



**Trident Park Energy from Waste and Recycling Facility  
Cardiff**

**Landscape and Visual Impact Assessment**



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## **1.0 INTRODUCTION**

This Landscape and Visual Impact Assessment (LVIA) describes the potential landscape and visual effects of the proposed Energy from Waste (EfW) and recycling facility at Trident Park, Ocean Way, Cardiff.

The LVIA takes account of the effects of the proposal on the landscape within and without the application site since the proposals have the potential to affect the landscape character and visual amenity of locations at a considerable distance beyond the application site boundary. Based on initial consultations with Cardiff Council (CC) and the Countryside Council for Wales (CCW) a 10km radius study area from the centre of the application site has been applied.

The assessment considers the entire period of the development, including site preparations and construction and operation of the EfW.

The assessment is described in the following sections:

### *Method of Assessment*

This section comprises a brief explanation of the assessment criteria and how the assessment has been carried out with reference to standard methodologies and guidelines.

### *Project Description and Mitigation Measures*

This section includes a description of the key aspects of the proposed EfW which have potential to cause landscape and/or visual impacts, as well as measures that have been incorporated into the project design to mitigate these impacts.

### *Landscape and Visual Context*

This Section comprises a description, classification and evaluation of the existing landscape and visual characteristics of the study area and establishes the baseline against which to judge the effects of the development.

### *Evaluation of Residual Effects*

This comprises a description of the remaining effects of the development after the incorporation of mitigation measures, and an assessment of their magnitude and significance

### *Summary and Conclusions*

The final section comprises a summary of the assessment results and their significance accompanied by conclusions on the effects of the proposed EfW in landscape and visual terms.

## 2.0 METHOD OF ASSESSMENT

### 2.1 Methodology

The landscape and visual assessment has been based on guidelines provided in:

- Landscape Character Assessment (The Countryside Agency and Scottish Natural Heritage 2002); and
- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Management and Assessment, Second Edition, 2002).

The assessment has drawn upon conclusions arising from a formal scoping exercise undertaken with Cardiff Council (CC) and the Countryside Council for Wales (CCW). The landscape and visual assessment has involved a desk study, field work, data processing and analysis, as well as interpretation using professional judgement.

The proposed development has been analysed to identify the elements of the EfW with the potential to cause an impact on the landscape and/or visual amenity of the surrounding area.

Mitigation measures which have been incorporated into the final design and layout of the proposed development are described.

### 2.2 Consultations

An initial Scoping request was submitted to CC and CCW in October, 2007. Responses relevant to the LVIA are listed in Table 2.1, below along with details of how these have been addressed.

**Table 2.1  
Summary of Consultations**

Consultee	Content	Outcome/ Response
<b>Cardiff Council Consultation with local planning officer and landscape officer.</b>	Verification of the status of local planning policy, designations and landscape character assessment.	<p>The City of Cardiff Local Plan (1996) is the current basis for the planning framework in the city. However, Cardiff Council submitted a deposit draft of the 'Cardiff Local Development Plan (LDP) 2006 - 2021' in November 2009. Although the Local Plan holds the current policies used to determine planning decisions, some weight is given of the LDP and so these policies have been considered in the following LVIA.</p> <p>There has been no further landscape character assessments either within or around the city limits and therefore the LANDMAP and Cardiff Landscape Study has been utilised. .</p>
<b>Cardiff Council</b>	CC's scoping response refers to the	See below.

Consultee	Content	Outcome/ Response
<b>Countryside Council for Wales</b>	<p>scoping response from CCW (see below).</p> <p>Item 6 of CCW's scoping response states that:</p> <p><i>"We refer you to the landscape strategy for Cardiff, 'Landscape Study of Cardiff (LSC)' undertaken by consultants on behalf of Cardiff Council and using the Countryside Council for Wales' LANDMAP methodology. We recommend that the impacts of any development proposals on the landscape character of the area and its visual effects are assessed against the findings of this study."</i></p>	<p>LANDMAP and CLS data has been incorporated into the LVIA. However, the coverage of this data only covers rural landscapes within the County boundary and so it has been necessary to prepare further baseline assessments to identify the particular characteristics of the interior of the City and waterfront environments. This was undertaken using methodology applied in other similar urban assessments elsewhere and was agreed during consultation with CC and CCW [prior to commencement of the LVIA.]</p>

### 2.3 Landscape and Visual Baseline

In order to assist in evaluating the potential landscape and visual effects arising from the proposed EfW Zone of Theoretical Visibility drawings (ZTVs) were generated to identify the potential extent of key elements of the development across the study area. Typically, ZTVs are based upon commercially available Digital Terrain Models (DTMs). However, such models do not contain buildings or other structures that would influence the visibility of the development. Clearly, in an urban setting this is misleading and so the ZTVs in Drawings 2 to 2C and 3 to 3C were generated using a Digital Surface Model (DSM) comprising NEXMap data,<sup>8</sup> an up to date site survey and a model of the proposed EfW building and stack. This model contains 10m grid data that incorporates the elevation of buildings and structural vegetation and is therefore considered to be more useful in understanding potential visibility in the City environment. However, it is still considered to have limitations due to the effect of interpolation between surveyed points. Consequently, the findings of the ZTVs were checked during field reconnaissance and the results incorporated into the LVIA.

An assessment of the predicted visibility of the proposed EfW on the landscape character of the study area was carried out through analysis of the ZTVs and field verification for key sensitive receptors. The visibility assessment concentrated on the publicly accessible locations on roads, public footpaths and outdoor recreational areas within the study area. Whilst publicly accessible locations within residential areas were considered, no assessment of views from individual properties was undertaken.

Table 4.1, at pages 19-22 below, lists the Landscape Character Areas (LCAs) identified as having potential visibility of the proposed EfW along with the key receptors, and the nature of views within each landscape. An assessment of the sensitivity of each landscape character to the type of development proposed is also provided, based on predetermined criteria (Ref. Table 4.1, below).

<sup>8</sup> 5m grid of aerial survey data obtained from Emapsite.com.

A series of viewpoints were selected for use in verifying the potential effects of the proposed development upon the visual amenity of the study area. These eighteen viewpoints are considered to be representative of key sensitive receptors in the study area including

- Road users;
- Rail users;
- Residential receptors/ public realm locations within residential locations;
- Recreational/leisure receptors including walkers and cyclists;
- Tourists and visitors to Cardiff Bay and the waterfront; and
- Visitors to nearby attractions within the City including the Welsh Assembly and the Millennium Centre.

Viewpoints were selected to indicate the effect of the development upon receptors at different distances from the application site and different elevations. Viewpoints 1 to 15 were selected in consultation with CC and CCW, the remainder (Viewpoints 16 -18, inclusive) were added in response to a request for additional viewpoints from the Design Council for Wales.

A viewpoint analysis of the potential effects on both the landscape and visual amenity arising from the proposed EfW at each of the selected viewpoints was carried out. This analysis was based on computer generated 3D views and finished photomontages from selected locations to assist in the prediction of views of the proposed EfW from each of the viewpoints. The existing and predicted views from each of these viewpoints have been analysed to identify the magnitude of the residual effects on the landscape and visual amenity at each viewpoint location. It should be noted that although the viewpoint assessment includes an assessment of predicted effects on landscape character, this relates to the effects predicted at the viewpoint itself and does not necessarily relate to the whole of the LCA in which the viewpoint is located.

## **2.4 Evaluation of Residual Effects**

An assessment of the potential residual effects (i.e. the effect of the development taking into account any mitigation measures proposed) on the landscape and visual amenity of the study area. Residual effects on each of the landscape character types subject to potential views of the development were considered, together with predicted effects upon designated landscapes. Potential effects on the fabric of the landscape within the site were also considered.

## **2.5 Nature of Residual Effects**

Effects can be adverse, beneficial<sup>9</sup> or neutral. Such effects may alter over time as a result of changes to the nature of the development or the efficacy of mitigation measures. The following assessment identifies the nature of impacts and differentiates them according to the phase of the development in which they would occur.

## **2.6 Evaluation Criteria**

The aim of the landscape and visual impact assessment is to identify, predict and evaluate potential impacts arising from the proposed development. It is also, in accordance with the Environmental Impact Assessment Regulations, intended to identify any likely significant

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<sup>9</sup> Paragraph 7.6, Guidelines for Landscape and Visual Impact Assessment, Second Edition, The Landscape Institute and the Institute of Environmental management and Assessment, 2002).

effects.

The significance of a landscape or visual impact is a function of the sensitivity of the affected landscape or visual receptor and the magnitude of change that would occur as a result of the proposed development. The evaluation criteria used in the assessment in respect of sensitivity of receptors and the magnitude of change are described in sub-Sections 2.7 to 2.9, below.

## **2.7 Landscape Sensitivity**

The sensitivity of the landscape to changes is defined as high, medium, low or negligible based on professional interpretation of a combination of parameters including:

- Existing land-use;
- the pattern and scale of the landscape;
- visual enclosure/openness of views, scale of views and distribution of visual receptors;
- the scope for mitigation, which would be in character with the existing landscape; and
- the value placed on the landscape.

The LVIA ascribes landscape sensitivity based on an evaluation of each key element or characteristic of the landscape likely to be affected by the proposed development and considers such factors as:

- landscape quality;
- value;
- contribution to the landscape character; and
- the degree to which the particular element or characteristic can be replaced or substituted.

## **2.8 Viewpoint Sensitivity**

Viewpoint sensitivity is defined as high, medium, low or negligible based on an interpretation of a combination of parameters, as follows:

- location and context of the viewpoint;
- expectations and occupation or activity of the receptor;
- the importance of the view (which may be determined with respect to its popularity or numbers of people affected, its appearance in guidebooks, on tourist maps and in the facilities provided for its enjoyment); and
- whether the receptor is static or transitory.

The most sensitive receptors may include users of outdoor recreational facilities including strategic recreational footpaths and cycleways, Open Access Areas and other rights of way, where their attention may be focused on the landscape and/or important landscape features with physical, cultural or historic attributes. Residential receptors and users of viewpoints importance to the setting or enjoyment of residential environments, and beauty spots and picnic areas may also be sensitive to change.

Of less sensitivity are pedestrians not focused on the landscape or views and people traveling through the landscape on roads, trains or other transport routes. Receptors considered to have low or negligible sensitivity include people engaged in outdoor sports or other activity based recreation or focused on work activities.

## 2.9 Magnitude of Change

The magnitude of change to landscape and visual amenity was determined by a combination of largely quantifiable parameters, as follows:

- the distance of the viewpoint/landscape character area from the development;
- the duration of the predicted impact;
- in the case of roads, cycleways and footpaths, the length of the route affected by the development;
- in the case of character areas and/or designated areas, the extent of the landscape affected;
- the extent of the view affected by the proposed development (i.e. the vertical angle subtended by the development);
- the elevation of the proposed development in relation to the receptor; and
- the extent of other built development visible, particularly buildings/structures with a similar scale and form to the proposed development.

Magnitude of change is described as substantial, moderate, slight or negligible. These terms are explained in Table 2.2, below:

**Table 2.2  
Magnitude of Change**

Level of Magnitude	Definition
<b>Substantial</b>	Total loss or considerable alteration to key elements/features/characteristics of the baseline landscape character or view resulting in a fundamental change to the baseline view/landscape.
<b>Moderate</b>	Partial loss or alteration to one or more key elements/features/characteristics of the baseline landscape character or view. Equates to partial/localised change within a broader unchanged context.
<b>Slight</b>	Limited loss or small alteration to one or more key elements/features/characteristics of baseline conditions. Change arising from the loss/alteration will be discernible but underlying landscape character or view composition will be essentially the same as the baseline.
<b>Negligible</b>	Very limited or imperceptible loss or alteration to one or more key elements/characteristics of the baseline. Change may be barely distinguishable.

## 2.10 Landscape and Visual Effects

Landscape and visual effects have been assessed as major, moderate, minor or none. These categories have been based on combining viewpoint or landscape sensitivity and predicted magnitude of change, as indicated in Table 2.3. **Major** and **major/moderate** effects are considered to represent significant impacts in terms of the EIA Regulations.

The matrix is not used as a prescriptive tool and the methodology and analysis of potential

effects at any particular location must allow for the exercise of professional judgement.

**Table 2.3  
Landscape and Visual Effects**

<b>Magnitude of Change</b>				
<b>Sensitivity</b>	<b>Substantial</b>	<b>Moderate</b>	<b>Slight</b>	<b>Negligible</b>
<b>High</b>	<b>Major</b>	<b>Major/Moderate</b>	Moderate	Moderate/Minor
<b>Medium</b>	<b>Major/Moderate</b>	Moderate	Moderate/Minor	Minor
<b>Low</b>	Moderate	Moderate/Minor	Minor	Minor/None
<b>Negligible</b>	Moderate/Minor	Minor	Minor/None	None

Section 6 of the LVIA, Summary and Conclusions, outlines the significant landscape and visual effects arising from the development and comments on the appropriateness of the development.

### **2.11 Illustrative Tools**

As described above, the ZTVs were prepared to assist in the identification of areas from where there is potential visibility of the proposed development.

The viewpoint analysis is illustrated with photographs of existing views from selected locations (Drawings 4 to16). A series of photomontages are also included which illustrate the potential effect of the development upon some of the closest viewpoints. The photographs used to construct the photomontages were taken using a digital Single Lens Reflex (SLR) camera with a 50mm lens, which conforms to the Guidelines for Landscape and Visual Impact Assessment because this lens size is considered to most closely represent the view obtained by the human eye.

The photomontages have been prepared based on combining a computer generated model of the proposed development with the photograph of the existing view. The resulting images should be viewed at a distance of 300mm to most closely replicate the view which would be obtained from the viewpoint.

It should be noted that photographs and photomontages are only intended as an aid to the visualisation process, and cannot be expected to replicate the actual view or predicted view which would be attained on the ground. Moreover, weather and light conditions will vary greatly throughout the year, and each day, with consequent effects upon general visibility and the potential visibility of the proposed development. The photographs accompanying this LVIA were taken over several months to try and obtain the clearest views possible.

### **3.0 PROJECT DESCRIPTION AND MITIGATION MEASURES**

#### **3.1 Project Description**

A detailed description of the development is given in the planning application for the EfW.

#### **3.2 Sources of Potential Impact**

In broad terms there are two sources of potential impacts. These comprise:

- activities and elements of the development that would affect the physical fabric of the site; and
- activities and elements of the development that would be visible from the surrounding locality and would pose potential impacts upon the character and visual amenity of the adjoining City landscape.

Potential impacts would occur during three distinct development phases:

- a temporary construction/commissioning phase;
- an operational phase; and
- a decommissioning phase.

##### **3.2.1 Construction Phase**

The construction phase of the development is estimated to last for up to 36 months. During this time the following activities and elements have the potential to cause an effect on the landscape and visual amenity of the study area:

- site remediation measures;
- construction of site infrastructure;
- excavation and construction of foundations and refuse bunker;
- establishment of temporary spoil heaps;
- temporary site compound and accommodation works;
- HGV deliveries and movement of vehicles on site;
- operation of tower cranes;
- erection of the EfW building; and
- erection of the stack

The majority of the effects arising from the construction works would be confined to the application site which is already subject to the effects of recent demolition works. However, crane operations and the fabrication of the EfW plant/building and the erection of the stacks would be visible from a wide area outwith the site (Ref. Section 5 of the LVIA, below) with consequent effects upon the character and amenity of the City and adjoining countryside. However, such impacts would cease once the EfW is fully operational.

##### **3.2.2 Operational Phase**

The operational phase would last at least 25 years, during which time potential sources of landscape and visual impacts would include:

- The EfW plant itself (to be enclosed in a building) with a maximum height of 45m;
- A 90 m high stack (and associated architectural steel construction);
- IBA treatment and storage (including a 10m high push wall);

- Plume/emission from stack;
- Materials Recycling Facility (MRF);
- Offices, car parking and general site infrastructure;
- General site signage;
- Waste/haulage vehicles;
- Site vehicles;
- Lighting of building and site (24hr working).

Clearly, the greatest potential for landscape and visual impacts would arise from the EfW building and stack as these elements would be the most widely visible aspects of the development. Critical aspects of the development would be the height and mass of the building, its shape/form in relation to neighbouring buildings and surrounding landscape, and its colour and illumination. The materials utilised for the building and stack and the visibility of extraneous plant elements such as the steam silencer and expansion duct would also have a bearing on the character and quality of the building.

The effect of the plume has not been assessed as its visibility would vary considerably depending upon air temperature, humidity and wind and would be perceived according to the extent of cloud cover or open skies.

### **3.2.3 Decommissioning Phase**

During decommissioning of the site and removal of the EfW, potential sources of impact would be consistent with those identified in the construction phase of the development. Consequently, no further assessment of this aspect of the development is included in the following assessment.

### **3.2.4 Mitigation Measures**

Whilst there is limited opportunity for substantial mitigation of potential landscape and visual impacts due to the nature and scale of the development a number of measures were incorporated into the design to ameliorate potential visual and landscape effects. These are outlined below. In formulating the design and proposed mitigation measures reference was made to the Ministerial Interim Planning Policy Statement 01/2008 regarding *Planning for Good Design*. Further exploration and description of the design process is given in the Design Statement (included in Volume 1 of the application) that accompanies the application.

a) Siting: The key site selection criteria are set out in Appendix 18 of the ES. The proposed development would occupy a brownfield site with a long history of industrial activity and which is situated within a landscape dominated by large scale built structures and vertical elements. Moreover, whilst the site is located near to the City centre and waterfront it is clearly separated from these environments by distance and intervening industrial areas at East Moors and Roath and Queen Alexandra Docks.

b) Building Design: All EfW plant components would be entirely screened inside the building's shell, thereby achieving a simpler, more unified design that is less industrial in character than usually expected for such developments. The height and mass of the proposed EfW building has been reduced in the proposed design by careful arrangement of EfW plant and the use of curving building forms in keeping with other landmark buildings nearby (e.g. the Millennium Centre) and the undulating form of the distant ridge and hills that form the backdrop to the city. The proposed use of contrasting colours and materials on the roof and facades of the building would also help to break up the mass of the building and give the building a high quality, less utilitarian appearance. The use of recessive colours on the upper elevations and roof of the EfW would further reduce the prominence of the building

when it is seen above the skyline.

The proposed IBA would be situated on the northern side of the EfW in an area not readily visible from external viewpoints. Additionally, the push wall enclosing the IBA has been designed to reflect the overall form of the EfW and its exterior face would be planted to mitigate its visibility from the main access road.

The location of the site within the industrial landscape is such that a full night-time visual impact assessment has not been undertaken. However, a number of precautionary measures would be adopted to reduce the prominence of the development at night<sup>10</sup>. These include:

- avoidance of lighting the building façade;
- concentration of site lighting in locations essential to night operations;
- the use of low level lights as far as possible (maximum 14m high columns) to reduce the visibility of site lighting;
  
- the use of carefully sited directional lighting incorporating light shields to avoid unwanted light spray/upward light and possible glare effects (lights to be set at an angle no greater than 70°);
  
- avoidance of entirely transparent skylights in the EfW construction to reduce light leakage from the building;
  
- the use of timers and/or movement sensors for security lighting to reduce the potential duration of impacts associated with such lighting; and
  
- the use of low reflectivity road surfaces.

C) Landscaping Proposals: Whilst there is little opportunity to mitigate potential views of the stack and EfW building due to the size of these elements it is possible, with careful design, to reduce low level sources of impact (e.g. vehicle movements) whilst helping to reduce the apparent scale of the building by means of earth mounding and tree planting around the edges of the application site. In devising the landscaping treatments for the development care has also been taken to provide an attractive setting for the development and improve the amenity of visitors to the site.

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<sup>10</sup> These measures are based on the Institution of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light, 2006.

## **4.0 LANDSCAPE AND VISUAL CONTEXT**

The following section describes the key aspects of the landscape and visual context of the study area. The sensitivity of receptors is commented upon as a basis for the subsequent impact assessment.

### **4.1 Topography**

Cardiff is situated within a broad belt of rolling, locally hilly countryside adjoining the Severn Estuary/ Bristol Channel. The topography is derived from a complex geology of folded sandstones, gritstones and limestones from the Devonian and Jurassic eras. Elevations typically range between sea level and 100m AOD, but in places rise to around 150m AOD. In the vicinity of the City, this topography is incised by the shallow river valleys of Afon Taf, Afon Elai and Afon Rhymney which bisect the City before linking to Cardiff Bay. The City centre and adjoining docklands/industrial land lay on a broad series of levels occur at an elevation of between sea level and 10m AOD. In places the levels are edged by a two metre high embankment presumed to be part of the sea defences for the former coastal marshland. Between the mean high water level and the low water mark the foreshore comprises shallow estuarine mudflats.

The application site is situated on these levels at an elevation of around 9m AOD. The larger redevelopment site is enclosed along its eastern side by a road embankment which, at its highest point, is estimated to be in excess of 10m above current site levels. At the time of this assessment a number of industrial buildings, including a 40m high glass furnace were being demolished resulting in the disturbance of large parts of the site and establishment of a series of spoil mounds and rubble heaps.

### **4.2 Land-cover and land-use**

There is considerable diversity present in the current land-cover and land-uses within the study area.

At its northern end the study area is marked by the M4 corridor. To the north of the M4 the land rises steeply to form the Caerphilly Ridge which is overwhelmingly rural in character. This area is typified by extensive areas of semi-natural broadleaved woodland and mixed plantations and contains a patchwork of pastures enclosed by a strong network of hedges and trees. Remnants of semi-improved orchard pastures, calcareous flushes, streamside vegetation are also present. Settlement is scattered and connected by a network of mainly minor roads and tracks. Other land-uses present include golf courses, quarries and power lines.

Immediately to the south of the motorway the land is dominated by the suburbs of Cardiff City including a number of business and retail parks and road and rail infrastructure. Open space is widely dispersed but limited in scale and generally associated with sport facilities, schools and occasional parks. This trend continues further south approaching the City centre. Other important green spaces in Cardiff include the Afon Taf and Afon Rhymney corridors. These valleys extend southwards through the suburbs and City centre to the Bay.

The City centre itself is compact and contains the principal business, commercial and retail area in Cardiff and contains key civic buildings including the Welsh Assembly. To the south, the City is adjoined by extensive areas of business premises, warehousing and industry. However, the recent regeneration programme for Cardiff Docks has introduced housing/residential developments and created attractive plazas and streetscapes along the waterfront of the docks and the Bay.

To the west of Cardiff, the landscape has an essentially rural aspect. There is a low incidence of good quality agricultural land, the predominant classifications being Grade 3 and 4. This is reflected in the extent of pasture in the area. These tracts of grassland are punctuated by numerous small deciduous woodlands with mixed conifer/deciduous stands generally confined to a small number of steeply graded slopes (e.g. Lockwith Woods). There is a high occurrence of hedgerow trees in this rural landscape and field enclosure is often formed by mature hedgerows and occasionally by stone walls. The sides of incised valleys are frequently wooded in the vicinity of Cardiff.

To the east of Cardiff, the coastal levels are dominated by semi-improved and improved grassland bisected by a regular rectangular network of reens (ditches) with farmsteads and scattered properties connected by a series of minor unclassified roads and tracks. As the levels approach the outskirts of Cardiff, by Rumney, there is increased evidence of industrial and waste related land-uses (e.g. Lamby Way Landfill facility).

The application site forms part of the Trident Park development site which is situated in the East Moors industrial estate. This area has a long history of industrial processes and comprises large steel portal buildings and tall vertical structures, including emissions stacks (such as the 80m high stack immediately adjoining the application site). Large scale infrastructure, including rail heads as well as complex assemblages of site offices/temporary modular office buildings and security fencing, are also present. Recent demolition works and site clearance at Trident Park has resulted in the establishment of a number of temporary rubble heaps and excavations, adding to the generally degraded appearance of the site.

### **4.3 Cultural and Historical Elements**

Cardiff has a long history, principally starting with Roman occupation, but owes much of its development to the industrial revolution of the 1790's, which stimulated mining in the valleys of South Wales. It also gave rise to the building of the Glamorganshire Canal in 1794, which transported iron and coal from the valleys. The establishment of the Taff Railway in 1840 provided more efficient transportation of materials, thereby aiding the expansion of local industrial production. This increase in the iron and coal trade was also the catalyst for the construction of a number of docks including Bute East Dock (now known as Atlantic Wharf), Roath Basin and the Queen Alexandra and Roath Docks.

At this time Butetown and the surrounding dockland grew into a cosmopolitan community of seafarers from all around the world who settled in the area known as 'Tiger Bay'. By the 1880's, Cardiff had gone from one of the smallest towns in Wales to the largest and the port handled more coal than any other port in the world.

After the Second World War demand for coal slumped and international markets were lost as other countries developed their steel industries. Trade was lost to container ports and by the 1960's coal exports had virtually ceased. The effect of this trend on Cardiff was compounded in 1978 by the closure of East Moors Steel Works. By the early 1980's Cardiff, and Cardiff Bay more specifically, was showing signs of neglect and economic and social decline with consequent degrading of the City environment.

The regeneration of the bay area started in the early 1990s. In 1999 the construction of the Cardiff Bay Barrage transformed an area of tidal mudflats into a 200 hectare freshwater lake. and kick started the revitalisation of the Cardiff waterfront environment complete with high quality residential, commercial and civic buildings (including the Welsh Assembly) connected by a network of public space.

A review of the cultural heritage and archaeology of the application site and surrounding

area is outlined in the Environmental Statement accompanying the EfW application.

#### **4.4 Landscape Dynamics**

The application site is allocated in the Cardiff City Local Plan 1996 for employment/warehousing and industrial land-uses. Irrespective of whether the proposed development is built the site will continue to contain large scale buildings and vertical forms and would retain its industrial character.

#### **4.5 Transportation**

##### **4.5.1 Rail Network**

The principal mainline route in the study area with potential views of the development is the London to Swansea line. There are a number of lesser routes within Cardiff including Cardiff Queen Street to Cardiff Bay, and the lines to the Valleys.

For the purposes of this assessment these railways were considered to have a medium sensitivity to the type of development proposed due to their transitory nature and extent of the influence of the urban form in the study area.

##### **4.5.2 Road Network**

The main roads in the study area with potential views of the proposed development include:

- The M4: This is a strategic national route linking the South of Wales with London. This route crosses the northern end of the study area and forms the extent of the urban area in this Direction.
- The A48/A48M: This is a key regional route connecting Carmarthen with Gloucester. This route enters the study area in the vicinity of St. Mellons at the north-eastern end of the City before turning southwards along the side of Afon Rhymney. At Roath this route turns westward progressing Gabalfa and Llandaff, and onwards towards Culverhouse Cross.
- The A4232: The western section of the A4232 forms the principal distributor road into the west half of Cardiff, from Junction 33 of the M4 to Atlantic Wharf (some 600m west of the application site). To the east, the A4232 links Rover Way and the Port with the A4161 and A48 towards the M4.
- The A4055: A short stretch of this road connects Penarth and Llandough to the A4232 carriageway at Penarth Moors.
- The A4119: The 'old' Llantrisant road enters the city from the north-west through Llandaff and Pontcanna before crossing the Taff and joining the A4232 near the Port.
- The A470: Links Cardiff City Centre with Tongwynlais to the north of Junction 32 of the M4.
- The A469: This route skirts the northern part of the city centre from Rumney, through Roath to Gabalfa, and then travels northwards through Birchgrove towards Caerphilly Mountain.

For the purposes of this assessment these roads were considered to have a medium sensitivity to the type of development proposed due to their transitory nature and extent of the influence of the urban form in the study area.

## **4.6 Recreation**

### **4.6.1 Walking**

In addition to the numerous local footpaths there is a small number of regional footpaths and coastal paths in the study area including:

- The Taff Trail: A long-range trail entering the study area at Tongwynlais and following the banks of Afon Taf through the suburbs of Cardiff and terminating at the City centre.
- The coastal path between Lamby and Wentloog; and
- The cliff top footpath between Penarth and Lavernock.

Users of these recreational routes are assumed to have a high sensitivity.

### **4.6.2 Cycling**

National Cycle Route (NCR) 8: this cycleway follows the alignment of the Taff Trail from the M4 corridor to Grangetown where it splits in two, one way crossing the Clarence Road Bridge to the City centre and the other crossing the Penarth Moors peninsular and progressing around the side of the Bay before crossing the Cardiff Bay Barrage and terminating at Queen Alexandra Dock.

Users of national cycle routes are generally assumed to have a high sensitivity.

## **4.7 Settlement/Residential Receptors**

The study area is substantially settled with housing areas ranging from the older terraced streets of Splott, Roath, Cathays, Grangetown and Canton towards the centre of the City, to the more recent housing of Rhymney, Llanrumney, Cyncoed, Llandaff and the post war developments which form the suburbs beyond. Further detailed categorisation of housing areas and their sensitivity to the type of development proposed is given in the summary of character areas given in Appendix 1. Section 5.10, below, contains an assessment of potential impacts upon the character of the different housing areas and suburbs of Cardiff. No assessment of impacts upon individual residential properties has been undertaken.

## **4.8 Landscape Designations**

The application site is subject to no landscape designation. However, the wider study area contains a number of locally designated Special Landscape Areas (SLAs). These include parts of the St. Fagans SLA (which at its closest is situated over 5.7km to the north-west of the application site), the Caerphilly Ridge SLA (situated over 8km to the north of the application site) and the Wentloog Levels SLA (extending eastwards along the coast from Lamby Landfill and encompassing parts of the foreshore, in excess of 3.75km from the proposed development).

The Cardiff Deposit Local Development Plan 2006-2021 states that “SLAs are designated to protect areas that are considered to be important to the overall landscape of the County due to their visual and sensory, geological, cultural, historic and/or habitat landscapes. They are intrinsic to the overall character of the area and provide a living history of the evolution of the area’s landscape as well as a cultural backdrop and visual setting.” However, the character and condition of the SLAs varies greatly, as indicated in the description of each area in

Appendix 1. Moreover, within each designated area the landscape may vary dependant upon the influence of key elements such as vegetation cover, infrastructure and settlement. In the case of the Wentloog Levels the SLA comprises two distinct (but related) landscapes; the Wentloog Levels LCA (LCA CLS13) and sections of the adjoining foreshore which is most consistent within the character of the Cardiff Flats LCA (LCA SLR-CF). Where relevant, such variations are described and their effect on the sensitivity of the landscape identified.

Sub-section 5.11, below, assesses the potential impact of the proposed development on the character of the SLAs.

## **4.9 Landscape Planning Policy Context**

### **4.9.1 National Planning Policy:**

*Planning Policy Wales (2002) National Assembly for Wales*

Policies contained within PPW and TANs may “*be material to decisions on individual planning applications...*” (paragraph 1.1.1)

*“The natural heritage of Wales includes its geology, land forms and biodiversity and its natural beauty and amenity. It embraces the relationships between landform and landscape, habitat and wildlife, and their capacity to sustain economic activity and to provide enjoyment and inspiration... Biodiversity and landscape are important in the economic life of many communities and the quality of the environment is often a factor in business location decisions.”* (para 5.1.1)

*“The Assembly Government’s objectives for the conservation and improvement of the natural heritage are to [inter alia]:*

- *promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats.”* (para 5.1.2)
- *“...new development on previously developed land provides opportunities to restore and enhance the natural heritage through land rehabilitation, landscape management and the creation of new or improved habitats.”* (para 5.1.3)

*“The Assembly Government’s objectives for the coast are to:*

- *recognise the importance of the coast for conservation of the natural and historic environment;*
- *recognise the importance of the coast for urban and rural development, including housing, local industry and agriculture; and*
- *recognise the importance of the coast for tourism, leisure and recreation.”* (para 5.6.2)

*TAN 21 Waste (2001) states that*

*“Energy from Waste facilities range from small plants to large-scale installations with energy recovery or combined heat and power plants. Large facilities may be conspicuous because of the required height of the stack or other structures and will require careful design.”* (para 4.10)

#### **4.9.2 South Glamorgan (Cardiff area) Replacement Structure Plan 1991-2011 (adopted 1997) Cardiff County Council**

*Policy C1: General Countryside Protection, states that*

*“The countryside, its resources, landscape and features, wildlife habitats and species will be protected from inappropriate or harmful development. Particular protection will be afforded to:*

- I) urban fringe and other areas which contribute to and preserve the setting of Cardiff;*
- II) areas designated for their landscape, wildlife or historic interest; and*
- III) areas which form a vital amenity and recreational resource for people in the urban area.*

#### **4.9.3 City of Cardiff Local Plan (Including Waste Policies) Adopted January 1996**

*Policy 55: Other Waste Disposal Facilities, states that*

*“Proposals for the development of waste disposal facilities including those for the disposal (excluding landfill), processing, recycling and transfer of waste will be carefully assessed against the following:*

- i) consideration of scale, location, amenity, public safety and transportation;*
- ii) considerations of visual amenity, nature conservation and environmental impact (including water quality);*
- iii) the need for such proposals assessed against City and regional requirements; and*
- iv) the type, quantity and source of waste.”*

#### **4.9.4 Cardiff SPG Locating Waste Management Facilities**

*General environmental considerations applicable to all waste management facilities includes:*

*“Visual Impact. Screening and amenity bunds may be required. Soft landscaping may be considered. Site planning should include details of landscape proposals with any planning application.” (para 7.15)*

#### **4.9.5 Cardiff LDP (Deposit Draft) SP11: Waste**

*General environmental considerations applicable to all waste management facilities includes:*

*“Promoting and supporting additional treatment facilities, measures and strategies that represent the best practicable environmental option” (para (i))*

*“New waste management facilities will generally be favoured on B2 land for general industry, in line with national guidance. In this respect the 1<sup>st</sup> Review of the Regional Waste Plan endorsed by the council in July 2008 identifies a range of potential sites for waste management purposes on vacant general industrial land including sites at*

*Brindley Road, Trident Park, Cardiff Docks and Wentloog*". (para. 4.154)

#### **4.9.6 Cardiff LDP (Deposit Draft) SD1: Sustainable Design**

*As Capital City of Wales, Cardiff seeks to promote development of a standard of exemplar status, reflecting also the potential of the higher values of land and development in proximity to the city. General design considerations include:*

*"An analysis of the site identifying unique constraints and opportunities and demonstrating that a bespoke approach has been taken to the design in relation to, siting, orientation, shading and topography in order to minimize energy use in all respects."* (para 5.6)

#### **4.9.7 Cardiff LDP (Deposit Draft) SD4: Tall Buildings**

*All proposals for tall buildings must demonstrate that the proposal:*

*"Is located within an existing cluster of tall buildings or forms part of a proposal to create a new cluster without adverse impact upon the setting and character."* (Policy SD4: b)

*"Makes a point of focus and creates a positive feature in the city skyline without an adverse impact on the setting and character which is appropriate from both a local and strategic viewpoint".* (Policy SD4: c)

*"Has a minimal visual impact on sensitive historic environments".* (Policy SD4: g)

#### **4.9.8 Cardiff LDP (Deposit Draft) HER3: Landscape Protection**

*"Development will not be permitted that would cause unacceptable harm to the character and quality of the landscape and setting of the city, with particular priority given to protecting, managing and enhancing the character and quality of the following Special Landscape Areas:*

- a. St. Fagans Lowlands and the Ely Valley;*
- b. Garth Hill and Pentrych Ridges;*
- c. Fforest Fawr and Caerphilly Ridge;*
- d. Wentloog Levels; and*
- e. Flat Holm."* (Policy HER3)

*When dealing with planning applications that affect Cardiff's landscape, unacceptable harm will be assessed in relation to:*

*"The impact of the proposed development on key features of the landscape in terms of physical character, vegetation and habitats, land use and settlement patterns, visual character, historical character and cultural associations (having regard to the Landscape Studies of Cardiff 1999 and 2007 within the area of the studies). (Para 5.74)*

#### **4.9.9 Cardiff LDP (Deposit Draft) WASTE1: Waste**

*Facilities for the handling treatment and transfer of waste will generally be encouraged*

*towards existing B2 general industrial land.*

*“Planning applications for waste management facilities should be accompanied by sufficient information to allow the environmental impact of the proposal to be adequately assessed.” (para 5.390)*

#### **4.9.10 Cardiff SPG 2009: Tall Buildings**

*“The quality of the form and silhouette of the building is critical and includes consideration of visual impact, and relationships with both the local context and other tall buildings.” (section 2.2.1)*

*“Local character and context – The proposal must respond to the context of the site both in terms of character at street level and in relation to other tall buildings in the vicinity”. (section 2.2.1)*

#### **4.10 Landscape Character**

The assessment of landscape character has concentrated on the 10km radius study area centred on the proposed EfW site. As indicated in Section 2, above, the assessment of landscape character of locations outside of Cardiff City was based on the CLS and available LANDMAP data, whilst locations within the City and at Cardiff Bay waterfront were assessed utilising methodology previously agreed with CCW and CC.

The landscape character areas (LCAs) falling within the study area that are predicted to have potential views of the proposed EfW are described below and their position indicated in Drawings 1 to 1C. It should be noted that LCA descriptions identify key commonplace characteristics which typify each landscape, but that variations and anomalies may occur within LCAs.

**Table 4.1  
Landscape Character Areas**

<b>Landscape Areas</b>	<b>Ref.</b>	<b>Type of Views</b>	<b>Sensitivity to Type of Development Proposed</b>
Cardiff Flats	SLR-CF	Large scale and expansive seaward views. Inland views constrained by the raised edge of the coast.	Medium, due to the scale of the landscape and available views, the restrictions on public access and adjoining industrial land-uses.
City Centre	SLR-CC	Substantially restricted by intervening buildings. Views channeled along the line of roads.	Medium, due to the scale of available views and the prominence of built forms and nearby industrial developments.
Cathay's Park Civic Core	SLR-CPCC	Substantially restricted by intervening buildings and vegetation. Views channeled along the line of boulevards and roads to the City.	High, due to the high quality and civic value of this LCA.
Cardiff Bay	SLR-CB	<p>The Bay provides an attractive backcloth to much of the surrounding City and the settlements of Llandough and Penarth.</p> <p>Due to the scale and character of this LCA views from this LCA are open and expansive. To the north and east views are bounded by buildings in the City and at the docks. To the north views extend across the suburbs of Cardiff to the Caerphilly Ridge and hills beyond. To the south long-range views are provided across the Bay to the Bristol Channel and south-western England.</p>	Whilst this is an important tourist and recreational destination it is considered to have a medium sensitivity due to the scale of this landscape and the views obtained from it, the diversity of built forms around its edges and the industrial influences at the neighbouring Queen Alexandra and Roath Docks.
Cardiff Docks: Atlantic Wharf/Bute East Dock	SLR- CD:AW/BED	Views into this landscape are largely restricted to locations in neighbouring buildings and streets. However, intermittent views are also provided from the Central Link Road. Views out are confined to locations between buildings (including paths) due to the relatively small scale of this landscape. Viewpoint 3 is indicative of views provided from this LCA.	Medium, due to the existing prominence of existing industrial buildings and large scale stack structures and the restricted nature of views out.
Cardiff Docks: Roath Basin	SLR-CD:RB	Views into this landscape are restricted to locations in neighbouring buildings and streets due to the enclosed nature of this area. A series of connecting views are provided into the Bay and the City with orientation given by key landmark buildings including the Welsh Assembly and the Millennium Centre.	High, due to the scale of views and the presence of high quality urban spaces and nationally important landmark buildings including the Welsh Assembly.
Cardiff Docks: Queen Alexandra and Roath Docks	SLR- CD:QA/RD	Views of this landscape are largely restricted to locations in neighbouring buildings and streets in Cardiff and locations along the coast from where the industrial buildings, storage tanks and plant associated with it are visible on the skyline. This LCA is also visible from elevated locations in Penarth from where it forms a pronounced industrial edge to Cardiff.	Low, due to the character and condition of the landscape.
Butetown	SLR-BT	Views into this area are restricted by intervening buildings. Similarly, views out are controlled by buildings. However, restricted views out from building interiors for premises along the outer fringe	Low, due to the character and condition of the town and the restricted nature of views.

Landscape Areas	Ref.	Type of Views	Sensitivity to Type of Development Proposed
		of this area are anticipated.	
Housing/Residential Area - Type A	SLR-HR:A	Views are generally short-range and controlled by the housing on either side of the street. However, longer range views are provided where street terminates at the boundary of a more open area of land (e.g. adjoining a flood plain or school sports ground) or where open areas such as Splott recreation ground occur.	Generally low, due to the enclosure and restricted nature of views from this character area. However in locations adjoining areas of open land such as Splott recreation ground the sensitivity increases to high.
Housing/Residential Area - Type B	SLR-HR:B	Views are generally short-range and controlled by the housing on either side of the street. However, longer range views may occur between houses/terraces or may be channeled along streets, especially where the street terminates at the boundary of a more open area of land (e.g. adjoining a flood plain or school sports ground).	Medium, due to the generally enclosed nature of this LCA, but increasing to high in more elevated locations where there is less visual interruption.
Housing/Residential Area - Type C	SLR-HR:C	Views are generally short-range and controlled by the housing on either side of the street. The generally curving pattern of streets reduces potential views out from publicly accessible locations, although longer range connecting views are provided along 'B' roads and from elevated locations in this LCA.	Generally medium, due to the character and condition of this type of residential area and the restricted nature of views out, but increasing to high in more elevated locations where there is less visual interruption.
Levels – Industrial/Commercial	SLR-L-IC	Views generally short or medium range and channeled between intervening large scale buildings. This LCA contains the application site.	Low, due to character and condition of this LCA.
River Corridor – Afon Taf	SLR-RC:AT	Medium to short-range views from interior of the LCA. Views channeled along the valley. Important views into the river corridor from adjoining settled areas.	High, due to the channelled nature of views and value of this landscape as linear green space in an otherwise heavily developed area. Some reductions in sensitivity in locations adjoining industrialised.
River Corridor – Afon Elai	SLR-RC:AE	Medium to short-range views from interior of the LCA. Views channeled along the valley. Important views into the river corridor from adjoining settled areas.	High, due to the channelled nature of views and value of this landscape as linear green space in an otherwise heavily developed area. Some reductions in sensitivity in locations adjoining industrialised such as Leckwith and Penarth Moors.
River Corridor- Afon Rhymney	SLR-RC:AR	Medium to short-range views from interior of the LCA. Views channeled along the valley. Important views into the river corridor from adjoining settled areas.	High, due to the channelled nature of views and value of this landscape as linear green space in an otherwise heavily developed area. Some reductions in sensitivity in locations adjoining industrialised such as Roath and Lamby.
Radyr & Morgantown Lowlands	CLS 5	Views within and out of this LCA are controlled by a combination of topography, woodlands and hedgerows with the most open views occurring in elevated locations from where views into neighbouring LCAs, Radyr and Cardiff are provided	Medium, due to the scale and character of this landscape.
St Fagan's Lowlands and Ely Valley	CLS6	Views across this LCA vary greatly. In places (most notably the more intact rural areas of this LCA adjoining St. Fagan's village) intervisibility is restricted by intervening woodlands and hedgerows, whilst views from the Ely Valley are channeled east-west along the course of along the valley and	Variable, generally high due to the rural characteristics of the landscape and its quality, especially with regard to the cultural and historic importance of the landscape. However in locations

Landscape Areas	Ref.	Type of Views	Sensitivity to Type of Development Proposed
		are subject to existing impacts associated with settlements along the valley edge and road and rail infrastructure in the valley itself.	subject to views of road and rail infrastructure or settlement, the sensitivity reduces to medium, and where locations are covered by dense continuous woodland, the sensitivity is low.
Forest Fawr & Caerphilly Ridge	CLS 8	Views within and out of this LCA are controlled by a combination of topography, woodlands and hedgerows with the most open views occurring in elevated locations east of Tongwynlais, along Wenault Road and by Castle Coch. From these locations views are provided across the M4 corridor and Cardiff to the Bristol Channel.	High due to the landscape and scenic quality and sense of place in this LCA.
Caerphilly Ridge Foothills	CLS 9	Agricultural intensification and the amalgamation of fields have resulted in the fragmentation of the landscapes structure, enlargement of fields and an increase in the openness of this landscape. A consequence of this is that views are generally medium to large scale and the neighbouring M4 corridor and the urban environment of Cardiff have increased prominence in this LCA.	Medium, due to the scale of views from this landscape and increased prominence of the M4 corridor and suburbs of Cardiff.
Nant Glandulas Lowlands	CLS 10	Views are generally medium scale and controlled by a combination of hedgerows and the undulating nature of the topography.	Medium, due to the quality and condition of the landscape and its existing character.
Northern St. Mellons Lowlands	CLS 12	Whilst some long-range views are provided from elevated locations within this LCA, a large proportion of views out are controlled by intervening vegetation and/or built development.	Medium, due to the character and condition of the landscape and the nature of views.
Wentloog Levels	NPVS001/ CLS 13	Large scale generally open.	Medium due to the character and condition of the landscape, its scale and the nature of views available.
Area Surrounding Cefn Mably	CYNONVS740	Varied, medium to long-range depending upon elevation and proximity to woodland. Extensive intervisibility within LCA. Views out of LCA towards adjoining hills and moorland and south towards the coast and Cardiff City.	Medium, due to the character and condition of the landscape and the often extensive nature of available views.
Penarth	VLFLVLS152	Variable, many views constrained by intervening buildings, topography and/or vegetation, but longer range views provided from the eastern and northern edges of eth settlement. Important visual link to Cardiff City centre, Cardiff Bay and Pengam Moors.	Medium, due to the character and condition of this LCA, and generally restricted nature of views from it.
Southern Ely Valley	VLFLVLS213	Some long-range views out across Cardiff towards the coast and also inland towards the Caerphilly Ridge. Some unattractive views within this LCA. The suburbs of Cardiff are intrusive in views from this LCA.	High, due to the character and condition of the landscape and the channelled nature of views and the
Penarth to Swanbridge Cliffs	VLFLVLS308	Expansive views out to sea. Views inland dominated by settlement of Penarth.	Medium, due to the large scale of the landscape, the infrequent nature of public access and the expansiveness of views.
Penarth and Powys Urban Fringe	VLFLVLS473	Medium scale, bounded by a combination of hedgerow/trees, topography and/or buildings at Penarth and Dinas Powys.	Medium due to the character and condition of the landscape.

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<b>Landscape Areas</b>	<b>Ref.</b>	<b>Type of Views</b>	<b>Sensitivity to Type of Development Proposed</b>
Cwrt-yr-Ala Valley	VLFGVLS596	Largely confined to valley. Attractive views within valley. Some views out towards Cardiff.	High, due to the character and condition of the landscape and the channelled nature of views. However, reducing to medium in locations subject to the influence of the urban form of Cardiff.
Sully Ridge	VLFGVLS637	Variable, medium range in lower lying locations adjoining Cosmeston Lakes Country Park and Sully Brook, to the north-east and north, respectively. However on the upper slopes of this LCA (i.e. adjoining the settlement of Sully) views are more open and expansive due to the elevated nature of the topography.	Medium, due to the character and condition of the landscape and scale of available views.
Lavernock Hinterland	VLFGVLS787	Long-range. Views into adjoining character areas and out to the Bristol Channel.	Medium, due to the scale, character and condition of the landscape and the long-range of views provided.

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#### **4.11 Visual Baseline**

Table 4.1 above and the LCA summarised in Appendix 1 provide descriptions of the extent of views provided from individual character areas within the study area.

In general terms, intervisibility in the lower lying areas of the City is restricted due to intervening buildings/structures and/or vegetation. This is particularly evident in the terraced streets of western Splott, Adamsdown, Cathays, Grangetown and Canton, and in the commercial centre of the City where views are often small scale and channelled along streets. However, where gaps in the pattern of terraced houses occur (e.g. in the vicinity of recreation grounds or school playing fields) views are provided into adjoining streets. Examples of this are provided at Splott recreation ground and in streets adjoining Adamsdown Primary School. Additionally, recently constructed high rise buildings, such as the blocks of flats adjoining Atlantic Wharf, provide large scale and expansive views across the city from their upper floors.

In the outlying suburbs to the north and north-east, which are characterised by a combination of short terraces and semi detached properties in the main and a more undulating topography, filtered views are provided into adjoining parts of the City. In such locations views are often bounded by the raised topography of the Caerphilly Ridge (to the north) or the wooded escarpment between Penarth and Leckwith Wood (to the west). Skylines are often punctuated by numerous vertical features such as pylons, lighting gantries, industrial buildings/stacks or blocks of flats.

Views across Cardiff from the Penarth-Leckwith escarpment and Caerphilly Ridge are, by implication, long-range and expansive. Cardiff is seen below the skyline in views from these elevated locations.

Whilst seaward views from locations adjoining Cardiff Bay and the coast are also expansive they are contained to the north by a combination of large scale industrial developments and the waterside developments in and around the Bay and docklands which form a complex/diverse skyline containing a number of key landmark buildings including the Millennium Centre, St.David's Hotel and the Millennium Stadium.

#### **4.12 Conclusions from Landscape and Visual Baselines**

The existing landscape and visual context of the application site is a highly developed, diverse urban landscape comprising

- a compact City centre area characterised by tall retail and commercial premises and extensive areas of public realm environments;
- a civic core (located to the north of the City centre) which is typified by large scale, often historic government and educational buildings and an extensive public realm area, including some ornamental gardens;
- a recently enhanced Cardiff Bay and adjoining waterfront regeneration area (situated to the south and south-west of the City core) with a large freshwater lake fringed by a combination of retail, commercial and administrative buildings (some of which are landmark structures including the Pierhead and Millennium centre buildings) connected by key roads and public open spaces;
- an extensive industrial area (situated to the east and south-east of the City centre)

based on the historic docklands of Cardiff and containing numerous large scale industrial buildings and expanses of infrastructure; and

- an extensive suburb region (radiating outwards between the City centre, the M4 corridor and the Penarth and Leckwith ridge) comprising areas of tight Victorian terraced streets, greener, more open pre-world war II streets, and post war housing.

Street pattern and architectural styles and forms are varied resulting in distinctive areas of urban character and a varied level of intervisibility with open aspects confined to elevated locations (e.g. Penarth, Leckwith and the Caerphilly Ridge) and locations adjoining areas of public open space.

Given the existing urban context, the form and scale of buildings in the vicinity of the application site, and the restrictions on intervisibility described in Section 4.11, the landscape is considered capable of accommodating a carefully designed industrial facility that reflects the scale and form of other City buildings nearby, which doesn't detract from the recently regenerated waterfront environments and which doesn't compromise the character of adjoining landscapes/cityscapes and designated landscapes (SLAs) nearby.

## 5.0 EVALUATION OF RESIDUAL EFFECTS

### 5.1 Introduction

This Section provides an assessment of the residual landscape and visual impacts arising from the proposed EfW during both commissioning and operational phases of the development having taken account of the mitigation measures described in Section 3, above. The assessment comprises a consideration of the following:

- Analysis of ZTVs to provide a general overview of the visibility of the EfW from the different distances within the study area;
- Viewpoint analysis to assess the potential landscape and visual effects at selected viewpoints;
- Impacts on visual amenity: The effects on the visual amenity within the study area;
- Impacts on landscape character: The effect on the key characteristics of the landscape character areas potentially affected by the proposed development; and
- Impacts on landscape fabric: the potential effects of the proposed development on the physical landscape of the application site.

### 5.2 Analysis of ZTVs

#### *Zone of Theoretical Visibility*

As previously mentioned two ZTVs were generated to identify the extent of potential visibility for different aspects of the development over the 10km radius study area.

- Drawings 2 to 2C depict the theoretical visibility of the proposed stack; and
- Drawings 3 to 3C illustrate the theoretical visibility of the proposed EfW building.

The visibility of the stack and the EfW building were modelled separately to enable a more precise understanding of each one's contribution to the overall impact of the development upon the character and visual amenity of the study area.

The ZTVs show potential visibility of both the stack and EfW building from a wide area across Cardiff, along the elevated Penarth/Leckwith escarpment to the west, the Caerphilly Ridge to the north, and from the Bristol Channel to the south. However, notable view shadows are indicated within the suburbs to the north of the City centre, around the Bay and along the waterfront.

Whilst the ZTVs indicate that the EfW building and stack would have a similar theoretical viewshed, the stack is predicted to occupy the greatest vertical subtended angle in views, suggesting that this feature would be the most prominent aspect of the development. However, whilst this may prove to be the case for low lying viewpoints where the stack would project above the skyline and the EfW building may be screened by intervening building or vegetation, this ignores the potential massing effect of the building, especially when viewed from parts of the Bay or from adjoining residential areas and elevated locations such as the Penarth-Leckwith escarpment.

In order to better understand the actual visibility of the proposed development key receptor locations were visited and the findings recorded below.

## **5.3 Visibility from Key Transport Routes within the Study Area**

### **5.3.1 Rail Network**

The ZTVs predict views from a large proportion of that part of the London to Swansea mainline which passes through the study area. However the route is substantially enclosed by a combination of buildings, topography and vegetation with the consequence that views of the development would be extremely rare. A similar conclusion is reached in respect of the various branch lines that run north of Cardiff. The stack would be intermittently visible from the Cardiff Bay to Cardiff Queen Street branch line in the context of the urban and industrial landscape.

### **5.3.2 Road Network**

Each of the main roads in the area were examined for potential visibility and the findings outlined below.

- The M4: The ZTVs show potential visibility of both the building and stack from the M4 between Lisvane and Rhiwbina. However, the majority of this section of the route is either in cutting or enclosed along its southern side by buildings and/or vegetation. Consequently, views of the development from this route would be rare.
- The A48: The ZTVs predict extensive parts of this route within the study area that would be subject to views of the proposed development. However, field reconnaissance indicates that views from this road would be screened by a combination of intervening topography, buildings and/or vegetation.
- The A4232: The development would be screened from the majority of this route by intervening buildings, topography and/or vegetation. However, views of the proposed stack would be provided to eastbound vehicles on the Bay Bridge (Ref. Viewpoint 9), some 2km to the south-west of the application site, from where the stack would be seen above the roof of the Millennium Centre. Elsewhere fleeting views of the development would be provided from the A4232 flyover, south of Rumney (in excess of 3km from the application site)
- The A4055: The proposed stack would be visible from a short section of this route between Penarth and the junction with the A4232 at Penarth Moors, in excess of 3km south west of the site. The stack would just be visible amidst the skyline of the City centre and would occupy between 0.5 and 1 vertical degrees of the view.
- The A4119: The ZTVs predict that the building and stack would be visible south of Radyr and at Llandaff. However, the section of this route at Radyr is situated over 8km from the application site and views from the Llandaff section of the route would be obscured by intervening buildings and/or vegetation.
- The A470: the ZTVs indicate potential views of the building and stack from section of this route at Whitchurch. However, field reconnaissance suggests that such views would be screened by intervening housing.
- The A469: This route is enclosed along its entire length by housing and industrial developments and so no views of the proposed development are anticipated.

## **5.4 Visibility from Key Recreational Routes**

### **5.4.1 Walking**

- Taff Trail: Whilst the ZTVs indicate potential views of both the building and stack from the Taff Trail on the eastern fringe of Grangetown and Butetown, such views would be screened by intervening buildings. This is demonstrated in Viewpoint 8 (Ref. Drawing 8).
- Coastal Paths: Views of the EfW and stack would be provided from the Lamby to Wentloog coastal path. However, such views would be intermittent and interrupted by the industrial buildings at East Moors, the Pengam Sewage Treatment Works and the domed topography of Lamby Way Landfill. In contrast, views from the cliff top footpath between Penarth and Lavernock are more open and expansive, and the proposed EfW and stack would be visible amidst the industrial setting of the docklands and East Moors areas.

### **5.4.2 Cycling**

Views of the proposed development from NCR 8 would be confined to a short section of this route at Penarth Marina, Bay Bridge and the Cardiff Bay Barrage, in excess of 2km from the application site. Views of site cranes and elevated construction operations would be provided from all of these locations. However, the operational EfW building would be screened from this NCR on Bay Bridge.

## **5.5 Visibility from Settlement/Residential Receptors**

Table 5.3, below, describes the potential visibility of the development from each of the residential areas identified in Appendix 1.

Typically, views of the proposed development from residential areas would be subject to substantial restriction due to the enclosed nature of many of the streets. Where views of the development would occur in low lying locations (e.g. adjoining open areas such as Splott Recreation Ground) site cranes, elevated construction works and the stack would be the most visible aspects of the development, the EfW building and ground level components being screened by intervening housing or other buildings. In more elevated locations (e.g. Penarth) or in mid/high rise blocks of flats, such as those adjoining Atlantic Wharf, the EfW building and ground level operations would also be visible.

## **5.6 Visibility from Designated Areas**

The ZTVs in Drawing 2 to 2C and 3 to 3C indicate potential views of both the proposed stack and EFW building from a small number of locations in the eastern part of the St. Fagans SLA, including sections of Cardiff Road. However field reconnaissance suggests that such views would be screened by intervening vegetation and/or buildings.

The ZTVs also indicate potential views from the southern edge of the Caerphilly Ridge SLA. However, field reconnaissance suggests views from the ridge are restricted in places by vegetation, including hedgerows. Where long range views across Cardiff to the Severn are provided the proposed development would be difficult to differentiate in the complex assemblages of buildings in City and would be seen distantly.

The Wentloog Levels would provide some restricted views of the development (both sections of the building and the stack). However, the development would be seen at a distance of over 3.75km and would be partially screened by intervening industrial structures and the

raised topography of Lamby Landfill. In this context, the development is unlikely to represent a prominent or anomalous feature.

## **5.7 Viewpoint Analysis**

As indicated in Section 2.2, above, an initial assessment of the development's predicted visibility was undertaken with the use of ZTVs. Subsequently, a series of viewpoints were chosen and agreed with CC and CCW to represent key sensitive publicly accessible locations in the study area. Selected viewpoints included locations within residential areas, suburban and urban streets, recreational trails and footpaths, local roads and the waterfront/coastal environment. In order to ensure representative coverage of the entire study area, selected viewpoints are widespread and positioned at locations of differing elevation and distance from the application site. Where visibility was predicted at individual viewpoints in the ZTVs, but discovered during field reconnaissance to be obscured by intervening buildings or vegetation this is identified.

Each of the selected representative viewpoints is described below and potential residual effects on their visual amenity and landscape character are summarised in Tables 5.5A and 5.5B.

### **5.7.1 Viewpoint 1: Splott Recreation Ground (Grid Co-ordinate:320733, 176685)**

#### *Location*

This viewpoint is located approximately 1.5km to the north-east of the proposed development at an elevation of around 9m AOD. This viewpoint is representative of views provided from a neighbourhood recreation ground and a number of residential properties nearby.

#### *Existing View*

Drawing 4 illustrates the existing view across the open recreation ground towards west Splott and East Moors industrial estate. Built forms dominate the skyline, but are softened by intervening trees along the perimeter of the recreation ground. Numerous vertical elements are also present on the skyline including flood lighting gantries and an existing stack at Trident Park.

The interior/ground level of the application site is entirely obscured by intervening buildings and vegetation.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high in relation to nearby residential receptors, medium in relation to pedestrians and low in relation to persons engaged in sports activities as their focus would not be on the landscape or available view. This viewpoint is located in an area classified as Residential/Housing Type A (LCA SLR:HR:A) which, at this location, is considered to have a high sensitivity to the type of development proposed at Trident Park.

#### *Predicted View*

Initially, the operation of tower cranes at the site and the construction of the proposed EfW and stack would be visible on the skyline of this view. Once construction works have ceased the top of the EfW building and the proposed stack would be visible and would occupy up to 3 vertical degrees of the view. However, views of the EfW building would, to a large extent,

be mitigated by intervening vegetation. The photomontage in Drawing 4 illustrates the proposed view during the operational life of the development.

#### *Magnitude of Change*

Whilst construction activities would be of relatively short duration they would be seen on the skyline and would affect a large proportion of the view. Similarly, the proposed stack would represent a considerable alteration to this viewpoint. The magnitude of change at this viewpoint would therefore be substantial during construction and commissioning of the EfW and substantial during the operational phase of the development.

#### *Potential Effect on Visual Amenity*

Initial construction works would introduce tall vertical elements, movement and complexity to the skyline of this view. Once the construction elements are removed and the EFW is operational the proposed development would introduce a further large scale building and tall vertical stack to the skyline. The consequent residual effect would be **major** and adverse in relation to local residents, **major/moderate** in relation to pedestrians, and moderate/minor in relation to persons engaged in recreational activities. These effects would apply during both the construction and operational phases of the development.

#### *Potential Effect on Landscape Character at the Viewpoint*

The development would introduce a number of new, large scale industrial features to the skyline of the view from this suburban location, resulting in an increased initialisation of the view. The most prominent features would be associated with the construction of the EfW and the proposed stack. Potential residual effects on the character of the landscape at this viewpoint would be **major** (adverse) during both the initial construction and subsequent operational phases of the development representing a significant effect.

### **5.7.2 Viewpoint 2: Atlantic Wharf (Grid Co-ordinate:319196, 175519)**

#### *Location*

This viewpoint is located approximately 1km to the west of the proposed development at an elevation of around 10m AOD. This viewpoint is representative of views experienced by pedestrians /visitors to the wharf, outdoor eating areas and the ground floor of local restaurants and hotels.

#### *Existing View*

Drawing 5 illustrates the existing view towards the application site from this location.

The existing view towards the application site is dominated by the wharf interior, the structural vegetation along the western side of the Central Link road, and the mass and form of the Celsa Steel Castle Works industrial building. The contrast between the residential and leisure environment of the wharf and the industrial works to the east is exacerbated by the appearance of the tall stacks seen outcropping above the roof of the Castle Works.

The interior/ground level of the application site is entirely obscured by the intervening industrial building. However the existing stack at Trident Park is evident at the centre of the view.

#### *Sensitivity*

The sensitivity of this viewpoint is considered to be high due to the presence of residential receptors and persons enjoying the waterside environment. This viewpoint is situated within the Cardiff Docks: Atlantic Wharf/Bute Eastern Docks LCA (Ref. SLR:CD:AW/BD) the character of which is considered to have a medium sensitivity to the type of development proposed.

#### *Predicted View*

Initially, the operation of tower cranes at the site and erection of the stack would be visible on the skyline of this view. Once construction works have ceased the only aspect of the development still visible would be the top of the proposed stack, which would just be visible outcropping above the East Moors works. The photomontage in Drawing 5 illustrates the proposed view during the operational life of the development.

#### *Magnitude of Change*

The operation of site cranes and the fabrication of the proposed stack would be especially prominent in the skyline of this view. However, once the EfW is operational the only aspect of the development visible would be the top of the stack. On this basis the construction phase would result in a substantial magnitude of change during the construction phase of the development reducing to slight once the EfW is operational.

#### *Potential Effect on Visual Amenity*

Construction operations would introduce movement and large scale vertical structures to the skyline of this nearby viewpoint, constituting a **major** adverse impact, but would be temporary. The operational development, whilst introducing a new stack to this view, would be seen in the context of the existing buildings and vertical elements on the skyline in the middle ground and therefore result in a moderate adverse effect.

#### *Potential Effect on Landscape Character at the Viewpoint*

The construction phase of the development would result in **major/moderate** adverse impacts upon the character of the landscape at this viewpoint. Following completion of construction operations potential impacts would reduce to moderate/minor (adverse).

### **5.7.3 Viewpoint 3: Rumney Great Wharf (Grid Co-ordinate:32300, 177500)**

#### *Location*

This viewpoint is located approximately 5km to the north-east of the proposed development at an elevation of 9m AOD and represents views obtained from a local footpath extending along the waterfront, to the east of Lamby.

#### *Existing View*

Drawing 6 illustrates the existing view towards the application site from this location.

This viewpoint provides open expansive views across the Cardiff mud flats to Pengam Moors, beyond which the edge of the undulating coastal plateau between Penarth and Leckwith forms a low wooded skyline. The essentially simple horizontal form of the landscape is interrupted by the domed landform at Tide Fields Road, the complex assemblage of buildings/vertical structures at East Moors, Pengam and Splott and particularly those associated with the Tremorfa Works Celsa Steel operations. The complexity of the view is increased further by the assemblages of industrial buildings and

stacks at Cardiff Docks and by the blocks of flats adjoining the City centre.

The interior of the application site is screened from view by the intervening topography of Lamby Landfill and the Pengam Sewage Treatment Works buildings.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high due to its use as a recreational coastal footpath. The viewpoint is situated on the boundary of the Wenloog Levels and Cardiff Flats landscapes (LCAs CLS13 and SLR-CF, respectively) which are ascribed medium sensitivity.

#### *Predicted View*

Views of the construction of the proposed EfW would be provided from this location. During this phase of the development operating tower cranes, the fabrication of the building and erection of the stack would be evident. Once operational the top of the EfW building and the proposed stack would be visible from this viewpoint, but would occupy a limited proportion of the view (up to 1 vertical degree) and would be seen in the context of the existing developed skyline.

#### *Magnitude of Change*

Given the distance between this viewpoint and the application site, the limited proportion of the view likely to be affected by the development and the predominance of large scale industrial buildings and vertical structures in the view, the magnitude of change would be slight during construction and commissioning of the EfW and during the operational phase of the development, representing a limited alteration to the existing character and/or visual amenity of the view.

#### *Potential Effect on Visual Amenity*

The proposed development would introduce a new large scale building and tall stack to this view, but would be seen in the context of the existing development on the skyline of this view. Based on the high sensitivity of this viewpoint location and the slight magnitude of change predicted, the residual impact would be moderate (adverse) during commissioning and operational phases of the development.

#### *Potential Effect on Landscape Character at the Viewpoint*

Initial construction works at the site would produce a moderate (adverse) impact on this view mainly relating to the operation of tower cranes at the site and the erection of a new stack. However, once construction works are complete the EfW would be assimilated into the adjoining industrial landscape and would represent a moderate/minor adverse impact on the character of the landscape at this viewpoint.

### **5.7.4 Viewpoint 4: Lloyd George Avenue (Grid Co-ordinate:319090, 174863)**

#### *Location*

This viewpoint is situated approximately 1km to the west of the proposed development at an elevation of around 10m AOD and is representative of views experienced by local residents, pedestrians and local road users.

### *Existing View*

Drawing 6 illustrates the existing view towards the application site from this location.

The existing view from this location is dominated by the Lloyd George Avenue Boulevard and by the buildings and tree planting at the Red Dragon Leisure Centre. The application site is substantially screened by intervening apartment blocks at the southern end of Atlantic Wharf, but the top of the existing stack at the Trident Park site is visible above the roofline of the apartment blocks.

### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is considered to be high in relation to nearby residential receptors and medium in relation to pedestrians and local road users. This viewpoint is situated on the western side of the Atlantic Wharf/Bute East Dock LCA which is ascribed a medium sensitivity to the type of development proposed.

### *Predicted View*

Initially, the operation of tower cranes at the site, the fabrication of the EfW building and erection of the stack would just be visible on the skyline between the Red Dragon Centre and the flats adjoining Atlantic Wharf. Once construction works have ceased the development would be barely visible.

### *Magnitude of Change*

Despite the proximity of this viewpoint to the application site, the proportion of the view that would be altered by the proposed development would be limited. Moreover, the development would be seen in the context of existing large scale built structures and vertical elements. Consequently, the magnitude of change would be slight during construction and commissioning of the EfW and negligible during the operational phase of the development.

### *Potential Effect on Visual Amenity*

Construction operations would be seen intermittently and for a relatively short duration and so would represent a moderate (adverse) residual effect in relation to residents and moderate/minor (adverse) in relation to pedestrians and local road users. Once operational the EfW would be barely visible and result in a minor (adverse) residual effect.

### *Potential Effect on Landscape Character at the Viewpoint*

The proposed development would result in a limited alteration to the existing character of the landscape at this viewpoint equating to a moderate/minor (adverse) residual effect during the construction of the EfW and minor (adverse) once the EfW is operational.

## **5.7.5 Viewpoint 5: Welsh Assembly, Roath Basin (Grid Co-ordinate:319267, 174441)**

### *Location*

This viewpoint is situated approximately 1.1km to the south-west of the proposed development at an elevation of around 10m AOD and is representative of views experienced by pedestrians and users of the Senedd and adjacent waterfront environment.

### *Existing View*

The existing view from this location is illustrated in Drawing 7.

The view from this location is dominated by the Senedd and Pierhead Building which frame views towards the application site where the existing stack at Trident Park is visible on the skyline.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high due to the frequency of its use by pedestrians/visitors, the cultural significance of the Senedd and the significance in terms of reference points of the Pierhead Building. This viewpoint is situated within the Roath Basin LCA (Ref. SLR:CD:RB) which is ascribed a high sensitivity.

#### *Predicted View*

The ZTVs indicate potential visibility of both the proposed stack and EfW building from the vicinity of this viewpoint. However, field reconnaissance and detailed visibility modelling confirm that the development would be entirely screened from this location by intervening buildings.

#### *Magnitude of Change*

No change.

#### *Potential Effect on Visual Amenity*

None.

#### *Potential Effect on Landscape Character at the Viewpoint*

None.

### **5.7.6 Viewpoint 6: Pierhead Street (Grid Co-ordinate:319405, 174626.)**

#### *Location*

This viewpoint is situated approximately 1km to the south-west of the proposed development at an elevation of around 10m AOD and is representative of views obtained by road users and pedestrians at an important business development area adjoining the City centre and Bay.

#### *Existing View*

Drawing 7 illustrates the existing view towards the application site from this location.

The existing view from this location is channelled along the alignment of Pierhead Road towards the Docks. However, with the exception of the existing stack at Trident Park, there is no evidence of this industrial area in the view.

#### *Sensitivity*

The sensitivity of this viewpoint is medium in relation to pedestrians and road users. This viewpoint is situated on the boundary of the Atlantic Wharf/Bute East Dock LCA (SLR-CD:AW:BED) which is ascribed a medium sensitivity to the type of development proposed.

#### *Predicted View*

The ZTV indicates potential views of the EfW building and stack from this location.

However, field reconnaissance and detailed computer modelling of predicted visibility confirms that the proposed development would be entirely screened by intervening office blocks.

#### *Magnitude of Change*

The proposed development would result in no change to the existing view or character of the landscape at the viewpoint.

#### *Potential Effect on Visual Amenity*

None.

#### *Potential Effect on Landscape Character at the Viewpoint*

None.

### **5.7.7 Viewpoint 7: Roath Basin (Grid Co-ordinate:319510, 174210)**

#### *Location*

This viewpoint is situated approximately 1km to the south-west of the proposed development at an elevation of around 10m AOD and is representative of views obtained by pedestrians and visitors to the waterfront and nearby tourist facilities.

#### *Existing View*

Drawing 8 illustrates the existing view towards the application site from this location, in front of the Norwegian Church.

The view comprises a broad paved walkway extending along the side of Cardiff Bay between the locks of Roath Dock and the Inner Harbour. The open aspect of the Bay emphasises the irregular skyline beyond which contains the varied architecture of buildings adjoining the waterfront and numerous tower cranes. The Pierhead Building, the Senedd and Millennium Centre represent key cultural landmarks in the view.

The application site is screened by intervening buildings.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high due to its use by visitors and tourists to the waterfront and the cultural importance of buildings such as the Millennium Centre and Senedd building. This viewpoint is located within the Roath Basin LCA (Ref. SLR:CD:RB) which is also ascribed a high sensitivity.

#### *Predicted View*

The ZTV indicates potential views of the EfW building and stack from this location. However, field reconnaissance and detailed computer modelling of predicted visibility confirms that the EfW and stack would be screened by intervening vegetation and buildings.

#### *Magnitude of Change*

The proposed development would result in no change to either the view or character of the landscape at this viewpoint.

*Potential Effect on Visual Amenity*

None.

*Potential Effect on Landscape Character at the Viewpoint*

None.

**5.7.8 Viewpoint 8: Taff Trail, Grangetown (Grid Co-ordinate:318461, 174861)**

*Location*

This viewpoint is situated approximately 2km to the south-west of the proposed development at an elevation of around 10m AOD and is representative of views obtained from the lower reaches of the Taff Trail and National Cycle Route No.8 it is indicative of views from the edge of the residential area of Grangetown.

*Existing View*

Drawing 8 illustrates the existing view towards the application site from this location.

The existing view from this location is bounded by recently constructed blocks of flats on the eastern side of Afon Taf. These are large scale and have the effect of restricting potential views towards the City. However, it is possible to see the existing stack at Trident Park between these buildings.

*Sensitivity*

This viewpoint is located on both a national cycleway and a regionally important footpath and is therefore considered to have a high sensitivity to the type of development proposed. This viewpoint is situated on the boundary between a section of the Housing/Residential Area – Type A and Levels industrial character areas (SLR-HR:A and SLR-LIC) which are generally ascribed a low sensitivity to the type of development proposed due to the interrupted nature of views from each landscape.

*Predicted View*

The ZTV indicates potential views of the EfW building and stack from this location. However, field reconnaissance and detailed computer modelling of predicted visibility confirms that the proposed development would be entirely screened by the intervening blocks of flats.

*Magnitude of Change*

The proposed development would result in no change to the existing view or character of the landscape at the viewpoint.

*Potential Effect on Visual Amenity*

None.

*Potential Effect on Landscape Character at the Viewpoint*

None.

### **5.7.9 Viewpoint 9: Bay Bridge (Grid Co-ordinate:318211, 173700)**

#### *Location*

This viewpoint is situated approximately 2.5km to the south-west of the proposed development at an elevation of around 10m AOD and is representative of views obtained by pedestrians, cyclists on the National Cycleway No.8 and eastbound vehicles on the A4232.

#### *Existing View*

Drawing 9 illustrates the existing view towards the application site from this location.

This is an expansive long-range view dominated by the Bay and irregular/complex City skyline beyond. A key facet of the view is the contrast between the modern distinctive buildings of the recent City centre and Bay waterfront developments including the Millennium Centre and St. David's Hotel (seen at the centre of the view), the remaining buildings of Butetown (seen to the left/west), and the buildings and infrastructure associated with the Port of Cardiff which are seen to the right (east).

The application site is screened behind intervening buildings, including the Millennium Centre.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high in relation to users of the cycleway and pedestrians/visitors to the Bay, and medium in relation to road users. This viewpoint is situated within the Cardiff Bay LCA (Ref. SLR:CB) which is ascribed a medium sensitivity to the type of development proposed, principally due to the scale of the available views and influence of the surrounding urban and industrial forms.

#### *Predicted View*

During the construction phase of the development the erection of the stack and tower cranes would be seen above the roofline of the Millennium Centre. Once operational the EfW would be entirely obscured. However, the proposed stack would be visible and would be seen amidst numerous other vertical elements such as the existing stack at Trident Park and local blocks of flats and offices. The photomontage in Drawing 9 depicts the view of the operational site from this location.

#### *Magnitude of Change*

Given the distance of this viewpoint from the application site, the restricted visibility of the proposed development and the context in which it would be seen, the magnitude of change would be slight during construction works and negligible during the operational life of the EfW.

#### *Potential Effect on Visual Amenity*

The construction phase of the development would increase the complexity of the skyline and introduce new vertical elements and movement, but would be seen in the context of the existing diverse skyline and movement on the bridge and around the edge of the Bay and would result in moderate (adverse) effects in relation to cyclists and pedestrians and moderate/minor in relation to road users during this phase. Once operational the development would be barely noticeable, representing a moderate/minor to minor (adverse) effect.

### *Potential Effect on Landscape Character at the Viewpoint*

Cranes and construction activities are commonplace on the Cardiff skyline. In this context the initial construction phase of the development would result in moderate/minor effects on the character at this viewpoint. Once operational, the stack would represent a very limited additional vertical element and would appear consistent with other similar structures nearby and would therefore result in a minor residual effect.

#### **5.7.10 Viewpoint 10: Llandough (Grid Co-ordinate:317359, 172707.)**

##### *Location*

This viewpoint is situated approximately 4km to the south-west of the proposed development at an elevation of around 50m AOD and is representative of views obtained by local walkers/pedestrians and nearby residential receptors in Llandough.

##### *Existing View*

Drawing 10 illustrates the existing view towards the application site from this location.

The view from this location is long-range and expansive. To the north-east the view extends across Penarth Moors, West Moors, Butetown and Atlantic Wharf to the East Moors industrial area and the coast beyond. Whilst the ground level of the application site is obscured by intervening buildings it is possible to see the existing large scale industrial buildings and stack within Trident Park.

##### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high in relation to residential receptors and medium in relation to local pedestrians and road users. The viewpoint is situated close to the boundary of the South Ely Valley and Penarth LCAs (Ref. VLFGLVS213 and VLFGLVS215), but is more indicative of the character and views obtained from Penarth. Consequently, the sensitivity of the character of this Viewpoint is medium.

##### *Predicted View*

During the construction phase of the development the erection of the EfW and stack and the operation of site tower cranes would be clearly visible on the skyline. The ZTVs indicate that once construction operations are completed the roof line and side elevation of the proposed EfW and stack would be visible from this location and would occupy up to 1 vertical degree of the view.

##### *Magnitude of Change*

Given the distance of this viewpoint from the application site, the limited proportion of the view likely to be altered by the development and the existing complexity of the City/urban form when viewed from this elevated location the magnitude of change would be slight during the construction and operational phases of the development.

##### *Potential Effect on Visual Amenity*

The construction phase would introduce further large scale complex forms and movement to the skyline, but would only affect a limited proportion of the view, representing a moderate (adverse) residual effect in relation to residential receptors and moderate/minor in relation to local pedestrians and road users. Once operational, the development would be plainly

visible, but would present a simpler, more cohesive form in the view, but still represent a moderate to moderate/minor effect due to the mass/volume of the EfW building and height of the stack.

#### *Potential Effect on Landscape Character at the Viewpoint*

During the construction and operational phase of the development the residual effect on the character at this viewpoint would also be moderate/minor due to the increased prominence of industrial land uses on the skyline. However, these effects would not be wholly adverse, as the operational EfW building would be of greater architectural quality than existing buildings at the application site.

#### **5.7.11 Viewpoint 11: Leckwith (Grid Co-ordinate:315888, 174743)**

##### *Location*

This viewpoint is situated approximately 4.25km to the west of the proposed development at an elevation of around 85m AOD and is representative of views obtained by local walkers.

##### *Existing View*

Drawing 10 illustrates the existing view towards the application site from this location.

As in Viewpoint 10 at Llandough the view from this location is long-range and expansive. To the north-east the view extends across Leckwith Industrial Estate and Grangetown to the Millennium Stadium and the City centre beyond. To the south it extends across Butetown and Atlantic Wharf to the industrial area of East Moors and the Bristol Channel in the distance.

The ground level of the application site is screened by intervening vegetation and buildings, but the existing stack and steel portal buildings at Trident Park are evident.

##### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high due to its use by walkers whose attention may be concentrated on the wider landscape. The viewpoint is situated within the South Ely Valley LCA (Ref. VLFGLVS213) and is also considered to have a high sensitivity to the type of development proposed.

##### *Predicted View*

During the construction phase of the development the erection of the EfW and stack and the operation of site tower cranes would be visible. The ZTVs indicate that once construction operations are completed the roof line and side elevation of the proposed EfW and stack would be visible from this location and would occupy up to 1 vertical degree of the view.

##### *Magnitude of Change*

Given the distance of this viewpoint from the application site, the limited proportion of the view likely to be altered by the development and the existing complexity of the City/urban form when viewed from this elevated location the magnitude of change would be slight during the construction and operational phases of the development.

### *Potential Effect on Visual Amenity*

As in Viewpoint 10, the construction phase would introduce further large scale complex forms and movement to the skyline of this view representing a moderate (adverse) residual effect. Once operational, the development would present a simpler, more cohesive form in the view, but still represent a moderate effect due to the mass/volume of the EfW building and height of the stack.

### *Potential Effect on Landscape Character at the Viewpoint*

During the construction and operational phase of the development the residual effect on the character at this viewpoint would also be moderate due to the increased prominence of industrial land uses on the skyline. However, these effects would not be wholly adverse, as the operational EfW building would be of greater architectural quality than existing buildings at the application site.

## **5.7.12 Viewpoint 12: Afon Elai (Grid Co-ordinate:317618 172667)**

### *Location*

This viewpoint is situated approximately 3.5km to the south-west of the proposed development at an elevation of around 10m AOD and is representative of views obtained by pedestrians, cyclists on the National Cycleway No.8, north of Cogan.

### *Existing View*

Drawing 11 illustrates the existing view towards the application site from this location.

This location provides views across Afon Elai to the peninsula south of Penarth Moors and to Queen Alexandra Docks beyond. Views towards the application site are restricted by recently constructed blocks of flats on the peninsula.

### *Sensitivity*

This viewpoint is considered to have a high sensitivity to the type of development proposed due to its location on a long range strategic cycleway. This viewpoint is located on the boundary of the Afon Elai and Penarth LCAs, both of which are ascribed a medium sensitivity.

### *Predicted View*

During the construction phase of the development tower cranes would be seen operating on the skyline. Once the construction of the EfW is completed and the tower cranes removed the only aspect of the development visible would be the stack, which whilst seen above the top of the intervening buildings would be relatively inconspicuous. The photomontage in Drawing 11 illustrates the view of the operational site from this location.

### *Magnitude of Change*

Given the relatively short duration of potential views of operating tower cranes at the site, the limited proportion of the view that they would affect and the existing context of large scale built forms and vertical structures, the magnitude of change would be slight during construction works, reducing to negligible once the EfW is operational.

### *Potential Effect on Visual Amenity*

Construction operations would increase the proportion of the skyline occupied by cranes and complex vertical forms, constituting a moderate (adverse) residual effect. However, once operational the stack would be largely consistent in scale and form with other vertical elements in the adjoining urban landscape and therefore result in moderate/minor effect.

### *Potential Effect on Landscape Character at the Viewpoint*

The erection of the proposed stack and EfW would introduce further complex industrial and construction elements to the skyline of this view resulting in moderate/minor residual effects. However, once operational the stack would be largely assimilated into the surrounding urban landscape and therefore result in a minor effect on the character of this viewpoint.

### **5.7.13 Viewpoint 13: Cardiff Bay Barrage (Grid Co-ordinate:319026, 172682)**

#### *Location*

This viewpoint is situated approximately 2.5km to the south-west of the proposed development at an elevation of around 5m AOD and is representative of views obtained by cyclists on NCR No.8 and visitors to the Cardiff Bay Barrage visitors centre.

#### *Existing View*

Drawing 12 illustrates the existing view towards the application site from this location.

The existing view is dominated by an expanse of open water and the barrage construction beyond which the view is bounded by the developed waterfront on the northern side of the Bay and around the Roath Basin which is set against the backcloth of the Caerphilly Ridge. The view is punctuated by a series of distinctive landmark buildings including the Millennium Centre, the Pierhead Building, the Senedd and St. David's Hotel.

The application site is not visible from this location.

#### *Sensitivity*

This viewpoint is situated on a national cycleway and is utilised by visitors to the barrage and visitors centre and consequently has a high sensitivity to the type of development proposed. This viewpoint is located on the edge of the Cardiff Bay LCA (Ref. SLR:CB) which is generally ascribed a medium sensitivity to the type of development proposed due to the scale of views provided and the character and diverse urban forms adjoining the Bay.

#### *Predicted View*

Initially the construction of the EfW building and stack, and the operation of tall tower cranes would be visible on the skyline. Once the construction of the EfW is completed the domed form of the EfW and the stack would form prominent elements in the view. The photomontage in drawing 12 depicts the proposed view of the operational site from this viewpoint.

#### *Magnitude of Change*

During the construction of the EfW and stack the development would represent a moderate magnitude of change (i.e. *"partial or localised change in a broader unchanged landscape"*) due to the scale and form of the cranes and structures present, and their prominent skyline position. However, once site cranes and construction impacts have been removed and the

EfW is operational the development would be more recessive and would be more consistent with the adjoining industrial and City centre architecture. Consequently, the operational phase would result in a slight change.

#### *Potential Effect on Visual Amenity*

Construction elements of the development would introduce new vertical structures and complexity to the skyline of this view equating to a **major/moderate** (adverse) effect, albeit temporary and relatively short lived. However, once operational the development would appear consistent in form and scale to the existing waterfront architecture/structures. Moreover, the proposed colouring of the building and stack would help to reduce their prominence in the view. Consequently, the residual effect of this phase would be moderate.

#### *Potential Effect on Landscape Character at the Viewpoint*

The proposed development would introduce two large scale structures to the skyline and would increase the influence of industrial land-uses in the view. However, both the stack and EfW building would be consistent with the character of the City and would not detract from other important landmark buildings nearby. Consequently, the residual effect on the character of the landscape at this viewpoint would be moderate (adverse) during construction operations and moderate/minor throughout the operational life of the development.

### **5.7.14 Viewpoint 14: Penarth (Grid Co-ordinate:319072, 172018)**

#### *Location*

This viewpoint is situated approximately 3.25km to the south-west of the proposed development and is located on an elevated north-east facing slope in the settlement of Penarth. The view from this location is indicative of the intermittent and restricted nature of views experienced by local pedestrians and nearby residential properties.

#### *Existing View*

Drawing 13 illustrates the existing view towards the application site from this location.

This location provides long-range views across Cardiff Bay, the docks and East Moors to the suburbs of Rhymney and the hills beyond. Industrial features, including the security fence in the foreground of this view are key factors in this view.

The application site is clearly visible below the skyline at the centre of the view and is marked by a series of large industrial buildings and the existing stack at Trident Park.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high in relation to residential receptors nearby and medium in relation to pedestrians. This viewpoint is located in the Penarth LCA (Ref. VLFGLVS152) which is ascribed a medium sensitivity.

#### *Predicted View*

Initially site preparations and construction of the EfW and stack would be visible from this location, site cranes appearing above the skyline. Once the construction of the EfW is completed the domed form of the EfW and stack would form prominent elements in the view and would be seen in the context of other retained buildings at Trident Park and in the

industrial area of East Moors. The photomontage in Drawing 13 depicts the view of the operational site from this location.

#### *Magnitude of Change*

Given the character and condition of the existing landscape in and around the application site, the distance of this viewpoint from the proposed development and the proportion of the view likely to be affected, the magnitude of change attributable to the construction and operational phases of the development would be moderate, equating to a localised change within a broader unchanged context.

#### *Potential Effect on Visual Amenity*

The construction of the development would increase the diversity and complexity in the view, resulting in a **major/moderate** (adverse) effect on residential receptors and moderate on pedestrians. Similarly, whilst the operational development would be less conspicuous it would still represent a **major/moderate** effect due to its scale and the height of the stack in relation to the skyline.

#### *Potential Effect on Landscape Character at the Viewpoint*

The construction of the development would increase the disturbed, degraded appearance of the landscape in the short term and represent a moderate (adverse) residual effect. Whilst the operational EFW and stack would also constitute a moderate residual effect, but would not be wholly adverse. The high quality of the design of the development would provide some beneficial effect, improving the character and condition of the industrialised landscape.

### **5.7.15 Viewpoint 15: Lavernock (Grid Co-ordinate:318722, 168282)**

#### *Location*

This viewpoint is situated approximately 7km to the south-west of the proposed development and is located on a coastal path immediately north of Lavernock Point.

#### *Existing View*

Drawing 14 illustrates the existing view towards the application site from this location.

This location provides long-range expansive views along the Cardiff Coastline and across the Bristol Channel. The view towards the application site is dominated by the broad sea, open foreshore and cliffs between Lavernock and the settlement of Penarth (seen on a raised promontory in the left hand side of the view). In the distance the view contains the visitor attractions at Roath Basin, the adjacent blocks of flats and the industrial area of Queen Alexandra Dock and East Moors set against a backdrop of the hills. The application site is visible at the centre of the view and is marked by the existing stack and industrial buildings of Trident Park.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high. The viewpoint is situated close to the boundary of the Penarth to Swanbridge Cliffs and Lavernock Hinterland LCAs (Ref. VLFGLVS308 and VLFGLVS787) which are ascribed a medium sensitivity.

### *Predicted View*

Initially site preparations and construction of the EfW and stack would be visible from this location. Once the construction of the EfW is completed the domed form of the EfW and stack would form prominent features in the view, but would be seen in the context of other retained buildings at Trident Park and in the industrial area of East Moors. The photomontage in Drawing 14 illustrates the operational view of the development from this viewpoint.

### *Magnitude of Change*

Given the character and condition of the existing landscape in and around the application site and the distance of this viewpoint from the proposed development the magnitude of change attributable to both the construction and operational phases of the development would be slight, equating to a limited alteration to current baseline condition.

### *Potential Effect on Visual Amenity*

The construction of the development would increase the disturbance present in the view but would be seen distantly resulting in a moderate (adverse) effect on the visual amenity of this viewpoint. The proposed EFW would replace an existing large scale industrial building with a structure of similar height, but of larger mass/volume. The proposed EfW would be of higher architectural quality thereby providing a minor beneficial residual effect in this respect. In contrast, the stack would represent a wholly new vertical structure, but one which would be similar in height to the existing stack at Trident Park. In this context the stack would represent a moderate (adverse) residual effect.

### *Potential Effect on Landscape Character at the Viewpoint*

The proposed development would result in increased industrialisation/disturbance of the landscape constituting a moderate/minor (adverse) effect on the character of the landscape at the viewpoint during construction. Once operational, the EfW would provide some beneficial effects by improving the quality of an existing industrial area. However, the proposed stack would add a further tall industrial element to the coast result resulting in a moderate/minor (adverse) long-term residual effect.

## **5.7.16 Viewpoint 16: Maerdy Lane, Lisvane (Grid Co-ordinate: 319272, 182917)**

### *Location*

This viewpoint is situated approximately 7.4km north of the proposed development at a relatively elevated position of around 65m AOD and provides views into the Nant Glanulais Lowlands (LCA CLS10), which is a remnant of open countryside between Lisvane, Pontprennau and the M4 corridor. The view provided from this location is representative of views obtained from nearby residential properties and a frequently used public footpath.

### *Existing View*

Drawing 15 illustrates the existing view towards the application site from this location.

The land falls away to the south and east from this viewpoint, towards the confluence of Nant y Draenog, Nant Glandulas and Nant-y-Draw. From this location the view extends across the intervening pastoral fields towards Pentwyn and Cyncoed, where it is bounded by the wooded skyline formed by the mixed forested slopes of Lisvane and Cardiff Golf Club.

The essentially rural character of the landscape is interrupted by the large scale built forms of the Corpus Christi School, seen in the left hand (eastern) side of the view, and the high voltage pylons of the Afon Rhydney corridor which are seen on the skyline beyond.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high due to the proximity of residential receptors and the position of the viewpoint on a frequently used local footpath. The viewpoint is situated on the boundary of two LCAs (SLR:HR:C and CLS10) both of which are ascribed medium sensitivity.

#### *Predicted View*

Whilst the ZTVs indicate potential views of the proposed stack would be provided from this location field reconnaissance suggests that the development (including construction elements) would be screened by intervening vegetation.

#### *Magnitude of Change*

As the proposed development would not be visible from this location it would result in no change to the existing character or visual amenity of this viewpoint.

#### *Potential Effect on Visual Amenity*

None.

#### *Potential Effect on Landscape Character at the Viewpoint*

None.

### **5.7.17 Viewpoint 17: Waterloo Road, Pen-y-Lan (Grid Co-ordinate: 319668, 178731)**

#### *Location*

This viewpoint is situated approximately 3.2km north of the proposed development at the northern end of Waterloo Road, adjoining the A48, and is representative of views obtained by local pedestrians and road users. Residential properties on Waterloo Road are generally oriented to the east or west, away from the application site, and are fronted by street trees which filter views out of these dwellings. Consequently, this viewpoint is not considered representative of views from Waterloo Road properties.

#### *Existing View*

Drawing 16 illustrates the existing view towards the application site from this location.

The view from this location is channelled along Waterloo Road towards Albany Road and Splott, beyond which East Moors Industrial estate is clearly visible on the horizon formed by the Bristol Channel in the distance.

Whilst the application site itself is not visible from this location it is possible to see the existing stack at Trident Park through the foliage of the street trees in the foreground.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is medium in relation to local pedestrians and road users. The viewpoint is situated on the boundary of two LCAs

(LCAs SLR:RC:B and SLR:RC:C) both of which are ascribed medium sensitivity.

#### *Predicted View*

During summer months both construction and operational impacts would be all but entirely screened by street trees. However, during winter months site cranes would be visible above the roofs of the houses on the right hand (western) side of the street. Similarly, once operational, the top of the proposed stack and EfW building would be visible.

#### *Magnitude of Change*

Given the filtered nature of views of the development, the distance of this viewpoint from the applications site and the predominance of urban forms, the magnitude of change during construction and operation of the EfW would be slight.

#### *Potential Effect on Visual Amenity*

The proposed development would represent a moderate/minor residual effect on the visual amenity of this view during both the construction and operation of the EfW.

#### *Potential Effect on Landscape Character at the Viewpoint*

The proposed development would result in a slight increase in the proportion of the view occupied by industrial features, representing a moderate/minor residual effect on the character at this viewpoint.

### **5.7.18 Viewpoint 18: Junction of Metal Street and Lead Street, Adamsdown (Grid Coordinate: 319645, 161772 )**

#### *Location*

This viewpoint is situated approximately 1.2km north of the proposed development at an elevation of around 10m AOD and is representative of views obtained by local pedestrians and road users, and nearby residential properties. However, a large proportion of these properties are oriented facing Metal Road (i.e. facing east or west), and would therefore only afford oblique views towards the application site.

#### *Existing View*

Drawing 17 illustrates the existing view towards the application site from this location.

This is a small scale view which is channelled along Metal Road towards East Moors Industrial Estate. However, the view is foreshortened by a combination of intervening buildings and street vegetation.

Whilst the application site itself is not visible from this location it is possible to see the top of the existing stack at Trident Park on the skyline.

#### *Sensitivity*

The sensitivity of this viewpoint to the type of development proposed is high in relation to nearby residential receptors and medium in relation to local pedestrians and road users. The viewpoint is situated in LCA SLR:RC:A which is ascribed high sensitivity at this location.

### *Predicted View*

During construction operations tower cranes would be visible on the skyline from this viewpoint. Once the EfW is fully operational the top of the proposed stack and EfW would just be visible.

### *Magnitude of Change*

Construction operations at the site would represent the most prominent aspect of the development, constituting a substantial magnitude of change. However, once construction elements are removed and the EfW is operational the development would occupy a greatly reduced proportion of the view, with the consequence that the magnitude of change would be moderate.

### *Potential Effect on Visual Amenity*

Construction operations would introduce large scale vertical elements and movement to the skyline resulting in **major** (adverse) residual effects in relation to residential receptors and major/moderate (adverse) effects in relation to pedestrians and road users. Once the EfW is operational the residual effects would reduce to **major/moderate** in relation to residential receptors and moderate in relation to pedestrians and road users, due to the relatively restricted visibility of both the proposed stack and the EfW building.

### *Potential Effect on Landscape Character at the Viewpoint*

The development would introduce a number of new, large scale features to the skyline of the view from this suburban location, resulting in an increased industrialisation of the view. The most prominent features would be associated with the construction of the EfW and the proposed stack. During this phase of the development potential residual effects on the character of the landscape at this viewpoint would be **major** (adverse), reducing to **major/moderate** once the EfW is fully operational.

### 5.7.19 Viewpoint Analysis Summary

**Table 5.1**  
**Summary of Potential Effect on Visual Amenity at Viewpoints**

Ref	Viewpoint	Viewpoint Sensitivity	Magnitude of Change	Effect on Visual Amenity
1	Splott Recreational Ground	High (residential) Medium (pedestrians) Low (persons involved in sports)	Substantial during construction and operational phases.	<b>Major</b> to moderate (adverse) during construction and operational phases.
2	Atlantic Wharf	High	Substantial during construction and slight in the operational phase.	<b>Major</b> (adverse) during construction and moderate (adverse) in operational phase.
3	Rumney Great Wharf	High	Slight during construction phase and slight in operational phase.	Moderate (adverse) during construction and operational phases.
4	Lloyd George Road	High (residential) Medium (pedestrians and road users)	Slight during construction and negligible in operational phase.	Moderate – moderate/minor (adverse) during construction and moderate/minor - minor (adverse) in operational phase.
5	The Senedd, Roath Basin	High	No change.	No effect.
6	Pierhead Street	Medium	No change.	No effect.
7	Roath Basin	High	No change.	No effect.
8	Taff Trail, Grangetown	High	No change.	No effect.
9	Bay Bridge	High (cyclists and walkers) Medium (road users)	Slight during construction and negligible during operational phase.	Moderate - moderate/minor (adverse) during construction and moderate/minor – minor in operational phase.
10	Llandough	High (residential) Medium (pedestrians and road users)	Slight during construction and operational phases.	Moderate – moderate/minor (adverse) during construction and operational phases.
11	Leckwith	High	Slight during construction and operational phases.	Moderate (adverse) during construction and operational phases.
12	Afon Elai	High	Slight during	Moderate (adverse)

Ref	Viewpoint	Viewpoint Sensitivity	Magnitude of Change	Effect on Visual Amenity
			construction and negligible in operational phase.	during construction and moderate/minor in operational phase.
13	Cardiff Bay Barrage	High	Moderate during construction and slight during operational phase.	<b>Major/moderate</b> (adverse) during construction and moderate in operational phase.
14	Penarth	High (residential) Medium (pedestrians and road users).	Moderate during construction and operational phases.	<b>Major/moderate</b> - moderate (adverse) during construction and <b>Major/moderate</b> – moderate (some beneficial effects) in operational phase.
15	Lavernock	High	Slight during construction and operational phases.	Moderate (adverse) during construction and operational phases.
16	Maerdy Lane., Lisvane	High	No change.	None.
17	Waterloo Road, Pen-y-Lan	Medium	Slight during construction and operational phases.	Moderate/minor (adverse) during construction and operational phases.
18	Junction of Metal Street and Lead Street, Adamsdown.	High (residential) Medium (pedestrians and road users).	Substantial during construction phase and moderate during operation phase.	<b>Major to major/moderate</b> (adverse) during construction phase and <b>major/moderate</b> to moderate during operational phase.

**Table 5.2**  
**Summary of Potential Effect on Landscape Character at Viewpoints**

Ref	Viewpoint	LCA Ref/ Landscape Sensitivity	Magnitude of Change	Effect on Landscape Character at Viewpoint
1	Sploott Recreational Ground	SLR-HR:A/ High	Substantial during construction and operational phases.	<b>Major</b> (adverse) during construction and operational phases.
2	Atlantic Wharf	SLR- CD:AW/BED/ Medium	Substantial during construction and slight in the operational phase.	<b>Major/moderate</b> (adverse) during construction and moderate/minor (adverse) in operational phase.
3	Rumney Great Wharf	CLS13 & SLR- CF/ Medium	Slight during construction phase and slight in operational phase.	Moderate/minor (adverse) during construction and moderate/minor in operational phase.
4	Lloyd George Road	SLR- CD:AW/BED Medium	Slight during construction and negligible in operational phase.	Moderate/minor (adverse) during construction and minor (adverse) in operational phase.
5	The Senedd, Roath Basin	SLR-CD:RB/ High	No change.	No effect.
6	Pierhead Street	SLR- CD:AW/BED Medium	No change.	No effect.
7	Roath Basin	SLR-CD:RB/ High	No change.	No effect.
8	Taff Trail, Grangetown	SLR-HR:A & SLR-LIC/ Low	No change.	No effect.
9	Bay Bridge	SLR-CB/ Medium	Slight during construction and negligible during operational phase.	Moderate/minor (adverse) during construction and minor during operational phase.
10	Llandough	VLFGVS152 & VLFGVS213/ Medium	Slight during construction and operational phases.	Moderate/Minor (adverse) during construction and operational phases.
11	Leckwith	VLFGVS213/ High	Slight during construction and operational phases.	Moderate (adverse) during construction and operational phases.
12	Afon Elai	VLFGVS152/ Medium	Slight during construction and negligible in operational phase.	Moderate/minor (adverse) during construction and minor (adverse) in

Ref	Viewpoint	LCA Ref/ Landscape Sensitivity	Magnitude of Change	Effect on Landscape Character at Viewpoint
				operational phase.
13	Cardiff Bay Barrage	SLR-CB/ Medium	Moderate during construction and slight during operational phase.	Moderate (adverse) during construction and moderate/minor in operational phase.
14	Penarth	VLFVGS152/ Medium	Moderate during construction and operational phases.	Moderate (adverse) during construction and operational phases.
15	Lavernock	VLFVGS787 VLFVGS308/ Medium	Slight during construction and operational phases.	Moderate/minor (adverse) during construction and operational phases.
16	Maerdy Lane., Lisvane	SLR:HR:C & CLS10 Medium	No change.	None.
17	Waterloo Road, Pen- y-Lan	SLR:HR:B & SLR:HR:C Medium	Slight during construction and operational phases.	Moderate/minor (adverse) during construction and operational phases.
18	Junction of Metal Street and Lead Street, Adamsdown.	SLR:HR:A High	Substantial during construction and operational phases.	<b>Major</b> (adverse) during construction and <b>major/moderate</b> during operational phase.

## 5.8 Potential effects on the Transportation Network

### 5.8.1 Rail Network

The development would result in negligible change to views from mainline and branch routes within the study area, equating to minor or no residual effect.

### 5.8.2 Road Network

- The M4: Given the limited potential visibility of the development from this route and its distance from the application site, the magnitude of change would be negligible and the residual effect on this route would be minor.
- The A48: No change to the visual amenity of this route is anticipated as a result of the proposed development.
- The A4232: The development would result in negligible change for the majority of this route. However, eastbound vehicles on the Bay Bridge would experience a slight change associated with the construction of the EfW and stack and negligible during the operational life of the development, equating to a moderate/minor and minor (adverse) residual effect at this point, respectively. This is illustrated in Viewpoint 9. Similarly, views from vehicles on the A4232 flyover, south of Rumney, would experience moderate/minor residual effects during both the construction and operational stages of the development.

- The A4055: The development would result in negligible change for the majority of this route representing a minor residual effect.
- The A4119, A470, A469: No residual effects are anticipated on this route due to the screening effect of intervening buildings and/or vegetation.

## **5.9 Potential Effects on Recreation Routes**

### **5.9.1 Walking**

No residual effects were assessed for the Taff Trail on the basis of the screening effect of intervening topography, buildings and/or vegetation.

In general terms, the Lamby to Wentloog coastal path would be subject to moderate/minor (adverse) residual effects due to the intermittent and restricted nature of potential views of the EfW building and stack. However, at Rumney Great Wharf (Viewpoint 3), the residual impact associated with the construction of the EfW and stack would increase to moderate/minor, due to the proximity of this location to the application site. Similarly, the cliff top footpath between Penarth and Lavernock would be subject to moderate/minor residual effects arising from the visibility of the proposed EfW building and stack.

### **5.9.2 Cycling**

Views of the proposed development from NCR 8 would be confined to a short section of this route by Penarth Marina and at the Cardiff Bay Barrage, in excess of 2km of the application site. In these locations the EfW would introduce a further large scale industrial development to the skyline of views from this route resulting in change ranging from slight (construction phase) to negligible (operational phase) at Bay Bridge, and moderate (construction) and slight (operational) at Cardiff Bay Barrage. These views are demonstrated in Viewpoints 9 and 13 (Ref. Drawings 9 and 12), respectively. Based on this analysis, the majority of this route would be subject to minor/no effect. However, significant effects would occur at the Cardiff Bay Barrage during the construction of the proposed EfW and stack.

## **5.10 Settlement/Residential Receptors**

Table 5.3, below, identifies the potential residual effect of both the construction and operational phases of the development. This analysis identifies a limited number of locations within residential areas subject to potentially significant effects as a result of the development (e.g. residences adjoining open areas in Housing/Residential Area A and mid-high rise elevated properties such as the east facing abutting Atlantic Wharf).

## **5.11 Potential Effect on Landscape Designations**

Within the St. Fagans SLA the ZTVs indicate only limited visibility of both the stack and EfW building from elevated locations on the eastern fringe of St.Fagan's village and a short section of Cardiff Road. Such viewpoints are in excess of 6km from the proposed development and the development would be seen in the context of the Cardiff suburbs, the high rise developments west of the City centre and the existing industrial complexity of east Moors industrial estate. Consequently the magnitude of change in this SLA arising from the development would be negligible during both the construction and subsequent operational stage of the development. This would equate to a moderate/minor residual effect on this designated landscape.

Whilst views of the proposed EfW would also be provided from locations within the

Caerphilly Ridge SLA such viewpoints would be situated over 8km from the application site and the development would be seen in the context of the intervening urban form of the city. Given the distance from the proposed development, the proportion of the views from this SLA that would be affected, and the urban and industrial context of the development, the magnitude of change occurring within this designated area would be negligible, representing a moderate/minor residual effect.

Views of the proposed development would also be provided from the Wentloog Levels SLA. However, such views would be restricted by intervening industrial structures and the raised topography of Lamby Landfill. Given the restricted visibility of the development, the distance of this SLA from the application site and the industrial context in which the development would be viewed the magnitude of change wrought on this designated area would be slight. When this change is considered in relation to the medium sensitivity of the section of this landscape within the study area it would result in moderate/minor residual effect on this designated area.

### **5.12 Effect on Landscape Fabric**

The proposed development would be confined to the application site which has a long history of industrial use and the presence of large scale industrial buildings and structures. The site is currently being cleared for re-development and a number of existing structures removed. Given the current disturbed nature of the site the proposed development would result in a slight magnitude of change arising from the excavation of foundations and the ash pit and the construction of the EfW/stack, and negligible change once the EfW is fully operational. This would equate to a Minor alteration during construction operations and minor/none once the EfW is operational.

### **5.13 Potential Effect on Landscape Character within the Study Area**

The potential effects associated with the EfW and the landscape character of the study area is described in Table 5.3, below.

**Table 5.3**  
**Residual Effects - Landscape Character Areas**

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
Cardiff Flats	SLR-CF	Medium	<p>The ZTVs indicate potential views of both the EfW building and stack from the Cardiff Flats LCA. Consequently, it is also assumed that construction operations would also be visible. However, views from this foreshore environment are subject to restriction as a result of intervening topography of the coast, the industrial structures in Queen Alexandra and Roath Docks and the landform and steelworks associated with Rover Way. In this context, the proposed EfW would represent a slight magnitude of change to the existing character of this landscape.</p> <p>Viewpoint 3 is situated on the boundary of this LCA and CLS-13.</p>	Moderate/minor. The development would appear consistent in scale to other industrial developments in the vicinity and would be partially screened from this low lying LCA.
City Centre	SLR-CC	Medium	<p>Whilst the ZTVs predict theoretical visibility for both the EfW building and stack from the City Centre field reconnaissance suggests that there would be few publicly accessible viewpoints from where the development would actually be visible due to the screening effect of intervening buildings and the orientation of streets. Consequently, the magnitude of change in this LCA would be negligible. This also would apply in relation to the construction phase of the development.</p>	Based on the sensitivity of this LCA and the general lack of potential visibility the residual effect during both the construction and an operational life of the site would be minor (adverse).
Cathay's Park Civic Core	SLR-CPCC	High	<p>No publicly accessible locations would be afforded views of the development. Consequently, the EfW would result in no change to the character of the Cathay's Park Civic Core.</p>	None.
Cardiff Bay	SLR-CB	Medium	<p>The ZTVs indicate the proposed development would be visible from the majority of this LCA. However, views from the eastern side of the LCA would be screened by the intervening buildings of Butetown, Atlantic Wharf and Roath Basin. Views of the proposed development would also be restricted in locations on the western side of the Bay including West Moors and A4232/Bay Bridge from where the EfW building would be entirely screened, leaving the stack the only visible aspect of the development. However, both the stack and EfW building would be clearly visible from the Penarth Moors peninsula, the waterfront by Penarth Marina, and from the Cardiff Bay. In these locations the development would be seen on the skyline within the industrial setting of East Moor, but juxtaposed with the blocks of flats by Atlantic Wharf, the varied architecture of Roath Basin and the adjoining City centre. Based on the variability of the developments visibility in this LCA, the magnitude of change would range from negligible in</p>	The EfW building and stack would appear consistent in scale and form to other landmark buildings and vertical structures nearby and would be seen in the context of the adjacent industrial area at East Moor. Whilst the development would undoubtedly add to the complexity of the City skyline that encloses this LCA to the north and east, the residual effect would range from minor – moderate during the construction of the EfW and minor to moderate/minor (adverse) whilst the site is operational.

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
			<p>locations along the eastern side of the Bay to moderate (construction phase) and slight (operational phase) in locations adjoining the waterfront at Penarth and at the Cardiff Bay Barrage.</p> <p>Viewpoints 9 and 13 (Ref. Drawings 9 and 12, respectively) are located within this LCA.</p>	
Cardiff Docks: Atlantic Wharf/Bute East Dock	SLR-CD:AW/BED	Medium	<p>Whilst the ZTVs indicate potential views of the EfW building and stack from a number of publicly accessible locations within this LCA field reconnaissance suggests that the EfW building would be screened from the majority of theoretical viewpoints by intervening buildings and/or vegetation. However, the top of the proposed stack would be visible from the western side of Atlantic Wharf where it would occupy up to 3 vertical degrees of the view towards the application site. Given the restricted nature of views from this location and the predominance of industrial and urban forms in this LCA, the magnitude of change would be slight.</p> <p>This LCA also contains a number of mid and high rise residential developments, some of which would afford clear views of both the EfW building and stack. Given the proximity of these elevated receptors to the application site and the clarity of potential construction and operational views the magnitude of change experienced would be substantial.</p> <p>Viewpoints 2 and 4 are indicative of street level views from this LCA.</p>	<p>For the majority of this LCA the proposed stack would be appear consistent with other industrial features seen on the skyline of views from Atlantic Wharf and would affect a limited proportion of the view. Consequently, the residual effect would be moderate/minor and adverse. However, during the construction phase of the development the erection of the stack, and more particularly the operation of tower cranes at the site, would result in a short-term temporary <b>major/moderate</b> (adverse) effect.</p> <p>The EfW and stack would form prominent features in the view from some of the flats adjoining Atlantic Wharf, representing <b>major/moderate</b> residual effect on these properties.</p>
Cardiff Docks: Roath Basin	SLR-CD:RB	High	<p>According to the ZTVs the proposed would be visible from the majority of this LCA. However, field reconnaissance suggests that actual visibility would be reduced by intervening buildings including the Senedd, the Norwegian Church and Cardiff Bay visitors centre. Moreover, Roath Basin is enclosed along its eastern side by street trees. Where potential views of the development would occur (e.g. in more open locations adjoining the eastern edge of the basin) the top of the stack and EfW building would be seen through Roath Dock. The development would be seen on the skyline and would occupy up to 6 vertical degree of the view. At a distance of around 1km the proposed development would represent a slight magnitude of change in relation to the majority of this LCA, increasing to moderate in more open locations at its eastern end.</p> <p>Viewpoints 5 and 7 are indicative of views obtained from this LCA (Ref. Drawings 7 and 8).</p>	<p>Given the urban character of this landscape and the variable nature of the developments visibility from locations within it, the residual effect would be moderate (adverse), but increasing to <b>major/moderate</b> in a small number of more open locations at the eastern end of the LCA.</p>

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
Cardiff Docks: Queen Alexandra and Roath Docks	SLR-CD:QARD	Low	Whilst views from locations at the southern end of this LCA (including Alexandra Dock) would be screened by intervening industrial buildings views of the upper elevations of the EfW and the top of the proposed stack would be provided from locations adjoining Roath Dock. These aspects of the development would be seen on the skyline to the north of this LCA, but would be seen in the context of existing industrial buildings of the docks and East Moors and would therefore represent a moderate magnitude of change.	The construction and operational phases of the development would result in a partial and localised change to the landscape equating to a moderate/minor (adverse) residual effect.
Levels Industrial and Commercial	SLR-LIC	Low	This area is, by nature, subject to large scale industrial buildings and associated infrastructure. Moreover, with the exception of the section of this LCA that contains the application site, views of the development would be rare. Consequently, the potential magnitude of change to this LCA would be negligible.	The proposed development would be consistent with the existing land-use and scale of buildings in this LCA and would constitute a generalised residual effect equating to minor/none. However, the proposed EfW has been designed to be a high quality landmark building and so the development is considered to provide some minor beneficial effects.
Butetown	SLR-BT	Low	Butetown comprises a series of intimate scale streets enclosed by tall buildings. Given the restricted nature of views out from publicly accessible locations in this LCA the magnitude of potential change arising from the construction and operational phases of the development would be negligible.	The proposed development would result in minor/no residual effect.
Housing/Residential Area - Type A	SLR-HR:A	Low - High	Views of the proposed development from publicly accessible locations within these housing areas would be rare due to the generally flat terrain, intimate scale of the streets and screening effect of the terraced houses and/or other buildings. Where views do occur (e.g. on the fringes of Splott, Splott Recreation ground and a small number of streets within Adamstown) construction operations and the top of the completed stack and upper elevation of the proposed EfW building would be visible on the skyline, but would be seen in the context of numerous other vertical structures and buildings. Given the varied visibility of the development from these housing areas the magnitude of change would range from negligible for the majority of the LCA, but increasing to substantial in locations with the clearest views (e.g. Splott recreation ground).  Viewpoints 1 and 18 are located within this LCA. The photomontage in Drawing 4 shows the potential operational view of the development from Splott recreation ground.	The residual effect on the majority of terraced streets towards the centre of Cardiff would be minor/none, but with localised <b>major</b> (adverse) effects occurring during both the construction and operational phases in a small number of locations on the fringes of Splott and Adamstown and in the vicinity of Splott recreation ground.

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
Housing/Residential Area - Type B	SLR-HR:B	Medium - High	<p>The ZTVs indicate extensive theoretical visibility of both the stack and EfW building from these areas of housing. However, field reconnaissance suggests that visibility on the ground would be greatly reduced by intervening housing and vegetation with glimpsed views provided from a small number of elevated locations on south-facing slopes at Rhymney and Pen-y-Lan. From these locations the development would be seen distantly (in excess of 3km and would be seen in the context of the existing industrial buildings at East Moor. Given the restricted nature of the developments visibility, the distance of potential viewpoints from the application site and industrial context in which the development would be established the magnitude of potential change would be negligible, representing a very limited or imperceptible alteration to the character of this housing area.</p> <p>Viewpoint 17 is located on the boundary of this LCA and SLR-HR:C.</p>	The construction and operational phases of the development would result in a generally minor residual effect on the character of housing areas in this LCA.
Housing/Residential Area - Type C	SLR-HR:C	Medium - High	<p>The development would be screened from the majority of the publicly accessible areas within this LCA by a combination of intervening buildings and/or vegetation. Moreover, these housing areas are situated in excess of 3km of the application site and form part of the suburbs of Cardiff. Given the limited number of potential viewpoints within this LCA and their distance from the application site the magnitude of change arising from both the construction and operational phases of the development would be negligible, representing a very limited or imperceptible alteration to the character of this housing area.</p> <p>Viewpoint 16 is situated on the boundary of this LCA and the Nant Glanulais Lowlands (CLS10). Viewpoint 17 is situated on this boundary of this LCA and SLR-HR:B.</p>	The development would result in minor residual effects on the character of housing areas in this LCA.
River Corridor – Afon Taf	SLR-RC:AT	High	<p>The ZTVs predict potential visibility for the stack from a small number of locations adjoining Pontcanna (around 2-4km north-west of the application site). However, such views would be screened by intervening vegetation. Consequently, the propose development would result in no change to this LCA.</p>	None.
River Corridor – Afon Elai	SLR-RC:AE	High	<p>The ZTVs predict views of the stack and EfW building throughout this LCA. However, views from the interior of Leckwith Industrial estate and Saltmead would be screened by intervening buildings and/or vegetation. Elsewhere the development would be visible from an area of open land south of</p>	The development would result in moderate/minor (adverse) residual effects on this LCA.

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
			Penarth Moors from where the top of the proposed stack would be visible amidst the complex urban skyline of Cardiff. The limited visibility of the development coupled with its distance from the affected viewpoints and setting within the urban skyline means that the magnitude of change would be negligible. This would also apply to the construction phase of the development.	
River Corridor- Afon Rhymney	SLR-RC:AR	High	Views of construction operations and the operational stack and EfW building are predicted from locations between the A4161 west of Rhymney and the M4 corridor north of Llanedeyrn. However, views from Llanedeyrn would be screened by the A48M embankment and intervening vegetation, and the EfW building would be screened from the remainder of the valley by intervening vegetation and industrial buildings north of Pengam. Where visible, the stack would appear as a minor additional vertical element on the skyline of views resulting in a negligible magnitude of change.	The proposed development would result in moderate/minor (adverse) residual effects during construction and operational phases of the development equating to a barely distinguishable change to the character of this LCA.
Radyr & Morganstown Lowlands	CLS 5	Medium	The ZTVs predict potential views of both the proposed stack and EfW building from locations between Radyr and Pentrebanne, over 7km from the application site. The development would be seen distantly and in the context of the wider City and industrial area at East Moors. Given this LCAs distance from the application site, the limited proportion of the view that would be affected by the development (up to 0.25 vertical degrees in the case of the EfW building and 0.5 vertical degrees in the case of the stack) and the urban and industrial context of the application site, the magnitude of change would be negligible.	The proposed development would result in minor (adverse) residual effects. This would apply during both the construction and operational phases of the development.
St Fagan's Lowlands and Ely Valley	CLS6	High, reducing to medium adjoining developed or settled areas, and low within densely wooded areas.	The ZTVs indicate potential visibility of both the stack and EfW building from elevated locations east of St.Fagan's village, and from the easternmost fringe of the settlement. However, such viewpoints are in excess of 6km from the proposed development and the development would be seen in the context of the Cardiff suburbs, the high rise developments west of the City centre and the existing industrial complexity of east Moors industrial estate. Consequently the magnitude of change arising from the development would be negligible during both the construction and subsequent operational stage of the development.	Given potential views would affect areas ascribed medium sensitivity, and the magnitude of change would be negligible, the residual effect on this LCA would be minor.
Forest Fawr & Caerphilly Ridge	CLS 8	High	Whilst construction activities and the commissioned stack and EfW building would inevitably be visible from elevated south facing slopes in this LCA, but would be viewed distantly (at a distance of over 10km) and therefore occupy a small proportion of the available view. The development would also be seen in the wider context of the City. Consequently, the magnitude of change would be negligible.	The proposed development would result in moderate/minor (adverse) residual effects on this LCA. This would apply during both the construction and operational phases of the development.

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
Caerphilly Ridge Foothills	CLS 9	Medium	Site construction activities and the operational EfW building and stack would be visible from the majority of this LCA. However, the development would be viewed distantly (at a distance of over 9km) and therefore occupy a small proportion of the available view. The development would also be seen in the wider context of the City. Consequently, the magnitude of change would be negligible.	The proposed development would result in a minor (adverse) residual effect on this LCA. This would apply during both the construction and operational phases of the development.
Nant Glanulais Lowlands	CLS 10	Medium	Potential visibility would be restricted to the more elevated parts of this LCA adjoining the Caerphilly Ridge Foothills, over 9km to the north of the application site from where the development would be seen distantly and amidst the industrial centre of Cardiff. Consequently, the magnitude of change would be negligible.	The proposed development would result in a minor (adverse) residual effect. This would apply during both the construction and operational phases of the development.
Northern St. Mellons Lowlands	CLS 12	Medium	Potential views of the stack and EfW building are predicted from a small number of locations north of the suburbs of St. Mellons. However field reconnaissance suggests that such views would be screened by intervening buildings and vegetation. Consequently, the development would result in no change to the character of this LCA.	None.
Wenloog Levels	CLS 13	Medium	Views of construction works and the operational stack and EfW building are predicted from a wide area within this LCA the development appearing on the skyline amidst assemblages of industrial buildings and the domed topography of Lamby Landfill. Given the limited proportion of the view it would occupy (up to 0.5 vertical degrees in relation to the EfW building and 1 vertical degree in relation to the stack) and the largely industrial context in which the development would be viewed, the magnitude of change would be slight.  Viewpoint 3 (Ref. Drawing 6) is indicative of views available from this LCA.	The proposed development would increase the proportion of the view containing industrial development resulting in a moderate/minor (adverse) residual effect on the character of this landscape. This would apply during both the construction and operational phases of the development.
Area Surrounding Cefn Mably	CYNONVS740	Medium	This LCA may be considered an extension of CLS 8 (Forest Fawr & Caerphilly Ridge) and would, as a consequence of its elevated topography, provide distant views of the stack and EfW building from a small area north-west of Cefn Mably Woods. As in CLS 8, the magnitude of change would be negligible.	The proposed development would result in a minor (adverse) residual effect. This would apply during both the construction and operational phases of the development.
Penarth	VLFGVLS152	Medium	Views of construction operations and the EfW building and stack would be provided from locations along the northern end of this settlement, between	Whilst the proposed development would be consistent in scale with other existing industrial structures its mass would appear

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
			<p>Llandough and Penarth Head (3.5 and 3km, respectively) from where the stack would occupy up to 3 vertical degrees in views and the EfW building would occupy up to 1 vertical degree. The development would be seen below the skyline formed by the distant hills and Caerphilly Ridge and would be seen in the context of the existing docks and industrial areas of Leckwith and East Moors. Given the distance of the affected locations from the application site and the dominance of urban and industrial forms both within this LCA and in views towards the application site the magnitude of change associated with both construction and operational phases of the development would range from slight at Llandough and moderate at Penarth Head.</p> <p>Viewpoint 12 and 14 are indicative of views available from this LCA.</p>	<p>less due to its curved form. Additionally, its colouring would be more muted than other existing industrial buildings in the area. Whilst the development would result in a moderate/minor to moderate residual effect during construction and operational phases the design of the EfW building would establish a high quality landmark industrial building that would offer some beneficial effects in views from this LCA.</p>
<p>Southern Ely Valley</p>	<p>VLFGVLS213</p>	<p>High, reducing to medium along the eastern side of the LCA where the influence of Cardiff City is greatest.</p>	<p>The ZTVs predict potential views of both the EFW building and stack occurring in locations throughout the eastern half of this LCA between Cwm Cydfin, west of Grangetown and Leckwith Woods (4 and 3.5km from the application site, respectively). However, visibility at the southern end of this LCA would be substantially restricted by intervening woodland. Where views of the development do occur the EFW would occupy up to 1 vertical degree. The proposed development would be seen in the context of existing industrial buildings/structures at Leckwith and East Moors, and the broader urban setting of Cardiff. Given the distance of the LCA from the application site, the limited proportion of view that would be affected by the development and its urban context, the magnitude of change would be slight.</p> <p>Viewpoint 11 is situated on the western edge of this LCA.</p>	<p>The proposed development would result in a moderate residual effect on this LCA during both the construction and operational phases of the development.</p>
<p>Penarth to Swanbridge Cliffs</p>	<p>VLFGVLS308</p>	<p>Medium</p>	<p>The ZTVs show extensive potential visibility from shoreline and cliff-top locations between Lavernock Point and Penarth Head from where the EFW would generally occupy up to 0.5 vertical degrees of the view and the stack would occupy up to 1 vertical degree. The development would be seen distantly across an expanse of open water and in the context of existing industrial features and the broader City. The magnitude of potential change would range between moderate and slight according to the distance of viewpoints within this LCA from the application site. This would also apply to the construction phase of the development.</p> <p>Viewpoint 15 is located on the boundary of this LCA and VLFGVLS787.</p>	<p>The construction and operational phases of the development would result in a residual effect ranging from moderate at Penarth Head, to moderate/minor at Lavernock. These findings would apply during both the construction and operational phases of the development.</p>

Landscape Areas	Ref.	Sensitivity	Magnitude of Change	Residual Effect
Penarth and Dinas Powys Urban Fringe	VLFGVLS473	Medium	According to the ZTVs the proposed stack would be visible from locations south-east of the settlement of Dinas Powys and would occupy up to 0.25 vertical degrees of affected views. However, field reconnaissance suggests that actual visibility would be reduced by the incidence of intervening vegetation. Moreover, where the stack is visible it would be seen at a distance of over 4.5km from the application site and would be seen in the context of the industrial quarter and broader urban City centre. Consequently, the development would cause a negligible magnitude of change to the character of this LCA.	The proposed development would have no effect on a large proportion of this LCA, and a minor residual effect in the small number of potential viewpoints south-east of Lower Penarth. These findings would apply during both the construction and operational phases of the development.
Cwrt yr Ala Valley	VLFGVLS596	High, reducing to medium along the eastern side of the LCA where the influence of Cardiff City is greatest.	The ZTVs indicate potential views of both the EFW building and stack from locations within the forest at Dinas Powys and land adjoining Leckwith Road (in excess of 4.5km from the proposed development). However, the forest at Dinas Powys is densely wooded and would therefore offer few potential views of the development. Given its relatively limited visibility, distance and context, the proposed development would constitute a slight magnitude of change to the character of this LCA.	Moderate to moderate/minor (adverse). These findings would apply during both the construction and operational phases of the development.
Sully Ridge	VLFGVLS637	Medium	The operation of tower cranes at the site and the top of the operational stack would be visible from this LCA, but would be seen at a distance of over 8km. Moreover, these elements would be seen in the context of other tall structures in Cardiff. No other aspect of the development would be visible from this landscape. Given the limited visibility of the development from this LCA and its distance from the application site (over 8km) the magnitude of potential change would be negligible. This represents a very limited alteration to the baseline character of this LCA.	The construction and operational phases of the development would result in minor (adverse) residual effect on this LCA. This would apply during both the construction and operational phases of the development.
Lavernock Hinterland	VLFGVLS787	Medium	Construction operations and the proposed EFW building and stack would be visible from a small number of locations along the eastern side of this LCA, between Lavernock and Lower Penarth (in excess of 7km from the application site). From here the EFW building would occupy a maximum of 0.5 vertical degrees of the view and the stack would occupy up to 1 vertical degree of the view and would be seen in the context of existing industrial quarter, and adjoining City centre and residential suburbs. Consequently, the development would cause a slight magnitude of change at the eastern end of this LCA.	The proposed development would result in minor or no residual effect on the majority of this LCA. However, a small number of locations along the eastern edge of this LCA would experience a moderate/minor (adverse) residual effect.

Viewpoint 15 is located on the boundary of this LCA and VLFGVLS7308.

**Table 5.4**  
**Landscape Policy Review**

<b>Policy</b>	<b>Content</b>	<b>Comment</b>
Planning Policy Wales	Conservation measures and development of the coastal environment	The proposed development would be consistent with this policy as it is set back from the coast and would be located within the heavily industrialized landscape of East Moors and adjoining Alexandra and Roath Docks.
Planning Policy Wales TAN 21 (Technical Advice Note)	Careful design of large scale buildings and tall structures.	The development has been designed to present a high quality building that would appear consistent with other key landmark buildings in Cardiff Bay. Particular care was taken to minimizing the massing effect of the building by adopting an arching form for the shell of the building. The colour scheme for the exterior cladding was selected to reduce the prominence of the building in views and to ensure the structure doesn't detract from other City centre and waterfront buildings. The stack construction has been developed to create a less industrial appearance to this aspect of the development.
Policy C1 South Glamorgan (Cardiff Area) Replacement Structure Plan 1991-2011	Protection of urban fringe environments and other areas key to the Cardiff, including designated areas and recreational resources.	As indicated in the findings of the LVIA, the development would result in no significant effect on the designated landscapes or of the vast majority of recreational routes present such as national cycleways or regional footpaths. However, localised significant effects are predicted at the Cardiff Bay Barrage during construction operations.
Policy 55 Cardiff City Local Plan	Determination of proposals for waste disposal facilities based on considerations of scale, location and visual amenity.	The development would be located in an established area of industrial land-uses where large scale buildings and emission stacks are already present. Care has been taken to reduce the apparent mass and height of the building and its prominence in views. According to the findings of the LVIA significant visual effects would be restricted to nearby locations and mostly related to the short-lived construction phase of the development.
Strategic Policy SPG Locating Waste management facilities.	Suggests use of screening and amenity bunds and soft landscaping.	The proposals provide for the creation of a high quality landscape setting for the proposed EfW. This would include screen planting and carefully designed mounding.
Strategic Policy SP11 Cardiff Deposit Local Development Plan 2006-2021	Identifies Trident Park as a preferred site for waste management development	The proposed EfW would be consistent with this policy.
Policy SD1	Requires bespoke design	The proposed EfW complies with this policy, having been designed specifically to reflect the character,

<b>Policy</b>	<b>Content</b>	<b>Comment</b>
Cardiff Deposit Local Development Plan 2006-2021		scale and form of the local landscape and existing architectural features adjoining Cardiff Bay. Please refer to the Design and Access Statement.
Policy SD4 Cardiff Deposit Local Development Plan 2006-2021	Relationship to other existing tall buildings and creation of a positive feature in the city skyline.	The proposed EfW has been designed to reflect other high quality architectural features in the area and to improve the current industrial skyline in and around Trident Park.
Policy HER3 Cardiff Deposit Local Development Plan 2006-2021	Landscape Protection – focused on preserving the character and setting of the city and the adjoining SLAs.	The proposed EfW would have no direct impact upon the SLAs or city landscape. The EfW has been designed specifically to reduce its impact on adjoining areas in the city and on the surrounding countryside and coastal environments. This is borne out in the findings of the LVIA.
Policy WASTE1 Cardiff Deposit Local Development Plan 2006-2021	Proposals for Waste Management facilities to be directed to established B2 land.	The proposed EfW would be consistent with this policy.
Tall Buildings SPG April 2009	Requirements regarding context and design of tall buildings.	The development has been designed to minimise its height, mass and volume, and to appear consistent with other high quality buildings adjoining Cardiff Bay.

## **6.0 SUMMARY AND CONCLUSIONS**

### **6.1 Methodology**

The preceding LVIA (Landscape and Visual Impact Assessment) has been prepared using methodology consistent with current national and regional guidelines and considers the potential effects of the proposed development upon the character and visual amenity of a 10km radius study area centred on the application site.

### **6.2 Mitigation and Design**

The principal sources of potential impacts associated with the development include the operation of tower cranes and the erection of the EfW building and stack, and the operational. Other ground level aspects of the development would be screened from all but the most elevated locations by intervening buildings and/or vegetation.

In order to mitigate these potential impacts the development was designed to present a high quality building that would appear consistent in form and scale with other key landmark buildings in and around Cardiff Bay. Particular care was taken to minimise the massing effect of the building by adopting an arching form for the shell of the building. The colour scheme for the exterior cladding was selected to reduce the prominence of the building in views and to ensure the structure doesn't detract from other City centre and waterfront buildings or unbalance the setting of the City.

The design of the proposed development was informed by a number of key factors including

- National, regional and local planning policy and guidance;
- The existing landscape and visual context of the study area;
- Environmental and operational constraints; and
- The potential effect of the development upon the landscape and visual context of the study area.

### **6.3 Baseline Conditions**

The study area contains a highly developed environment comprising a number of distinct areas ranging from the historic dockland and waterfront environments and adjoining city centre areas and civic core to the area of concentrated industrial development at East Moors and extensive residential suburbs stretching outwards towards the Penarth-Leckwith and Caerphilly Ridges that form important backdrops and contexts to the City. Each of the areas has distinctive architectural styles and rooflines. In the vicinity of the waterfront landmark buildings such as the Millennium Centre, Welsh Assembly, Pierhead Building and St. David's Hotel are juxtaposed in views with the existing large scale industrial complexes at Queen Alexandra and Roath Docks and East Moors.

The application site is situated in an extensive industrialised area typified by large scale buildings and vertical structures. Given this context and the restrictions on intervisibility reported in Section 4.11, the landscape is considered capable of accommodating a carefully designed industrial facility that: reflects the scale and form of other City buildings nearby; which would not detract from the recently regenerated waterfront environments and which would not compromise the character of adjoining landscapes/cityscapes.

The study area also contains a number of locations designated as Special Landscape Areas which are identified as of county importance and are afforded protection under the terms of local planning policy. The key characteristics and sensitivity of these areas to the type of development proposed was recorded and potential construction and operational effects investigated.

### **6.4 Summary of Significant Residual Effect**

#### **6.4.1 Summary of Effects on Landscape Character and Visual Amenity**

##### *Transportation Routes:*

None of the railways or main roads assessed would experience significant visual effects as a result of the proposed development.

##### *Recreational:*

The majority of the strategic recreational routes in the study area would be shielded from potential views by intervening topography, buildings and/or vegetation, or are sufficiently distant from the application site to mitigate potential residual effects. The landscape and visual context of the proposed EfW also provides some mitigation of potential effects. However, significant adverse effects would occur on a short section of NCR8 by the Cardiff Bay Barrage. However, these effects would be confined to the initial construction phase of the development.

##### *Residential:*

Due to the enclosed nature of residential area and the essentially low-lying and generally flat

or gently undulating topography on which they are situated, potential views of the development from residential areas would be limited. Moreover, where views do occur the development would be seen in the context of existing industrial structures. Notwithstanding this, a number of residential receptors would experience significant adverse effects on their amenity and character, principally in locations adjoining public open spaces such as Splott recreation ground and in the recently constructed high rise flats adjoining Atlantic Wharf and Cardiff Bay.

*Designated Landscapes:*

The LVIA identified no significant effects on the SLAs within the study area due to a combination of distance, the extent of each SLA that would be subject to views of the development and the context in which the development would be situated.

*Summary of Effects on Landscape Character:*

Of the 30 LCAs assessed only 3 would experience significant adverse effects as a result of the proposed development. These include:

- SLR-CD: AW/BED (Atlantic Wharf/Bute East Docks);
- SLR-CD: RB (Roath Basin); and
- SLR-HR: A (Housing/Residential A).

Significant effects predicted in SLR-CD: AW/BED would generally be confined to a small number of locations along the western side of Atlantic Wharf and in high rise flats along the southern side of this LCA. In general significant effects in this LCA would only occur during the construction phase of the development when site cranes and elevated construction operations would occupy a prominent skyline position in views. However, north and east facing high rise flats would experience continued significant effects during the operational phase of the development.

Significant effects within SLR-HR: A would occur at a small number of locations adjoining Splott recreational ground and a few streets in Adamsdown, and would concern both construction and operational phases of the development. Similarly, potential significant effects would also be confined to a small number of locations along the eastern side of Roath Basin. In all cases, significant effects would result in a considerable alteration to baseline condition of each landscape.

*Summary of Effects on Landscape Fabric*

No significant effects on the landscape fabric of the application site are anticipated due to its existing degraded and disturbed condition.

## **6.5 Conclusions**

Based on the findings of the preceding LVIA and in particular the limited number of significant residual effects predicted in relation to the development, and its compliance with current national, regional and local landscape policy, the proposed EfW is considered to be appropriate in the current landscape and visual baseline condition in and around the application site.