DEESIDE WASTE TO ENERGY

ANAEROBIC DIGESTION PLANT

DESIGN & ACCESS STATEMENT

JULY 2025

1175-21-DAY-XX-XX-RP-A-0001-P03 - Design & Access Statement Deeside W2E AD Plant

DAY

DAY

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This Design & Access Statement has been produced to document and record DAY Architectural's updates to the original design of the Deeside Waste to Energy Anaerobic Digestion Plant, Weighbridge Road. This Design & Access Statement supports the Section 73 application as submitted by the Deeside SPV, alongside any and all other documents which accompanies this application submitted to Flintshire County Council.

All amendments to the original Design & Access document have been indicated below. The amended diagrams are extracted from, and should be read in conjunction with, DAY Architectural's drawings and 3D models.

This Design & Access Statement has been prepared in accordance with the requirements set out in guidance document 'Design and Access Statements in Wales, April 2017' and reflects the objectives of good design as outlined by Planning Policy Wales (PPW) and Technical Advice Note 12: Design (TAN 12).

0.0 APPLICATION

AMENDMENTS

Type of Application

S73

Location of Proposed Development

Weighbridge Road, Zone 4
Deeside Industrial Park

Description of Proposed Development

Hydro Mechanical Separation & Preparation and Multi Stage Anaerobic Digestion Waste Recycling Plant.

Date of Preparation

July 2025

Date of Any Amendments

June 2025 Issued for Planning

Applicant

Deeside SPV

1.0 SUMMARY OF THE PROPOSAL

AMENDMENTS

1.01 INTRODUCTION

This Design and Access Statement has been produced on behalf of Deeside SPV and BioConstruct GmbH to support the Section 73 application on the original consented full planning application for the development of land off Weighbridge Road, Zone 4, Deeside Industrial Park, Flintshire.

This document is to be read in conjunction with drawings and visuals prepared by DAY Architectural Ltd. and along with the Supporting Planning and Environmental Statement which accompanies this application submitted to Flintshire County Council.

This statement has been prepared in accordance with the requirements set out in guidance document 'Design and Access Statements in Wales, April 2017' and reflects the objectives of good design as set out in Planning Policy Wales (PPW) and Technical Advice Note 12: Design (TAN 12).

1.02 APPLICATION PROPOSALS

The planning application seeks detailed planning consent for a municipal solid waste (MSW) and commercial and industrial waste (C & I) recycling and recovery plant on land at Deeside Industrial Estate, Flintshire Enterprise Zone. The submitted masterplan illustrates how the site is to be developed. The following is a summary of the development proposals.

The application seeks consent for the following elements of development:

- Main reception building of approximately 51.20m x 43.00m, where the hydro-mechanical separation and preparation occurs. This includes a ground level pit tipping area and sorting hall, with associated equipment for separation and processing, all of which are housed under negative pressure;
- Anaerobic Digestion technical building, including 4 external fermentation tanks, 2 digestate storage tanks, 2 prestorage tanks and 2 quarantine tanks, where the biological multi stage anaerobic digestion processing occurs;
- Total Gross Biogas capacity of approximately 41182m^3;
- Biogas treatment area inclusive of pretreatment equipment space approximately 18.75m x 13.75m, with a gasflare rated at 65kN, and electrical substations and generators;
- External desulphurisation equipment and dewatering area including screw presses and flocculants system;
- One-way weighbridge for all trucks delivering waste or recyclables in and out;
- Improvements to access road; the Weighbridge has been located to allow for optimum traffic flow throughout the site and stop any truck from queuing back to the main highway;
- Ancillary infrastructure (including utility services, drainage, internal roads and related lighting) and associated ground remodelling.

2.0 BRIEF & VISION

AMENDMENTS

2.01 VISION

The vision for the project is to provide a technologically advanced facility for the complete treatment of Municipal Solid Waste, utilising BioConstruct GmbH's unique hydromechanical anaerobic digestion, separation and preparation process. This advance process recovers 70% - 90% of materials and produces high methane (CH4) content biogas for several green energy uses. The project objectives are to:

- Minimise proportion of waste sent to landfill, target 10-15%
- Substantially increase recycling percentages (85%+)
- Provide competitive waste treatment costs
- Become Environmental Leaders
- Create new 'green' jobs

2.02 BRIEF

The functional brief has been developed through extensive consultation with BioConstruct GmbH's engineers. The main built requirements of which are summarised below:

- Reception Building for filling, depacking, and storage with pumpstations
- Weighbridge/security kiosk
- Vehicle Washing station
- Technical Building – process equipment enclosures
- Admin and welfare accommodation

3.0 SITE AND CONTEXT ANALYSIS

AMENDMENTS

3.02 CONTEXT

As part of this S73 planning application, due consideration has been given to the plans and relevant technical documents pursuant to extant planning permissions ref: 062983 and ref: FUL/000689/24, including:

- Planning Statement
- Environmental Impact Assessment documents
- Transport Assessment
- Flood Risk Assessment
- Extended Phase 1 Habitat Survey Report
- Landscape Visual Impact Appraisal prepared by Urban Green
- Phase 1 Site Investigation Report
- Phase 2 Site Investigation Report
- Air Quality Assessment
- Topographical Survey prepared by DAY Architectural Ltd;

3.03 SITE ANALYSIS DIAGRAM

Diagram: Orientation, sun path and prevailing winds

Diagram: Transport infrastructure

Diagram: Built Environment

4.0 INTERPRETATION

AMENDMENTS

4.01 SITE LAYOUT

The site layout has been largely guided by the need to control vehicle movement in and out of the site, taking into consideration potential conflicts between vehicles dropping off/collecting waste, staff, visitor and general maintenance vehicles. It is also imperative that every vehicle dropping off, leaving or collecting material passes through a weighbridge and collects the appropriate ticket so waste in and out can be adequately recorded. Roads from the main entrance circulate around a large asphalt platform positioned around the main reception building and anaerobic digestion facilities, allowing vehicles to flexibly loop around each designated area while minimising conflict and ensuring operational efficiency.

The separation process follows a linear modular arrangement and therefore necessitates a rectangular building to enclose it, designated as the main reception building. Fermentation and digestive processes move outside to the adjacent biological treatment technical building, requiring an access road, but separated by a secure fence line with separate vehicular access gates, allowing vehicles to collect material at the end of the separation process.

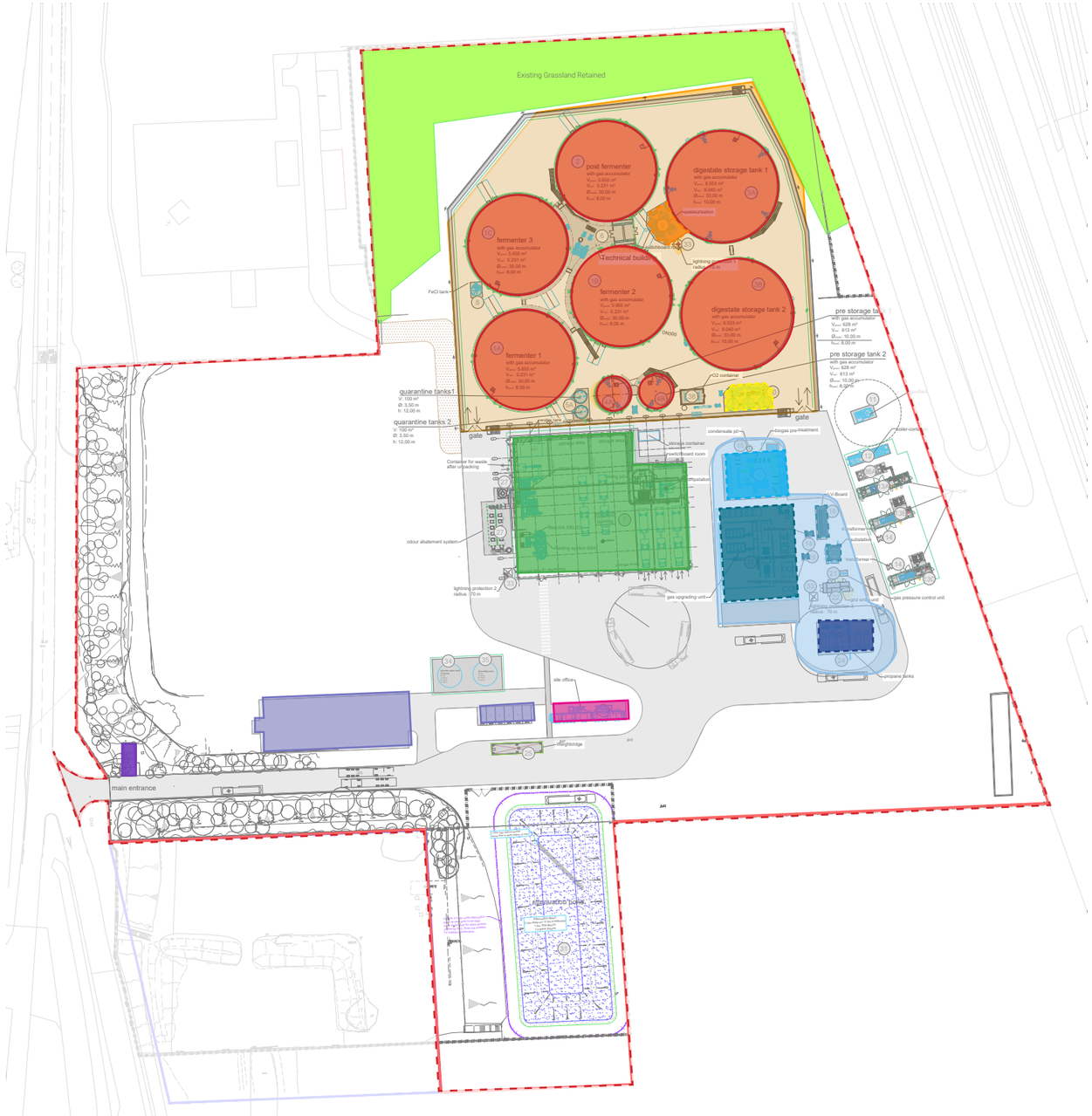
Separate to the main reception building is the biogas treatment area with pre-treatment equipment alongside electricity transformers, substations and emergency generators. Vehicular roads loop the treatment area and allows vehicles to access any treatment equipment, merging back to the weighbridge and wash station before exiting site.

Process equipment both the biological technical building and biogas treatment area are largely exposed to the outside, except for the dewatering system and filters adjacent to the main reception building which need to be enclosed by built structures to protect from rainwater ingress and frost.

Other on-site ancillary requirements includes the need for a small office building with meeting spaces, office desk spaces and welfare facilities, simply comprising of clad stacked containers with punched windows and an external staircase. A weighbridge and security kiosk needs to be located close to the entrance/exit from the site, with a staff carpark adjacent to the main site entrance that merges with the main vehicular circulation route.

4.0 INTERPRETATION

AMENDMENTS



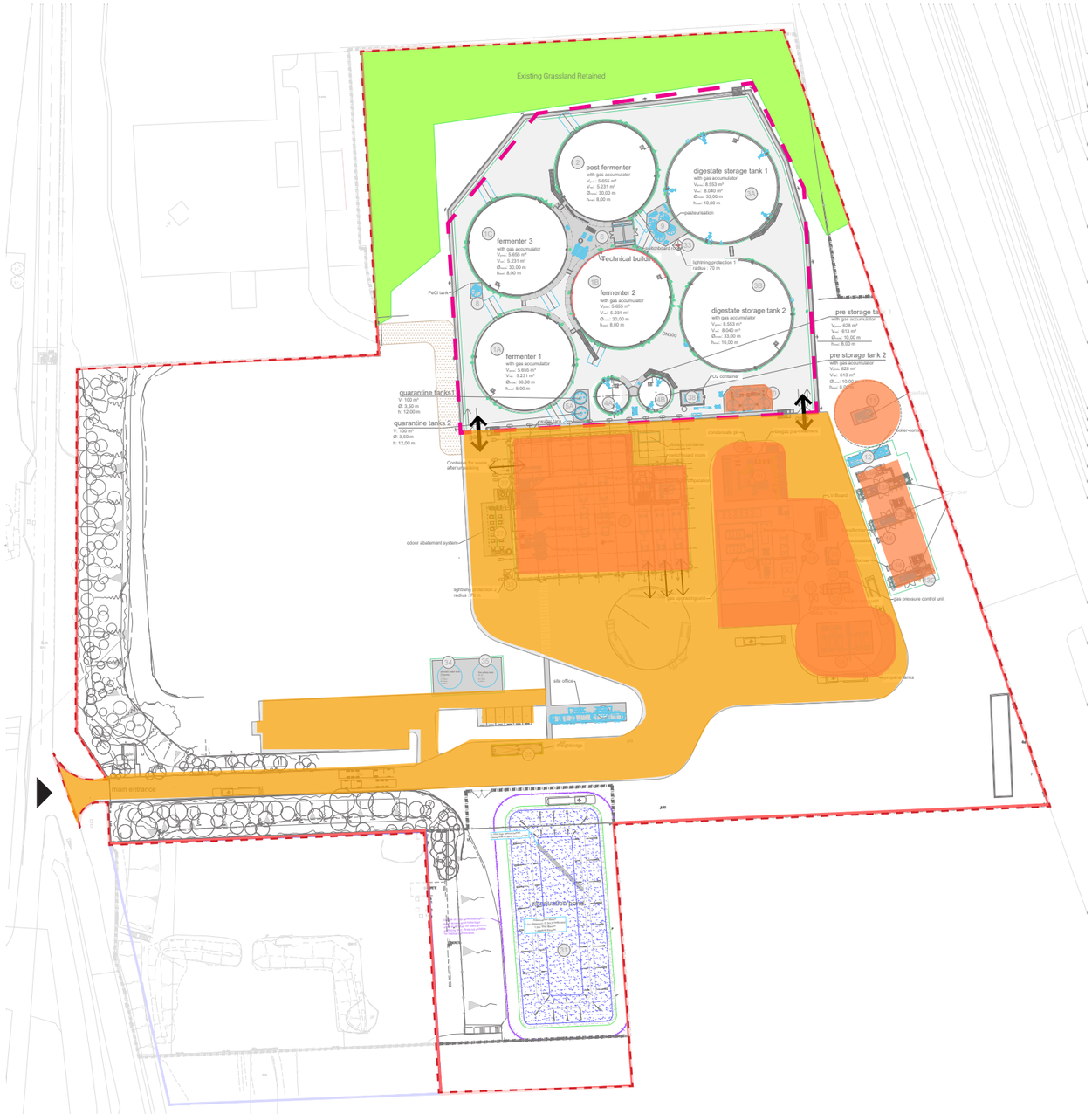
Structures Layout Concept Diagram, extract from drawing 1175-21-DAY-XX-00-DR-A-20-0002_Proposed Site Plan

KEY

- Site Boundary
- Technical Building
- Fermentation and Digestate tanks
- Pasteurisation equipment
- External desulphurisation equipment
- Main Reception Building
- Biogas Treatment Area
- Biogas Pretreatment
- Electrical equipment
- Propane tanks
- Site offices and welfare accommodation
- On-site carpark bays
- Security Gatehouse

4.0 INTERPRETATION

AMENDMENTS



Process Layout Concept Diagram, extract from drawing 1175-21-DAY-XX-00-DR-A-20-0002_Proposed Site Plan

KEY

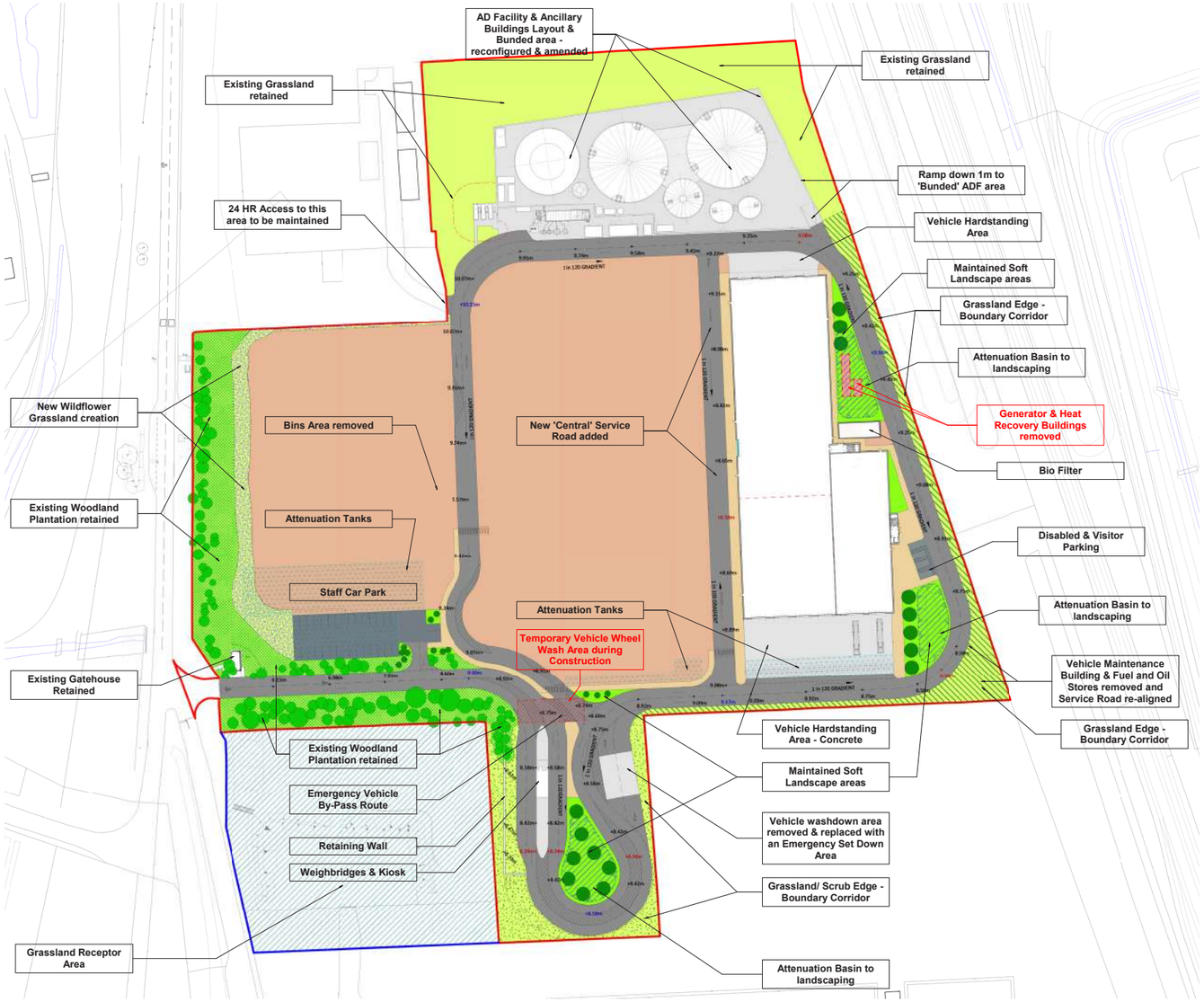
- Site Boundary
- Vehicular roads
- Hardstandings for Anaerobic Digestion processes
- Technical building secure fenceline
- Vehicular entrance and egress points
- Main entrance to site

5.0 DESIGN DEVELOPMENT

COMPARISON

N

Original Layout as approved under permission 062983 - NTS



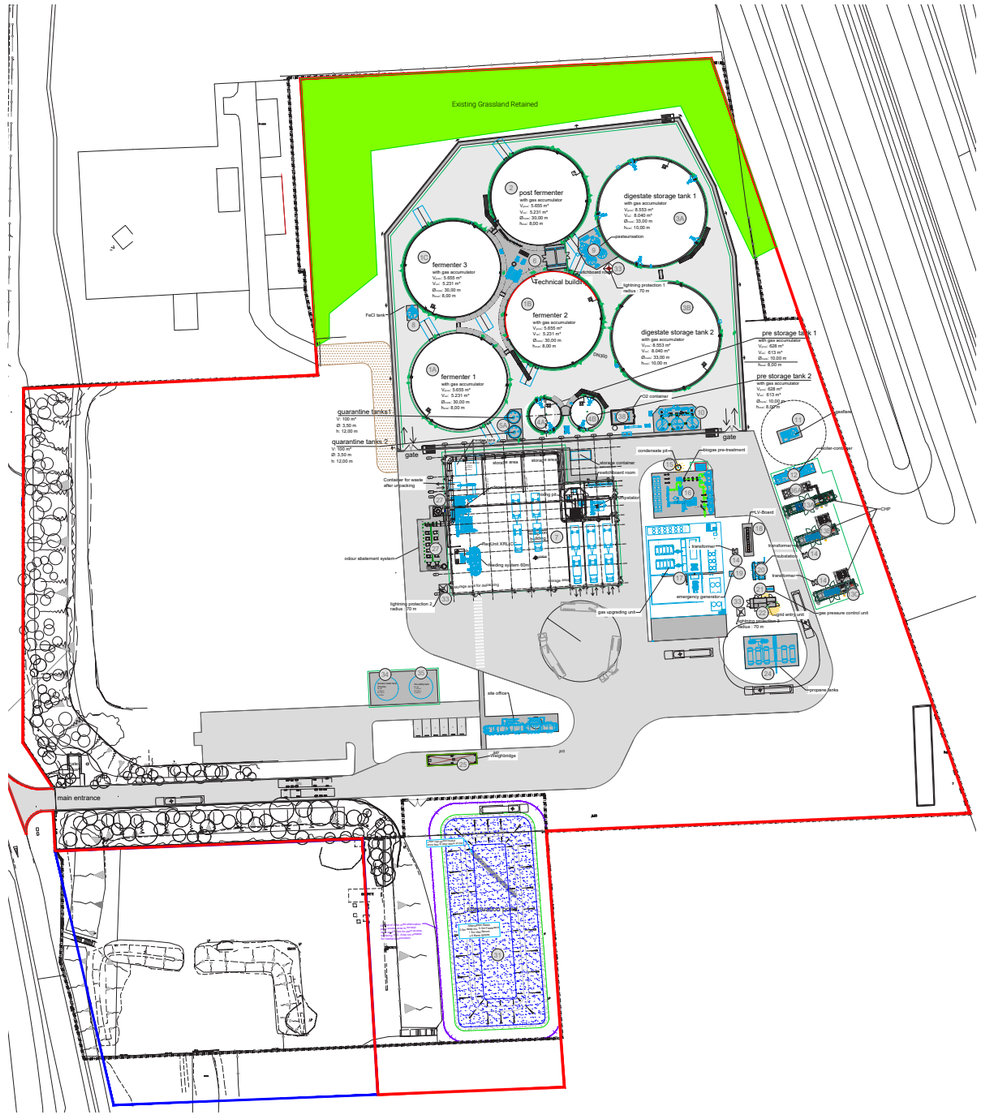
20033_FRA_ZZ_00_DR_A_90_0003_P5 GA SITE PLAN

Proposed critical dimensions and areas:

Reception building maximum height: 13.16m	*Reduction by 6.84m*
Reception building footprint: 2078m²	*Reduction by 3328m²*
Bunded zone: 9469m²	*Increase by 5132m²*
Application site area: 5.57ha	*No change*

N

Layout as submitted in support of the S73 application - NTS



1175-21-DAY-XX-00-DR-A-20-0002 PROPOSED SITE PLAN

Changes from Consented site plans:

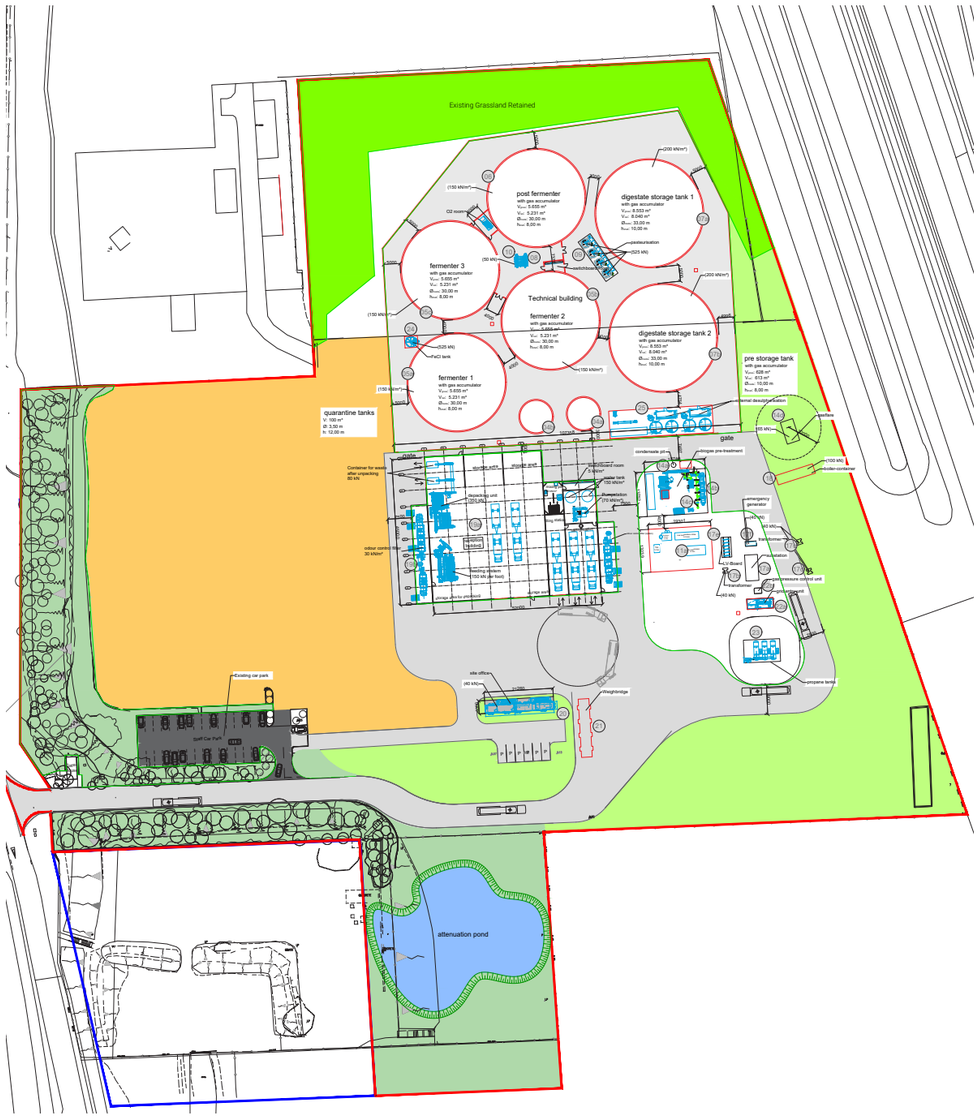
- Site access / circulation road redesign, avoiding Easement on Eastern boundary
- Reduction in reception building footprint
- Reduced reception building height
- Increase to bunded tank area
- Optimised circulation / hardstanding
- Additional attenuation pond
- Increase to external plant area
- Relocation of CHP

5.0 DESIGN DEVELOPMENT

COMPARISON

N

Layout as submitted in support of the S73 consented scheme - NTS



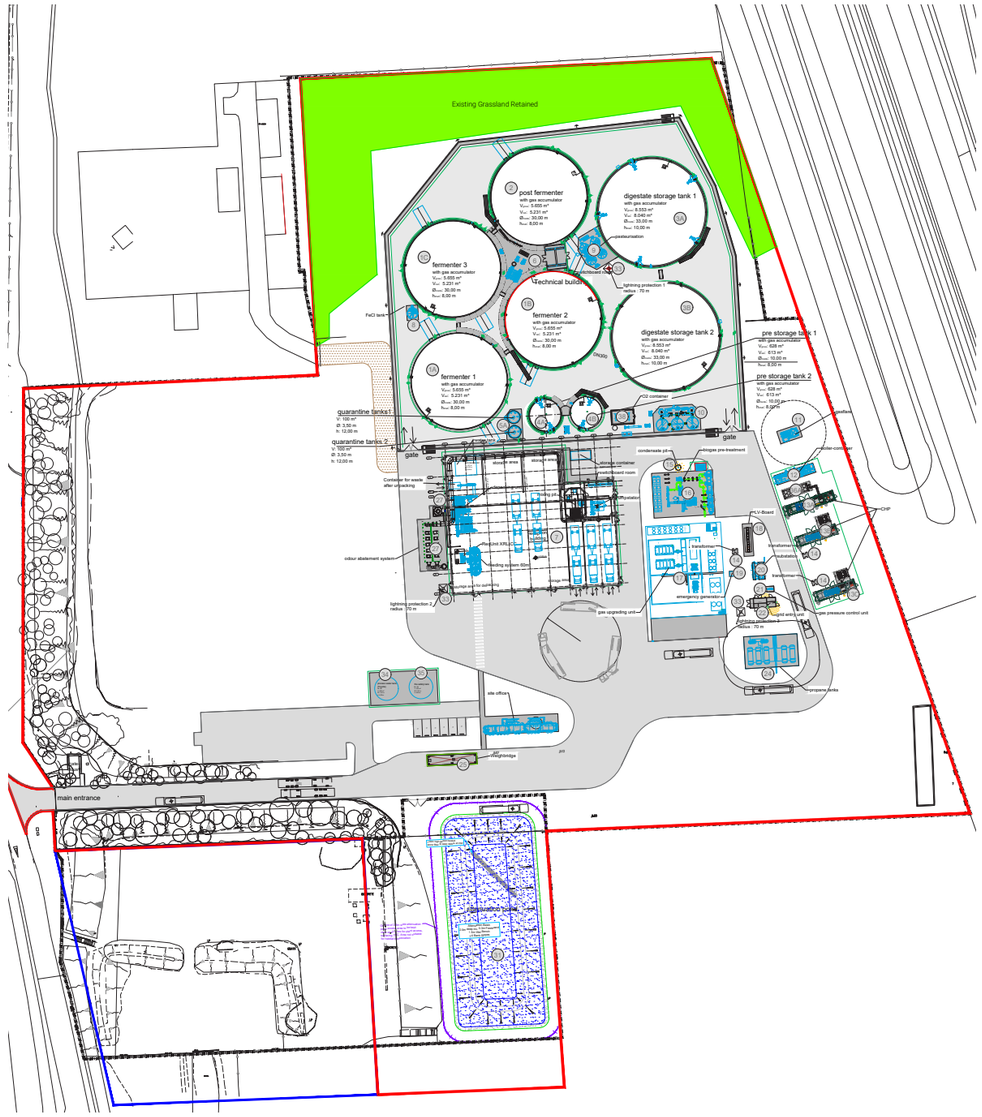
1175-21-DAY-XX-00-DR-A-04-0002 PROPOSED GA SITE PLAN

Proposed critical dimensions and areas:

Reception building maximum height: 13.16m	*No change*
Reception building footprint: 2078m^2	*Reduction by 119m^2*
Bunded zone: 9469m^2	*Reduction by 289m^2*
Application site area: 5.57ha	*No change*

N

Layout as submitted in support of the S73 application - NTS



1175-21-DAY-XX-00-DR-A-20-0002 PROPOSED SITE PLAN

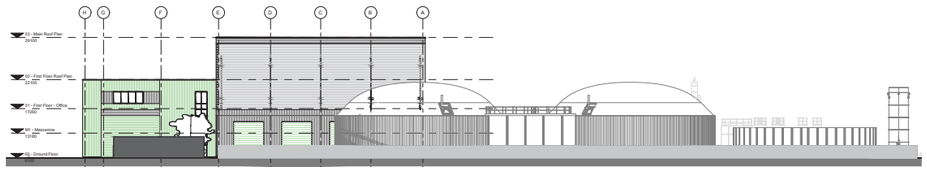
Changes from Consented site plans:

- Reduction in circulation
- Reduction in reception building footprint
- Increase to bunded tank area
- Optimised circulation / hardstanding
- Amended attenuation pond
- Increase to external plant area

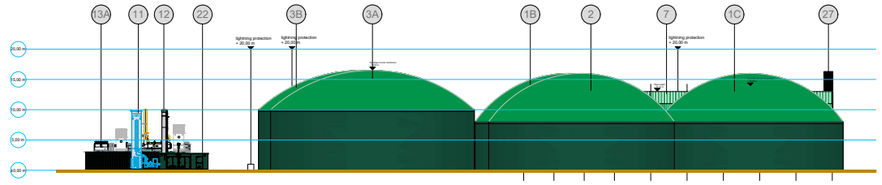
5.0 DESIGN DEVELOPMENT

COMPARISON

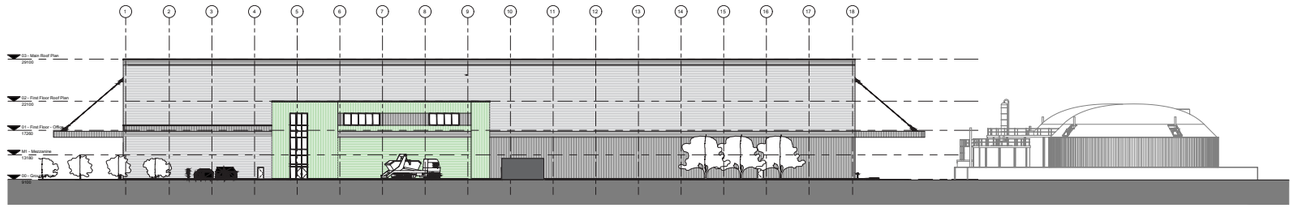
Original North Elevation as approved under permission 062983 - 1:200



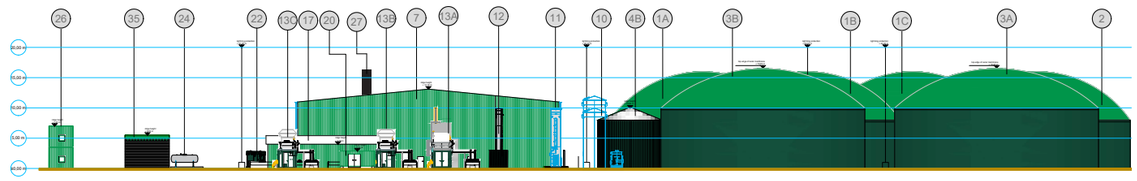
North Elevation as submitted in support of the S73 application - 1:200



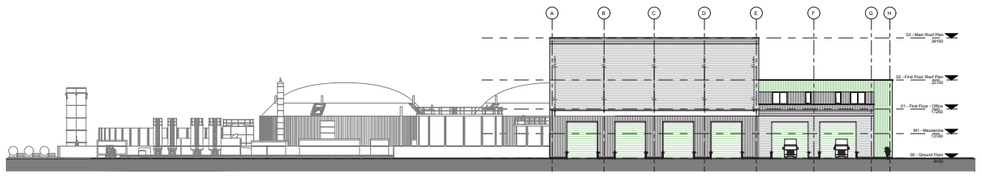
Original East Elevation as approved under permission 062983 - 1:200



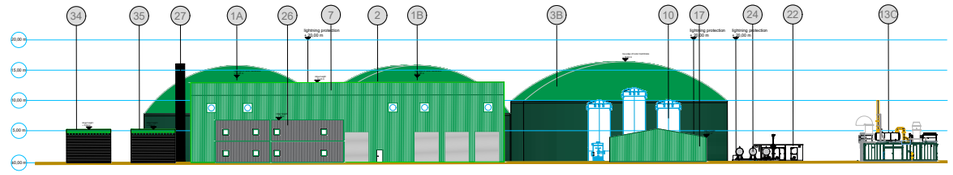
East Elevation as submitted in support of the S73 application - 1:200



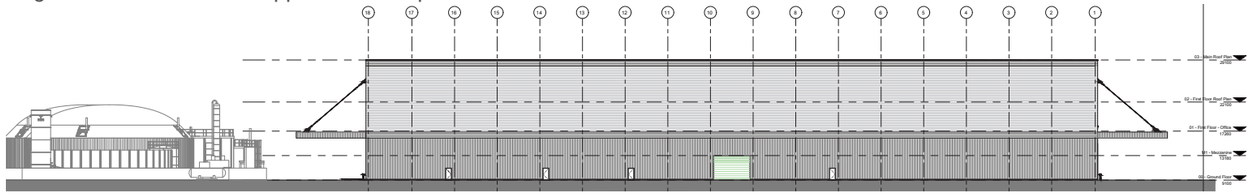
Original South Elevation as approved under permission 062983 - 1:200



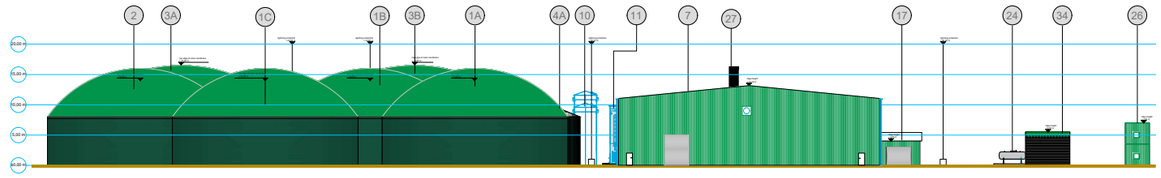
South Elevation as submitted in support of the S73 application - 1:200



Original West Elevation as approved under permission 062983 - 1:200



West Elevation as submitted in support of the S73 application - 1:200



20033_FRA_ZZ_ZZ_DR_A_90_0004_P2_MRF-ADF_GA SITE SECTIONS

1175-21-DAY-XX-XX-DR-A-20-0005 PROPOSED GA SITE ELEVATIONS

Proposed critical heights:

Reception building maximum height: 13.16m	*Reduction by 6.84m*
Reception building footprint: 2078m^2	*Reduction by 3328m^2*
Largest tank height: 16.6m	*Increase by 3.6m*

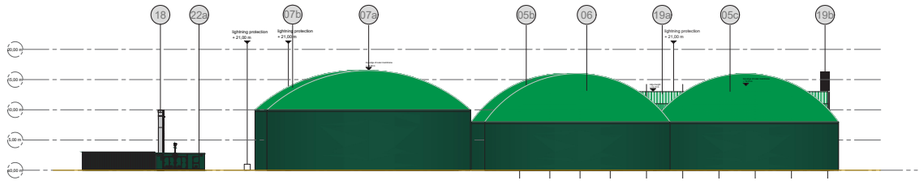
Changes from Consented site elevations:

- Reduction in reception building footprint
- Reduced reception building height
- Increase to bunded tank area and tank height
- Increase to external plant area
- Condensed site layout overall

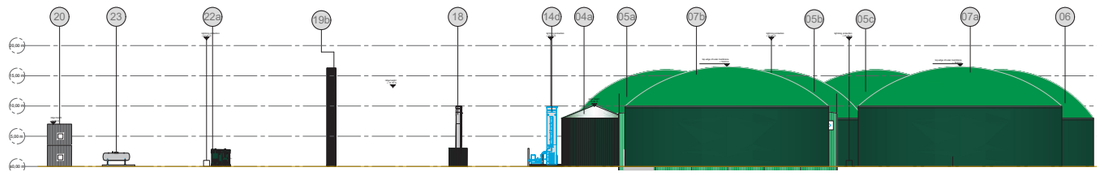
5.0 DESIGN DEVELOPMENT

COMPARISON

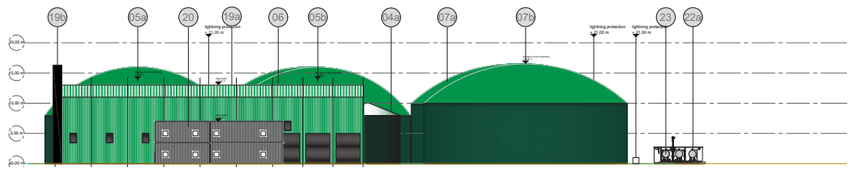
North Elevation as submitted in support of the S73 consented scheme - 1:200



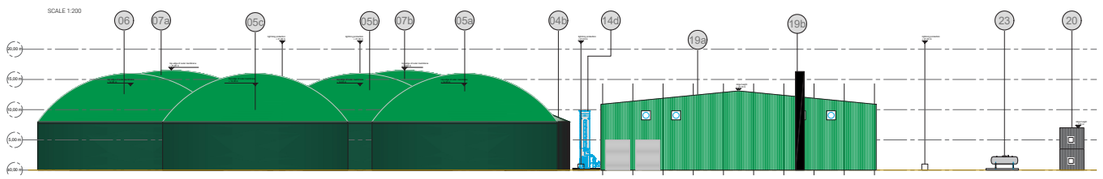
East Elevation as submitted in support of the S73 application - 1:200



South Elevation as submitted in support of the S73 application - 1:200



West Elevation as submitted in support of the S73 application - 1:200

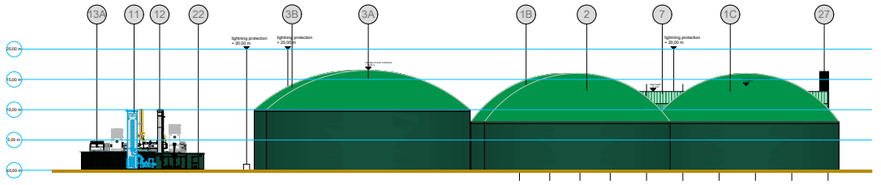


1175-21-DAY-XX-ZZ-DR-A-04-0005 GA ELEVATIONS

Proposed critical dimensions and areas:

Reception building maximum height: 13.16m	*No change*
Reception building footprint: 2078m^2	*Reduction by 119m^2*
Bunded zone: 9469m^2	*Reduction by 289m^2*
Application site area: 5.57ha	*No change*

North Elevation as submitted in support of the S73 application - 1:200



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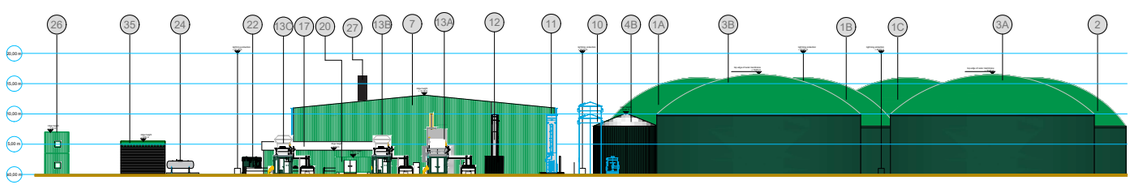
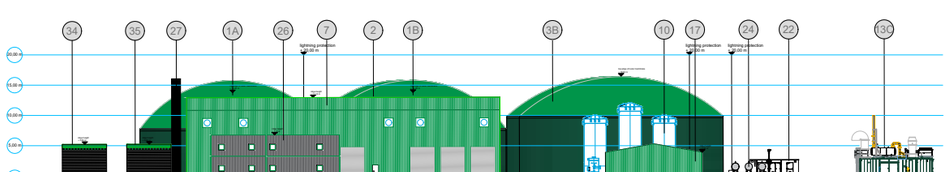
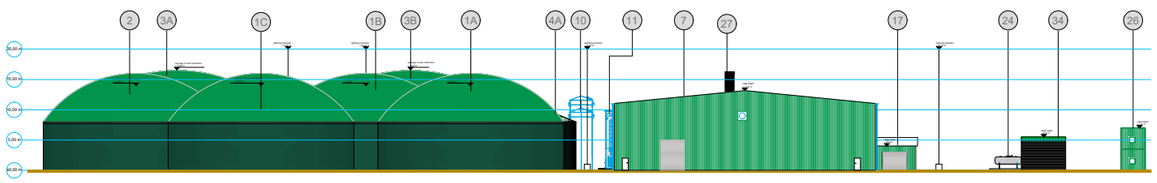


South Elevation as submitted in support of the S73 application - 1:200



West Elevation as submitted in support of the S73 application - 1:200



1175-21-DAY-XX-ZZ-DR-A-20-0005 GA ELEVATIONS

Changes from Consented site elevations:

- Reduction in reception building footprint
- Increase to bunded tank area and tank height
- Increase to external plant area
- Condensed site layout overall

6.0 THE PROPOSALS

AMENDMENTS

6.01 CHARACTER

Use

The principle of sitting a waste management facility on the application site is deemed appropriate as it falls within an area identified within the UDP Proposals Map for waste development. Further justification as to the appropriateness of this use on the site is contained within the Planning Statement.

Scale

In terms of scale, the dimensions of the buildings have ultimately been determined by the process plant dimensions and required clearances within, however every effort to minimise the overall mass and visual impact of the building has been taken by ensuring an efficient structural solution and low profile, simple architectural solution.
The main reception building makes use of a pitched roof to create a very simple rectangular form. The building maintains an open floor concept to facilitate efficient use and movement between all AD stations of the reception building, with vehicular gates positioned by filling stations, feeding systems, depacking units and storage areas.

Details & Materials

Responding to context the proposals follow a strongly industrial aesthetic with the use of profiled coloured metal cladding across all elevations creating a clearly contemporary response. The mass of the building makes use of a green accent with profiled metal cladding to differentiate and separate the main processing areas in the reception building from other fermentation, digestate and gas treatment spaces. Roof lights introduce natural lighting to save costs, and outer louvers along all four external walls allow for efficient passive ventilation. Emergency fire exits are positioned by all main areas of the reception building, covering all filling & taking stations, separation & mixing pits, depacking & storage areas and switchboard rooms.

The enclosed floorspace created in the main reception building is approximately 2078m^2, with a building footprint and volume typical of buildings across the industrial park.

Landscaping

Existing landscaping on the site is limited to a swathe of trees along the grass bank on the western boundary and on the left as you enter the site, these will be retained as part of the proposals providing natural screening. Opportunities for new planting are limited given the nature of the process however, it is the intention to introduce new tree planting along both sides of the main entrance and adjacent to the car park, retaining any trees that naturally merge with the attenuation pond towards the south.

6.0 THE PROPOSALS

AMENDMENTS

6.02 ACCESS

Staff and visitor parking has been located in the western area of the site close to the main access into the site, limiting the areas where large vehicles and cars share the road. An additional 6 parking spots for dedicated on-site staff are located directly adjacent to the site office building. All office and welfare facilities can be accessed from the ground floor and do not require the use of the external staircase.

6.03 MOVEMENT

The site and wider Industrial park is ideally located within the strategic road network with easy access to the A494 Welsh road, M56 and M53. Due to the remote location away from residential areas it is envisaged that the majority of staff and visitors to site will arrive by car, for which 32 car parking spaces are provided with an additional 6 parking bays directly adjacent to the on-site office.

Within the site every effort has been made to keep car, HGV and pedestrian traffic separate however, there are inevitably some locations where these cross over. In these locations prominent road markings, indicating separation together with robust management procedures will ensure the safety of all using the site.

6.04 ENVIRONMENTAL SUSTAINAILITY

Waste Reduction

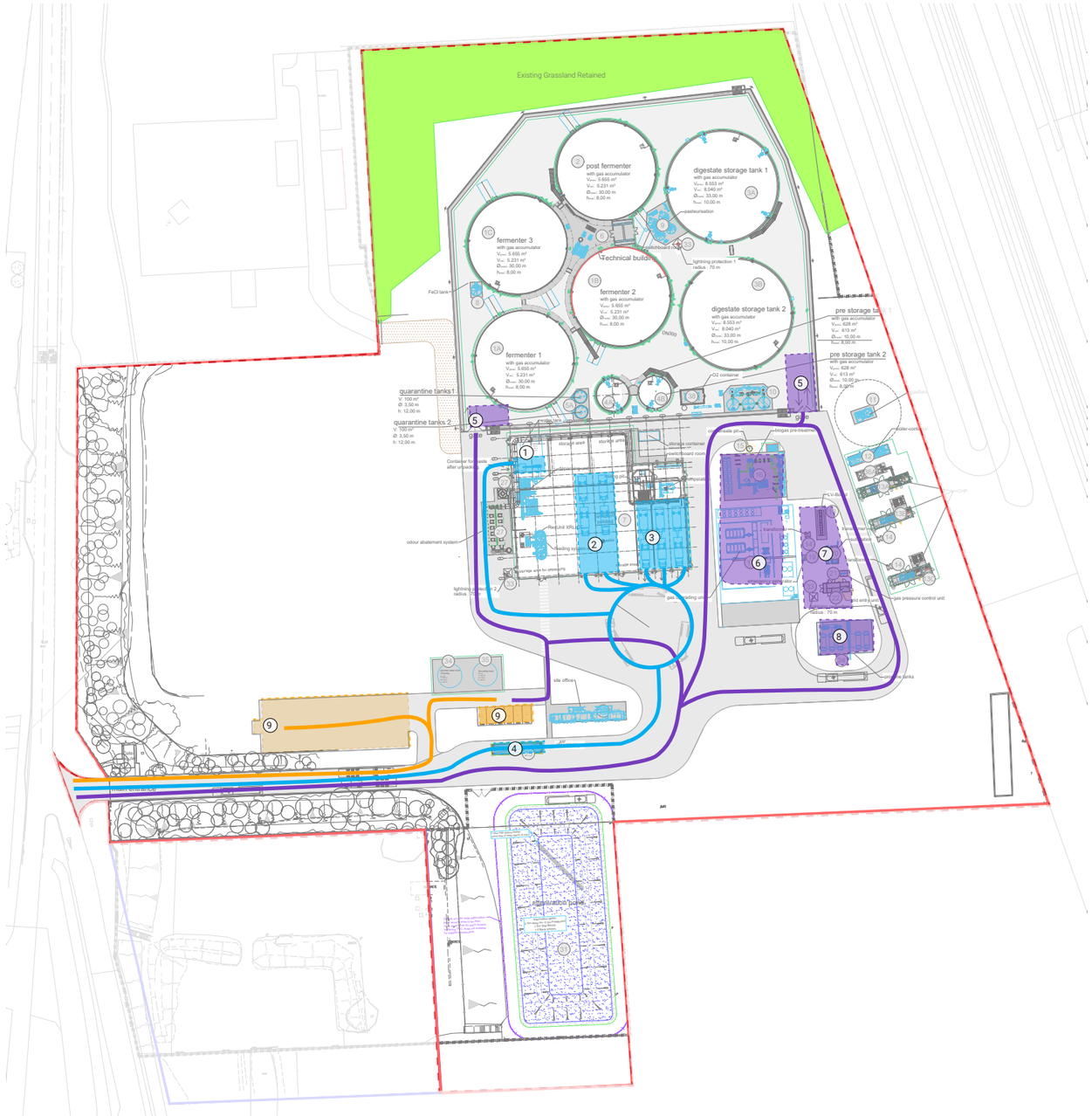
The growing quantities of (MSW) is one of the major ecological problems of our planet. Landfills are polluting the land, water and air and are contributing to pollution and global warming. New methods are being tested in order to solve this problem, including: Incinerators, biological treatments, manual pre-sorting and others. Most of these solutions have proven to be either non-operational, non-applicable or very expensive. BioConstruct GmbH is a unique technology that successfully treats MSW using its anaerobic digestion process to recover recyclables and produce renewable energy. BioConstruct GmbH can handle residential and/or commercial MSW, accepting both unsorted and/or sorted waste streams, with its heterogeneity, variability, abrasiveness and wetness.

Residual Waste Minimisation

The BioConstruct GmbH process reduces residual waste and in the long term will ensure residual waste is phased out of landfill to high energy efficiency energy from waste plants.

6.0 THE PROPOSALS

AMENDMENTS



Movement Concept Diagram, extract from drawing 1175-21-DAY-XX-00-DR-A-20-0002_Proposed Site Plan

KEY

- Site Boundary
- Private Staff and Guest vehicles
- Hardstanding for Staff and Guest vehicles
- HGVs
- Hardstanding for HGVs
- Maintenance and specialist vehicles
- Hardstanding maintenance and specialist vehicles

1. Depacking station
2. Feeding stations
3. Filling & tacking stations
4. Weighbridge
5. Technical building access
6. Biogas hardstanding
7. Electrical hardstanding
8. Propane tanks handstanding
9. Car parking

7.0 RESPONSE TO PLANNING POLICY

AMENDMENTS

Deeside SPV have provided an accompanying the Covering Letter and Deemed Screening Request which assesses the proposal against relevant national and local planning policy.

...

The Covering Letter and Deemed Screening Request has demonstrated that:

- The development plan confirms the use is suitable for the chosen location;
- No specific policies in PPW indicate that this proposal should be refused;
- Specific policies in PPW relating to waste provision, flooding, highways, natural environment and design are fully addressed as set out in Section 8 (of the planning statement);
- The benefits generated by the development proposal in this case far outweigh the negative impacts.

8.0 REFERENCES

AMENDMENTS

8.01 DRAWINGS

1175-21-DAY-XX-00-DR-A-20-0002 Proposed Site Plan
1175-21-DAY-XX-GF-DR-A-20-0003 Proposed GA Floor Plan
1175-21-DAY-XX-ZZ-DR-A-20-0004 Proposed GA Elevations
1175-21-DAY-XX-ZZ-DR-A-20-0005 Proposed Site GA Elevations
1175-21-DAY-XX-RF-DR-A-20-0006 Proposed GA Roof Plan
1175-21-DAY-XX-00-DR-A-20-0007 - Temporary Wheelwash

DAY

https://www.day-architectural.com

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