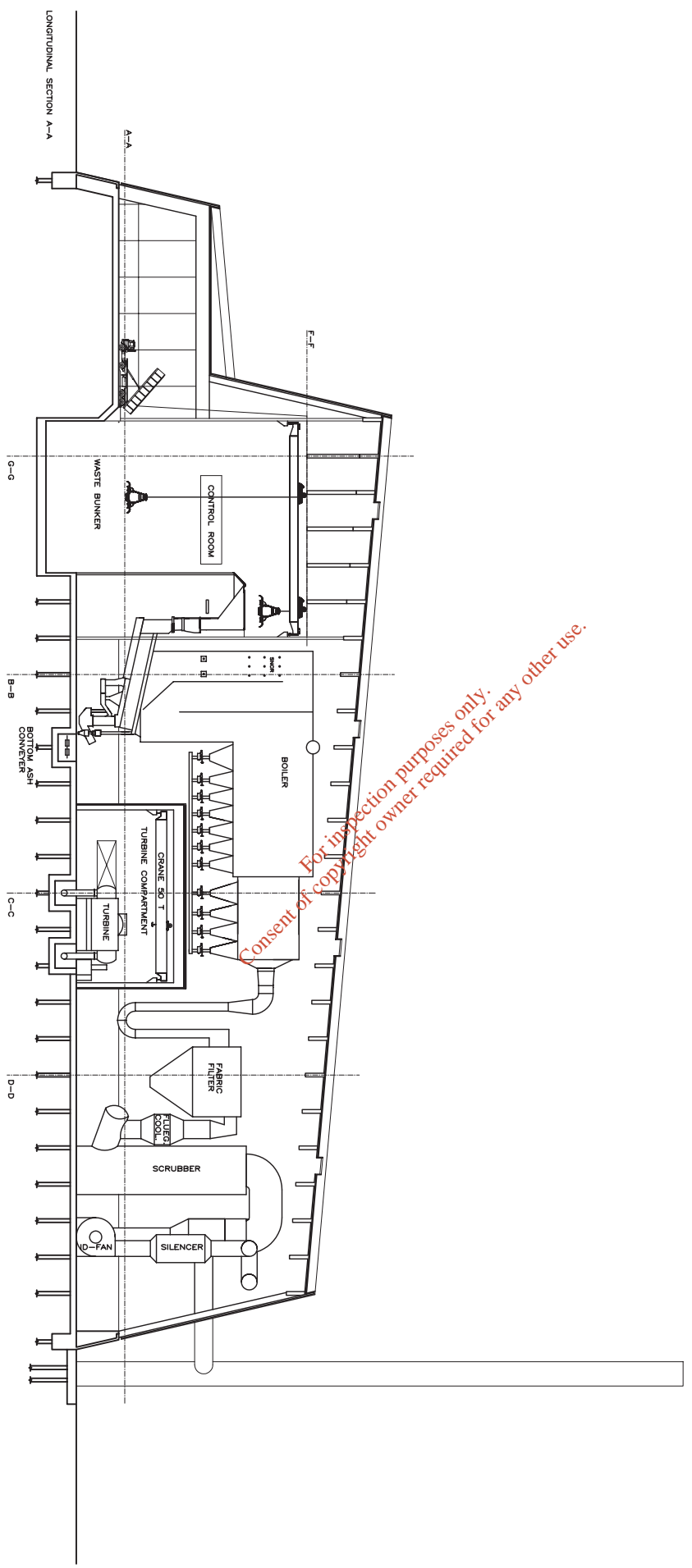


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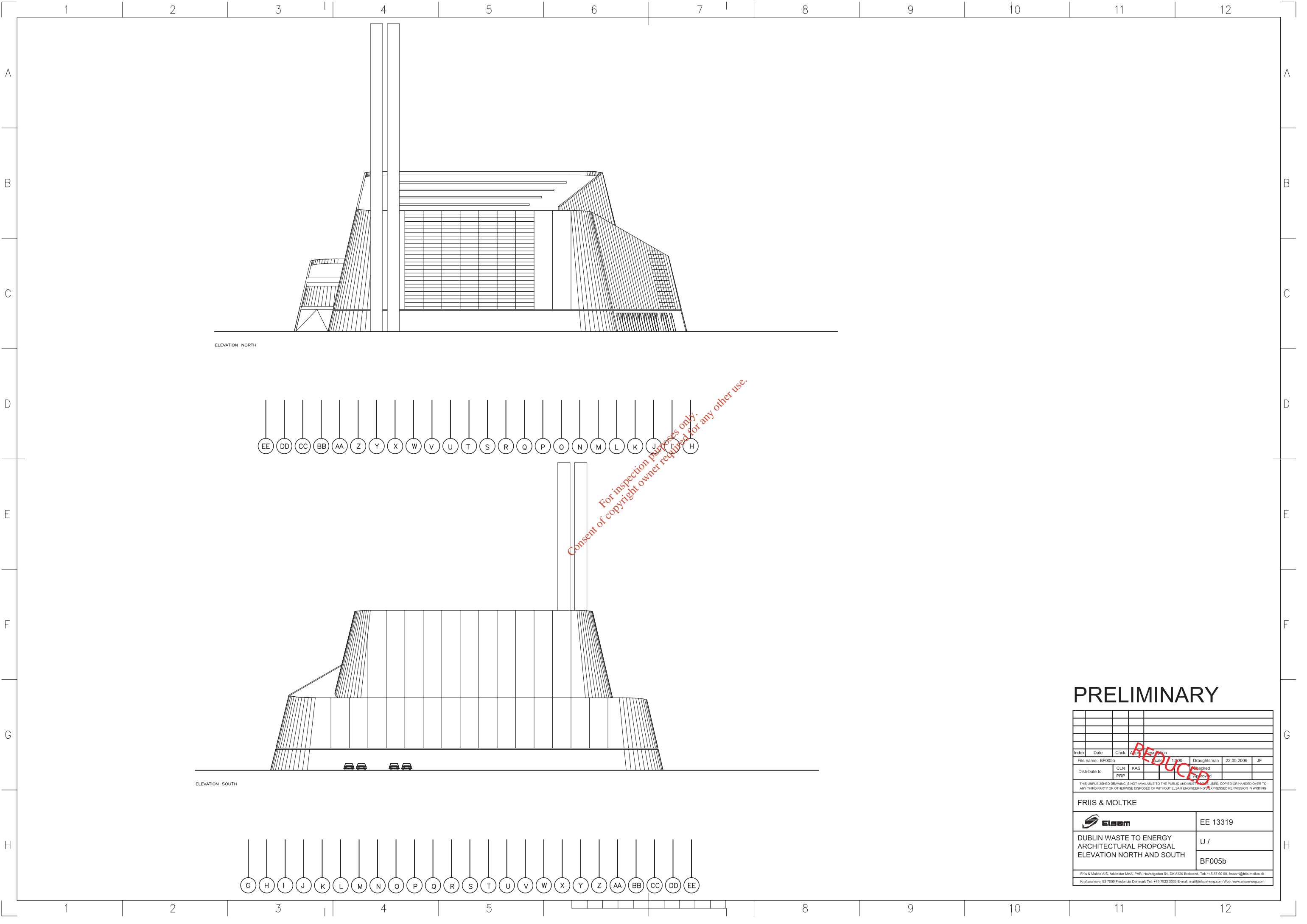
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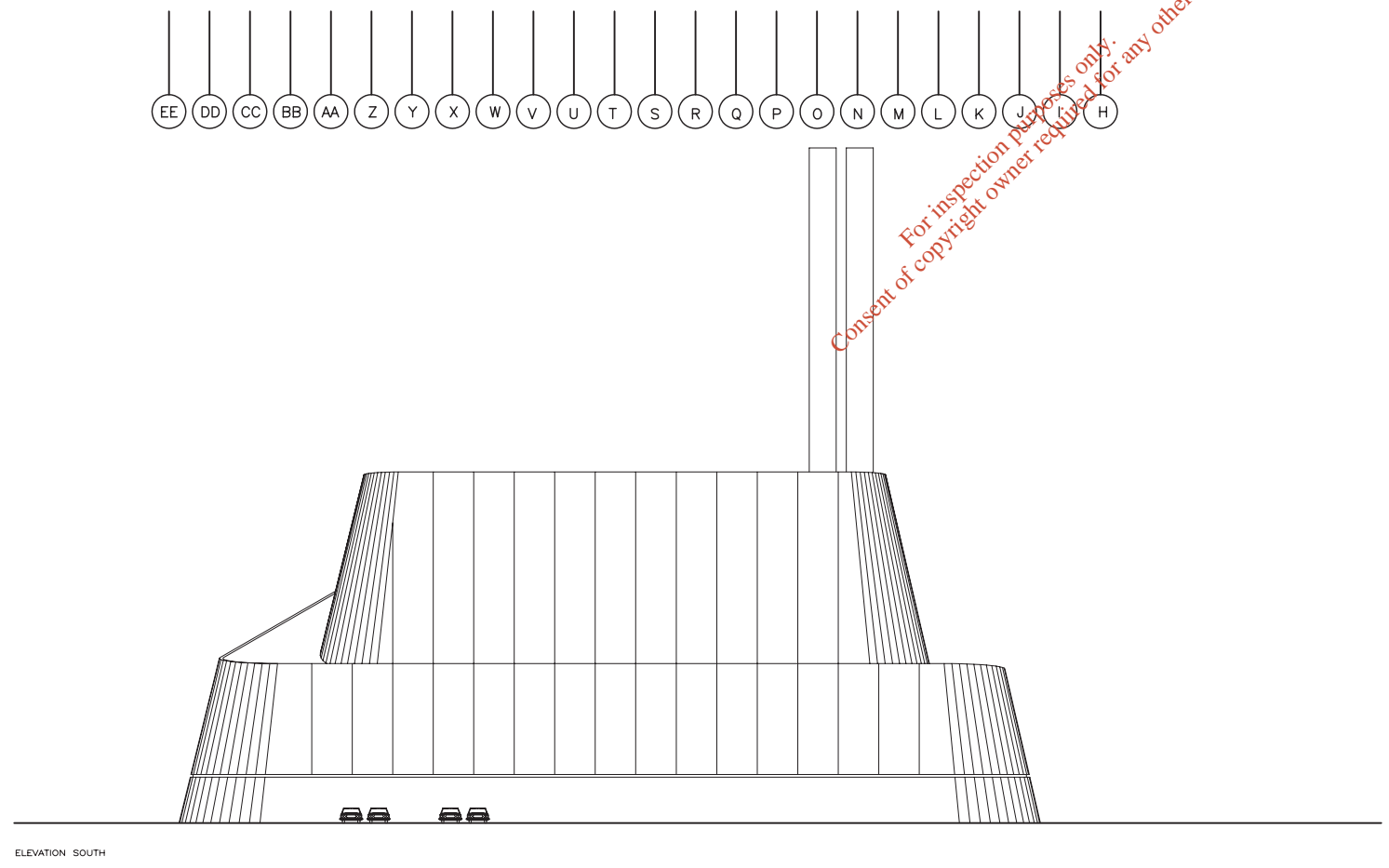
DUBLIN WASTE TO ENERGY
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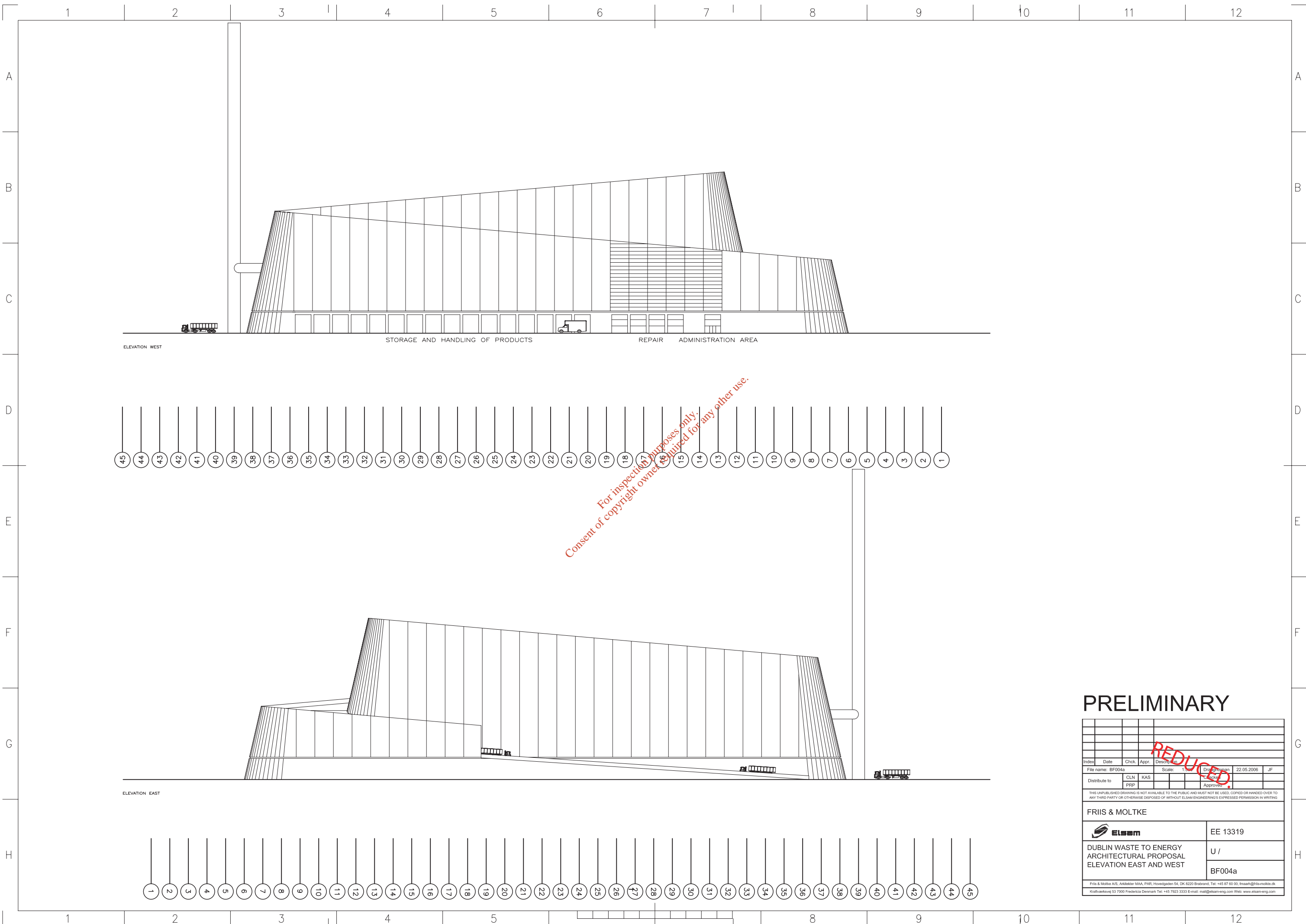


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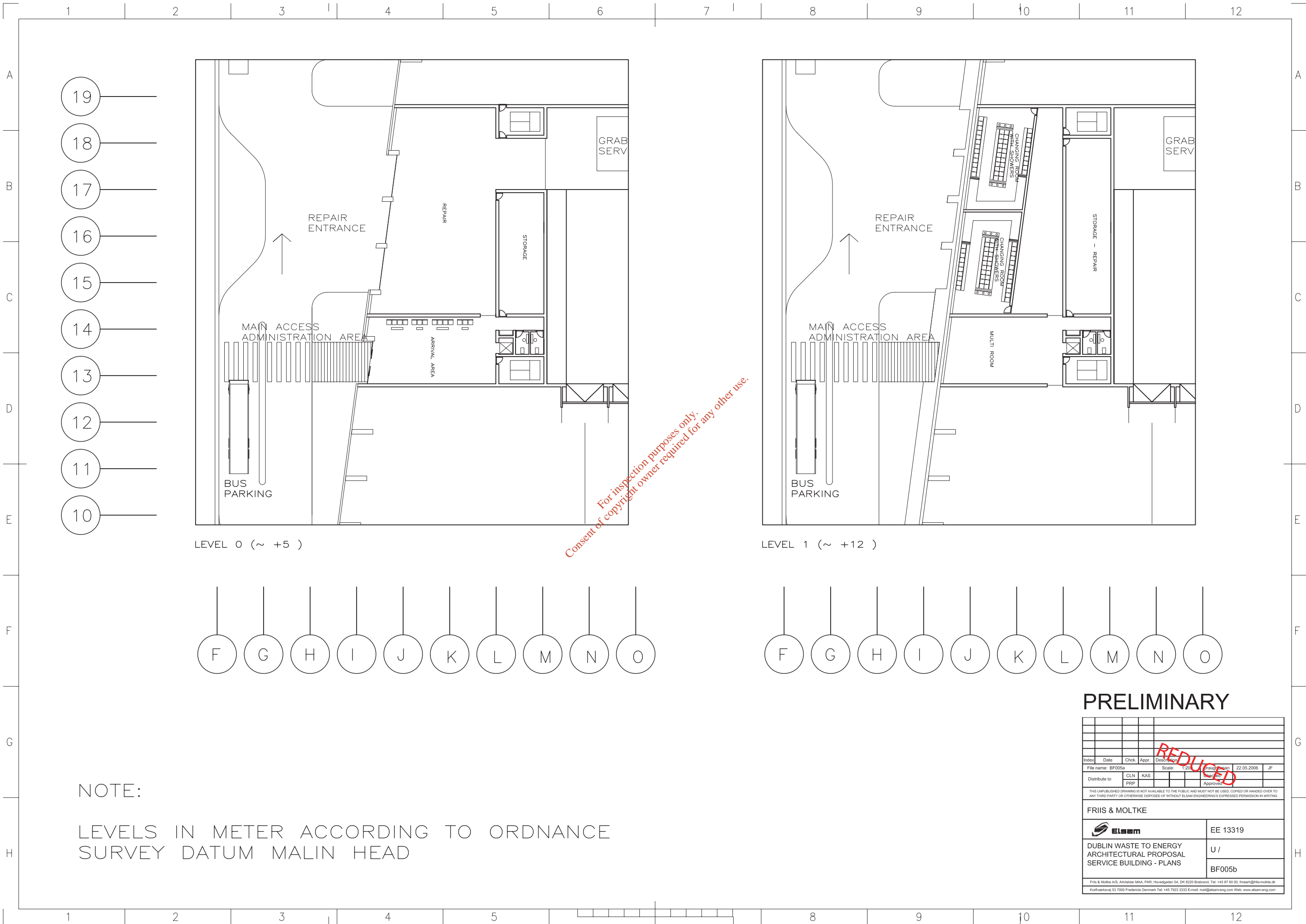


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LEVEL 0 (~ +5)

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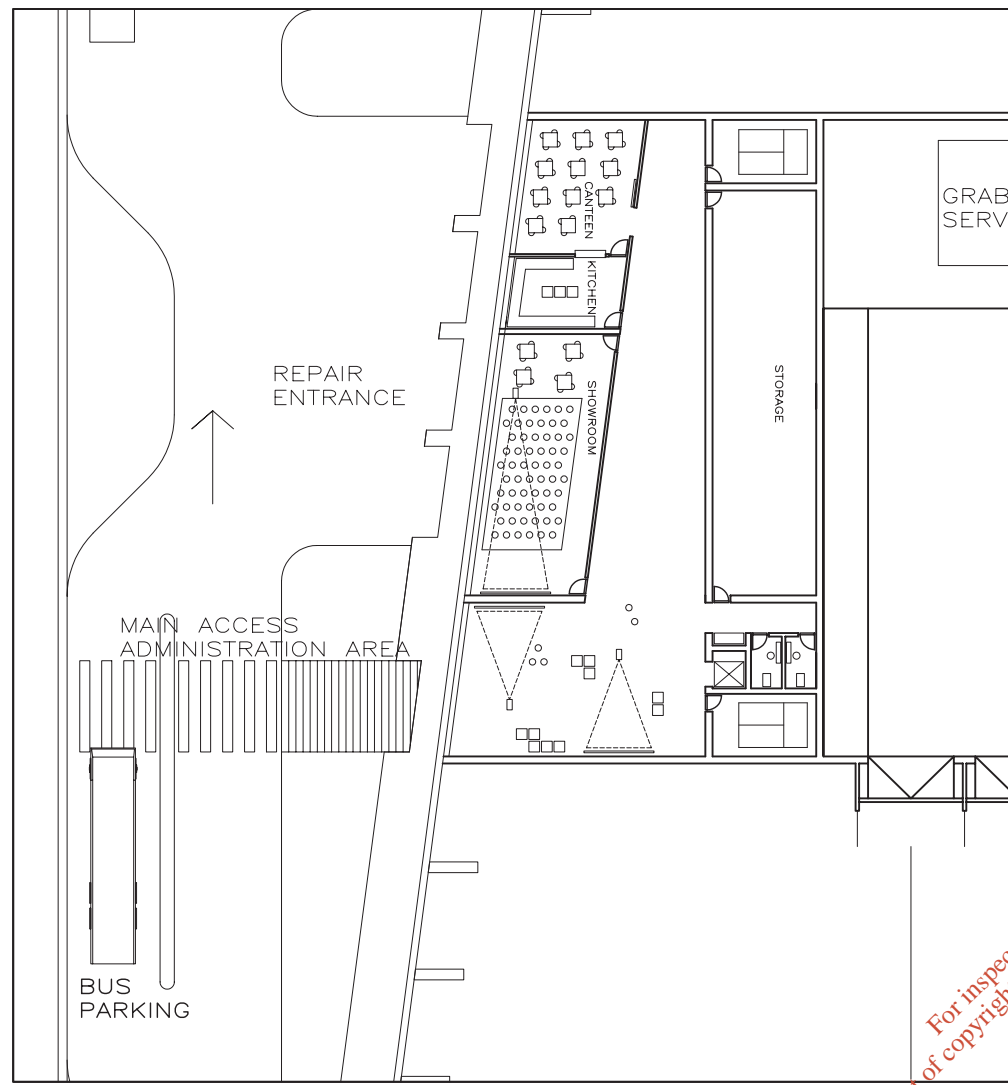
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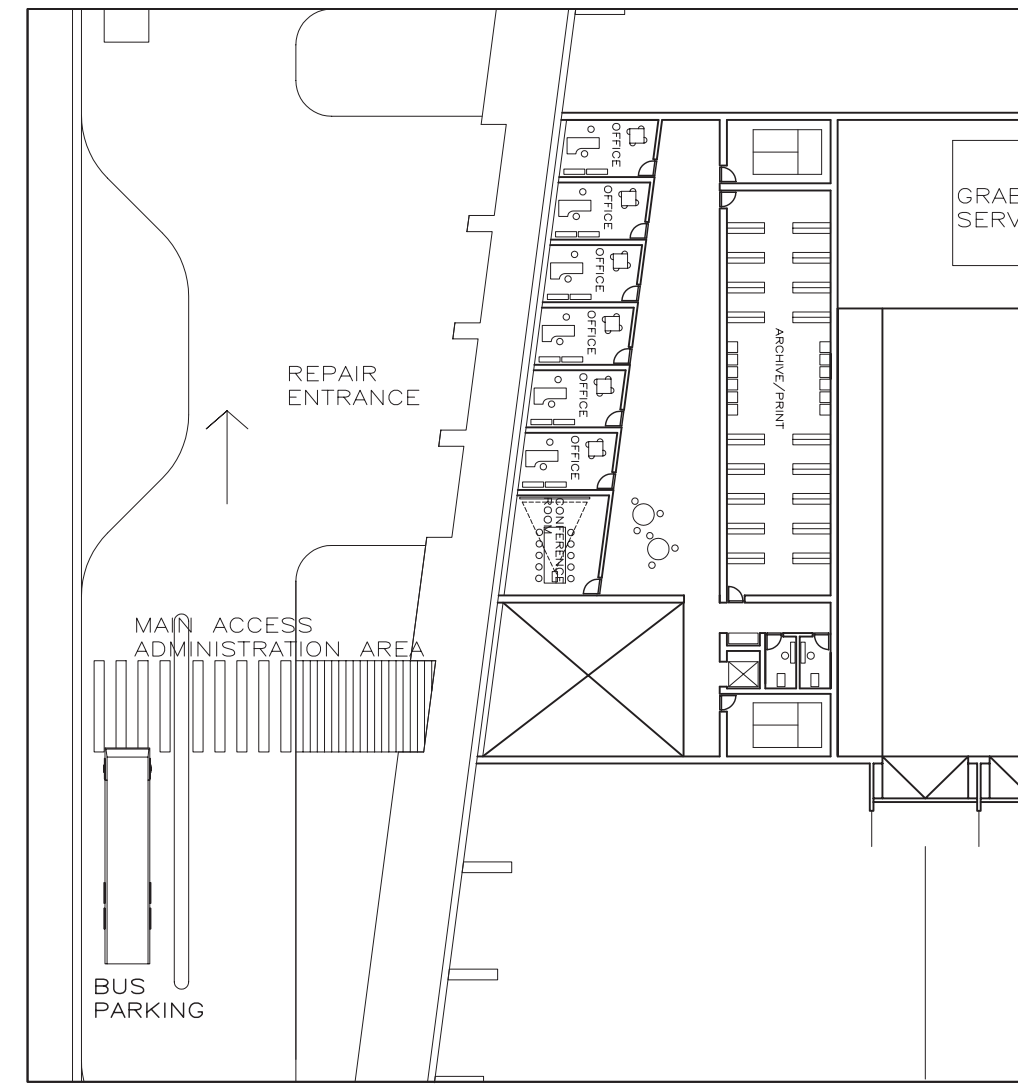
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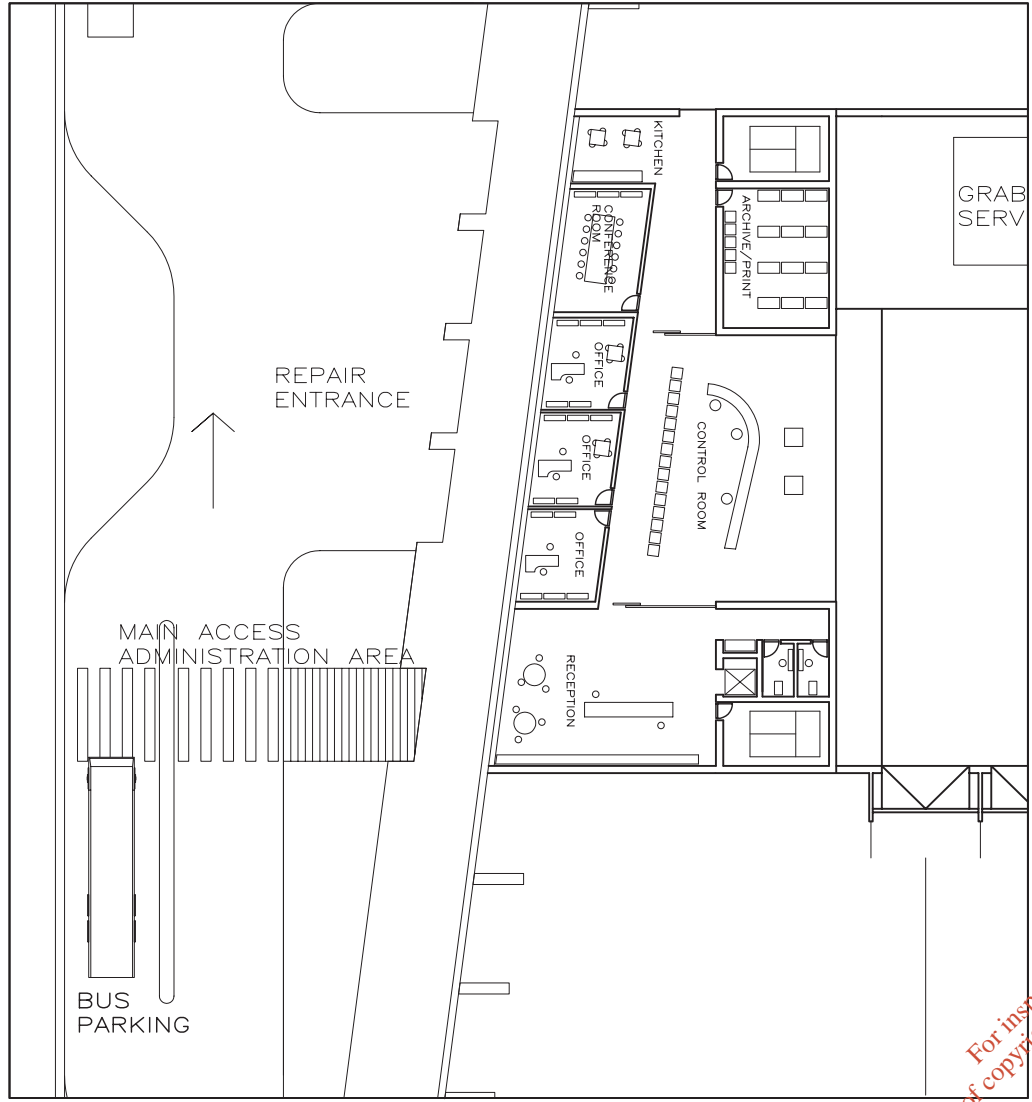
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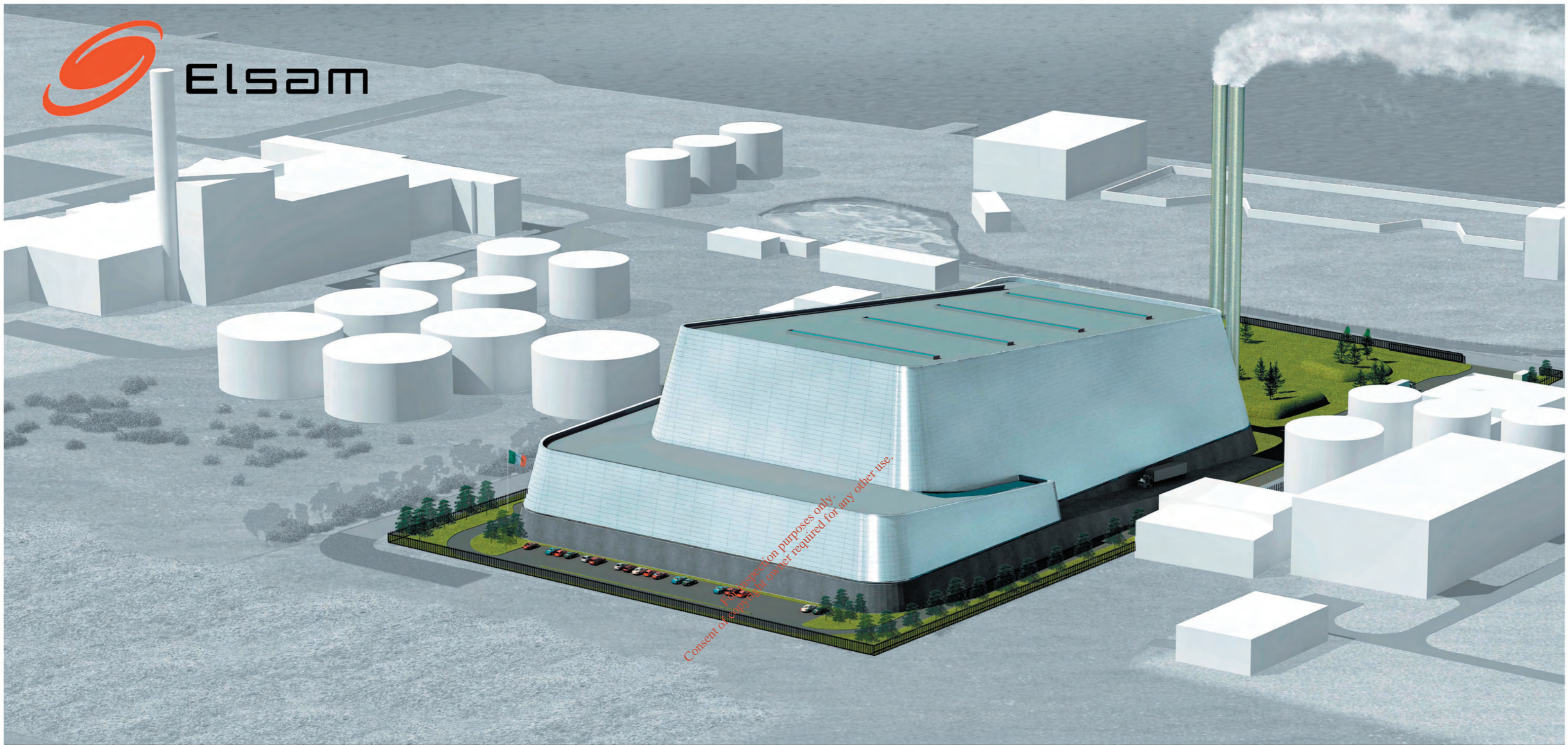
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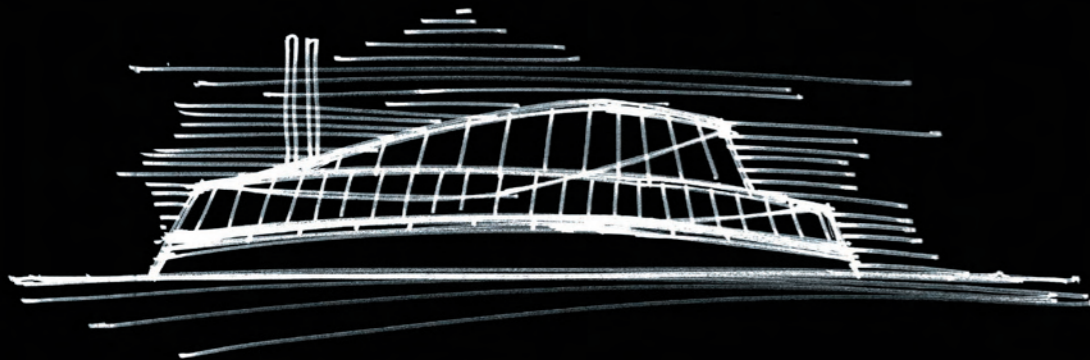
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Aerial View from South East

Dublin Waste to Energy Project



Introduction

Planning the new architecture for the Waste to Energy plant in Dublin is an immensely challenging and attractive task to take on.

The project contains many aspects, which have to be considered during the design process. The multiplicity of technical installations and working processes have to be combined to form an environmental compatible and well functioning unity.

The attractive aspect is the opportunity to work with large-scale architecture and the desire to create an elegant and distinctive architectural expression, which will be the new characteristic landmark on the Poolbeg Peninsula.

Key considerations/objectives for the project

To create a state-of-the-art building to be constructed using the latest technologies in modern materials, the building should become a model for the latest and most advanced buildings within its field.

- Openness – the building will be designed to reveal its function rather than hide it. Visibility and openness create insight into an understanding of the concept ‘waste to energy’.
- Landmark – with its sculptural simplicity the building should differ from the other industrial buildings in the area in an original expression, which signals strength – but without appearing monumental. The plant will be visible from large parts of the city of Dublin, but the integrated form will give a positive supplement to the city skyline from many different angles.
- The surroundings – the building will be located on the site in such a way that it can take into account any future changes in the Poolbeg area. By creating an attractive strong connection from north to south along the site, the development seeks to define a building line and character.
- The landscape restoration - it is proposed to establish a strong visual evergreen screen along the eastern southern and western boundaries of the site. While it proposed to retain openness through the northern Pigeon House Road boundary, four spiralling berms will provide for definition and framing of views towards the glazed northern elevation. In this way the landscaping seeks to visually anchor the development, screening the low-level traffic movements whilst setting-off the architectural treatment of the building.





View from Sandymount

Site context and location

The site is centrally located on Poolbeg Peninsula on the east side of Dublin City. The peninsula, which lies within the Dublin Docklands, is a promontory of reclaimed lands extending eastwards into Dublin Bay from Ringsend. The peninsula, which terminates at the South Bull Wall with its associated lighthouse, defines the southern side of the Liffey estuary where the river feeds directly into Dublin Bay.

Given the 'C-shaped' arc of Dublin Bay, the peninsula has a central almost pivotal visual location overwhelmingly determined and dominated by the twin Poolbeg stacks rising to over 210m above ordnance datum (AOD). This visual prominence of the site is reinforced by the surrounding topography, which being generally flat around the immediate coastal and city locations gives way to rising coastal headlands at Killiney to the south/southeast and Howth to the northeast. The Dublin Mountains also provide a prominent elevated background to the south/southwest of the city.

The surrounding landscape of Dublin Bay consists of extensive residential areas extending from Dun Laoghaire in the south around to Howth in the north taking in locations such as Blackrock, Merrion, Sandymount, Irishtown, Ringsend, Clontarf, Raheny and Sutton. The open water of Dublin Bay, with Bull Island to the northeast, lies to the east of the site.

The closest residential areas to the site are at Irishtown, Ringsend and Sandymount located approximately 1km east and southeast of the site. Clontarf is situated approximately 2km directly north of the site while North Bull Island, an important ecological and recreational amenity area, is situated approximately 3 km northeast of the site.

Dublin Bay is generally shallow in depth with extensive areas of mud and sand flats at low tide. Dublin Port divides the estuaries of the Liffey and Tolka rivers. Certain areas of the bay are designated sites of conservation. A number of recreational activities are practised in the bay including sailing, windsurfing, fishing and swimming. The eastern end of Poolbeg Peninsula is a popular destination for walking and bird watching.

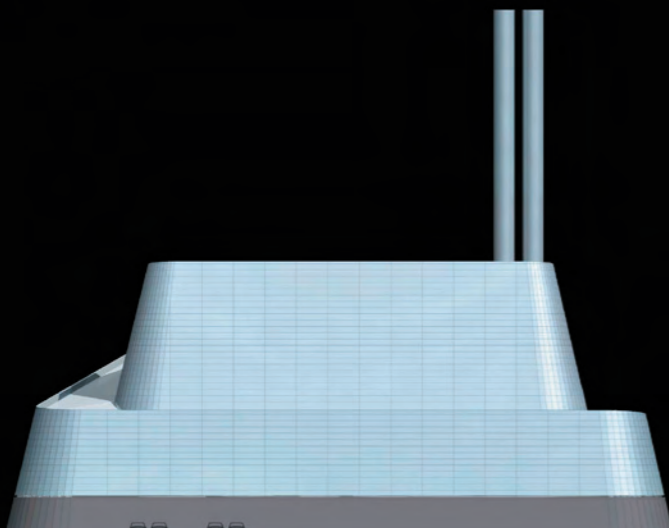
As previously noted, Irishtown Nature Park is located to the southeast of the site. Originally part of an infill/landfill area, the park has been designed as an ecological park with a focus on habitat creation and nature conservation and is a well-used amenity area. Native trees, shrubs, wildflowers and grasses were planted and the park now comprises a mix of young trees and shrubs and open areas of grassland.

A pedestrian access to the south of the site links Irishtown Nature Park, with Sean Moore Park in Ringsend to Pigeon House Road (north of the site), Shelly Banks, a small sandy beach between ESB - Poolbeg Generating Station and the South Bull Wall, is also widely used for active water sports, particularly boardsailing. A small adjoining car park is a popular viewing point.

Further notable features are the South and North Bull seawalls that extend out into Dublin Bay and the extensive area of estuary at Sandymount and Clontarf, which dry out at low tide. The North Bull Wall, Bull Island, Clontarf Promenade, South Bull Wall and Sandymount Strand are intensively used as leisure and recreational amenities.



Site Area



Elevation South 1 : 500



Stacks Storage and handling of products Repair Administration area

Elevation West 1 : 500

The Site

The principal part of the site comprising 5.5 hectares is somewhat centrally located in an almost north south alignment on Poolbeg Peninsula. Much of this area is reclaimed land and was previously used as a municipal landfill. Pigeon House Road lies to the immediate north, Shellybanks Road to the immediate west, Ringsend Wastewater Treatment Works to the east and to the south undeveloped land extends to the southern shore of the peninsula. Irishtown Nature Park is located to the southeast.

The Poolbeg Peninsula stretching from the South Bank roundabout is industrial in character and as it comprises a docklands area at the mouth of the River Liffey, the activities are typical of a port setting. The principal industrial activities on the peninsula consist of power generation, sewage treatment, metal recycling, a concrete batching plant, oil storage, gas regulation and freight storage. While the peninsula is mainly industrial in character it does contain some open and undeveloped areas with Irishtown Nature Park on the southern shore being of particular interest. Additional lands (i.e. North Port) within Dublin Port lie north of both the Poolbeg peninsula and the Liffey estuary. The Dublin Port Ferry Terminal lies at the eastern end of these northern port lands.

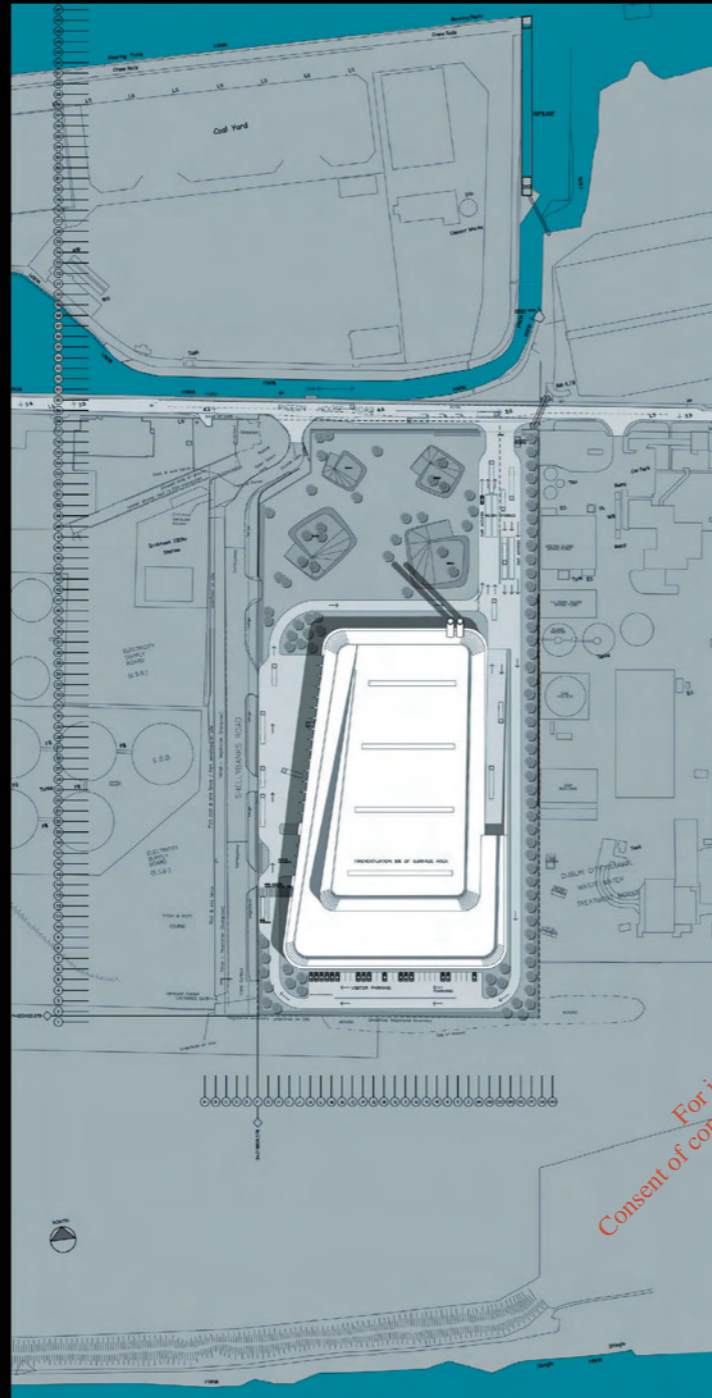
The site has a similarly industrial setting between the combined Syngeen - Dublin Bay Power Plants to the west and the Ringsend Wastewater Treatment Works to the east. The northern portion of the site is occupied by a scrap metal recycling yard. A molasses plant operates on the central portion immediately south of the recycling yard. The southern end of the site is fenced off and is currently under hard standing.

Where not in use the site includes areas of rank grassland, some bare ground and spoil heaps, particularly to the south of the site. A line of sycamore trees has been planted along the site boundary with Shellybanks Road. The trees, which are the most significant vegetation relating to the site, are early-mature and are in the region of 7-8 m in height. A line of shrubbery has also been planted along the western side of the Shellybanks Road. This comprises a dense planting of Escallonia (Escallonia spp.) with brambles and pioneering species such as butterfly bush. The planting includes some trees including cypress, white poplar and sycamore.

Existing ground levels in and around the site are generally between 3.0 and 6.0m AOD. However, within Irishtown Nature Park, ground levels rise to 20m AOD in height. A berm some 7-10m AOD extends west from the park along the coastline as far as Sean Moore Park at Ringsend.

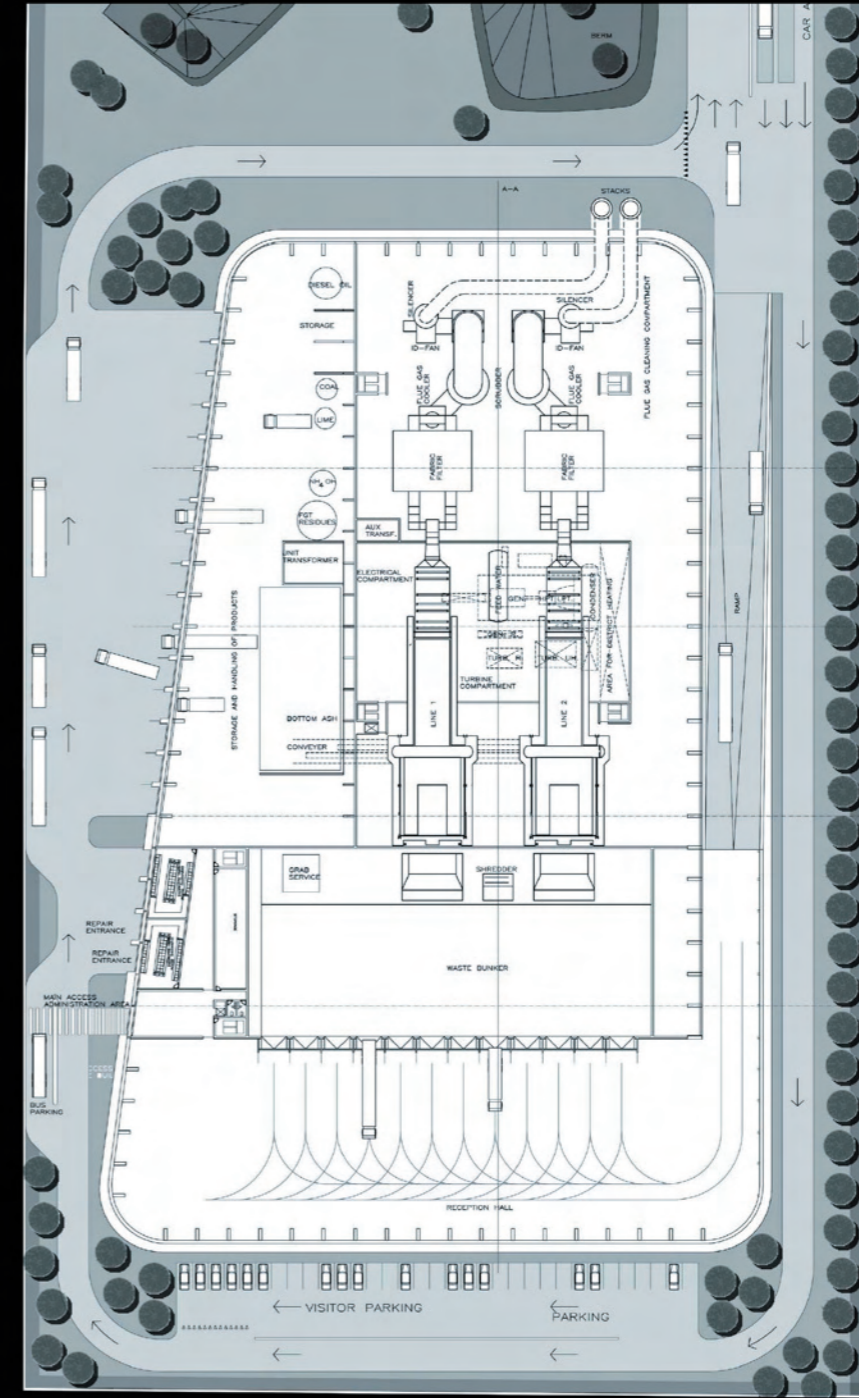
The landscape character of the area is essentially dominated by the elements of the intensive industrial infrastructure in the area - particularly the two tall stacks - and the expansive presence of water surrounding the area. While having a port-related / industrial land use and character the peninsula is also influenced by its central and pivotal visual location in views from within Dublin Bay.

At proximity the landscape is overwhelmingly 'industrial' though of significant landscape and visual interest as a result of its coastal peninsula setting and the views offered over surrounding water, landscape and city. As such the area is popular for passive recreation and includes a variety of walks, a small beach and Irishtown Nature Park.

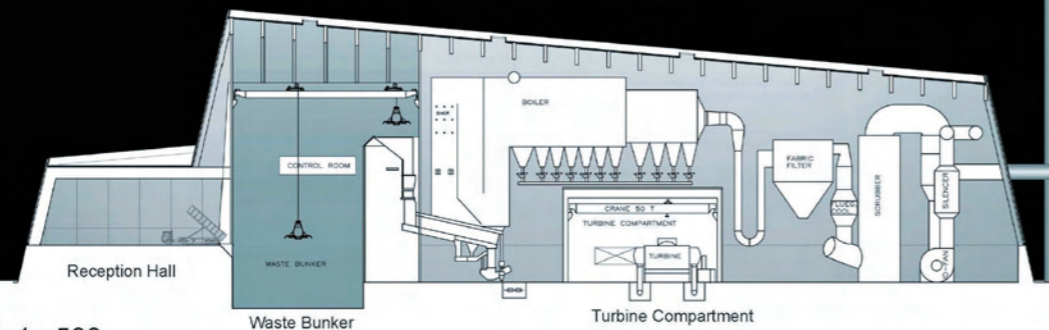


Site Plan 1 : 1500

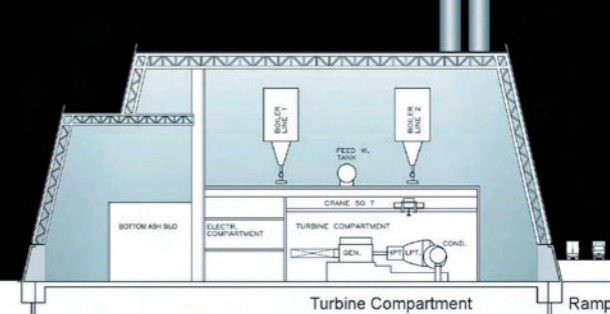
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Plan view 1 : 500



Longitudinal Cross Section A-A 1 : 500



Cross Section C-C 1 : 500



View from South West

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The Main Building

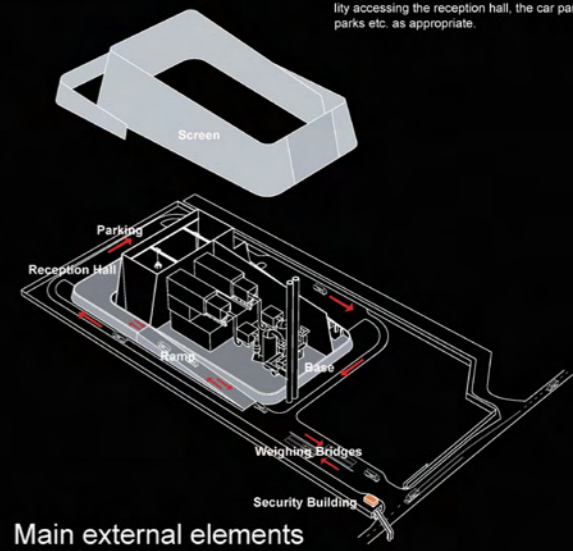
The main building occupies a central position on the site and presents a strong architectural spiraling form, which envelops all of the critical elements of the waste to energy activities and operations. It comprises three principal elements: a base, the technical plant, and an enveloping screen.

- The base constitutes the weight and robustness of the building. It anchors and directs the other elements so that the construction will be seen as a whole. The base is seven metres in height and, among other elements, contains an elongated ramp providing for Heavy Goods Vehicle (HGV) access to and from the reception hall;
- The technical elements include the waste reception, waste handling, waste processing activities, boilers, turbines etc. together with the various administration and operational elements. While these are internal activities the main technical elements are to be illuminated and it will be possible to view such elements through the glazing in the external screen. The control and administration area sits as an independent component within the main building screen. This location faces toward the west and thereby gaining an impressive views to the city and Sandymount;
- From Pigeon House Road the large-scale technical flue gas cleaning equipment will be visible through the northern glass facade. This is a visual statement of the major technical processes involved in waste to energy production. In the evening this feature will be of particular note as the internal lighting will illuminate the steel structures, walkways, scrubber towers, flue gas ducts etc. This will bring the plant itself into play as an important facet of the architectural presentation;

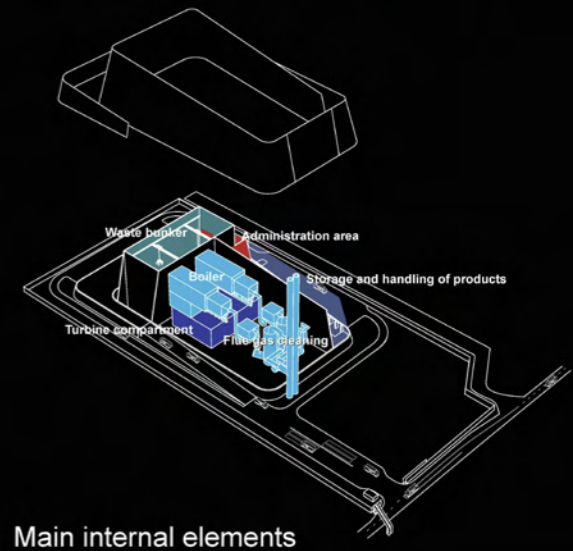
- The screen surrounds the technical plant in an organic movement that embraces the central hall for the process equipment with characteristic rounded corners and inward-sloping facades. This provides the building with a sculptural, abstract character – that is reminiscent of a gigantic conch shell. The screen is designed so that its structural divisions are equipped with distinctive glass areas through which the technical plant can be viewed as described above. The overall height of the structure is 57 metres AOD;
- Of particular note are the twin stacks to be located in punctuation of the northern elevation of the proposed building. The stacks are slender and rise to 105m AOD in height – approximately half of the height of the two ESB stacks at Poolbeg Generating Station. In operation a plume will be visible from the stacks. The degree of visibility will depend greatly on climatic factors, including temperature and wind speed both of which will affect density and dispersion. Such plumes and the impact of various climatic conditions is already a feature associated with the existing stacks on the Poolbeg peninsula.

Other elements include entrance security building, weighbridges, site fencing, landscape berming, planting of mature trees and general landscape works. While the site is visually flat it is proposed to construct four spiraling mounds fronting the northern elevation of the building. These berms, which rise to between 3 and 5m in height, will anchor the northern facade of the building as viewed from Pigeon House Road while maintaining and defined vista through to the central glazed element of the northern elevation.

Access to the site will be through the northern boundary via Pigeon House Road. Thereafter all traffic (including HGVs, buses and cars) will proceed along a one-way clockwise manner around the facility accessing the reception hall, the car parks / bus parks etc. as appropriate.



Main external elements



Main internal elements



Elevation East 1 : 500

Elevation North 1 : 500

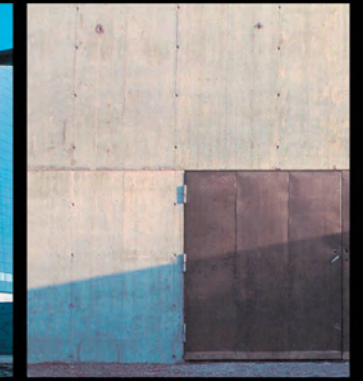


Aerial View from North West

Glass Inspiration



Base Inspiration



Screen Inspiration



Screen Inspiration

Fence Inspiration

Construction and materials

The main building comprises an overall steel-frame construction that surrounds all functions within the building. The frames are installed in a six-meter modular system between which are fitted the lightweight lacquered aluminium facade panels. The facades are intended to create a light, precise and airy appearance. The base – and all the visible concrete walls in the facade – is proposed as concrete elements that will be of a dark grey shade, to provide a clear contrast to the light metal facades of the building screen. The modular system is expressed in the facades as narrow tracks and marks the rounded corners of the building, thereby emphasizing the overall organic "conch-shell" shape.

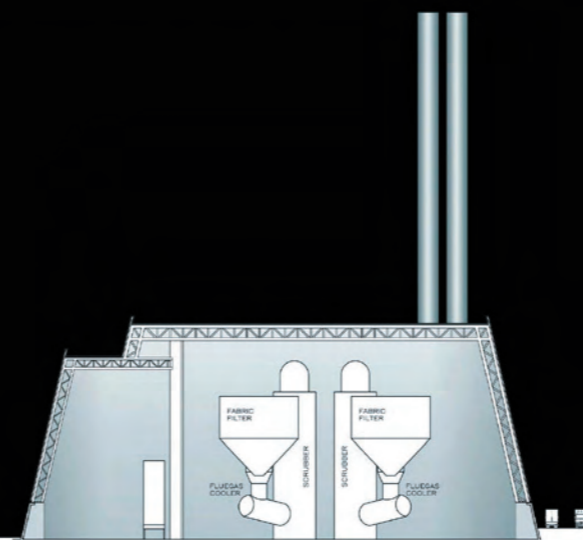
The roof covering is a greyish colour similar to the facade-colour with an absolute minimum of installations. Most plant will be fitted underneath the roof construction except for the fire vents and the access openings for the staff.

Conclusion

It is our hope that the proposal for a new 'waste to energy' power producing facility, will provide Dublin with a modern facility that can help to alleviate the city's waste problem. Producing energy in a practical and environmentally compatible manner the structure will also be a distinctive building on the Poolbeg peninsula – a landmark for the area and a source of inspiration for new building projects of a heavy industrial nature.



Cross Section G-G 1 : 500



Cross Section D-D 1 : 500

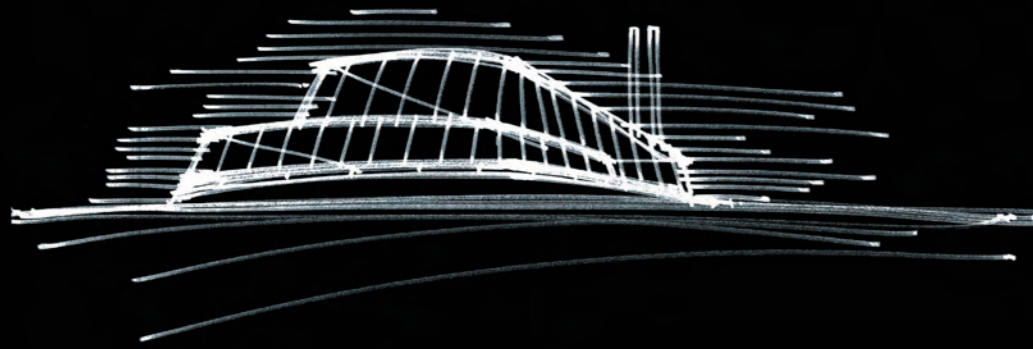


View from Clontarf



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Outline of intended "Control Room"



Administration Area

The service building is located on the western side of the structure behind the encircling screen with easy access to the entire plant. The building has five levels.

Level 0: Contains the main access with the arrival area and the workshop for such facilities as the grab service. From the arrival area there is access to the main staircase and a lift, which connect all functions in the administration building.

The central workshop has a room heights of approximately 6,5 m for larger machine components (including grab handling) can be lifted with the help of a travelling crane.

Level 1: This level contains such facilities as toilets and a multi purpose room, welfare rooms for employees with changing rooms, showers, toilets, and a depot. As is the case on the other levels there is an exit to the production hall via a broad footbridge – the gallery corridor.

Level 2: Contains visitors' facilities, a staff canteen, and a kitchen. There will be direct access from the visitors' area via the gallery corridor to the process.

The canteen kitchen is dimensioned so that it is also possible to cater for visitors who come to view the plant.

The showroom is located close to the main staircase and the lift and can be enlarged or made smaller as required with the help of mobile walls. It will therefore be possible to receive several groups of visitors of varying sizes concurrently. But it is considered unsuitable for the number of visitors to exceed 100 people at any given time. There will be a good view towards the bay and the city.

Level 3: Contains offices and meeting rooms with accompanying printer room, a depot, and toilets. There will be a good view from the offices and meeting rooms towards the bay and the city.

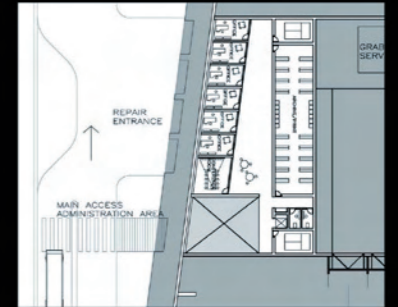
Level 4: Contains the control room and reception. The control room can be considered as the heart of the plant, and from here it is possible to gain an overall perspective of all the functions of the plant and with a direct visual contact to the waste bunker. The facade of the entire control room to the waste bunker is made of glass from floor to ceiling.

It is possible to move around the plant rapidly from the control room via the easily accessible traffic lanes. The through going stairwell and lift core connect the administration building vertically, but also provide direct access to and from the reception hall so that it is easy to come into contact with the individual drivers – in connection with waste inspection, for example. There will be a good view from the offices, conference room and the reception towards the bay and the city.

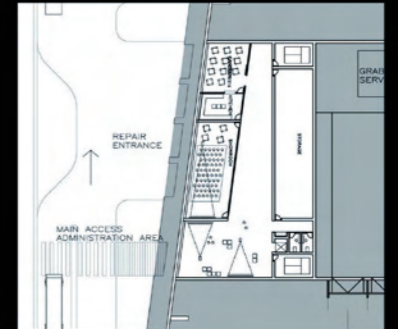
LEVEL 4
Control Room and reception



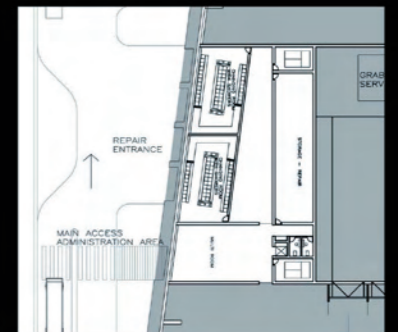
LEVEL 3
Offices



LEVEL 2
visitors' facilities, showroom, staff canteen, kitchen etc.



LEVEL 1
Changing rooms, shower etc. for employees



LEVEL 0
Repair and arrival area

