



Biomass Fuelled Power Plant

Land off Ballyvannon Road,
Nr Glenavy,
County Antrim

Architectural Design and Access Statement



Project Ref	15562	15562/A3/DS01
Revision	F	Minor Amendments to text
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Date	March 2008	

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01 Introduction

Purpose of this Statement

- 1.1 This statement has been prepared by RPS Burks Green on behalf of Rose Energy
- 1.2 Reference has been made to the Commission for Architecture and the Built Environment's (CABE) guidance on 'Design and Access Statements: How to write, read and use them' (CABE, 2006).
- 1.3 The architectural design statement is prepared in support of a full planning application to develop a biomass fuelled power plant.
- 1.4 This statement should be read in conjunction with the following architectural drawings. Other consultants' drawings may be cross-referenced where appropriate;

15562/A0/0102	Site layout and Contextual Section
15562/A1/0103	Planning Application Boundary
15562/A1/0104	Site Location
15562/A0/0110	North and East Elevation
15562/A0/0111	South and West Elevation
11562/A0/0113	Main Facility Plan
15562/A2/0115	Main Office Layout and Elevations
15562/A2/0116	Weighbridge Layout and Elevations
15562/A2/0118	Cooling Tower Layout and Elevations

- 1.5 The purpose of the statement is to address the issues of design and access in and around the site. The document achieves this within the following sections:

Section 1 – Introduction – Outlines the purpose of the statement.

Section 2 – Site – Considers the site and its surroundings

Section 3 – Evaluation – Identifies the site constraints and opportunities

Section 4 – Design – Outlines the design considerations including use, size, layout and scale of the buildings, landscaping and appearance.

Section 5 – Access – Identifies vehicular and pedestrian access in and around the site

Section 6 – Environmental Considerations – Clarifies the commitment to best practice in relation to sustainable development

02 Site

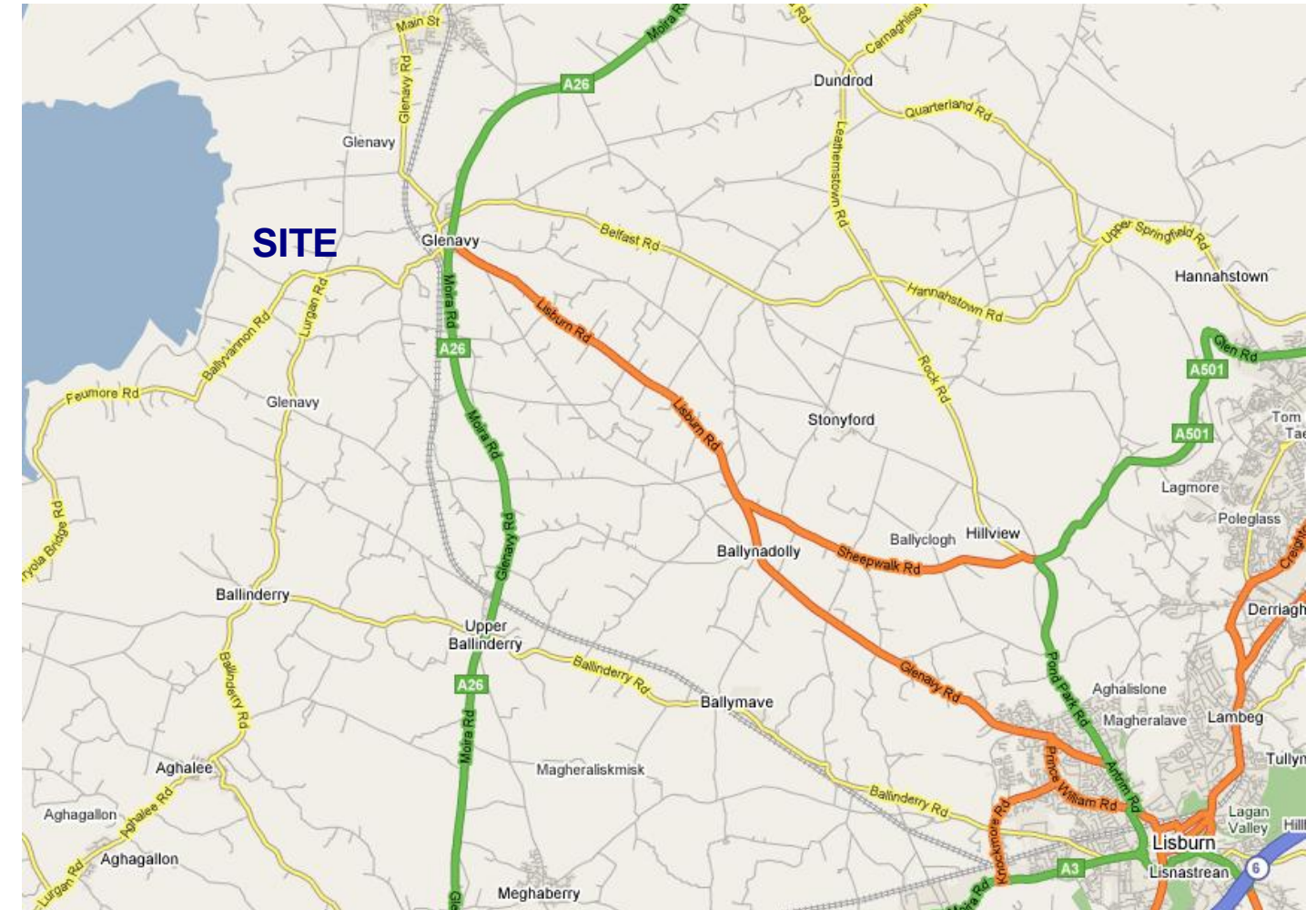
Physical Context

- 2.1 **Glenavy** is located approximately 9 miles north west of Lisburn, and acts as an important service centre for an extensive rural hinterland. The village is sited on the banks of the Glenavy River. Stone walls, bridges and mature riverside trees provide interest on approaches to the village, and contribute to its character.
- 2.2 The proximity of the village to the City of Lisburn, and good road links north to Antrim and south to the M1 motorway have combined to attract new housing to the settlement. The A26 Moira Road currently forms the greater part of the eastern development limit, while the now disused railway line acts as the western limit.
- 2.3 Glenavy functions as a local service centre with a range of facilities including St Aidan's Church of Ireland, Glenavy Methodist Church and hall, shops including a post office, doctors surgery, garden centre, open space, car show room and two public houses. The village has a small industrial base with a factory situated on the Glen Road. There is an Ulsterbus service to and from Lisburn, Belfast and Crumlin.
- 2.4 The site is adjacent to the animal by-products rendering plant of Ulster Farm By-Products from where part of the bio-fuel (meat and bone meal) for the plant will be derived.

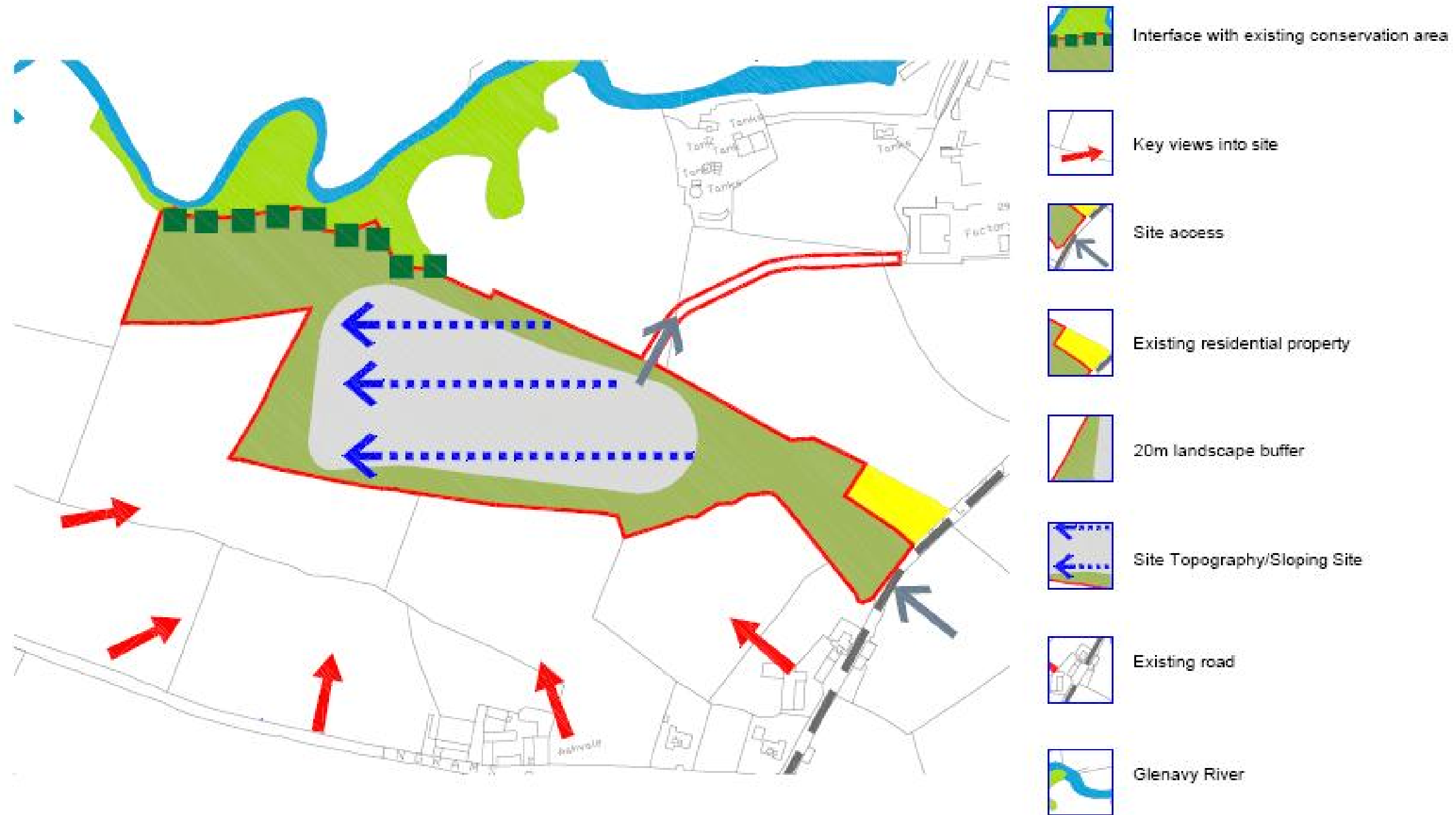
16 miles west of Belfast

1 mile east of Lough Neagh

2 miles out side of Glenavy



03 Evaluation



3.1 A number of constraints and opportunities associated with the proposed development on the site have been identified.

Constraints

- Part of the site and construction compound fall within the designated Area of High Scenic Value
- Minimising the impact of the development on the surrounding area visually and physically
- Proximity to residential properties.
- Noise pollution
- Highways access and other traffic issues
- Existing site topography

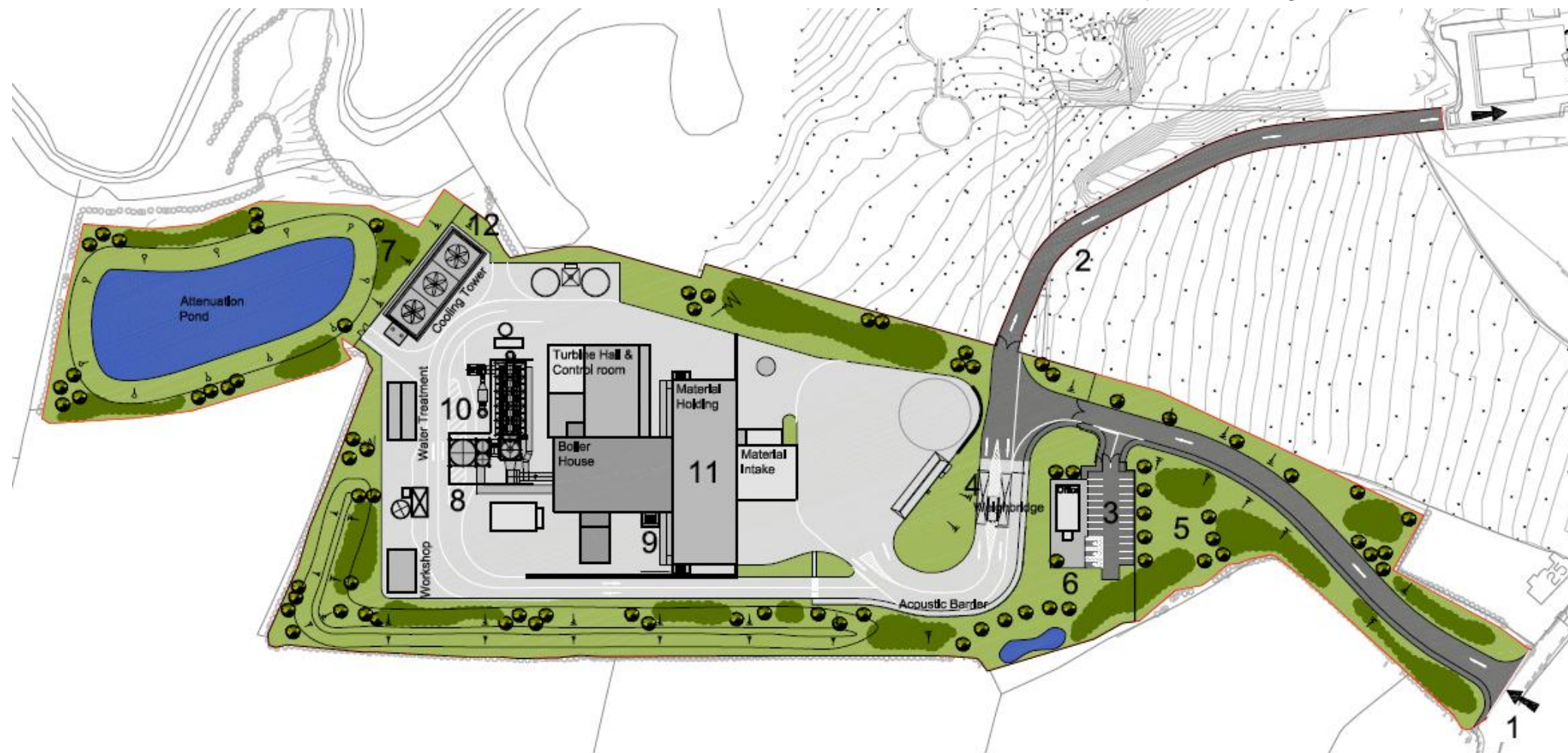
Opportunities

- Ecological Benefit
- Landmark building
- Generation of additional employment
- Economic benefit to the community

04 Design

Design Considerations

1. Modification of existing site access to achieve dedicated ingress for HGV and cars
2. Dedicated exit for HGV and car traffic
3. Segregated car park with potential for barrier control
4. Weighbridge office, barrier control and site security
5. Feature landscaping to site entrance and main office area
6. Accessible parking including disabled and motorcycle spaces to be positioned close to office entrance
7. Landscaping associated with SuDs and attenuation pond(s) will be sympathetic to the development and will ensure that an appropriate habitat for native wildlife is maintained.
8. Plant screened from primary views into site
9. Feature stair towers provide focal points and help to break down the mass of the facility
10. Flue provides landmark
11. Compact building arrangement
12. Noisiest generating plant furthest from residential properties and shielded by bulk of reception building and boiler house,



Use

4.1 The proposal is for a bio-mass fuelled (poultry bedding and meat and bone meal) power plant, including associated office space, workshops, weighbridges, hard-standing, vehicle-wash, car park and landscaping. The facility will turn agricultural by-product into electricity.

Size

4.2 Please refer to drawing number 15562/A0/100 for an indication of individual building element heights and corresponding levels.

4.3 The site is 5 hectares and 12.36 acres

4.4 The facility has an approximate external gross floor plan of 6000sqm with the tallest part of the building being 42metres with the exception of the Stack.

4.5 The single storey main office building has a gross external floor area of 135sqm and is 4metres tall

4.6 The single storey weighbridge office has a gross external floor area of 33sqm and is 4.75metres tall

4.7 The cooling towers associated with the main facility has a gross external floor plan of 550sqm

4.8 Other buildings associated with the facility have gross external floor areas totaling approximately 350sqm including water treatment building and metering station

Layout

4.9 The design responds to the physical constraints of the site, including the available access points and topography. Consequently, the site is stepped, taking advantage of the levels allowing better design for the construction of the fuel bunkers and transfer of fuel to the boiler house and allowing the largest part of the plant (the boiler house) to be stepped down to reduce its visible impact.

4.10 The main facility is located towards the lowest part of the site in order to reduce overall impact.

4.11 The main office, which may be visited by the public, is located towards the highest part of the site and is near to the site entrance segregating the public away from the main facility.

4.12 The internal layout of the facility is very specific, with little room for alteration, so the exact position of various pieces of machinery is dictated by the power plant process.

4.13 To make sure that all occupants can access their respective areas, whether internally or externally, the road layout, car parking and offices have been designed to form a complete, workable system. Fuel delivery vehicles will use the top yard nearest to the entrance and with the exception of a vehicle collecting ash, all other vehicles will predominantly remain on site and will utilise the lower part of the site.

Scale

4.14 The main facility is approximately 76metres wide and 106metres long with the tallest elements being the boiler house which is 42metres high and the chimney stack which is 80metres tall. The facility steps down in scale towards the site entrance to approximately half its height.

4.15 It is recognised that buildings of this scale need to be carefully considered for their visual impact and therefore the general design utilises devices to help reduce the perceptible scale and visual impact. This will be explained throughout the document.

Landscaping

4.16 The location, topography and landscaping include a large number of mature trees.

4.17 A landscape planting proposal sympathetic to the development will be implemented to ensure an appropriate habitat for native wildlife is maintained, and to further enhance the existing flora.

4.18 A minimum landscape buffer of 20metres is proposed along 95 percent of the site boundary. The buffer is wider than 20metres in parts.

4.19 There will be structural bunding to south eastern corner of the site that will extend along the southern boundary to the length of the main facility. This will provide additional noise attenuation.

Appearance

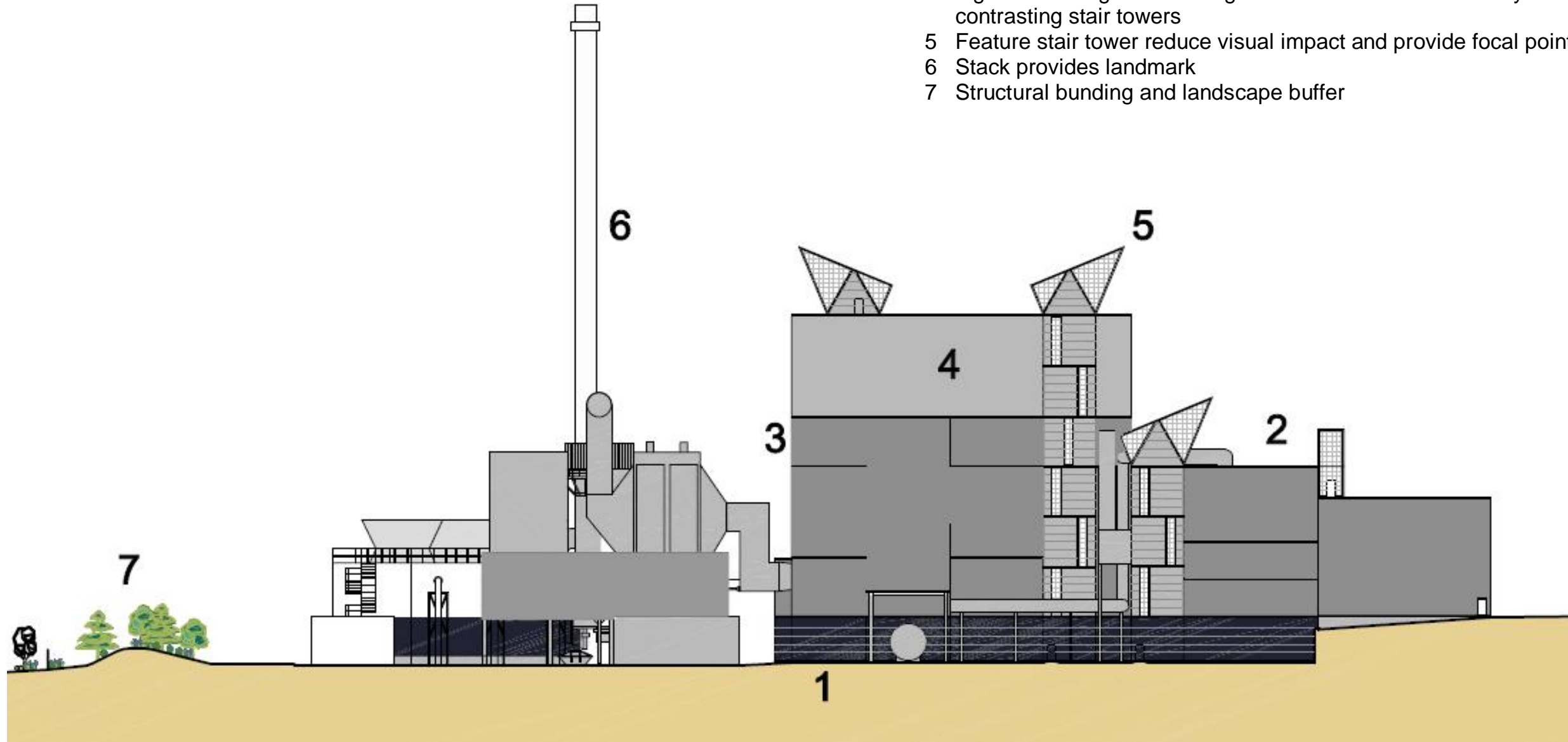
4.20 There are two distinct approaches to the overall appearance of this type of development. One is to express function in the form of a straightforward building of industrial appearance and the other is to present a different form or shape so that it appears less angular, more homogenous and thus less industrial in appearance. However, any attempt to superimpose a different appearance other than to express its bulk and form would only result in an increase in its overall height and extent. Therefore in view of the location the decision has been taken to minimise the scale of the built form. This will be achieved by the use of colour, varied use of materials and architectural detail.

4.21 Even when a functional building form is maintained colour can be used to pick out certain elements of the building reducing visual impact and allowing control of the proportion of what exactly is visible. The stair towers will be picked out as a contrasting colour with the intention to reduce visual impact.

4.22 Primary body cladding lightens as the building height increases and the lighter colour provides a contrast to feature building elements.

Elevational Treatment

- 1 Dark plinth to help ground the facility and reduce impact of irregular footprint
- 2 Mid grey body cladding
- 3 Louvre panel adds texture and breaks down mass of large building elements
- 4 Lighter cladding colour to high level elements of the facility acts as base for contrasting stair towers
- 5 Feature stair tower reduce visual impact and provide focal point
- 6 Stack provides landmark
- 7 Structural bunding and landscape buffer



Building Form

4.23 The following photomontages indicate the overall building form and highlight how the feature stair towers and colour banding reduce the visual impact of the facility.



Materials Schedule

4.24 The proposed external facing materials are as follows:

Roof

Profiled metal cladding, Corus colourcoat finish, Goosewing Grey colour

Walls

Low Level

Horizontally laid metal composite cladding panel, Corus colourcoat finish, Anthracite colour.

Pre cast concrete retaining walls

Middle Level

Vertically laid trapezoidal profile metal built up cladding system, Corus colourcoat finish, Pure Grey colour

Aluminim architectural louvre system, Polyester Powder Coated, Pure Grey colour

High Level

Horizontally laid trapezoidal profile metal built up cladding system, Corus colourcoat finish, Hamlet Grey colour.

Feature Stair Towers

Horizontally laid metal composite cladding panel, Corus colourcoat finish, Orion metallic grey colour.

Kalwall translucent window panels and feature capping piece, white colour.

Screen to Plant

Perforated steel mesh screen polyester powder coated, metallic grey colour.

06 Access

Vehicular Access

- 6.1 The principal access to the site will be off the existing Ballyvannon Road. The primary road link to the area is the A26 which links to the M1 which runs between Belfast and Dungannon. There are a number of routes between Ballyvannon Road and the A26.

Access Road

- 6.2 The facility will be served by a new access road having a minimum width of 7.5 metres. This road will feed a car park, weighbridge area and the main facility together with providing a link to the proposed site exit. The proposed exit for the facility will be via a new road leading to and through the existing rendering facility.
- 6.3 The car park will have 6 metre wide roads servicing parking, disabled parking and motorcycle parking spaces. The disabled/accessible parking spaces will be located adjacent to the office entrance.

Pedestrian Access

- 6.4 Pedestrian routes are provided into the site from Ballyvannon Road. Designated pathways lead from the car park to the facility buildings.

Cycle Parking

- 6.5 Motor cycles will use the same access as cars together with any bicycles using the site. There will be designated motor cycle and bicycle parking.

Access for Emergency Services

- 6.6 It is proposed that emergency vehicles will access the site via Ballyvannon Road and will have access to the whole perimeter of the facility.

Inclusive Access

External

- 6.7 Pedestrian routes are provided into the site from Ballyvannon Road. Designated pathways lead from the car park to the facility buildings.
- 6.8 All levels within the car park will have a gradient of less than 1:25 enabling wheelchair users and ambulant disabled to access the site without difficulty. All main entrances into the buildings will be level entry, with automatic or manual opening doors. The doors will meet all current Building Regulations Part M requirements, with full height tubular steel handles for ease of opening. The force required to operate the doors will be below 20 Newtons and the effective opening width of each leaf will be designed to be more than 800mm.
- 6.9 Additional entrances to the operational areas will be provided from the yard areas and it is assumed that staff will be able bodied to access these areas due to the nature of the use and equipment. Consequently, there will be stepped access to accommodate the change of level from yard to finished floor slab. This access will be designed in accordance with the current building regulations.
- 6.10 Disabled access only necessary within the offices.

Internal

- 6.11 The primary entry in each unit will be via a level approach into the main office.

Reception

- 6.12 The reception areas to the main offices will be suitably sized to accommodate wheelchair users. They will include appropriate space and waiting zones. All floor finishes will be suitable for wheelchair access. All wall and floor finishes will be carefully selected to enable the visually impaired to find their way to the reception areas.

Horizontal circulation

- 6.13 Internal corridors will be a minimum of 1200mm wide within the offices. All doors will have a minimum clear opening of 800mm and a maximum opening force of 20 Newtons where possible.
- 6.14 Door furniture will contrast with the background colour of the door leaf and be of either lever type at 1000mm above floor level or pull handles. Doors in corridors will be fitted with vision panels commencing at 500mm above floor level.

Vertical circulation

- 6.15 Stairs will provide vertical access within the facility together with passenger lifts. All staircases and lifts will be designed in accordance with Approved Document M of the building regulations, to include contrasting nosings and treads/risers suitable for ambulant disabled members of staff or visitors. Any member of staff or visitor with a visual handicap will be actively managed within the building.

Toilets

- 6.16 Toilets and shower facilities will be provided that are suitable for ambulant disabled staff. On each floor of the offices, toilets will be provided for male, female and unisex disabled users.

Finishes

- 6.17 All floor finishes are to be of a non-slip type, with carpets being of a shallow, dense pile, allowing easy passage for wheelchair users. The wall coverings and finishes will contrast with the joinery of the doors and low surrounds. Where wall tiles are used they are to have a satin finish to reduce glare

Means of Escape

- 6.18 It is recommended that the needs of individual members of all staff are to be assessed using Personal Emergency Egress Plans and management arrangements. These should be introduced as necessary following appropriate risk assessments by the end user.

07 Environmental Considerations

Introduction

- 7.1 The Environmental information below has been prepared to maintain the commitment to best practice in relation to sustainable development.
- 7.2 This document summarises the features/proposals that will be implemented in the delivery of this development and seeks to illustrate the environmental features of the units, to ensure a sustainable development.

Statement

- 7.3 Environmental considerations are now firmly on the agenda for all types of buildings to mitigate the effects of climate change. Increasing environmental awareness is moving public opinion towards higher expectations in terms of environmental performance which, coupled with decreasing energy resources, is leading towards a realisation of the importance of considering whole life issues of our building stock.
- 7.4 Emphasis is currently directed towards reducing energy consumption/carbon dioxide emissions; while still considering the environmental issues of a project there are numerous areas where we can also reduce our consumption of natural resources and improve the local environment.
- 7.5 The basic principle is always to **Reduce, Reuse** and then **Recycle**. This applies to most elements of the project in some form or other but with different priorities depending on the element considered.

Design - Building fabric

Enhanced Construction 'U' Values

- 7.6 This development is specifically for the generation of electricity using bio-fuels where the purpose is to utilise as much heat as possible in order to be efficient and viable, consequently the building does not fit in to the normal category of 'U' values associated with normal building use.

Glazing Proportions and Specifications

- 7.7 The proportion of window and wall will be carefully considered to balance the provision of daylight and thermal performance of the building.
- 7.8 High specification glazing shall be provided in order to reduce conductive heat losses in the winter and solar gains, consisting typically of a 6mm Antisun on clear glass outer pane, 16mm argon filled space and 6mm 'Low e' clear inner pane.

Passive Solar Design to Reduce Solar Gains

- 7.9 There are many different versions of solar shading, from the simple internal blind to modulating external devices. In essence, they are used to change the peak timing of the peak solar gain and therefore the associated cooling load within the internal space.
- 7.10 The most efficient shading devices are located externally to the glazing such that the re-radiated solar heat does not enter the building unlike internal shading devices which radiate the solar heat back into the space. This is principally applied to the office areas of the development via the use of horizontal and vertical solar shading and will reduce the cooling loads provided by any cooling plant.

Water Conservation and Recycling

7.11 To minimise potable water consumption a number of measures will be implemented:

Low Consumption/Dual Flush Sanitary Appliances.

7.12 Toilets with 4/2 litre dual flushing capabilities should be used throughout the development

Spray Taps and/or Water Flow Restrictors on all outlets

7.13 All taps for hand-washing should have a spray action combined with a timed on/off restrictor.

7.14 Rainwater is naturally soft and essentially free from chemicals and limescale. The roof sheeting material to be specified is Corus Colorcoat Sustain HPS 200. This material has been tested to BS6920 – Test on Effect of Water Quality, and is of potable quality as it runs off the roof. Any rainwater run-off from the roof will therefore not have any detrimental effect of the quality of ground water.

7.15 Water will also be collected and stored for ancillary use at the plant such as vehicle washing.

Sustainable Drainage Systems

7.16 The proposed site and buildings will be an extensive hard surfaced area which may lead to considerable surface water run off. The intention is to install a sustainable drainage system (SuDS) which will both control and limit the eventual discharge of surface water run off to the equivalent of that from a non developed site (green field). In addition it is intended that part of SuDS, in the form of one or more water retention ponds at the lowest part of the site adjacent Glenavy River will be used for attenuating the temperature of surplus water before it is discharged to the adjoining river. The opportunity will also be taken to utilise the ponds to form an extended wildlife and flora area between the river and the plant.

Permeable Paving

7.17 It is recommended that the car parking area will be drained utilising a permeable pavement construction. Run-off water will be stored and treated through a sub-base filter medium and released at green field rates.

Foul Drainage

7.18 While the site overall will employ approximately 30 people it is expected that only one third will be on site at any one time. The requirement therefore for foul water treatment is small. As there are no mains drainage in this location it is proposed to install an appropriate treatment plant which will produce an acceptable effluent for discharge.

Recycled / Low Impact Materials

7.19 Construction materials significantly deplete finite natural resources. The specification of materials and products with high-recycled content can reduce this impact, together with materials with low processing requirements.

Examples of our globally responsible design are:

- All steelwork to be used to have a high-recycled content of at least 20-30%.
- All structural steel sections and purlins are to be hard stamped / marked to identify section sizes in order to aid identification for re-use.
- Use of a Corus Confidex Sustain external envelope – the entire external envelope is to be carbon neutral by offsetting its impact from cradle to grave.
- Recycled aggregate in construction of concrete elements wherever possible.
- Bedding to block paved areas to use 100% crushed recycled glass in content as Glass-Sand.
- Tarmacadam road base to contain 30% recycled glass as RMC 'Glassphalt'.
- Minimise waste and material use through economic design and management. All construction waste to be sorted and recycled as applicable.
- Recycled de-sulphurised gypsum (DSG-from power station waste) in internal partitions.
- Non-oil based insulants are to be used throughout such as glass-wool and mineral-wool, which can be recycled.
- Mineral fibre ceiling tiles can be fully recycled and contain 30% recycled product.
- The use of organic and/or low solvent paints to reduced volatile emissions.
- FSC timber (Forestry Stewardship Council) from managed woodlands.
- Use of marmoleum, a natural based floor covering in lieu of PVC flooring materials.
- Recycled yarn carpets.

