

MVV Environment Devonport Ltd

DESIGN & ACCESS STATEMENT

MAY 2011

Energy from Waste Combined Heat and Power Facility, North Yard, Devonport, Plymouth

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1. INTRODUCTION

1.1 The Content and Purpose of the Design and Access Statement

1.1.1 This Design and Access Statement (DAS) forms part of an application for planning permission by MVV Devonport Environmental Limited (MVV) for the construction and operation of an Energy from Waste Combined Heat and Power Facility (EfW CHP Facility) on land currently situated in the north east part of Her Majesty's Naval Base (HMNB) Devonport, Plymouth. This DAS has been prepared by URS/Scott Wilson Limited (project Planning and Environmental Consultant) and Savage and Chadwick (project Architect) on behalf of MVV.

1.1.2 The planning application is also accompanied by a Planning Application Supporting Statement and other supporting assessments and statements, including an Environmental Statement. These documents contain a detailed description of the proposed development (for example at Environmental Statement Chapter 6 and Section 5 of the Planning Application Supporting Statement) and a full assessment of the benefits of the scheme and of the likely environmental effects. Consequently, this DAS should be read in conjunction with these supporting documents.



Figure 1.1: View across Harbour (Photograph provided by the MoD)

1.1.3 Section 42 of the 2004 Planning and Compulsory Purchase Act introduced the requirement for a statement covering design and access issues to be submitted with a planning application and the Guidance on information requirements for validation, establishes the circumstances in which a DAS is statutorily required and provides guidance on issues to be addressed.

1.1.4 The government's Planning Policy Statement 1 includes "ensuring high quality development through good and inclusive

design" as a main objective of the planning system. The government has produced national-level guidance on the design of waste management facilities and Plymouth City Council has adopted its own local planning policy on design. This statement has been prepared in order to satisfy the requirement of the 2004 Act, to respond to government guidance on the content of a DAS and to address national guidance and Plymouth City Council's local policy on good design.

1. INTRODUCTION



1.1.5 This DAS is structured as follows.

Section 1.	Introduction and scheme synopsis
Section 2.	Design Policy
Section 3.	The Site
Section 4.	Use, Scale and Amount
Section 5.	Layout
Section 6.	Design Evolution
Section 7.	Appearance and Materials
Section 8.	Landscape Strategy
Section 9.	Security and Lighting
Section 10.	Climate Change and Sustainability
Section 11.	Access
Section 12.	Design and Access - Conclusions

1.2 The North Yard, Devonport EfW CHP Scheme - Synopsis

1.2.1 The proposed EfW CHP facility is the embodiment of sustainable development.

1.2.2 The facility will manage waste sustainably, helping to minimise and control the adverse environmental effects of waste that will not be recycled or reused, including the release of greenhouse gases that contribute

to climate change, which are currently generated by landfilling.

1.2.3 The facility will also generate renewable energy to power and heat HMNB Devonport, and will replace the existing fossil-fuel-powered boilers. The proposed CHP network and spare heat and energy can also be used by existing and new industry in the area and will be made available to heat the proposed Help for Heroes swimming pool. The CHP component of the facility will therefore make a major contribution to the strategic and local economic objectives of the City of Plymouth, helping to safeguard existing jobs and to attract new jobs.

1.2.4 MVV will deliver leading-edge energy generation technology, which will very efficiently convert into energy waste. All waste management operations will take place in enclosed buildings and emissions from the combustion process will be cleaned to meet strict European standards. Emissions will be monitored by the Environment Agency and the results published on the MVV Devonport website.

1.2.5 All waste deliveries and materials left over from combustion will be transported in enclosed or covered lorries or in sealed

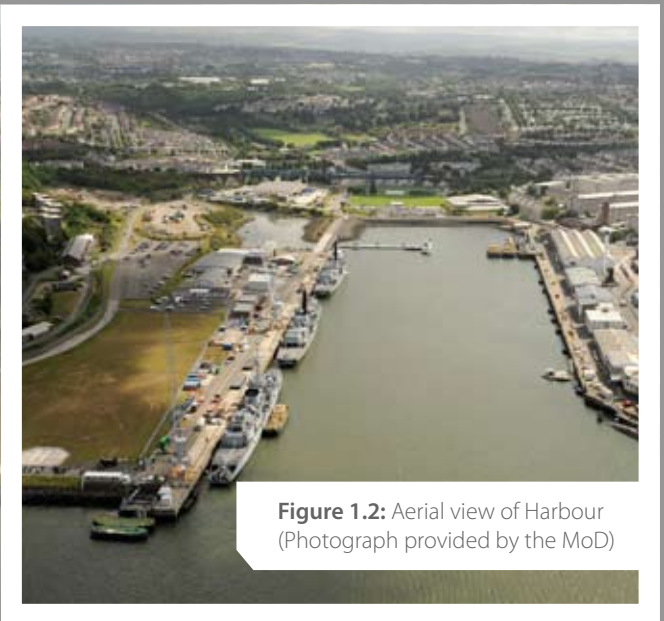


Figure 1.2: Aerial view of Harbour
(Photograph provided by the MoD)

containers. All of the recyclable part of post-combustion materials will be sent for processing and marketed for use in construction.

1.2.6 The striking and ironic design of the landmark building, using high quality materials, is intended to represent the best of sustainable development and to set a high standard for the regeneration of the North Yard area. The main building will be of a quality and appearance that the local community and the people of Plymouth can be proud. The facility will interact with

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Figure 1.3: Plan showing the site and surrounding context.

the local community, offering a resource to be used, in the form of meeting and educational space, a community terrace from which the Dockyard can be studied, and a biodiversity education resource. Local district heating is also being actively investigated by MVV, which is involved in a current market-testing exercise led by Plymouth City Council.

Site Selection

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the Devonport Dockyard & the Naval Base will be reduced by around 20% for 25 years.

1.2.9 The specific location of the EfW CHP facility offers a unique opportunity to provide renewable energy to the Dockyard and allows the existing gas and oil-fuelled generators to be switched off permanently, other than in the short periods when the EfW CHP facility is undergoing routine annual maintenance. In doing so, the facility at North Yard will improve the economic viability of the Dockyard and will in turn make an important contribution to sustaining the local communities that rely on the jobs and business generated by the dockyard. A full evaluation of the social and economic effects of the proposed EfW CHP facility is provided in Chapter 17 of the Environmental Statement. A full description of the production and use of CHP and the economic and employment benefits of the EfW CHP scheme is provided in Appendix 4 to the Planning Application Supporting Statement.

1.2.10 In developing its proposals, MVV considered alternative sites for locating the EfW CHP Facility. Alternatives were evaluated against planning policy, covering environmental, amenity and deliverability criteria, including

contribution to renewable energy provision. MVV concluded that no other site, outside or within the Dockyard, would result in fewer environmental impacts overall and a more deliverable CHP opportunity, than the North Yard, Devonport site. An account of this alternatives evaluation process is provided in Chapter 5 of the Environmental Statement.

The Proposed Development

1.2.11 The proposed development shown in Figure 1.4 is for an EfW CHP facility of a sufficient size to accommodate MVV – Umwelt technology. The height of the building is dictated by the requirement to retain gases from the combustion process at a

Figure 1.4: Roof Plan



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temperature in excess of 850°C for more than 2 seconds and therefore the height of the building would be of the same order, irrespective of the type of EfW technology used.

1.2.12 The EfW CHP facility is designed to treat 245,000 tonnes of waste per annum (tpa), although if the incoming waste has a lower than expected calorific value and the plant is available for a greater amount of time, for example if maintenance takes less time than expected, the throughput could be 265,000 tpa of waste. The EfW facility will be a combined heat and power facility (CHP) providing environmentally sustainable electrical energy and usable heat to the HMNB Devonport steam network.

1.2.13 The facility will comprise the following principal components:

- Tipping hall;
- Waste bunker hall;
- Bale store;
- Turbine / boiler house;
- Air pollution control system, including 95m high chimney;
- Air cooled condensers; and
- Administration block.

1.2.14 In addition to these principal components, there will also be access roads and trafficked areas for operational purposes including a new clear-span bridge over Weston Mill Creek, weighbridges and a gatehouse, drainage and connections to infrastructure (including connection to the heat pipeline distribution system and the electricity substations in the Dockyard), a workshop, hard and soft landscaping and an ecological mitigation area.

1.2.15 The footprint of the main building itself will cover approximately 6,200m² and together with small auxiliary buildings and equipment approximately 9,000m². The main section of the main building (turbine / boiler house) will be 45 metres tall at the highest point (above the steam generation room) reducing to circa 15 metres at its lowest point (the administration block). The chimney will be approximately 95m tall. The building is approximately 134m metres in length.

1.2.16 This statement is illustrated by a number of figures. Full details of the site location, layout, access routes and design are provided in the set of plans and elevations that accompany this planning application.



2.1 Introduction

- 2.1.1 The planning policy framework within which the development proposal must be considered is set out within national, regional and local planning policy documents and detailed within Chapter 6 of the Planning Application Supporting Statement. This section of the DAS should be read in conjunction with the Planning Application Supporting Statement.
- 2.1.2 This DAS provides full details of the design principles and rationale applied to the preparation of this development proposal, and also serves to demonstrate policy compliance of the development with regard to the relevant national and local planning policy and guidance documents.

2.2 National Planning Policy

- 2.2.1 **Planning Policy Statement 1: Delivering Sustainable Development** (2005) states that:
- “Planning should...ensure high quality development through good and incisive design”; “...should plan positively for the achievement of high quality and inclusive design for all development, including individual buildings, public and private

spaces and wider area development schemes. Good design should contribute positively to making places better for ‘people’. It requires “ensuring a place will function well and add to the overall character and quality of the area, not just for the short term but over the lifetime of the development”. (paragraph 35)

- 2.2.2 **Planning Policy Statement 4: Planning for Sustainable Economic Growth** (2009) requires consideration of “whether the proposal secures a high quality and inclusive design which takes the opportunities available for improving the character and quality of the area and the way it functions”. Policy EC10, EC10.2 (c)
- 2.2.3 **Planning Policy Statement 10: Planning for Sustainable Waste Management** (2011) states that “Good design and layout in new development can help to secure opportunities for sustainable waste management, including for kerbside collection and community recycling as well as for larger waste facilities.”... Planning authorities should ensure that new development makes sufficient provision for waste management and promote designs and layouts that secure the integration of waste management facilities without

adverse impact on the street scene or, in less developed areas, the local landscape” (paragraph 35)

- 2.2.4 It also states that “Waste management facilities in themselves should be well designed, so that they contribute positively to the character and quality of the area in which they are located. Poor design is in itself undesirable, undermines community acceptance of waste facilities and should be rejected”. (paragraph 36)
- 2.2.5 **Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10** (2006)
- The Companion Guide advises on ‘Good Design’ (Chapter 8), stating “Good building design and site layout of facilities in appropriate locations will improve community acceptance of waste management facilities by mitigating environmental impacts, including visual appearance, and by improving operations on site so reducing impacts on the amenities of neighbouring uses to an acceptable level”.



2.3 Local Planning Policy

2.3.1 The **Plymouth Core Strategy 2006 – 2021** was formally adopted by Full Council on 23 April 2007. **Policy CS02: Design** states that “New development should be well designed to respect the character, identity and context of Plymouth’s historic townscape and landscape and in particular Plymouth’s unique waterfront, its moorland setting and the settlement pattern.”

2.3.2 The policy lists further design requirements that should be taken into consideration in a new development. Of particular relevance to this new development are:

- Contribute positively to an area’s identity and heritage in terms of scale, density, layout and access.
- Be flexible to respond to future social, technological and economic needs.
- Have public and private spaces that are safe, attractive, easily distinguished, accessible and complement the built form.
- Be accessible to all users.
- Be safe, uncluttered, varied and attractive.

2.3.3 **Policy CS18: Plymouth’s Green Spaces** “requires development proposals to improve the quality and quantity of accessible green space, where appropriate.”

2.3.4 **Policy CS32: Designing out Crime** requires developments “... to reduce opportunities for crime and the fear of crime by requiring all new development to incorporate good design principles ...”

2.3.5 **Policy CS34: Planning Application Considerations** provides the criteria against which the granting of planning permission will be considered. The points that have been specifically addressed by this planning application include:

- Has adequately considered the on and off-site impacts of the proposal in terms of climate change, flood risk, wildlife, natural resource use and pollution.
- Makes efficient use of land, including where appropriate providing for dual use of facilities.
- Positively contributes to the townscape, landscape and biodiversity of the local environment.
- Is compatible with its surroundings in terms of style, siting, layout, orientation, visual impact, local context and views, scale, massing, height, density, materials and detailing.
- Protects the amenity of the area, including residential amenity in terms of satisfactory daylight, sunlight, outlook, privacy and soft landscaping.

- Ensures public safety.
- Demonstrates that existing drainage, waste water and sewerage infrastructure capacity is maintained and where necessary enhanced, to enable the development to proceed.
- Ensures where appropriate equality of access and use for all sections of the community.

2.3.6 Chapter 5 – Area Vision and Strategies of the Core Strategy identified ten priority areas within the city because of their opportunities for change, city wide importance, or urgent need for regeneration. Devonport is included as a waterfront regeneration priority area and Area Vision 1 – Devonport, informs the Devonport Area Action Plan, which covers the southern part of Devonport, excluding the North Yard area within which the planning application site is located.

2.3.7 **The Plymouth City Council ‘design supplementary planning document (sustainable design in Plymouth)’ (adopted 2009)** requires, inter alia, that “development proposals must also contribute to the creation of an environmentally sustainable city supporting the natural environment, minimising the effects of and adaptable to the potential



impact of climate change."The design supplementary planning document (Design SPD) comprises a comprehensive consideration of design matters relating to new development in Plymouth. The evolution of the EFW CHP facility design has had regard to the guidance in the Design SPD that is relevant to waste management development at the North Yard site and specific responses to the guidance are signposted at appropriate points in this Design and Access Statement.

2.3.8 The **Plymouth City Sustainable Neighbourhoods development plan document** is an emerging part of the Local Development Framework and in February and March 2011 Plymouth City Council undertook public consultation on a number of plans for the City neighbourhoods, including Barne Barton (within which the Site is located), Kings Tamerton and Weston Mill and Keyham, which neighbour the site. At the time of the submission of this planning application, it was too early to take account of the full findings of the Plymouth City Council public consultation on the Sustainable Neighbourhoods DPD. However, MVV carried out its own extensive pre-application community consultation, as described in the Statement of Community

Involvement and summarised Section 3.2 of this DAS, including public exhibitions in Plymouth and the surrounding area.

2.3.9 **The Waste Development Plan Document 2006-2021 was adopted in 2008. Policy W7: Unallocated Sites** requires that waste management proposals on unallocated sites "are compatible with their environmental setting and will not result in unacceptable impacts on important environmental, historic or cultural assets." And 'They will not result in unacceptable direct or indirect impacts on the residential amenity of existing or proposed communities, or unacceptable impacts on the amenity of other neighbouring uses that would be sensitive to waste management development.'

2.3.10 **Policy W8: Considerations for Waste Development Proposals** requires that proposals "do not have unacceptable impacts on environmental, social or economic assets." And "the proposal provides for a good standard of design, particularly in relation to: site layout: quality of building appearance and materials; screening and boundary treatment; and hard and soft landscaping". This policy also requires that "all buildings should

incorporate measures consistent with the principles of sustainable design and construction equivalent to the current BREEAM excellent standard."

2.3.11 This DAS explains how the proposed design of the EFW CHP Facility responds to and is compatible with, national, regional and local design planning policy.

2.3.12 This statement also details the work proposed in order to accommodate a satisfactory access to the site and the wider dockyard area without compromising the strict security consideration which must be taken into account because of the strategic significance of the Dockyard as a naval base. Movement through the site and parking arrangements are fully explained, including proposals for strictly controlled vehicular movements through the site so as to ensure safe circulation for all users regardless of mode of transportation.

2.3.13 **Plymouth's Green Space Strategy contains Objective 'GSS16: Access to Nature'**, which aims at "ensuring.. green space management plans address opportunities for biodiversity protection and enhancement and consider opportunities to enhance the City's Biodiversity Network"

as well as “ensuring that green space and blue space (the rivers and estuary) are managed in an integrated way to maximise benefits and marine wildlife”. Both of these objectives are supported by the proposed development with regards to treatment and management of Blackies Wood and improving access to Weston Mill Creek.

2.4 Guidance and Other Documents

2.4.1 ‘Designing Waste Facilities: A guide to Modern Design in Waste’, 2008 by Enviros on behalf of Defra and CABI

The proposals have drawn upon the recommendations in this guidance. The landscape setting has been considered as the leading influence in the design with the existing vegetation and landform dictating the proposed building location and form.

2.4.2 For example, in accordance with the guidance, the landscape design does not seek to ‘hide’ the building in the majority of aspects. However, in certain, specific locations, screening is important and the designs reflect this, taking advantage of offsite planting opportunities. In addition to this the guidance suggests “retaining and augmenting existing vegetation [to] reduce

the visual impact, [of] particularly low level elements and manoeuvring vehicles” and this has been strongly incorporated into the designs.

2.4.3 The proximity of Blackies Wood has been taken advantage of through the appropriate inclusion of “locally native plant species be[ing] incorporated within planting schemes” as recommended by the Guide. This has also been utilised as an “opportunity to maximise biodiversity potential... [and] habitat creation”. This design approach has been implemented beyond Blackies Wood and throughout the main site itself through the use of ‘brown’ and ‘living’ roofs and species-rich meadow grass which have been designed with specific reference to the ecological survey work carried out on the site.

2.4.4 The use of hard and soft landscaping has been designed to “help the overall... layout and flow of the site, providing legibility”, in accordance with the Guide. This has been realised by a strong entrance feature and building entrance creating a ‘sense of arrival’ which can be experienced by people entering the site, as well as those passing by. For ease of orientation within the site, smaller scale landscaping is proposed in

pedestrian (including the general public) access areas and larger scale landscaping where large vehicles will be manoeuvring. The guidance states that this “approach will be... important where there is public access”.

3. THE SITE

3.1 Site location and context

- 3.1.1 The site is located at North Yard in Devonport, Plymouth, within the local authority of Plymouth City Council. The location of the site means that the highway access will be from the A38 via the A3064, Weston Mill Drive.
- 3.1.2 The site covers an area of approximately 13.07 hectares of which approximately 2.5 hectares is the operational area and the remaining part of the site being the sloping woodland of 'Blackies Wood' and banks to the adjacent watercourse, set aside for conservation uses, and the site access road and infrastructure uses.
- 3.1.3 The majority of the site was last used as an aggregate processing plant. Figure 3.1 identifies the site location on an aerial photograph.
- 3.1.4 To the West of the site the ground rises sharply and high density housing (Barne Barton) exists. This housing is now owned by Housing Associations or is in private ownership having once been MoD property. To the East of the site there is a main (London-Penzance) line railway which is elevated on a viaduct in proximity to the site. Vegetation adjacent to the two



Figure 3.1: Aerial photo of site showing the site and surrounding context (Reproduced from Ordnance Survey digital map data (c) Crown copyright 2005. All rights reserved. License number 0100031673).
Note: planning application site boundary is shown on Figure 1.3

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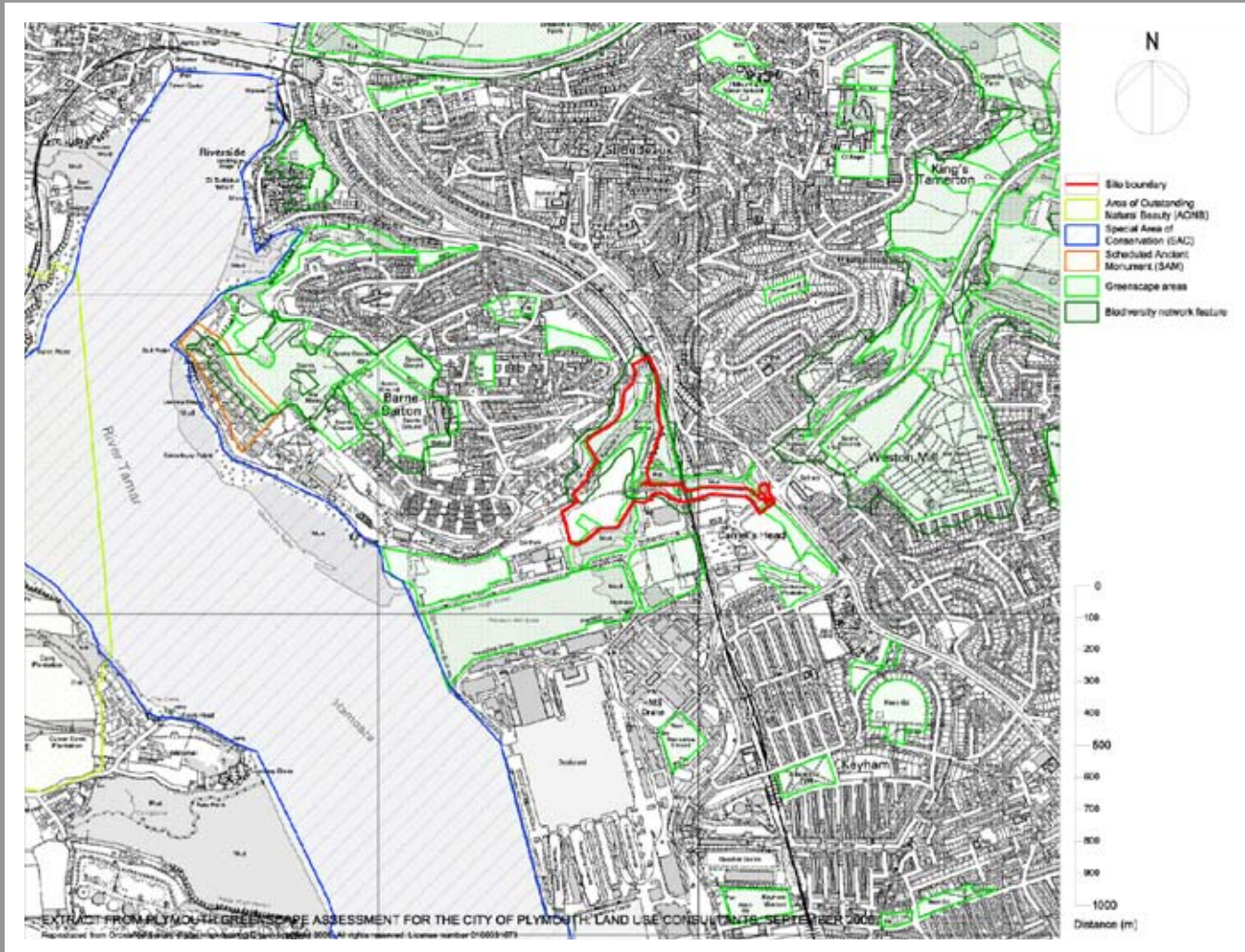


Figure 3.2: Plan of Landscape Designations in proximity to the site. (Reproduced from Ordnance Survey digital map data (c) Crown copyright 2005. All rights reserved. License number 0100031673).
Note: planning application site boundary is shown on Figure 1.3

creeks and this elevated railway line form a strong visual buffer between the site and the residential properties immediately to the East, however further to the East the residential properties are more elevated and overlook the site. To the South lies Devonport Dockyard and to the South-West the Tamar Estuary.

3.1.5 The north end of the site contains a woodland area 'Blackies Wood'. This woodland area is an identified Biodiversity Network Feature and Local Greenscape Area (allocated in PCC adopted Core Strategy) as illustrated on Figure 3.2. The site is within close proximity to the Plymouth Sound and Estuaries SAC and AONB as illustrated on Figure 3.2. Bull Point Gunpowder magazines and camber Scheduled Ancient Monument (SAM) is located between Bull Point and Kinterbury Point, there are also 3 SAMs to the south of the site relating to the historic dockyard (not shown).

3.1.6 The EfW CHP building will be visible from close range by the housing at Barne Barton, Kings Tamerton, parts of Keyham and Weston Mill Road and at a distance from the Dockyard and the Estuary. Due to the topography of the site, a relatively level, low lying valley is created below Blackies Wood. The existing ground level is relatively

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concealed from the surrounding residential properties immediately to the East / North East but visible from those to the east of Wolsely Road and further afield from the south-east.

- 3.1.7 The planning application boundary also includes various elements of proposed pipework and electrical cable replacement, to the south of the area partly shown on Figure 3.1. The majority of this is below ground or replacement of existing above ground pipework and therefore did not form a major part of the site analysis below.

3.2 Landscape Site Analysis

- 3.2.1 Figure 3.3 shows an analysis of the areas in the immediate vicinity of the site and how they interrelate.

- 3.2.2 The lowest lying area of the site is located below the slopes of Blackies Wood (as noted above). The vegetated land to the east is also sloping upwards towards the elevated railway line. Relative to the rest of the site, this low lying area is therefore visually and physically divided from the adjacent residential areas

- 3.2.3 The more elevated level area to the south, known as 'Table Top Mountain' which will only be used during the construction



Figure 3.3: Site Analysis diagram [Note this diagram was produced at the early stages of the design process and there have now been minor modifications to the site boundary.]

period, is more visually exposed to the residential area to the north, although the smaller wooded slope does form some divide.

3.2.4 Due to the landform, the residential area to the north and north-west gain distant wide, south-easterly views across the dockyard and the estuary. The former's views are across the low lying area of the site, whilst the latter's views are across the slightly higher land of Table Top Mountain.

3.2.5 The Dockyard buildings to the south are visually exposed to the site, although it is seen with the context of Blackies Wood which forms a dark green backdrop beyond. These buildings are large scale and industrial in character, which contrasts with the residential scale of built form to the north and east.

3.2.6 The site is divided physically from the main Dockyard area by the intervening watercourse, Weston Mill Creek and to the east by Barne Brake. This restricts access into the site via the two narrow road bridges, this access route further dissect into the two level areas.

3.2.7 The long axis of the site faces south-east. The sun-path indicates that the site receives

very good sunlight during the morning and midday, and good levels of sunlight during the afternoon.

3.2.8 Due to these factors, the most suitable location for the proposed building would be in the low lying area (marked in orange in Figure 3.3). This takes advantage of the existing landform and vegetation. The visual connection between this low lying area and the Dockyard also implies that development on the site could be of a large industrial scale, to correspond with the existing built form. Development upon Table Top Mountain would be more exposed to the surroundings.

3.2.9 This analysis and further design development has informed the location, form and orientation of the proposed development and this is explained throughout this Design and Access Statement.

3.3 Site Context and Urban Design Appraisal

3.3.1 Design Principles

The key principles for the design of the facility have been informed by the Design SPD and the advice from the South West Design Panel.

3.3.2 Key principles for this site include:

- The location and design of buildings should complement the existing or planned scale and built form of the local area.
- Designs should enhance the quality and amenity value of the urban area.
- Facilities could form buffers between sensitive land uses.
- Opportunities for new planting should be created and where possible buffer planting should be integrated with existing woodlands.
- The Design should take into account the sensitivities of all adjacent land uses and respond to them in a cohesive form.

3.3.3 Key principles for built form include:

- In both rural and urban locations built form should reflect local distinctiveness and be sympathetic in design.
- Cladding materials could include profiled metal systems used in an imaginative way. Various colour treatments may be appropriate. Colour treatment and the design of the elevations should be in scale with the surrounding townscape.
- Any security kiosks and weighbridges should be considered as part of the overall built form.
- Consideration should be given to the



massing of the buildings, in order to reduce the bulk of the proposals overall.

3.3.4 The overall design masterplan for the site is to provide a facility which combines high quality architectural design with a form that complements the complex dockyard context of an industrial setting with a backdrop of a woodland area with varying topography and relatively close proximity of residential properties.

3.3.5 Appraisal

The design evolution process commenced with a comprehensive assessment of the site context. This included the existing fabric of the dockyard and a consideration of the potential future development of the dockyard, taking account of known development projects, MOD future plans and aspirations and of planning policy for the area and the need to set an appropriate standard of design and quality. The context of the non-dockyard areas surrounding the site was also considered, especially the relationship between the development site and the neighbouring residential areas of Barne Barton, Weston Mill, North Prospect and Keyham, the importance of views from the north and east, and the relationship of the site with the Blackies Wood local

Greenscape area. Figures 3.4 & 3.5 below illustrate the site context.

3.3.6 Devonport Dockyard is a collection of different buildings and structures that have evolved over an extended period of time. The frontage to the development is formed by the warships that are moored alongside the quays. The landscape is industrial and has little in the way of strong colour with the predominant effect being shades of grey and a muted colour palette. The predominance of the grey is further emphasised by the battleship grey of the ships themselves – with small flashes of colour provided by the flags on the ships, the crane bases and the container storage. The form of the development is angular and there is little in the way of any softer organic references.

3.3.7 The proximity of residential communities is also relevant in that the potential for visually expressing the Energy from Waste process could help form a link between those communities and the development. Rather than a large single dark shape enclosing hidden plant and equipment the building could provide an understanding of the process and create an interest in the technology.

3.3.8 The proximity of the site to the Blackies Wood Greenscape area and the opportunity to set the facility within a landscaped context also informed the design appraisal.

3.3.9 In consideration of the Planning Policy Criteria particular attention has been paid to the Criteria for Tall Buildings in the Design SPD. Although it is recognised that this site lies outside the zone of opportunity for tall buildings as indicated by that document, it is appropriate to follow the recommended criteria for such buildings where relevant to this application. The architectural quality of the building in scale form massing proportion and silhouette have been considered through the design development process, along with the choice of facing materials and relationship to other structures. In addition the design deliverability will be ensured by careful attention to detailing to prevent any dilution of the architectural quality.

3.3.10 The particular criteria for the Design of Tall Buildings as outlined in the Plymouth Tall Buildings Strategy have been responded to as follows:

1. Sustainability – The building not only creates Energy from Waste but and therefore has high sustainability credentials

3. THE SITE



Figure 3.4: The main development site.



Figure 3.5: The Dockyard context.

but also uses materials with a long life span, maximises the use of available land and will use forms of construction which maximise energy efficiency.

2. Relationship to Context – The proposal needs to minimise the overall height of the building but also create an architectural statement. The building should also respond to its context in the use of design references, possibly echoing the adjacent dockyard composition.
3. Transport – The distance of the site to the main road network is minimal and transport impacts have been assessed as part of the planning application and Environmental Statement. There is an opportunity to provide controlled public access to the facility and the adjacent Blackies Wood and views from the nearby railway line will be important in relation to creating a sense of arrival via this landmark building.
4. Design and Architectural Form - The design will need to be of a high quality in scale form and architectural detail. The detail of the top of the building will be important, as will the materials used, which will need to be of high quality and designed to need very low maintenance.



5. Land Use Mix – The scheme proposes an Energy from Waste Plant, the management and improvement of existing woodland, educational facilities and landscape and amenity benefits for the surrounding area.
 6. Environmental Issues – The sustainability of the building is described above. In addition there will be opportunities to provide benefits for wildlife, and environmental improvements through landscaping. The longevity of the building is guaranteed by a continuous waste stream and the building will be able to adapt to the replacement of component parts or plant which will extend its life.
- 3.3.11 The assessment of site context and the design response took place over a period of time, starting from the early stages of the SWDWP project bid and the initial sketch scheme response. As the contextual study was concluded, with the benefit of consultation responses, the design response evolved, and led the building design in a completely different direction to the early design proposal. The design evolution process is describe in Section 6 of this DAS.

3.4 Public Consultation

- 3.4.1 A Statement of Community Involvement forms Appendix 2 of the Planning Application Supporting Statement. The Statement of Community Involvement details the approach taken by MVV to public consultation in relation to this development proposal and the ways in which the proposals have been modified in response to the comments.
- 3.4.2 Comments on the design were uncommon and design matters were not consistently raised as a major issue, but some comments were received on the layout, architecture and colour schemes proposed at various stages

3.5 Daylight and Sunlight impact

- 3.5.1 Chapter 16 of the Environmental Statement evaluates the likely impact of the EfW CHP building on daylight, sunlight and overshadowing. The evaluation concludes there will be no significant effects on daylight, sunlight and overshadowing. Full details of the evaluation can be found in Environmental Statement Chapter 16 and a summary is provided in the Planning Application Supporting Statement (Section

9), in Chapter 20 of the Environmental Statement and in the Environmental Statement non-technical summary.

4. USE, SCALE & AMOUNT



4.1 Use

4.1.1 In order to achieve the operational requirements and in response to the context, the proposed site design and layout has taken the following operational requirements into consideration.

- Provision of an EfW facility with a capacity of approximately 245,000 tpa.
- The necessary dimensions of the facility are approximately 134 metres long by 81 metres wide and 45 metres high. The exhaust chimney will be approximately 95m high.
- Separate, elevated air cooled condenser building.
- Office facilities to be integrated within the main body of the plant.
- Education facilities/community space integrated within the main body of the EfW plant.
- Co-location of the control room and grab operator
- Weighbridge for waste disposal vehicles.
- Segregated access for waste disposal vehicles and employees /visitors to the site.
- Full perimeter vehicular circulation.
- Adequate accessible car parking spaces for employees and visitors including disabled and cycle/motorcycle spaces positioned close to the main offices.

- The selection of a solid cladding material for noise attenuation and control of light pollution.
- Structural limitations to the location of roof terracing.

4.1.2 The proposed EfW CHP facility at Devonport is designed in a form appropriate for the receipt of residual waste material and its use as a fuel to generate electricity and where practical CHP.

4.1.3 The main building needs to be the height proposed in order for the plant to meet the strict requirements of the Waste Incineration Directive (WID) to protect human health and the environment. Specifically, the secondary combustion chamber is sized so that the products of combustion remain at a temperature of at least 850°C for a minimum of two seconds to ensure the efficient destruction of organic compounds and carbon monoxide. The products of combustion rise vertically within this chamber. This equipment therefore dictates the need for the secondary combustion chamber to be in a building which is at least 45m tall to allow a temperature of 850°C to be maintained in the combustion chamber for two seconds.

4.1.4 The main EfW CHP facility building will encompass all operational aspects of the proposed development, housed in a sequence of operations to receive (and store), process and incinerate the waste, to create steam to power the turbines and hence produce the electricity and hot water which can be distributed round the Dockyard replacing gas and oil fired boilers.

4.1.5 Also within the process there is a series of equipment that filters and cleans the exhaust fumes from the process as well as facilities to collect the ash residues before safe removal from the site.

4.1.6 A separate electricity substation, air cooled condensers, transformer building and workshop and storage building will also be provided.

4.1.6 As well as the operational plant delivering the service requirements of the SWDWP contract, the facility also provides facilities for the use by the public. This includes a visitor centre which will provide an education resource and a general community space resource.

4.1.7 Safe access to the administration block element of the main EfW CHP building,

4. USE, SCALE & AMOUNT

which will house the visitor centre and office accommodation, is a primary driver to the layout of the building and the location of the administration block. The site has been designed to ensure a clear distinction between the operational waste management areas of the site and the administrative and visitor areas. Waste management traffic is directed to the west of the main building via a completely separate route to that of staff/visitors. The waste traffic is required to access the weighbridges on entry and egress from the site and provision has been made to allow queuing of the large articulated lorries on site with the intention that no blockages on the public highway should occur.

4.2 Scale and Amount

- 4.2.1 The waste treatment process will take place within the Main Building and no waste will be stored or processed outside the building. The maximum height of this building will be 45m and the minimum height 15m. External 'ribs' will project 3m above the height of the main building enclosure. The total length of the building will be 134m and the width will vary between a minimum of 30m and a maximum of 81m.

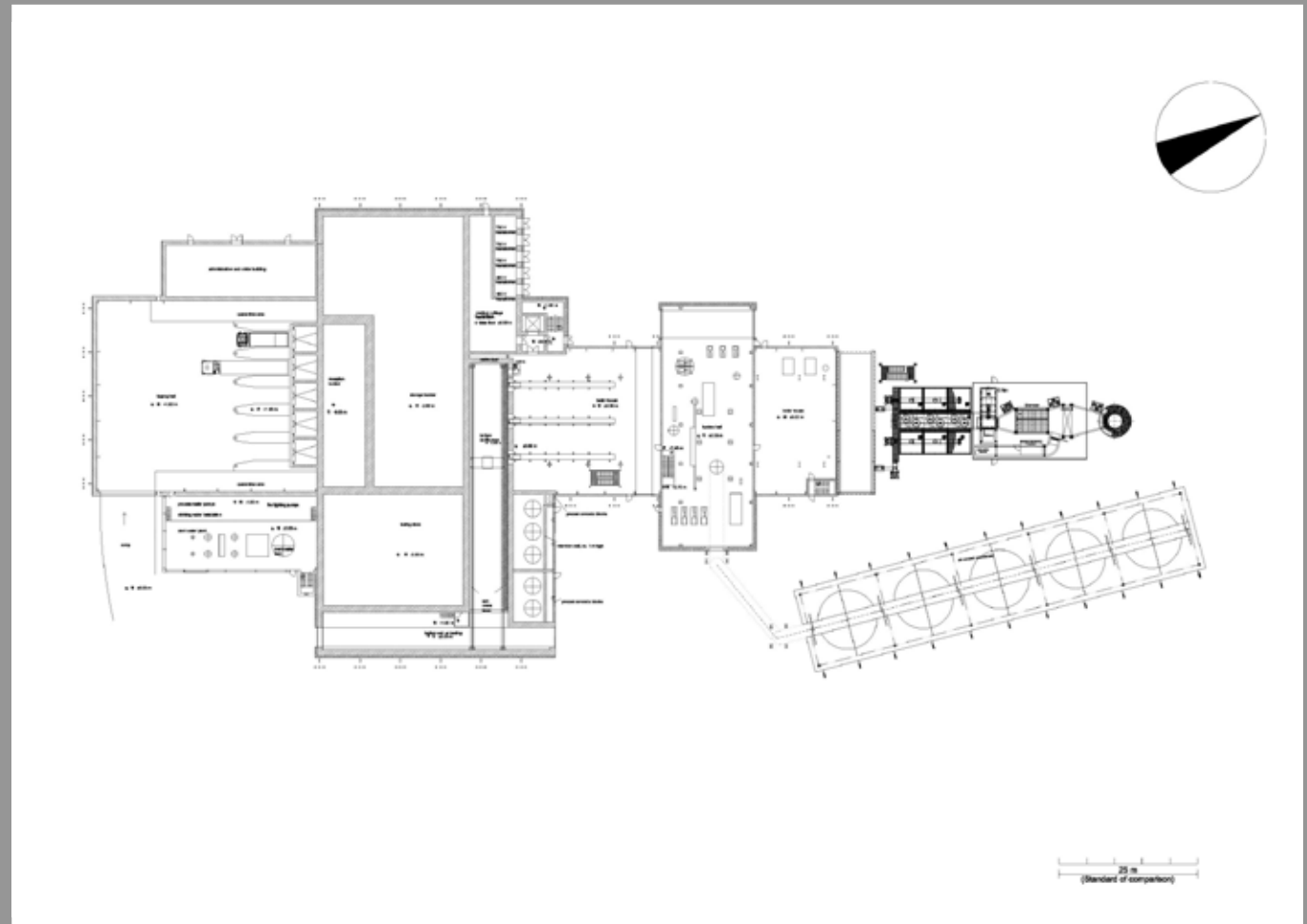


Figure 4.1: EfW Plans at Ground level

4. USE, SCALE & AMOUNT

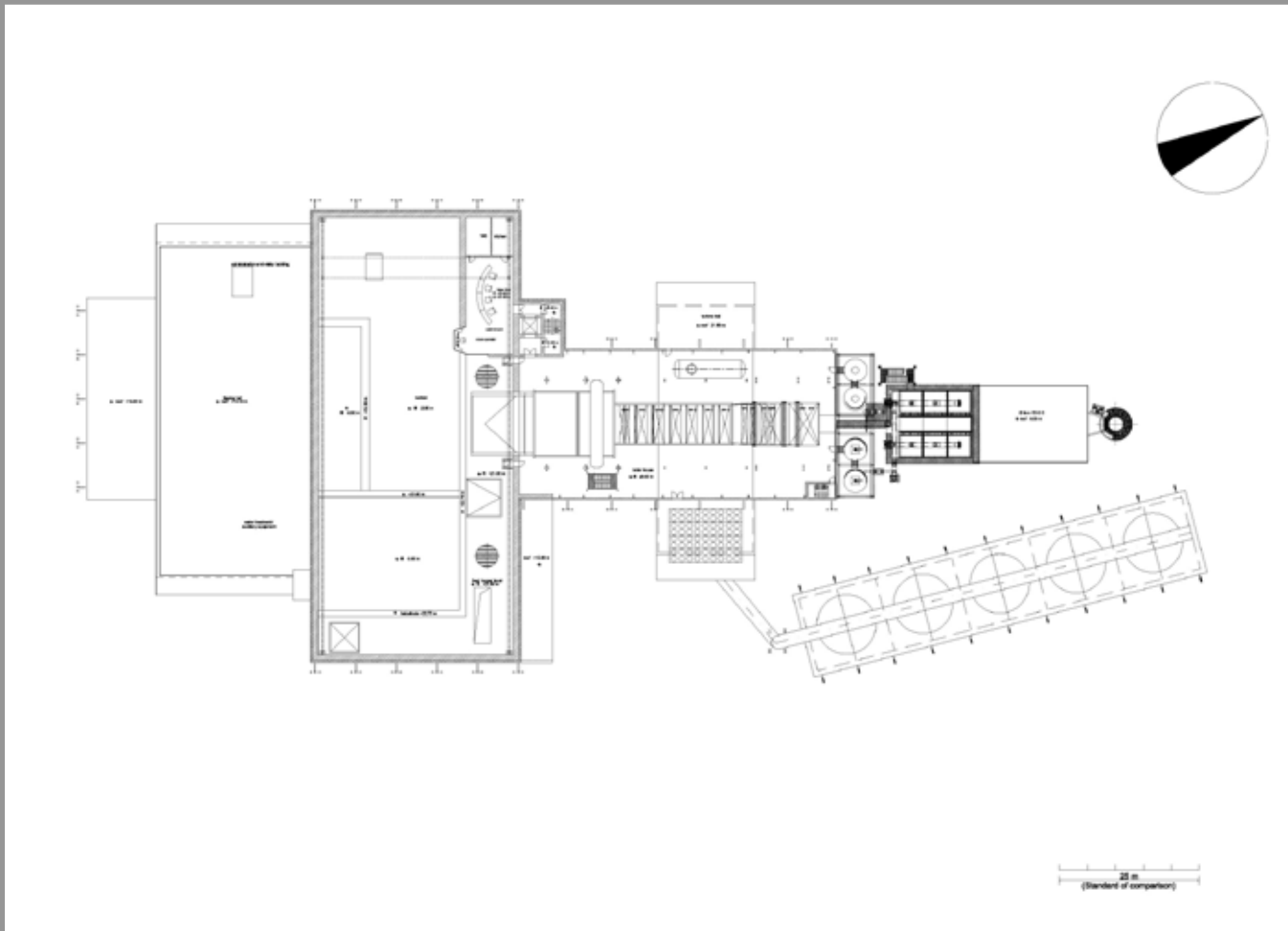


Figure 4.2: EfW Plans at 21.6m

4.2.2 The footprint of the main building itself will cover approximately 6,200m² and together with the small auxiliary buildings and equipment, this EfW CHP facility will be approximately 9,000m² with an approximate capacity of 245,000 tpa.

4.2.3 The EfW CHP main building comprises the following principle components:

- Tipping Hall
- Waste Bunker
- Control Room
- Bale Store
- Turbine Hall / Boiler House
- Air pollution control system, including 95m high chimney
- Administration block

4.2.4 Additionally the other main components of the EfW CHP Facility are an air cooled condenser building (H 23.4m x W 15.6m x L 75.6m including external steel 'ribs'), a workshop and stores building (H 10.0m x W 15.0m x L 38.0m) and a weighbridge/ gatehouse building (H 2.9m x W 2.4m x L 10.3m).

4.2.5 Summary of EfW CHP Facility Components

The layout and components of the EfW CHP Facility is illustrated on Figure 4.1.

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4.2.6 Tipping Hall

The Tipping Hall provides a reception area for incoming vehicles delivering waste to the facility and its scale has been designed to match the anticipated daily waste throughput requirements of the design capacity. Within the Tipping Hall vehicles would transfer waste directly to the Waste Bunker via tipping bays.

4.2.7 The external treatment of the Tipping Hall (and also administration building) is coloured green and a roof terrace has been created.

4.2.8 Waste Bunker

The Waste Bunker will also be situated within the main building to the north of the Tipping Hall. Prior to being loading into the furnaces, waste will be stored and mixed within the Waste Bunker. The waste bunker will have a storage capacity of ten days (20,000m³).

4.2.9 Control Room

A control room will be provided in the waste bunker hall from which the facility will be operated and monitored.

4.2.10 The Bale Store

The design of the Main Building includes

the infrastructure needed to manage the receiving, storing, transferring and / or diversion of waste when the facility is not available for any reason, for example during planned maintenance, through the provision of a Bale Store. The Bale Store requires a storage capacity of 18 days (12,000m³) due to the planned maintenance period. Adding this to the ten days' capacity in the waste bunker makes a total on site enclosed storage capacity of 28 days.

4.2.11 Turbine Hall / Boiler House

The Turbine Hall/Boiler House is the largest area of the main building. The Boiler House is where the main incineration process will take place and will contain the furnace and boiler. A steam turbine will generate electricity from the superheated steam produced.

4.2.12 Air Pollution Control System

An Air Pollution Control (APC) system will be provided. Flue gases which have passed through the boilers will enter the APC area, where the gases will be cleaned using a dry reagent injection system before they are released into the atmosphere via the 95m tall chimney. The chimney needs to be this height in order to effectively disperse the

gases in accordance with the requirements of the EU Waste Incineration Directive (WID).

4.2.13 The height of the chimney has been optimised to achieve maximum dispersion of the cleaned air emitted whilst keeping the height as low as possible.

4.2.14 IBA and APC Residue Transfer

Solid residues will be produced in the form of IBA, which will be transported off site and recycled, and residues from the APC system, which will require disposal off site at a licensed hazardous waste landfill. Facilities will be provided within the Main Building for the transfer of IBA and APC residues to enclosed vehicles for subsequent transport off site.

4.2.15 Administration Block and Community Area

The offices will be located in the main building to the north of the Tipping Hall and the west of the Waste Bunker. This component will contain staff welfare facilities, offices, meeting rooms and a community area, for use by the local community.

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4.2.16 Air Cooled Condensers

Air-cooled Condensers will be provided (located in a separate building from the main building) to condense the exhaust steam from the steam turbine without creating a visible plume.

4.2.17 Workshop

A stand-alone workshop will be provided at the western end of the site and is required primarily for the storage of equipment, chemicals, etc. The workshop will also contain one office and WC.

4.2.18 Generator Transformer and Emergency Generator

A generator transformer and emergency generator will be provided at the facility, outside the main building.

4.2.19 Weighbridge/ Gatehouse Building

This building will be located on the site access road, adjacent to the weighbridges, to accommodate weighbridge personnel.

4.3 Design Limitations

4.3.1 To minimise the mass of the buildings and the consequent visual impact of the facility considerable effort has been made in the design and layout to limit the dimensions of the building elements

to the minimum required and building finishing materials have been selected to fulfil the requirements of the architectural concept commensurate with the process requirements and limitations.

4.3.2 The largest building elements are the bunker hall and boiler hall.

4.3.3 The dimensions of the bunker hall are determined by the throughput and storage capacity requirements of the facility. The length is established by the number of tipping bays needed to accommodate the anticipated numbers of incoming waste delivery vehicles. The width and (to a certain extent) the height are established by the volumetric waste storage capacity needed to maintain continuous operation of the process whilst allowing sufficient additional storage capacity to allow deliveries to continue during planned outages. The ultimate height of the tipping hall is established by the installation and maintenance space required above the grate waste feed hopper for the travelling waste gantry cranes. These cranes run the full length of the bunker to handle mix and distribute the waste and the bunker hall therefore has to maintain the same height throughout its full length.

4.3.4 The overall boiler hall height is largely determined by the technical process requirements. The EU Waste Incineration Directive requires that the flue gases in the combustion chamber above the grate are maintained above 8500 C for more than 2 seconds following the last injection of combustion air and this criterion establishes the height of the vertical section of the boiler. Additional space is required above the boiler for certain ancillary equipment such as the high pressure water cleaning system and for maintenance access to the safety valves and instrumentation on top of the boiler steam drum and hence the overall height of the boiler house is determined by technical considerations.

4.3.5 Similar process related considerations play a large part in determining the choice of finishing materials. MVV recognises that the facility will need to have a low noise signature due to its location, and to achieve this it is necessary for the main process areas of the buildings to have cladding materials with high noise attenuation properties. Possible alternative materials such as translucent cladding cannot meet the attenuation requirements. In areas such as the tipping and bunker hall translucent cladding materials are also not

4. USE, SCALE & AMOUNT



suitable as these are by their nature dusty environments and such materials quickly get coated in dust and hence become opaque. Cleaning in such areas is not a practicable proposition.

4.3.6 Another large structural element of the facility is the air cooled condenser (ACC) unit. The ACC operates by drawing in ambient air via a number of horizontally mounted axial fans and distributing it over a bank of heat exchangers arranged in an inverted "V" formation above the fans. The function of this unit is to condense the very low pressure steam leaving the steam turbine into water before returning it to the boiler system.

4.3.7 The overall dimensions of this unit and the number of cooling fans is established by the waste processing capacity of the facility, its efficiency and hence power generation capability. The MVV facility has a high efficiency and the ACC is sized accordingly. Additionally similar noise considerations to those described above for the main building elements also dictate that the fans need to have a slow speed of rotation and are hence of large diameter in order to move the volumes of cooling air required.

4.3.8 The performance of the unit relies on free passage of the cooling air into the fans from below and out of the heat exchangers at the top. It is therefore not possible to completely enclose or cover the unit but only to provide a wall surrounding the heat exchanger section. This wall is necessary to prevent the hot air leaving the top of the heat exchangers being recirculated directly into the fan inlets and reducing the ACC performance.

5. LAYOUT

5.1 Layout

5.1.1 Following the site analysis set out in Section 3.2 'Landscape Site Analysis', the main building was orientated on a SW / NE axis in the lowest lying area of the site. In summary, the site layout is driven by the following considerations.

- The arrangement of the different elements of the building are arranged to reflect the form of this area.
- The diagonal orientation allows the functional length of the building to be accommodated whilst allowing space around the operational area for a suitable landscape strategy.
- Due to the topography, the closest views will therefore be of only the upper elements of the plant.
- The existing orientation of access to the site is retained.
- The condensers and other low profile external functional equipment are able to be located on the less visible side of the site from residential properties and where views from the railway are more transient.

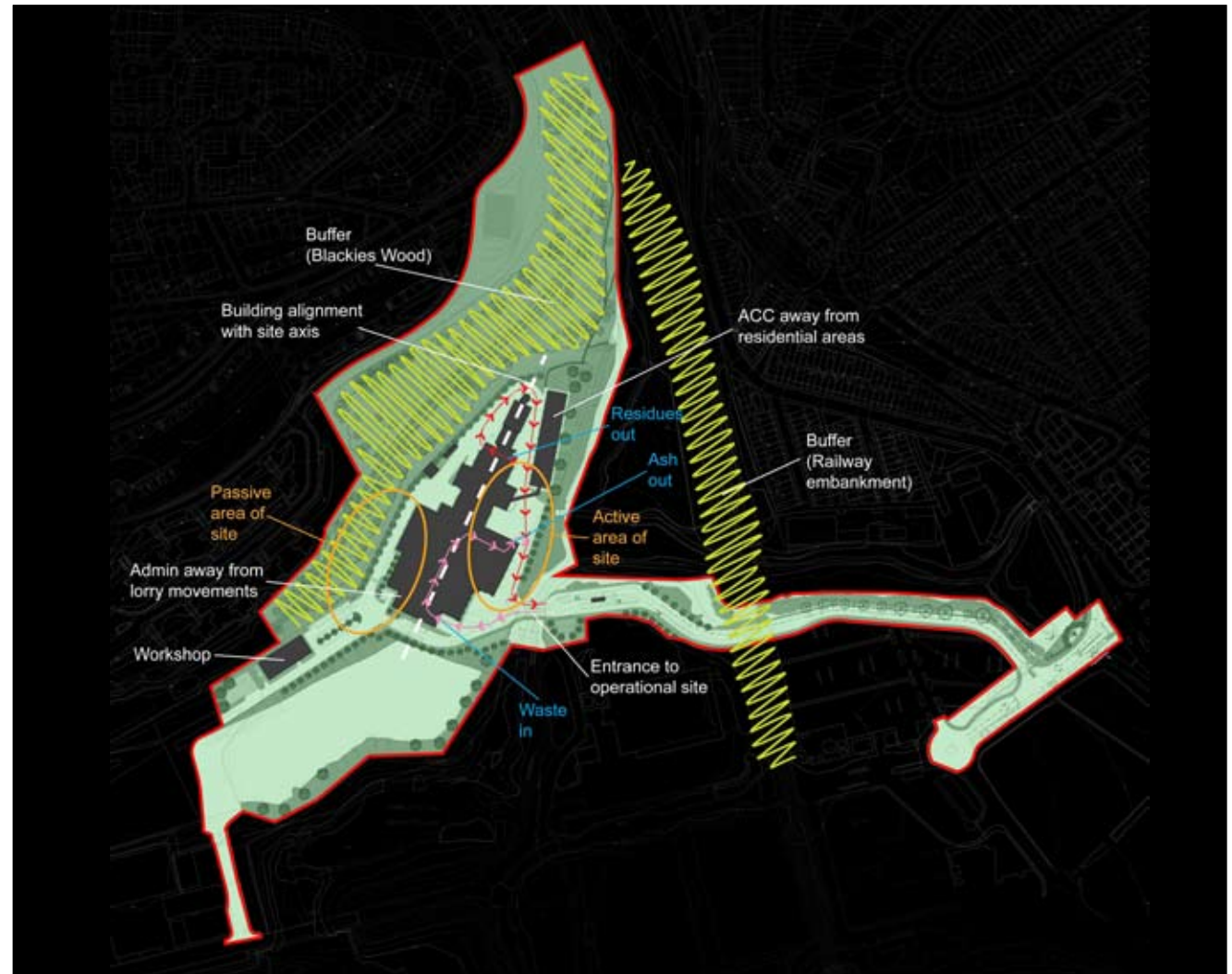


Figure 5.1: Main site diagram.

Note: planning application site boundary is shown on Figure 1.3

- 5.1.2 The site is particularly sensitive to views from the north and east where the closest residential receptors exist. The placement of all of the functional elements of the building requiring servicing by large vehicles and likely to generate noise have been placed on the south side of the proposed building. The placement of the public and administrative access to the north elevation and the static plant equipment to the east are deliberate design decisions to mitigate the impact of the development on these residential properties.
- 5.1.3 A particular feature of the layout is the separation between the “public/visitor” side of the facility and the “working” side. Access to these individual areas is separated after entering the site via the main entrance. The “public/visitor” side of the facility is that on which the administration building, which includes the visitor centre / community area, is situated together with the staff and visitor parking areas. This will feature minimal traffic movement and noise generating activities and faces the closest residential properties. Visitors are also directed to the main building via pedestrian friendly access to external landscaped amenity areas. The “working” side of the facility is that used by the operational traffic and where the principal noise generating equipment is situated. The waste management traffic is directed via an entirely separate route to the west of the main building towards the weighbridge and onwards to the tipping hall. Vehicles delivering waste and operational materials and those removing process residues will be restricted to this side of the facility building which faces towards the dockyard and is screened from the closest residential properties by the building itself.
- 5.1.4 The position and orientation of the building recognises the relative position and proximity of sensitive receptors, particularly the housing on Savage Road and Talbot Gardens, to minimise any potential adverse impacts. The orientation of the site is designed in order to minimise the potential visual impact and noise impacts. This is assessed in greater detail in the Environmental Statement.
- 5.1.5 The site layout has also been designed to make best use of the site and its topography whilst also taking account of the known geotechnical features of the site, to achieve maximum reuse of excavated material.
- 5.1.6 The functional process is a co-ordinated sequence of activities to receive and treat residual waste material significantly reducing the need for landfill disposal and recovering energy from the process in the form of CHP.
- 5.1.7 The planning of such a facility needs to accommodate the process activities and the proper sequencing thereof. It also needs to give consideration to the initial construction and subsequent maintenance of all the equipment throughout the site. The final layout can appear a significant conglomeration of plant, pipe-work and services. However, many of the individual pieces of equipment can be quite large and are not capable of being broken down into components and so it is important to ensure the space and access is available for their removal if required for maintenance purposes.
- 5.1.8 From an early stage in the design evolution this site layout and design has been landscape-led and together with an understanding of the topography of the site, this approach has resulted in the landscape concept informing the built form solution. The site has therefore been designed to accommodate all aspects of

5. LAYOUT

the required EfW CHP facility whilst avoiding the ecologically sensitive areas and making use of the natural landscaping provided by Blackies Wood. The site layout and design has also had considerable regard to the physical characteristics of the site and the adjoining land; the surrounding land uses including the residential development to the NE and NW of the site.

5.1.9 The process equipment layout is optimised to give as compact a footprint as possible. This also helps to deliver clean simple lines to the buildings. This optimisation is demonstrated by the following:

- Use of a single combustion and boiler line;
- Positioning of the air cooled condensers to the south of the main building;
- Integration of the turbine generator hall into the main building;
- Internal accommodation of all ancillary plant and plant rooms; and
- Simple road layout delivering easy traffic circulation.

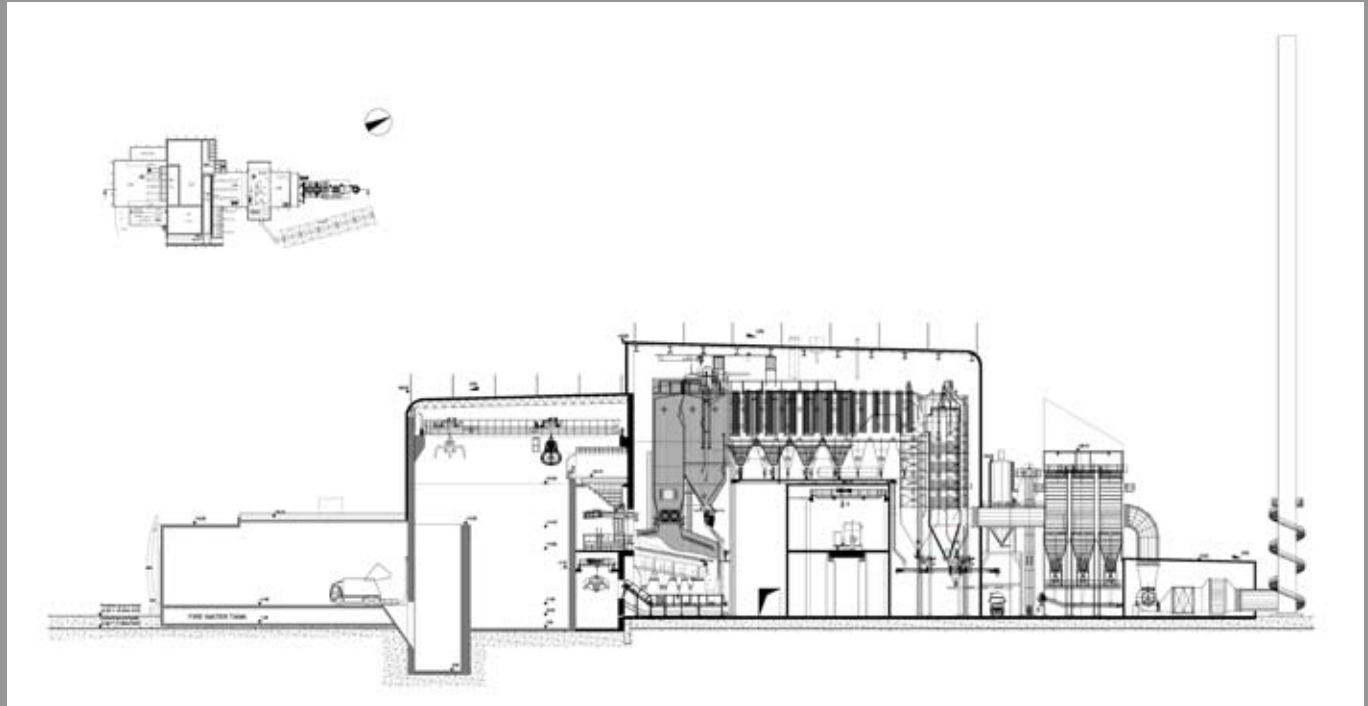


Figure 5.2: Section through Building

6.1 Summary

- 6.1.1 The proposed design has taken its design references from HMNB Devonport and Devonport Dockyard and from the relationship of the development site to the areas surrounding it. The Dockyard is a major, evolving industrial site and consideration has also been given to how the design composition of the Dockyard might change over time. Equally, the proximity of the site to a residential area and a Greenscape policy designation has strongly informed the design evolution, especially in the final design iteration towards a structure with structural ribs and nautical references. The form of the building, the colour palette used and the exposure of some of the plant and equipment are all direct references from a study of the dockyard and the surrounding area.
- 6.1.2 The architectural concept and the building form also enable the most efficient building envelope possible as the building is broken down into its component parts rather than unified as a single shape. This dis-unification also enables a visual recognition of the Energy from Waste process, a recognition further emphasised by the visibility of some of the plant and equipment.

- 6.1.3 The design evolution as described below indicates that the contextual study undertaken led the design in a definite direction and provided the inspiration for the resultant architectural solution.

6.2 Design Options Considered

6.2.1 Overview

The initial designs for the building illustrated a unified building form using a curved roof developed at an early bid stage. This solution was an initial design which sought to enclose all the operational activities within a single elegant structure.

- 6.2.2 The building was sited on the plateau immediately opposite the closest existing residential properties to the south west of the current site – initial design option 1.

- 6.2.3 The use of this curved single volume form was initially drawn from the Ernesettle architectural solution running in parallel with the Devonport bid. However, initial feedback from the Waste Partnership indicated that there were two fundamental issues with this solution –

1. The siting was close to the existing buildings.

2. The curved form had no contextual reference in the vicinity or the wider dockyard area and hence there was little justification for its adoption within the design. The curved form also increased the necessary height thus compounding the above issue.

- 6.2.4 Consequently these issues were addressed by moving the siting north east – onto the current site – and a complete change in the design context and approach.

- 6.2.5 In order to reach a preferred design solution, a series of design options were explored. The main design option stages are listed below and details of each stage are summarised in the following sections.

0. Provisional Design
1. Design Option 1
2. Design Option 2
3. Design Option 3
4. Design Option 4

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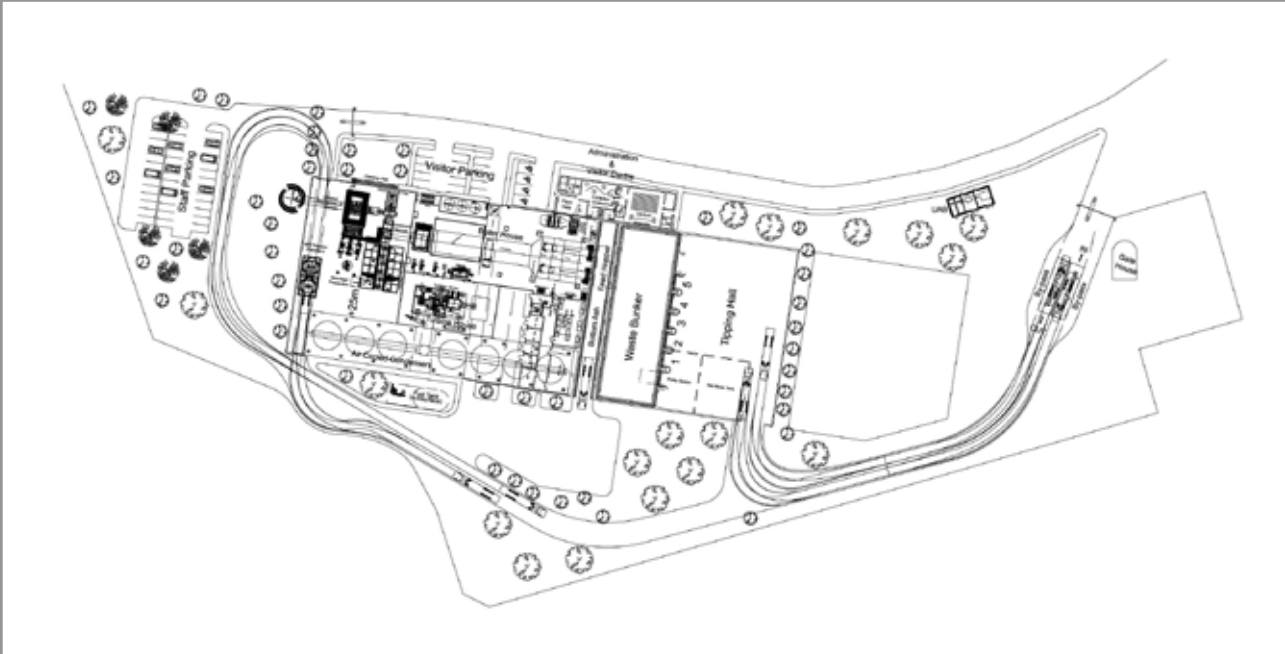


Figure 6.1: Provisional Design Option

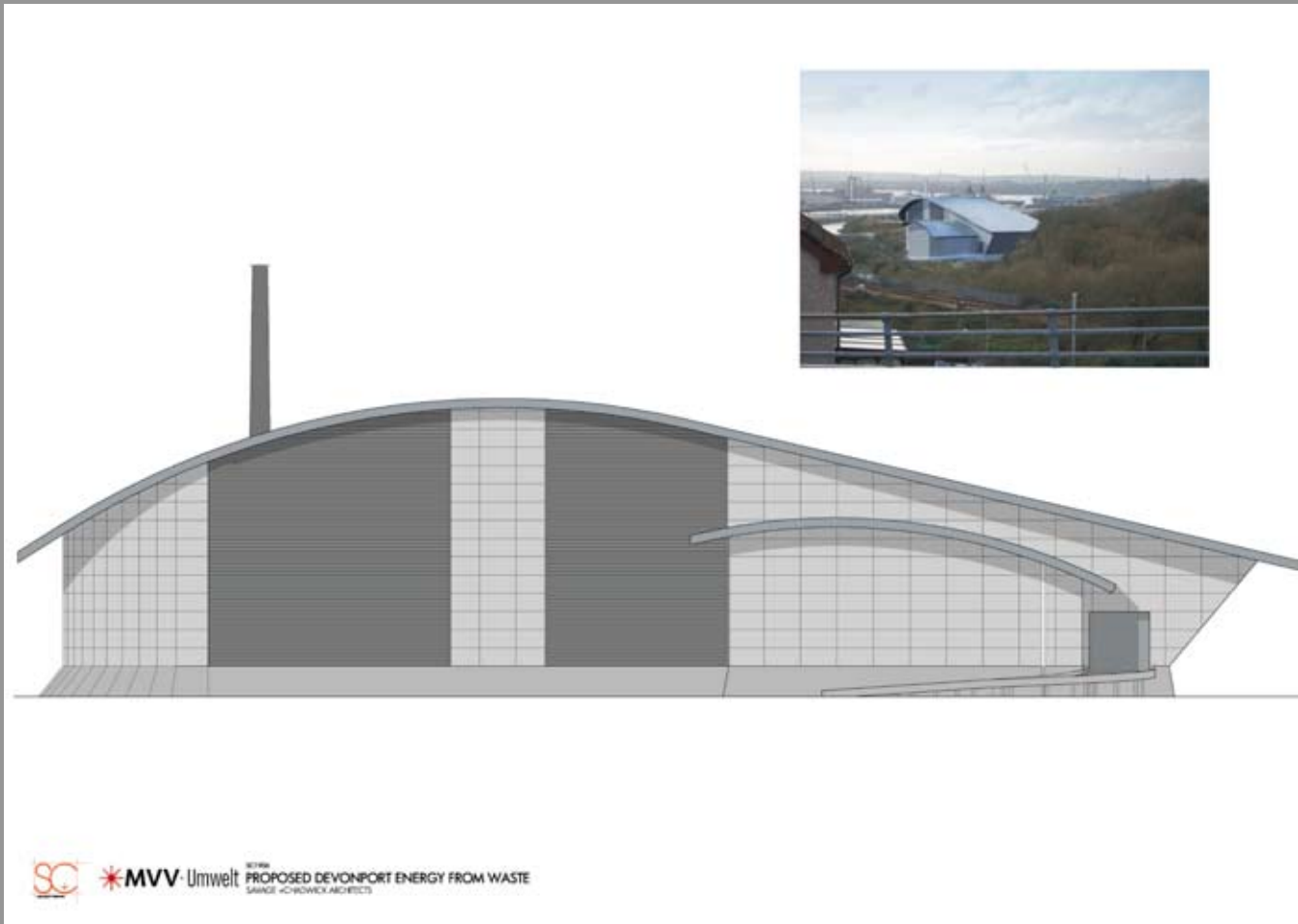
6.2.6 Provisional Design Option

The initial design was proposed very early in the SWDWP contract bidding process and was essentially a replication of the design solution for an alternative site (the Land West of Ernesettle Lane site), prepared for illustrative purposes to show how a EfW CHP facility might appear at the North Yard site.

6.2.7 The main facility was situated on Table Top Mountain, with ash processing on-site in an area to the north-east (where the main facility is now proposed).

6.2.8 The initial positioning of the different elements in the processing of the waste on the site was a standard compact and integrated process solution. This lent itself to a unified building envelope and the initial design option was a simple curved form rising from its lowest point to the North East to its highest point in the South West.

6.2.9 A Preliminary assessment led to the re-location of the facility on to the current main development site and the development of further design options.



6.2.10 Design Option 1

Design Option 1 was also a simple curved form rising from its lowest point to the North East to its highest point in the South West. The chimney was centrally located within the building. In assessing the visual impact of this solution it was felt that the mass of the building in this location had the potential to be detrimental to the local environment.

6.2.11 This design option is illustrated in Figure 6.2 – Design Option 1 – Massing model and elevation.

Figure 6.2: Design Option 1 – Massing Model and Elevation

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6.2.12 Design Option 2

Design Option 2 re-orientated the building so that the lowest point of it was closest to the nearby housing and moved the building further northward on the site. This alternative design option is illustrated in Figure 6.3 – Design Option 2 – Massing Model.

6.2.13 Initially the focus of MVV's bid was at Ernesettle, which is a steeply sloping site and highly visible from the Tamar Estuary. The initial design concept solution was a single curved volume with the flue emulating a mast as cable stays were hung off the chimney to support the roof overhangs. A variation of this design was initially produced as an indicative solution for the Devonport site – the current application site.

6.2.14 As the bid process progressed MVV's focus shifted to the Devonport Site and it was becoming clear that this was likely to be their preferred site. Consequently this led to a more detailed contextual study of the site. From this study it was clear that the single unified approach proposed for Ernesettle was inappropriate for Devonport. The disparate nature of the surrounding dockyard the collection and variety of residential properties and the variety of the landscape generally drove a different architectural approach.



Figure 6.3: Design Option 2 – Massing Model

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6.2.15 Design Option 3

The Dockyard's composition of a series of different buildings and structures suggested that the building also be de-unified and broken down into a series of component parts. In addition, the display of cranes, machinery, external plant and equipment further suggested that the exposure of some of the building's plant and equipment may also be appropriate and make the whole energy from waste process visible and more easily understood. Coupled with the potential community benefits as described above, this provided sufficient justification for a de-unified design concept. Furthermore this approach was encouraged by the South West Regional Design Panel (CABE) in two separate consultations.

6.2.16 Option 3 adopted a disunified modular approach via a series of buildings of different heights and shapes. The building form was angular and hard edged and the materials proposed were simple and designed to blend in with the green backdrop that forms the backdrop to the site from the West and North.

6.2.17 Whilst this approach produced a building perhaps more suited to a semi industrial landscape the forms it adopted did not

appear contextual with the form of the surrounding Dockyard and development. The design also was considered not to respond satisfactorily to the landscape concept which had now been developed for the whole site. This concept in part was to create avenue planting and angular moulding. The building that this context would 'frame' had in our view to be simpler. In addition part of the landscape concept was to create a landmark sculpture made from waste materials. This led to the possibility of exposing the process as far as possible but the chosen solution has been to use colour on the outside of the building to reflect some of the processes taking place in the building.

6.2.18 This alternative design option is illustrated in Figure 6.4a – Design Option 3 – Elevation and illustrations of the style of sculpture are displayed in Figure 6.4b.

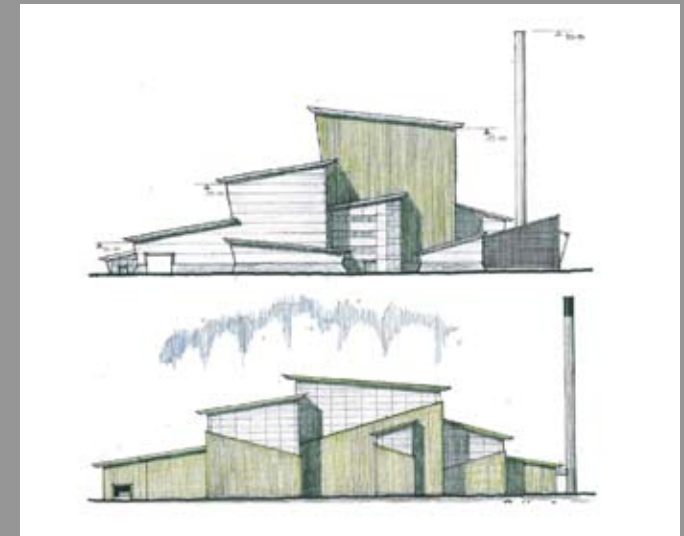


Figure 6.4a: Design Option 3 – Elevations. This scheme was assessed within the Design Team and the Local Authority Planning Team and was never taken further than sketch proposal stage

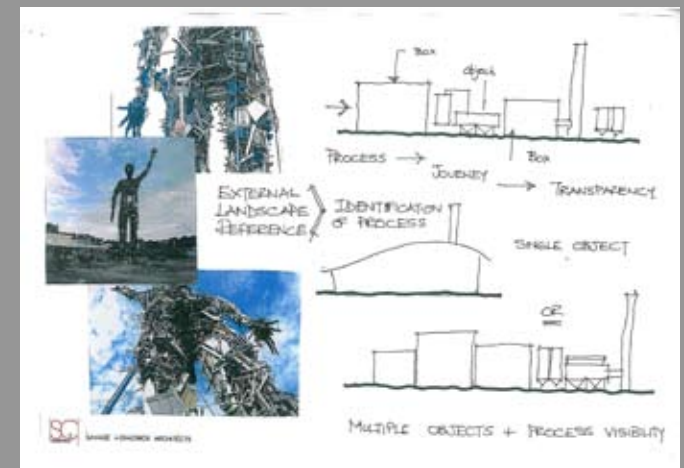


Figure 6.4b: Example waste sculptures

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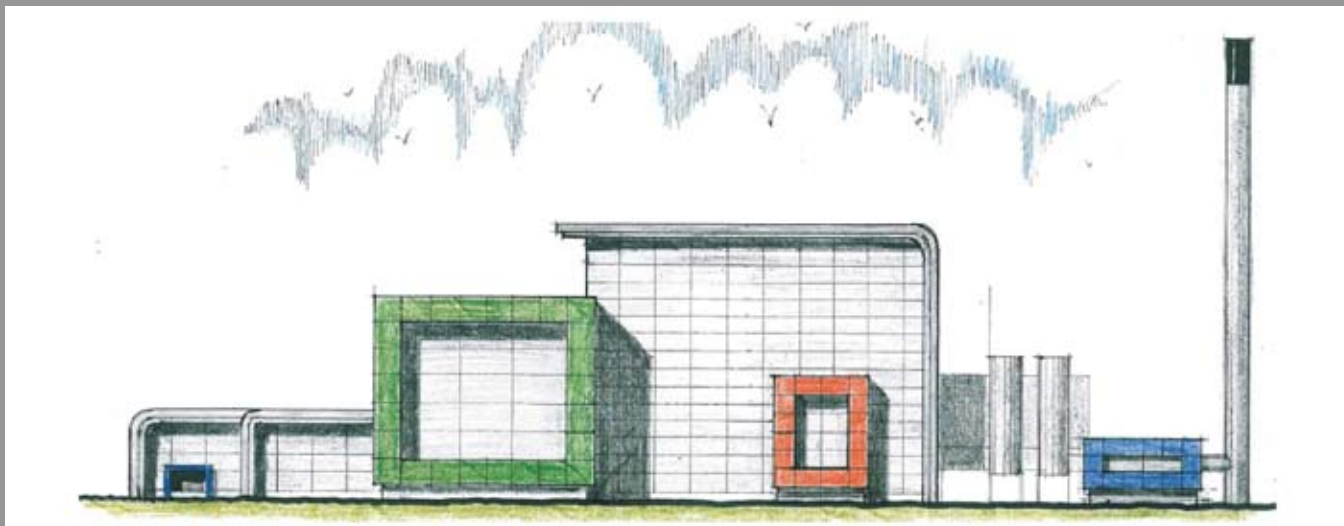
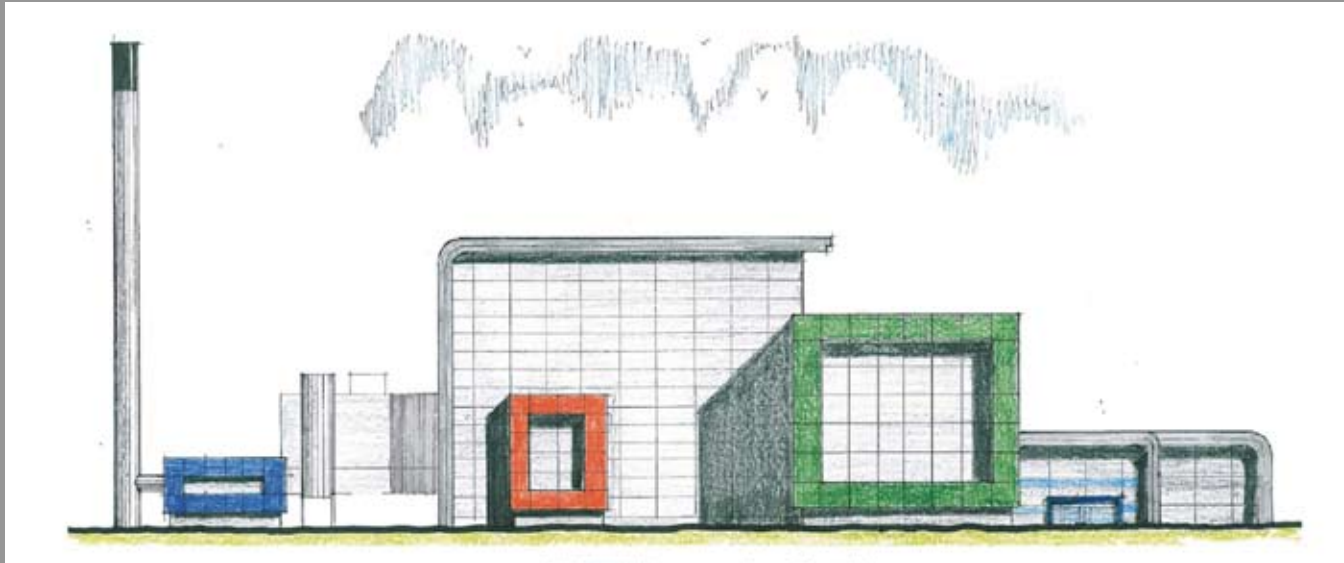


Figure 6.5: Design Option 4 – Sketch Elevations

6.2.19 Design Option 4

This option formed the provisional basis for the current design. The building forms are simple box shapes scaled to reflect the relevant process internally. These shapes are generally expressed in a neutral colour but occasionally “punched through” with strong colours again reflecting the process within them. Part of the scheme – toward the Air Pollution Control Areas - is exposed and the process is visible. This is discussed further in Section 6.3 below.

6.2.20 This concept of ‘object and wrapper’ was welcomed when presented to the South West Design Review Panel of CABE and therefore constituted our base design that was subsequently developed and refined as the current proposal. This Review is discussed further in Section 6.3 below.

6.2.21 These materials and forms respond to the landscape concept. In addition this proposed site layout has allowed considerable landscape mitigation to take place including the creation of a managed woodland in the ecologically sensitive area to the north end of the site.

6.2.22 This design option is illustrated in Figure 6.5. Design Option 4 was used in the public consultation events undertaken by MVV in February and March 2011.



6.3 Consultation:

6.3.1 Two consultation events were carried out with CABA where the landscape influence and subsequent design evolution were discussed. There was a strong recommendation from CABA that this site required a landscape-led design due to the location and existing surrounding features; this has been reflected in the design process and resultant proposals.

6.3.2 The suggestion was also that the building should not be screened as this would be difficult given the scale and would detract from the 'straightforward' and 'honest' simplicity of the building, in turn, to complement this, it was suggested that the landscaping be drawn back from the building base so as not to clutter its façade. This has been done by drawing the landscaping to the boundaries of the site. It was also recommended that the proposed building should work on a broad canvas, complementing the large scale elements in the wider landscape such as the Tamar Bridges and the nearby railway viaduct, as well as the Dockyard buildings. There was great support for the heat and power feeding into the Dockyard's supply.

6.3.3 Devonport Dockyard is a disparate collection of buildings, structures, equipment and naval vessels which collectively provide a varied built landscape. The predominant colour is grey, which is provided by the warships, buildings and concrete quaysides. As a result the composition is of a number of shades of grey rather than one single colour. This background is punctuated by flashes of colour – yellow cranes, flags, the odd coloured building etc. All of these colour references have been used in the design solution. In addition the varied form of the built landscape is reflected in the form of the Energy from Waste Plant which breaks its component parts down into individual shapes and sizes.

6.3.4 CABA advised that they supported the dis-unified approach to the design by breaking the building down into its component parts rather than as one large geometric shape. They further supported the exposure of plant and equipment wherever possible - becoming a part of the architectural solution. Objects are either exposed or wrapped giving greater clarity to the Energy from Waste process within.

6.3.5 CABA felt that the architectural solution should be bold and confident – the architecture celebrating the engineering – and draw reference from its surroundings and context.

6.3.6 CABA further encouraged the consideration of art, lighting and that building design and landscaping go hand in hand. All of these comments influenced the development of the architectural concept toward the current solution.

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6.4 Proposed Design – Description and Justification

6.4.1 There are two distinct potential approaches to the overall appearance of this type of development. One option is to express function in the form of a straightforward building of industrial appearance and the other option is to present a different form or shape so that it appears less angular, more homogenous and thus less industrial in appearance.

6.4.2 The proposed design is illustrated in figures 6.6 - 6.10.

6.4.3 Any attempt to superimpose a different appearance other than to express the bulk and form of the building would result in an increase in its overall height and extent.

6.4.4 The site context of a diversity of surrounding uses lends itself to a dis-unification of elements in the manner of the concept as explained and the incorporation of those surrounding design references into that concept.

6.4.5 A limited palette of materials has been used which further emphasises the simplicity of the concept.



Figure 6.6: Final Design Elevations

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Figure 6.7: Final Design illustrative massing model

- 6.4.6 The design of this facility has endeavoured to express its function in the form of a building which responds strongly to its context whilst having regard to the site constraints and the ecologically sensitive area. Hence the landscape led design approach adopted.
- 6.4.7 The siting of the plant within this diverse context helps break down the impact of the EfW CHP facility but the scale of this facility is still considerable within the local area. As a consequence the challenge is to minimise the scale and mitigate the impacts through good design and a through understanding of the site and its setting.
- 6.4.8 Following a process of consultation with the local community and with Plymouth City Council, the site context study was revisited and the proposed design evolved with a nautical theme. The form of the ship hull has been expressed externally by exposed steel columns which connect to the outer cladding and roof trusses. These columns provide a striking architectural feature and they are laterally braced and visually unified.
- 6.4.9 The south east elevation will be lit at night along with the exposed equipment in the Water Treatment Hall and the ACC using coloured feature lighting.

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6.4.10 The building also adopted an angular rather than curved form taking every opportunity to express the building component areas separately. This design philosophy was also informed by the need to respond to neighbouring residential areas by minimising the bulk and visual impact of the building. A very efficient design was created, with the internal volume minimised and the overall height significantly reduced.

6.4.11 Particular reference was drawn from the warships anchored in the dockyard. The angular bow and curved stern are reflected in the ends of the building and the more horizontal form of the superstructure is reflected in the central areas – Boiler House and Tipping Hall

6.4.12 In terms of a colour palette the dockyard references were entirely used. The predominant colour is grey and this is broken down into shades to match the various different shades of buildings and ships. In addition a strong colour palette is used sparingly in contrast, reflecting the limited bursts of colour that appear in the dockyard itself.

6.4.13 This concept approach resulted in the initial sketches that evolved as design option 4.



Figure 6.8: Illustrative view of building

6.4.14 Once these sketches had evolved through a series of meetings with the Planning Authority and the South West Design Review Panel, photo-montages were produced. These images indicate the building sitting happily within its context due to the adoption of the design references listed above.

6.4.15 The necessary functional arrangements of the building elements result in the process of arriving waste, tipping and removal of bottom ash all being located on the elevation facing the dockyard. To separate the general vehicle movements from this process the administration block

and parking areas are positioned on the elevation facing Barne Barton.

6.4.16 This throws up the potential problem of the building not having a 'Front Door' or sense of arrival from the main approach. To counter this, several architectural features to this approach have been incorporated. These are:

1. The Water Treatment Hall has been made transparent by high quality aluminium framed curtain walling. This makes the internal function of the building immediately apparent and draws the eye to it. At night this hall would be lit allowing views from the mainline railway running parallel with this elevation.

6. DESIGN EVOLUTION

2. The roof terrace over the Administration Block and Tipping Hall extends over the Water Treatment Hall. This roof terrace will be used by both visitors to the building and staff alike and will provide a pleasant external sitting area that tells the story of the waste processing and some information on Devonport Dockyard itself. This will not only visually assist the approach to the building as planting will be allowed to cascade over the roof and down the walls, but will reverse the idea of the 'introverted box' as the roof is transformed into educational parkland that will be visible from the more elevated properties of Barne Barton.
3. One of the key architectural references – the warships within the dockyard both past and present – is expressed as angular bow and curved stern – or ends of the building. The Tipping Hall has exposed structural columns providing the bow analogy. In addition, the ends of the Water Treatment Room, Turbine Hall and Admin Block are all angled to continue the theme.
4. The nautical reference is further repeated by the use of external columns carrying the structure shaped in the form of a ship's hull. These columns extend beyond the building profile breaking up the long horizontal lines and providing a striking architectural feature. The columns, water treatment hall and air cooled condensers will all be lit at night on the South East elevation.
5. The air cooled condensers incorporate the exposed structural column theme and their

use provides a nautical shape adding visual interest to a functional but vital piece of equipment.

6. The materials chosen generally represent a grey background palette with splashes of colour. This is achieved by the use of high quality, low maintenance and highly corrosive resistant cladding. The grey palette is given added interest with horizontal shades of grey extending from dark (low level) to light (high level) emphasising the horizontality of the built form. The roof is of a low maintenance standing seam construction which curves to form the walls to one of each of the four elevations – again this consists of a neutral colour. Further interest is added by the use of the external

exposed curved columns which are made from weathering steel and consequently adopt a brown textured finish over time.

- 6.4.17 The combination of the above creates a sense of arrival, provides transparency, a striking and iconic architectural statement and an appropriate architectural response to an important site. This architectural statement is created whilst minimising the impact of the development on the adjacent housing by ensuring no light spillage or noise generation will affect those properties.
- 6.4.18 The creation of a striking iconic building is intended to encourage community acceptance of the facility through its qualities as a landmark building.



Figure 6.9: Lighting Example.

6. DESIGN EVOLUTION

6.4.19 The proposals minimise the overall height of the building, the resultant form also creates a strong and confident architectural statement. The building responds to the context of the Dockyard and surrounding large-scale features of the Tamar Bridge and the adjacent Viaduct as well as the strong adjacent landform. The design has been tailored to consider strategic views from key approaches, such as the railway and waterways, and to strengthen and compliment the Dockyard presence both from Plymouth and Cornwall, and perspectives from the Estuary.

6.4.20 In addition, because the building minimises its volume around the internal equipment by a series of enclosures (rather than the greater volume that would be generated by a single enclosure) the highest parts of the building, whilst visible from Barne Barton, will not dominate views from there. The inclusion of off-site planting within the scheme proposals also helps to further mitigate the visual impact of the development. Further details of the off-site mitigation are given in Chapter 8.



Figure 6.10: Illustrative view of building



7.1 Summary

7.1.1 The Main Building

The Main Building comprises a collection of angular shapes, reflecting the technology within the building, generally in neutral materials occasionally 'punched' through by coloured elements. The neutral coloured forms have a continuous and homogenous roof / wall composite with curved eaves. This encloses a simple clad box.

7.1.2 The Tipping Hall is contained between Water Treatment Hall and Admin Block. Its form has been broken down into two shapes – one enclosing the entrance and manoeuvring area and the second enclosing the tipping process itself.

7.1.3 Heights vary from 12m to 15m and the form is a series of rectangular and angular clad boxes. This cladding will be Kingspan Longspan in Green, Blue and Grey.

7.1.4 The majority of the roof of the Tipping Hall has been designed as fully accessible as a series of roof terraces with a central exhibition space. It is envisaged that this space would be a changeable exhibition space. The remaining terrace is designed to be of educational interest.

7.1.5 The ends of the building are formed by the Administration Block and Water Treatment Hall. These elements are completely transparent and within the angular coloured frame of the surround sits a high quality curtain walling system (Kawneer) which makes visible the internal function of the building whilst meeting safety requirements for the Dockyard.

7.1.6 Concerns have been noted regarding the roof span and the potential for birds to nest on the roof and cause potential disturbance to surrounding residential areas. MVV will monitor this situation during construction and take appropriate action as necessary to prevent nesting and resting gulls spoiling the building then, and in the operational period.

7.1.7 Waste Bunker & Boiler House

In keeping with the overall concept of shades of grey punctured by elements of colour this part of the building is predominantly a grey cladding – Kingspan Longspan – with grey louvres at high and low level. This cladding is arranged in horizontal shades of grey to create further interest. The end walls to these elements have been formed by a standing seam aluminium roofing system (Kalzip) which is a continuous roof / wall profile without

any visible means of rainwater disposal as this takes place via a secret gutter. The two shapes intersect and appear to interlock. Both buildings have exposed curved weathered steel columns which are braced horizontally with a light galvanised steel lattice – co ordinate to the positions of the grey cladding bands.

7.1.8 The buildings are anchored by a precast concrete plinth which will have a pigment addition making it appear as local faced limestone used extensively as a facing material in Plymouth buildings in general and a number of older buildings in Plymouth Dockyard.

7.1.9 Flue Gas Treatment / Bag House Filter

The majority of the flue gas treatment areas function are expressed functionally via the exposed flue gas treatment equipment. Silos, pipework and ductwork are all visible.

7.1.10 The one area that has to be enclosed is the Bag House Filter which is expressed as a blue shape with angled roof. This is formed in Trapezoidal cladding and its angled shape continues the nautical design theme.

7.1.11 Air Cooled Condensers

The Air Cooled Condensers sit apart from the Main Building and are connected to it



Figure 7.1: Illustrative Details

by overhead pipework. The condensers are clad in an opaque cladding (Kal Wall) which is top lit with coloured feature lighting which will provide a glow in the evening behind curved horizontal columns. These columns would then be silhouetted against the lighting.

7.1.12 The whole structure sits on legs to allow the passage of air underneath.

7.1.13 Flue

The flue is a simple cylindrical structure with a spiral staircase up to a platform for air monitoring which is approximately 23m high above finished ground level.

7.1.14 The flue surround will be formed in painted steelwork which is finished in a dark grey at the base and graduated to a light grey at the apex.

7.1.15 The simple treatment is deliberate and in keeping with the transparency of the process in this area. Attempts to produce a more sculptural and expressive form were, and are, considered inappropriate and at odds with the overall concept.

7.1.16 Administration Block and Community Area

The external treatment of the administration building (and Tipping Hall) is coloured

green. Also a roof garden has been created from which can be viewed the whole of Devonport Dockyard. As such visitors to the site can visually make the connection of building and surrounding environment. The Community Area is provided within the visitors block.

7.1.17 Workshop

The Workshop is a simple rectangular building of relatively low profile of 10 metres in height. It is again clad in Kingspan Longspan flat panel cladding and incorporates a 'brown roof' for the benefit of wildlife.

8. LANDSCAPE STRATEGY

8.1 Summary

8.1.1 The development proposals have been produced in conjunction with the site analysis and landscape and visual impact assessment and numerous surveys (arboricultural, topographic, contamination etc, as described in the Environmental Statement and in close liaison between the project Architect and Landscape Architect. Using the site analysis as a key influence has created a landscape-led design solution.

8.1.2 Appendix A, drawing PA17 'Landscape Masterplan' should be referred to in conjunction with this strategy.

8.1.3 The site analysis led the landscape design to be based around three key design principles:

- To frame and complement the building's presence in the landscape – the high quality building design should not be screened but should sit comfortably in the landscape and be a positive creative design feature within it.
- To work with and enhance the strong existing ecological features and resources which are within the site and surroundings – woodland, exposed

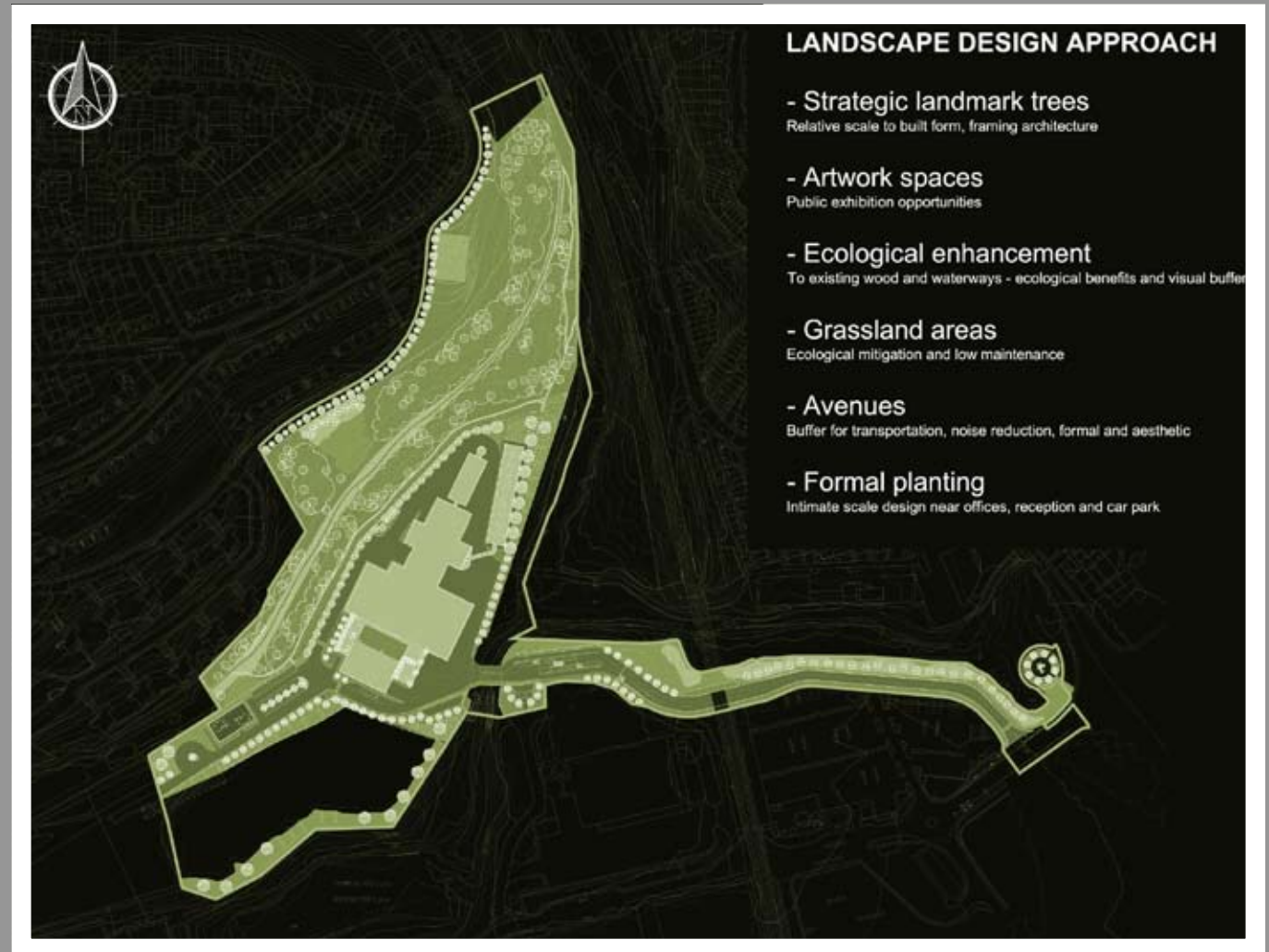


Figure 8.1: Landscape Design Approach

Note this diagram was produced at the early stages of the design process and there have now been minor modifications to the design and site boundary. Planning application site boundary is shown on Plan 1.3.

- aggregates, waterways etc.
- To create landscape design that users and visitors can relate to in the presence of this large architecture when they are in close proximity to it – keeping reference to a human scale in the design.

8.1.4 These have been realised in broad design responses, as illustrated in Figure 8.1:

- Strategic 'Landmark' Trees – to complement and frame the building scale
- Art Spaces – to incorporate areas where local public artwork can be commissioned
- Ecological Enhancement – to enhance and maintain existing habitats of the site
- Grassland Areas – to incorporate the built form into the site and increase biodiversity
- Formal Avenues – for a positive aesthetic impact and practical noise reduction
- Formal Planting – to create more intimate scale design where appropriate

8.2 Strategic Landmark Trees

8.2.1 Due to the large scale of the building, the landscape proposals are designed to include large tree species and other features which

will complement the built form, integrating it into the surroundings. This is already achieved in part by the large scale dockyard buildings. The use of large scale arboretum style planting has been used to frame the building from strategic views, such as from the south-west elevation and the south-east elevation.

8.2.2 Proposed tree species:

Sequoia sempervirens - Californian redwood
Semi-mature specimens at a minimum 5.5-6.5m height, girth 25-35cm.
Araucaria araucana - Monkey-puzzle
Cedrus libani - Cedar of Lebanon
Eucalyptus gunnii - Gum tree
Ginkgo biloba – Maidenhair tree (male only)
Sequoiadendron giganteum – Wellingtonia
Taxodium distichum - Swamp cypress
Mixture of Standard specimens at 2.5-3.0m height, girth 8-10cm and Advanced Nursery Stock at 4.0-5.0m height, girth 16-20cm

8.3 Art Spaces

8.3.1 Gateway Sculpture

To complement the 'landmark' trees, another large scale feature is proposed. A 'gateway' sculpture is proposed at the Camel's Head Junction at the entrance to the access road. This is to be a large-scaled, elegant

piece of art produced through a local art competition commissioned as a separate project, with community input. It is intended that work is to be constructed principally using elements of waste or recycled material, such as scrap metal. It is proposed that this artwork is re-commissioned every five years (approximately) to represent the changing composition of waste in the region. This can be a creative feature to be appreciated by people using the facility and the general public alike. The artwork is to be commissioned and approved in liaison with the Arts Council for England and the Arts Officer at Plymouth City Council.

8.3.2 Roof Terrace Exhibition Space

In addition to the above, a roof terrace has been incorporated into the most south-westerly roof section of the main building. This comprises of three areas; two paved areas and one exhibition space. This roof terrace provides opportunities for users and community groups to experience the building at close-hand and for organised groups to host events.

8.3.3 This facility will afford spectacular views over the Tamar Estuary, Rame Peninsular, Plymouth and the Dockyard. Interpretation panels / story boards allow this space to be

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used for education purposes describing the views in addition to explaining the Energy from Waste process and the history, present use and future of the Dockyard.

8.3.4 The exhibition space is proposed as a stunning backdrop for local, national and international artists to exhibit collections of their sculpture/artwork for the public to view as part of an additional experience when visiting the facility. This process will be managed in a similar manner to the 'gateway' feature above.

8.3.5 This area is proposed to be surfaced in gravel which will complement the ecological benefits of the brown roof of the workshop building, being of benefit primarily to birds, as described in more detail below. This gravel area will hold a bank of solar panels on the southerly edge to provide electrical power for this Administration block.

8.3.6 The space will also be used by employees as an open space to safely enjoy lunch or short breaks and will have large planting beds creating some intimate areas with seating and some more open areas for larger numbers of people. The planting will soften the experience of this roof-scape environment and create a visual softening for receptors outside of the site also. More information on this feature is provided in the 'Formal Planting' section below).

8.4 Ecological Enhancement

8.4.1 To the north and western boundaries of the site, where woodland banks exist, native woodland broadleaved and scrub planting is proposed in these areas to further screen the low level activity on site, such as vehicular movements. An ecological mitigation area is proposed in the northern part of the site covering the majority of the existing Blackies Wood. The proposed

development will contain some ecological enhancement of and provision for access (controlled by the facility operator) to this woodland. Open access to the general public from outside of the facility will be available, with gates being locked from time to time as required. Refer to the Ecological Management Plan included within the Environmental Statement.

8.4.2 Management will be carried out to enable enhancement of the woodland habitat whilst also allowing access via maintained footpaths, in particular for educational purposes via local school, community groups or for example the Plymouth City Council's 'Stepping Stones to Nature' project.

8.4.3 Across the whole site, it is proposed to retain the majority of existing of trees and hedgerows. There is a need to fell two trees (as detailed in the tree survey, Appendix 8.2 of the Environmental Statement).

8.4.4 **Enhancing Existing Woodland Habitat:** The existing vegetation with the area designated for Ecological Enhancement is to be managed to promote the wildlife which already exists throughout the site.

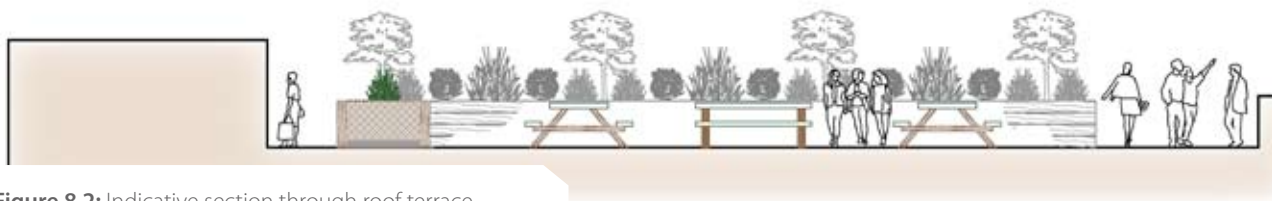


Figure 8.2: Indicative section through roof terrace

8.4.5 Selective clearance of dominant bramble and scrub, and invasive saplings will encourage less dominant species to thrive. In particular this can take place in an area in the north where bramble has dominated a substantial area of the woodland. Proposed areas of species-rich grassland and groups of woodland planting are proposed throughout the ecological area to allow contrasting habitats for a wide variety of wildlife. Selective clearance of this area allows young woodland planting in the most northern area to create a visual buffer for the residents of Savage Road, as highlighted in the Landscape and Visual Assessment in Chapter 8 of the Environmental Statement. Planting a mixture of sizes will allow the trees to have some instant impact from the outset but also allow the smaller trees to establish quickly and grow more rapidly, increasing their impact in the medium-long term.

8.4.6 **Proposed woodland species mix:**

Acer campestre – Field maple
Alnus glutinosa – Alder
Betula pendula – Silver birch
Corylus avellana – Common Hazel
Fraxinus excelsior – Common ash
Ilex aquifolium – Common holly
Lonicera periclymenum – Honeysuckle

Prunus avium – Wild cherry
Prunus spinosa – Blackthorn
Quercus robur – Peduncular oak
Salix caprea – Goat willow
Sambucus nigra – Elder
 Mixture of Semi-mature specimens (approximately 20%) at 5.5-6.5m height, girth 25-35cm, Standard specimens (approximately 40%) at 2.5-3.0m height, girth 8-10cm and Advanced Nursery Stock (approximately 40%) at 4.0-5.0m height, girth 16-20cm.

8.4.7 **Proposed scrub species mix:**

Cornus sanguinea – Dogwood
Corylus avellana – Common hazel
Crataegus monogyna – Hawthorn
Euonymus europaeus – Spindle
Ilex aquifolium – Holly
Ligustrum vulgare – Wild privet
Malus sylvestris – Crab apple
Prunus spinosa – Blackthorn
Rhamnus frangula – Alder buckthorn
Rhamnus cathartica – Common buckthorn
Ribes hirtellum – Wild gooseberry
Ribes nigrum – Blackcurrant
Ribes rubrum – Redcurrant
Rosa avensis – Field rose
Rosa canina – Dog rose
Salix cinerea – Grey willow
Viburnum opulus – Guelder rose

Mixture of shrub planting at whips 40-60cm and feathered 90-120cm height. Planted 1 per m². All whips to have protective tubes to prevent damage from animals or machinery.

8.4.8 An extension to Blackies Wood is proposed along the north-western site boundary with the introduction of a woodland and scrub strip within the boundary fence. This will blend into the woodland edge as it matures.

8.4.9 **Fresh Water Body for Amphibians**

The freshwater pond proposed within the area for ecological enhancement is designed to promote reptile and amphibian populations. Aquatic and marginal planting is to be planted in the pond to encourage a healthy balanced aquatic environment. In the area of meadow grass surrounding the water body, bee banks, log piles and hibernaculae using felled trees and rocks from the site are proposed to provide shelter and food sources for amphibians and reptiles. These areas are to be kept free of trees and shrub planting to prevent shade. The pond will require an emergency overflow discharge into the neighbouring watercourse, Barne Brake.



Figure 8.3: Indicative ditch



Figure 8.4: Indicative species-rich meadow grassland

8.4.10 **Proposed marginal and aquatic planting species mix:**

Glyceria maxima - reed sweet-grass
Butomus umbellatus - flowering rush
Veronica beccabunga - brooklime,
Alisma plantago-aquatica - water plantain
Sparganium erectum - branched bur-reed
Ranunculus hederaceus - ivy-leaved crowfoot
Potamogeton sp - pondweed sp (native only)
Lysimachia vulgaris - yellow loosestrife
Lythrum salicaria - purple-loosestrife
Filipendula ulmaria - meadowsweet
Iris pseudacorus - yellow iris

8.4.11 Small scrapes are also proposed within other meadow grass areas for ecological enhancement, the precise location is to be determined on site in areas of cleared vegetation. These shallow pools will provide habitat for reptiles and amphibians. They are ephemeral and it is anticipated that they will dry out during summer months. Bee banks are proposed in the vicinity of the pond as this provides a food source for the reptiles and amphibians.

8.4.12 The existing ditch at the tow of Blackies Wood is to be cleared, re-profiled and extended in the direction of the proposed pond. This ditch is to be redesigned to create a Sustainable Urban Drainage feature, in the form of a grass banked ditch (see Figure 8.3) and is to receive surface water run-off from Blackies Wood and water from

the roof of the proposed building. This water will percolate into the ground below but also drain into the pond. A small bridge over the ditch will provide access into Blackies Wood from the operational site.

8.4.13 **Species-Rich Meadow Grassland**

Areas of open grassland are proposed without shadows cast by trees to encourage reptiles and amphibians.

8.4.14 South facing banks of species neutral grassland or meadow grass are proposed to be created within the woodland using locally sourced material, from the site where possible, to encourage reptiles to bask.

8.4.15 Adjacent to the air-cooled condensers a south-east sloping area of meadow grassland is proposed within the operational site fence in proximity to the pond, to increase the habitat for reptile and amphibian populations.

8.4.16 For details of proposed grass mixes refer to 'Grassland Areas' section below.

8.4.17 **Bird Boxes, Bat Boxes and Insect Boxes**

Boxes are proposed to encourage wildlife onto the site. These are to be sited by an Ecologist within the arboretum style planting and the broadleaved woodland and away from main transport routes.

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8.4.18 Plant species have been selected to encourage nesting and insects.

8.4.19 The proposed material for boxes is 'Woodcrete' which has a long lifespan to reduce the need for regular replacement.

8.4.20 In addition to the above, specific boxes are proposed for use by the Black Redstart (*Phoenicurus ochruros*). This bird has been recorded using the site, is a 'fully protected species', listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). 'Woodcrete' boxes are proposed for installation around the workshop building, in close proximity to the brown roof - see 'Brown Roof' section below for more information. Ten boxes are recommended and the design of these boxes should be in accordance with guidance on the Black Redstart website "Open-fronted nest-boxes should be used throughout any development but it is important to locate them appropriately... Holes or access points should allow for small birds to pass through them but prohibit access to larger birds, in particular Feral Pigeons. There should be a selection of access points. A large number of nest boxes should be used to give pairs some selection."



Figure 8.5: indicative insect, bird and bat boxes

8.4.21 All siting of boxes is to be carried out under an ecological watching brief.

8.4.22 Brown Roof

A brown roof is proposed on the workshop building. This is aimed to provide foraging ground for birds, in particular the Black Redstart (*Phoenicurus ochruros*)

8.4.21 The primary issue is the provision of suitable low nutrient substrate within the proposed development to support a variety and low-density coverage of ruderal plants.

8.4.22 The model which has been selected is cited on the blackredstart.org.uk website

(<http://www.blackredstarts.org.uk/pages/greenroof.html>) and as mitigation for the loss of Brownfield land. "This uses a substrate material, laid down on a flat roof and allowed to colonise naturally. The research in Switzerland has demonstrated that such roofing systems can be modified to increase their positive impact on biodiversity, specifically for many of the issues associated with Brownfield land. They are a significant benefit for black redstarts."

8.4.23 The roofs to be used for mitigation for black redstarts should:

- Be based on aggregate mix present on the original site. For example a mixture of

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crushed brick and concrete graded from 25mm to dust.

- Be contoured from heights of at least 5cm to 15cm
- Be allowed to colonise naturally.
- Consist of material from the site itself and allowed to sit on site during construction. This will speed the colonisation process and also assist in the recycling of materials and reduce costs.

8.4.24 It is proposed that this contouring is established in an architectural design to create an aesthetically pleasing feature when viewed from above, as well as creating ecological benefit. These formal shapes will evolve with the colonisation of planting over time as different plants establish in the different depths/sizes of aggregate.

8.4.25 Site Boundaries

Boundaries of the site have been designed with planting to allow high levels of connectivity around the site and to neighbouring habitats. This will encourage wildlife to move freely across the site and prevent fragmented populations being created.

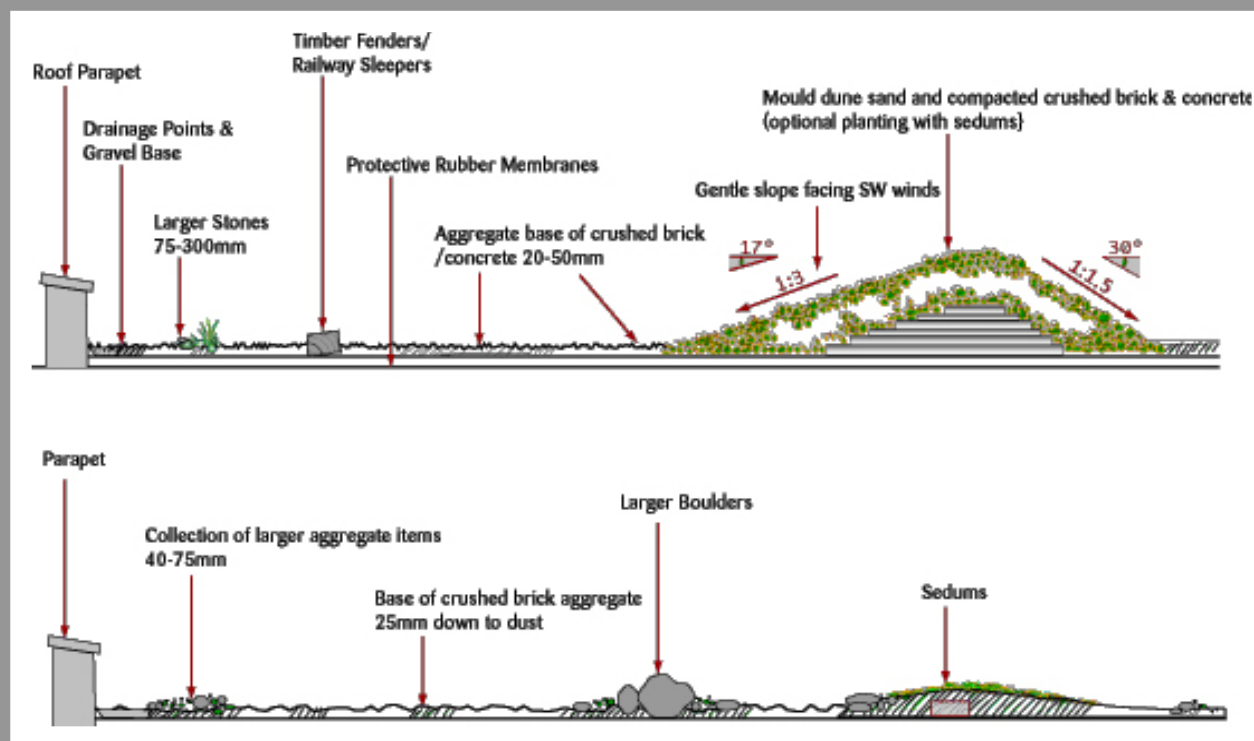


Figure 8.6: Indicative Cross section of proposed green roof for black Redstarts. Source: <http://www.blackredstarts.org.uk/pages/greenroof.html>

8.5 Grassland Areas

8.5.1 Meadow

Species-neutral grassland is proposed to promote wildlife and create an attractive and low maintenance ground cover. These areas of meadow are towards the outer areas of the site and beneath the arboretum and within selected areas of Blackies Wood, as referred to above.

8.5.2 Proposed meadow species mix:

8.5.3 Wildflowers

Achillea millefolium – Yarrow - 0.5%
Centaurea nigra – Common knapweed - 2%
Daucus carota – Wild carrot - 0.8%
Galium verum – Lady's bedstraw - 1.5%
Knautia arvensis – Field scabious - 1.2%
Leucanthemum vulgare – Oxeye daisy - 1.5%

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Lotus corniculatus - Birdsfoot trefoil - 1%
Malva moschata - Musk mallow - 1.5%
Plantago lanceolata - Ribwort plantain - 1%
Plantago media - Hoary plantain - 1%
Primula veris - Cowslip - 1%
Prunella vulgaris - Selfheal - 1.5%
Ranunculus acris - Meadow buttercup - 3%
Rhinanthus minor - Yellow rattle - 1%
Rumex acetosa - Common sorrel - 1.0%
Trifolium pratense - Red clover 0.5%

8.5.4 Grasses

Agrostis capillaries - Common bent - 10%
Anthoxanthum odoratum - Sweet vernal-grass 20%
Cynosurus cristatus - Crested dogstail - 20%
Festuca rubra - Red fescue 15%
Holcus lanatus L. - Yorkshire fog 15%
Phleum pratense - Timothy 20%

8.5.5 Amenity grass

This is proposed in areas adjacent to the building and around the gatehouse and along the pedestrian footpath into the site. This complements the successive transition of vegetation between the existing 'informality' of the existing woodland and the 'formality' of the built form. Shown in the indicative section below, this creates an uncluttered carpet or stage for the building to sit within.



8.5.6 In addition to this, the ordered amenity grassland provides formality for people arriving and moving within the site, reinforcing the aesthetically strong entrance and smooth architectural design.

8.5.7 Proposed amenity grass mix

Grass mix British Seed houses A24 'Wear and Tear'
Agrostis castelanna - Highland bent grass - 5%
Festuca rubra 'comutata' - Raisal chewing fescue 20%
Festuca Rubra Litoralis - Slender Creeping Red Fescue 35%
Lolium perenne - Perennial Ryegrass spp. 40%

Figure 8.7: Indicative successive landscape transition diagram

8.5.8 Reinforced grass banks

In order to address changes in level at certain points between the operational site and the surroundings, the designs propose to use reinforced soil structures such as 'Tensartech NaturalGreen' or similar approved. These earth retaining systems are planted with vegetation to produce a green bank, in preference to unsightly retaining walls. Details of this construction and proposed seed mix are to be confirmed at detailed design stage.

8.6 Formal Avenues

8.6.1 Avenues are proposed on the key roads within the site. Existing avenues have been retained along the access road from Camel's

Head Junction. These proposed avenues will help to reduce visual impact of site traffic and the general infrastructure, reducing visual clutter around the base of the building when viewed from a distance. They will also create an attractive entrance and feature for users of the site, and for those glimpsing into the site when passing in close proximity.

8.6.2 Proposed avenue tree species

Fraxinus excelsior – Ash
Liquidamber styraciflua – Liquidambar
Platanus x hispanica – London plane
Quercus palustris – Pin oak

8.6.3 Trees to be planted as Advanced Nursery Stock at 4.5-5.0m height, girth 18-20cm at approximately 7.5m spacing.

8.7 Formal Planting

8.7.1 Roof Terrace

The roof terrace has been designed to enable two areas of open space which can be enjoyed by the staff and members of the public, as described in Section 8.3, 'Art Spaces'. In these areas formal planting in wide raised planting beds is proposed. This will create areas of intimate space, soften with visual aesthetic and provide protection from winds to create a diverse and pleasant experience. Irrigation systems are proposed throughout the roof garden.

8.7.2 Proposed roof terrace planting species mix;

Acer rubrum - Red Maple
Agave sp. - Agave
Callistemon sp. - Bottlebrushes
Chamaeops humilis - Fan Palm
Convolvulus cneorum - Silverbush
Echeveria glauca - 'Topsy Turvy'
Genista Lydia - Spanish Gorse
Hedera helix sp. - Common Ivy, English Ivy
Hippophae rhamnoides - Common Sea-Buckthorn
Miscanthus sinensis - Chinese silver grass,
 Eulalia grass, maiden grass, zebra grass,
 Susuki grass, porcupine grass
Perovskia atriplicifolia - Russian Sage
Phlomis fruticosa - Jerusalem Sage
Phormium tenax sp. - New Zealand Flax
Pinus mugo (+sp.) - Mountain Pine or Mugo Pine
Pittosporum sp. - 'Cheesewoods'
Pleioblastus variegata - Dwarf White-Stripe
Olearia – Daisy bush
Santolina chamaecyparissus - Cotton Lavender
Santolina virens - Green Santolina
Sedum sp. - Stonecrops
Tamarisk sp. - Tamarisk
Vinca minor - Lesser periwinkle and Dwarf periwinkle
Yucca filamentosa - Adam's Needle



Figure 8.8: Indicative formal planting

8.7.3 General

Similarly to above, formal planting is proposed in areas where pedestrians will be circulating within the site. This is mostly in close proximity to the car park and Administration Building. This is designed to provide attractive features on a human scale which users can relate to when in this close proximity to the building. This change of scale of planting will also assist the orientation of pedestrians when moving from the car park to the Administration Building.

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8.7.4 Irrigation by means of a 'leaky' pipe is proposed for any planting which falls under the overhang of a building roof.

8.7.5 **Proposed formal planting species mix:**

Callicarpa bodinieri var. *giraldii* 'Profusion' – Beauty berry
Clematis armandii - Clematis
Cordyline australis 'Torbay Dazzler' - New Zealand cabbage palm
Cornus florida f. *rubra* - Flowering dogwood
Eryngium variifolium - Sea holly
Hebe pinguifolia 'Pagei' – Hebe
Hebe rakiensis – Hebe
Hedera helix 'Ivalace' – English ivy
Hedera helix 'Goldheart' – English ivy
Lavandula augustifolia – Lavender
Lavandula stoechas – French lavender
Miscanthus sinensis – Zebra grass
Narcissus 'February Gold' and 'Yellow Cheerfulness' – Daffodils
Pachysandra terminalis - Pachysandra
Parthenocissus quinquefolia - Virginia creeper
Phormium tenax – New Zealand flax
Rhus typhina – Staghorn sumac
Stipa giganteum – giant feather grass
Stipa tenuissima – feather grass
Tulipa linifolia, 'Blue Heron' and 'Ornamental Splendor' - Tulips
Verbena bonariensis – Verbena

Vinca minor 'Atropurpurea' - Lesser periwinkle (pink)

Vinca minor 'Aureovariegata' - Lesser periwinkle (purple)

Vitis coignetiae – Crimson glory vine

Wisteria floribunda 'Rosea' - Wisteria

8.7.5 Plants ranging from 20-120cm height. Planted between 3m² and 5m² depending upon species and pot size.

8.8 **Further Design Elements**

8.8.1 In addition to the above, as part of the MVV's desire for the Facility to interact with and provide a resource for the local community, it is proposed to create an informal recreation space to the south of Pool Park Road and Savage Road. These works are proposed to include some remodelling of the existing sloping area of managed grassland land to create a suitable sports-pitch space and the installation of a Devon hedgebank between the space and the road, improving safety for users, increasing biodiversity and aesthetics. This open space will have unlimited public access and is designed in accordance with the Secured by Design guidance "Ownership: places that promote a sense of ownership, respect, territorial responsibility and community"

(Safer Places: The Planing System and Crime Prevention, ODPM 2004)

8.8.2 The proposed introduction of a single tree avenue adjacent to the Devon hedgebank in this location also provides the opportunity for mitigation planting to partially screen views for these residents. This was indicated in the Landscape and Visual Impact Assessment in Chapter 8 of the Environmental Statement as being a key area for potential mitigation and this has been incorporated into the design. All mitigation planting is to commence at the outset of construction to allow a maximum time for the vegetation to establish. Final agreement on these proposals is to be sought from the MoD (as the landowner), local community and housing associations prior to confirmation.

8.8.3 In particular, the London Plane trees have been chosen for the patination of their trunks which are eye-catching and will draw attention.

8.8.4 **Proposed Single Tree-Avenue Planting**

- Alternate tree species :

Platanus x Hispainca - London Planes
 semi-mature 5.5-6.0m height, 25-39cm girth
 – air potted or container grown

8. LANDSCAPE STRATEGY

Alnus glutinosa – Common Alder’
extra heavy standards 4.0-4.5m height, 14-16cm girth - air potted or container grown

8.8.5 Proposed Devon hedgebank species mix:

Crataegus monogyna – Hawthorn – 50%

Pyrus cordata - Plymouth Pear – 15%

Rosa canina - Dog Rose – 10%

Corylus avellan – Hazel – 10%

Prunus spinosa – Blackthorn – 10%

Ilex aquifolium – Holly - 5%

8.8.6 Images to the right show the reduction in impacts which are achievable with this mitigation planting.

8.8.7 Existing watercourses

Subject to MoD approval (as landowner), MVV have proposed to clear out the existing debris in Barne Brake and Weston Mill Creek within their lease ownership, as part of the demolition and bridge construction. In addition to this, a meandering timber decked viewing platform is proposed adjacent to the pond. This will be accessed via a gate in Blackies Wood and will provide close views of the watercourse habitat for visitors.

8.8.8 Replacement of Existing Access Bridges

The existing bridges carrying the present access roads into the site represent a significant restriction to the flow of water in the Weston Mill Creek. The smaller upstream weight limited bridge has a narrow opening and the larger downstream bridge is formed from a number of large diameter gridded pipes which can lead to a build up of debris and silt in this watercourse. As a consequence, the Environment Agency has indicated their desire to have these restrictions removed.

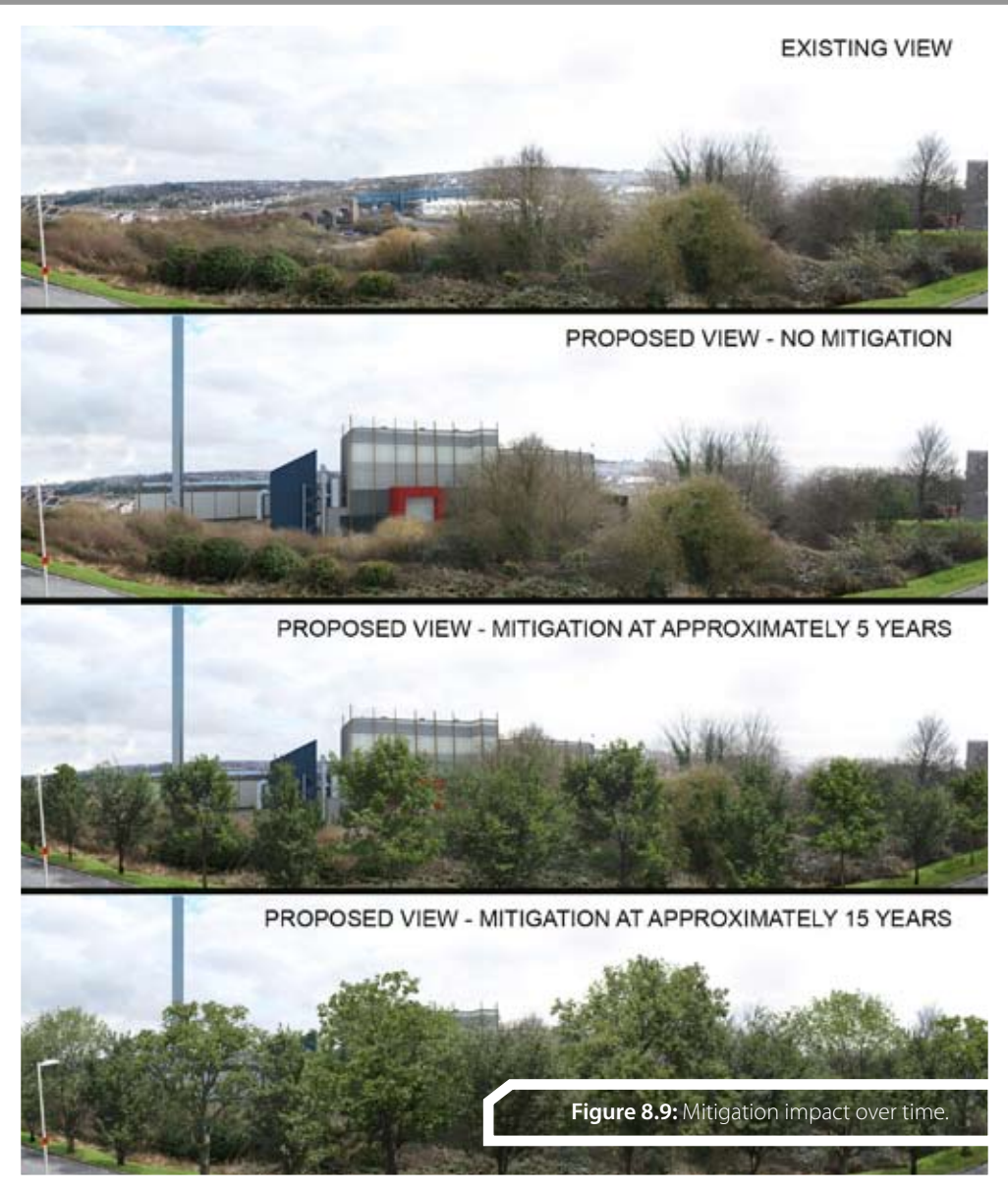


Figure 8.9: Mitigation impact over time.

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8.8.9 The construction of the Facility will include the demolition of the two existing bridges, replacing them with a new single two way open span bridge with abutments positioned to allow a 15m wide channel. This improved channel capacity provides considerable betterment compared to the existing bridge structures whilst the Flood Risk Assessment study demonstrates that the removal of the two access bridges will have a negligible impact on flood levels upstream or downstream of the site.

8.8.10 Seating

Timber or recycled plastic benches and picnic benches are proposed in the roof terrace for workers to use as this is away from the trafficked areas of the site. All furniture on the roof terrace is to be fixed for safety purposes. Two small seating areas are proposed in the vicinity of the disabled parking and en-route to the car park, as waiting/resting places. Recommended manufacturers such as 'Woodscape' or an approved alternative will be used.

8.8.11 Paving

Medium to large paving slabs are proposed on pedestrian access paths around the building to allow full access for servicing and maintenance.

8.8.12 Medium and Smaller paving units, and areas of timber decking, are proposed within the roof terrace where users can enjoy lunch or short breaks during the working day. Use of recycled glass surfacing such as 'Surset' or an approved alternative is also proposed for localised features in the roof terrace.

8.8.13 Proposed paving slabs are 'Marshalls' Conservation paving, or an approved alternative, which contains a high level of recycled aggregate, that can be sourced locally.

8.8.14 Litter Bins

Litter bins are proposed in the vicinity of the Administration Block and on the roof terrace. These will be made from similar materials to the benches with an emphasis on recycled material content.

8.8.15 Interpretation Boards and Signage

A signage feature is proposed for the entrance to the site from Camel's Head road junction. This is to be designed in collaboration with the MoD.

8.8.16 Educational boards are proposed on the roof terrace. These are proposed to include themed boards on the dockyard, the EFW CHP plant and the views across the Tamar

in to Cornwall. The exhibition space is also proposed to have an interpretation board where the Artist can describe and explain their artwork.

8.8.17 Signage at all entrances to Blackies Wood is to state that the land being entered is private land, that there is no Right of Way through the woodland, and that the land owners are not responsible for people entering the site. Precise signage wording is to be agreed with the MOD.

8.8.18 Within Blackies Wood, four educational/interpretation boards are to be installed, at the entrances, to inform visitors of the features with the woodland eg: pond and hibernacula; species-rich grassland areas; woodland succession; the history of the dismantled railway line, birds using the site and seasonality. The graphics will show a simplified plan of the woodland showing footpaths and suitability for disabled access. All signage is to be vandal resistant and of high durability materials.

8.8.19 Other signage within the main site is to be specified by MVV for safe movement around the site.

8.9 Management and Maintenance

8.9.1 A Landscape Management Plan is proposed to ensure beneficial on-going management of the operational site and an Ecological Management Plan for throughout Blackies Wood. These are both included within the Environmental Statement, Chapters 7 and 8.

8.9.2 All proposed trees within the operational site are to have a clear-stem height of 2.4m to ensure clear visibility for site traffic both at the time of planting and throughout their lifespan.

8.9.3 Biodiversity Budget

Plymouth City Council's Core Strategy seeks to deliver a net gain in biodiversity, in accordance with Design SPD Guidance. A Biodiversity Budget has been prepared to show how the proposed biodiversity features relate to the existing habitats on the site. This document is included within the Environmental Statement at Chapter 7.

9. SECURITY & LIGHTING

9.1 Access Gate and Relationship to MOD Land

9.1.1 MVV's facility will occupy a site discrete from HMNB Devonport within which it will have full security control, without disruption by or to MoD activities.

9.1.2 A new security fence and access gate will be established such that the site and its access route falls outside of the secure area of HMNB Devonport. This new fence will be one of the first activities of the construction phase and there will be no significant presence on the site until this fence is complete and taken over by the MoD as acceptable for their ongoing security purposes.



Figure 9.1: Fencing Examples.



9.2 Fencing

9.2.1 Fencing which would enclose Blackies Wood would be a 1.4m high fencing. This should be in the form of galvanised steel estate fence and polyester powder coated black RAL 9005, with four cross rails. This has been chosen in preference to a weldmesh or palisade fence to create a less visually imposing boundary to the woodland and to allow wildlife to pass freely through. For full details of fence locations and types, refer to the Landscape Masterplan in Appendix A.

9.2.2 Security fencing is proposed in the form of 2.4m weldmesh fencing. The proposed style should be formed of galvanised steel and polyester powder coated black RAL 9005. This will be located around the operational area of the site. In certain sensitive areas higher security fencing may be required; however this is subject to confirmation in discussion with the MOD and Plymouth City Council.

9.2.3 High security fencing – design to be approved by the Ministry of Defence – will be required in certain sensitive areas where the site is adjacent to the MOD land. This fencing will be >3m in height and Class 3 intermediate security welded mesh to BS1722, Part 14 with barbed wire topping. The extent of this is subject to confirmation.



9.2.4 Security railings are proposed around the roof terrace. These are to be light in construction to allow maximum views through – to benefit younger/smaller visitors.

9.2.5 A 1m timber handrail is proposed around the proposed Barne Brake viewing platform adjacent to Blackies Wood. This platform will have gated access from within Blackies Wood.

9.2.6 Where existing fences are of a suitable standard and height, these will be retained.

9.2.7 All gates as shown within Blackies Wood are to be fully lockable. No formal Public Rights of Way are proposed due to health and safety implications and in accordance with Secure by Design guidance, this will be stated by a sign at each gate. However, as described in Section 8, access to the public and for visitors to the EfW CHP facility will be permitted. This will only be prevented during short periods as required.

9.2.8 An acoustic fence is proposed running along the north of the access road into the operational site. Details of this are provided in Chapter 14 of the Environmental Statement.

9.3 Lighting

9.3.1 Street lighting is proposed for safety and security at the entrances to the site and entrances to the building. It is proposed that the internal roadways are illuminated during the hours of darkness, when required, in the early evenings. The site will not be lit throughout the night.

9.3.2 Bollard lighting is proposed in the areas of car parking. This will be low level directional lighting with uni-directional lamps, should be pointed away from hedgerows and any

ecological features. Where possible, lighting bollards will be made of timber or recycled plastics; 'Woodscapes' or an approved alternative is advised.

9.3.3 Lighting on the roof terrace will comprise of recessed down-lighters and only activated when the roof terrace is in use. This is to prevent unnecessary light pollution to adjacent residences.

9.3.4 Street lighting, where required, will use short light columns, where appropriate with the attachment of directional hoods to lights in order to ensure that the light is directed at an angle less than 70° and the use of low pressure sodium lamps. Movement sensors will be used where possible.

9.3.5 Brightness of the lighting will also be kept as low as legally and safely possible and, as noted above, limited to periods after dusk and pre-dawn in order to provide some dark periods.

9.3.6 Secured by Design guidance has been taken through liaison with Devon and Cornwall Police. This will be ongoing throughout the detailed design, construction and operational phases. Footpaths and car parks are clearly defined and illuminated. Section 6.2 and 7 of the DAS describe proposed night-time lighting of the facility, including the Water Treatment Hall, the

external columns and the Air Cooled Condensers. The MoD was consulted on the design of the lighting scheme, with particular regard to safety implications for Naval and other air-traffic. Flag Officer Sea Training (FOST) staff, which provides air traffic control from within the Naval Base for the South West Area and controls flying into and out of the Naval Base, was involved in the consultation. Resulting from the consultation, a management arrangement is proposed that would allow FOST Air Control to contact the CHP Shift Supervisor and have up lighting switched off prior to and during night flying operations. Details of this management arrangement would be agreed with the MoD /FOST prior to activation of the lighting scheme.

10. CLIMATE CHANGE & SUSTAINABILITY Page 57



10.1 Sustainability Statement

- 10.1.1 This planning application is accompanied by a Climate Change and Sustainability Statement, which forms Appendix 3 to the Planning Application Supporting Statement. The Climate Change and Sustainability Statement has been prepared in accordance with the requirements of the Plymouth City Council Design supplementary planning document.
- 10.1.2 A BREEAM pre-assessment and WRATE analysis have also been completed for the proposed scheme and these documents are included with the Climate Change and Sustainability Statement.
- 10.1.3 A summary of the Climate Change and Sustainability Statement is presented in Section 10 of the Planning Application Supporting Statement.



11.1 Introduction

- 11.1.1 The main purpose of the EfW CHP Facility is to manage waste, which will be delivered to the facility in heavy goods vehicles (HGV) under contract with the operator, MVV. There will be no access to the facility for ad-hoc, un-contracted waste delivery vehicles. Other vehicles accessing the facility will be private vehicles of employees, business visitors and members of the local community that have appointments to use the visitor centre and community space. Private vehicles could include cars, motorbikes and cycles and it is anticipated that some visitor groups will arrive in coaches or minibuses. Staff and visitors may also arrive on foot.
- 11.1.2 The community engagement process undertaken by MVV (as reported in the Statement of Community Involvement) did not reveal any local appetite for a pedestrian route through the site although this was raised with visitors to the exhibition as a possible benefit. Further, the maintenance of security around the perimeter of HMNB Devonport is an important consideration. In this context, no formal Public Right of Way through or around the site perimeter is proposed. Formal pedestrian access within

the site will be limited to site operatives, visitors and staff using the car parking and Administration Block reception area and accompanied groups of visitors, which will have pedestrian access to the Blackies Wood biodiversity resource area.

- 11.1.3 The facility complies with both Part M of the Building Regulations and the Disability and the Equality Act 2010 and fulfills the disability and equality duties in the DDA.
- 11.1.4 Level thresholds will be provided at all main points of entry and passenger lift access suitable for wheelchairs will be provided to all levels. Where escape stairs are provided they are designed to accommodate disabled refuge areas. Disabled car parking spaces have been provided adjacent the Administration Building entrance and disabled toilet facilities are also provided within that building. Parts of the operational areas are not accessible to wheelchair users, but a limited visitor tour designed for wheelchair users, with access to the control room, will be devised.

11.2 General Movement

- 11.2.1 The location of the site means that the predominant highway access to the site

will be from the A38 via the A3064, Weston Mill Drive, as shown on Figure 11.1. Access will be provided to and from the proposed EfW CHP via a signalled junction. As such, vehicles entering the site travel along the MoD owned access road towards the Camel's Head Gate of Her Majesty's Naval Base (HMNB) Devonport and turn right at the signalled junction. Vehicles leaving the site will turn left at the signalled junction and join the highway network at the aforementioned junction at Weston Mill / Wolseley Road. The existing lay-by for drivers to drop off and collect staff and visitors to the Dockyard will be retained.

- 11.2.2 A new road will be formed through the existing car park. Sufficient off road queuing areas will be provided to meet the peak delivery periods; queuing on the public highway will not be permitted.
- 11.2.3 At the western end of the car park, the new road will pass underneath the Weston Mill railway viaduct and join an existing road, prior to the weighbridges / gatehouse. This existing road will be modified to suit the line and level of the weighbridges and the new bridge over the creek.

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Figure 11.1: Site Layout

11.2.4 At present there are two existing road crossings of Weston Mill Creek to the west of the proposed location of the weighbridges and gate house, neither of which is wide enough for two way traffic.

11.2.5 It is proposed to demolish both existing crossings and replace them with a new clear-span bridge sufficient to take traffic in both directions at once. The new bridge will take the form of a two-way access composite steel and concrete bridge spanning approximately 18m.

11.2.6 A cycleway will be provided from the Camel's Head Road Junction to the cycle parking located in close proximity to the Administration building.

11.3 Operational Movement

11.3.1 HGV's will proceed to the Gatehouse and the Weighbridges situated on the internal access road. The site will be equipped with two Weighbridges positioned to allow weighing in and weighing out of all waste delivery vehicles, vehicles delivering consumables and vehicles transporting products and residues.

11.3.2 On leaving the weighbridge HGV's will be routed towards the tipping hall entrance.

On the approach to the tipping hall entrance a verge and clear directional signage will direct waste vehicles ahead into the tipping hall and non-waste delivery vehicles to the left, towards the car-parking area.

- 11.3.3 A waiting area is provided for loads which may contain unauthorised material to be held and examined.
- 11.3.4 Waste delivery vehicles will enter and exit the tipping hall via the same entrance on the south east elevation of the building. On exiting the tipping hall, waste delivery vehicles will proceed directly, via the weighbridge, along the site access/exit route to the Camel's Head junction.
- 11.3.5 Vehicles delivering process materials and arriving to collect process residues will arrive at the weighbridge via the same route as the waste delivery vehicles. From the weighbridge, these vehicles will proceed along the circulation road to the south east of the main building, to a separate entrance also on the south east elevation, but further towards the northern end of the building. Following delivery/collection of materials, the vehicles will proceed back along the circulation road to the south east of the building and along the site access road to the site entrance and Camel's Head junction.

11.3.6 Traffic Control On-site

In the Tipping Hall vehicles will be under the control of an automated traffic light system to indicate which tipping bay to use. This will be controlled by the plant control room.

- 11.3.7 Operational vehicles will be controlled on site via designated truck paths, road markings, traffic lights and traffic control bollards and/or automated bollards as required. A speed limit of 10 miles per hour will be imposed and maintained across the site. This will be prominently displayed on traffic signs and enforced by the operating company.

- 11.3.8 Emergency vehicles will have freedom to move around the total site via the perimeter road

11.3.9 Circulation and Parking

The internal road and pedestrian area layout has been designed to allow the safe movement of vehicles and pedestrians and with regard to relevant health and safety legislation and good industry practice. The facility has been designed such that vehicles can achieve a turnaround time, from arriving at the entrance weighbridge to leaving the exit weighbridge, of between 15 and 25 minutes (depending on the type of delivery vehicle). This time will include entering the site, being weighed, being

monitored, discharging the waste, being re-weighed and leaving the site.

- 11.3.10 Detailed calculations have been made of the vehicle movements expected to arrive at and depart from the EfW CHP facility. These calculations can be found in the Transport Assessment

- 11.3.11 The internal road and pedestrian area layout has been designed to allow the safe movement of vehicles and pedestrians and with regard to relevant health and safety legislation and good industry practice. The facility will provide 51 car parking spaces and 5 motorcycle spaces, of which 2 will be disabled spaces and 3 visitor spaces, the majority of these will be located to the west of the of the administration area. Parking provision is also be made for coaches and minibuses.

- 11.3.12 The cycleways and footpaths around the facility will be of a generous width and have a suitable landscape setting. They will provide direct access to the Administration Block, with clearly marked routes from car park to entrances.

11.3.13 Emergency Services

Emergency service vehicles will access the site by the same route as waste delivery vehicles, as described above. The internal

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access road allows circulation around the entire EfW CHP facility site for emergency service vehicles.

11.3.14 Access to and Within Blackies Wood

Safe access to the biodiversity resource area of Blackies Wood will be provided via a secure access point adjacent to the car-parking area and Administration Block. A further level access is proposed at the most northerly end of the operational site, adjacent to the pond area, at the base of Blackies Wood, this will also connect to the viewing platform for visual access to Barne Brake. For disabled users the existing disused railway line track is accessible from the northern gate adjacent to the rear of 40 and 40a Poole Park Road.

11.3.15 Other access points to the woodland are via existing tracks from the east leading into existing tracks within the woodland. These will also be gated, but provide the potential for future variety of access and tours of the woodland resource.

11.3.16 Bull Point Access

There will be a need to construct a new access road to Bull Point for the MoD, since its existing access road will be outside the new security fence and will be required for the EfW CHP facility. The location of this new access road can be seen at Figure 11.1.

11.3.17 This access road will also provide access to "Table Top Mountain" once construction of the EfW is complete and this area is returned to MoD following its temporary use as a "lay down area" during the EfW construction phase.

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12.1 Conclusions

12.1.1 This Design and Access Statement has been prepared to accompany the MVV Environment Devonport planning application for the EfW CHP facility, in accordance with the requirements set out in the Planning and Compulsory Purchase Act, relevant government guidance and local planning policy.

12.1.2 The EfW CHP design has evolved over a period of time, taking into account both the site constraints and the technical specifications that a facility of this scale requires together with feedback from stakeholders and bodies such as CABE and Plymouth City Council.

12.1.3 The scheme design, from an early stage, was led by landscape considerations, with the landscape concept informing the built form solution. The proposed design concept involves an expression of function in the form of a close wrapping of the industrial process, in order to minimise mass and scale. In an early form, this concept was welcomed when presented to the South West Design Review Panel of CABE and it is this which has been developed and refined to form the design of this planning application.

12.1.4 The necessary functional arrangements of the building elements result in the process of arriving waste, tipping and removal of bottom ash all being located on the elevation facing the Dockyard. To separate the general vehicle movements from this process the administration block and parking areas are positioned on the elevation facing Barne Barton.

12.1.5 Notable architectural features of the proposed design solution include:

- Illuminated transparency to the Water Treatment Hall.
- A large roof terrace over the Administration Block and Tipping Hall.
- An angular bow and curved stern, exposed structural columns to the tipping hall, and angled-ends to the Water Treatment Room, Turbine Hall and Administration Block, reference the warships past and present in the dockyard. The external columns carry the structure shaped in the form of a ship's hull and break up the long horizontal lines and provide a striking architectural feature.
- The columns to the tipping hall, waste bunker and turbine hall will all be lit at night.
- The choice of high quality materials, including Kingspan Longspan, with

grey louvres at high and low level, arranged in horizontal shades of grey to create further interest. End walls are formed by a standing seam aluminium roofing system (Kalzip) and exposed curved weathered steel columns, which are braced horizontally with a light galvanised steel lattice, co-ordinating with the positions of the grey cladding bands.

- The design of the Air Cooled Condensers, which will be clad in an opaque cladding (Kal Wall), top lit with coloured feature lighting which will silhouette the curved horizontal columns.

12.1.6 The combination of the above creates a sense of arrival, provides transparency, a striking and iconic architectural statement and an appropriate architectural response to an important site. This architectural statement is created whilst minimising the impact of the development on the adjacent housing by ensuring no light spillage or noise generation will affect those properties.

12.1.7 In addition, because the building minimises its volume around the internal equipment by a series of enclosures (rather than the greater volume that would be generated by a single enclosure) the highest parts of the building, whilst visible from Barne Barton, will not dominate it. The inclusion of

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Figure 12.1: Illustrative view of building

planting within the scheme proposals also helps to further mitigate the visual impact of the development and integrate it with its surroundings.

12.1.8 The overall design masterplan for the site therefore has been to provide a facility which combines high quality, iconic architectural design with a form that complements the complex dockyard context of an industrial setting with a backdrop of a woodland area with varying topography and relatively close proximity of residential properties, with the objective of encouraging community acceptance of this important sustainable development.

12.1.9 With the exception of the Administration Block, the processing facility will not be publicly accessible and the access arrangements are focussed around the efficient processing was waste deliveries and the separation and safe circulation of heavy commercial vehicles and staff/visitors, including provision for pedestrians and cyclists. Special attention has been paid to providing safe and secure access for the members of the public and visitors to the proposed Blackies Wood biodiversity resource area.



LANDSCAPE MASTERPLAN DRAWING