Riverside Energy Park

Design Principles

VOLUME NUMBER:

07

PLANNING INSPECTORATE REFERENCE NUMBER:

EN010093

DOCUMENT REFERENCE:

7.4

November 2018 | Revision 0 | APFP Regulation 5(2)(q)

Planning Act 2008 | Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

CORY
RIVERSIDE ENERGY

Contents

1 Summary

1.1.1 This document sets out the purpose of the Design Principles and the process that the Design Principles will inform, pursuant to a Requirement within the Development Consent Order. The basis for achieving good design is set out, along with 35 Design Principles which will be applied to the future design of REP. These principles relate to:

- Building, Siting, Composition and Mass;
- Materials and Use of Colour;
- Integrated Biodiversity and Landscaping;
- Safety, Signage and Wayfinding; and
- Lighting.

2 Introduction

2.1 Proposed Development

2.1.1 Cory Environmental Holdings Limited (trading as Cory Riverside Energy) (Cory or the Applicant) is applying to the Secretary of State (SoS) under the Planning Act 2008 (PA 2008) for powers to construct, operate and maintain an integrated Energy Park, to be known as Riverside Energy Park (REP or the Proposed Development).

2.1.2 The Proposed Development comprises complementary energy generating development, together with an associated Electrical Connection.

2.1.3 As REP will be in excess of 50 MWe capacity it is classified as a Nationally Significant Infrastructure Project (NSIP) under section 14 of the PA 2008 and therefore requires a Development Consent Order (DCO) to authorise its construction and operation.

2.1.4 The two principal elements of the Proposed Development are: the Energy Park which would be located adjacent to an existing Energy Recovery Facility (ERF) operated by Cory (referred to as Riverside Resource Recovery Facility (RRRF)) situated in Belvedere in the London Borough of Bexley (LBB); and the proposed underground Electrical Connection which would run from REP and terminate at the Littlebrook substation in Dartford. A Works Plan showing the Order Limits and authorised development works areas (**Document Reference 2.2**) has been included within the DCO application.

2.2 The Purpose of this Document

2.2.1 The detailed design of the Proposed Development is not fixed at this stage. The Applicant is therefore seeking consent for the Proposed Development within a 'reasonable worst case' envelope which reflects the maximum possible parameters of the main proposed buildings, structures, plant and equipment. If consent is granted, the detailed design will be developed within these parameters and submitted to the Local Planning Authority for approval prior to the commencement of construction.

2.2.2 This approach is common for large infrastructure projects, and provides a degree of design flexibility within clearly defined parameters. This flexibility ensures that a satisfactory and deliverable scheme can be implemented and allows for adaptability and efficiency through the design process.

2.2.3 This document provides Design Principles for the Proposed Development, including the Main REP Building. As set out in Schedule 2, Requirement 2 of the draft DCO (**Document Reference 3.1**), the detailed design that will be submitted to the local planning authority for approval must be in accordance with these Design Principles. The Design Principles will therefore guide the design development of specified above-ground Works within the REP site, and

ensure that opportunities to mitigate the visual and landscape effects of the development are considered and implemented where practicable.

2.2.4 Further information about the design evolution of the Proposed Development prior to the development of the Design Principles is presented in the Design and Access Statement (DAS) (**Document Reference 7.3**) and this document should be read alongside the DAS.

2.2.5 The purpose of this document is:

- To provide further design information for the purposes of the Environmental Impact Assessment (EIA) of the Proposed Development and to set out measures for the mitigation of significant effects and other residual environmental impacts through design where possible;
- To provide stakeholders with a basis for how the design of the project will be developed following grant of development consent;
- To set out design related issues raised in response to public consultation and to ensure that, where practicable, these are addressed through detailed design;
- To provide certainty that REP would be consistent with good design principles whilst maintaining necessary flexibility on design details; and
- To demonstrate an ongoing commitment to 'good design', as defined in National Policy Statements, ensuring the Proposed Development is sustainable, resilient and aesthetically appropriate.

2.2.6 A full glossary of defined terms and abbreviations is presented in the Project Glossary (**Document Reference 1.6**).

2.3 Design Process

2.3.1 The flow diagram in **Figure 1** shows how both the DAS and Design Principles documents have developed during the pre-application stage and design development process. This process would continue following granting of development consent as the detailed design is finalised and submitted to and approved by the Local Planning Authority.

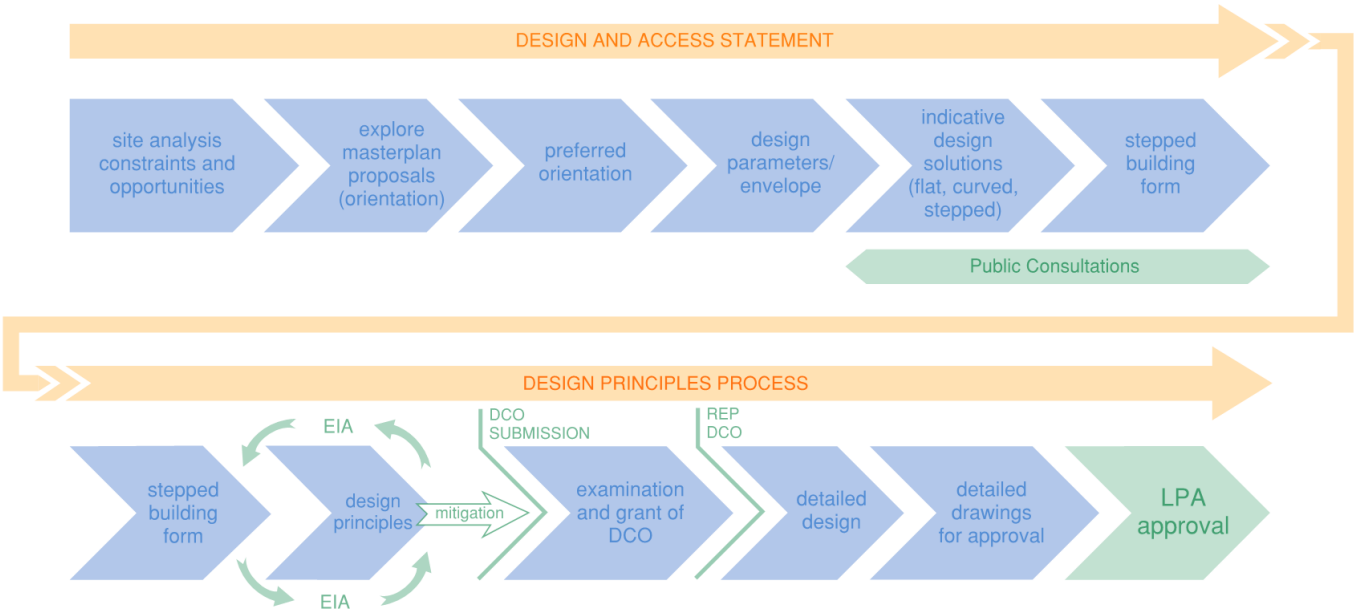

Figure 1 Design process

2.4 Good Design

2.4.1 There are several important principles underpinning good design. These broadly include robustness or durability; usefulness or efficiency; and an atheistically pleasing appearance.

2.4.2 Whilst style, taste and fashion are generally subjective considerations, the three broader principles above can be broken down into tangible criteria to review buildings and public spaces against:

- Are they useful, built to last and easy to care for;
- Can you find your way and move around easily, regardless of whether or not you are disabled, in a place in which you feel safe;
- Do they relate well to the place where they are built;
- Are they environmentally efficient;
- Are they effective to use; and
- Do they have identity and character within their context?

2.4.3 NPS EN-1 4 Section 4.5.1 states *"The visual appearance of a building is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object - be it a building or other type of infrastructure - including fitness for purpose and sustainability, is equally important. Applying 'good design' to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in*

their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible". **Figure 2** demonstrates how factors other than the appearance of the building, will feed into the overall 'good design' of the project.

Figure 2 Factors of Good Design

2.5 Design Principles Approach

2.5.1 Throughout the design process, consideration has been given to a range of design principles which, where relevant and possible, have been informed by the environmental assessment work and consultation with stakeholders. The design of the Proposed Development has evolved throughout the pre-application process in response to these factors.

2.5.2 Additionally, NPS EN-1 states that 'good design' is also a means by which impacts can be mitigated. The design principles play an important role in reducing residual impacts associated with the REP development where possible. To ensure consistency with 'good design', whilst maintaining flexibility, the Applicant is committed to a series of design principles outlined in **Section 3**.

2.5.3 The Design Principles sit within the Design Approach and Evolution described in the DAS. This includes Design Principles, Masterplan Options, Design Parameters and Indicative Design Solutions.

2.5.4 The DAS explains how the design has progressed throughout the pre-application and consultation process to reach the 'stepped building' form conclusion (previously known as Indicative Design Solution No.3). Throughout further design processes, the Design Principles would apply to the 'stepped building' form and seek to further mitigate visual and landscape effects.

2.5.5 The Illustrative Site Plans and Elevations submitted with the application provide an indication of how a detailed design, developed in accordance with the Design Principles, would appear.

2.6 Design Philosophy

2.6.1 The Design Principles reflect the overarching objectives set out in **Section 2.6** below. Requiring the detailed design to be developed in accordance with the Design Principles will ensure these design objectives are met.

Architecture

2.6.2 REP will be a prime architectural example of form following function. The design and proposed form of REP considers the nature of the development, which is foremost an Energy Park. The process layout will provide a logical placement of process elements, whilst ensuring compatibility with the overall site layout. The existing site and its proximity to the River Thames, RRRF and Crossness Sewage Treatment Works provide both challenges and opportunities.

2.6.3 The creation of simple, considered building outlines together with interconnected infrastructure provides coherence with RRRF, an indivisible whole which will reflect their purpose, whilst respecting their surroundings and draw upon Cory's unique history with the River Thames.

2.6.4 The opportunity will be taken to provide a family of forms on the site - brother and sister buildings interconnecting with the wider context of varied industrial buildings along the River Thames. Each building will have its own individual identity or form whilst being identifiable as a collective group of related uses.

2.6.5 The orientation of the Main REP Building interlocks with RRRF to provide a positive dynamic layout whilst also creating individuality and reducing overall massing. Additionally, this orientation responds to spatial constraints, maximises the openness of views to/from the Thames, optimises solar generation and responds to process requirements.

2.6.6 REP is a building that embraces its industrial nature, allowing glimpses of process operations behind the semi-solid screens which break down the individual elemental masses even further. It will not turn its back on the River

but provide a presence celebrating the historical industrial nature of the site and the continuing history of Cory.

2.6.7 The relationship with the river will be reinforced with the new layout and stacks having a contrasting effect to RRRF and creating a dynamic interplay of buildings along the riverscape, which marries with the existing rhythm of industrial uses of different forms adjoining the site.

Robust Detailing and Materials

2.6.8 The nature of the Main REP Building dictates the primary use of industrial materials which will form the building envelope, with perimeter low level areas being primarily strong and robust to withstand the day-to-day process operations of the building whilst the upper levels will be more lightweight, offering an opportunity to integrate with its backdrop when seen from distance. Both the upper and lower perimeters will integrate seamlessly into an overall integrated design form.

2.6.9 The selection of high quality and appropriate materials will, as far as possible, limit maintenance requirements and enable sections to be replaced in the unlikely event of process/vehicular damage. Protection of the external building envelope will be provided to high traffic areas and any identified operational risk areas to limit such damage.

2.6.10 The industrial nature of the project and close proximity to the City and River Thames will dictate the exterior coating of the material and this will follow through internally to specific process areas.

2.6.11 Robust detailing and careful attention to detail will ensure the durability of the external envelope of the building and will help it to retain its appearance and eliminate potential staining.

2.6.12 Interfaces between differing materials will be carefully detailed to provide robust junctions ensuring weathertight, thermal and acoustic criteria are met and maintained.

2.6.13 The access and maintenance strategy for the safe cleaning of the envelope, both externally and internally, will be carefully considered during the design development stage of the project, together with material types and maintenance/cleaning requirements. This process will eliminate or reduce risks that may have an impact on perimeter roads, external maintenance access routes and the final position and detail of critical areas of the built form.

2.6.14 The access and maintenance strategy will not be treated as a reaction to the design but will be pro-actively integrated ensuring consideration of health and safety strategy during construction, operation and demolition of the Proposed Development.

Sustainability

2.6.15 The Proposed Development has been designed with early direct input from the proposed technology provider's architect, allowing concise appreciation and co-ordination of process spaces together with associated infrastructure including perimeter roads, access ramps and external process spaces. This is reflected in the illustrative plans and elevations included with the DCO Application.

2.6.16 It is possible that aspects of the process technology may change and improve in the course of the detailed design stage and during the operational life of the development. The design of the buildings in which they are contained will be sufficiently flexible and able to accommodate changing requirements without major alterations to the footprint and external appearance of the building.

2.6.17 Where possible building materials will be locally sourced, recycled and have low carbon impact. The use of the British Research Establishment (BRE) Green Guide to Specification provides a useful source of relative environmental performance and manufacturing practices of building materials.

2.6.18 The site development approach will accommodate integrated biodiversity and landscape proposals where possible, to be the subject of a Biodiversity and Landscape Mitigation Strategy secured by DCO Requirement.

Safe, Secure and Capable Infrastructure Design

2.6.19 The Proposed Development will meet the needs of road users and pedestrians including facility and office personnel, visitors and cyclists who may be unfamiliar to the site, allowing them to access and travel the site safely.

2.6.20 The surrounding civil infrastructure on site will optimise traffic circulation and create a safe environment for construction, operational waste movements, jetty access and maintenance activities including occasional users of the site.

2.6.21 Security of the site will be critical to process operations and will allow operation 24 hours a day continuously throughout the year.

Integrated Biodiversity and Landscape

2.6.22 The REP site is spatially constrained, which is a key consideration for the safe and efficient operational design. This has informed the selection of a north-south orientation, with the stack(s) located at the northern end, along with other considerations set out in the DAS. Furthermore, the site lies in a flat open estuarine riverscape with limited dense existing planting, particularly north of Picardy Manorway. Taking the above together, the REP site therefore provides limited opportunity or context for structured or substantial planting within the site at low level, or on the raised flood embankment to the north. The flood embankment also presents constraints in respect of the engineering implications of any potential new planting.

2.6.23 The integrated Biodiversity and Landscape Mitigation Strategy (to be secured through accordance with the Outline Biodiversity and Landscape Mitigation Strategy, **Document Reference 7.6**) therefore focuses on maximising the biodiversity value through low level planting (likely open mosaic habitat and supporting retained grassland) within areas that are not developed with buildings, infrastructure or hard landscaping.

2.6.24 Within this context the building will be integrated, as far as possible, into its landscape. This approach will be applied to the selection of materials and colour. The choice of colours will draw on the initial colour studies illustrated in the DAS and the context colour palettes ensuring the building and structures respond to the surrounding landscape, townscape and riverscape.

2.6.25 Where present, the proposed hard and soft landscaping will be sympathetically integrated into the existing RRRF landscape masterplan with the use of native and indigenous shrubs with wildflower grasses providing an informal planting style, suitable for the surrounding river and nature reserve areas, but set out in a designed and legible way that provides an enjoyable space for people working at REP and RRRF to view and use.

2.6.26 The existing flood embankment will be the focus of onsite biodiversity gain, with any remaining opportunities within the final on site design being explored where possible. Any further necessary biodiversity net gain will be secured through offsetting through a mechanism secured through the final Biodiversity and Landscape Mitigation Strategy.

3 Design Principles

3.1 Introduction

3.1.1 The Design Principles that follow will be applied to the detailed design of the scheme that will be submitted to the Local Planning Authority for approval under the DCO requirements.

3.1.2 The overall REP site would include the Main REP Building which would follow the selected north to south orientation and selected stepped building form as concluded in the DAS which was determined through design evolution and public/stakeholder consultation.

3.1.3 This design form would progress, and respond to, the following design principles shown bounded by a blue box with proposed mitigation measures bulleted below.

3.2 Building, Siting, Composition and Mass

3.2.1 **DP 1.01 - The Main REP Building will be designed with the selected north to south orientation as concluded in Section 5.2.5 of the DAS.**

3.2.2 **DP 1.02 - The Main REP Building will be designed with a selected stepped building form as concluded in Section 6.6 of the DAS.**

3.2.3 **DP 1.03 - The siting and design of Riverside Energy Park will be appropriate to its location adjacent to the River Thames & RRRF.**

- The layout of the Main REP Building and associated buildings and structures has responded to the context of its neighbouring land and property uses and has already considered the need to minimise noise and vibration impacts on the wider area while positioning components in a functional layout to facilitate efficient operation and circulation.

- Within the parameter constraints, and subject to an acceptable operational relationship with RRRF and surrounding infrastructure, the Main REP Building will be located as far south east away from the River Thames and western Crossness Nature Reserve boundary as practicable.

3.2.4 REP will make use of the current RRRF infrastructure including but not limited to:

- Non-recyclable waste deliveries from the River Thames via the existing Jetty access;

- Non-recyclable waste, food and green waste delivered by road via the existing Norman Road access;
- Recyclable ash transportation by river; and
- The existing RRRF gatehouse, unless reconfigured as part of an improved entrance arrangement.

3.2.5 **DP 1.04 - The composition and massing of the Main REP Building will be designed to maximise renewable energy outputs whilst mitigating visual impacts, where practicable and appropriate, in particular from the Crossness Conservation Area, the Thames Path and Lesnes Abbey.**

3.2.6 The Main REP Building form will:

- Utilise the minimum operational parameters required to limit unusable or unnecessary volumes by optimising space and reducing mass where appropriate and practicable;
- Create a building form that reflects the functional elements of each process by introducing steps within the footprint of the building towards the north and south, contributing to the positive visual interest of the project whilst reducing the impact on the River Thames and Crossness Nature Reserve;
- Minimise vertical height to mitigate visual impact from all directions and in particular Lesnes Abbey, Crossness Conservation Area and the Thames Path as indicated in **Figures 3**, **4** and **5**; and
- Maximise the area of photovoltaic panels allowing increased alternative energy uses whilst taking into account mitigation of visual impacts.

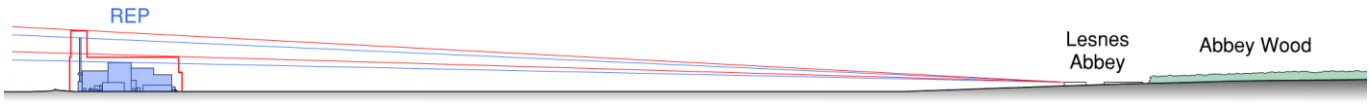

Figure 3 West Elevation – Indicating distance views from Lesnes Abbey

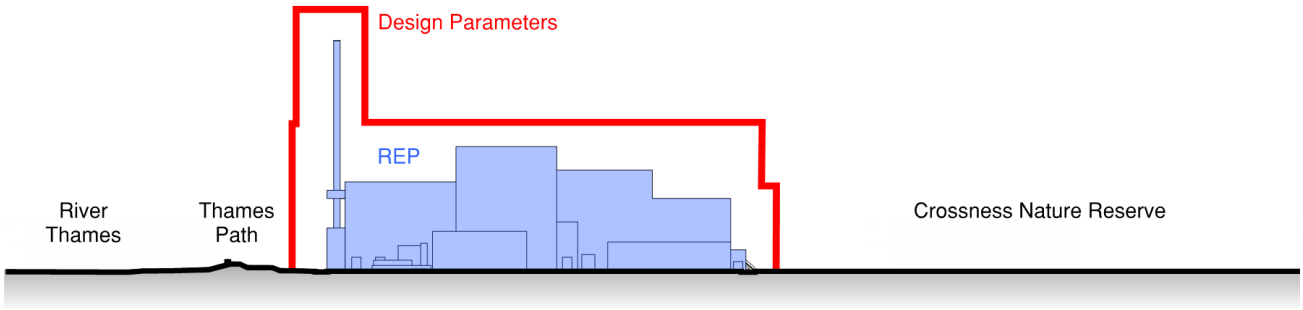

Figure 4 West Elevation - Indicating selected stepped building form within maximum design parameters

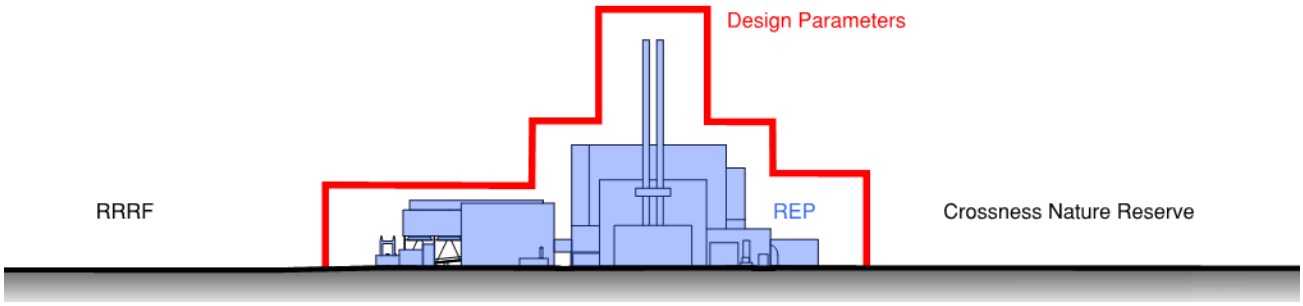

Figure 5 North Elevation - Indicating selected stepped building form within maximum design parameters

3.2.7 DP 1.05 - The composition of the Main REP Building façade will be broken down to reduce the perceived height of the building.

- A perceivable break between lower and upper level elements or individual building elements will be incorporated and will be formed by change in colour, material or incorporation of branding;
- The lower façade will relate to ground based process requirements of robustness and strength; and
- The upper façade will relate to lightness in volume of the internal process and the visual surroundings seen from both distance and close proximity.

3.2.8 DP 1.06 - Contrasting façade systems will be used for the Main REP Building.

- The external material finishes of the Main REP Building will use a neutral and non-reflective colour palette to avoid glare. Colour palettes are identified under **Section 3.3** Materials and Use of Colour;
- The lower elements will use darker colour tones to reflect the surrounding landscape which will be in contrast to the upper elements lighter colours which will not contrast against the sky; and

- The contrast will be achieved by differing lower and upper level elements or individual building elements.

3.2.9 **DP 1.07 - The façade systems for the Main REP Building base will be highly durable and require only minimal maintenance, making use of robust and maintainable materials where appropriate.**

- The robust base will be a mixture of materials of differing heights having an awareness of process operations including day-to-day maintenance; and
- External protection will be introduced to allow alternative materials to be considered which will also be easily repaired or replaced if damage occurs.

3.2.10 **DP 1.08 - The façade systems of the Main REP Building upper elements will introduce rhythm, variation, shadow, and use lighter colours to provide visual interest and reduce visual impact.**

- The upper façade will be articulated to address the scale of the building from long distance views and introduce interest against the skyline;
- Lighter colours to the upper elements will help to visually merge the edges of the building with the sky and increase the perception of lightness; and
- The introduction of differing elements as described in DP 1.05 & DP 1.06 will assist to break the perceived mass down further.

3.2.11 **DP 1.09 - The Main REP Building roof will be designed to achieve an appropriate balance between maximising photovoltaic panel area for electricity generation and mitigating visual impacts whilst ensuring safe access for cleaning and maintenance.**

- The north-south orientation (with stack(s) to the north) of the Main REP Building, together with incorporating a stepped building form, will provide opportunities for large areas of photovoltaic panels on south facing roofs whilst minimising vertical heights.

3.2.12 **DP 1.10 - The design of the Main REP Building façade and roof will allow the implementation of photovoltaic panels and external elements of roof mounted process plant to be concealed from lower level views whilst providing safe access for maintenance and cleaning.**

- Where possible visible elements above the roof of the process buildings will be avoided to reduce interference to the profile of the simple form of the Main REP Building; and
- The façades of the Main REP Building upper volumes will extend above the roof line to screen photovoltaic panels, external process plant equipment & projections, maintenance access equipment and external services as far as practicable.

3.2.13 **DP 1.11 - The stack(s), although detached, will integrate into the Main REP Building. The architectural expression of the stacks will relate to that of the Main REP Building.**

- The stacks will be designed to the minimum possible height to ensure the scheme complies with air quality emissions standards.
- Subject to detailed engineering design, the stack(s) will not be wholly encased, but remain individual, giving the feeling of enhanced slenderness see **Figures 7** and **8**;
- The integration will incorporate main elements of the building materials to enable the stacks to be considered as a whole within the overall visual effect; and
- The incorporation of base and mid-level banding will reduce the visual height perception of the stacks see **Figure 8** (relative to **Figures 6** and **7**).

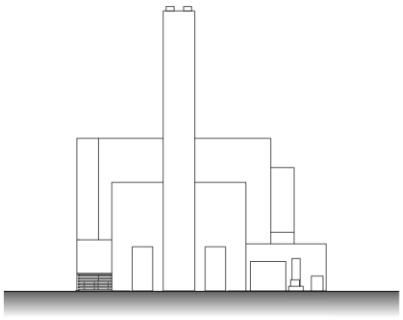

Figure 6 Single encased stack

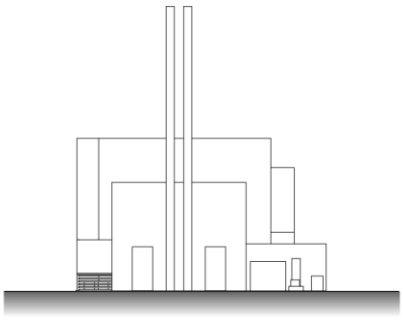

Figure 7 Individual stacks

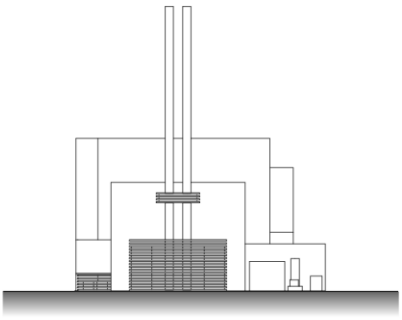

Figure 8 Base & mid-level banding

3.2.14 **DP 1.12 - Other elements of REP including external structures, buildings and plant will be arranged in an ordered and consolidated way. Where structure or plant are exposed, screening that encloses these elements will be considered where appropriate to reduce visual clutter and enhance aesthetics.**

3.2.15 This principle will include but not be limited to:

- The lower level electrical housing units;
- The upper level exposed battery storage units;
- The base of the stack(s) and associated flue gas treatment equipment; and
- The anaerobic digester and associated plant.

3.2.16 Due to the scale of certain elements, screening might have a negative effect and increase the massing of the lower level process areas around the building including but not limited to:

- Large pieces of safety equipment i.e. the fire water tank which would be of a colour/material match/complement the Main REP Building; and
- The transformer and switchyard area.

3.2.17 Enclosures and screening will therefore be proposed only where appropriate.

3.2.18 **DP 1.13 - The main REP stepped building form will minimise the shadowing effects to the surrounding areas in particular Crossness Nature Reserve and the Thames Path.**

- The defined north to south orientation of the Main REP Building will minimise plan shadows.
- Minimising the vertical height and introducing steps within the footprint of the building towards the north and south will minimise shadowing to both the Thames Path and any early morning or late evening shadows to Crossness Nature Reserve;
- Slender individual stacks above the flue gas treatment roof line will further reduce the effect of shadows on the Thames Path and River; and
- The siting of the Main REP Building will be as far to the southeast as practicable to minimise shadowing to the north and west.

3.3 Materials and Use of Colour

General Guidelines

- The materials used to construct REP will be high quality, robust and consistent with the industrial character and use of REP whilst also being cohesive with the surrounding environment;
- The materials used for cladding will be durable, functional and appropriate for use in an industrial environment adjacent to the River Thames; and
- The façade system and materials selected for REP will relate to its location, surrounding buildings, the use of the building and its components and will be selected with consideration of visual impact including the use of non-reflective materials to minimise glare.

3.3.1 **DP 2.01 - A robust base will be used at low level in areas of heavy vehicular traffic or operational activities. Materials will be highly durable, low maintenance and be able to resist moderate impacts, scratches and stains while retaining their functional properties and visual quality.**

- The use of external vehicular protection including bollards and kerbs to the perimeter of the Main REP Building and associated structures will allow alternative materials to be considered introducing flexibility into design by not relying on the lower elements to provide vehicle impact protection.

3.3.2 **DP 2.02 - The lower building elements will sit above the robust base and visually reinforce the lower area of buildings or structures. Located above the ground, the incidence of physical impacts will be reduced and cladding that is resistant to dirt, dust and stains will be considered. As such, the materials used at low level will be highly durable and require only minimal maintenance.**

3.3.3 **DP 2.03 - The upper element materials will be used in exposed areas that can be seen from the surrounding areas. A lightweight approach will be adopted to reduce visual impact including long distance views.**

3.3.4 **DP 2.04 - The use of glazed areas will, in addition to allowing views in and out of the Administration Block and Workshop facilities, help create active and engaging façades and introduce lighter materials that add interest and help to reduce the solidity of buildings, while giving due consideration to reducing glare**.

3.3.5 **DP 2.05 - Architectural screening will be used not only to create shade where needed internally but to also allow glimpses of process operations behind the semi-solid screens.**

Context Colour Analysis

3.3.6 The colour palette has been derived by an analysis of the areas surrounding the REP site to identify predominant and highlight colours. This is defined as Riverside Context Colour (**Figure 9**) and Landside Context Colour (**Figure 10**). Both context colour palettes specifically relate to the River Thames to the north, Crossness Nature Reserve to the south and west, Crossness Sewage Works and Sludge Incinerator to the west and RRRF set against the industrial backdrop of ISIS Reach industrial estate to the east.

3.3.7 **DP 2.06 - The context colour palette will be used to inform the finish and colour of materials used in building façades, location and extent of colours, hues and light and dark areas, colour of signage and potentially branding and identity and other colour elements within the existing REP site.**

3.3.8 **DP 2.07 - The use of light colours on the upper elements and dark materials on the lower elements will emphasise the sub-division of the building and reduce its perceived mass. This arrangement will also facilitate the integration of the building into its context by promoting the darker colours to reference the lower levels of landscape and urban setting while the lighter upper elements would blend into the sky.**

- The stack(s) will complement the colour strategy applied to the main REP building;
- The upper section of the stack(s) will use neutral and light colours to blend into the background sky; and
- Associated buildings and structure colours will primarily derive from the materials used on the Main REP Building and will generally use tones that reference the surrounding context.

3.3.9 **DP 2.08 - Chosen elements may make use of accent colours to assist orientation and intuitive wayfinding, to promote the REP identity and to enhance its sense of place, where these colours are compatible with the surroundings.**

- Accent colours if used will primarily be based, where appropriate, on Cory Brand Guidelines and complement the context colour palettes.

3.3.10 **DP 2.09 - The choice of colours will draw on the initial colour studies illustrated in the DAS and the context colour palettes allowing the building and structures to respond to the surrounding landscape, townscape and riverscape and provide harmony to the building.**

Context Colour Palettes

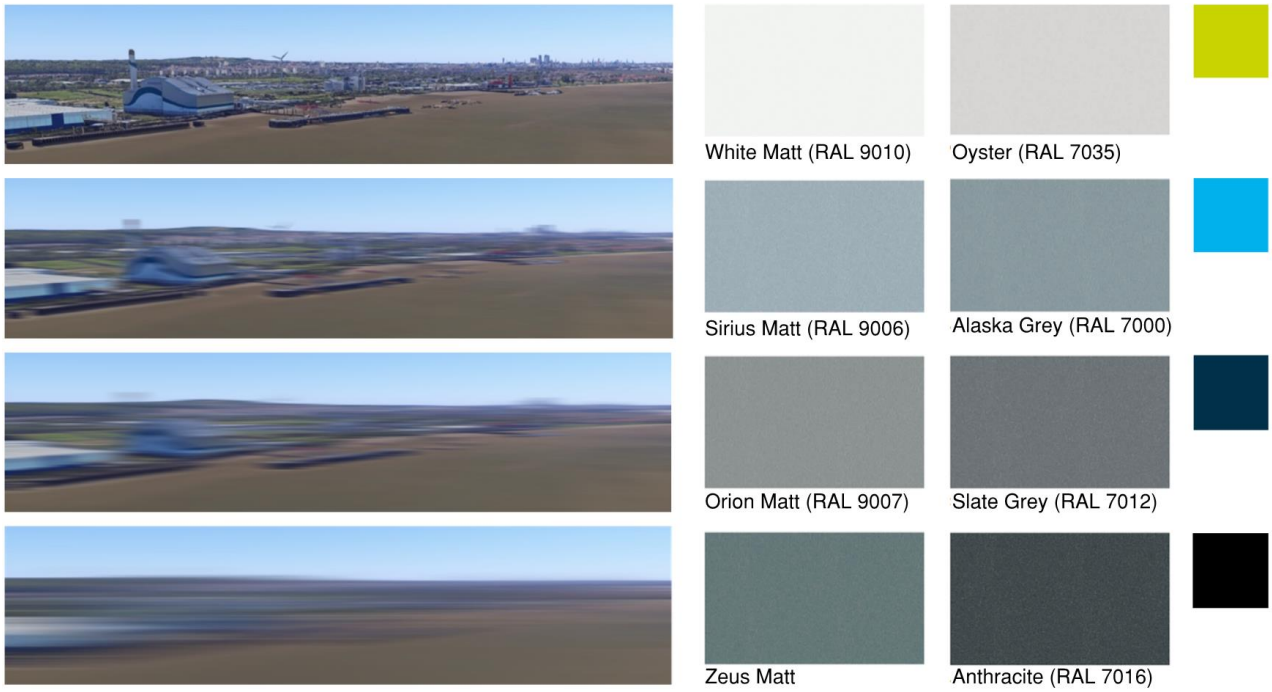

Figure 9 Riverside Context Colour with Cory Brand Guideline Colours to the right

Figre10 Landside Context Colour with CRE Brand Guideline Colours to the right

3.3.11 **DP 2.10 - The colour palette applied at REP will be consistent with the setting of the surrounding environment and will not dominate the visual appearance of the area.**

3.3.12 **DP 2.11 - The colour palette will comprise a range of muted colours of greens, greys and blues, which are in keeping with the existing industrial area, adjacent nature reserve and riverside character.**

3.3.13 **DP 2.12 - The final colour tones will be carefully selected and used as graded colours, to aid the accommodation of the Proposed Development into its setting, reducing REP's visual presence when seen from distance.**

3.4 Integrated Biodiversity and Landscaping

3.4.1 **DP 3.01 - The planting design will contribute to the overall amenity spaces and be used to define outdoor spaces, strengthen architectural design, support the wayfinding strategy and connect with the surrounding context.**

- Respecting functional and operational requirements, opportunities although limited will be explored to maximise the extent of low level landscaping in order to preserve openness;
- Landscaping will be developed with regard to security fencing and CCTV infrastructure;
- Appropriate treatment and control of invasive non-native species will continue in order to comply with legislation and prevent their further spread;
- Hard landscape materials will be selected for ease of maintenance and high durability;
- Native species will be used; and
- Links with adjacent habitats will be retained and enhanced where possible.

3.4.2 **DP 3.02 – The hard surface and street furniture materials palette for the REP site will complement the proposed landscape.**

3.5 Safety, Signage and Wayfinding

3.5.1 **DP 4.01 - Signage will be used to identify buildings, provide orientation or to promote branding and identity. The following Principles will be followed to maintain an uncluttered visual appearance and contribute positively to the perceived quality of the area.**

- Visual information will be used to emphasise orientation, wayfinding, identification and branding;
- Intuitive wayfinding and orientation principles will be based on providing a cohesive link with RRRF;
- All signage will be consistent with the architectural context and appear uniform in terms of material, colour and geometry;
- Care will be given in the signage design and location to avoid visual clutter;
- Materials and construction of the signs will be long lasting;
- Signage will be as monochromatic as practicable. Colours used must be consistent with the context colour palette and Cory branding;
- When applied to the elevation of buildings and structures, signage will appear aligned and consistent with other elements on the building façade; and
- The main entrance and other permanent accesses will have branded signage so that visitors and passers-by would understand the use of both RRRF and REP.

3.5.2 **DP 4.02 - Wayfinding for waste arriving by river and road together with vehicular access for visitors and staff, pedestrians and cyclists will be integral to the daily operation of REP.**

- Existing infrastructure will be optimised to enable REP and RRRF to operate symbiotically and safely;
- The design will adopt an intuitive approach to wayfinding and orientation which complements existing operations;
- The design and operation of access roads and internal site roads will ensure that vehicle routes are appropriate and safe for site construction and site operations;
- Access points to buildings and structures will be easily identified and designed in accordance with its particular function and use (vehicular and pedestrian); and

- REP will be laid out and maintained in a safe and attractive manner which supports a positive public perception of the operation.

3.5.3 **DP 4.03 - The proposed buildings, structures and vehicular network will be encompassed by a continuous perimeter security line.**

- A 2.4 m dark green RAL 6005 perimeter palisade security fence to the site boundary will be provided following the principle of RRRF.

3.5.4 **DP 4.04 - Vehicle parking, storage areas and smaller structures will be laid out and screened to ensure the safety of the site operation where appropriate**.

- Screening will be provided by native shrub planting or materials consistent with the Main REP Building.

3.6 Lighting

3.6.1 **DP 5.01 - Lighting will be appropriate to the local context and will mitigate lighting impacts upon identified habitats, neighbouring occupiers and the wider landscape.**

- Intelligently designed low-glare fully shielded fittings pointing downwards will be used; and
- Blue light emissions will be mitigated by using low colour temperature lighting.

3.6.2 **DP 5.02 - Lighting will provide illumination for the safe operation of the various activities proposed to be carried out at REP, including access and wayfinding.**

- Subject to meeting the operational and safety requirements, lighting will be designed to reduce the brightness and spread of light during operation;
- The lighting design will mitigate light spill within the Crossness Nature Reserve and be designed to maximise dark areas for wildlife;
- The lighting design will be determined by operational requirements for both day-time and night-time lighting of buildings and external areas whilst mitigating impacts on local ecology;
- The lighting design will provide adequate lighting levels to enable the safe operation of all facilities on-site and support vehicular, pedestrian and cyclist movements;
- The lighting design will be as low as guidelines allow; and
- The lighting design will deliver robust and efficient lighting which creates an attractive and safe environment for staff and visitors.

3.6.3 **DP 5.03 - Architectural lighting will only be considered in 'focus elements' to support orientation, wayfinding and branding strategies**.

- Generally, building façades will not be lit for architectural purposes above its operational and safety requirements;
- Lighting may be required at the entrances of the buildings for orientation purposes;
- Architectural lighting colours will be coordinated with the overall design and selected accent colour scheme;
- When applied to the elevation of buildings and structures, lighting will appear aligned and consistent with other elements on the building façade; and
- The lighting strategy will allow lighting to be used consistently across the REP Site, as well as supporting the ability to control colour and intensity levels throughout the day.

3.6.4 **DP 5.04 - Lighting elements will be designed to minimise spillage to Crossness Nature Reserve and the Thames Path.**

- The height and design of lighting columns will be considered to avoid light spill where possible;
- Lighting elements will be consistent in terms of materials, finish and colours and contribute to the appearance of REP;
- All luminaries will be of an energy efficient design and comply with the relevant British Standard; and
- Ease and safe maintenance will be considered as part of selection of light fittings and luminaries.