

D&A

3R's Facility Wealden Works

Sussex

Design & Access Statement
3R's Facility

Prepared for:

Prepared by:

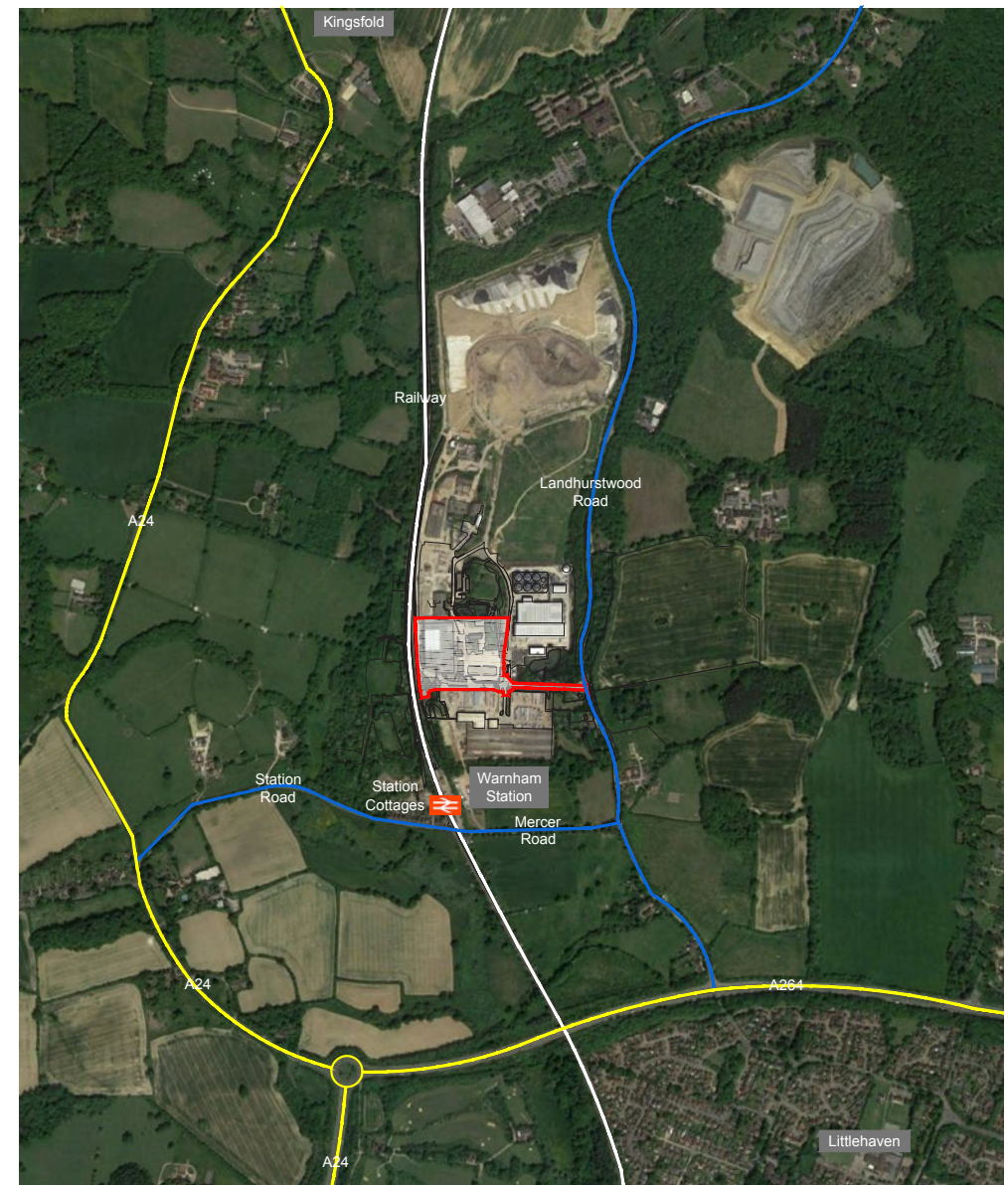


RPS

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1.0 | Introduction

1.1 Statement Overview

This Design and Access Statement has been prepared by RPS on behalf of Britaniacrest Recycling. The location of the development falls on the Wealden Brickworks Site, Langhurst Road, Horsham, West Sussex.

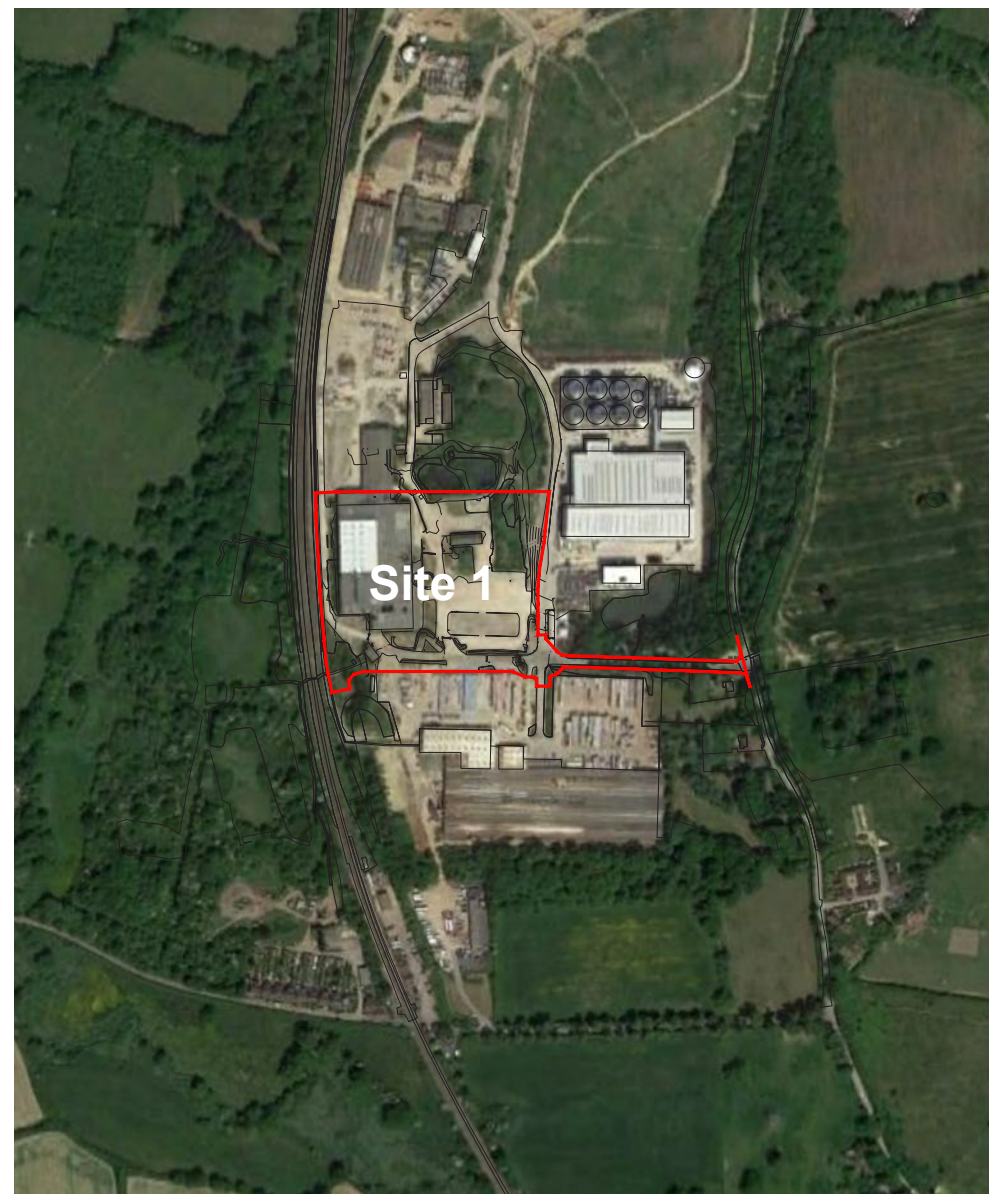
Reference should be made to 'Environmental Statement Chapter 4 - Development Proposals & Alternatives Considered' for a detailed description of the facility and the process within.

1.2 Use

The proposed development will comprise a Recycling, Recovery and Renewable Energy (3Rs) Facility to sort, separate and process up to 230,000 tonnes per annum of residual commercial and industrial ("C&I") waste and/or residual municipal solid waste ("MSW"). The processing of waste by the proposed development will generate an estimated 21 megawatts (MW) of electricity per annum.

The development proposals have been formulated following a thorough investigation and assessment of the environmental impacts arising from the scheme. In preparing the development proposals, consideration has been given to the following constraints:

- Visual and landscape impact;
- Ecological considerations;
- Proximity of receptors and the likely environmental impacts in terms of noise and air quality;
- Cultural heritage and archaeology;
- Hydrogeology and ground conditions;
- Hydrology and flood risk; and
- Traffic.



2.0 | Design Proposals

2.1 Site Location

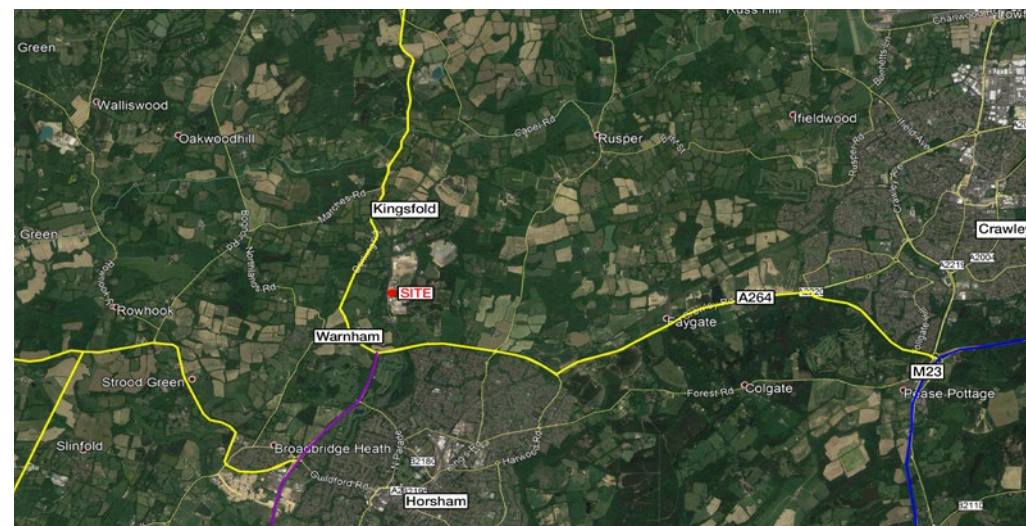
The application site is located at the former Wealden Brickworks site, situated adjacent to (south and west of) Brookhurst Wood Landfill Site, in the Parish of North Horsham, in Horsham District.

Horsham is 900m south-east of the site whilst the village of Warnham lies approximately 1.3km to the south-west. The Horsham to Dorking railway abuts the western boundary of the site. The site's southern boundary is bordered by the internal access road, the eastern extent of which links with Langhurstwood Road and is shared with the wider Brookhurst Wood site including Warnham (Wienerberger) Brickworks, the mechanical biological treatment (MBT) waste facility, and Biffa's aggregate recycling site.

The site includes a large former brickworks building and a single storey brick building (30m x 10m and 3.5 to 6m in height), and an open expanse of concrete surfacing.

Outside of the wider Brookhurst Wood site to the west, south and east are isolated and small groups of dwellings and open countryside. To the north are large industrial and commercial developments including Fisher Scientific Services and Broadlands Business Park whilst to the north-east is the active Graylands Clay Pit. A cluster of commercial/industrial companies is located around Warnham station to the south-west of the site.

There are fifteen dwellings lie between the site entrance and the A264, the dual carriageway some 750m to the south. The closest residential properties to the main area of the development are at Graylands Lodge (on Langhurstwood Road) approximately 250m to the north-east, along Station Road approximately 290m to the south-west and on Langhurstwood Road approximately 290m to the south-east



2.0 | Design Proposals

2.2 Current Planning Approval

Planning permission was granted on 1 July 2014 for a facility to manage and process up to 200,000 tonnes per annum of commercial, industrial and municipal waste on the former Wealden Brickworks site. A subsequent amendment to this application was granted in 2015 to increase throughput of waste to 230,000 tonnes/annum, as well as an associated increase in HGV movements up to 142 HGVs each weekday.

The principle of the site's use as a waste transfer facility has been established through the grant of the 2014 permission.



Existing Site Photographs



2.0 | Design Proposals

2.3 Site Layout

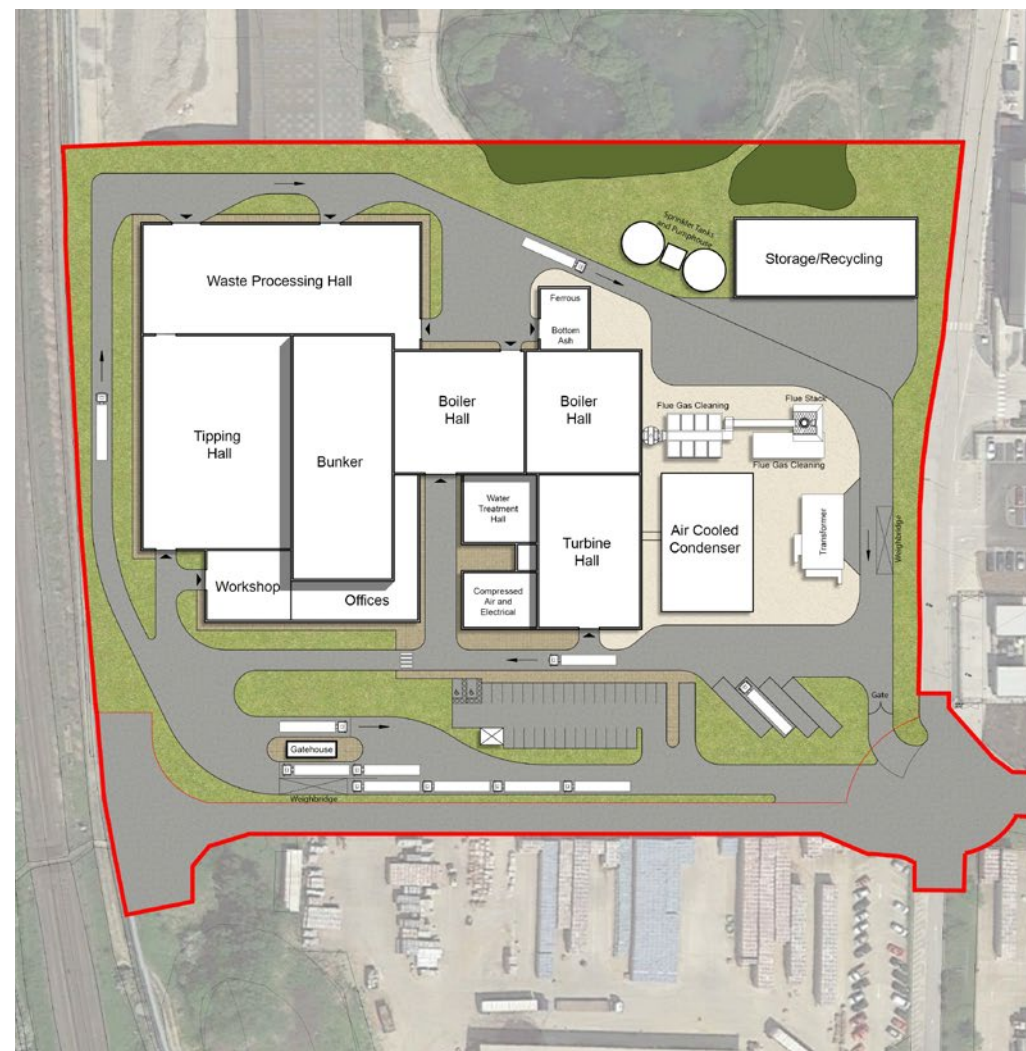
The total application area is 3.79ha, this includes the external site road up to the point at which it connects with the public highway. The development will be contained within the land under the applicants ownership comprising 3.29ha.

The layout of the facility has been optimised to fit within the existing boundary constraints, laid out to improve operational efficiency, and orientated to minimise external visual impact. The building footprint is largely dictated by the internal linear process within, however it has been designed to avoid the sensitive two ponds to the north which contain great crested newts. In addition, areas for landscape and ecological enhancement planting have been provided to the East and North Eastern boundary to minimise the potential for ecological impacts as well as minimising external visual impact.

Health and safety issues were a key consideration in the design resulting in the creation of a one way system for industrial vehicles to navigate around the site safely whilst segregating the staff and visitors and making routes clearly designated so that way-finding is simple and clear. The gatehouse is provided with generous space to allow for queuing in either direction clear of the public highway.

The basic flow of the facility is: that waste vehicles pass by the gatehouse, across the weighbridge and into the tipping hall, HGV's carrying mixed waste would unload into the waste processing hall so recyclable material can be separated and HGVs with entirely non-recyclable waste would tip directly into the bunker. Recyclable materials would be separated and stored temporarily in the external storage building to the north east corner of the site. The recyclable materials would then be manually sorted and transferred off site.

The residual waste within the bunker, after further visual inspection, is then incinerated on a moving grate within the boiler hall. Approximately 21MW of electricity is generated in the turbine hall with a proportion used by the facility itself and the remainder exported to the local distribution grid. Gases produced during combustion go through cleaning, filtration and neutralisation within the flue gas treatment area. Bottom ash and ash from the flue gas treatment is safely removed from the site for off-site disposal or recycling.



2.0 | Design Proposals

2.4 Design Evolution - Pre April 2017

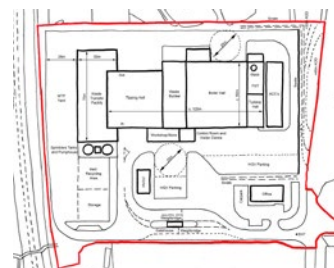
Six initial design options were produced prior to reaching the previous final proposed scheme (April 2017). The options had varying site configurations and three dimensional forms. The options responded to a number of factors including the technology process solutions within, the site topography, the entrance route in, and separation of the offices, workshop and waste transfer facility.

Option 2 sought to include sustainable characteristics such as maximising natural lighting in order to reduce the use of artificial lighting. This was to be achieved through the use of large areas of translucent cladding. However, when the potential landscape and visual impacts of this option were appraised it was considered that, taking into account the 24 hour nature of the operations, the resulting night time light spillage would lead to an increase in potential impacts and, as a result, the amount of translucent cladding was reduced to a simple band that breaks up the vertical form of the boiler hall.

Option 3 was developed from the initial layout of option 1, a large area of HGV parking was provided and a flexible and legible route around site was created. The footprint of the building changed as the brief was developed through comments from the client and technology providers.

The discovery of great crested newts within the ponds to the north of the site and the subsequent need to provide appropriate stand-offs between those ponds and the built development (in order to minimise the potential for impacts and provide for sufficient space for ecological enhancement) resulted in a decrease in the site area available for development. This dictated the requirement for a more efficient layout to be created and this was achieved by integrating the tipping hall into the bunker and waste transfer facility. Extensive vehicle tracking was completed to minimise the footprint of this area whilst ensuring the one way system was maintained.

The final scheme was derived following a further refinement to the layout which provided for visitor and staff parking closer to the offices, especially for cyclists and disabled bay users and a more detailed analysis of the process equipment.



Previous Design - Option 2



Previous Design - Option 2



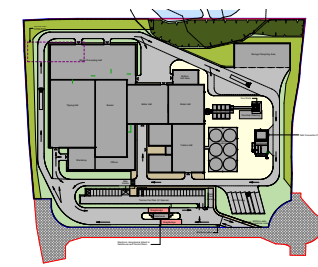
Previous Design - Final Option



Previous Design - Option 4



Previous Design - Option 6



Previous Design - Final

2.0 | Design Proposals

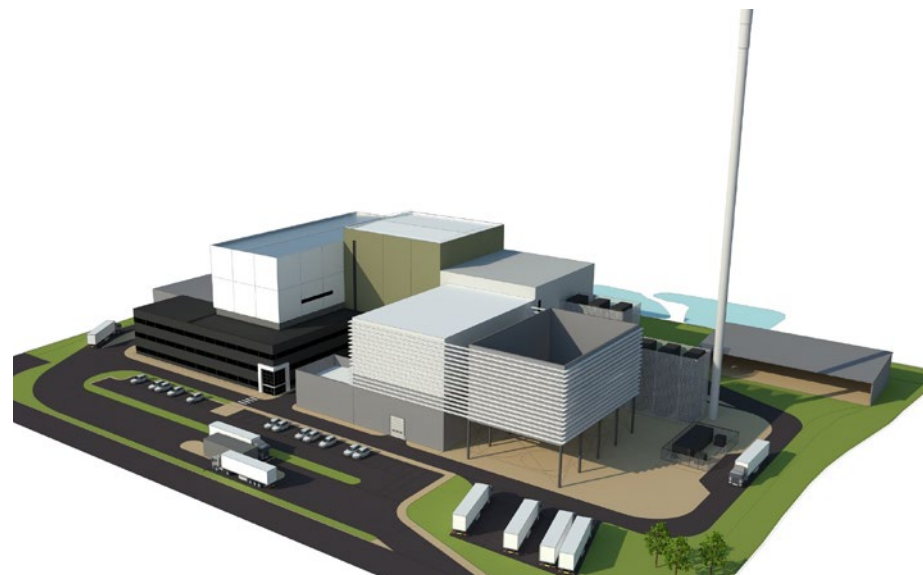
2.5 Design Evolution - Post April 2017

In order to provide some fresh ideas and improve the visual appeal of the proposed facility, a new design team was introduced to the scheme in December 2017. The design solutions generated consisted of two new distinct options. These were a curved roof solution, known as the 'Curvilinear' option, and a rectangular solution, known as the 'Rectilinear' option.

Both the Rectilinear and Curvilinear options had the benefit over previous proposed design schemes of significant reduced external height. The main driver for this reduction in height was the reduction in the internal height requirements of the technology within. The building has also been sunk further into the ground.

The rectilinear solution is a design which keeps the building form as a simple reflection of the necessary required internal process elements within and provides minimal elevations. Colour and materials are used to visually declutter and rationalise the design as one coherent entity rather than using a sweeping curve to harmonise the different elements together, as is the case with the curvilinear design. The central boiler hall is picked up in an accent colour with all other elements in grey shades and the offices in a black finish to provide them with visual presence.

The curvilinear solution is an alternative approach to the facility that incorporates a large sweeping curve across the facility. The curve starts at the bunker hall, crosses the bunker and boiler halls and then covers the ACC's and flue gas treatment area. The purpose of the curve is to visually bring all of the separate elements of the facility together as one harmonious structure and to visually reduce the building's height. The reduction in building height is also helped by allowing the higher elements of the facility to protrude through the curve rather than taking the roof across all elements. Covering the whole building with the roof would have generated additional unnecessary volume within and accentuating external visual mass and marginally increased the height. The external colours also aid the visual reduction in height by having the higher elements in lighter greys with a darker grey plinth at a lower level. On both options the flue gas treatment elements and silos are housed within mesh screens to rationalise their visual appearance. The offices are in a black finish to provide them with visual presence.



Rectilinear Option



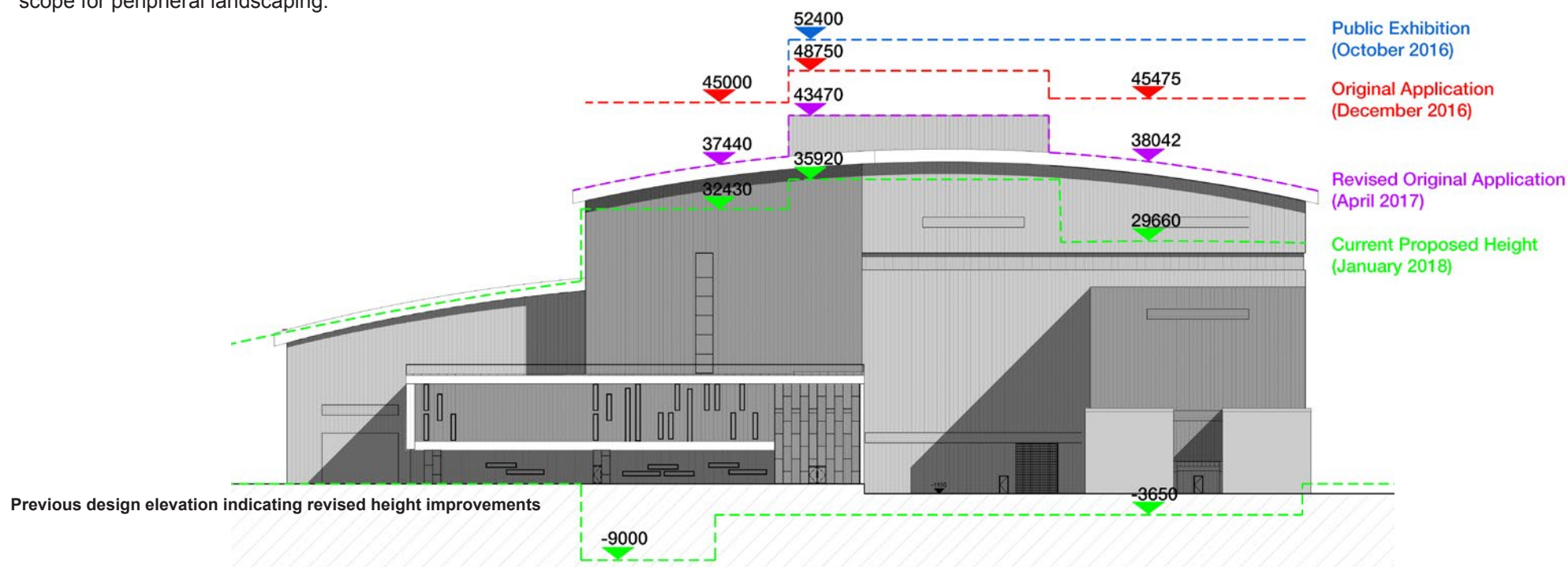
Curvilinear Option

2.0 | Design Proposals

2.6 Scale

The current design is significantly lower in height than previous design options considered. The main reason for this has been created by improvements in the space efficiency of the internal process technology. The latest design has also been sunk deeper into the ground.

In terms of building footprint, the latest proposed scheme provides the most operationally efficient design for the site and also the most beneficial in environmental terms. Grouping the buildings together and lowering the development into the ground has assisted in reducing the visual impact of the development, making the most efficient use of the land and allowing greater scope for peripheral landscaping.



2.0 | Design Proposals

2.7 Appearance / Public Consultation

The final proposed design has been guided from the outset by the landscape context, including key distant views, the site configuration, topography, and the operational needs of the facility. In particular, the design has evolved through an understanding and appraisal of the site's context and the subsequent architectural design evolved through an iterative process guided by this, together with consultations with key stakeholders and outputs from the Environmental Impact Assessment work related to the project.

The design process has been heavily influenced by the aspirations of Britaniacrest Recycling Ltd for a functional and cost effective design that relates to the context of the site. Account has been taken of the potential effects of the buildings upon the surrounding landscape; this has been developed through a visual impact assessment by using agreed views from the surrounding area with accurate site and building levels to recreate the predicted view.

The two design options were presented at an open door public exhibition, with the first the building was arranged in a rectilinear fashion and the second with an overarching roof dubbed the curvilinear option. The curvilinear option was favoured by residents as they considered that this would lessen the visual impact of the building.

































































Great care has been taken to follow "Guidance on the selection and use of colour in development" Written by the High Weald Area of Outstanding Beauty Partnership. It is aimed at integrating new buildings into the landscape in a way that benefits both the landscape and the built form. This can range from effectively camouflaging or minimizing the visual appearance of a utilitarian building to emphasizing the specific qualities of a place through the architecture, expressed in colour, form and massing. Good colour choices depend upon a good understanding of the proposed development in relation to its landscape setting.

The final colours chosen for the elevational treatment of the Curvilinear design reflect the darker, autumnal nature of the High Weald colour palette, and the desire to minimise the visual impact of the proposed facility within the landscape.

The proposed facility will be fitted with aviation warning lighting. This will include a red light at the highest practicable point of the flue stack structure.



Curvilinear Option - Original Design

RENDER, MASONRY PAINT, WEATHER BOARD	TIMBER, FIBRE CEMENT		BRICK, STONE, TILE		STEEL		
 1505-Y108	 2010-Y	 5005-Y108	 5010-G90Y	 5010-Y508	 4010-Y608	 7010-G90Y	 8010-Y908
 2002-Y	 4005-Y208	 5005-Y808	 6005-Y508	 4010-Y508	 5010-Y608	 6010-Y908	 7010-Y108
 2005-Y208	 4010-Y508	 5005-Y518	 4005-Y508	 5010-Y508	 6010-Y508	 6005-Y208	 7010-G50Y
 2000-N	 3000-N	 5000-N	 5100-N	 4100-N	 5000-N	 6300-N	 7800-N
 2100-N	 3300-N	 5300-N	 6000-N	 5100-N	 4000-N	 5300-N	 7100-N
 0505-Y108	 0510-Y	 2005-Y208	 7010-G90Y	 5010-Y508	 4010-B50C	 6005-Y108	 4010-G90Y
 1000-Y	 1005-Y208	 2005-B50C	 3010-Y108	 4010-B30C	 3010-Y308	 4010-Y308	 5010-B10Y
 1005-Y208	 1005-Y508	 2005-G50Y	 3005-G20Y	 5010-G90Y	 3010-B70L	 5010-Y208	 5005-Y508

Western High Weald Woodland and Heath Sub-Palette

Developed Palette - High Weald Colour Study



Curvilinear Option - Final Design

2.0 | Design Proposals

2.8 Landscaping and Boundary Treatment

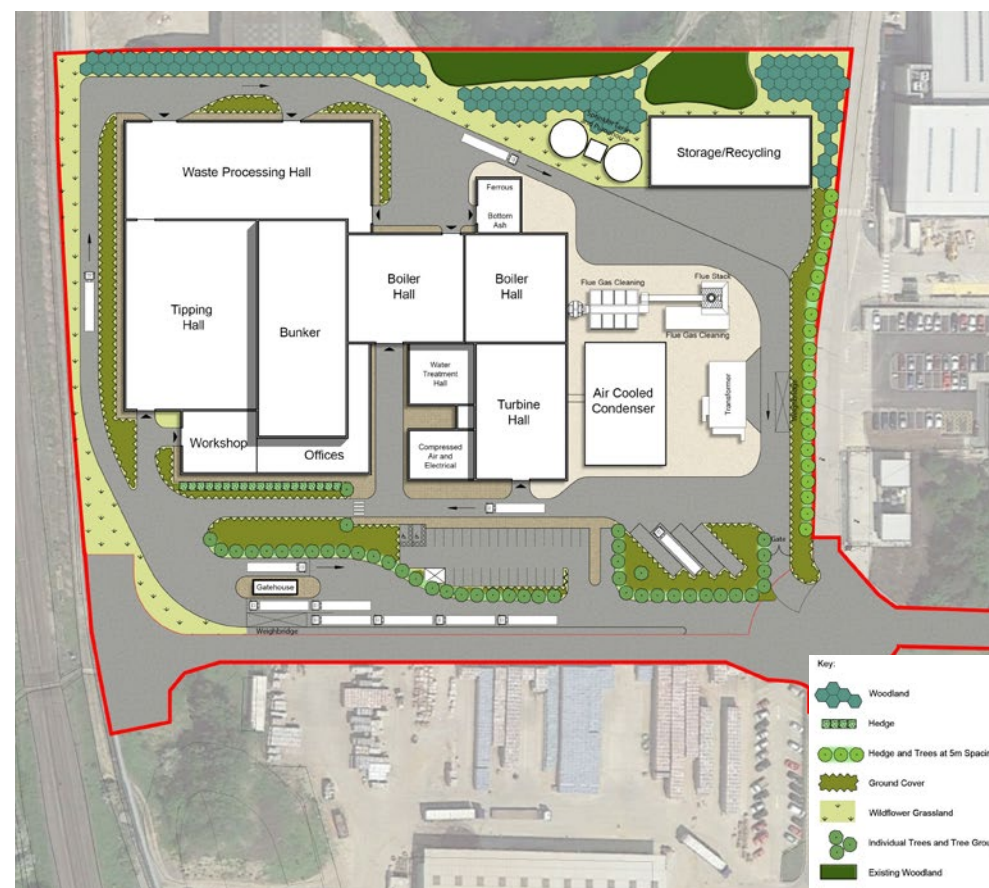
The landscape proposals have been designed as an integral part of the project to provide treatments for the perimeter of the site and green spaces within the application boundary. The landscape design forms a sequence of specific landscape proposals focussed on the enhancement of the local landscape. The proposals include the following features:

- Native woodland planting within a 5m strip to provide a soft boundary treatment and screening as an extension to the existing area of retained woodland along the north and east of the site and integrate the buildings and screen low level elements particularly when viewed from the north.
- A hedge of evergreen species with trees within the hedge at 5m spacing along the eastern boundary and the internal access road to the south of the site. The hedgerow with trees will provide screening, connectivity and integration along the eastern boundary and create a soft edge along the road between the site and the Biffa works.
- Internal hedge with trees provides screening of the car park, lorry park and vehicle movements.
- Internal areas of wildflower grassland, ground cover and individual trees provide foraging and feeding habitats to encourage birds, mammals, amphibians and invertebrates.

The landscape proposals seek to reflect the character of the site and surrounding area by establishing vegetation using both native species and ornamental species appropriate to the local area which would provide a transition in the landscape and contribute to the integration of different features and characteristics. The landscape proposals would be an enhancement of the existing site conditions, and together with the appropriate site layout and building design seek to ensure that the site will function well and add to the overall character and quality of the area.

Due to the enclosed character of the site and the sensitive nature of the long distance views priority was given to minimize these longer views as close views will only be seen by users of the site. This has led to the decision to match the wider landscape which High Weald describes as an Area of Outstanding Natural Beauty.

Although it has an abundance of green, this exists due to the rich vegetation of the countryside and the underlying colouring is brown and grey. Consequently the palette selected was from the more autumnal colours, which will allow the building to recede into the landscape particularly in winter when much of the tree canopy cover has gone.



Landscape Plan

2.0 | Design Proposals

2.8 Landscape and Boundary Treatment

Proposed Planting - Species included in the landscape proposals include:

Native Woodland - Trees



Carpinus betulus
(Hornbeam)



Alnus glutinosa
(Common Alder)



Betula pendula
(Silver Birch)



Prunus avium
(Wild Cherry)



Fagus sylvatica
(Beech)



Ilex aquifolium
(Holly)

Native Woodland - Shrubs



Salix caprea
(Goat Willow)



Corylus avellana
(Hazel)



Prunus spinosa
(Blackthorn)



Crataegus monogyna
(Hawthorn)



Pinus sylvestris
(Scots Pine)



Pinus nigra
(Black Pine)



Tilia cordata
(Small Leaved Lime)

Hedge



Pyracantha (Orange Glow /
Soleil d'Or / Red Column)



Photinia x fraseri
(Red Robin)



Hedera helix
(Ivy)



Rubus tricolor



Geranium macrorrhizum



Emorsgate EM2 – Standard
Meadow Mixture



Emorsgate EW1 – Woodland
Mixture

Trees

Wildflower Grassland

2.0 | Design Proposals

2.9 Refuse Management

Extracted inert materials, plastics, ferrous metals and non-ferrous metals from the plant will be stored in bays outside the plant until sufficient quantity has accumulated to enable a vehicle to be loaded and the materials taken off-site for further processing. The residual waste will be removed to a bunker for storage, with a capacity of approximately three-days equivalent throughput of the energy recovery plant.



3.0 | Access Provision

3.1 External Site Access

Personal Vehicular Access

Cars will enter the site via the existing entrance and divert to the right before the gatehouse into their own secured car park, therefore minimising mixing HGV and personal vehicles.

HGV Access

Access to the facility would be taken from the existing entrance point to the site. All vehicles will proceed to the gatehouse and pass over the weighbridge before proceeding into the site. No vehicles will be permitted onto the operational site without passing over the weighbridge unless authorised. Vehicles will then circulate around the perimeter of the facility in a one way clockwise system. All waste vehicles will pass over the second weighbridge at the gatehouse before exiting the site.

Pedestrian/Cycle Access

Pedestrians could enter the plot via the proposed footpath on the estate road, entering the site adjacent to the vehicular access road. Cyclists would also follow this same route into the site, dismounting at the cycle shelter and proceeding on foot to the main office opposite.

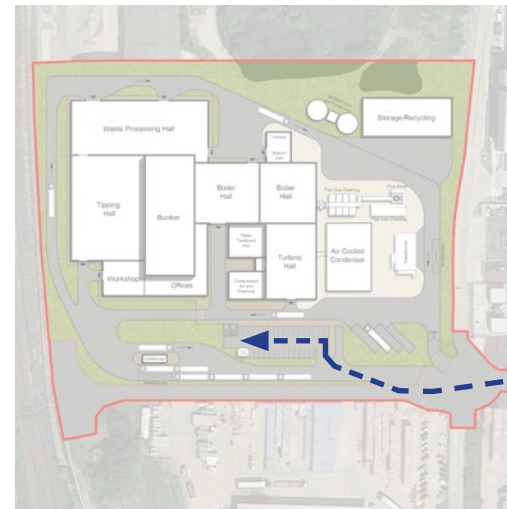
Pedestrian entry to the building will via the glazed office reception on the south eastern corner for office staff and visitors, or via the separate driver/warehouse staff entrance which is adjacent to it on the eastern elevation.

Public Transport

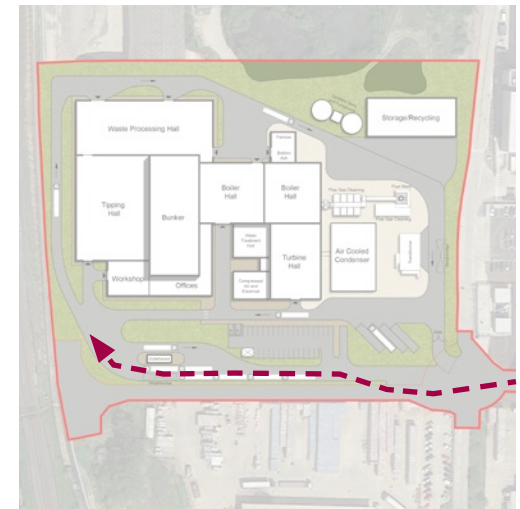
The site sits adjacent to Warnham railway station which has the potential to serve the site.

Emergency Access

The site allows for 100% overall access to the building for fire engine vehicles.



Personal Vehicle Access



HGV Access



Pedestrian/Cycle Access



Emergency Access

4.0 | Sustainability

4.0 Sustainability

The assessment of the potential carbon footprint for the proposed Facility shows that it performs well, providing an estimated reduction in greenhouse gas (GHG) emissions of approximately 242,700 tonnes of CO₂ equivalent per annum operated in electricity-only generation mode, and 310,800 tonnes of CO₂ equivalent per annum if it is able to be extended to run in CHP mode. This saving with electricity generation alone is equivalent to the annual emissions from approximately 39,700 homes.

Emissions savings from avoided landfilling of waste amount to approximately 76,500 t CO₂e per annum, and further savings of 38,000 t CO₂ equivalent per annum are achieved through recovery and recycling of metals from combustion residue (bottom ash).

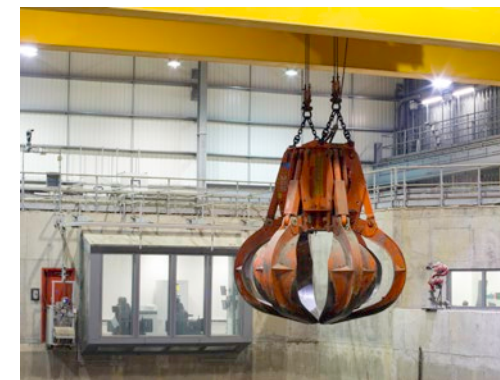
Whilst combustion of waste in the thermal treatment facility produces emissions of 51,000 tCO₂ equivalent per annum, these are balanced by emissions savings from displaced electricity generation from the grid mix of mainly conventional power stations of between 69,200 t CO₂ equivalent per annum.

Over the expected lifetime of the proposed facility (assumed to be 25 years) total GHG emissions savings from the thermal treatment facility amount to at least 6.06 million tonnes of CO₂ equivalent compared to the current landfilling of the waste, and over 7 million tonnes of CO₂ equivalent if CHP is developed early in its operational life.

In summary, the proposed facility is anticipated to have a significant positive impact on greenhouse gas emissions within West Sussex compared to the existing commercial and industrial waste management arrangements.



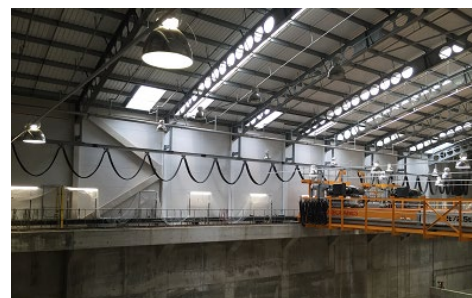
Sustainability in construction



Recycle



Electricity generation



Optimisation of natural light



SUDS

5.0 | Personal Safety and Crime Prevention

5.0 Security

Crime Prevention

Consideration has been given to the layout of the development to ensure personal safety. This relates not only to ensuring that the layout of the development does not create an environment conducive to crime, but also to how occupiers and visitors to the site can move freely without risk of injury.

Access and Movement

Spaces and pedestrian routes are currently well defined with easy to recognise entrances; this provides convenient movement without compromising security. Proposed car parking is provided in the most prominent locations possible.

Structure

The building will be designed in robust materials – metal-faced cladding panels on a steel frame. Where appropriate, glazing will be toughened laminated sections. Where possible all windows and doors will be certified secure products.

Surveillance

Natural surveillance was a key factor in the overall design of the site and the positioning of the offices overlooking the proposed car parking offers the occupier a high degree of visual control. The building design and layout has been considered to minimise visual obstacles and eliminate places of concealment and any potential dark areas will be well lit.

Physical Protection

Boundary protection via a 2.4m high paladin fence will be provided to the car park with a 2.4m high paladin fence to the service yard boundaries and have been considered to maximise natural surveillance.



Perimeter security



6.0 | Summary

7.0 Summary

The applicant considered a number of different technology options before deciding on the final scheme to take forward.

Mechanical pre-treatment followed by thermal treatment was assessed to be the best technology choice primarily based on technical performance, reliability, and environmental performance including emissions to all environmental media. Gasification was felt to be a possible thermal treatment option, but it was dismissed primarily due to its significantly smaller operational experience base. Pyrolysis does not currently demonstrate any environmental benefit and has a significantly weaker business case.

In view of the type of material to be treated at the applicant site, alternative treatment technologies such as composting, anaerobic digester or MBT (with either of the latter processes) were not considered to be a viable option.

Mechanical pre-treatment and energy recovery using modern, state of the art technology is flexible and robust and was consequently selected as the technology proposed for the Wealden Works 3Rs Facility. The proposed Facility will achieve "Recovery" status in accordance with the Waste Framework Directive and provide an alternative to landfill in addition to much needed renewable energy.

The design of the buildings and the site layout has evolved throughout the design development process and has been influenced and shaped by technical and environmental impact considerations as well as stakeholder consultation.



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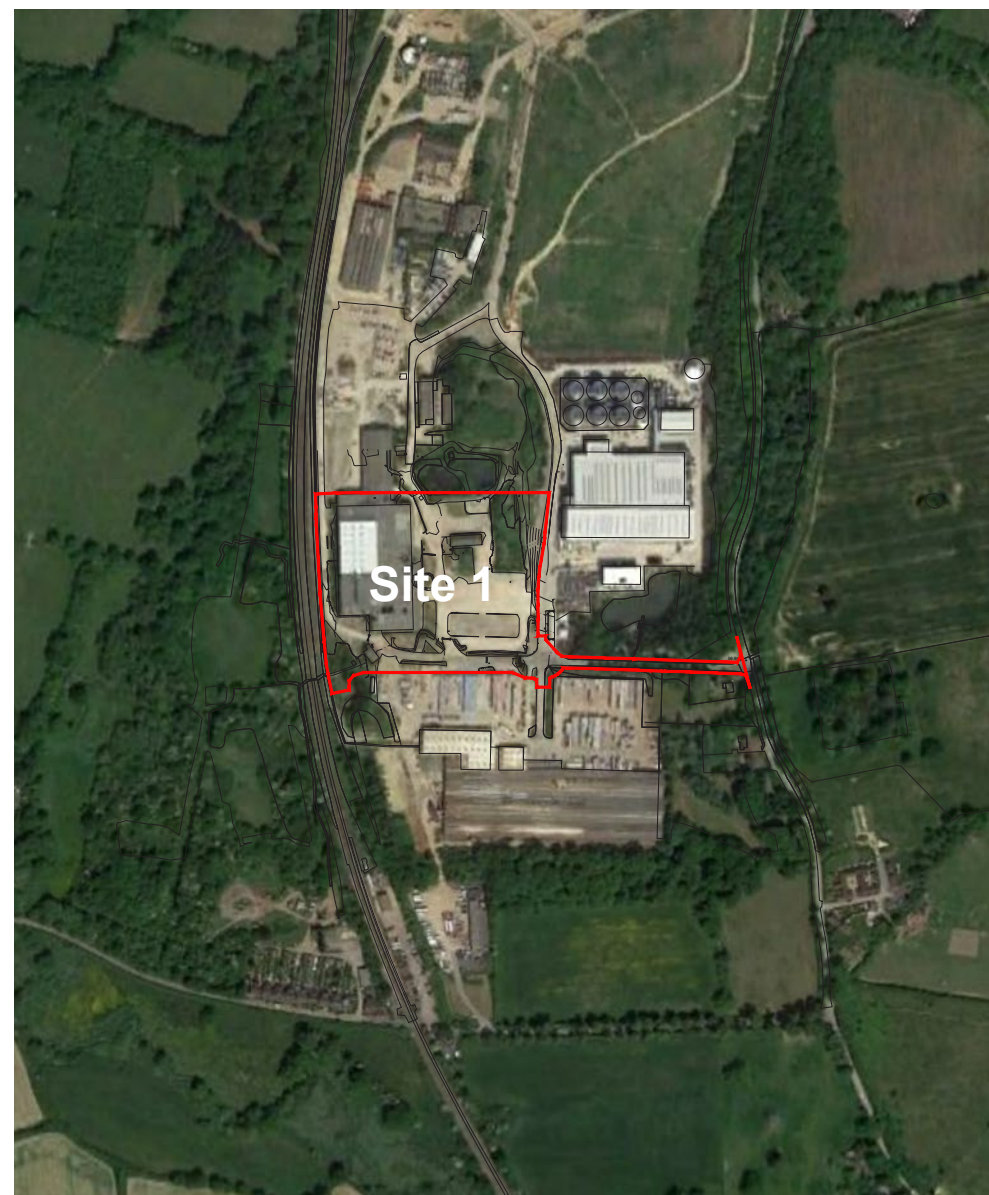
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2.0 | Design Proposals

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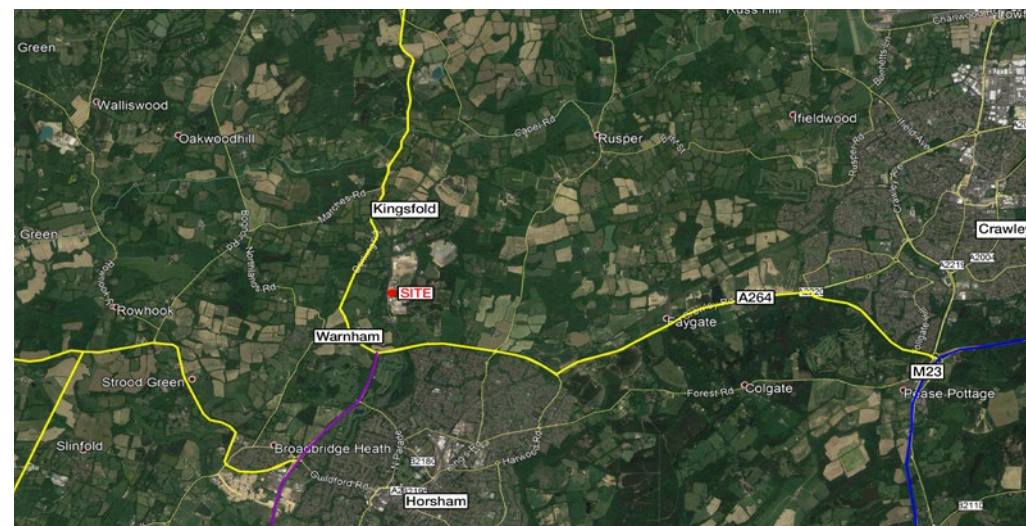
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Outside of the wider Brookhurst Wood site to the west, south and east are isolated and small groups of dwellings and open countryside. To the north are large industrial and commercial developments including Fisher Scientific Services and Broadlands Business Park whilst to the north-east is the active Graylands Clay Pit. A cluster of commercial/industrial companies is located around Warnham station to the south-west of the site.

There are fifteen dwellings lie between the site entrance and the A264, the dual carriageway some 750m to the south. The closest residential properties to the main area of the development are at Graylands Lodge (on Langhurstwood Road) approximately 250m to the north-east, along Station Road approximately 290m to the south-west and on Langhurstwood Road approximately 290m to the south-east



2.0 | Design Proposals

2.2 Current Planning Approval

Planning permission was granted on 1 July 2014 for a facility to manage and process up to 200,000 tonnes per annum of commercial, industrial and municipal waste on the former Wealden Brickworks site. A subsequent amendment to this application was granted in 2015 to increase throughput of waste to 230,000 tonnes/annum, as well as an associated increase in HGV movements up to 142 HGVs each weekday.

The principle of the site's use as a waste transfer facility has been established through the grant of the 2014 permission.



Existing Site Photographs



2.0 | Design Proposals

2.3 Site Layout

The total application area is 3.79ha, this includes the external site road up to the point at which it connects with the public highway. The development will be contained within the land under the applicants ownership comprising 3.29ha.

The layout of the facility has been optimised to fit within the existing boundary constraints, laid out to improve operational efficiency, and orientated to minimise external visual impact. The building footprint is largely dictated by the internal linear process within, however it has been designed to avoid the sensitive two ponds to the north which contain great crested newts. In addition, areas for landscape and ecological enhancement planting have been provided to the East and North Eastern boundary to minimise the potential for ecological impacts as well as minimising external visual impact.

Health and safety issues were a key consideration in the design resulting in the creation of a one way system for industrial vehicles to navigate around the site safely whilst segregating the staff and visitors and making routes clearly designated so that way-finding is simple and clear. The gatehouse is provided with generous space to allow for queuing in either direction clear of the public highway.

The basic flow of the facility is: that waste vehicles pass by the gatehouse, across the weighbridge and into the tipping hall, HGV's carrying mixed waste would unload into the waste processing hall so recyclable material can be separated and HGVs with entirely non-recyclable waste would tip directly into the bunker. Recyclable materials would be separated and stored temporarily in the external storage building to the north east corner of the site. The recyclable materials would then be manually sorted and transferred off site.

The residual waste within the bunker, after further visual inspection, is then incinerated on a moving grate within the boiler hall. Approximately 21MW of electricity is generated in the turbine hall with a proportion used by the facility itself and the remainder exported to the local distribution grid. Gases produced during combustion go through cleaning, filtration and neutralisation within the flue gas treatment area. Bottom ash and ash from the flue gas treatment is safely removed from the site for off-site disposal or recycling.



2.0 | Design Proposals

2.4 Design Evolution - Pre April 2017

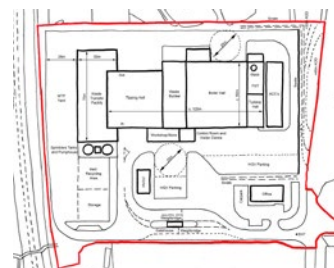
Six initial design options were produced prior to reaching the previous final proposed scheme (April 2017). The options had varying site configurations and three dimensional forms. The options responded to a number of factors including the technology process solutions within, the site topography, the entrance route in, and separation of the offices, workshop and waste transfer facility.

Option 2 sought to include sustainable characteristics such as maximising natural lighting in order to reduce the use of artificial lighting. This was to be achieved through the use of large areas of translucent cladding. However, when the potential landscape and visual impacts of this option were appraised it was considered that, taking into account the 24 hour nature of the operations, the resulting night time light spillage would lead to an increase in potential impacts and, as a result, the amount of translucent cladding was reduced to a simple band that breaks up the vertical form of the boiler hall.

Option 3 was developed from the initial layout of option 1, a large area of HGV parking was provided and a flexible and legible route around site was created. The footprint of the building changed as the brief was developed through comments from the client and technology providers.

The discovery of great crested newts within the ponds to the north of the site and the subsequent need to provide appropriate stand-offs between those ponds and the built development (in order to minimise the potential for impacts and provide for sufficient space for ecological enhancement) resulted in a decrease in the site area available for development. This dictated the requirement for a more efficient layout to be created and this was achieved by integrating the tipping hall into the bunker and waste transfer facility. Extensive vehicle tracking was completed to minimise the footprint of this area whilst ensuring the one way system was maintained.

The final scheme was derived following a further refinement to the layout which provided for visitor and staff parking closer to the offices, especially for cyclists and disabled bay users and a more detailed analysis of the process equipment.



Previous Design - Option 2



Previous Design - Option 2



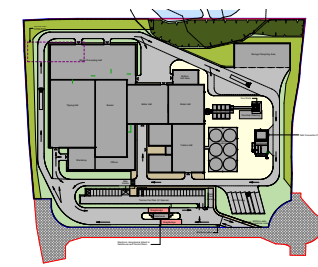
Previous Design - Final Option



Previous Design - Option 4



Previous Design - Option 6



Previous Design - Final

2.0 | Design Proposals

2.5 Design Evolution - Post April 2017

In order to provide some fresh ideas and improve the visual appeal of the proposed facility, a new design team was introduced to the scheme in December 2017. The design solutions generated consisted of two new distinct options. These were a curved roof solution, known as the 'Curvilinear' option, and a rectangular solution, known as the 'Rectilinear' option.

Both the Rectilinear and Curvilinear options had the benefit over previous proposed design schemes of significant reduced external height. The main driver for this reduction in height was the reduction in the internal height requirements of the technology within. The building has also been sunk further into the ground.

The rectilinear solution is a design which keeps the building form as a simple reflection of the necessary required internal process elements within and provides minimal elevations. Colour and materials are used to visually declutter and rationalise the design as one coherent entity rather than using a sweeping curve to harmonise the different elements together, as is the case with the curvilinear design. The central boiler hall is picked up in an accent colour with all other elements in grey shades and the offices in a black finish to provide them with visual presence.

The curvilinear solution is an alternative approach to the facility that incorporates a large sweeping curve across the facility. The curve starts at the bunker hall, crosses the bunker and boiler halls and then covers the ACC's and flue gas treatment area. The purpose of the curve is to visually bring all of the separate elements of the facility together as one harmonious structure and to visually reduce the building's height. The reduction in building height is also helped by allowing the higher elements of the facility to protrude through the curve rather than taking the roof across all elements. Covering the whole building with the roof would have generated additional unnecessary volume within and accentuating external visual mass and marginally increased the height. The external colours also aid the visual reduction in height by having the higher elements in lighter greys with a darker grey plinth at a lower level. On both options the flue gas treatment elements and silos are housed within mesh screens to rationalise their visual appearance. The offices are in a black finish to provide them with visual presence.



Rectilinear Option



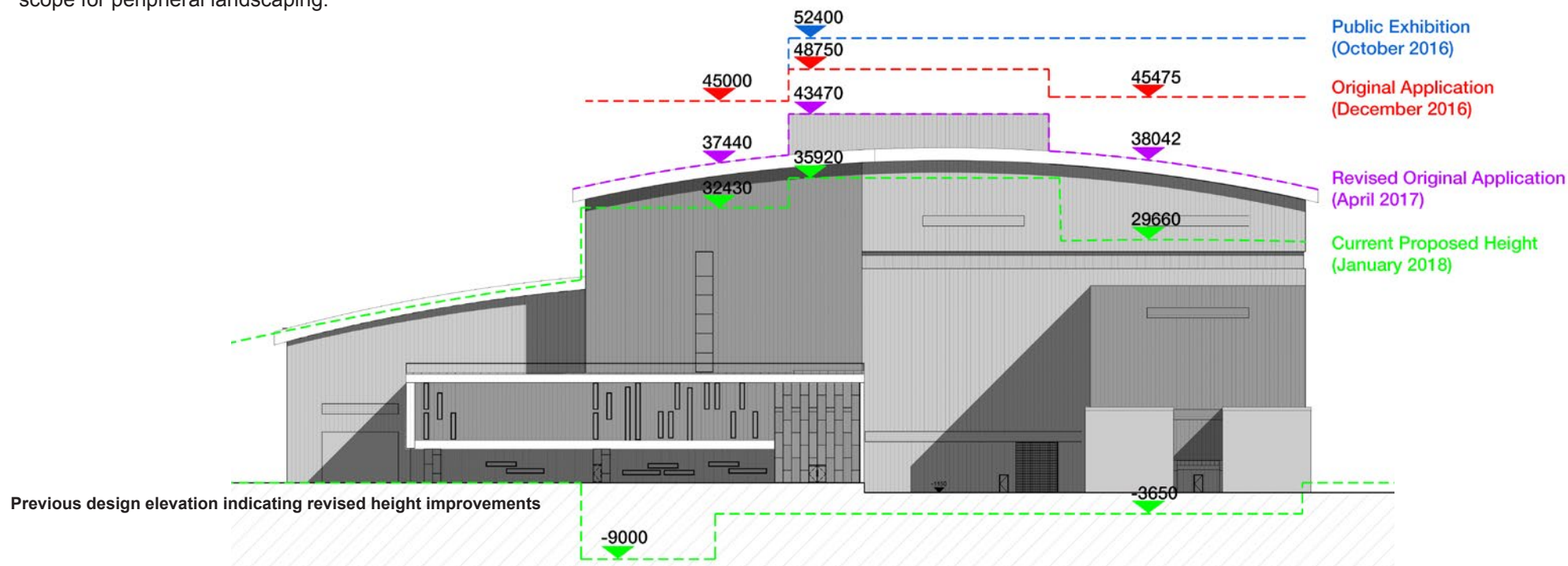
Curvilinear Option

2.0 | Design Proposals

2.6 Scale

The current design is significantly lower in height than previous design options considered. The main reason for this has been created by improvements in the space efficiency of the internal process technology. The latest design has also been sunk deeper into the ground.

In terms of building footprint, the latest proposed scheme provides the most operationally efficient design for the site and also the most beneficial in environmental terms. Grouping the buildings together and lowering the development into the ground has assisted in reducing the visual impact of the development, making the most efficient use of the land and allowing greater scope for peripheral landscaping.



2.0 | Design Proposals

2.7 Appearance / Public Consultation

The final proposed design has been guided from the outset by the landscape context, including key distant views, the site configuration, topography, and the operational needs of the facility. In particular, the design has evolved through an understanding and appraisal of the site's context and the subsequent architectural design evolved through an iterative process guided by this, together with consultations with key stakeholders and outputs from the Environmental Impact Assessment work related to the project.

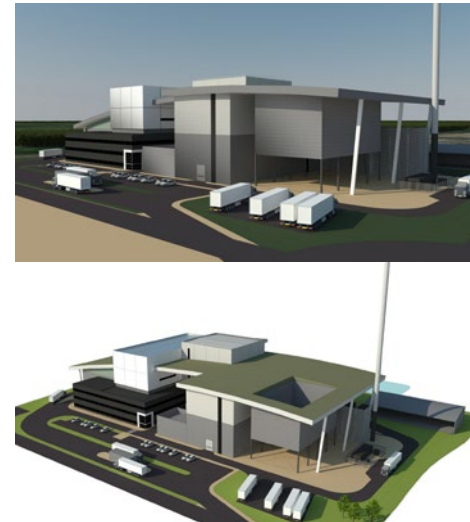
The design process has been heavily influenced by the aspirations of Britaniacrest Recycling Ltd for a functional and cost effective design that relates to the context of the site. Account has been taken of the potential effects of the buildings upon the surrounding landscape; this has been developed through a visual impact assessment by using agreed views from the surrounding area with accurate site and building levels to recreate the predicted view.

The two design options were presented at an open door public exhibition, with the first the building was arranged in a rectilinear fashion and the second with an overarching roof dubbed the curvilinear option. The curvilinear option was favoured by residents as they considered that this would lessen the visual impact of the building.
































































Great care has been taken to follow "Guidance on the selection and use of colour in development" Written by the High Weald Area of Outstanding Beauty Partnership. It is aimed at integrating new buildings into the landscape in a way that benefits both the landscape and the built form. This can range from effectively camouflaging or minimizing the visual appearance of a utilitarian building to emphasizing the specific qualities of a place through the architecture, expressed in colour, form and massing. Good colour choices depend upon a good understanding of the proposed development in relation to its landscape setting.

The final colours chosen for the elevational treatment of the Curvilinear design reflect the darker, autumnal nature of the High Weald colour palette, and the desire to minimise the visual impact of the proposed facility within the landscape.

The proposed facility will be fitted with aviation warning lighting. This will include a red light at the highest practicable point of the flue stack structure.



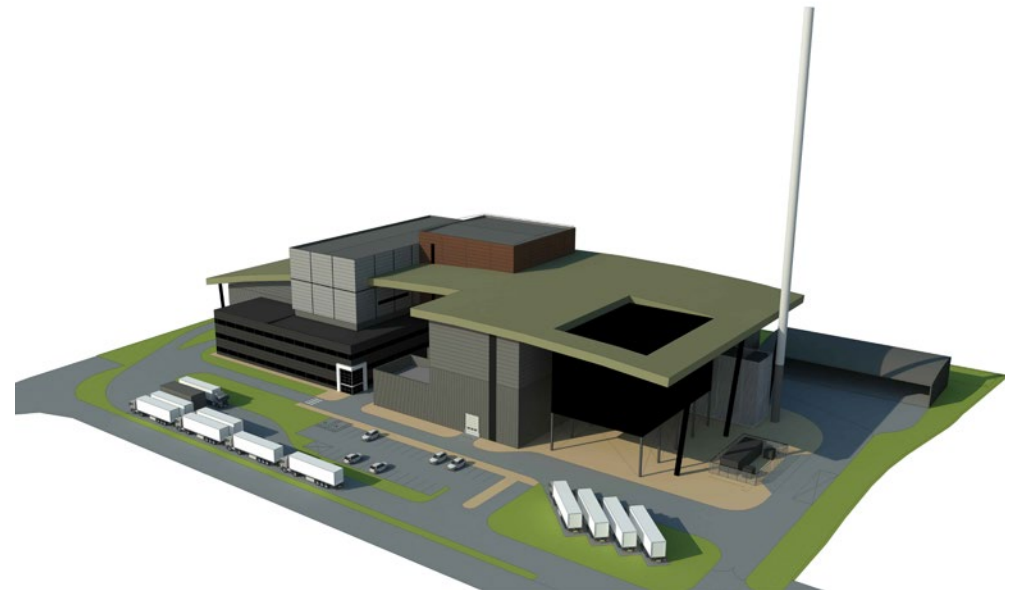
Curvilinear Option - Original Design

RENDER, MASONRY PAINT, WEATHER BOARD	TIMBER, FIBRE CEMENT		BRICK, STONE, TILE		STEEL		
 1505-Y108	 2010-Y	 5005-Y108	 5010-G90Y	 5010-Y108	 4010-Y608	 7010-Y308	 8010-Y908
 2002-Y	 4005-Y208	 5005-Y808	 6005-Y508	 4010-Y308	 5010-Y608	 6010-Y908	 7010-Y108
 2005-Y208	 4010-Y308	 5005-Y108	 4005-Y208	 5010-Y808	 6010-Y508	 6005-Y208	 7010-Y308
 2000-N	 3000-N	 5000-N	 5100-N	 4100-N	 5000-N	 6300-N	 7800-N
 2100-N	 3200-N	 5100-N	 6000-N	 5100-N	 4000-N	 5300-N	 6000-N
 0505-Y108	 0510-Y	 2005-Y208	 7010-G90Y	 3010-Y508	 4010-B50C	 3005-Y108	 4010-G90Y
 1000-Y	 1005-Y208	 2005-B80C	 3010-Y108	 4010-Y808	 3010-Y208	 4010-Y108	 5010-Y308
 1005-Y208	 1005-Y508	 2005-G50Y	 3005-G20Y	 1010-G90Y	 3010-B70C	 4005-Y208	 5005-Y508

Western High Wooded Woodland and Heath. Sub Palette

Western High Weald Woodland and Heath Sub-Palette 38

Developed Palette - High Weald Colour Study



Curvilinear Option - Final Design

2.0 | Design Proposals

2.8 Landscaping and Boundary Treatment

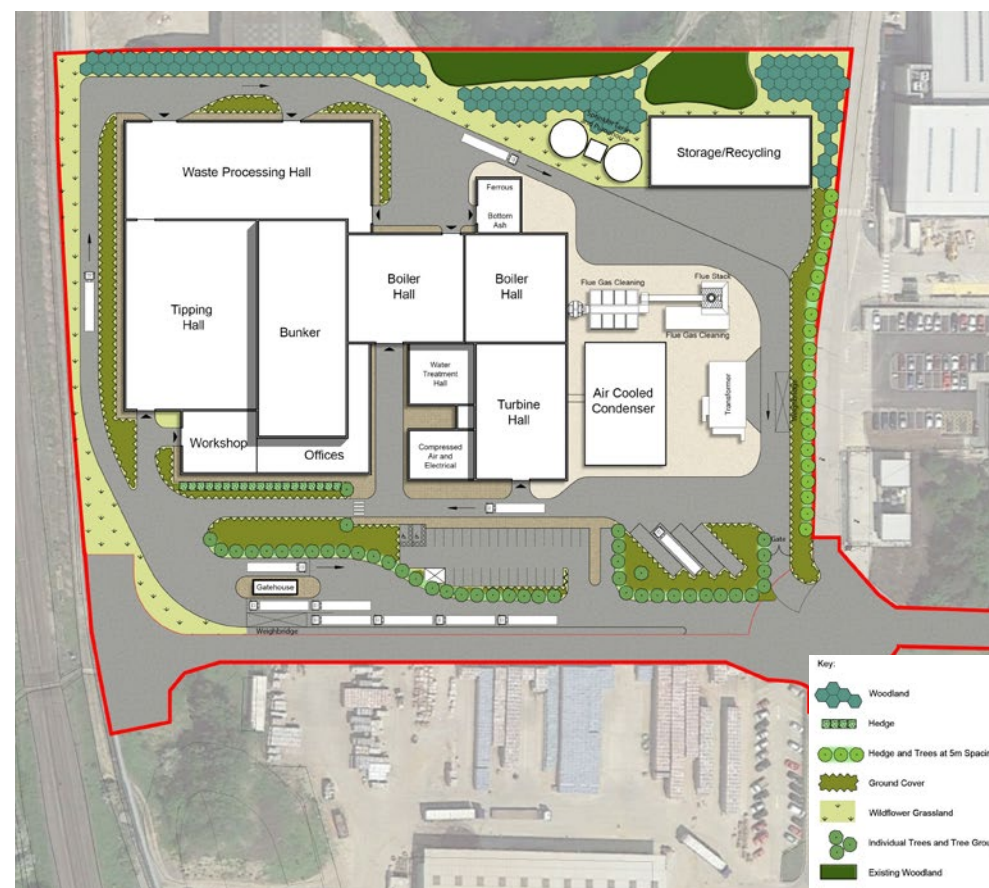
The landscape proposals have been designed as an integral part of the project to provide treatments for the perimeter of the site and green spaces within the application boundary. The landscape design forms a sequence of specific landscape proposals focussed on the enhancement of the local landscape. The proposals include the following features:

- Native woodland planting within a 5m strip to provide a soft boundary treatment and screening as an extension to the existing area of retained woodland along the north and east of the site and integrate the buildings and screen low level elements particularly when viewed from the north.
- A hedge of evergreen species with trees within the hedge at 5m spacing along the eastern boundary and the internal access road to the south of the site. The hedgerow with trees will provide screening, connectivity and integration along the eastern boundary and create a soft edge along the road between the site and the Biffa works.
- Internal hedge with trees provides screening of the car park, lorry park and vehicle movements.
- Internal areas of wildflower grassland, ground cover and individual trees provide foraging and feeding habitats to encourage birds, mammals, amphibians and invertebrates.

The landscape proposals seek to reflect the character of the site and surrounding area by establishing vegetation using both native species and ornamental species appropriate to the local area which would provide a transition in the landscape and contribute to the integration of different features and characteristics. The landscape proposals would be an enhancement of the existing site conditions, and together with the appropriate site layout and building design seek to ensure that the site will function well and add to the overall character and quality of the area.

Due to the enclosed character of the site and the sensitive nature of the long distance views priority was given to minimize these longer views as close views will only be seen by users of the site. This has led to the decision to match the wider landscape which High Weald describes as an Area of Outstanding Natural Beauty.

Although it has an abundance of green, this exists due to the rich vegetation of the countryside and the underlying colouring is brown and grey. Consequently the palette selected was from the more autumnal colours, which will allow the building to recede into the landscape particularly in winter when much of the tree canopy cover has gone.



Landscape Plan

2.0 | Design Proposals

2.8 Landscaping and Boundary Treatment

Native Woodland - Trees



Fraxinus excelsior (Ash)



Alnus cordata (Alder)



Betula pendula, (Silver birch)



Punus avium (Common Cherry)



Salix fragilis (Crack Willow)

Native Woodland - Shrubs



Ilex aquifolium



Corylus avellana



Prunus spinosa



Pinus sylvestris (Scots Pine)



Pinus nigra (Austrian Pine)

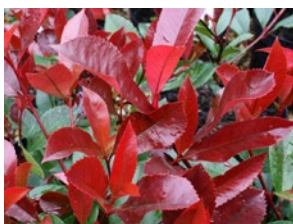


Castanea sativa (Sweet Chestnut)

Hedge



Pyracantha (Orange Glow / Soleil d'Or / Red Column)



Photinia x fraseri 'Red Robin'



Hedera helix (Ivy)



Rubus tricolor



Geranium macrorrhizum



Emorsgate EM2 – Standard Meadow Mixture

Groundcover

Trees

Proposed Planting - Species included in the landscape proposals include:

2.0 | Design Proposals

2.9 Refuse Management

Extracted inert materials, plastics, ferrous metals and non-ferrous metals from the plant will be stored in bays outside the plant until sufficient quantity has accumulated to enable a vehicle to be loaded and the materials taken off-site for further processing. The residual waste will be removed to a bunker for storage, with a capacity of approximately three-days equivalent throughput of the energy recovery plant.



3.0 | Access Provision

3.1 External Site Access

Personal Vehicular Access

Cars will enter the site via the existing entrance and divert to the right before the gatehouse into their own secured car park, therefore minimising mixing HGV and personal vehicles.

HGV Access

Access to the facility would be taken from the existing entrance point to the site. All vehicles will proceed to the gatehouse and pass over the weighbridge before proceeding into the site. No vehicles will be permitted onto the operational site without passing over the weighbridge unless authorised. Vehicles will then circulate around the perimeter of the facility in a one way clockwise system. All waste vehicles will pass over the second weighbridge at the gatehouse before exiting the site.

Pedestrian/Cycle Access

Pedestrians could enter the plot via the proposed footpath on the estate road, entering the site adjacent to the vehicular access road. Cyclists would also follow this same route into the site, dismounting at the cycle shelter and proceeding on foot to the main office opposite.

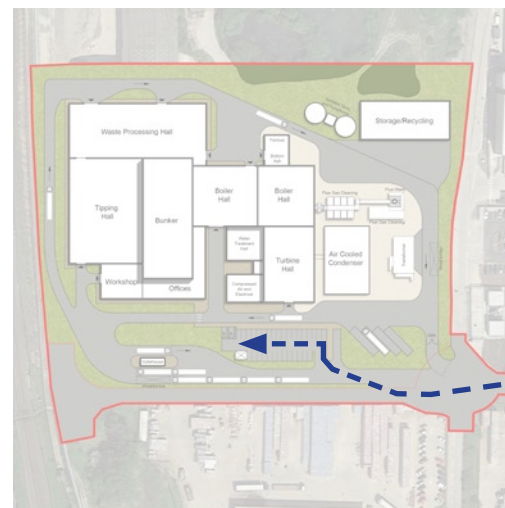
Pedestrian entry to the building will via the glazed office reception on the south eastern corner for office staff and visitors, or via the separate driver/warehouse staff entrance which is adjacent to it on the eastern elevation.

Public Transport

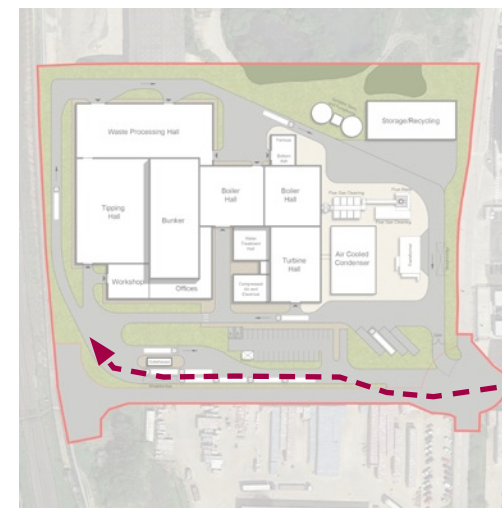
The site sits adjacent to Warnham railway station which has the potential to serve the site.

Emergency Access

The site allows for 100% overall access to the building for fire engine vehicles.



Personal Vehicle Access



HGV Access



Pedestrian/Cycle Access



Emergency Access

4.0 | Sustainability

4.0 Sustainability

The assessment of the potential carbon footprint for the proposed Facility shows that it performs well, providing an estimated reduction in greenhouse gas (GHG) emissions of approximately 242,700 tonnes of CO₂ equivalent per annum operated in electricity-only generation mode, and 310,800 tonnes of CO₂ equivalent per annum if it is able to be extended to run in CHP mode. This saving with electricity generation alone is equivalent to the annual emissions from approximately 39,700 homes.

Emissions savings from avoided landfilling of waste amount to approximately 76,500 t CO₂e per annum, and further savings of 38,000 t CO₂ equivalent per annum are achieved through recovery and recycling of metals from combustion residue (bottom ash).

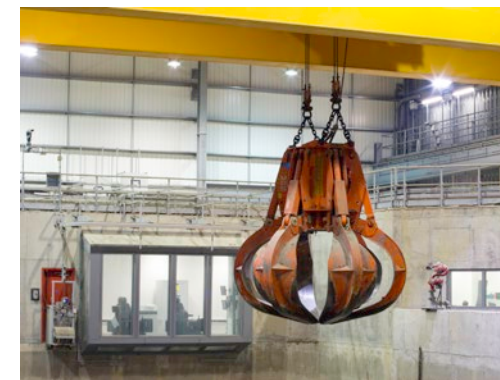
Whilst combustion of waste in the thermal treatment facility produces emissions of 51,000 tCO₂ equivalent per annum, these are balanced by emissions savings from displaced electricity generation from the grid mix of mainly conventional power stations of between 69,200 t CO₂ equivalent per annum.

Over the expected lifetime of the proposed facility (assumed to be 25 years) total GHG emissions savings from the thermal treatment facility amount to at least 6.06 million tonnes of CO₂ equivalent compared to the current landfilling of the waste, and over 7 million tonnes of CO₂ equivalent if CHP is developed early in its operational life.

In summary, the proposed facility is anticipated to have a significant positive impact on greenhouse gas emissions within West Sussex compared to the existing commercial and industrial waste management arrangements.



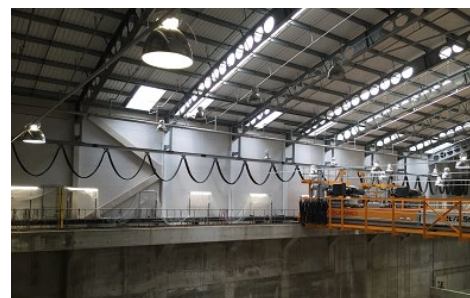
Sustainability in construction



Recycle



Electricity generation



Optimisation of natural light



SUDS

5.0 | Personal Safety and Crime Prevention

5.0 Security

Crime Prevention

Consideration has been given to the layout of the development to ensure personal safety. This relates not only to ensuring that the layout of the development does not create an environment conducive to crime, but also to how occupiers and visitors to the site can move freely without risk of injury.

Access and Movement

Spaces and pedestrian routes are currently well defined with easy to recognise entrances; this provides convenient movement without compromising security. Proposed car parking is provided in the most prominent locations possible.

Structure

The building will be designed in robust materials – metal-faced cladding panels on a steel frame. Where appropriate, glazing will be toughened laminated sections. Where possible all windows and doors will be certified secure products.

Surveillance

Natural surveillance was a key factor in the overall design of the site and the positioning of the offices overlooking the proposed car parking offers the occupier a high degree of visual control. The building design and layout has been considered to minimise visual obstacles and eliminate places of concealment and any potential dark areas will be well lit.

Physical Protection

Boundary protection via a 2.4m high paladin fence will be provided to the car park with a 2.4m high paladin fence to the service yard boundaries and have been considered to maximise natural surveillance.



Perimeter security



6.0 | Summary

7.0 Summary

The applicant considered a number of different technology options before deciding on the final scheme to take forward.

Mechanical pre-treatment followed by thermal treatment was assessed to be the best technology choice primarily based on technical performance, reliability, and environmental performance including emissions to all environmental media. Gasification was felt to be a possible thermal treatment option, but it was dismissed primarily due to its significantly smaller operational experience base. Pyrolysis does not currently demonstrate any environmental benefit and has a significantly weaker business case.

In view of the type of material to be treated at the applicant site, alternative treatment technologies such as composting, anaerobic digester or MBT (with either of the latter processes) were not considered to be a viable option.

Mechanical pre-treatment and energy recovery using modern, state of the art technology is flexible and robust and was consequently selected as the technology proposed for the Wealden Works 3Rs Facility. The proposed Facility will achieve "Recovery" status in accordance with the Waste Framework Directive and provide an alternative to landfill in addition to much needed renewable energy.

The design of the buildings and the site layout has evolved throughout the design development process and has been influenced and shaped by technical and environmental impact considerations as well as stakeholder consultation.

