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Tees CCPP Project

The Tees Combined Cycle Power Plant Project
Land at the Wilton International Site, Teesside

Volume 1 - Chapter 11

Regulations – 6(1)(b) and 8(1)

Applicant: Sembcorp Utilities UK
Date: November 2017

CONTENTS

11 LANDSCAPE AND VISUAL

11.1 INTRODUCTION

11.1.1 Terms of Reference for this Chapter

11.1 This chapter presents an assessment of the likely significant effects on landscape and visual amenity from construction, operation and decommissioning of the Project. This chiefly includes:

- an assessment of landscape effects, including how the Project will affect the elements that make up the landscape, including the aesthetic and perceptual aspects of the landscape and its distinctive character; and
- an assessment of visual effects, including effects due to change or loss of landscape elements and/or introduction of new elements and considering effects upon views experienced by potential viewers/viewing groups and on general visual amenity.

11.1.2 Basis of Assessment including the Worst Case Scenario

11.2 The construction of the Project will cause a number of temporary effects on landscape and visual receptors arising from the removal and modification of existing hard standing areas, the presence of site compounds and the presence of construction plant, including piling machinery and tall cranes. Once constructed, the Project will have permanent effects on the landscape and visual receptors due to its scale, massing and size. These effects and the mitigation measures to reduce the impacts are discussed in *Section 11.4* and *Section 11.5*.

11.3 The final technology and vendor for the Project have yet to be decided. To allow an assessment to be made of the likely significant effects a reasonable worst case model of the Project has been developed via consultation with Sembcorp's design team and based on professional judgement and experience gained on similar schemes. During the scoping stages of the Project two stack heights, 75 m and 90 m, were considered. Although a stack height sensitivity assessment for air quality purposes (refer to *Chapter 7*) identified 75 m as an acceptable height this assessment adopts a stack height of 90 m for the two stacks as a worst case scenario.

11.4 On the basis of revisions in design and considering a worst case scenario the assumed maximum heights of the tallest structures considered for the assessment are 90 m for the stacks (1), 44 m for the heat recovery steam generators (to the top of the vents), 23 m for turbine halls and 25 m for the cooling towers.

(1) Please note the Project has adopted a 75 m stack height based on detailed analysis of the effects of emissions to atmosphere. However, this assessment assumes 90 m as a worst case scenario for visual impacts.

Two identical CCGT trains (of up to 850 MWe) are proposed aligned side by side. The layout can be seen in Figure 5.2, Chapter 5 Project Description and Alternatives. There are two possible development scenarios as explained in Chapter 5. Scenario 1 (i.e. construction of two trains of up to 850 MWe trains each in a single phase of construction and operation of the full 1,700 MWe capacity) represents the worst case for both construction and operation of the Project. In the event of a phased development, Scenario One is considered to be worst case on the basis of the larger scale of construction activity (greater footprint and plant assemblage) and the ultimate scale of the finished development in comparison to Scenario Two. Under Scenario Two the overall duration of construction would be longer (i.e. spread over two phases); however, each phase would be less intense that for Scenario One.

11.1.3 Consultation

11.5 Sembcorp has carried out various informal consultation activities to inform the development of the EIA. The viewpoint locations were agreed with Redcar and Cleveland Borough Council (RCBC) and were included in the Preliminary Environmental Information and the Scoping Report. Extra viewpoints suggested by members of the public as well as RCBC have also been incorporated.

11.6 The Scoping Report was submitted to the Planning Inspectorate and its scoping opinion is provided in *Annex B*. Consultation responses of direct relevance to this assessment are provided in *Table 11.1* together with how and where they have been addressed in this chapter.

Table 11.1 Consultation Responses

Source	Consultee Comment	Response
Natural England scoping response	Natural England would wish to see details of local landscape character areas (LCAs) mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The EIA should include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography. The European Landscape Convention places a duty on Local Planning Authorities to consider the impacts of landscape when exercising their functions.	Noted. Impacts on local LCA have been considered in the assessment. Visual impacts have also been included in the assessment.
Natural England scoping response	The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies (https://www.gov.uk/guidance/landscape-and-seascape-character-assessments). We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.	This has been taken into consideration
Natural England scoping response	Natural England supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.	The assessment methodology is consistent with the guidance provided in GLVIA3.
Natural England scoping response	In order to foster high quality development that respects, maintains, or enhances, local landscape character and distinctiveness, Natural England encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The Environmental Impact Assessment process should detail the measures to be taken to ensure the building design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.	The building design will be high standard and prior to finalising the assessed scheme various layout options were considered. These are covered in the alternatives section of the Planning Statement (DCO Doc Ref 5.5).
Natural England scoping response	The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.	Cumulative impact has been covered in *Section 11.4.5*
Natural England scoping response	The assessment should refer to the relevant National Character Areas which can be found on our website (https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making). Links for Landscape Character Assessment at a local	Noted

Source	Consultee Comment	Response
	level are also available on the same page.	
Redcar and Cleveland Borough Council scoping response	From 27th March 2013, local planning policies in existing plans (ie those adopted before the NPPF) should be given due weight according to their consistency with the NPPF (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given) (para 215). *[Extracted the scoping response from the Policies referenced by RCBC are as follows:* • *Local Development Framework, Core Strategy: CS20 Promoting Good Design and CS22 Protecting and Enhancing the Borough's Landscapes;* • *Local Development Framework Development Policies DPD: DP2 Location of Development, DP3 Sustainable Design; and* • *Emerging Development Plan, Publication Local Plan (2016): N1 Landscape, HE1 Conservation Areas.]*	Noted
Secretary of State's scoping response	The Applicant proposes not to include an assessment of the potential landscape and visual impacts resulting from construction of the Proposed Development in the ES (*Table 8.1* of the Scoping Report). On the basis on the information provided in the Scoping Report, the SoS does not agree to scope this matter out of consideration in the ES. Construction of the Proposed Development is estimated to last some 39 months and is likely to involve tall structures including cranes and night time lighting. The SoS recognises the need for a proportionate assessment of construction phase effects but considers that potential visual impacts during the construction phase should be assessed in the ES.	Impacts during construction stage have been included in the assessment.
Secretary of State's scoping response	The proposed development includes large structures, such as the stacks. The SoS advises that careful consideration should be given to the form, siting, and use of materials and colours in terms of minimising the visual impacts of these structures. Night time views (with particular regard to lighting requirements) should also be considered.	Layout design (for siting) was part of the design process and considered such factors as the optimal location of noisy equipment with respect to the location of sensitive receptors. Further details on project layouts can be found in *Chapter 5* Project Description. Night time lighting has been considered in the assessment.
Secretary of State's scoping response	Section 1.3.2 of the Scoping Report states that the Proposed Development would include two stacks up to 90m in height, and *Table 8.1* explains that a 90m stack height has been considered as a worst case scenario (with a stack height of 75m also considered). The SoS agrees that this is an appropriate approach. The worst case scenario should be reflected in the photomontages and wirelines provided with the ES.	Noted
Secretary of State's scoping response	A 5km study area around the Proposed Development site is proposed, but it is noted from Figure 6.14 that a 90m stack could be visible from a much greater area than 5km. The Applicant is advised to consider the application of a wider study area (accounting for the more prominent structures and plume) in the landscape and visual	The ZTV is theoretical and does not take into account intervening vegetation and buildings. The 5km study

Source	Consultee Comment	Response
	assessment, particularly considering that potential sensitive receptors are present in the wider landscape, such as the North York Moors National Park.	area is arrived at based on visibility from nearby areas and aided with the help of photomontages. As can be seen from the photomontages 5km study area is sufficient.
Secretary of State's scoping response	The landscape and visual assessment should cross reference to the other ES assessments as relevant. For example, landscape mitigation could have impacts on ecological receptors.	Noted
Secretary of State's scoping response	*The Secretary of State also draws attention to Natural England's scoping response.*	Noted
National Grid PEIR Consultation response	If a landscaping scheme is proposed as part of the proposal, we request that only slow and low growing species of trees and shrubs are planted beneath and adjacent to the existing overhead line to reduce the risk of growth to a height which compromises statutory safety clearances.	Any planting will be in accordance with NG and the standards of other operators' easements and requirements. No planting will be undertaken under or adjacent to overhead lines.
Lazenby Environment Group (LEG) on behalf of the Residents of Lazenby Village	After the first consultation with regard to the building of the new Power Station on the site of the previously demolished Teesside Power Station site. Industries neighbour - Residents of the Village and members of the group questioned Why! Was this being built in the same place that had caused major upset to the Village back when the previous site had been proposed? Could the plant be built on another piece of Sembcorp land behind ENSUS? Or further away from the Village.	The Project site has been selected as most appropriate within the Wilton International site; a rationale for the selection is provided in *Chapter 5* Project Description. The selection criteria are chiefly focused on the availability of sufficient space and utilities but also to some degree the fact that the Project site has already housed a similarly sized power plant historically and has all the necessary connections in place.
Lazenby Environment Group (LEG) on behalf of the Residents of Lazenby Village	Could the stacks be covered in green cladding and not silver? To blend in more with the trees and mounds previously planted to minimise noise	Typically industrial building cladding (including the finish of tall structures) is a mute grey colour as it is regarded as the least visually intrusive. Silver reflective finishes will be avoided. The sky is

Source	Consultee Comment	Response
		predominantly a light grey to blueish white and hence grey cladding is regarded as the least visible. In areas of generally flat topography (such as the Project site) with limited solid background (for instance steep hills), sky is the main backdrop against which tall structures are viewed reinforcing the above point. The most sensitive viewpoints are in the south looking north. These have the existing industrial areas in the background so grey cladding is more suitable.
Lazenby Environment Group (LEG) on behalf of the Residents of Lazenby Village	The height of the stacks and the visual impact on the skyline view from the Village as there is already a tall stack from ENSUS.	The design process has sought to reduce the height of the stacks to the lowest possible level to meet air quality standards. This design work includes a stack height assessment (see *Annex E*). This assessment concluded that the 75 m stack height represents the most acceptable balance between reducing the impact on air quality and visual impacts. There will be areas from where the stacks will be visible in the village. Where visible however, it will be set against existing industrial infrastructure. During the detailed design and Environmental Permitting

Source	Consultee Comment	Response
		processes there may be scope to reduce the stack heights below 75 m only if this is approved by the Environment Agency.
Environment Agency PEIR response	It might be useful for the applicant to provide a comparison between the old GDF Suez stack height and the proposed stack height, to help local residents to assess the visual impact.	The eight stacks on the now demolished GDF Suez facility were each 45 m high and in addition there was a bulky cooling tower of similar height making this a poor comparator for the Project. Although these (now demolished) stacks are not depicted on any of the photomontages, many of the photomontages do include the stack for the existing Ensus plant, which is 80 m in height which provides a comparison for local residents.

11.1.4 Policy and Legislation

General Considerations

11.7 Various international, national and local plan policies of relevance to landscape and visual issues are summarised below.

European Policy

11.8 The European Landscape Convention (ELC) was signed by the UK Government and came into force in the UK in March 2007. The ELC aims to improve approaches to the planning, management and protection of landscapes throughout Europe and to put people at the heart of this process (the Landscape Institute and Institute of Environmental Management and Assessment (IEMA), 2013). The ELC defines landscape as "*An area as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.*"

11.9 The Guidelines for Landscape and Visual Impact Assessment (GLVIA 3) embrace this broad definition and is concerned with landscapes that are recognised as being special or valuable as well as the ordinary or everyday-those where people live, work and spend their leisure time (Landscape Institute and IEMA, 2013). This assessment conforms to the ELC and has been undertaken in accordance with GLVIA 3.

National Planning Context

11.10 For DCO applications the Overarching National Policy Statement for Energy (EN-1) 2011 requires the scope of the assessment to include a landscape and visual impact assessment for both the construction and operational stages of the proposed development, with reference to landscape character, visual amenity, lighting and local development plans. EN-1 encourages mitigating adverse landscape and visual effects by reducing the scale of a project, appropriate siting of infrastructure within the development, design including colours and materials, landscaping schemes, and where possible off-site landscaping. Furthermore, Section 4.5.3 of EN-1 notes that there may be opportunities for an applicant to demonstrate good design in terms of siting in relation to landscape character, landform and vegetation.

11.11 In addition the National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2) provides the primary basis for decisions on applications for fossil fuels electricity generating stations, including gas-fired power stations (such as the Project). The document provides additional policy guidance in addition to EN-1 against which to assess such proposals. Section 2.6 discusses landscape and visual impacts of associated with fossil fuel generating station. It notes that "It *is not possible to eliminate the visual impacts associated with a fossil fuel generating station. Mitigation is therefore to reduce the visual intrusion of the buildings in the landscape and minimise impact on visual amenity as far as reasonably practicable*." (Paragraph 2.6.5). The policy document discusses how visual impacts can be minimised through architectural design

such as colour and finishes of materials used and plant placement. Paragraph 2.6.10 states that if the "*location is appropriate for the project, and that it has been designed sensitively (given the various siting, operational and other relevant constraints) to minimise harm to landscape and visual amenity*".

The National Planning Policy Framework

11.12 The National Planning Policy Framework (NPPF) 2012 sets out the government's planning policies for England and how these are expected to be applied with as part of the overall aim of achieving sustainable development. Paragraph 49 of the document requires good design in relation to neighbouring buildings and the local area. Paragraph 109 describes the policy in relation to protecting and enhancing valued landscapes. Issues regarding lighting are outlined in paragraph 125.

Planning Practice Guidance (PPG)

11.13 The National Planning Practice Guidance (NPPG), which accompanies the NPPF, providing guidance on its interpretation. The NPPG includes guidance within the Natural Environment guidance note on how planning should recognise the intrinsic character and beauty of the countryside.

Local Planning Context

11.14 The RCBC Local Development Framework (LDF) (adopted July 2007) had a number of policies and guidance with regards to the built and historic environment. Key ones included:

- CS25 and DP9 – policy concerned with the protection and enhancement of the built and heritage environment;
- DP2 – suitability of site or location; and
- DP3 – guidance regarding high standard design.

11.15 The LDF was replaced by the RCBC Local Plan 2016-2019 which has a number of Supplementary Planning Documents (SPDs) to provide guidance on the implementation of policies in the LDF. Amongst others, the SPD relevant to this assessment is the Landscape Character SPD (March 2010).

11.16 The Landscape Character SPD explains the role of landscape character areas and sets out guidance to be used in designing development and new landscape features in each area, building on the '*Redcar and Cleveland Landscape Character Assessment, 2006*'.

11.17 Draft Publication Local Plan (November 2016) policies are as follows.

- Policy SD 4 General Development Principles: in assessing the suitability of a site or location, development will be permitted where it fulfils general development principles identified within SD4.

- Policy N 1 Landscape: aims to protect and enhance the borough's landscapes. This policy states that development proposals will be considered within the context of the Landscape Character Assessment, the Landscape Character Supplementary Planning Document and the Historic Landscape Characterisation.

11.2 ASSESSMENT METHODOLOGY

11.2.1 Approach Overview

11.18 The assessment has been undertaken with reference to the GLVIA3, produced jointly by the Landscape Institute and IEMA (1). This assessment methodology is applicable to the construction, operation and decommissioning phases of the Project and is illustrated in *Figure 11.1* overleaf. The assessment criteria also describe how receptor sensitivity, magnitude of change and the overall significance of effects are determined.

11.19 Landscape, as defined by the ELC (2), refers to an area as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors. Visual amenity refers to the overall pleasantness of the views that people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.

11.20 Effects on visual amenity are therefore distinct from effects on landscape character and resources. Reflecting this distinction this landscape and visual impact assessment comprises two components:

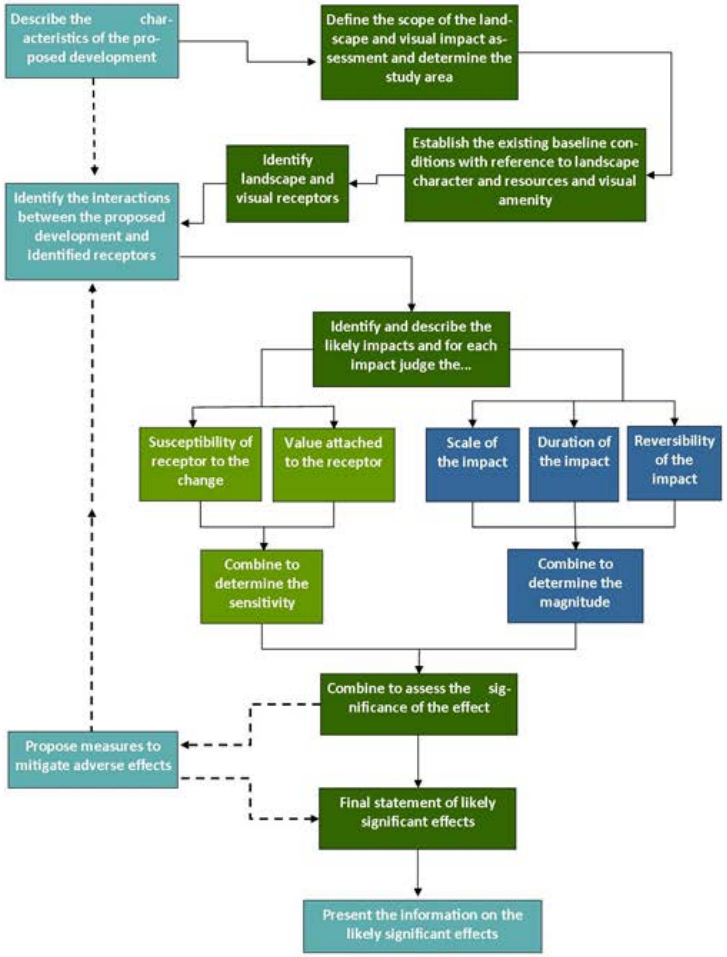
- an *assessment of landscape effects*, assessing the effects on the landscape as a resource in its own right; and
- an *assessment of visual effects*, assessing the effects on specific views and on the general visual amenity experienced by people.

11.21 The EIA Regulations stipulate that the significance of each potential impact is identified. Significance of effects has been categorised in six levels: *not significant*, *minor*, *minor to moderate*, *moderate*, *moderate to major* and *major*. Major and moderate impacts are judged to be significant in accordance with the EIA Regulations, whereas minor and negligible impacts are considered to be not significant.

(1) Landscape Institute and Institute of Environmental Management & Assessment (2013) Guidelines for Landscape and Visual Impact Assessment (Third Edition).
(2) Council of Europe (2000) European Treaty Series 176- European Landscape Convention.

Figure 11.1 LVIA Methodology

LVIA Methodology



Receptor sensitivity

Judgement based on the extent to which the receptor can accept change of a particular type and scale without adverse effects on its character, and the value attached to it. Viewpoint sensitivity depends on a number of factors including: context of the viewpoint, viewer occupation, viewing opportunities, number of people affected, and extent to which the viewers are affected by changes in their view together with the quality of the existing view.

Sensitivity	Landscape	Visual
Low	A moderately valued landscape, perhaps a locally important landscape, or where its character, land use, pattern and scale may have the capacity to accommodate a degree of the type of change envisaged.	Small numbers of visitors with interest in their surroundings. Viewers with a passing interest not specifically focussed on the landscape e.g. workers, commuters. The quality of the existing view, as likely to be perceived by the viewer, is assessed as being low.
Medium	A landscape protected by a structure plan or national policy designation and/ or widely acknowledged for its quality and value; a landscape with distinctive character and low capacity to accommodate the type of change envisaged.	Small numbers of residents and moderate numbers of visitors with an interest in their environment. Larger numbers of recreational road users. The quality of the existing view, as likely to be perceived by the viewer, is assessed as being medium.
High	A landscape protected by a regional (structure plan) or national designation and/ or widely acknowledged for its quality and value; a landscape with distinctive character and low capacity to accommodate the type of change envisaged.	Larger numbers of viewers and/or those with proprietary interest and prolonged viewing opportunities such as residents and users of attractive and well-used recreational facilities. The quality of the existing view, as likely to be perceived by the viewer, is assessed as being high.

Magnitude of change

Judgement based on the nature, scale and duration of the change that is envisaged in the landscape and the overall impact on a particular view.

Magnitude of change	Landscape	Visual
Negligible	An imperceptible, barely or rarely perceptible change in landscape characteristics.	A change which is barely visible, at very long distances, or visible for a very short duration, perhaps at an oblique angle, or which blends with the existing view.
Small	A small change in landscape characteristics over a wide area or a moderate change either over a restricted area or infrequently perceived.	Minor changes in views, at long distances, or visible for a short duration, perhaps at an oblique angle, or which blends to an extent with the existing view.
Medium	A moderate change in landscape characteristics, frequent or continuous, and over a wide area, or a clearly evident change either over a restricted area or infrequently perceived.	Clearly perceptible changes in views at intermediate distances, resulting in either a distinct new element in a significant part of the view, or a more wide ranging, less concentrated change across a wider area.
Large	A clearly evident and frequent /continuous change in landscape characteristics affecting an extensive area.	Major changes in view at close distances, affecting a substantial part of the view, continuously visible for a long duration, or obstructing a substantial part or important elements of the view.

Overall significance of effect

Overall significance of effect is arrived at with reference to receptor sensitivity and magnitude of change, as well as using professional judgement. There is no formulaic way of determining the likely significance of effects (Landscape Institute and IEMA, 2013), however the table below is a useful guide.

Significance of effect				
Receptor sensitivity	Magnitude of change			
	Negligible	Small	Medium	Large
Low	Not significant	Not significant	Minor	Minor to moderate
Medium	Not significant	Minor	Moderate	Moderate to major
High	Not significant	Minor to moderate	Moderate to major	Major

11.2.2 Project Location and Study Area

11.22 The Project is located on a Brownfield development plot on the south west boundary of Wilton International centred on Teesside in North East England. Wilton International is a large 2,000 acre site and one of the UKs most important locations for process industry manufacturing.

11.23 To help define the study area, Zones of Theoretical Visibility ('ZTVs') were developed, for the Project, produced using Arc GIS software and a Digital Elevation Model (DEM), as illustrated in *Figure 11.2*. Two ZTVs were produced based on two potential heights (75 m and 90 m) for the two stacks as also presented in the Scoping Report. For the PEIR and ES stages a 90 m stack was adopted for the ZTV as this is the worst case scenario (see *Figure 11.2* below) for visual effects.

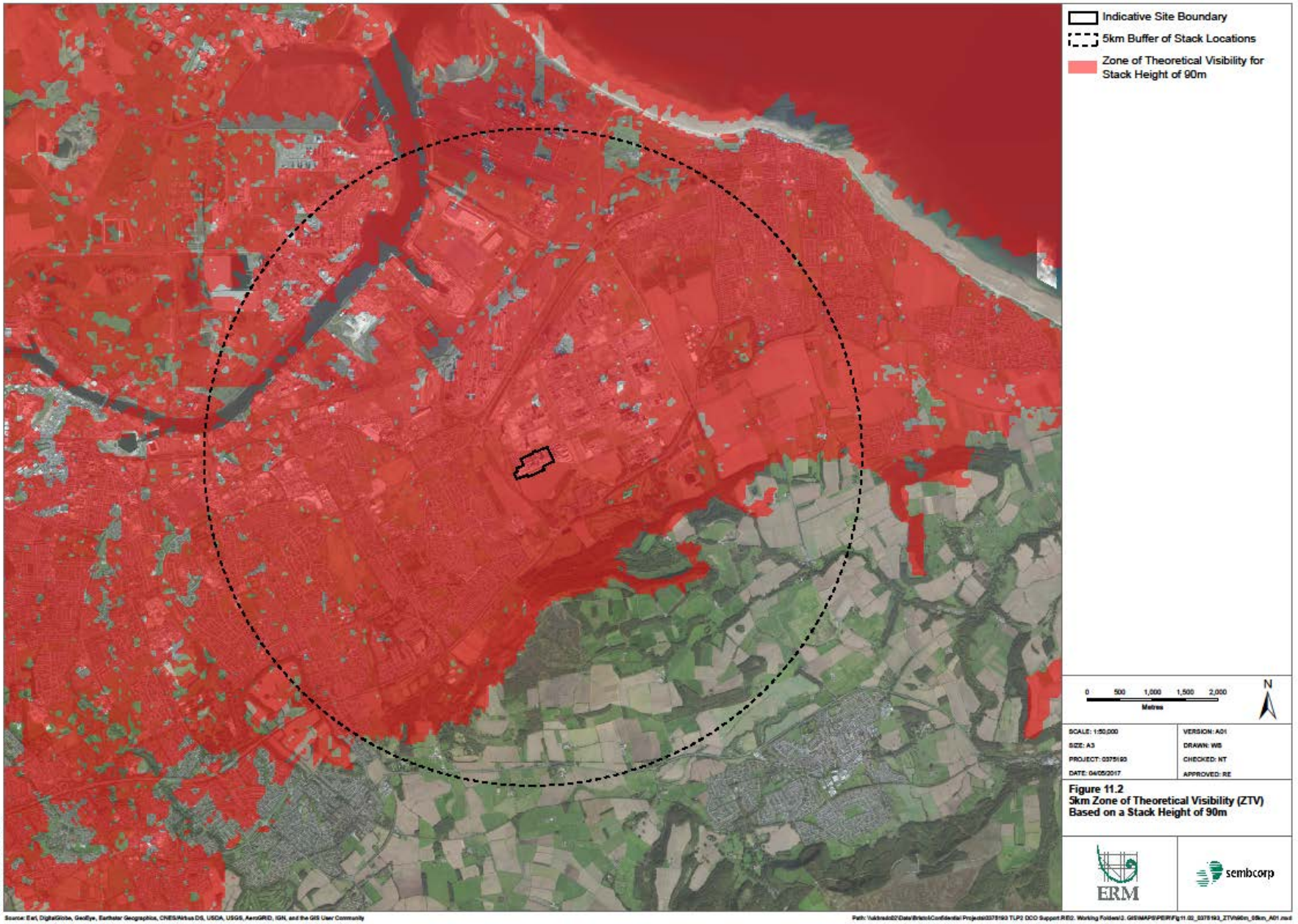
11.24 As can be seen in *Figure 11.2*, the ZTV indicates widespread theoretical visibility across an extensive area to the north, east and west. However it is important to note that the ZTV does not take into account the screening provided by intervening landscape elements (like vegetation and buildings) and hence other factors need to be considered while defining the study area (1).

11.25 On the basis of ZTV, using photowirelines and professional judgement, the study area has been selected based on a 5 km radius from the centre of the Project site (see also *Table 11.1*). This study area is regarded as sufficient based on the scale of the Project proposals within the context of the surrounding landscape, in particular its location within an existing industrial area and proximity to large areas of mature planting to its west.

11.26 The likelihood of visibility reduces from further away due to topography, scale, distance and likelihood of visual obstruction caused by intervening buildings and vegetation. This is evident from the photomontages developed as part of the assessment (see *Annex K Photomontages and Photowirelines*).

(1) The ZTV is a useful tool to determine areas of visibility of an object (in this case the Project stacks) in the surrounding landscape. The ZTV results are not intended to show the actual visibility of an object, they are intended to indicate where the object may be visible from. Actual visibility can only accurately be determined by site survey and photomontages since there are a multitude of local variables that may affect lines of sight.

Figure 11.2 Skim Zone of Theoretical Visibility (ZTV)



11.27 While it is recognised that there will be a few long range views of the Project available beyond 5 km (especially from Eston Nab hills) visibility will be mainly limited to the tallest elements; chiefly the stacks. It is considered these are unlikely to produce any significant effects on the visual amenity of receptors from these distances as the Project is located within an established industrial area with existing large scale industrial development in the background. The study area has been selected based on the professional judgement of the assessment team that this will capture all the likely significant landscape and visual effects.

11.3 BASELINE CONDITIONS

11.3.1 Introduction

11.28 The assessment of landscape and visual impacts of the Project addresses landscape and visual amenity within the 5 km radius study area. This approach and area of search is considered appropriate to capture all likely significant effects. Landscape Character Areas (LCA) and viewpoints have been selected for assessment, the baseline conditions for which are presented below.

11.3.2 Sources of Data

11.29 The baseline landscape character for the study area is outlined with reference to published LCA data available at national, county and district level. The landscape character data used are summarised below:

- *National Character Areas (previously Joint Character Areas), held by Natural England (1);*
- *Redcar & Cleveland Local Development Framework, Landscape Character SPD, March 2010;*
- *Redcar & Cleveland Landscape Character Assessment, April 2006; and*
- *Guidance Notes for the Reduction of Obtrusive Light (2).*

11.30 In addition, the information obtained from the desk-based study was verified during a field survey undertaken during December 2016, and included viewpoint photography. Since the baseline study no material changes in terms of the landscape and visual context of the Project site and its immediate environs have taken place.

11.3.3 Project Site and its Immediate Surrounding Area

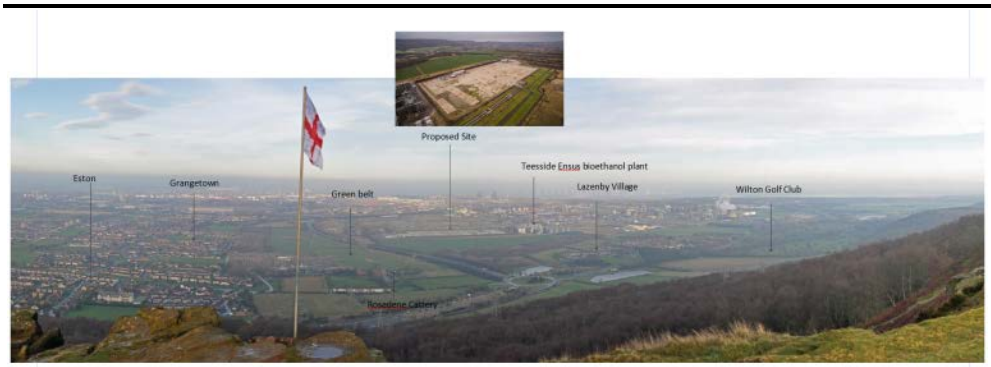
11.31 The Project site lies entirely within the former operational footprint of a former power plant which has been now demolished. To its east lies the Teesside Ensus bioethanol plant which is Europe's largest wheat bio refinery.

(1) Natural England (2012) National Character Area Profile 23: Tees Lowland
(2) Institute of Lighting Professionals: GN01:2011

11.32 Open grazing land and Lazenby village lies to the south of the Project site and to its north is brownfield industrial land (see Figure 11.2). To its west lies the A1053 road and mature perimeter planting which acts a screening between the Wilton International site and the residential areas of Grangetown and Eston. This large area of mature planting is part of the Green Wedge (Green Infrastructure Policy CS23b), which is made up of open or green spaces that link together to create an informal but planned network across a wide geographical area. These are all part of the vision for Tees Valley Green Infrastructure Strategy 2008 (1).

11.33 The other large area of Green Wedge lies between Wilton International site and Kirkleatham. Both areas of mature planting are very effective in screening direct views to the large industrial area.

Figure 11.2 Baseline Landscape View and Green Infrastructure



View from Eston Nab

Green Wedge/Green Infrastructure

Source: https://data.gov.uk/data/inspire.redcar-cleveland.gov.uk

(1) https://www.stockton.gov.uk/media/2466/tees-valley-green-infrastructure-strategy.pdf

11.3.4 Existing Landscape Character and Landscape Features

National Character Areas

11.34 At the national level the Project is located within the *NCA 23 Tees Lowlands* and the 5 km study area is predominantly located in the NCA 23, as well as being partly located in *NCA 25 North York Moors and Cleveland Hills* (*Figure 11.3*). However, as seen in *Figure 11.4* the NCA 25 is largely unaffected due to topographical variations which effectively screen this area from the Project.

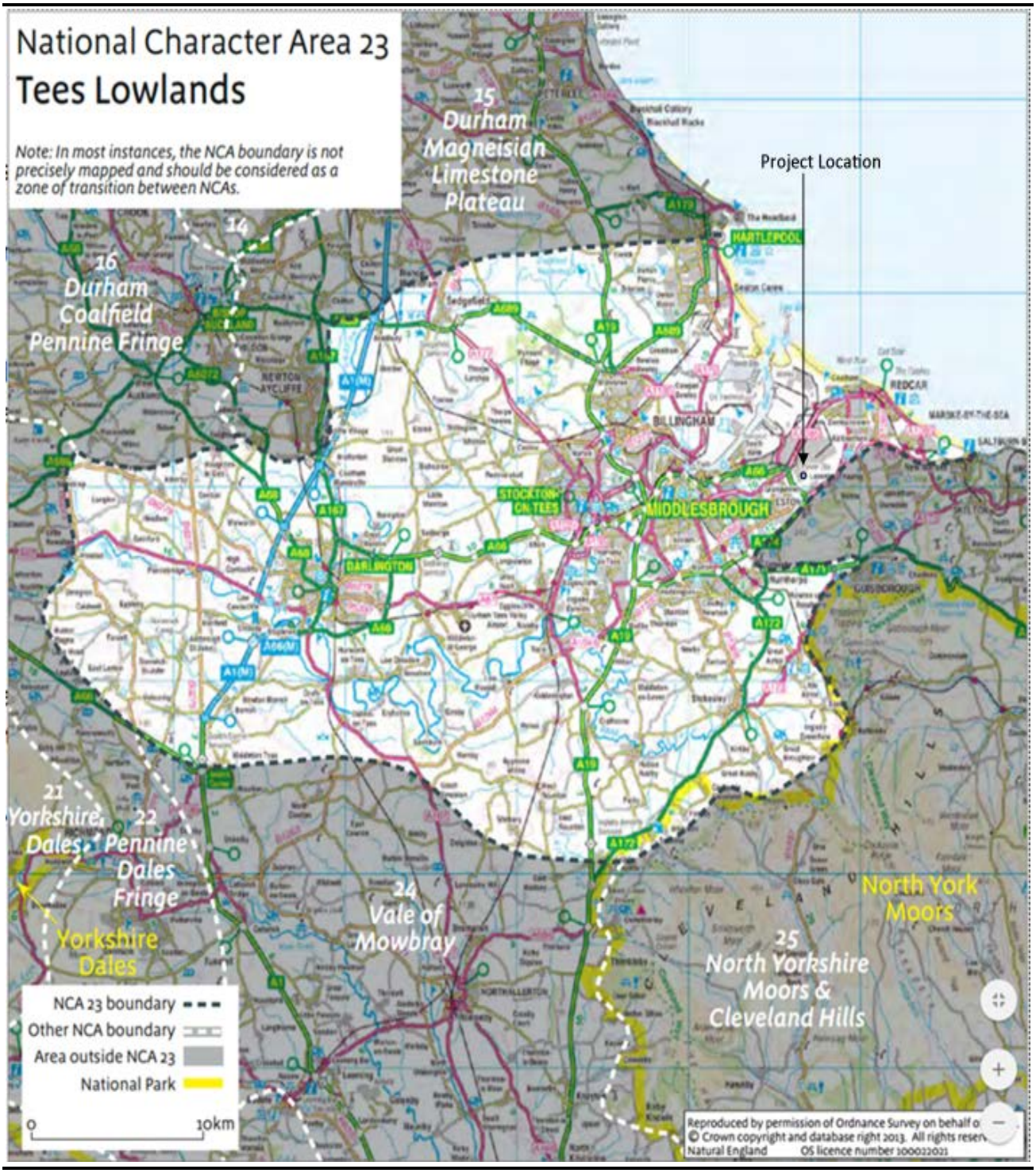
11.35 *Table 11.2* outlines the key characteristics of NCA23 and NCA 25.

Table 11.2 National Character Areas

NCA	Key Characteristics
NCA 23 Tees Lowland	The Tees Lowlands National Character Area (NCA) forms a broad, open plain dominated by the meandering lower reaches of the River Tees and its tributaries, with wide views to distant hills. The large conurbation around the Lower Tees and Teesmouth contrasts with the rural area to the south and west, which is largely agricultural in character. The mosaic of intertidal and wetland habitats within the Tees Estuary are internationally designated as Teesmouth and Cleveland Coast Special Protection Area and Ramsar site, due to their importance for waterfowl. These areas are in close proximity to heavy industry, which has developed due to the estuary's strategic location. Industrial installations form a dramatic skyline when viewed from the surrounding hills.
NCA 25 North York Moors & Cleveland Hills	The North York Moors and Cleveland Hills National Character Area (NCA) comprise well-defined upland areas, rising from the Tees Lowlands to the north, the Vale of Mowbray and Howardian Hills to the west and the Vale of Pickering to the south. To the east it is bordered by the North Sea, the extensive stretches of high coastal cliffs exposing the geology that shaped these uplands. Some 85 per cent of the area falls within the North York Moors National Park.

Source: http://publications.naturalengland.org.uk/publication/9860030

Figure 11.3 National Character Area and Site location



Local Landscape Character Areas

11.36 At a county level the Redcar and Cleveland LCA (2006) and the Local Development Framework Landscape Character SPD (2010) divide the landscape into broad landscape character areas (LCAs). The SPD classifies the landscapes identified in the 2006 LCA as either 'sensitive landscapes' (i.e. sensitive to change) or 'restoration landscapes' (i.e. where land would benefit from measures to restore structure and character). The areas have been classified based on factors including their landform, biodiversity, historical and recreational value. The LCAs located within the study area are Eston Hills and Redcar flats. These are illustrated in *Figure 11.4* and been described in *Table 11.3* below.

- *Eston Hills Broad Landscape* Area: The Eston Hills are characterised by a complex of prominent steep-sided hills. Extensive and contrasting views are available from many locations; to the south there is the backdrop of the Cleveland Hills. To the north there are views over the urban and industrial developments of Teesside and Redcar. The elevated areas of the Eston Hills area, including the escarpment to the north and open Eston Moor have been categorised as Sensitive Landscapes due to distinctive woodland pattern, landform, biodiversity, historical and recreational value. The landscape units within the study area are *E1 – Upland (Eston Hills/Eston Moor)*, *E2 – Escarpment (Eston Hills)* and *E3 – Parkland (Wilton)*.

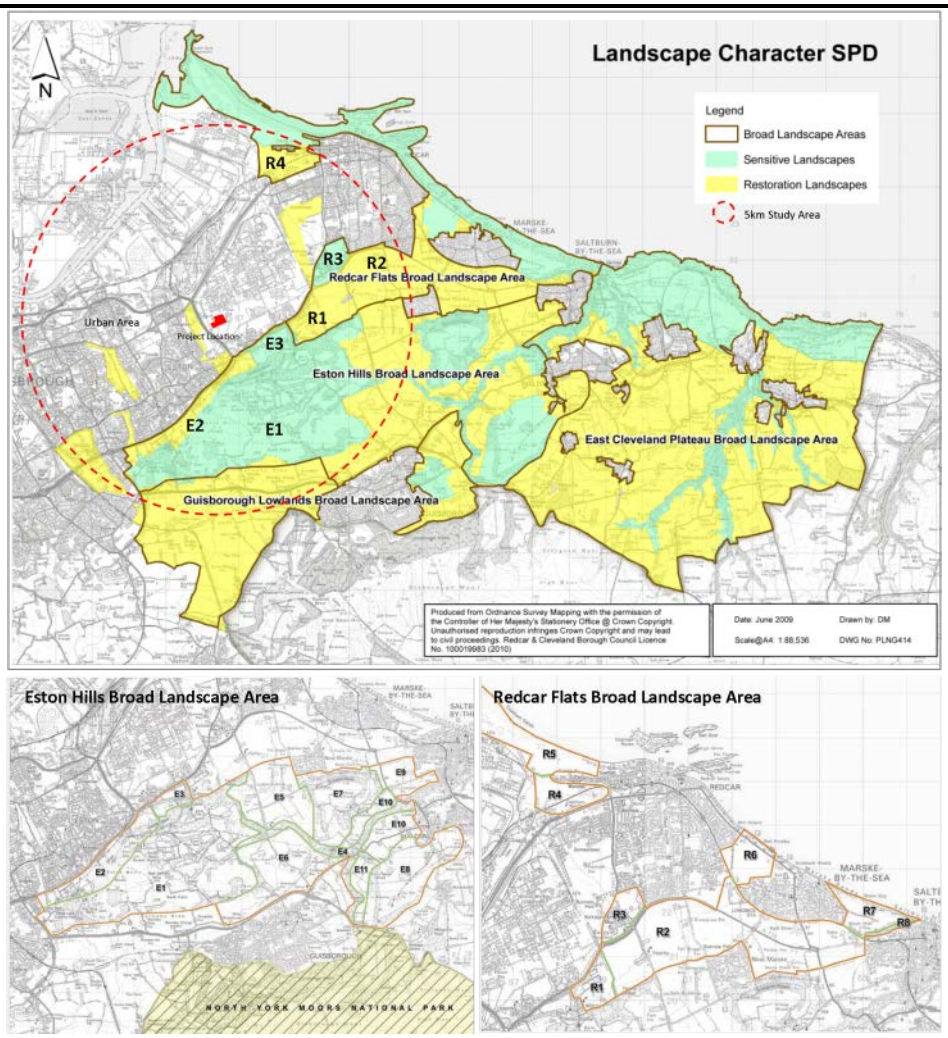
- *Redcar Flats Broad Landscape Area*: The Redcar Flats are contained by the escarpment of the Eston Hills to the south and the coast to the north. Over the inland part of the tract, the presence of high quality farmland has encouraged intensive arable cultivation and the enlargement of fields. Long views predominate in this landscape, and skyline features take on particular importance. The industry at Wilton International, and the abrupt urban edges of Redcar, Marske, New Marske, Saltburn and the A174 and railway corridors have a strong local influence on landscape character (see also *Figure 11.5*).

11.37 The Redcar broad landscape area is classified as 'Restoration Landscape' within the Landscape Character SPD as existing features in this open landscape are relatively sparse and their retention is important to 'place' new development. The landscape units within the study area are *R1 – Urbanised Farmland (East of Wilton)*, *R2 – Lowland Farmland (South of Redcar and Marske)*, *R3 – Park and Estate Land (Kirkleatham)*, *R4 – Coastal Marsh (Coatham Marsh)*.

Table 11.3 Landscape Character Area Units

Landscape Character Unit	Key Characteristics	Sensitivity
Eston Hills Broad Landscape Area		
E1 – Upland (Eston Hills/Eston Moor)	An elevated plateau top, the westernmost part of the Eston Hills Tract. A wide area covering much of the upland comprises the 'Eston Hills Historic Landscape', a designation which reflects the area's archaeological value.	This is a dominant landform, particularly to the north, where the scarp slope presents a marked contrast to the Tees Lowlands. The area is popular for recreational activities. The overall sensitivity of the area is considered to be *high*.
E2 – Escarpment (Eston Hills)	An undulating scarp slope, on the northern edge of the Eston Hills, steeper on its higher levels, becoming gentler as altitude falls.	This is a prominent landform presenting a sharp contrast to the adjacent lowland and providing extensive views over a variety of landscapes. The overall sensitivity of the area is considered to be *high*.
E3 – Parkland (Wilton Castle)	Compared to E1 and E2 this is a much smaller landscape gently sloping and at the foot of the slopes of Eston Hills. A small planned estate village with church, castle and wooded parkland with formal tree avenue.	The unit has a strong character comprising attractive built form and formal planting which defines a number of spaces of varied size, "with scale reduced by individual trees". It is popular locally for recreation and includes a golf course. Listed buildings and numerous Public Rights of Way (PRoW). The overall sensitivity of the area is considered to be *high*.
Redcar Flats Broad Landscape Area		
R1 – Urbanised Farmland (East of Wilton)	The unit is located at the foot of the steep slope of Wilton Woods and continues as a gentle northerly slope.	The area is enclosed by woodland and tree belts within which reservoirs are set. Limited views are therefore available in and out from this area. The overall sensitivity of the area is considered to be *low*.
R2 – Lowland Farmland (South of Redcar and Marske)	Predominantly flat or gently sloping farmland. This landscape is intensively farmed due to high quality of agricultural land.	The area is dominated by large field sizes and sparse fragmented hedgerow pattern, with general absence of hedgerow trees. The character of this unit is influenced by adjacent industrial and urban development. The sensitivity of the area is considered to be *low*.
R3 – Park and Estate Land (Kirkleatham)	Essentially flat landform with very minor broad undulations. Kirkleatham village is a small, attractive settlement with a number of historic buildings including Grade1 listed alms houses and Sir William Turner's Hospital. The village is a designated Conservation Area.	The landscape unit covers the historic village and surrounding landscape which is of high quality. Overall the sensitivity is considered to be *high*.
R4 – Coastal Marsh (Coatham Marsh)	This is an area of low relief with local hillocks. There are a number of fresh water ponds, marsh and grassland.	Most of the landscape unit is a Site of Nature Conservation Interest (SNCI). Open views of the steel works are available from the area. Overall the sensitivity is considered to be *low*.

Figure 11.4 Local Landscape Character Areas



Source: Adapted from Redcar & Cleveland Landscape Character Assessment, 2006

Figure 11.5 Former Teesside Power Station (now demolished) at the Project Site

Above: aerial images of the former power station
Below: Current view of the Project Site

Existing Visual Amenity and Representative Viewpoint Locations

11.38 Following an analysis of the ZTV and taking into account settlement patterns, and the locations of receptors (residential, recreational (including users of footpaths), travellers), 14 viewpoints have been selected as representative of the various areas from which the Project may be visible and the different type of viewing opportunities offered.

11.39 Viewpoints have been selected across the study area to represent groups of receptors with potential views of the Project. Residential and recreational receptors, which have a high sensitivity to change, and transport receptors (road users), which have a medium sensitivity to change, have been identified. The selected viewpoints were included in the Scoping Report and the PEIR.

11.40 The viewpoint locations are illustrated in *Figure 11.6* whilst *Table 11.4* below provides a description of the view from each viewpoint and illustrates the view attained in each location. Column 1 of *Table 11.4* also provides the reason for selecting these viewpoints.

Figure 11.6 Representative Viewpoint Locations

Map Source: Google Imagery 2017

11.41 To help aid the assessment process, key representative viewpoints have been selected for photomontages. These are attached as *Annex K Photomontages and Photowireline*.

11.42 There are a number of footpaths and bridleways in close proximity to the site. Those likely to be affected have been shown on *Figure 11.7* below. Some of the viewpoint locations chosen for assessment have been considered due to their proximity to footpaths/bridleways and impact on recreational users (including users of footpaths), this is identified within column one of *Table 11.4*.

11.3.5 The Future Baseline

11.43 The Project Site is part of an urban/industrial landscape that is unlikely to change materially over the next 25 years. If the Project Site was not developed for this Project it would likely be used for other industrial development.

11.44 In terms of viewers of the Project Site these too are likely to remain much the same over the next 25 years. Although some additional housing development is likely to occur the site is screened from low level views. Higher land to the south of the Project Site is very unlikely to be used for housing so no new receptors to views will be introduced.

Figure 11.6 Public Footpaths

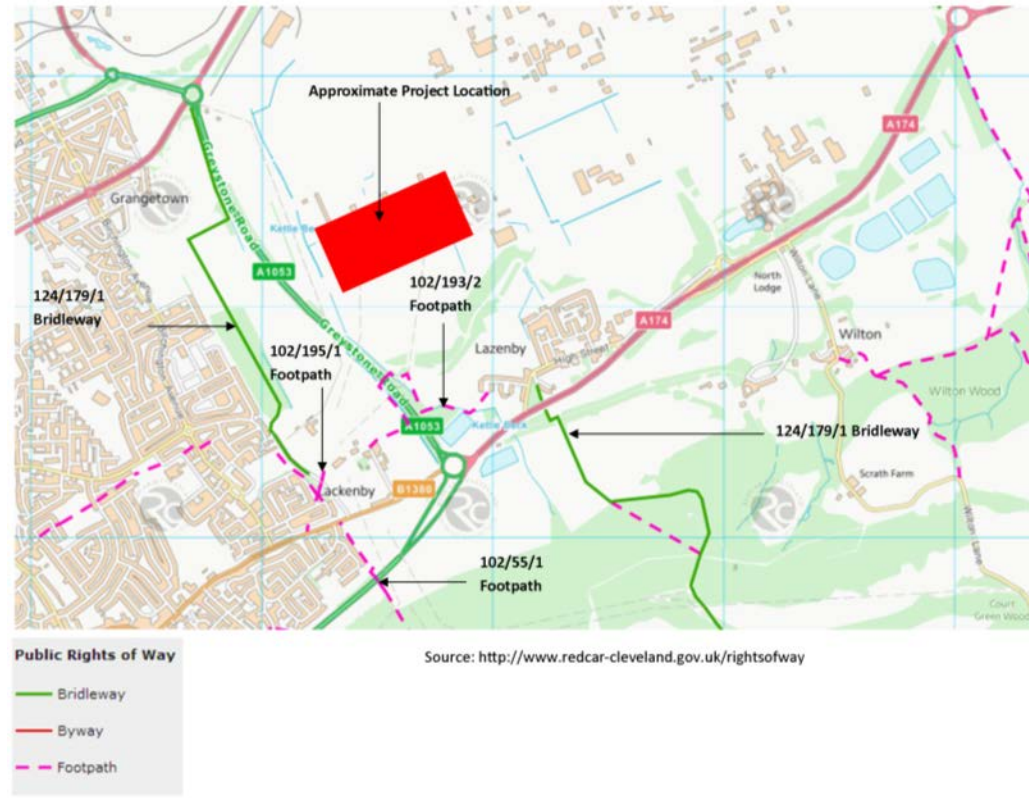
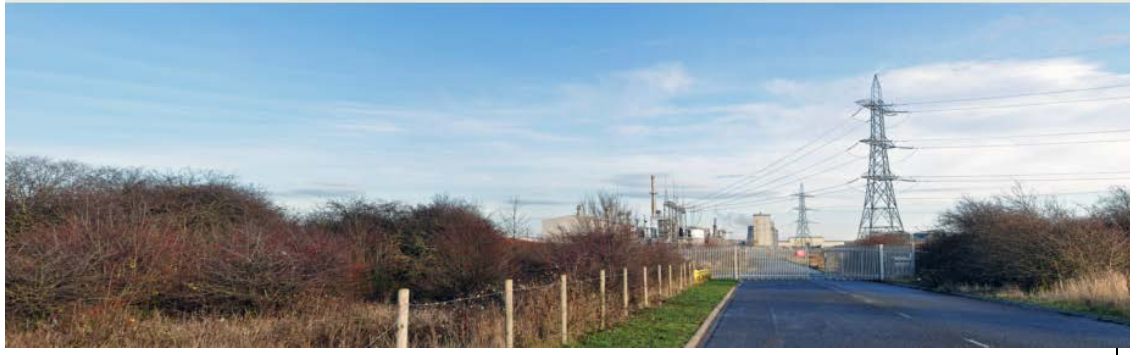


Table 11.4 Viewpoint Descriptions (all views looking towards Project Site)

Viewpoint Ref. (VP No)	Receptor Type	Sensitivity	Viewpoint Description and Photo
1. View from allotments, Lazenby village Reason: nearest residents, footpath nearby.	Residential/Recreational	Medium	 View from the entrance of allotment. The Ensus plant is clearly seen in the background as well as a number of transmission lines and vegetation/woodland. The belt of mature trees is effective in screening views of the industrial area.
2. View from Pasture Lane, Lazenby Reason: nearest residents.	Residential	Medium	 Similar to VP1, direct view to the project site is available. However, the woodland is very effective in screening the Project site and Ensus Plant. The stack of the Ensus plant and transmission lines are visible in the background. In the middle ground is open grazing land.

Viewpoint Ref. (VP No)	Receptor Type	Sensitivity	Viewpoint Description and Photo
3. View from edge of village, Lazenby village Reason: Listed farmhouse nearby, private track.	Residential	Medium	 This view is available from the private land. The Ensus plant is dominant in the view along with woodland and farming area. The Lazenby village can be seen to the left.
4. View from high street, Lazenby Reason: high street, school building, park.	Residential, Recreational Traveller	High	 This view is available from the high street overlooking the park and school building. Existing industrial plant stacks are visible in the skyline.
5. View from Rosedene Cattery Reason: group of listed buildings, footpath.	Residential	Medium	 This view is available from the north of Rosedene Cattery and adjacent to the large substation. The Ensus plant is visible and other industrial facilities can be seen on the skyline.

Viewpoint Ref. (VP No)	Receptor Type	Sensitivity	Viewpoint Description and Photo
6. View from Birchington Avenue Reason: residences, main street, footpath within the wooded area.	Residential, Recreational Travellers	Medium	 This view is available from Birchington Avenue looking towards the football ground and woodland (part of green infrastructure). The Ensus stack is barely visible. A number of large electricity pylons are seen in the skyline.
7. View from park Reason: recreation area and footpath.	Recreational	High	 This view is available from the Millennium Park. It is an enclosed area and therefore outward views are limited due to trees and vegetation.
8. View from entrance road Reason: entrance road.	Travellers	Low	 The main entrance road to the Project Site. This is a private road which connects to the A1053. Large

Viewpoint Ref. (VP No)	Receptor Type	Sensitivity	Viewpoint Description and Photo
			pylons and the Ensus plant dominate in the view.
9. View from old Lackenby Reason: residences with views towards Project site, next to footpath (and thus potential recreational users).	Residential	Medium	 This view is available from the southern edge of Old Lackenby village. It is close to the footpath connecting the Eston Nab. Large pylons are dominant and wide panoramic views of the Teesside Industrial area can be seen.
10.View from Eston Nab Reason: SAM and footpath.	Recreational Residential	High	 Panoramic views of Teesside are available from the Eston Nab hills.

Viewpoint Ref. (VP No)	Receptor Type	Sensitivity	Viewpoint Description and Photo
11. View from Wilton Castle Reason: Listed buildings, golf course, residential area.	Recreational Residential Travellers	High	 This view is available from the Wilton Castle and near the golf course. The existing industrial facilities can be seen on the skyline through gaps in trees and hedgerows.
12.View from Kirkleatham village Reason: listed buildings and residences	Residential, Recreational Travellers	High	 This view is available from the main road to the south of Kirkleatham museum. Open views are limited from this area due to woodland and hedgerows.
13. View from Yearby village Reason: residences, near footpath.	Residential, Recreational Travellers	Medium	 This view is available from the edge of Yearby village along a footpath. Medium to long distance views are available from this location. The existing industrial facilities are visible on the skyline but limited to taller components.

Viewpoint Ref. (VP No)	Receptor Type	Sensitivity	Viewpoint Description and Photo
14. View from Dormanstown Reason: residences, playground, school.	Residential, Recreational Travellers	Medium	 This view is available from the playground area of Dormanstown. The Eston hills can be seen in the background and a number of tall industrial components are visible in the middle ground along with trees and hedgerows.

11.4 ASSESSMENT OF EFFECTS

11.4.1 Introduction

11.45 The following sections provide an assessment of the likely effects (taking account of mitigation measures committed to at this stage of the design process, with *Section 11.5* summarising that mitigation).

11.4.2 Assessment of Effects during Construction

11.46 During construction, there will be potential short term landscape and visual effects from construction machinery and activities on the Project site, including:

- clearance of hard core and breakout of concrete;
- construction of temporary structures;
- site levelling and compaction;
- introduction of tall construction machinery, including cranes;
- construction of temporary internal roads for access to the buildings and storage areas;
- introduction of construction laydown areas, which will be used for machinery and material storage and may include site compounds for safety;
- plant and vehicle movements; and
- introduction of construction site lighting, especially during the winter months.

Table 11.5 below describes the potential effects on landscape character and *Table 11.6* describes the effect on visual amenity during construction.

11.4.3 Assessment of Effects during Operation

11.47 During operation, there will be potential long term landscape and visual effects from plant and activities associated with the Project, including:

- the presence of new structures in the landscape immediately west of the existing Ensus bioethanol plant, including a number of elements such as the main block, two stacks of up to 90 m each (as a worst case) and 25 m tall cooling tower blocks;
- introduction of additional site lighting for operational safety to be designed in accordance with Guidance notes for the reduction of obtrusive light (Institute of Lighting Professionals - GN01: 2011);
- the presence and movement of additional vehicles within and around the operational area; and
- potential visibility of plumes from the stacks and cooling towers at certain times of the year (discussed fully in *Chapter 7 Air Quality)*.

11.48 *Table 11.5* below describes the potential effects on landscape character and *Table 11.6* describes the effect on visual amenity during operation. In addition

operational photomontage and wireline images are provided in *Annex K* for representative viewpoints.

11.4.4 Assessment of Effects during Decommissioning

11.49 During decommissioning, there will be potential short term landscape and visual impacts from the introduction of machinery and activities on the Project site. These would be very similar to the construction stages.

11.50 The Project is expected to operate for at least 25 years. If, at the end of this period, Sembcorp envisages that it will take the plant out of permanent operation and that it will be decommissioned, dismantled and removed from the site. The site would be restored to its pre-Project condition.

Table 11.5 Effects on Landscape Character

LCA	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effects	Operational Phase Effects	Magnitude of Change	Significance of Effects
E1 – Upland (Eston Hills/Eston Moor)	High	Construction activities associated with the Project will have a localised effect on the landscape. Works will be discernible from the more elevated areas of this character unit and will be seen within the context of highly developed industrial landscape of the Tees Lowland.	Due to the distance and temporary nature of the works, the magnitude of change is considered to be *negligible*.	*Not Significant*	The presence of the Project will have a localised effect on the landscape. The taller elements of the Project will be apparent within characteristic open views. This, however, will be visible alongside the existing Ensus Plant and within the backdrop of a very large industrial area.	Due to distance and due to the fact that the Project is within an established industrial area magnitude of change is *negligible*.	*Not Significant*
E2 – Escarpment (Eston Hills)	High	There is no direct effect. Due to orientation of escarpment and presence of woodland there is very limited visibility of the Project Site.	The magnitude of change is considered to be *negligible*.	*Not Significant*	Some views will be available but given the distance and intervening woodland and vegetation the Project will be barely visible.	Magnitude of change is considered to be negligible.	*Not Significant*
E3 – Parkland (Wilton Castle)	High	There is no direct effect. Due to topography and presence of woodland there is very limited or no visibility of the Project Site form this area.	The magnitude of change is considered to be *negligible*.	*Not Significant*	Some views will be available but given the distance and intervening woodland and vegetation the Project will be barely visible.	Magnitude of change is considered to be negligible.	*Not Significant*
R1 – Urbanised Farmland (East of Wilton)	Low	There is no direct effect. Due to topography, presence of woodland and Wilton Centre buildings there is very limited or no visibility of the Project Site from this area.	The magnitude of change is considered to be *negligible*.	*Not Significant*	Given the distance and intervening woodland, vegetation and Wilton Centre the Project will be barely visible.	Magnitude of change is considered to be negligible.	*Not Significant*
R2 – Lowland Farmland (South of Redcar and Marske)	Low	There is no direct effect. Similar to above, due to topography, presence of woodland and Wilton Centre buildings there is very	The magnitude of change is considered to be *negligible*.	*Not Significant*	Given the distance and intervening woodland, vegetation and Wilton Centre the Project will be barely visible.	Magnitude of change is considered to be	*Not Significant*

LCA	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effects	Operational Phase Effects	Magnitude of Change	Significance of Effects
		limited or no visibility of the Project Site form this area.				negligible.	
R3 – Park and Estate Land (Kirkleatham)	High	There is no direct effect. Views of the site are unlikely to be visible from the southern part of the landscape unit from where long distance views are available across fields. Intervening wooded areas screen direct views of the Project site.	The magnitude of change is considered to be *negligible*.	*Not Significant*	Given the distance and intervening woodland, vegetation and existing industrial buildings the Project will be barely visible.	Magnitude of change is considered to be negligible.	*Not Significant*
R4 – Coastal Marsh (Coatham Marsh)	Low	There is no direct effect. There will be no clear visibility from this area due to intervening large scale industrial development to the north and northeast of the Project site.	The magnitude of change is considered to be *negligible*.	*Not Significant*	The Project site and buildings are unlikely to be visible from this area due to intervening existing industrial buildings.	Magnitude of change is considered to be negligible.	*Not Significant*

Table 11.6 Effects on Visual Amenity

Receptor Category: **H**-Residential, **R**- Recreational, **T**-Travelling
Note: *where effects are similar in nature, attempt has been made not to repeat text and cross reference has been provided.*
Impacts due to lighting have been considered and limited for those views where there is a likely impact. Descriptions have been provided for these in the table.

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
VP1- view from allotments	Medium H/R	Scrub vegetation and trees to the south and southeast of Project site will restrict views towards lower construction activities. Taller construction equipment such as cranes will, however, be visible.	*Small*	*Not Significant*	Scrub vegetation and trees to the south of site will restrict views towards lower Project components. Taller components like the heat recovery steam generator and turbine hall will be	Only the stacks will be visible and will be seen alongside the Ensus plant and other stacks and electricity Pylons. The	*Minor*

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
		Considering the temporary nature of the construction activities and the visual dominance of existing infrastructural elements, the magnitude of change is considered to be *small*. At night construction lighting will be barely perceptible in the background of the view. Existing operational and security lighting around Ensus Plant as well as lights along A1053 will be dominant. Therefore, the magnitude of change is considered to be negligible.	*Negligible*	*Not Significant*	barely visible through the vegetation. The stack will be visible above the trees and hedgerows. At night, operational and security lighting associated with the Project will be perceptible in the background of the view especially at higher levels and on stacks. This will be seen alongside existing lighting around Ensus Plant, the magnitude of change is considered to be small.	magnitude of change is therefore considered to be *Small*. *Small*	*Minor*
VP2- view from Pasture Lane	Medium H/R	Effects very similar to VP1. Impacts due to lighting are similar to VP1.	*Small* *Negligible*	*Not Significant* *Not Significant*	Effects very similar to VP1. However views from Pasture Lane are restricted due to orientation of residential areas, tree cover and footpath. Impacts due to lighting are similar to VP1	*Small* *Small*	*Minor* *Minor*
VP3-view from edge of village, private path	Medium R	Effects very similar to VP1. At night construction	*Small* *Negligible*	*Not Significant* *Not Significant*	Effects very similar to VP1.	Very similar to VP1. Magnitude of change is considered to be *Small.* *Small*	*Minor* *Minor*

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
		lighting will be perceptible in the background of the view. Existing operational and security lighting around Ensus Plant will be dominant as the construction lights will be mainly at ground level. Therefore, the magnitude of change is considered to be negligible.			At night, operational and security lighting associated with the Project will be perceptible in the background of the view. This will be seen alongside existing lighting around Ensus Plant due to angle of view. As there will be more lighting during the operational phase than during construction, the magnitude of change is considered to be small.		
VP4- view from High Street , Lazenby	High H, R, T	Views to site are restricted due to intervening residences. Taller construction equipment such as cranes will be barely visible.	Negligible	*Not Significant*	Views to site are restricted due to intervening residences. The two stacks are the only visible components of the Project and will be seen alongside other taller components within the industrial area.	Magnitude of change is considered to be *Small*.	*Minor to Moderate*. Given the fact that there are other tall industrial components in the skyline, like the Ensus plant and pylons, the range of effect is more towards Minor.
VP5-view from Rosedene Cattery	Medium H	Effects very similar to VP1.	*Small* *Negligible*	*Not Significant* *Not*	Scrub vegetation and trees to the south of site will restrict views towards lower Project components. Taller components like the heat recovery steam generator and turbine hall will be visible alongside the Ensus Plant, electricity pylons, A1053 and	Magnitude of change is considered to be *Small* considering the large electric substation in the foreground and industrial area in the background.	*Minor* *Minor*

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
		Impacts due to lighting are similar to VP1		*Significant*	industrial area in the backdrop. Impacts due to lighting are similar to VP1	*Small*	
VP6- view from Birchington Avenue	Medium H, R, T	Views to the site are restricted due to intervening vegetation in the green infrastructure corridor. Taller construction equipment such as cranes will be barely visible. Impacts due to lighting are similar to VP1	Negligible Negligible	*Not Significant* *Not Significant*	Intervening vegetation in the green infrastructure corridor will restrict views of the Project. The only visible elements of the Project will be of the two stacks seen alongside the stack of Ensus plant. Impacts due to lighting are similar to VP1.	Magnitude of change is considered to be *Small*. *Small*	*Minor* *Minor*
VP7-view from recreational park/Millennium Park	High R	Views to site are restricted due to intervening vegetation in the green infrastructure corridor. Taller construction equipment such as cranes will be barely visible.	Negligible	*Not Significant*	Intervening vegetation in the green infrastructure corridor will restrict views of the Project.	Magnitude of change is considered to be *Negligible*.	*Not Significant*

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
VP8- view from entrance road	Low T	Direct views to the site. Construction equipment will be visible in the backdrop of Ensus Plant. Lower level views screened due to shrubs along entrance road. At night construction lighting will be perceptible in the foreground and middle ground of the view. Existing operational and security lighting around the operational Ensus Plant will be dominant along with existing street lights on the A1053. Therefore, the magnitude of change is considered to be negligible.	Small Negligible	*Not Significant* *Not Significant*	The Project will be clearly visible from the entrance road alongside the Ensus plant. At night, operational and security lighting associated with the Project will be dominant in foreground and middle ground. In the background of the view, existing lighting around Ensus Plant will also be visible. The magnitude of change is considered to be medium	Magnitude of change is considered to be *Medium*. Magnitude of change is considered to be *Medium*.	*Minor* *Minor*
VP9- View from old Lackenby	Medium H	Partial long medium distance views to the site and the Teesside industrial area are available. Taller and bulkier construction equipment such as cranes and large machinery will be barely visible due to distance and intervening vegetation.	Negligible	*Not Significant*	The Project will be partially visible due to intervening vegetation alongside the Ensus Plant and in the backdrop of the Teesside industrial area.	Magnitude of change is considered to be *Small*.	*Minor*
VP10- View from Eston Nab(SAM)	Medium R	Long medium distance views to the site and the Teesside industrial area are available. Construction equipment will be visible although it will be in the backdrop of a very large industrial area.	Negligible	*Not Significant*	The Project will be visible alongside the Ensus Plant and in the backdrop of the Teesside industrial area.	Magnitude of change is considered to be *Small*.	*Minor*

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
		At night construction lighting will be visible at distance. However operational lights within the Wilton International Area and along main transportation corridors will dominate in the views	Magnitude of change is considered to be Negligible.	*Not Significant*	At night, operational and security lighting associated with the Project will be seen alongside the Ensus plant. In the background of the view, existing lighting within the Wilton International area will still be a dominant feature due to its vast scale.	Magnitude of change is considered to be *Small*	*Minor*
VP11- View from Wilton Castle	High H, R	Very limited long-medium distance views available thru gaps in trees. Only the taller components of the existing industrial facilities visible in the skyline.	Negligible	*Not Significant*	The taller components of the project will be an added feature in the skyline but will be difficult to differentiate from existing stacks/infrastructure.	Magnitude of change is considered to be *negligible*.	*Not Significant*
VP12- View from Kirkleatham village	High H, R	Given the distance and a narrow strip of woodland east of Kirkleatham, views of the Project site and construction equipment are unlikely.	Negligible	*Not Significant*	It is unlikely that the Project will be visible from the village edge due to intervening vegetation.	Magnitude of change is considered to be *negligible*.	*Not Significant*
VP13- View from Yearby village	Medium R, H, T	Given the distance and intervening vegetation and woodland, views of the Project site and construction equipment are unlikely.	Negligible	*Not Significant*	Very limited long distance views of the Project will be visible from the village and foot path due to intervening vegetation. Only the taller elements will be visible and it will be difficult to differentiate from existing stacks and viewing distance.	Magnitude of change is considered to be *negligible*.	*Not Significant*

Viewpoint	Sensitivity	Construction Phase Effects	Magnitude of Change	Significance of Effect	Operational Phase Effects	Magnitude of Change	Significance of Effect
VP14- View from Dormanstown	Medium R, H, T	Given the distance and due to intervening vegetation and other industrial facilities, views of the Project site and construction equipment are unlikely.	Negligible	*Not Significant*	Only the taller elements will be visible and it will be hard to differentiate due to existing stacks/other factories and viewing distance.	Magnitude of change is considered to be *negligible*.	*Not Significant*

11.4.5 Cumulative Effects

11.51 During EIA Scoping a number of other planned projects were identified for consultation as having the potential for cumulative landscape and visual impacts with the Project (see *Chapter 3* EIA Approach and Methodology, *Section 3.6.5*). In terms of this landscape and visual assessment this screening was based purely on the separation distance from the Project (in this instance a 5 km radius).

11.52 The GLVIA defines cumulative landscape and visual effects as effects that result from additional changes to the landscape or visual amenity caused by a development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future. The guidance also stresses that the task should be proportionate and reasonable to the nature of the project and that it is important to remember that the emphasis in EIA is on likely significant effects rather than a comprehensive cataloguing of every conceivable effect.

11.53 On this basis it is considered that the focus of the cumulative assessment should be on the additional effect of the Project in conjunction with other developments of a similar type, that is to say, large industrial developments such as power stations, waste treatment facilities etc. For this reason other types of development, such as residential development (due to their low profile or small scale), have not been included as it is considered that although these elements are or could be perceived in the landscape, they are not likely to combine with the Project to produce significant cumulative effects.

11.54 A 5 km area has been considered to be a suitable zone for LVIA during operation and other development within this area is considered in terms of potential for cumulative effects. It is considered that this area is proportional to the nature of the Project and sufficiently large to capture all potentially significant cumulative effects on landscape and visual receptors. This assessment considers the other development screened in at the EIA scoping stage (see *Section 3.6.5*) within the 5 km study area. Those other developments have been considered further in this landscape and visual impact assessment. The other developments that have been scoped out or scoped in for further assessment are set out in *Table 11.7* below.

Table 11.7 Consideration of Other Planned Projects with Potential for Cumulative Effects

Application	Location	Status	Description	Potential contribution to cumulative effects	Screened In?	Further assessment	Conclusion
Town and Country Planning Act Applications							
R/2016/0663/OOM	Land north of Kirkleatham Business Park and west of Kirkleatham Lane Redcar	Pending	Outline planning application for up to 550 residential units with associated access, landscaping and open space on 23ha of agricultural land located.	Landscape and visual during operation, 3.38 km from Project site, within impact zone	**Y**	Low laying development with very little scope for cumulative effects on landscape or viewers of the Project	No potential for cumulative effects with the Project
R/2016/0326/OOM	Land north of Woodcock Wood and West of Flatts Lane Normanby	Refused (undergoing appeal)	Outline application for 400 residential houses including new vehicular and pedestrian accesses, infrastructure, open space and landscaping (all matters reserved except for access).	Landscape and visual during operation, 3.06 km from Project site, within impact zone	**Y**	Low laying development with very little scope for cumulative effects on landscape or viewers of the Project	No potential for cumulative effects with the Project
R/2014/0372/OOM	Land at Low Grange Farm South Bank	Approved	Outline application for residential development (up to 1,250 dwellings) (all matters reserved).	Landscape and visual during operation, 2.36 km from Project site, within impact zone	**Y**	Low laying development with very little scope for cumulative effects on landscape or viewers of the Project	No potential for cumulative effects with the Project
R/2014/0304/OOM	Longbank Farm Farmbank Road Ormesby TS7 9EF	Refused, undergoing appeal (approved with considerations)	Outline planning application for residential development (320 units) including vehicular and pedestrian accesses off Ormesby Bank and associated landscaping.	Landscape and visual during operation, 4.42 km from Project site, within impact zone	**Y**	Low laying development with very little scope for cumulative effects on landscape or viewers of the Project	No potential for cumulative effects with the Project

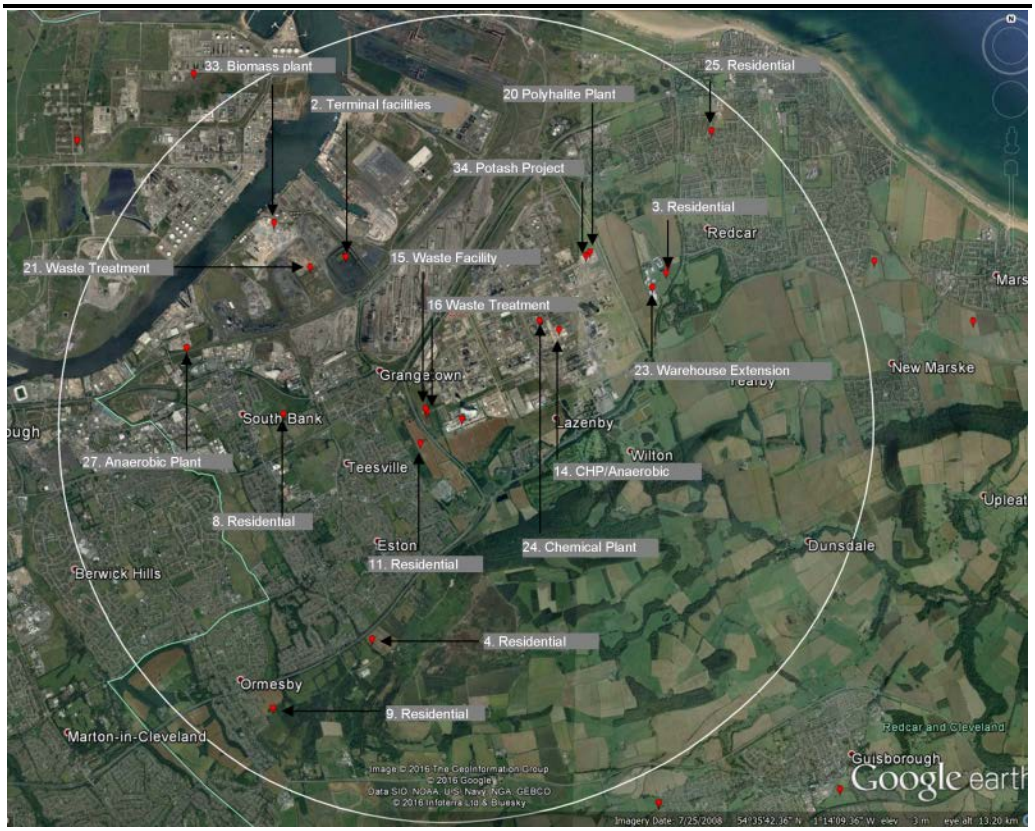
Application	Location	Status	Description	Potential contribution to cumulative effects	Screened In?	Further assessment	Conclusion
R/2012/0757/OOM	Mannion Park Broadway Grangetown	Approved	Project consists of 250 dwellings and around 11,500 square metres of B1 office and light industrial uses. Vehicular access to the development will be taken from the A1085 Broadway; this will involve the provision of a new roundabout access into the site.	Landscape and visual during operation, 0.62 km from Project site, within impact zone	**Y**	Low laying development with very little scope for cumulative effects on landscape or viewers of the Project	No potential for cumulative effects with the Project
R/2016/0484/FFM	Former Croda Site Wilton International Redcar	Approved	Proposed anaerobic biogas production facility and combined heat and power plant.	Landscape and visual during operation, 1.68 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
R/2016/0418/FFM	Wilton Waste Treatment Wilton Site Lazenby	Approved	Retention as built of the CSG Wilton facility as a hazardous waste transfer and treatment site for processing a range of hazardous and non-hazardous waste including recovery of waste oils and oil contaminated wastes as well as a biological treatment facility for hazardous liquids.	Landscape and visual during operation, 0.49 km from Project site, within impact zone	**Y**	Development of industrial facilities which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
R/2015/0682/FFM	Wilton Waste Treatment ltd Wilton Site Lazenby	Approved	Provision of oil refinery at Wilton Waste Treatment Plant to enable the recovery of lubricating base oils, fuels and other hydrocarbon products from waste oils.	Landscape and visual during operation, 0.49 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
R/2014/0626/FFM	Wilton International Complex Redcar	Approved	Mineral (polyhalite) granulation and storage facility involving the construction on buildings, conveyor systems, substations, water treatment plant, internal access roads, car parking, attenuation ponds, landscaping, restoration and aftercare, and construction of a tunnel portal including the landforming of spoil and associated works.	Landscape and visual during operation, 2.75 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA

Application	Location	Status	Description	Potential contribution to cumulative effects	Screened In?	Further assessment	Conclusion
R/2014/0627/FFM	The York Potash Project, Doves Nest Farm	Approved	The winning and working of polyhalite by underground methods including the construction of a minehead at Doves Nest Farm involving access, maintenance and ventilation shafts, the landforming of associated spoil, construction of buildings, access roads, car parking and helicopter landing site, attenuation ponds, landscaping, restoration and aftercare and associated works. In addition, the construction of an underground tunnel between Doves Nest Farm and land at Wilton that links to the mine below, comprising 1 shaft at Doves Nest Farm, 3 intermediate access shaft sites, each with associated landforming of associated spoil, construction of buildings, access roads and car parking, landscaping, restoration and aftercare, the construction of a tunnel portal at Wilton comprising buildings, landforming of spoil and associated works.	Landscape and visual during operation, 2.75 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
R/2013/0608/FFM	Teesport Waste Treatment Facility Grangetown TS6 6UG	Approved	Waste treatment facility.	Landscape and visual during operation, 2.83 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
R/2013/0501/FFM	Elring Klinger (GB) ltd Kirkleatham Business Park Troisdorf Way	Approved	Extension to existing factory building with ancillary new access roads.	Landscape and visual during operation, 3.03 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA

Application	Location	Status	Description	Potential contribution to cumulative effects	Screened In?	Further assessment	Conclusion
	Kirkleatham Redcar TS10 5RX						
R/2012/0829/FFM	The Closes Estate; land North of Roseberry Road.	Approved	Redevelopment comprising the erection of 288 dwellings and ancillary works (amended scheme).	Landscape and visual during operation, 4.98 km from Project site, within impact zone	**Y**	Low laying development with very little scope for cumulative effects on landscape or viewers of the Project	No potential for cumulative effects with the Project
R/2012/0314/FFM	Lotte Chemical UK ltd Queens Avenue Wilton International Site TS10 4XZ	Approved	Construction of a polyethylene terephthalate (PET) chemical plant.	Landscape and visual during operation, 1.65 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
R/2012/0934/RSM	Land at Imperial Park Tilbury Road South Bank	Approved	Proposed anaerobic digestion plant (steel portal framed building), including external concrete hardstanding, car parking area and new sub-station (resubmission).	Landscape and visual during operation, 3.72 km from Project site, within impact zone	**Y**	Development of industrial facilities including a stack which could affect some of the Project viewers	Scoped in for further consideration in this LVIA
Electricity Act (1989) Section 36 and Section 37 Applications							
Biomass - S36 MGT Teesside Limited Teesside Renewable Energy	Teesport, Teesside	Approved	MGT Teesside Limited applying to construct and operate a biomass fuelled renewable generating station.	Landscape and visual during operation, 3.53 km from Project site, within impact zone	**Y**	Significant scale facility with tall stack	Scoped in for further consideration in this LVIA

Application	Location	Status	Description	Potential contribution to cumulative effects	Screened In?	Further assessment	Conclusion
Biomass - S36 MGT Teesside Limited Teesside Renewable Energy Plant, Teesport	Teesport, Teesside	Approved	MGT Teesside Limited applying for extension to biomass fuelled renewable generating station.	Landscape and visual during operation, 3.53 km from Project site, within impact zone	**Y**	Significant scale facility with tall stack	Scoped in for further consideration in this LVIA
Biomass/S36C Electricity Act 1989 MGT Teesside / Teesdock, Grangetown, Middlesbrough	Teesport, Teesside		MGT Teesside Limited applying for revision to previous application to increase maximum output to 299MW.	Landscape and visual during operation, 3.53 km from Project site, within impact zone	**Y**	Significant scale facility with tall stack	Scoped in for further consideration in this LVIA
Transport and Works Act Applications							
Teesport (Land Acquisition) Order TWA/06/APP/03 SI No. 2008/1238	Teesport, Teesside	Approved	Expansion of container terminal facilities at Teesport. The proposed development will increase the port's capacity from around 250,000 TEU a year to around 1.5 million TEU a year.	Landscape and visual during operation, 2.58 km from Project site, within impact zone	**Y**	Includes tall cranes and other infrastructure	Scoped in for further consideration in this LVIA

Figure 11.7 Locations of Other Planned and Proposed Projects - Cumulative Assessment



11.55 For cumulative *landscape* effects, developments which are within the 5 km study area have been considered, as highlighted in *Table 11.7* and illustrated in *Figure 11.8*. A significant majority of the other planned and proposed projects are all located within the 'urban area' and not in an LCA (see *Figure 11.4*) as is also the case for the Project which has a localised direct effect. The Redcar Flats and the Eston Hills LCA are further away and the Project has secondary effects on the setting of these LCAs. In the case of cumulative *visual* effects, viewpoints within which the Project and other developments are viewed in combination have been considered and assessed.

11.56 The Project along with these other planned and proposed projects will introduce additional infrastructural elements into the urban area which is categorised as *low* sensitivity. The Wilton International site, which has been allocated for large scale industrial development, is within the 'urban area'. The magnitude of cumulative change is considered to be *small* resulting in a *not significant* cumulative effect on the urban area. With regards to the Redcar Flats and Eston Hills LCAs, the magnitude of change is considered to be *negligible* owing to distance and the intervening areas of urban development between the LCA boundaries and the Project site. Cumulative effects on these LCAs are therefore *not significant.*

11.57 With regards to viewpoints the Project will be seen in conjunction with other developments from a limited number of viewpoint locations. The only viewpoint where the Project will be clearly seen in conjunction with other

developments is VP10 Eston Nab looking north. This is a long distance view providing panoramic views of the Wilton International site. Sensitivity is considered to be high, but the magnitude of change is considered to be *small* resulting in a *minor to moderate* cumulative effect.

11.58 From other viewpoints there will be limited intervisibility due to intervening vegetation and exiting infrastructure. Where visible it will be limited to elements which are tall, e.g. stacks or the upper parts (at most) of other aspects of the Project and other developments.

11.59 All developments illustrated in *Figure 11.8* are located at varying distances (more than 500 m) from the Project site with the exception of *15 Waste Facility* and *16 Waste Treatment* both of which are less than 500 m . The distances have been stated in *Table 11.7*

11.60 Views which are likely to be affected are VP1, 3, 5, 6, 8 and 9 (see *Figures 11.6*, *11.5* and *11.6*).

11.61 From VP1, due to intervening vegetation and distance the Project will be visible in conjunction with other developments but views will be limited to higher components such as the stacks. This will result in very limited increase in industrialised visual character especially in the skyline. Given the location of the other planned developments and their distances from the Project site, will be seen as a separate infrastructural element but will not substantially increase or contribute to the industrialised character of the view. Therefore the magnitude of change is considered to be *negligible* and the cumulative effect is considered to be *not significant*.

11.62 With regards to VP3 the Project will be seen in combination with the other planned developments and this will result in limited increased industrialised visual character. The magnitude of change is considered to be *small* resulting in *minor* cumulative effect.

11.63 For VPs 5, 6 and 9 the only planned developments which are likely to be visible in conjunction with the Project are 2 Terminal Facilities, 33 Biomass Plant, 21 Waste Treatment, 15 Waste Facility and 16 Waste Treatment Plant and views will be limited to taller elements due to intervening vegetation and existing infrastructure. The Project has limited visibility in these views due to vegetation. The Project and other visible developments will only result in a small magnitude of change resulting in a *not significant* cumulative effect.

11.64 VP8 is at the entrance road to the Project site. Long distance views are limited. The Project is likely to be seen in combination with adjacent (existing) Ensus Plant, 15 Waste Facility, 16 Waste Treatment Plant, 24 Chemical Plant and 14 CHP/Anaerobic Digestion Plant when looking north and northeast. The Project adds an additional infrastructural element to the view, which in combination with other developments results in increased industrialised visual character which has low sensitivity. The magnitude of change is small and so this results in *a not significant* cumulative effect.

11.5 MITIGATION

11.5.1 Construction Phase

11.65 Not all landscape and visual effects can be practicably mitigated during the construction phase due to the visibility of certain construction components, in particular the tall construction plant required. A number of measures, however, can be applied to reduce, as far as practicable, the temporary effects during the construction phase. These include:

- limiting land clearance and occupation to the minimum necessary for the works;
- restricting construction site lighting outside normal working hours as far as practicable to the minimum required for safety and security; and
- maintenance of tidy and contained site compounds.

11.66 Due to the nature of the construction activities, however, the residual effects will remain as reported above in *Tables 11.5* and *Table 11.6*.

11.5.2 Operational Phase

11.67 Visual effects are generally either of minor significance or not significant at all viewpoints, with only one exception of an effect of minor to moderate significance at one viewpoint. Due to the tall character of certain elements of the Project and the existing baseline conditions which includes the existing Ensus Plant, other large plants in the industrial area, pylons and transmission lines, visual screening with vegetation within the DCO application boundary is unlikely to further mitigate landscape and visual effects, which regardless are assessed as being predominantly of minor significance or not significant. Therefore visual screening within the DCO application site is limited to a small area as shown in the Indicative Landscaping and Biodiversity Plan (Document 4.11). However it is important to also consider the large areas of existing green wedge/green infrastructure which are very effective in screening direct views to and from the Wilton International site. These are very effective for a number of views e.g. VP6, VP7, VP9, VP12 and VP14.

11.68 Building components will be carefully sited and arranged within the Project Site and will be designed with a choice of appropriate colours and materials so that the Project blends into the wider industrial landscape within the constraints of the performance parameters established by other environmental considerations (for instance design considerations related to noise abatement). Outdoor lighting will only be permitted where lighting schemes represent a minimum level required for security/operational purposes and are designed to minimise glare. These will be directional and pointed away from sensitive receptors.

11.69 The Project does propose limited on site landscape (both hard and soft). The scale of this commitment is regarded as reasonable given the context of the Project site and its designated use as industrial land. The proposed

landscaping is shown in Document 4.11 Indicative Landscaping and Biodiversity Plan.

11.6 CONCLUSIONS

11.70 The baseline environment is already industrial with a number of infrastructural elements in the vicinity of the Project site. These include the existing Ensus Plant, pylons and transmission lines and road networks.

11.71 The key impact is from the heat recovery steam generators housing and from the stacks. However, it is important to note that the Project is located on the site of a similarly sized former power station (now demolished, with demolition works ceasing as recently as 2015). In that respect a power station on the site has been an integral part of views for many years and only absent from such views for a short time.

11.72 Residual effects range from *not significant* to *minor to moderate* and will reduce over time as the Project is within a large industrial area and adjacent to an existing Ensus Bioethanol Plant, together with a number of industrial elements to the north-north west continuing clockwise round to the east of the Project site. The effects will reduce over time as the views towards the site from surrounding areas have changed for only a short period of time following the demolition of former power station. Once the Project is built it will not be very different to the views once available when the previous power station was present.