HRSG') plant. When in normal operation all the necessary heat requirements would be provided through the rejected heat of the pyrolysation process. This plant also has the capability to generate steam independently by the use of a number of gas oil burners.

3.44 All of the steam generated by the plant would be fed to a steam accumulator.

3.45 The typical water consumption would be between 3.5 and 4.5m3 of water per batch of waste.

3.46 Recovered steam (approximately 20-25% of input) would be condensed to water and passed through a water treatment plant before being passed back into the steam generation plant.

Secondary Steam Capture

3.47 All steam released from the main door autoclave during unloading would be extracted via stainless steel ductwork and passed through condenser/reheater to a chilled water condenser. All condensate would be collected, cleaned in the water treatment plant and reused as boiler make up water.

UV Odour Extraction and Control

3.48 All air within the main reception areas would be extracted for use as combustion air within the CHP and pyrolisation units. All extracted air would be treated through the use of an ultra violet ('UV') treatment plant prior to intake into the engine and burner combustion fans.

3.49 Standby (emergency) odour control plant has been specified for use during periods when the plant combustion systems are not operational.

Segregation

3.50 Standard waste segregation equipment would be used within the facility to split the wastes into separate streams.

3.51 The steam sterilised waste stream would be passed by conveyor into the allocated segregation area above the sterilisation units.

3.52 Sterilised waste materials discharged from the autoclave would be discharged onto a moving floor and transferred to the sorting/segregation plant by means of a conveyor plant.

3.53 The sorting and segregation plant comprises the following:

- process Conveyor system to deliver material from the moving floor to the separation systems;
- process separation to remove textiles;
- trommel system;
- process ferrous magnet and ferrous bailing system for removal and segregation of ferrous materials;
- process Eddie current separator and Non ferrous bailing system for removal and segregation of nonferrous materials;
- process plastic separation (manual picking and classification);
- fibre separation via air classification system;
- fibre drying to reduce moisture content of the fibre from 30-40% to below 10%;
- fibre storage system to maintain dry fibre in a storage hopper for release to the pyrolysis in-feed system; and
- pyrolysis in-feed conveyors (capable of delivering 4 tonnes of fibre per hour to each of the Pyrolysis units).

3.54 The facility would be capable of producing many segregated waste streams through the steam sterilisation process, comprising glass cullet, plastic fraction, metal fragments (aluminium and steel, primarily from domestic cans) and sterilised fibre.

3.55 Rejects would largely comprise stones, textiles and large wood fragments, which would be removed from the waste stream manually (via a picking station). Other segregated waste streams would be brought in via the skip waste / kerbside reception area, producing segregated loads of glass, paper and card, plastic and green waste.

3.56 Segregated materials would be bulked in designated bays throughout the facility to await dispatch.

3.57 The main output of the autoclave process would be a clean sterile biomass fibre.

3.58 The biomass fibre material has a very low level of moisture and correspondingly high biomass content. The biomass fibre is a non hazardous ‘fluffy’ peat like material that is then suitable for pyrolysis.

3.59 The material handling systems would be controlled by the central control system and would meet all required safety standards.

ZONE 3 - Pyrolysis

3.60 The waste reception and processing building also comprises a purpose built pyrolysis section (Zone 3) which houses the pyrolysis plant and ancillary equipment. The pyrolysis plant would only process sterile, stable biomass and the building is not required to be airtight or subject to odour control / mitigation measures.

3.61 Other than for equipment maintenance access, there would be no requirement for vehicles to enter this building.

3.62 The installation uses a proprietary pyrolysation system to pyrolyse the biomass fibre produced by the autoclave process. The systems designers have specifically designed the upstream autoclave process to produce a conditioned biomass feedstock that is ideally suited to pyrolysis. Likewise, the pyrolysis process has been designed and proven to operate on the biomass fibre produced by the autoclave.

3.63 Zone 3 would house three or four pyrolyser units and each unit would be capable of simultaneously receiving a minimum of 3-4 tonnes of dry fibre. Each pyrolysis unit consists of a number of component parts which are described below.

3.64 The pyrolysis process and associated upstream fuel preparation processes have been designed in a manner that minimises any contaminants and ensures that all impurities are retained in the solid by-products (char) of the pyrolysis stages.

3.65 Once inside the fibre is subjected to heat in an oxygen free environment and a chemical transformation takes place which releases synthesis gas from the fibre and produces a charcoal solid.

3.66 Within the tube retort is a specific vane design that progressively advances the feedstock in an auger fashion alongside the inside of the chamber.

3.67 The even temperatures applied to the external retort produce consistent internal temperatures, subsequently creating consistent gas quality. The gas produced by the retort is then cooled and further cleaned in a dedicated gas clean up line.

3.68 The charcoal is removed at the back end of the retort, where it is pulverized and stored in a storage hopper. The carbon is then used to fuel the vortex burner unit by means of two primary air fans which blow the charcoal to two charcoal burners. The vortex burner in this application forms the thermal oxidiser for the retort, and utilizes the rejected combustion gas heat as a means of providing heat to the primary chamber in order to indirectly heat the retort.

3.69 The flue temperature and retention time within the thermal oxidizer and associated ducting has been designed to ensure that the minimum WID requirements are achieved.

3.70 The charcoal is a very clean burning fuel and contains impurities. Any ash or impurities from the charcoal combustion are molten into a vitrified slag due to the elevated temperature within the thermal oxidiser, the ash is maintained in a molten state by a burner located in the ash pit of the vortex. This molten slag is then removed from the base of the vortex and cooled to a solid vitreous slag which is removed and can be used as a construction material.

3.71 The combustion products/gases discharged from the thermal oxidizer are routed to the primary chamber to indirectly heat the pyrolysis retort. Upon exiting the main chamber, the gases are routed to the heat recovery steam

boiler where steam is generated at c.15 - 20 Bar. This steam is used to charge the autoclave steam accumulator.

3.72 Each of the heat recovery steam boilers are equipped with a feed water tank and associated ancillary equipment. Steam from these the recovery units will maintain the steam load for the autoclave plant. Any excess steam is directed to a heat exchanger and condenser.

3.73 All combustion products then exit the heat recovery boiler and are passed through a ceramic filtration system.

3.74 The filtration unit removes all particulate materials to below 5mg/m3 prior to discharge to atmosphere. NOx abatement plant with a maximum potential reduction efficiency of 95% would be fitted and EU Directive 2000/76/EC on the Incineration of Waste (known as the Waste Incineration Directive) requires flue gases to be retained at temperature of 850°C for a period of 2 seconds.

3.75 The gas produced by the retort is cooled and cleaned and then stored in a gas storage unit which is sized to allow a minimum of 6 hours operation for the gas fired engines.

3.76 All emissions from the pyrolysis plant would be monitored using continuous emissions monitors (CEMS) located on an exhaust stack

3.77 The CEMS would be WID compliant and monitor particulates, NOx, carbon monoxide, and VOCs (through surrogate monitoring of carbon monoxide). The continuous monitor would operate on a 24-hour basis and would include the facility for on-line monitoring of the gas concentrations.

ZONE 4 - Generation

3.78 Generation of electrical power would occur through utilization of gas engine generators. The maximum energy total electrical energy output would be approximately 10 MWe.

3.79 The engines can be supplied from a number of manufacturers including:

- GE Jenbacher;
- MWM Deutz; or
- Roll Royce

3.80 All proposed engines would be fitted as standard, with proprietary lean burn NOx emissions control units. These units would ensure that all NOx emissions are kept to below industry benchmarks.

3.81 The pyrolisation technology specified has been subject to an ‘End of Waste’ determination by the Environment Agency, such that the combustion of Synthesis Gas within the engines is not subject to the Waste Incineration Directive.

3.82 The biomethane produced by the AD plant would be injected directly with the syn-gas within the gas holder and burnt within the engines.

3.83 The heat generated by the gas engines is utilised for drying of the Biomass fibre by means of a heat exchange system and the rating of the exchangers are specified by the engine supplier.

3.84 Each of the engines would exhaust to atmosphere via a dedicated stack 20m in height.

Anaerobic Digestion (AD)

3.85 The AD plant would utilise a dedicated sealed reception bay within the waste reception and processing building. The AD reception bay would comprise a reception pit and feed hopper and incorporate a liquid slurry tank for the reception of liquid wastes. All solid biodegradable wastes would be macerated, separated and blended with the slurry to produce the feedstock for the AD tanks.

3.86 The AD Plant would comprise the following:

- Feedstock blending systems and associated pumps / pipelines
- Batch pasteurisation equipment
- 2 x Bunded Digestion Tanks;
- 2 x Gas Storage Tanks;
- Gas Treatment and Odour Abatement Plant;

3.87 The concrete digester tanks are insulated and heated with a heating system installed inside the walls and base.

3.88 The tanks would have a double membrane roof, to ensure stability and flexible gas storage. Both digester tanks can be fed directly from the reception area.

3.89 Each tank would be fitted with propeller mixers to ensure a homogeneous mixture for best mass transfer and to prevent floating layers or sedimentation.

3.90 The tanks would be fitted with two chemical dosing systems for the reduction of H2S in the biogas. The primary system injects a small quantity of O2 into the gas storage region of the tank (i.e. headspace beneath the membrane roofs). If oxygen injection is not sufficient to reduce the levels Ferric Sulphate would be dosed directly into the digester.

Site Construction and Design

Construction

3.91 The application site consists of two distinct levels; the higher level at approximately 140m AOD is adjacent to Overton Road from where the proposed site access would be provided. The second, lower level lies

between 125m and 131m AOD, and is where the proposed facility would be located. It is proposed to create a development platform for the energy recovery centre at around 128m AOD, which will require some earth moving operations to the existing site and platform. Excess material will be exported from the site during the construction period. Disused underground fuel tanks associated with the former oil terminal are known to exist under part of the proposed development area.

3.92 It is proposed that they will be purged and infilled with foam concrete so that they can then be retained in-situ. The proposed development can then be constructed on top using a conventional raft foundation at a level of around128m AOD.

3.93 The building will be constructed around a structural steel frame which will support the cladding between the main structural members without secondary steel.

3.94 Some lateral restraint members will be required between the main frames, both to enable erection and to maintain stability. However, these members can be designed as removable to facilitate the installation of plant and equipment by removing individual cladding panels, as of when required.

3.95 The floor slab will be generally designed to take 50kN/m2 or to accommodate plant loading as required.

Site Drainage

3.96 The construction of the energy recovery facility will introduce new buildings and hence new impermeable internal and external areas which will require capture and runoff retention and attenuation.

3.97 Furthermore, the proposed installation will give rise to a number of process effluents which although retained and recycled will still require discharge from site.

3.98 The areas of the site where new buildings will be constructed shall be underlain by an impermeable concrete pad. All run off arising from the operational areas of the site are contained and treated the water treatment plant. In addition, a significant amount of water collected within the operational area is re-circulated through the process prior to treatment and subsequent discharge. There are no discharges from the site to controlled waters.

3.99 All rainwater falling directly onto the buildings will be harvested, treated and used within the process for steam generation.

Hardstanding

3.100 All internal and external processing areas will be constructed with impermeable concrete hardstanding which will be designed in accordance to the load bearing requirements of the processing equipment and vehicles

used at the facility. Typically, all non structural concrete areas will comprise reinforced concrete hardstanding of at least 300mm thickness.

3.101 All other load bearing elements will be significantly thicker as required and determined.

Tanks and Bunds

3.102 There will be a number of tanks incorporated within the main building. All tanks will be installed with secondary containment and designed to comply with the Environment Agency Pollution Prevention Guideline Note 2 – Above Ground Oil Tanks. All storage and process tanks will be enclosed within the main processing building.

Floor Slab design, Roadways and Anaerobic Digestion Tank Bases

3.103 The floor slab, roadways and AD Tank bases will generally be constructed with a re-enforced concrete slab.

Construction Period

3.104 The site preparation and construction stage is anticipated to take place over a 18 month period (during 2013-14) with the plant being operational from 2015/2016.

3.105 Construction traffic hours would be limited to 07.00 to 19.00 hours Monday to Friday and 07.00 to 16.00 hours on Saturdays with no construction taking place on Sundays and or bank holidays unless agreed with the Local Planning Authority.

3.106 The construction phase of the project would consist of the following activities:

- Site clearance and preparation of the building surfaces at required levels, including cut and fill operations;
- Site access and highway works;
- Excavation and installation of services;
- Construction of foundations;
- Construction of concrete and asphalt surfaces;
- Erection of steelwork and cladding for buildings;
- Provision of green roof and solar panels;
- Installation of process equipment; and
- Provision of landscaping and fencing.

Highways

Access

3.107 The application site is connected to a well formed network of roads that facilitate significant traffic movements throughout the County. Indeed, the

application site would connect to the A303 Trunk Road via Overton Road, whereupon onward connectivity with the M3 Motorway, A3 and A34 are possible. Moreover, the A303 and the roads listed above form part of a network of strategically important roads within the County that are designated as the preferred 'Minerals and Waste Lorry Routes'.

3.108 Based on the proposed throughput of 154,000 tpa it is estimated that the proposed development would generate 102 HGV trips (51 in and 51 out) and 34 staff trips (17 in and 17 out).

3.109 The existing access onto New Road which currently serves the rail sidings site is not considered suitable for this level of traffic and therefore as part of the development it is proposed to construct a new priority T-junction onto Overton Road some 230 metres south of the A303 over bridge. The arrangement includes a 15 metre radius with 1:10 taper over a 25 metre section, which is designed to accommodate the swept-paths of goods vehicles turning left onto Overton Road. In addition Overton Road would be widened to 7.3 metres around the access.

3.110 All traffic would be required to enter and leave the application site from the north towards the A303. No traffic to the south would be permitted and the applicant would be willing to enter into a routing agreement to confirm this and the site access has been designed to restrict HGV access/exit to the north.

3.111 Visibility at the junction was informed from observations of vehicle speeds recorded by way of an Automatic Traffic County (ATC) located across Overton Road, in vicinity of the proposed site access. Based on these results the junction has been designed for a 50mph design speed and thus the visibility envelope created at the junction is 160 metres from a 2.4 metre set-back position. In order to facilitate visibility in the vertical dimension, it is proposed to reconstruct the part of Overton Road where a crest and hidden dip currently limit forward visibility along the road. In so doing, the proposals would help to alleviate an existing deficiency in the road network and thus afford a wider benefit to the community.

3.112 The proposed improvements would be undertaken within highway land and are proposed to be dealt with by way of a s278 agreement.

Rail

3.113 The proposed development is adjacent to the Micheldever rail sidings infrastructure which was used to serve the former oil terminal and there exists the potential for this development to benefit from rail access.

3.114 The proposed development has therefore been designed so as to not rule out the use of rail at some point in the future should suitable contracts be secured because Network Rail remain committed to increasing the amount of freight moved by rail.

3.115 However it is not possible at this stage to include details of any rail loading/unloading facilities within the planning application because in order to justify the level of investment required it would be necessary for any future operator to secure a contract from a single source to supply either a substantial proportion of the proposed inputs or a single contract to manage the recyclate produced by the plant.

3.116 At this stage in the project's life this level of information is simply not known and as the emerging Hampshire Minerals and Waste Plan identifies, the principal need for new waste recovery capacity is to manage the commercial waste stream which is more likely to come from a wide number of sources within Hampshire rather than a large single source.

3.117 In addition the site enjoys good access on to the strategic route network and there would be no highway justification for requiring rail access as to do so would unnecessarily restrict the ability of Hampshire to deliver the waste recovery and renewable energy generation capacity that is required to meet the needs of the County

Hours of Operation and Staffing

3.118 The waste management processes would take place 24 hours a day, seven days a week. Deliveries would be restricted to a 10 hour working day and take place Mondays to Fridays (08.00 to 18.00 hours) and Saturday mornings only (08.00 – 13.00 hours).

3.119 The development would employ three administration staff to work during typical office hours (9am to 5pm) and a further 28 staff would be split into four groups of seven. Each group would be made up of four sorting staff and three plant operatives, with each group working 12-hour shifts on a rotational programme of four days on/four days off. Hence, there would be 10 staff on-site during the day and seven during the night shift.

Parking

3.120 A parking area would be provided for staff and visitors in front of the main building. There would be 16 car parking spaces, including disabled spaces which would allow for shift changeovers and ensure no parking takes place on internal roads. In addition electric vehicle charging points would be provided at a 20% active, 20% passive ratio to encourage the use of electric vehicles.

Materials

3.121 The building materials have been chosen to ensure that practicality in terms of the operations is complemented by a sustainable approach to their selection and use and will be agreed with the local planning authority.

3.122 At this stage, it is proposed that the colour of the building and tanks would be similar to the colours found locally such as "red brick, flint and slate" as mentioned in the North Dever Downs Landscape Character Area.

Landscaping

3.123 A high quality landscape treatment has been provided to areas surrounding the proposed development. A key element of this has been to retain as many of the mature trees on the site as possible within the wider constraints of the design and brief. The intention is to retain as many of the healthy mature trees as possible to provide a high quality boundary treatment onto the access road. Retaining established trees along the boundary would also form a visual screen and foreground to the buildings behind.

3.124 In addition a green roof as part of the ecology mitigation and 250m2 of solar panels would be provided on the roof space of the proposed building.

3.125 A Landscape Master Plan is located within Appendix B (Planning Application Drawings) and should be read in conjunction with this supporting statement.

Surface Water Management

3.126 The waste management plant has been designed to recover all grey water from the site and waste processing operations, as well as harvesting clean water from rainfall onto the building. A water treatment plant is proposed to process and clean water (including the condensed water from recovered steam, ready to be used within the waste management operations.

Lighting

3.127 External lighting would be required to ensure the safety of vehicles and pedestrians around the site and enhance general security. Pedestrian walkways would be lit by low level pillars and access roads would use LED cats eyes and way markers to remove the need for more typical street lighting type units.

3.128 All lighting would be inward facing and at a low level and no external lighting to the building or AD tanks would be required other than above the main doors.

3.129 There are no proposals for floodlighting or for high level lighting.

Grid Connection

3.130 An underground grid connection to the substation at Overton has been identified and the proposed route would follow public highways. It is considered that in the event this connection is installed by a statutory undertaker then the works would be permitted development, under Part 17 Class G of the General Permitted Development Order.