

National Grid
Cable Tunnel Replacement
Project

Environmental Statement
Volume IV

Chapter 16: Landscape and
Visual - Gravesend

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Quality information

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16 Landscape and Visual

16.1 Introduction

- 16.1.1 This chapter of the Environmental Statement (ES) assesses the likely effects of the Tilbury to Grain and Tilbury to Kingsnorth (TKRE) Cable Tunnel Replacement Project (“the Proposed Development”) on landscape and visual. It considers the likely effects on landscape and visual receptors during the construction, and operational phases.
- 16.1.2 This chapter also identifies any additional mitigation measures to prevent, minimise or control likely adverse effects on landscape or visual receptors arising from the Proposed Development.
- 16.1.3 This chapter should be read together with the introductory chapters of this Environmental Statement (ES) Volume II (Chapters 1 – 6). Historic features and ecological designations can have an influence on the perception and value of the landscape character or view.
- 16.1.4 Potential effects on ecological assets are provided in ES Volume IV Chapter 15: Biodiversity – Gravesend and potential effects on the cultural or heritage value of historic sites are provided in ES Volume IV Chapter 17: Historic Environment – Gravesend.
- 16.1.5 This chapter is supported by the following appendices (ES Volume VI) and figures:
- Appendix 16.1: Landscape Character Assessment Tables;
 - Appendix 16.2: Visual Assessment Tables;
 - Figure 16.1: LVIA Study Area – Gravesend;
 - Figure 16.2: National Landscape Character Areas – Gravesend;
 - Figure 16.3: Local Landscape Character Areas – Gravesend;
 - Figure 16.4: Landscape Relevant Designations and Recreational Routes – Gravesend;
 - Figure 16.5a/b: Zone of Theoretical Visibility – Gravesend;
 - Figure 16.6: Representative Viewpoint and Visual Receptor Locations – Gravesend
 - Figure 16.7: Photomontages.

16.2 Relevant Legislation, Policy, and Guidance

Introduction

- 16.2.1 The section of this chapter provides an overview of the relevant legislation, planning policy and technical guidance relevant to the landscape and visual assessment.

Legislation

- 9.1.1. The European Landscape Convention (ELC) (Ref 16-1) was signed by the UK Government in 2006 and came into effect in March 2007. The ELC recognises landscape in law. It focuses specifically on landscape issues and highlights the importance of integration of landscape into areas of policy, to promote protection, management and planning of all landscapes including the assessment of landscape and analysis of landscape change.
- 9.1.2. 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”*. The ELC considers landscape as a whole (land or marine), from urban to rural areas, and whether special or degraded.

National Policy

- 16.2.2 National Planning Policy relevant to this landscape and visual amenity assessment are detailed in Table 16-1.

Table 16-1: National Planning Policy

Policy Reference	Policy Context
National Planning Policy Framework (NPPF) (Ref 16-2)	The NPPF sets out the Government’s planning policies for England and provides a framework within which local planning authorities formulate their development plans. The NPPF acknowledges the importance of: - Development which is sympathetic to the local character and history. - Reflecting local design policies and government guidance on design. - High levels of sustainability. - Protecting and enhancing valued landscapes. - Recognising the intrinsic character and beauty of the countryside. - Providing net gains for biodiversity. Paragraphs of particular relevance include Paragraphs 130, 134, 174 and 185. The requirements of the NPPF have been accounted for in the assessment, with particular emphasis placed on establishing the character and value of landscapes, avoiding, or minimising the extent and duration of, potential landscape and visual effects.
National Policy Statement (NPS) for Overarching Energy (EN-1) (2011) (Ref 16-3) and National Policy Statement for Overarching Energy (EN-1) (Ref 16-4) (2023) – policy comes into force in “early 2024”	The NPS for Overarching Energy (EN-1) discusses the importance of landscape considerations as part of the design process. It states <i>“Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape”</i>. When discussing the importance of landscape and visual appraisal the new 2023 NPS states: <i>“The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual</i>

Policy Reference	Policy Context
	<i>amenity. This should include light pollution effects, including on local amenity, and nature conservation.</i>
National Policy Statement for Electricity Networks (EN-5) (2011) (Ref 16-5) and National Policy Statement for Electricity Networks (EN-5) (2023) – policy comes into force in “early 2024” (Ref 16-6)	The National Policy Statement for Electricity Networks (EN-5) acknowledges that new overhead lines, substations and sealing end compounds “ <i>may also give rise to adverse landscape and visual impacts.</i> ”. The NPS reiterates the importance of good design and the adherence to the Holford and Horlock Rules. When discussing the placement of electricity lines, the new 2023 NPS states that “ <i>it is the government’s position that overhead lines should be the strong starting presumption for electricity networks developments in general</i> ” unless located in a designated landscape (National Park, The Broads, or Areas of Outstanding Natural Beauty [now renamed as National Landscapes])
Planning Practice Guidance (PPG) for the Natural Environment (Ref 16-7)	PPG provides context to the NPPF and supports the conservation and enhancement of landscapes with particular reference to the use of landscape character assessment.
Environment Act 2021 (Ref 16-8)	The Environment Act 2021 Chapter 3 Part 6 provides guidance on environmental protection. The most relevant parts to a study of landscape and visual matters are as follows: a. Part 1: Environmental governance. b. Part 6: Nature and biodiversity (noting that the protection of biodiversity is set out within ES Volume IV Chapter 15: Biodiversity – Gravesend.

Local Planning Policy

16.2.3 Local Planning Policies relevant to this landscape and visual assessment are detailed in Table 16-2.

Table 16-2: Local Planning Policy

Policy Reference	Policy Context
Gravesend	
Gravesham Local Plan Core Strategy (2014) (Ref 16-11)	The local plan stipulates that “ <i>Regeneration and development will have conserved and enhanced the Borough’s rich historic built environment, landscape character and biodiversity as well as respected its distinctive local character.</i> ” This is delivered through thematic policies including Core Spatial Policy 12: Green Infrastructure (CS12). The Local Plan also states that all development proposals “ <i>affecting the urban fringe and rural area will be expected to take into account landscape character</i> ”. CS19: Development and Design Principles states that new development will take into account “ <i>landscape value which contribute to local character and sense of place</i> ”.
South East Marine Plan (Ref 16-13)	The Plan acknowledges the importance of seascapes as part of a “ <i>strong, healthy and just society</i> ”. Seascape and Landscape policy SE-SCP-1 aims to “ <i>manage significant adverse impacts on the seascape and landscape of the south east marine plan area. It will make sure that an area’s value, quality and its capacity to accommodate change is considered and that the scale and design of a proposal is compatible with its surroundings.</i> ”
Kent Design Guide (Ref 16-14)	The Kent Design Guide notes that the former industrial areas along the River Thames and the Medway and the perceptions created help “ <i>define character landscape areas of Kent</i> ”.

Policy Reference	Policy Context
	The guide also states that to achieve a well-integrated design any development should form “a <i>harmonious composition with surrounding buildings or landscape features.</i> ”
Making it Happen - supplementary information for the Kent Design Guide (Ref 16-15)	This technically focussed document provides specific information regarding the requirements of a site survey mandating the requirement for assessment of “ <i>views in and out and potential visual impact.</i> ”

Guidance

16.2.4 The landscape and visual assessment has been carried out in accordance with the following good practice guidance documents:

- Guidelines for Landscape and Visual Impact Assessment: Third Edition’ (Landscape Institute and Institute of Environmental Management and Assessment, 2013) (GLVIA) (Ref 16-16);
- Visual Representation of Development Proposals Technical Guidance Note 06/19 (Landscape Institute TGN 06/19) (Ref 16-17);
- Assessing Landscape Value Outside National Designations. Technical Guidance Note 02/21 (Landscape Institute TGN02/21) (Ref 16-18);
- Design Principles for National Infrastructure (Ref 16-19);
- Infrastructure – Technical Guidance Note 04/20 (Ref 16-20); and
- Tranquillity - An overview – Technical Information Note 01/17 (Ref 16-21).

16.3 Scope and Methodology

16.3.1 The scope of this landscape and visual assessment comprises an assessment of effects on landscape character and visual amenity during construction and also at operation. The scope and methodology of the LVIA has been agreed with consultees during the EIA Screening process and subsequent consultation as identified in Table 16-9.

16.3.2 Landscape and visual effects are related but distinct topics so have been considered and appraised separately. Landscape and visual effects can differ from one stage of the development to the next and change over time as mitigation planting establishes and matures. Residual effects as a result of the proposals on landscape character and visual amenity could include:

- Construction: temporary effects from the movement of construction plant, vehicle haul routes, excavations, temporary construction compounds, material stockpiles and the removal of vegetation.
- Operational Year 1 (winter): including consideration of potential medium to longer term effects associated with the Proposed Development following completion of the construction phase and associated reinstatement. This stage is intended to represent the potential worst-case operational effects prior to establishment of mitigation planting.
- Operation Year 15 (summer): including consideration of potential longer-term effects of the Proposed Development 15 years after becoming operational. This stage is intended to help demonstrate how proposed mitigation planting will influence effects once established. study area

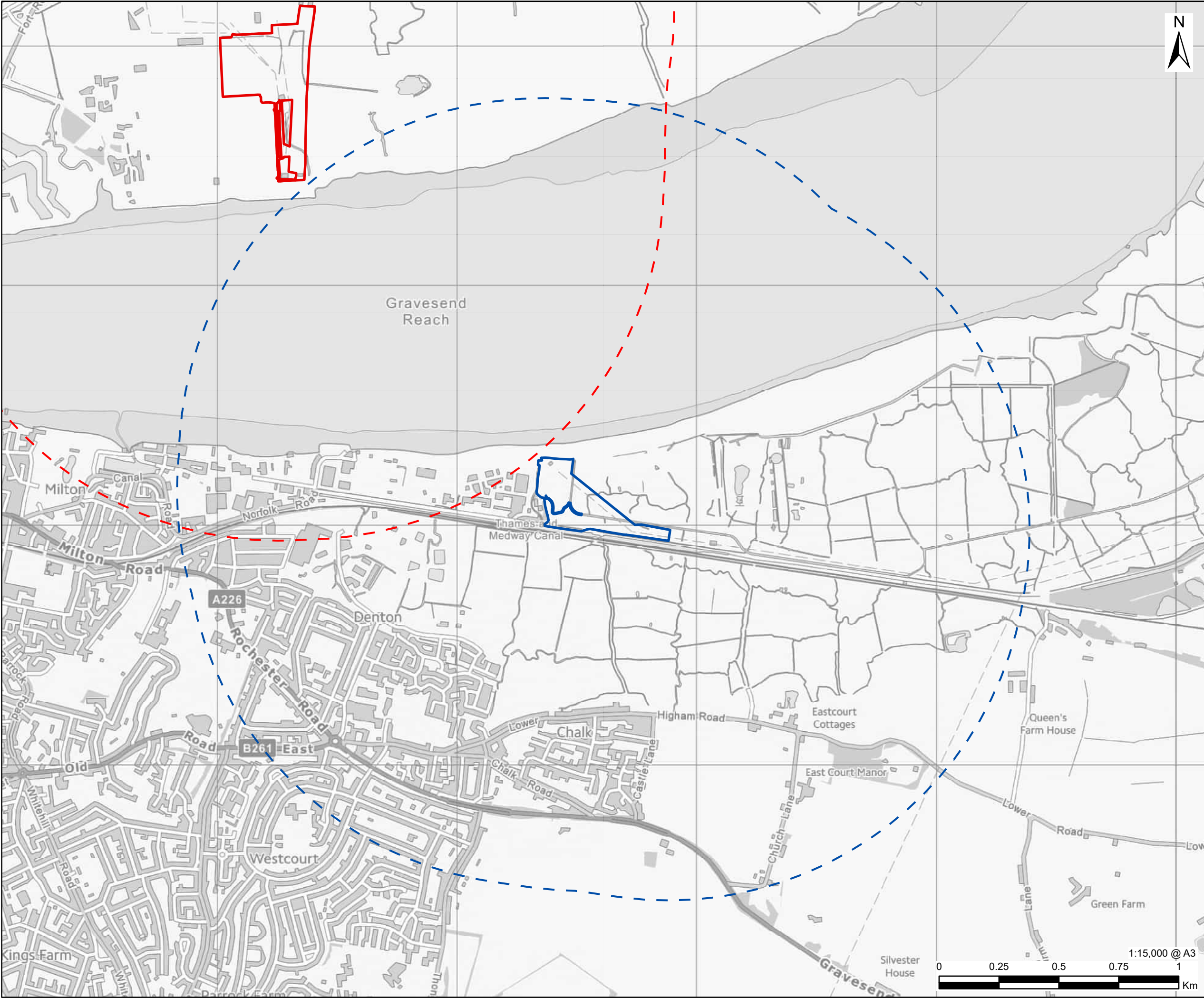
Study Area

16.3.3 For landscape and visual effects, the study area has been determined either by specific development type guidance or by professional judgment based on the anticipated Zone of Theoretical Visibility (ZTV) mapping, informed by digital terrain modelling. ZTVs present theoretical visibility of the Proposed Development based on a bare earth topographical model which does not account for

intervening built form and vegetation and therefore tend to overstate actual visibility. Guidelines for Landscape and Visual Impact Assessment Third Edition (Ref 16-16) suggests that the study area should be proportionate to the Proposed Development itself and may include refinement by professional judgement. In the case of the Proposed Development, the study area has been defined by a combination of the ZTV, on-site appraisal and professional judgement. The combination of these factors has resulted in a study area which encompasses land within a 1.5km radius of the site (see Figure 16-1). Beyond this distance it is anticipated that the Proposed Development would be unlikely to give rise to significant landscape or visual effects.

Landscape Character

- 16.3.4 Landscape receptors are described as components of the landscape that are likely to be affected by the Proposed Development. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Proposed Development and these landscape receptors which has potential to result in landscape impacts and effects (both adverse and beneficial).
- 16.3.5 The sensitivity of the landscape receptor has been derived by combining of the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.
- 16.3.6 Landscape value is frequently addressed by reference to international, national, regional, and local designations. Absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource.
- 16.3.7 The evaluation of landscape value has been informed by Technical Guidance Note 02/21 (Ref 16-18) and undertaken considering the following factors and classified as very high, high, medium, low or negligible with evidence provided as to the basis of the evaluation:
- **Natural heritage** – Landscape with clear evidence of ecological, geological, geomorphological or physio-graphic interest which contribute positively to the landscape.
 - **Cultural heritage** – Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.
 - **Landscape condition** – Landscape which is in a good physical state both with regard to individual elements and overall landscape structure.
 - **Associations** – Landscape which is connected with notable people, events and the arts.
 - **Distinctiveness** – Landscape that has a strong sense of identity.
 - **Recreational** – Landscape offering recreational opportunities where experience of landscape is important.
 - **Perceptual (scenic)** – Landscape that appeals to the senses, primarily the visual sense.
 - **Perceptual (wildness and tranquillity)** – Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
 - **Functional** - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.
- 16.3.8 Landscape susceptibility relates to the ability of a particular landscape to accommodate the Proposed Development. It is assessed through consideration of the baseline characteristics and attributes of the landscape, and in particular, the scale or complexity of a given landscape. Attributes relate to topography and landform, landcover, pattern, scale, complexity, perceptual aspects, and it is the combination of these which make one landscape more susceptible to the type of development proposed compared with another. For example, a small scale, complex wooded landscape is going to be more susceptible to the introduction of the Proposed Development than one which is larger scale, simple with fewer vegetated features.



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- LEGEND**
- Tilbury Red Line Boundary
 - Gravesend Red Line Boundary
 - Tilbury 1.5km Buffer
 - Gravesend 1.5km Buffer

NOTES
For the purposes of LVIA the haul routes and tunnel have been removed from the Proposed Development Boundary. Reproduced from Ordnance Survey digital map data © Crown copyright 2023. All rights reserved. Licence number 0100031673.

ISSUE PURPOSE
Environmental Statement

PROJECT NUMBER
60677311

FIGURE TITLE
LVIA Study Area - Gravesend

FIGURE NUMBER
Figure 16.1

16.3.9 Landscape susceptibility to change is a measure of the ability of a landscape to ‘accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies’ (GLVIA, para 5.40) (Ref 16-16). The evaluation of landscape susceptibility is defined as very high, high, medium, low and negligible and is supported by a clear explanation based upon the analysis of the landscape receptor and the extent to which it is able to accommodate the changes that would result from the Proposed Development.

16.3.10 The overall sensitivity assessment of the landscape receptor has been made by applying professional judgement to combine and analyse the identified value and susceptibility ratings. Overall sensitivity has been rated as very high, high, medium, low and negligible. Table 16-3 Sensitivity of Landscape Receptors below outlines indicators that inform landscape value, susceptibility, and sensitivity. The basis of the assessment is made clear in the evaluation of each landscape receptor.

Table 16-3 Sensitivity of Landscape Receptors

Criteria	Higher Sensitivity	Lower Sensitivity
Value	A designated landscape (National Park, Area of Outstanding Natural Beauty, National Scenic Area, World Heritage Site) or a landscape in very good condition, exceptional scenic quality and high recreational opportunities or a high degree of rarity.	Landscapes containing few if any notable elements / features, of poor condition or containing several detracting features and limited aesthetic qualities. Landscapes which are not formally designated.
Susceptibility	Attributes that make up the character of the landscape which offer very limited opportunities to accommodate change of the type proposed without fundamentally altering key characteristics.	Attributes that make up the character of the landscape which are tolerant of a large degree of the type of change proposed without fundamentally altering the key characteristics.

Magnitude of Landscape Impacts

16.3.11 Magnitude of landscape impact refers to the extent to which the Proposed Development would alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- The extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- The extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones;
- Whether the change alters the key characteristics of the landscape, which are integral to its distinctive character;
- The geographic area over which the change will be felt (within the application boundary itself, the immediate setting, at the scale of the landscape character area, on a larger scale influencing several landscape character areas); and,
- The duration of the change (i.e., short-term, medium term, or long term), and its reversibility (i.e., whether it is permanent, temporary, or partially reversible).

16.3.12 Landscape change can be both direct, through alteration of physical components, or indirect, resulting from changes to perceptual aspects of character and how it is experienced.

16.3.13 Magnitude of landscape impact has been evaluated with reference to the scale and criteria outlined in Table 16-4: Landscape Magnitude Criteria, below, combined with judgement on the likely duration and reversibility of change. As a general rule, long term and permanent change is likely to indicate a higher magnitude of impact than temporary or short-term change.

Table 16-4: Landscape Magnitude Criteria

Classification	Description
Very Large	Substantial alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Large	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term, permanent or reversible.
Small	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term, permanent or reversible.
Negligible	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short-term, permanent or reversible.
None	No change to the landscape receptor.

Significance of Landscape Effect

- 16.3.14 Determination of the significance of landscape effects has been undertaken by employing professional judgement and experience to combine and analyse the identified classification of the landscape magnitude of impact with the identified sensitivity of the receptor. Sensitivity to change is evaluated as a combination of the identified value and susceptibility of the landscape receptor. The assessment takes account of direct and indirect change on existing landscape elements, features and key characteristics and evaluates the extent to which these would be lost or modified, in the context of their importance in determining the existing baseline character.
- 16.3.15 The significance of landscape effects is described with reference to the scale set out in Table 16-5: Significance of Landscape Effect, below.

Table 16-5: Significance of Landscape Effect

Classification	Description
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.
Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.

9.1.3. For the purpose of this assessment effects of moderate or greater are considered to be significant.

Visual Amenity

Visual sensitivity

- 16.3.16 Sensitivity of visual receptors has been defined through appraisal of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.
- 16.3.17 Value of the view is an appraisal of the value attached to views and is often informed by the appearance on Ordnance Survey or tourist maps and in guidebooks, literature and art, or identified in policy. Value can also be indicated by the provision of parking or services and signage and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view has been classified as very high, high, medium, low and negligible and is supported by evidenced, professional judgements.
- 16.3.18 The susceptibility of visual receptors to change has been established as a function of the occupation or activity of people experiencing the view, and the extent to which their attention or interest is focussed on the view and the visual amenity they experience. For example, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, indicate a higher level of susceptibility.
- 16.3.19 Conversely receptors engaged in outdoor sport where views are not important or receptors at their place of work are considered less susceptible to change.
- 16.3.20 Judgements about the susceptibility of visual receptors have been ascribed using very high, high, medium, low or negligible ratings using consistent and reasoned judgements.
- 16.3.21 The overall sensitivity assessment of the visual receptor has been determined by applying professional judgement to combine and analyse the identified value and susceptibility ratings. Overall visual sensitivity has been rated as very high, high, medium, low and negligible. Table 16-6: Sensitivity of Visual Receptors below outlines indicators that inform value of the view, susceptibility, and sensitivity of visual receptors. The basis of the assessment is made clear in the evaluation of each visual receptor.

Table 16-6: Sensitivity of Visual Receptors

Criteria	Higher Sensitivity	Lower Sensitivity
Value	Views protected by designation, or nationally recognised, or recorded on maps / guidebooks or with cultural associations. Views which may be associated with internationally or nationally designated landscapes. Views that have high scenic qualities relating to the content and composition of the view.	Views which are not documented or protected with minimal or no cultural associations. Views that exhibit low scenic qualities relating to the content and composition of the view.
Susceptibility	Viewers whose attention or interest is focused on their surroundings, including: - residential properties and settlements where views contribute to the landscape setting enjoyed by residents; and; - people engaged in outdoor recreation including users of cycle routes, long distance paths, PRow and visitors to heritage assets where views of the surroundings are an important contributor to experience.	People whose attention or interest is not focused on their surroundings and where the view is incidental to their enjoyment including: - people travelling more rapidly on major roads, rail or transport routes not recognised as scenic routes; - people engaged in outdoor recreation which does not involve or depend upon appreciation of views of the landscape; and - people at their place of work whose attention is not on their surroundings.

Magnitude of Visual Impacts

16.3.22 Magnitude of visual impact relates to the extent to which the Proposed Development would alter the existing view and is an expression of the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- The scale of the change in the view with respect to the loss or addition of features, changes in composition, and the proportion of the view occupied by the Proposed Development;
- The degree of contrast or integration of any new features or changes in the form, scale, composition and focus of the view;
- The angle of view in relation to the main activity of the receptor and the distance from the Proposed Development;
- The amount of time over which it will be experienced and whether views will be full, partial or glimpsed; and
- the duration of the change (i.e., short-term, medium term, or long-term), and its reversibility (i.e., whether it is permanent, temporary, or partially reversible).

16.3.23 Magnitude of visual impact has been evaluated with reference to the scale and criteria outlined in Table 16-7, below, combined with judgement of the likely duration and reversibility of change.

Table 16-7: Visual Magnitude Criteria

Classification	Description
Very Large	A substantial change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Large	A pronounced change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Medium	A noticeable change to the composition of the view or change that may be viewed in the middle ground or indirectly. May be medium term, permanent or reversible.
Small	An unobtrusive change in the composition of the view or change that may be viewed in the background or obliquely. May be short to medium term, permanent or reversible.
Negligible	A barely perceptible change in the composition of the view or change that may be viewed in the background and/or very obliquely. May be short-term, permanent or reversible.
None	No change to the view.

Significance of Visual Effect

16.3.24 Determination of the significance of visual effects has been undertaken by employing professional judgement and experience to combine and analyse the magnitude of impact against the sensitivity of the receptor. Sensitivity to change is evaluated as a combination of the identified value and susceptibility of the visual receptor. The assessment takes into account likely changes to the visual composition, including the extent to which new features would distract or screen existing elements in the view or disrupt the scale, structure or focus of the existing view.

16.3.25 The significance of visual effects is described with reference to the scale set out in Table 16-8: Significance of Visual Effect, below.

Table 16-8: Significance of Visual Effect

Classification	Description
Major Beneficial	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No change to the existing view.
Negligible Adverse	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that typically result in a limited deterioration in the existing view.
Major Adverse	Alterations that typically result in a noticeable deterioration in the existing view.

16.3.26 For the purpose of this assessment, effects of moderate or greater are considered to be significant.

Limitations

16.3.27 The construction assessment is based on the construction information that is currently available, . As with all construction assessments, the exact details of construction activities would not be fully known before a specific contractor is appointed to complete the works who would determine their exact construction methods and programme during the detailed design stage. The assessment of construction effects on landscape and visual receptors is based on the available outline phased construction programme, as detailed in Volume II Chapter 3: Project Description.

16.3.28 Zone of Theoretical Visibility (ZTV) maps have been used as a tool to inform the assessments. ZTVs present theoretical visibility of the Proposed Development based largely on a bare earth topographical model and although areas of woodland and buildings have been included, the ZTV tends to overstate actual visibility. The use and limitations of ZTVs is explained further in Paragraphs 16.5.32 to 16.5.36.

16.3.29 The visual assessment is based on a series of representative viewpoints related to key receptor groups. The on-site evaluation of magnitude of impact and significance of effects has been undertaken from the nearest publicly accessible location, and as such, assumptions as to the orientation of the main views from receptor locations have been made. For all locations the evaluation is based on an assumed worst-case location within each receptor group and as such the significance of effects on individual receptors may differ locally from that stated.

16.3.30 The assessment of potential effects on receptors at these locations is made based on a worst-case approach of a clear bright day in winter as per best practice and to be consistent with the approach for other receptors in this assessment. The assessment of residual effects on these and all other receptors is based on summer at year 15 of operation. This approach is consistent with best practice and allows proposed mitigation planting to be taken into consideration in the assessment of long-term residual impacts.

Desk Study

16.3.31 The following sources of data were reviewed to inform the landscape baseline:

- *National Character Areas*, as published by Natural England in 2014 and 2015 (Ref 16-23, Ref 16-24);
- *The Landscape Assessment of Kent* (Kent County Council, 2004) (Ref 16-26);

- The *Gravesham Landscape Character Assessment* (Gravesham Borough Council, 2009) (Ref 16-27); and
- The *Gravesham Townscape Appraisal* (Gravesham Borough Council, 2008) (Ref 16-28).

16.3.32 Reference was also made to the prevailing policy framework including local plans to identify any designated landscapes or features of value and their relationship to the Proposed Development.

16.3.33 Other information sources referenced as part of the baseline review included 1:25,000 and 1:10,000 scale Ordnance Survey (OS) mapping, 3-dimensional topographical data site photographs and aerial photography.

Viewpoint Survey

16.3.34 Fieldwork surveys were undertaken by qualified and experienced landscape architects in summer 2023. The purpose of this fieldwork was to inform understanding of the landscape and visual baseline as defined in the published landscape character assessments. GLVIA3 (Ref 16-16) guidance suggests that consideration be given to seasonal variation in effects where appropriate but acknowledges that the timing of the appraisal may mean that this is not practical. In this LVIA potentially important differences between seasonal views have been indicated in the appraisal and taken into consideration in reaching conclusions. Summer viewpoint surveys were also considered proportionate due to the minimal vegetation within the study area that is characteristic of the NCA.

16.3.35 Attributes experienced as part of the fieldwork surveys included features and elements associated with the built environment, historic landscape, and areas of managed landscape. Potential impacts on cultural heritage assets are assessed separately in ES Volume IV Chapter 17: Historic Environment - Gravesend.

16.3.36 Perceptual qualities of the landscape, such as background noise and tranquillity were also observed.

16.3.37 Fieldwork surveys were also used to identify visual receptors and representative viewpoints and to clarify the likely extent of views, taking account of the effect of existing intervening features such as buildings and vegetation.

16.3.38 A desk study of ecological data has been carried out as part of the ecology assessment as reported in ES Volume IV Chapter 15: Biodiversity - Gravesend. Information from these surveys has been used, where relevant, to inform the identification of baseline landscape conditions.

16.4 Consultation and Stakeholder Engagement

- 16.4.1 Consultation in relation to landscape and visual has been undertaken with stakeholders. Table 16-9 below provides an overview of consultation responses and the actions taken to address these within the assessment. A full summary of all consultation is provided in ES Volume II Chapter 5: Consultation.

Table 16-9: Consultation and Stakeholder Engagement Log

Consultee	Summary of comments	How we addressed this
Nina Hicks, Planning Officer, Thurrock Council	<i>"I have looked at the proposed viewpoints and agree with these. Although would it be possible to include a viewpoint from West Tilbury Marshes to the north east of the application site. Land levels are slightly higher here and there is a small village nearby. Would be good to know how the development would impact this vista."</i>	An additional representative viewpoint was added for viewpoint photography and assessment. This was located at PRoW 68 (footpath) near West Tilbury and is representative of recreational receptors in the vicinity of Gun Hill and residential receptors at the southern extents of West Tilbury with views to both the Tilbury and Gravesend Sites. Agreement of this location was confirmed with Thurrock Council by email.
Gravesham Borough Council	<i>No comments received</i>	No action

16.5 Landscape and Visual Baseline

- 16.5.1 The following section provides a baseline description of the existing conditions of each of the landscape and visual receptors identified within the study area.

Landscape Character Overview

- 16.5.2 Landscape character is a composite of physical, cultural, perceptual and aesthetic elements. Landform, hydrology, vegetation, land cover, land use pattern, cultural and historic features and associations combine to create a common 'sense of place' and identity which can be used to categorise the landscape into definable types and areas. The level of detail and size of the types and areas can be varied to reflect the scale of definition required. It can be applied at a national, regional, and local level.
- 16.5.3 The landscape baseline across the study area is summarised in section 16.5 and includes descriptions under a series of headings, based upon features and elements within the landscape. It also details the combination of elements, which make a particular contribution to distinctive character and includes a summary of published landscape character assessment work at the national, county, and local levels. These are used by local planning authorities as part of their planning policy evidence base and often provide specific guidance or recommendations on managing landscape change.
- 16.5.4 Guidelines on Landscape and Visual Impact Assessment (GLVIA3) (Ref 16-16 paragraphs 5.12 – 5.18) indicates that broad-scale character assessments, such as those produced at the national level, can be used to set the scene and indicate the key characteristics that may be apparent in the study area. It also suggests that local authority assessments provide more detail and that these can be mapped to show how the scheme relates to them.
- 16.5.5 The site is not subject to any locally, nationally or internationally important landscape designations. The Proposed Development has been designed to respect the character of the landscape as far as practicable.

Landform and Hydrology

- 16.5.6 The landform of the site is flat and low-lying at approximately 0-20m Above Ordnance Datum (AOD).

- 16.5.7 The landform of the Gravesend study area is predominantly flat however the terrain rises up gradually to the west to approximately 15m AOD in the direction of Windmill Hill, and to the south at approximately 20m AOD in the direction of Harts Hill and Shorne Hill.
- 16.5.8 The River Thames passes from west to east through the study area and is the dominant hydrological feature. The Gravesend area comprises marshland and the field drains within this study area are intricate and extensive.

Settlement and Vegetation Patterns

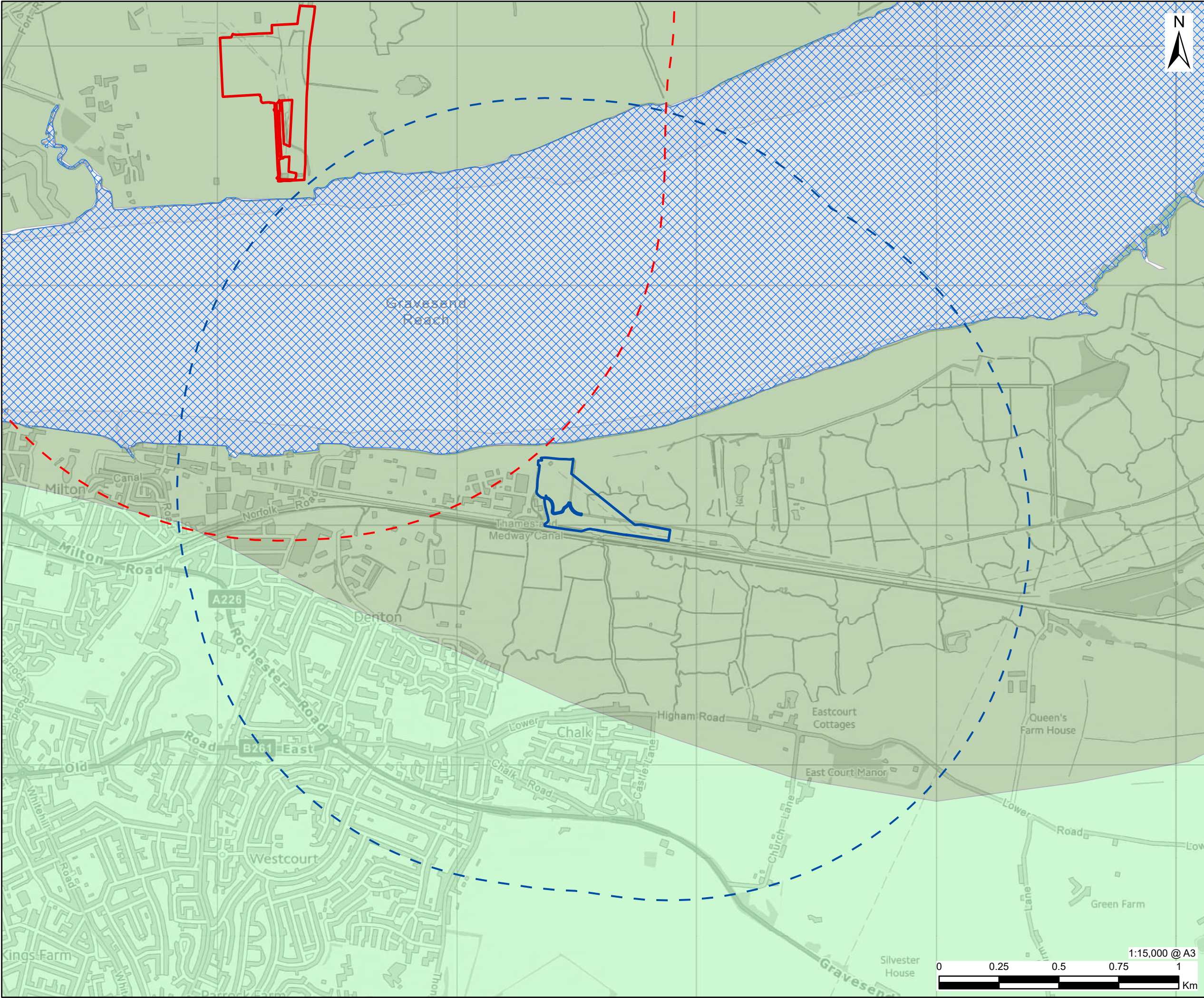
- 16.5.9 The Gravesend site is located to the east of Gravesend on an area known as the East Court Marshes. The site is adjacent to an industrial area that forms a narrow strip between the River Thames and the Thames and Medway Canal. The nearest residential properties in the settlements of Denton and Chalk are approximately 750m to the south and west of the site. The remainder of the study area is rural with scattered farmsteads and isolated properties to the southeast along with the low-lying marshland landscape. The flat, open marshland landscape largely comprises grazing pasture and riparian vegetation lining the drainage ditches with very few trees.

Public Rights of Way and Access

- 16.5.10 There are no PRoWs across the Gravesend site. The nearest PRoW (Footpath 0328/NG1/1) is located approximately 150m to the north of the site and comprises part of the England Coast Path and Saxon Shore Way promoted recreational routes. A public footpath that runs alongside the Thames and Medway Canal (0328/NG2/2) is located approximately 150m to the south of the site and also forms part of NCN Route 1 from Dover up to the Highlands of Scotland. There are several other PRoWs that run perpendicular to this route (0328/NG3/1 and 0328/NG4/1) to the south of the site and bridleway 0229/NS318/1 to the east of the site. In addition, there are several smaller PRoWs to the edge of the study area, particularly in the vicinity of Chalk and Denton (see Figure 16.5). There are no areas of Registered Common Land or accessible CRoW Act land in the study area.

National Landscape Character

- 16.5.11 The Gravesend Site lies within the National Character Area (NCA) 81 (Ref 16-23) (see Figure 16-2). Greater Thames Estuary and exhibits some of the key characteristics of the NCA:
- *Predominantly flat, low-lying coastal landscape;*
 - *Extensive open spaces ...dominated by the sky;*
 - *The pervasive presence of water;*
 - *Open grazing pastures patterned by a network of ancient and modern reed-fringed drainage ditches; and*
 - *Highly urbanised areas ... on marsh edges subject to chaotic activity of various major developments.*
- 16.5.12 A small part of the southern extents of the Gravesend study area also lie within NCA 113 North Kent Plain (Ref 16-24) with the area exhibiting the “open, low and gently undulating” areas of “productive arable land” characteristic of the NCA.
- 16.5.13 The Gravesend study area also lies within the Marine Character Area (MCA) 18: Thames and Medway Estuaries defined in the Seascape Character Assessment for the South East Inshore marine plan area (Ref 16-25) and exhibits some of the key characteristics of the MCA:
- *Marked contrast of industrial ports and urban area with the wild and remote isolated low-lying marshy coastal landscape;*
 - *Entrance to the River Thames heavily used by commercial shipping traffic; and*
 - *A busy industrial environment with dense residential and large scale industrial developments.*
- 16.5.14 The Proposed Development would not have significant effects on Landscape character at the NCA or MCA scale.



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LEGEND

- Tilbury Red Line Boundary
- Gravesend Red Line Boundary
- Tilbury 1.5km Buffer
- Gravesend 1.5km Buffer
- 18 Thames and Medway Estuaries
- Greater Thames Estuary
- North Kent Plain

NOTES

For the purposes of LVIA the haul routes and tunnel have been removed from the Proposed Development Boundary.
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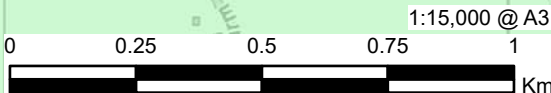
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FIGURE TITLE

National Character Areas - Gravesend

FIGURE NUMBER

Figure 16.2



County Landscape Character

16.5.15 At the county level, the Gravesend site and study area incorporates the Eastern Thames Marshes LCA and Hoo Peninsula LCA defined in the Landscape Assessment of Kent landscape character assessment (2004) (Ref 16-26). These are shown on Figure 16-3.

16.5.16 Eastern Thames Marshes LCA is characterised by:

- *Remote, wild, remote and quiet. Influence of sea and sky;*
- *Creeks, dykes, marsh and patches of scrub, extensive areas of cultivated marsh, a simple landscape;*
- *Overhead power lines; and*
- *Wild birds and grazing animals.*

16.5.17 Hoo Peninsula LCA is characterised by:

- *Prominent hills and low-lying alluvial marshes; and*
- *Flat/undulating farmland.*

Local Landscape Character

16.5.18 At the local level, the Gravesend site and study area incorporates the Shorne and Higham Marshes LCA and the Higham Arable Farmland LCA defined in the Gravesend Landscape Character Assessment (Ref 16-27) and illustrated on Figure 16-3.

16.5.19 Shorne and Higham Marshes LCA is characterised by:

- *Flat grazing marsh with a lack of vegetation; and*
- *Network of ditches and meandering waterways divide the marshes in an irregular pattern leaving parcels of land of a medium scale.*

16.5.20 Higham Arable Farmland LCA is characterised by:

- *Very gently undulating topography;*
- *Open arable farmland; and*
- *Views out to the marshes and the River Thames in the north.*

16.5.21 The study area also incorporates the Gravesend Townscape Area. This is further defined by Urban Character Areas at the local level.

16.5.22 The study area includes the Urban Character Areas (UCA) of Inter/Post War Suburbs UCA, the Victorian/Edwardian Suburbs UCA, the Modern Suburbs UCA, and the Industrial Hinterland UCA defined in the Gravesend Townscape Appraisal (Ref 16-28) and illustrated on Figure 16-3.

16.5.23 The Inter/Post War Suburbs UCA is characterised by:

- *Largely residential land use with naturally undulating topography; and*
- *The close proximity of the neighbouring Green Belt all combine to create some extensive views of the surrounding landscape.*

16.5.24 The Victorian/Edwardian Suburbs UCA is characterised by:

- *Some of the most extensive views of Gravesend, including the industrial estates adjacent to the River Thames and large areas of the surrounding landscape.*

16.5.25 The Modern Suburbia UCA is characterised by:

- *The nearby heavy industrial estates and the associated chimney stacks form a noticeable backdrop to this residential area.*

16.5.26 The Industrial Hinterland UCA is characterised by:

- *Heavy industrial land use dominating the space both physically and visually; and*

- *Views through the area restricted by the numerous large scale buildings.*

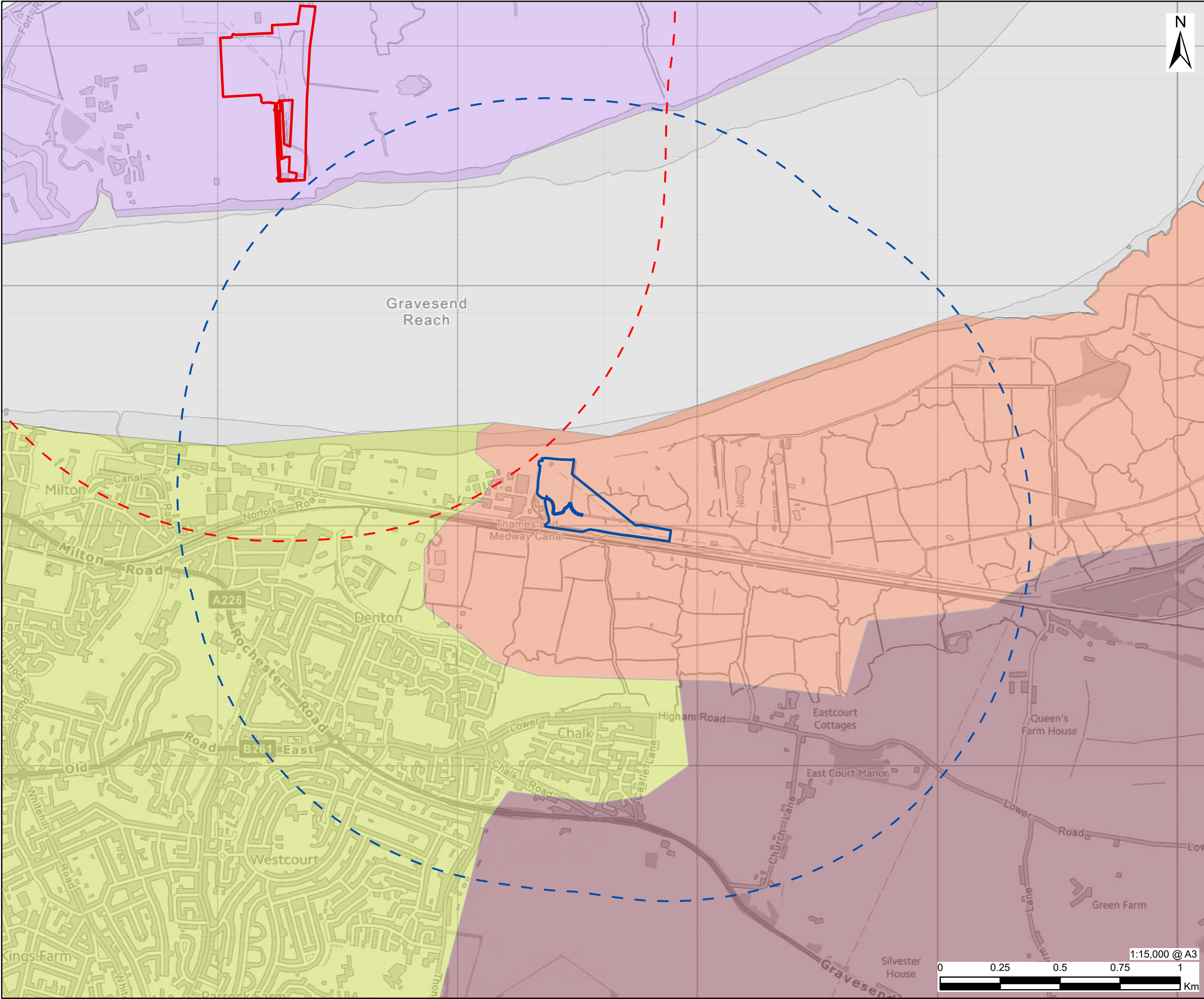
Landscape Designations

- 16.5.27 Neither the Gravesend site or its respective study area are covered by any statutory landscape designations. The nearest National Landscape¹ is the Kent Downs located 3.2km south of the Gravesend site.
- 16.5.28 Whilst there are no landscape designations, there are a number of ecological and cultural heritage designations within the study area and these can inform landscape value and are of importance in terms of visitor destinations and visual amenity for the area. These include the Scheduled Monument of Tilbury Fort which can be viewed from the Kent coastline, and listed buildings within the Gravesend study area. In addition to these cultural heritage designations, there are ecological designations including the South Thames Estuary and Marshes SSSI, Ramsar site, and SPA approximately 200m south, and 700m to the west of the Gravesend site. Further details can be found in ES Volume IV Chapter 15: Biodiversity – Gravesend and Chapter 17: Historic Environment – Tilbury.
- 16.5.29 The Gravesend Site and its respective study area sit within the London Area Green Belt (LAGB) within the Gravesham District B LAGB. The radius of the study area also encompasses the LAGB at Tilbury. This indicates landscape value as a result of openness, rather than intrinsic quality.

Visual Resource

- 16.5.30 Visual impacts are defined in GLVIA3 (Ref 16-16 Para 2.21) as “*specific views and on the general visual amenity experienced by people*”. This means people with the potential for views of either the construction or operation of the Proposed Development.
- 16.5.31 The identification of visual receptors is a two-staged process, beginning with interrogation of baseline mapping and the preliminary ZTVs and then moving onto fieldwork to refine and ascertain the actual inter-visibility between the Proposed Development and potential visual receptors.

¹ National Landscape is the new name for areas designated as Areas of Outstanding Natural Beauty (AONB)
December 2023



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LEGEND

- Tilbury Red Line Boundary
- Gravesend Red Line Boundary
- Tilbury 1.5km Buffer
- Gravesend 1.5km Buffer
- Landscape Character Areas**
 - Eastern Thames Marshes
 - Gravesend Townscape Urban Character Area
 - Hoo Peninsula
 - Tilbury Marshes

NOTES

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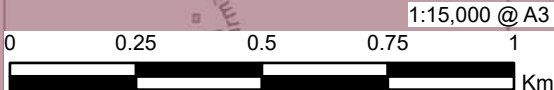
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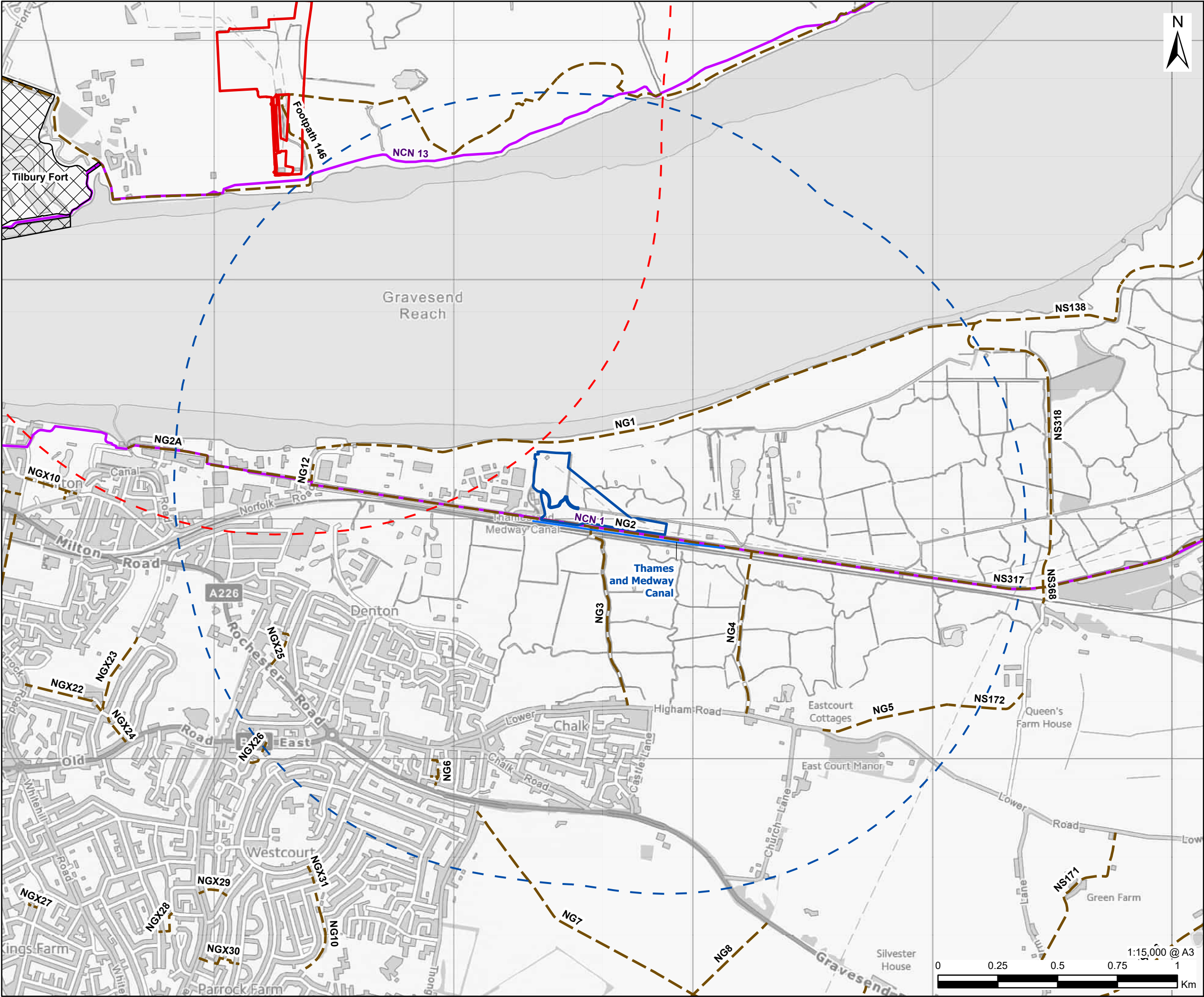
FIGURE TITLE

Local Landscape Character Areas - Gravesend

FIGURE NUMBER

Figure 16.3





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- LEGEND**
- Tilbury Red Line Boundary
 - Gravesend Red Line Boundary
 - Tilbury 1.5km Buffer
 - Gravesend 1.5km Buffer
 - National Cycle Network
 - Public Right of Way
 - Thames and Medway Canal (disused)
 - Tilbury Fort

NOTES

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FIGURE TITLE
Landscape Relevant Designations and Recreational Routes - Gravesend

FIGURE NUMBER
Figure 16.4

Zone of Theoretical Visibility Analysis

- 16.5.32 A computer generated ZTV was run for the Proposed Development generated using 5m Digital Terrain Model (DTM) from OS MasterMap incorporating screening from vegetation based on woodland from the National Forestry Inventory (NFI) using an assumed height of 10m and screening from existing buildings from OS Open Map Local with an assumed height of 7.5m. The ZTV is based upon a series of points around the sealing end compound terminal pylons with a height of 13 m, a grid of points 2 m apart within the headhouse building at a height of 10 m, and an observer eye height of 1.6 m. All heights are above ground level. A ZTV have been generated for the Gravesend study areas and are shown on Figure 16-5.
- 16.5.33 The ZTV indicates areas from where it may be possible to view part of or the entire Proposed Development, however, the use of the ZTV needs to be qualified by the following considerations:
- The ZTV is limited by the detail of the digital terrain model data used and does not take account of local topographic variations;
 - Some areas of theoretical visibility may comprise woodland (not accounted for in the NFI) or agricultural land, where there is effectively no public access and the likelihood of views being experienced is consequently low; and
 - The ZTV does not take account of the likely orientation of a viewer, such as the direction of travel and there is no allowance for reduction of visibility with distance, weather, or light.
- 16.5.34 These limitations mean that the ZTV tends to overestimate the extent of visibility, both in terms of the areas from which the Proposed Development is visible and the extent of the particular site which is visible. Consequently, the ZTV should be considered as a tool to identify areas of potential visibility for further targeted survey and assessment, and not a measure of the visual effect.
- 16.5.35 The receptors identified have been selected on the basis that they fall within the ZTV (Figure 16-5). As illustrated by the ZTV, the pattern of theoretical visibility is mostly concentrated around the undeveloped marshland around the Gravesend site where the riverine topography is flat. There are pockets of potential more distant visibility to the south and southeast of the Gravesend study area where the landform starts to rise. Visibility from the urban areas of Gravesend are limited to the settlement edge.
- 16.5.36 Visual receptors within the study area where there is theoretical visibility include, but are not limited to, the following: settlements and residential receptors; users of National Cycle Routes and promoted recreational routes; and those using local rights of way; people using major transport routes (major roads and rail); and people using the local road network.

Key Receptors

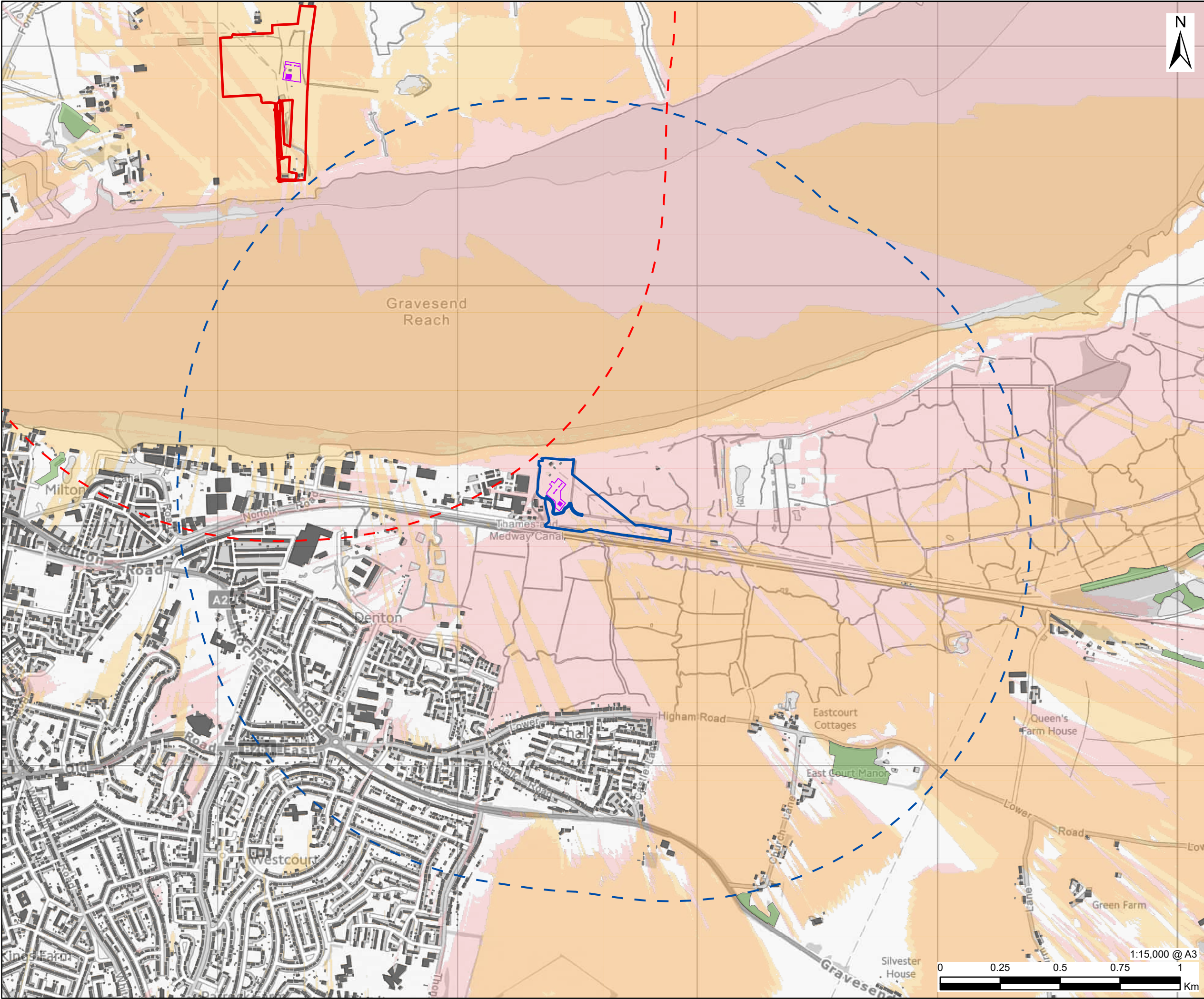
- 16.5.37 The types of visual receptor and receptor groups within the study area who have the potential to experience views of the Proposed Development at Tilbury and Gravesend are listed below and grouped into the following categories:
- Views from residential settlements;
 - Views from recreational routes and places of interest;
 - Views from roads and rail;
 - Views from places of work; and
 - Views for those engaged in outdoor sport or recreation.

Views from residential settlements

- 16.5.38 Residential settlement within the Gravesend study area is limited to the northern settlement edge of Chalk and Denton. There may be views from some of the townscape areas of Gravesend but these are likely to be limited due to the topography and intervening buildings. Views from higher ground in the vicinity of Windmill Hill towards the Proposed Development would be perceived as part of, and

an extension to, the existing industrial landscape. Any resulting change in views would be barely perceptible.

- 16.5.39 Views of the proposed Gravesend site from the outskirts of Chalk approximately 750m to the south are likely to open across the flat marshland. They will however be perceived as part of, and an extension to, the existing industrial landscape adjacent to the west of the site and across the River Thames to the heavy industry at Tilbury.
- 16.5.40 Views of the Proposed Development from the outskirts of Denton approximately 750m to the southwest are likely to open across the flat marshland. Views for some of this receptor group are likely to be screened by the intervening industrial sites located along Dalefield and Dering Way. Where views are seen, they will however be perceived as part of, and an extension to, the existing industrial landscape adjacent to the west of the site and across the River Thames to the heavy industry at Tilbury.
- 16.5.41 There are several scattered farmsteads and isolated properties approximately 1.3 km to the southeast. Whilst views across the intervening marshland are flat with sparse vegetation, the Proposed Development will be perceived as part of, and an extension to, the existing industrial landscape. The isolated properties at Low Street also have the line of existing overhead power lines receding into the distance prominent within their view.



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LEGEND

Tilbury Red Line Boundary

Gravesend Red Line Boundary

Tilbury 1.5km Buffer

Gravesend 1.5km Buffer

Modelled Footprint

Existing OS Open Building - 7.5m

National Forest Inventory - Woodland - 10m

Zone of Theoretical Visibility - Gravesend

Zone of Theoretical Visibility - Tilbury

NOTES

For the purposes of LVIA the haul routes and tunnel have been removed from the Proposed Development Boundary.

Zone of Theoretical Visibility (ZTV) has been generated using Ordnance Survey Terrain 5 digital terrain model which does not take into account the screening effects of vegetation, buildings or other structures. Existing Buildings have been incorporated into the DTM using OS Open Map Local with an assumed height of 7.5m. Woodland from the National Forest Inventory was also incorporated into the DTM with an assumed height of 10m. ZTV is based upon a series of points around the overhead line gantry structures with a height of 13m, a grid of points 1m apart within the headhouse building at a height of 10m for Tilbury and 8m for Gravesend, and a grid of points 1m apart around the perimeter palisade and electric pulse fence at a height of 3.4m and an observer eye height of 1.6m. All heights mentioned above are above ground level (AGL).

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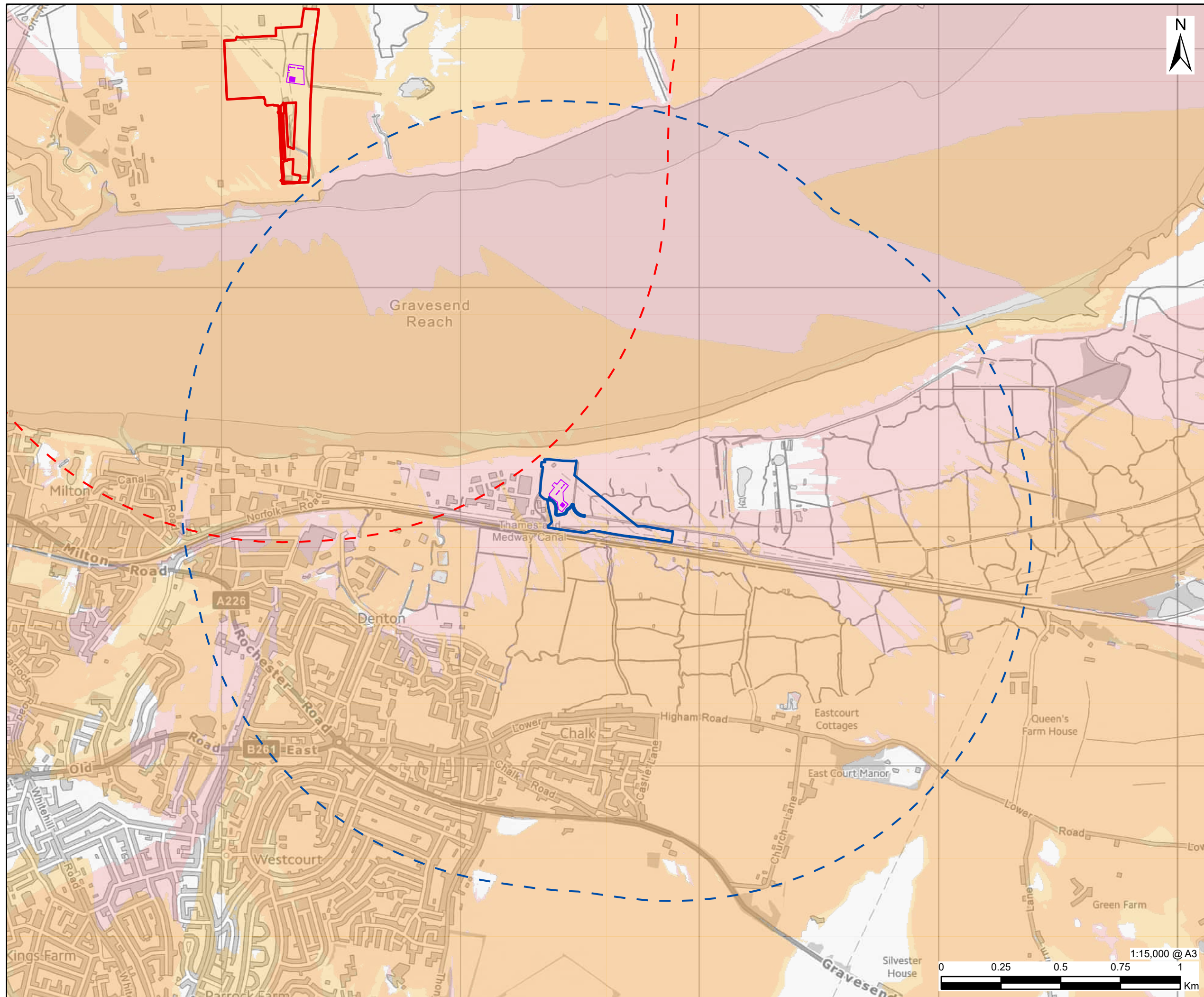
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FIGURE TITLE

Screened Zone of Theoretical Visibility - Gravesend

FIGURE NUMBER

Figure 16.5a



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- Tilbury Red Line Boundary
- Gravesend Red Line Boundary
- Tilbury 1.5km Buffer
- Gravesend 1.5km Buffer
- Modelled Footprint
- Zone of Theoretical Visibility - Gravesend
- Zone of Theoretical Visibility - Tilbury

For the purposes of LVIA the haul routes and tunnel have been removed from the Proposed Development Boundary.

One of Theoretical Visibility (ZTV) has been generated using Ordnance Survey Terrain 5 digital terrain model which does not take into account the screening effects of vegetation, buildings or other structures.

ZTV is based upon a series of points around the overhead line gantry structures with a height of 13m, a grid of points 1m apart within the headhouse building at a height of 10m for Tilbury and 8m for Gravesend, and a grid of points 1m apart around the perimeter palisade and electric pulse fence at a height of 3.4m and an observer eye height of 1.6m. All heights mentioned above are above ground level (AGL).

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Bare Earth Zone of Theoretical Visibility
- Gravesend

Figure 16.5b

Figure 16.5b

Views from recreational routes and places of interest

- 16.5.42 Recreational routes are shown on Figure 16-4. The English Coast Path promoted recreational route and Saxon Shore Way pass approximately 150m to the north of the site. The PRoW 0328/NG2/2 and part of the NCN Route 1 runs equidistant to the south of the site along the edge of the disused Thames and Medway Canal. Whilst the Proposed Development will be noticeable within both views it will be perceived as part of, and an extension to, the existing industrial landscape. Views to the Proposed Development at Tilbury are likely to be barely perceptible and result in no change.
- 16.5.43 Views for recreational users of the allotment sites at Chalk and Denton are screened by intervening buildings.
- 16.5.44 Recreational users of this section of the River Thames are likely to view the site within the wider industrial context of the area.

Views from roads, river and rail

- 16.5.45 The North Kent Railway line passes closest to the Proposed Development at Gravesend approximately 150m to the south of the site. Passing views are likely to be localised and perceived as part of, and an extension to, the existing industrial landscape to the east of Gravesend.
- 16.5.46 The A226 is the main highway within the study area located approximately 1.3km to the south of the site. Views are likely to be screened by intervening residential and commercial buildings within the settlements of Denton and Chalk. Most minor roads within the area are residential with views screened by intervening buildings and vegetation. Views from other rural roads are generally screened by roadside vegetation.
- 16.5.47 This section of the River Thames is largely of industrial use rather than as a public transport corridor and is dominated by Tilbury Docks.

Views from places of work

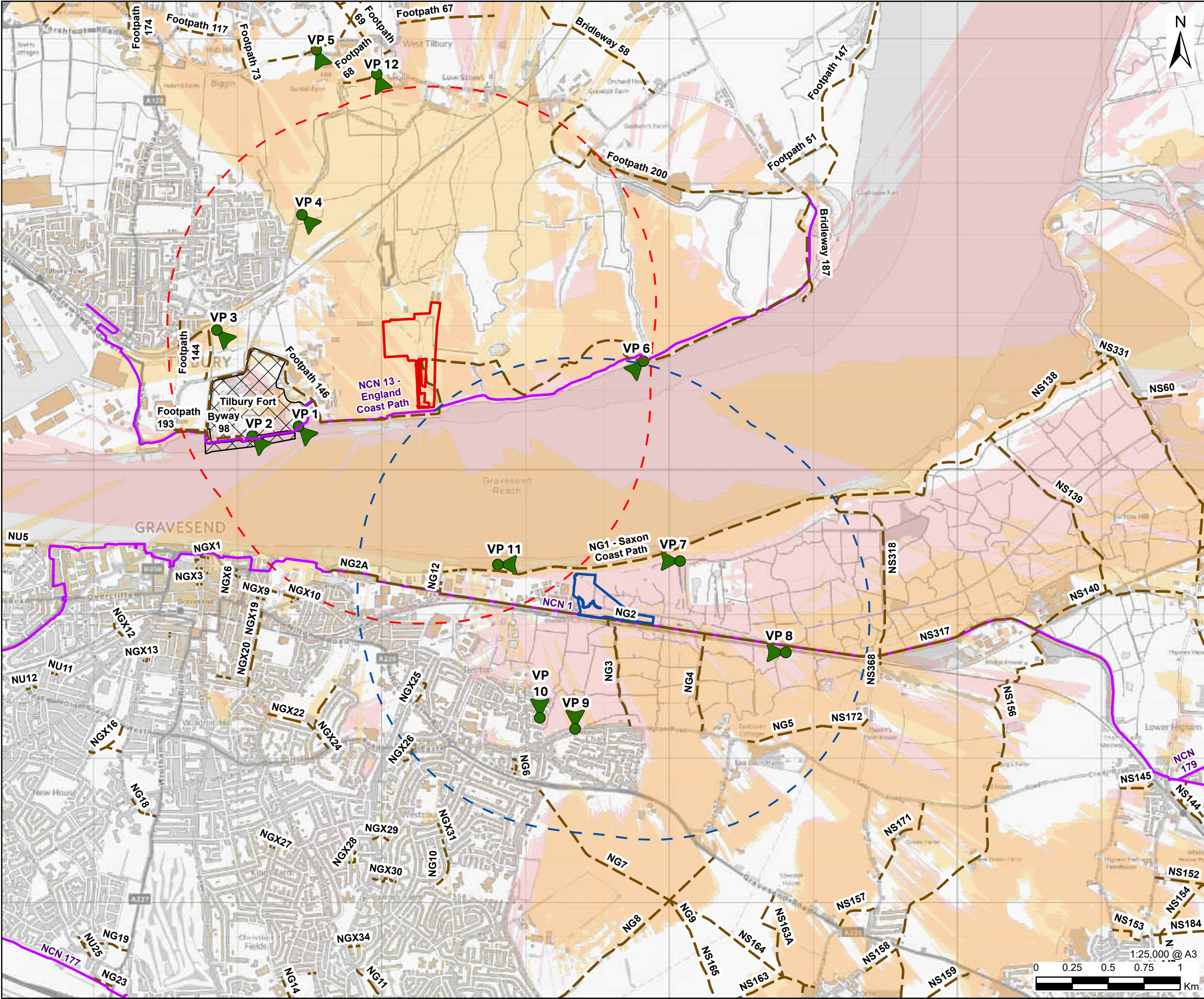
- 16.5.48 People at their place of work within the study area are primarily located to the west of the Proposed Development. These include the industrial hinterland townscape area and includes aggregate suppliers, shipping container repairs, Dering way sewage works, and the Metropolitan Police training school. Whilst the nature of some of the work involves the opportunity to be outdoors, it is primarily of a heavy industrial nature and contributes to the setting and the local landscape context. The works within this area are likely to provide screening although some localised views might be possible.
- 16.5.49 There are retail and commercial places of work located within the residential areas of Denton, Chalk and Gravesend to the southwest of the Proposed Development. These are screened by intervening buildings with the Proposed Development resulting in no change to visual amenity for these receptors.
- 16.5.50 Views from places of work at the Apex Business Park approximately 2km to the east of the Proposed Development are screened by intervening vegetation.
- 16.5.51 Institutional receptors at North Kent College are also likely to be screened by intervening buildings and vegetation from the adjacent residential area.
- 16.5.52 Areas of agricultural land to the south and east of the study area would have views of the Proposed Development but it would be set against the existing industrial landscape and would therefore be barely perceptible.

Views for those engaged in outdoor sport or recreation.

- 16.5.53 Whilst there are sport pitches located to the southwest of the study area, these are likely to be screened by intervening residential and commercial buildings resulting in no change to visual amenity for these receptors.
- 16.5.54 It is noted that for most visual receptors, the Proposed Development at the Gravesend site will be perceived as part of, and an extension to, the existing industrial landscape to both sides of the river. Views of the Tilbury site are like to be barely perceptible and result in no change.

Representative Viewpoints

- 9.1.4. A series of twelve representative viewpoint locations were selected to form the basis of the visual assessment. These have been identified to provide a representative cross section of visual receptors within the study area and were selected in consultation with relevant local authorities as described in Section 16.3.34. Representative viewpoints have been included in the assessment with visual receptors covered by a representative viewpoint
- 9.1.5. The locations of the viewpoints are provided on Figure 16-6 'Representative Viewpoint and Visual receptor Locations' and details of each, including a description of the baseline view and its value are provided in Appendix 16.2.
- 9.1.6. Figure 16-7 provides photomontages of the baseline view from each of the viewpoint locations. Table 16-10 provides a list of the viewpoint locations and the receptors they have been selected to represent.



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 - Gravesend Red Line Boundary
 - Tilbury 1.5km Buffer
 - Gravesend 1.5km Buffer
 - Representative Viewpoint and Visual Receptor Locations
 - Zone of Theoretical Visibility - Tilbury
 - Zone of Theoretical Visibility - Gravesend
 - National Cycle Network
 - Public Right of Way
 - Tilbury Fort

NOTES

For the purposes of LVIA the haul routes and tunnel have been removed from the Proposed Development Boundary. Zone of Theoretical Visibility (ZTV) has been generated using Ordnance Survey Terrain 5 digital terrain model which does not take into account the screening effects of vegetation, buildings or other structures. Existing Buildings have been incorporated into the DTM using OS Open Map Local with an assumed height of 7.5m. Woodland from the National Forest Inventory was also incorporated into the DTM with an assumed height of 10m. ZTV is based upon a series of points around the overhead line gantry structures with a height of 13m, a grid of points 1m apart within the headhouse building at a height of 10m for Tilbury and 8m for Gravesend, and a grid of points 1m apart around the perimeter palisade and electric pulse fence at a height of 3.4m and an observer eye height of 1.6m. All heights mentioned above are above ground level (AGL).

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ISSUE PURPOSE
Environmental Statement

PROJECT NUMBER
60677311

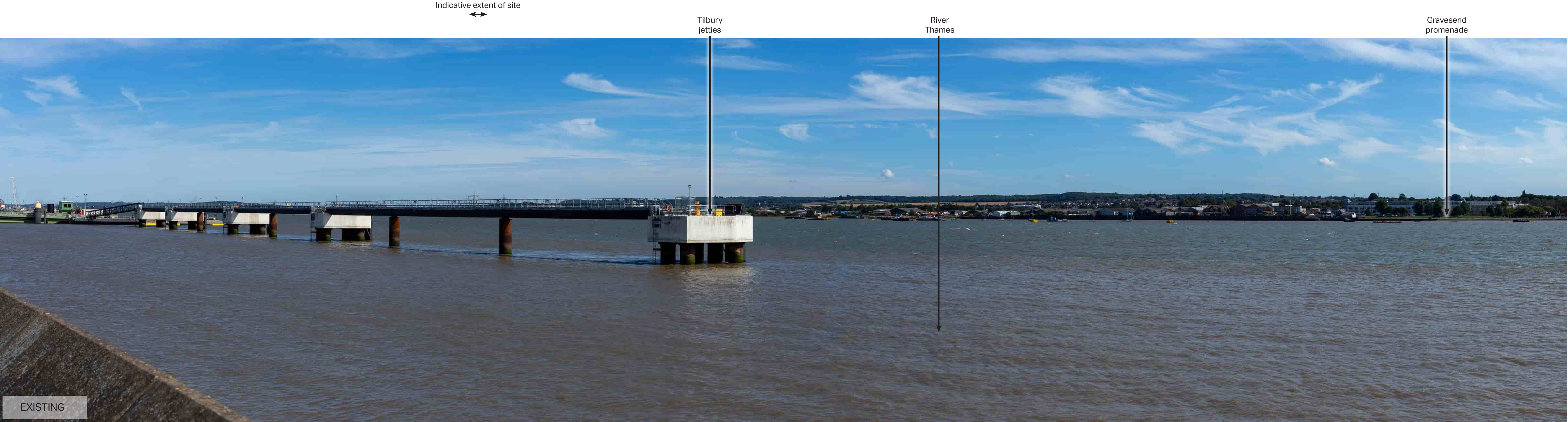
FIGURE TITLE
Representative Viewpoint and Visual Receptor Locations - Gravesend

FIGURE NUMBER
Figure 16.6

Table 16-10: Viewpoints and Visual Receptors – Gravesend (see Figure 16-6)

Viewpoint	Location Description	Grid Reference	Visual Receptors
1	English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	565387, 175268	Representative of views for recreational and cultural receptors with views to both the Tilbury and Gravesend Sites. Viewpoint located within the proposed SSSI
2	English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	565065, 175200	Representative of views for recreational and cultural receptors with views to both the Tilbury and Gravesend Sites. Viewpoint located within the proposed SSSI
3	PRoW 144 (footpath)	564820, 175937	Representative of recreational receptors in the vicinity of Tilbury and residential receptors at the southern extents of Tilbury with views to both the Tilbury and Gravesend Sites. Viewpoint located within the proposed SSSI
4	Fort Road, adjacent to the rear of properties at Pepys Close, Tilbury	565411, 176738	Representative of residential receptors at the eastern extents of Tilbury with views to both the Tilbury and Gravesend Sites. The viewpoint is also representative of road users along the section of Fort Road within the study area, and rail users on the section of the Tilbury loop railway line between East Tilbury and Tilbury Town stations within the study area, with views to both the Tilbury and Gravesend Sites.
5	PRoW 72 (footpath)	565500, 177902	Representative of recreational receptors in the vicinity of Gun Hill and residential receptors at the southern extents of Chadwell St Mary with views to both the Tilbury and Gravesend Sites. Viewpoint located within the proposed SSSI
6	English Coast Path (PRoW 146) and NCN Route 13 to the east of the Tilbury Site.	567783, 175796	Representative of middle-distance views for recreational and cultural receptors with views to both the Tilbury and Gravesend Sites. Viewpoint located within the proposed SSSI
7	Saxon Shore Way (PRoW NG 1) to the east of the Gravesend Site.	568075, 174423	Representative of views for recreational receptors and located within the RAMSAR, SSSI and SPA designated area (South Thames Estuary and Marshes) with views to both the Tilbury and Gravesend Sites.
8	PRoW NG 2 (footpath) and NCN route 1	568810, 173788	Representative of views for recreational receptors and located on the disused Thames and Medway Canal within the RAMSAR, SSSI and SPA designated area (South Thames Estuary and Marshes) with views to both the Tilbury and Gravesend Sites.
9	Lower Higham Road, Chalk	567399, 173204	Representative of residential receptors at the northern extents of Chalk with views to both the Tilbury and Gravesend Sites.
10	Malthouse Field, Denton	567154, 173282	Representative of residential receptors at the northern extents of Denton with views to both the Tilbury and Gravesend Sites.

Viewpoint	Location Description	Grid Reference	Visual Receptors
11	Saxon Shore Way (PRoW NG 1) to the west of the Gravesend Site.	566809, 174293	Representative of views for recreational and work receptors (at nearby industrial and commercial buildings) with views to both the Tilbury and Gravesend Sites.
12	PRoW 68 (footpath) near West Tilbury	565919, 177733	Representative of recreational receptors in the vicinity of Gun Hill and residential receptors at the southern extents of West Tilbury with views to both the Tilbury and Gravesend Sites. Viewpoint located within the proposed SSSI



EXISTING



Visualisation Type: 1
Projection: Cylindrical
Enlargement Factor: 96%
Paper Size: A1
Date / Time: 16Aug2023 14:47

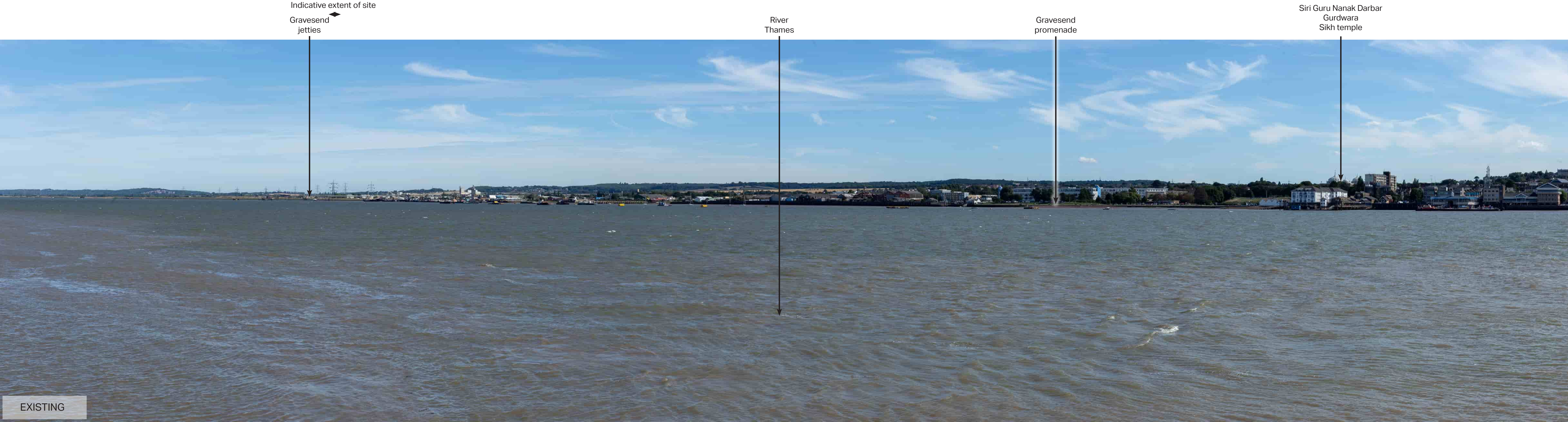
Camera: Canon EOS 6D
Lens: Canon EF50mm f/1.8 STM
Horizontal Field of View: 90°
Direction of View: Southeast
Location: Tilbury

Northings: 565387
Eastings: 175268
Altitude: 9.6m AOD
Height of Camera: 1.6m

Note:
Images to be viewed at a comfortable arm's length.

PROJECT NAME: TKRE Cable Tunnel Replacement Project

Figure 16.7: Viewpoint number 1 - English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort



AECOM Delivering a better world	Visualisation Type:	1	Camera:	Canon EOS 6D	Northings:	565065	Note: Images to be viewed at a comfortable arm's length.	PROJECT NAME: TKRE Cable Tunnel Replacement Project
	Projection:	Cylindrical	Lens:	Canon EF50mm f/1.8 STM	Eastings:	175200		
	Enlargement Factor:	96%	Horizontal Field of View:	90°	Altitude:	7.4m AOD		
	Paper Size:	A1	Direction of View:	Southeast	Height of Camera:	1.6m		
	Date / Time:	16Aug2023 14:57	Location:	Tilbury				



Visualisation Type: 1
Projection: Cylindrical
Enlargement Factor: 96%
Paper Size: A1
Date / Time: 16Aug2023 15:29

Camera: Canon EOS 6D
Lens: Canon EF50mm f/1.8 STM
Horizontal Field of View: 90°
Direction of View: Southeast
Location: Tilbury

Northings: 564820
Eastings: 175937
Altitude: 5.6m AOD
Height of Camera: 1.6m

Note:
Images to be viewed at a comfortable
arm's length.

PROJECT NAME: TKRE Cable Tunnel Replacement Project

Figure 16.7: Viewpoint number 3 - PRoW 144 (footpath)



AECOM Delivering a better world

Visualisation Type: 1
Projection: Cylindrical
Enlargement Factor: 96%
Paper Size: A1
Date / Time: 17Aug2023 13:05

Camera: Canon EOS 6D
Lens: Canon EF50mm f/1.8 STM
Horizontal Field of View: 90°
Direction of View: Southeast
Location: Tilbury

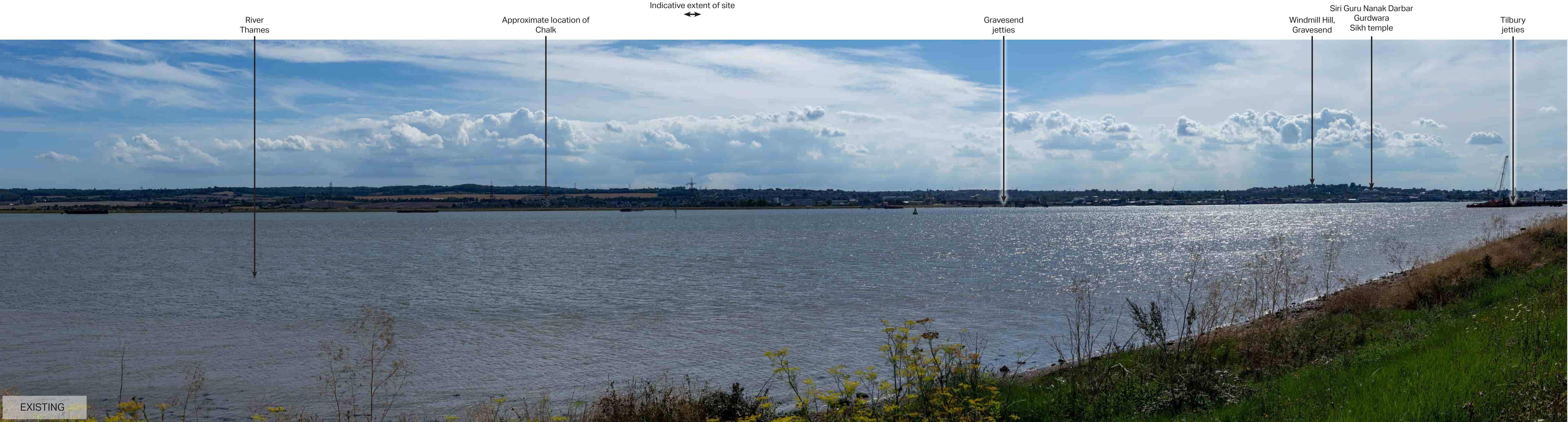
Northings: 565411
Eastings: 176738
Altitude: ~2.4m AOD
Height of Camera: 1.6m

Note:
Images to be viewed at a comfortable arm's length.

PROJECT NAME: TKRE Cable Tunnel Replacement Project
Figure 16.7: Viewpoint number 4 - Fort Road, adjacent to the rear of properties at Pepys Close, Tilbury



AECOM Delivering a better world	Visualisation Type:	1	Camera:	Canon EOS 6D	Northings:	565500	Note: Images to be viewed at a comfortable arm's length.	PROJECT NAME: TKRE Cable Tunnel Replacement Project
	Projection:	Cylindrical	Lens:	Canon EF50mm f/1.8 STM	Eastings:	177902		
	Enlargement Factor:	96%	Horizontal Field of View:	90°	Altitude:	23.4m AOD		
	Paper Size:	A1	Direction of View:	South-southeast	Height of Camera:	1.6m		
	Date / Time:	17Aug2023 13:38	Location:	Chadwell St. Mary, Tilbury				



Visualisation Type: 1
Projection: Cylindrical
Enlargement Factor: 96%
Paper Size: A1
Date / Time: 16Aug2023 13:59

Camera: Canon EOS 6D
Lens: Canon EF50mm f/1.8 STM
Horizontal Field of View: 90°
Direction of View: Southwest
Location: Tilbury

Northings: 567783
Eastings: 175796
Altitude: 1.8m AOD
Height of Camera: 1.6m

Note:
Images to be viewed at a comfortable arm's length.

PROJECT NAME: TKRE Cable Tunnel Replacement Project

Figure 16.7: Viewpoint number 6 - English Coast Path (PRoW 146) and NCN Route 13 to the east of the Tilbury Site

16.6 Key Parameters for Assessment

16.6.1 A detailed description of the Proposed Development is provided in Volume II Chapter 3: Project Description. The following aspects of the Proposed Development relevant to this chapter comprise:

- The site preparation and construction works, especially:
 - Vegetation clearance;
 - Removal of top soil;
 - Areas for plant maintenance, site offices and compound areas;
 - Storage areas for construction and for excavated materials;
 - The construction of new access routes – temporary and permanent;
 - The movement of construction workers and plant within the site;
 - The movement of materials and plant within the vicinity of the site;
 - Acoustic disturbance from construction activities; and
 - Lighting during preparation and construction – particularly noting the 24 hour tunnel construction upon the completion of shaft construction .
- Land uses within the operational Proposed Development in particular:
 - New Sealing End Compound including headhouse;
 - New access roads and utilities;
 - Removal, replacement and additional OHLs;
 - New drainage; and
 - Lighting.

16.7 Mitigation

Embedded Mitigation

- 16.7.1 The primary aims of the landscape design are to reduce the visual prominence of the Proposed Development and assimilate it into the landscape context, while providing an enhancement to the provision for biodiversity through embedded mitigation measures. The proposed landscape design will consider the existing conditions to apply development specific design principles to address the positioning and alignment, scale, height and massing and materials and finishes of elements, which contribute to visual appearance. The landscape design will also incorporate any pre-application planning comments.
- 16.7.2 The following embedded mitigation has been taken into consideration when appraising the landscape and visual impacts of the Proposed Development:
- Proposed Development extents have been minimised as far as possible to reduce land take and allow greater retention of existing trees, scrub and other landscape features;
 - Incorporate new and additional planting such as trees and scrub, and landform elements such as ditches and creeks to help tie the Proposed Development into the existing landscape character and provide localised screening.
 - Optimising zones within construction compounds to minimise their temporary impact on the landscape and views, including at night;
 - Returning and reinstating land used temporarily to its former condition and profiles, where appropriate;
 - Confining lighting on new and improved sections of the compound / road within the Proposed Development site to locations where safety is a priority to minimise the potential for light spill in night-time views;
 - Designing permanent structures, such as the sealing end compound and security fencing, in a way that minimises their visual impact and achieves good visual appearance. This may include selection of a muted colour palette that appears recessive within views;
 - Construction programme to be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts and areas will be cleared for construction as close as possible to works commencing and top-soiling, reseeding and planting shall be undertaken as soon as practicable after sections of work are complete; and
 - Due to the openness of the site and surrounding marshland landscape, careful consideration has been given to landscape planting such that these are considered in keeping with the existing character of the open landscape.
- 16.7.3 All design-based measures, including those indicated on the Outline Landscape and Ecology Plan (refer to Appendix A of the Outline Landscape and Ecology Management Plan (oLEMP)), and construction best practice mitigation have been embedded in the design of the Proposed Development.
- 16.7.4 The Outline Construction Environmental Management Plan (CEMP) (ES Volume VI Appendix 3.1) sets out the additional mitigation measures identified. This section summarises the types of mitigation measures that will be considered to mitigate against the effects on landscape and visual receptors where required. These measures will be adopted during the construction phase.
- A Landscape and Ecological Management Plan (LEMP) is to be produced prior to construction based on the Outline LEMP submitted with the planning application;
 - A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works (ECoW) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The ECoW will monitor that the works proceed in accordance with relevant environmental requirements and adhere to

the required good practice and mitigation measures. The ECoW will be supported as necessary by appropriate specialists, including ecologists and arboriculturists;

- Land used temporarily will be reinstated where practicable to its pre-construction condition and use, unless agreed otherwise;
- Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate;
- Working areas will be appropriately fenced. The type of fencing installed may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified;
- The contractor will retain vegetation where practicable. Where vegetation is lost and cannot be replaced due to restrictions associated with underground services or wayleaves, reinstatement in accordance with the outline LEMP and outline Landscape Design shall be followed;
- The contractor will apply the relevant protective principles set out in British Standard (BS) 5837:2012: Trees in relation to design, demolition and construction. This will be applied to trees within the Red Line Boundary which will be preserved through the construction phase, and to trees outside where such measures do not hinder or prevent the use of the relevant working width for construction;
- A five-year aftercare period will be established for all reinstatement and mitigation planting;
- Separation and storage of subsoil and topsoil to ensure no degradation in quality and reinstatement undertaken as soon as possible after completion of construction of each section/area of works;
- Temporary and separate placement of topsoil and subsoil will be stored with the additional height of the subsoil storage used on whichever side of the Site requires greater screening benefit, where practicable; and
- To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.

16.8 Potential Impacts

Introduction

- 16.8.1 The following sections sets out a brief summary of the elements of the Proposed Development which may result in landscape and visual effects during the construction and operational phases.

General Overview

- 16.8.2 Permanent above-ground infrastructure including headhouses, cable sealing end compound and overhead line modifications would be required at both ends of the new tunnel at the Tilbury and Gravesend sites. Site construction compounds would also have exterior fencing with the potential requirement for protection / screening panels.

Potential Construction Phase Effects

- 16.8.3 The Proposed Development would introduce a number of new elements into the landscape during the construction phase for a temporary period of time, creating the potential for landscape or visual effects. Potential construction phase effects may arise at either or both sites from the following activities:
- **Site clearance of vegetation:** to include tree and scrub removal, soil stripping and mounding and erection of temporary security fencing;
 - **Utility diversions:** to include any temporary or permanent diversion of overhead lines for safe working, or underground services crossing the site;
 - **Temporary compounds:** to be used for storage of large plant and equipment, office accommodation and welfare facilities, parking facilities, material storage, spoil handling and spoil storage;
 - **Construction activity:** including approximately 200 staff on site during the tunnelling phase. Movement of materials including HGVs accessing the site for spoil removal;
 - **Temporary access tracks:** to facilitate safe and efficient construction and reduce the impact of works upon the local area;
 - **Temporary diversion of PROWs:** including local and nationally promoted recreational routes;
 - **Drive shaft construction site:** to include the working area for the shaft and its required construction plant (including cranes sat adjacent to the shaft, piling equipment), materials storage and spoil handling and processing areas;
 - **Construction of new cable tunnel:** to include the 24 hour working area for the construction plant including temporary safety lighting, materials storage and spoil handling and processing areas; and
 - **Construction of new cable tunnel infrastructure:** to include new headhouses, cable sealing end compounds and overhead line modifications and any additional associated new pylons.

Potential Operational Phase Effects

- 16.8.4 The Proposed Development would introduce a number of new elements into the landscape, creating the potential for landscape or visual effects. These may include:
- **New cable tunnel infrastructure:** to include new headhouses, cable sealing end compounds, security fencing and protection / screening panels, exterior compound lighting and overhead line modifications and any additional associated new pylons; and
 - **New planting:** this may include planting to mitigate the visual impact of the new headhouses and cable sealing end compounds.

- 16.8.5 The potential effects on the landscape and visual amenity during decommissioning would be equivalent to or less than those assessed during the construction and operational phases of works.

16.9 Assessment of Effects

- 16.9.1 This assessment of landscape and visual effects has been undertaken after the implementation of embedded mitigation. A detailed assessment of potential impacts on each of the identified landscape and visual receptors is provided in Appendix 16.1: Landscape Character Assessment Tables and Appendix 16.2: Visual Assessment Tables. A summary of the results of the assessment are provided below, including further details of those which are anticipated to receive moderate or greater, and therefore significant, effects.

Landscape Character

- 16.9.2 Construction activity would be short-term and would temporarily influence a localised part of the Eastern Thames Marshes LCA and the Shorne and Higham Marshes LLCA. This would occur within an industrialised context of both these character areas where the scale of change and geographical extent of construction activity would be limited. No landscape elements of value would be lost and the effects on the setting and perceptual characteristics of the adjacent landscape and townscape character areas would be negligible. Construction effects on landscape character would be minor adverse or negligible during construction and not significant.
- 16.9.3 At operation, the Proposed Development would locally extend the influence of electrical infrastructure within peripheral parts of the Eastern Thames Marshes LCA and the Shorne and Higham Marshes LLCA where the presence of both electrical infrastructure and industrial elements are already key characteristics of the landscape. Effects on the landscape character would be negligible adverse or neutral. Once established the network of drainage channels, marshland habitat improvements and scrub planting would provide increased landscape connectivity and habitat improvement to the local landscape character.

Visual Amenity

- 16.9.4 Construction activity associated with the Proposed Development at Gravesend whilst potentially visible from viewpoint locations in Essex to the north of the River Thames would not result in a discernible change in the composition of the view with neutral effects resulting.
- 16.9.5 Representative viewpoints in Kent would experience varying extents of visibility of construction plant and activity depending on their proximity to the Gravesend site. The assessment identified that for the majority of receptors represented by the viewpoints, there would be a barely perceptible change in the view with negligible adverse effects resulting. Visual receptors in the vicinity of the Gravesend site especially those using the Saxon Shore Way and England Coast Path recreational routes have the potential to experience minor adverse effects during construction due to the construction plant, activity and stockpiles of materials appearing in part of the wider view experienced along the route. These temporary changes seen within the existing industrial baseline context would result in minor adverse and not significant effects at construction.
- 16.9.6 Once operational the Proposed Development would be barely discernible in views from most locations with negligible adverse or neutral effects during operation. Visual receptors in the vicinity of the Gravesend site, primarily along the promoted recreational routes (viewpoint 7), may experience minor adverse effects but these would be localised with the key features and focus of the views remaining largely unchanged. Once the mitigation planting and in particular the band of trees along the southern boundary of the site have established, views from the settlement edge to the southeast of the site would be largely screened.

16.10 Residual Effects

16.10.1 The residual effects on landscape character and visual amenity resulting from the Proposed Development would remain unchanged from those reported in Section 16.9 Assessment of Effects above as all mitigation is embedded in the design of the Proposed Development including the Outline Landscape and Ecology Plan (Appendix A of the OLEMP). Table 16-11, Table 16-12 and Table 16-13 provide summaries of construction and operational stage residual effects.

Table 16-11: Summary of residual landscape and visual effects during construction

Receptor	Sensitivity	Magnitude of Effect	Significance of Effect	Additional Mitigation	Magnitude of effect	Residual Effect
Eastern Thames Marshes LCA	Medium	Small	Minor Adverse	All mitigation is embedded into the design of the Proposed Development and construction good practice identified in the CEMP, refer to section 16.7.	Small	Minor Adverse (Not Significant)
Shorne and Higham Marshes LLCA	Medium	Small	Minor Adverse		Small	Minor Adverse (Not Significant)
Gravesend Townscape Urban Character Areas (UCAs) (Inter/Post War Suburbs UCA, the Victorian/Edwardian Suburbs UCA, the Modern Suburbia UCA, and the Industrial Hinterland UCA)	Negligible	Negligible	Neutral		Negligible	Neutral (Not Significant)
Viewpoint 1: English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 2: English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 3: PRoW 144 (footpath)	Medium	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 4: Fort Road, adjacent to the rear of properties at Pepys Close, Tilbury	Residential – Medium Road and rail users - Low	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 5: PRoW 72 (footpath)	Medium	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 6: English Coast Path (PRoW 146) and NCN Route 13 to the east of the Tilbury Site	Medium	Small	Minor Adverse		Small	Minor Adverse (Not Significant)
Viewpoint 7: Saxon Shore Way (PRoW NG 1) to the east of the Gravesend Site	Medium	Small	Minor Adverse		Small	Minor Adverse (Not Significant)
Viewpoint 8: PRoW NG 2 (footpath) and NCN route 1	Medium	Small	Minor Adverse		Small	Minor Adverse

Receptor	Sensitivity	Magnitude of Effect	Significance of Effect	Additional Mitigation	Magnitude of effect	Residual Effect
						(Not Significant)
Viewpoint 9: Lower Higham Road, Chalk	Medium	Medium	Minor Adverse		Medium	Minor Adverse
Viewpoint 10: Malthouse Field, Denton	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 11: Saxon Shore Way (PRoW NG 1) to the west of the Gravesend Site	Medium	Small	Minor Adverse		Small	Minor Adverse (Not Significant)
Viewpoint 12: PRoW 68 (footpath) near West Tilbury	Medium	No change	Neutral		No change	Neutral (Not Significant)

Table 16-12: Summary of residual landscape and visual effects during operation Year 1 (winter)

Receptor	Sensitivity	Magnitude of Effect	Significance of Effect	Additional Mitigation	Magnitude of effect	Residual Effect
Eastern Thames Marshes LCA	Medium	Negligible	Negligible Adverse	All mitigation is embedded into the design of the Proposed Development, refer to Section 16.7.	Negligible	Negligible Adverse (Not Significant)
Shorne and Higham Marshes LLCA	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Gravesend Townscape Urban Character Areas (UCAs) <i>(Inter/Post War Suburbs UCA, the Victorian/Edwardian Suburbs UCA, the Modern Suburbia UCA, and the Industrial Hinterland UCA)</i>	Negligible	Negligible	Neutral		Negligible	Neutral (Not Significant)
Viewpoint 1: English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 2: English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 3: PRoW 144 (footpath)	Medium	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 4: Fort Road, adjacent to the rear of properties at Pepys Close, Tilbury	Residential – Medium Road and rail users - Low	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 5: PRoW 72 (footpath)	Medium	No change	Neutral		No change	Neutral (Not Significant)

Receptor	Sensitivity	Magnitude of Effect	Significance of Effect	Additional Mitigation	Magnitude of effect	Residual Effect
Viewpoint 6: English Coast Path (PRoW 146) and NCN Route 13 to the east of the Tilbury Site	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 7: Saxon Shore Way (PRoW NG 1) to the east of the Gravesend Site	Medium	Small	Minor Adverse		Small	Minor Adverse (Not Significant)
Viewpoint 8: PRoW NG 2 (footpath) and NCN route 1	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 9: Lower Higham Road, Chalk	Medium	Small	Negligible Adverse		Small	Negligible Adverse (Not Significant)
Viewpoint 10: Malthouse Field, Denton	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 11: Saxon Shore Way (PRoW NG 1) to the west of the Gravesend Site	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 12: PRoW 68 (footpath) near West Tilbury	Medium	No change	Neutral		No change	Neutral (Not Significant)

Table 16-13: Summary of residual landscape and visual effects during operation Year 15 (summer)

Receptor	Sensitivity	Magnitude of Effect	Significance of Effect	Additional Mitigation	Magnitude of effect	Residual Effect
Eastern Thames Marshes LCA	Medium	Negligible	Negligible Adverse	All mitigation is embedded into the design of the Proposed Development, refer to Section 16.7.	Negligible	Negligible Adverse (Not Significant)
Shorne and Higham Marshes LLCA	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Gravesend Townscape Urban Character Areas (UCAs) (Inter/Post War Suburbs UCA, the Victorian/Edwardian Suburbs UCA, the Modern Suburbia UCA, and the Industrial Hinterland UCA)	Negligible	Negligible	Neutral		Negligible	Neutral (Not Significant)
Viewpoint 1: English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 2: English Coast Path (PRoW 146) and NCN Route 13 near Tilbury Fort	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 3: PRoW 144 (footpath)	Medium	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 4: Fort Road, adjacent to the rear of properties at Pepys Close, Tilbury	Residential – Medium Road and rail users - Low	No change	Neutral		No change	Neutral (Not Significant)
Viewpoint 5: PRoW 72 (footpath)	Medium	No change	Neutral		No change	Neutral (Not Significant)

Receptor	Sensitivity	Magnitude of Effect	Significance of Effect	Additional Mitigation	Magnitude of effect	Residual Effect
Viewpoint 6: English Coast Path (PRoW 146) and NCN Route 13 to the east of the Tilbury Site	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 7: Saxon Shore Way (PRoW NG 1) to the east of the Gravesend Site	Medium	Small	Minor Adverse		Small	Minor Adverse (Not Significant)
Viewpoint 8: PRoW NG 2 (footpath) and NCN route 1	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 9: Lower Higham Road, Chalk	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 10: Malthouse Field, Denton	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 11: Saxon Shore Way (PRoW NG 1) to the west of the Gravesend Site	Medium	Negligible	Negligible Adverse		Negligible	Negligible Adverse (Not Significant)
Viewpoint 12: PRoW 68 (footpath) near West Tilbury	Medium	No change	Neutral		No change	Neutral (Not Significant)

16.11 Summary

- 16.11.1 The Proposed Development is situated in the immediate context of the existing TKRE 400 kV cable and infrastructure. It is also situated within the industrial landscape of this area of the River Thames and the associated heavy industrial sites at both Tilbury and the Gravesend Industrial hinterland. The Proposed Development site at Gravesend is adjacent to industrial areas and is therefore likely to be perceived as part of, and an extension to, this existing industrial landscape.
- 16.11.2 Construction would be short-term, reversible and occur in an industrialised context. No landscape elements of value would be lost as a result of the construction, with effects being temporary and of minor adverse or negligible effects.
- 16.11.3 Construction of above ground infrastructure/overhead cables would result in a negligible effect in the view for the majority of potential viewers, including the most sensitive groups of residents in Tilbury/Gravesend, and recreational receptors. Recreational users of the long distance routes which run to the north of the site, would experience minor adverse effects in views in immediate proximity to the site at Gravesend where the construction plant and activity would be apparent within the context of more prominent industrial elements, within their wide, panoramic views across the Thames estuary.
- 16.11.4 Similarly, in operation the effects on landscape character would be negligible. Any change in character would be small scale and with a localised geographical extent of influence. It would involve no loss of landscape elements of value and occur within the existing context.
- 16.11.5 Once operational the Proposed Development including headhouses and OHL infrastructure would result in a barely perceptible change in the view for the majority of potential viewers and would be perceived as part of, and an extension to, this existing industrial landscape. Once established the network of drainage channels, marshland habitat improvements and scrub planting would provide increased landscape connectivity and habitat improvement to the local landscape character and visual amenity.
- 16.11.6 In summary, there would be no likely significant landscape or visual effects during either the construction or operational phases of the Proposed Development.

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16.13 Abbreviations

Abbreviation	Meaning
AOD	Above Ordnance Datum
BS	British Standard
CEMP	Construction Environmental Management Plan
CRoW	Countryside and Rights of Way
DTM	Digital Terrain Model
ECoW	Environmental Clerk of Works
ELC	European Landscape Convention
ES	Environmental Statement
GLVIA	Guidelines for Landscape and Visual Impact Assessment
LAGB	London Area Green Belt
LLCA	Local Landscape Character Areas
LEMP	Landscape and Ecology Management Plan
MCA	Marine Character Area
NCA	National Character Area
NCN	National Cycle Network
NFI	National Forestry Inventory
NPPF	National Planning Policy Framework
NPS	National Policy Statement
OHL	Overhead Line
oLEMP	Outline Landscape and Ecology Management Plan
OS	Ordnance Survey
PPG	Planning Practice Guidance
PRoW	Public Rights of Way
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TKRE	Tilbury to Grain and Tilbury to Kingsnorth
ZTV	Zone of Theoretical Visibility

