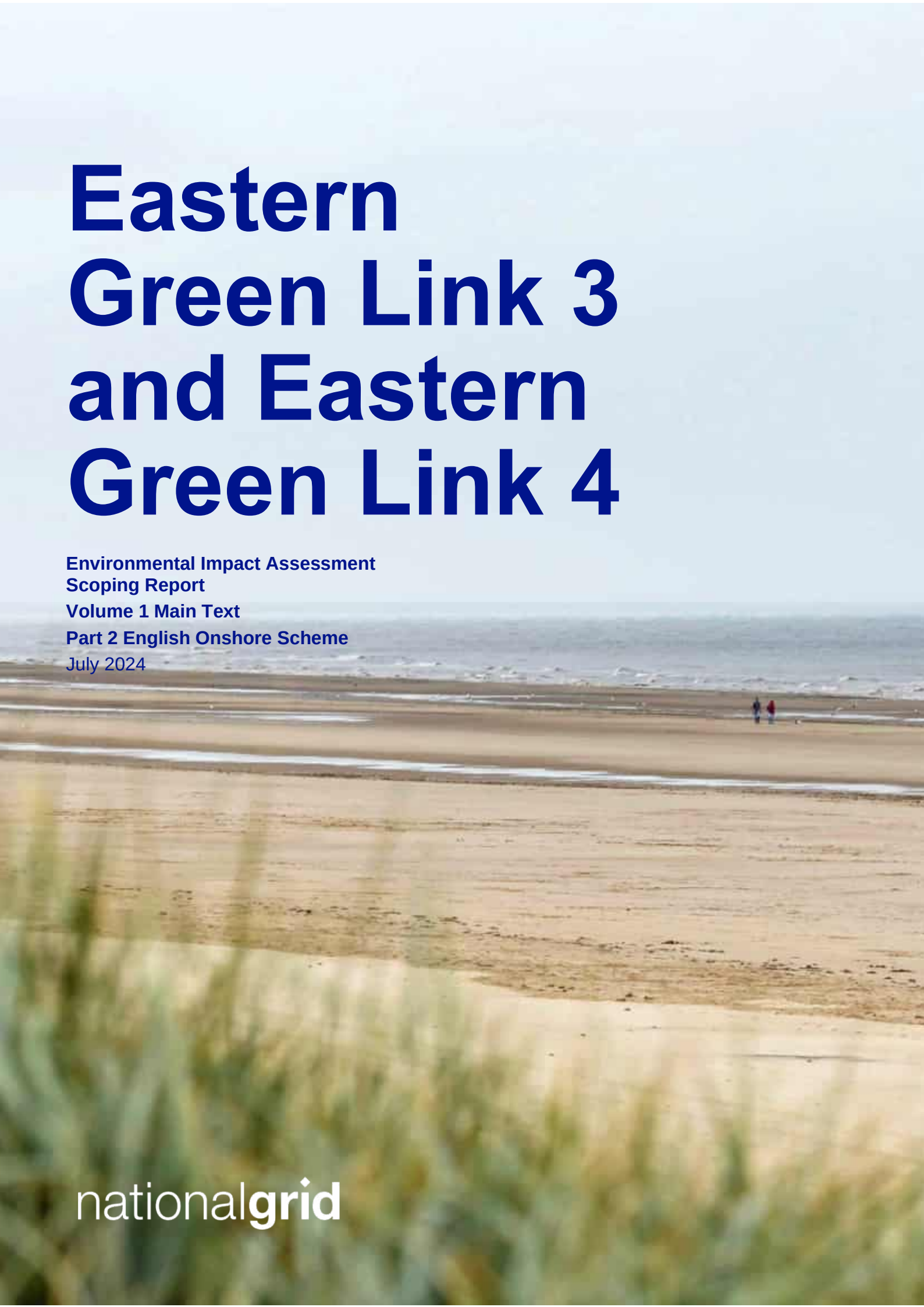
Eastern Green Link 3 and Eastern Green Link 4

Environmental Impact Assessment
Scoping Report
Volume 1 Main Text
Part 2 English Onshore Scheme
July 2024



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Part 2.2

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8. Landscape and Visual Amenity

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8. Landscape and Visual Amenity

8.1 Introduction

8.1.1 The landscape and visual amenity assessment will consider the potentially significant effects on the landscape and visual amenity receptors that may arise from the construction and operation of the English Onshore Scheme.

8.1.2 This chapter of the Scoping Report sets out the relevant legislation, planning policy context and technical guidance used to inform the scope of the assessment and summarises any consultation and engagement in relation to landscape and visual amenity receptors undertaken to date. It provides an overview of the baseline conditions relevant to landscape and visual amenity receptors within/around the Scoping Boundary, the measures which will be incorporated into the Projects to mitigate landscape and visual amenity effects, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.

8.1.3 This chapter should be read in conjunction and considered alongside the following chapters found in Volume 1:

- **Part 2, Chapter 4: English Onshore Scheme**
- **Part 2, Chapter 5: EIA Methodology**
- **Part 2, Chapter 6: Biodiversity**
- **Part 2, Chapter 7: Cultural Heritage**
- **Part 2, Chapter 12: Traffic and Transport**
- **Part 2, Chapter 13: Noise and Vibration**
- **Part 2, Chapter 15: Socio-Economics, Recreation and Tourism**
- **Part 2, Chapter 16: Health and Wellbeing**
- **Part 4, Chapter 33: Greenhouse Gas Emissions**
- **Part 4, Chapter 35: Cumulative Effects**

8.1.4 This chapter is supported by the following appendices and figures:

- **Volume 2, Appendix 6-A: Arboricultural Survey Methodology.**
- **Figure 8.1 Landscape Character Areas and Designations.**

8.2 Relevant Legislation, Planning Policy and Technical Guidance

8.2.1 This section identifies the relevant legislation, national and local policy and guidance which has informed the scope of the landscape and visual amenity assessment.

Legislation

8.2.2 A summary of the key legislation considered, but not limited to, in the scope of landscape and visual amenity effects is outlined in **Table 8-1**.

Table 8-1: Legislation relevant to Landscape and Visual Amenity Receptors

Legislation	Legislative Context	Section Considered
The European Landscape Convention (ELC) (Ref 8.1)	A Council of Europe initiative that provides a broad framework for landscape planning and management across all member states including the UK, signed by the UK government in 2006 and introduced in March 2007. The status of this convention is not affected by Brexit. These commitments are implemented by existing domestic policy and legislation rather than through any ELC specific framework. 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"* and is committed to several core principles and actions.	All sections – in particular Section 8.7 Assessment Methodology
Hedgerow Regulations 1997 (Ref 8.2)	Hedgerows protected under these Regulations that may be relevant to the Landscape and Visual Assessment (LVIA) process, specifically the assessment of impacts upon landscape elements and the development of design and control measures and/or optional additional mitigation.	All sections – noting ecological and heritage professionals, where appropriate, will input into the assessment on whether a hedgerow is considered 'Important', under the Regulations.

Planning Policy

8.2.3 A summary of the planning policies at both a national and local level relevant to the scope of landscape and visual amenity effects is given in **Table 8-2.**

Table 8-2: Planning Policy relevant to Landscape and Visual Amenity Receptors

Policy Reference	Policy Context
Overarching National Policy Statement for Energy (EN-1) (2024) (Ref 8.3)	
Paragraph 5.10.5	*"Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation."*
Paragraph 5.10.6	*"Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other*

Policy Reference	Policy Context
	relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate."
Paragraph 5.10.7	*"National Parks, the Broads and* [Areas of Outstanding Natural Beauty] *AONBs have been confirmed by the government as having the highest status of protection in relation to landscape and natural beauty. Each of these designated areas has specific statutory purposes. Projects should be designed sensitively given the various siting, operational, and other relevant constraints. For development proposals located within designated landscapes the Secretary of State should be satisfied that measures which seek to further purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development."*
Paragraph 5.10.8	*"The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. In these locations, projects should be designed sensitively given the various siting, operational, and other relevant constraints."*
Paragraph 5.10.19	*"The applicant should consider landscape and visual matters in the early stages of siting and design, where site choices and design principles are being established. This will allow the applicant to demonstrate in the ES how negative effects have been minimised and opportunities for creating positive benefits or enhancement have been recognised and incorporated into the design, delivery and operation of the scheme."*
Paragraph 5.10.20	*"The assessment should include the effects on landscape components and character during construction and operation. For projects which may affect a National Park, The Broads or an AONBs the assessment should include effects on the natural beauty and special qualities of these areas'."*
Paragraph 5.10.21	Generic considerations to be given to landscape and visual amenity impacts. It states *"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 amenity. This should include light pollution effects, including on local amenity, and nature conservation."*
Paragraph 5.10.32	*"When considering applications for development within National Parks, the Broads and AONBs the conservation and enhancement of the natural beauty should be given substantial weight by the Secretary of State in deciding on applications for development consent in these areas. The Secretary of State may grant development consent in these areas in exceptional circumstances. Such development should be demonstrated to be in the public interest and consideration of such applications should include an assessment of:* *• the need for the development, including in terms of national considerations, and the impact of consenting or not consenting it upon the local economy;* *• the cost of, and scope for, developing all or part of the development elsewhere outside the designated area or meeting the need for it in some*

Policy Reference	Policy Context
	other way, taking account of the policy on alternatives set out in Section 4.3; and *• any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated."*
National Policy Statement for Electricity Networks Infrastructure (EN-5) (2024) (Ref 8.4)	
Paragraph 2.9.9	*"New substations, sealing end compounds (including terminal towers), and other above-ground installations that serve as connection, switching, and voltage transformation points on the electricity network may also give rise to adverse landscape and visual impacts."*
Paragraph 2.9.10	*"Cumulative adverse landscape, seascape and visual impacts may arise where new overhead lines are required along with other related developments such as substations, wind farms, and/or other new sources of generation."*
Paragraph 2.9.11	*"Landscape and visual benefits may arise through the reconfiguration, rationalisation, or undergrounding of existing electricity network infrastructure. Though mitigation of the landscape and visual impacts arising from overhead lines and their associated infrastructure is usually possible, it may not always be so, and the impossibility of full mitigation in these cases does not countermand the need for overhead lines."*
Paragraph 2.9.14	*"Where the nature or proposed route of an overhead line will likely result in particularly significant landscape and visual impacts, as would be assessed through landscape, seascape and visual impact assessment, the applicant should demonstrate that they have given due consideration to the costs and benefits of feasible alternatives to the overhead line. This could include – where appropriate – re-routing, underground or subsea cables and the feasibility e.g. in cost, engineering or environmental terms of these."*
National Planning Policy Framework (NPPF) 2023 (Ref 8.5)	
Paragraph 174	*"Planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes (in a manner commensurate with their statutory status or identified quality in the development plan)."*
Paragraph 176	*"Great weight should be given to conserving and enhancing landscape and scenic beauty in Areas of Outstanding Natural Beauty (recently renamed 'National Landscapes') which have the highest status of protection in relation to these issues. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas."*
Climate, People, Places, Value: Design Principles for National Infrastructure (National Infrastructure Commission Design Group) (Ref 8.6)	

Table 8-3: Planning Policy relevant to Landscape and Visual Amenity Receptors

Plan	Policy
South East Lincolnshire Local Plan (2011-2036), Adopted March 2019 (Ref 8.7)	Policy 3: Design of New Development. Provides information on policy regarding development proposals demonstrating security of the landscape character of the location
North East Lincolnshire Local Plan (2013 to 2032). Adopted 2018 (Ref 8.8)	Policy 42: Landscape. “Landscape character should be given due consideration in the nature, location, design and implementation of development proposals” (Local Plan 2013-2032)
Fenland Local Plan (adopted May 2014) (Ref 8.9)	Policy LP16: Delivering and Protecting High Quality Environments across the District. Policy to ensure that development does not adversely impact, either in design or scale terms, the landscape character of the surrounding area.
King’s Lynn and West Norfolk Council Local Development Framework - Core Strategy Adopted Version July 2011 (Ref 8.10)	CS12 Environmental Assets. Policy to ensure that development proposals protect and enhance landscape character
Norfolk County Council Core Strategy and Minerals and Waste Development Management Policies Development Plan Document (2010-2026) (adopted September 2011) (Ref 8.11)	Core Strategy Policy CS14 – Environmental protection. Developments must ensure that there are no unacceptable adverse impacts on, and ideally improvements to the character and quality of the landscape and townscape, including nationally designated landscapes (the Norfolk Coast Area of Outstanding Natural Beauty and the Norfolk and Suffolk Broads). Development Management Policy DM8 – Design, local landscape and townscape character.

Plan	Policy
	Policy to ensure that development applicants will be expected to show how their proposals will address impacts on landscape and townscape. This includes assessment of landscape and townscape character and sensitivity.
Lincolnshire Minerals and Waste Local Plan Core Strategy and Development Management Policies (Adopted June 2016) (Ref 8.12)	Paragraph 3.12 *"The county of Lincolnshire has a diverse and distinctive landscape. Landscape character - what makes a particular area unique - is an important aspect to be taken into account when considering the impacts of development"*
The Cambridgeshire and Peterborough Minerals and Waste Local Plan (adopted 28 July 2021) (Ref 8.13)	Policy 17: Design *"The design of built development and the restoration of sites should be sympathetic to and, where* opportunities *arise, enhance local distinctiveness and the character and quality of the area in which it is located."*
East Lindsey Local Plan Core Strategy (adopted July 2018) (Ref 8.14)	Strategic Policy 23 (SP23) – Landscape 1. *"The District`s landscapes will be protected, enhanced, used and managed to provide an attractive and healthy working and living environment. Development will be guided by the District`s Landscape Character Assessment and landscapes defined as highly sensitive will be afforded the greatest protection."* 3. *"The Council will ensure that the distinctive character of the District's landscapes whether they are of cultural, natural or historic significance, will not be compromised. In particular, the highest level of protection will be given to the Lincolnshire Wolds Area of Outstanding Natural Beauty, which is designated at a national level because of its landscape quality."*
Neighbourhood Plans	Policies and information contained within neighbourhood plans which may further inform the design/assessment of the Projects

Technical Guidance

8.2.4 A summary of the relevant technical guidance is given in **Table 8-4**.

Table 8-4: Technical Guidance relevant to Landscape and Visual Amenity

Technical Guidance Document	Context
Landscape Institute and Institute of Environmental Management and Assessment's Guidelines for Landscape and Visual Impact Assessment', 3rd Edition (2013) (GLVIA3) (Ref 8.15)	Provides guidance relevant to the assessment of potentially significant effects on landscape and visual amenity receptors. This guidance is henceforth referred to as 'GLVIA3' within this document.
Landscape Institute Townscape Character Assessment Technical Information Note 05/2017(Ref 8.16)	Provides principles and general approach of landscape character assessment can be applied to townscape character assessment.
Landscape Institute Technical Guidance Note 06/19 Visual Representation of Development Proposals, September (2019) (Ref 8.17)	Provides technical guidance for photography appropriate for LVIA, according to the Landscape Institute.
Landscape Institute (2021) Assessing landscape value outside national designations (TGN 02/21) (Ref 8.18)	Additional baseline assessment guidance in conjunction with GLVIA3.
Natural England (2014) An Approach to Landscape Character Assessment (Ref 8.19)	Supplementary guidance in conjunction with GLVIA3.
The Inspectorate (2018) Advice Note Nine: Rochdale Envelope (Ref 8.20)	Information relating to limits of deviation in relation to built structures.
The Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (Ref 8.21)	Guidance on cumulative effects assessment.

8.3 Consultation and Engagement

8.3.1 To date no engagement has been undertaken in relation to the LVIA. However, in advance of the PEIR and ES, engagement would be undertaken with the following key stakeholders relevant to landscape and visual amenity:

- Natural England;
- Lincolnshire County Council;
- Norfolk County Council;

- Cambridgeshire County Council;
- East Lindsey District Council;
- South and East Lincolnshire Council Partnership;
- Boston Borough Council;
- East Lindsey District Council;
- South Holland District Council;
- Borough Council of King's Lynn and West Norfolk;
- Fenland District Council;
- Lincolnshire Wolds Countryside Service and Lincolnshire Wolds Joint Advisory Committee (AONB Partnership); and
- National Trust.

8.3.2 Engagement with key stakeholders relevant to landscape and visual amenity will be ongoing up to the submission of the DCO, with the aim to seek agreement, comment and/or guidance on the following:

- The extent of the LVIA study area for the purpose of the assessment;
- The LVIA methodology and assessment parameters;
- Baseline sources of information, landscape policies and designations, in particular in relation to the Lincolnshire Wolds National Landscape (NL) (formerly AONB). The location of proposed representative viewpoints for the assessment;
- Agreed locations for any specific photomontage requirement from particular viewpoints**.** Where required, these would illustrate how The Project is likely to appear in the landscape at both the year of opening and in the design year when mitigation planting has been established, to demonstrate the likely effects and provide a fair representation of The Project. These will be undertaken in accordance with *Landscape Institute Technical Guidance Note 06/1944* (Ref 8.17); and
- Inputs into Statements of Common Ground.

8.4 Baseline conditions

8.4.1 A series of desk-based studies have been undertaken to identify a broad range of potential constraints and opportunities in relation to the Projects and their adjacent context. Planning policy documents, evidence base studies, reports and relevant publications have been taken into consideration.

8.4.2 Desk-based research involves a review of mapping and aerial photography, planning and policy documents, landscape character assessments, and other sources of information relevant to the baseline environment of the study area.

8.4.3 The baseline environment will provide a description of the identified landscape and visual amenity receptors, indicating their key characteristics and value, against which the potential change arising from the Projects would be assessed.

Study Area

8.4.4 The GLVIA3 (Ref 8.15) clarifies how study areas should be determined on a project specific basis. Paragraph 5.2 of GLVIA3 states that the study area extent should be *"… based on the extent of Landscape Character Areas likely to be significantly affected either directly or indirectly"* or "*on the extent of the area from which the development is potentially visible, defined as the Zone of Theoretical Visibility, or a combination of the two.*"

8.4.5 An initial study area threshold of 2 km from the underground DC cable corridor Scoping Boundary (Sections 1 - 8) has been identified for the landscape and visual amenity assessments. This is extended to 3 km beyond the Scoping Boundary for the proposed above ground infrastructure (i.e. the proposed substation and converter station siting areas), and where the Projects (Section 3: Welton le Marsh – Little Steeping) cross the Lincolnshire Wolds NL.

8.4.6 These offsets from the Scoping Boundary are considered sufficient to capture any likely significant landscape or visual effects during the Construction and Operation Stages of the Projects. It is judged that significant landscape or visual effects will be unlikely beyond the limits of the study area.

8.4.7 The study area will be further refined at the detailed assessment stage to ensure a proportional approach, focusing on potential significant effects.

Data Gathering Methodology

8.4.8 To establish the baseline, there are a number of methods and sources which will be reviewed to identify further environmental features and opportunities, such as county and regional level designation or other locations important to the public. These are as follows:

8.4.9 A review of the Local Development Plans for:

- South and East Lincolnshire Council Partnership (Ref 8.7) (comprised of Boston Borough Council, East Lindsey District Council and South Holland District Council), hereafter referred to as 'South and East Lincolnshire Partnership'/S&ELCP;
- Fenland District Council (Ref 8.9);
- Borough Council of King's Lynn and West Norfolk (Ref 8.10);
- Norfolk County Council (Ref 8.11);
- Lincolnshire County Council (Ref 8.12); and
- Cambridgeshire County Council (Ref 8.13).

8.4.10 A review of the Lincolnshire Wolds AONB Management Plan (2019-23) (Ref 8.22).

8.4.11 A review of Natural England's National Character Area (NCA) profiles: NCA 42 (Ref 8.23), NCA 43 (Ref 8.24), NCA 44 (Ref 8.25) and NCA 46 (Ref 8.26).

8.4.12 A review of the Landscape Character Area (LCA) assessments for:

- South & East Lincolnshire Councils Partnership, including Boston Borough Council LCA (Ref 8.27) and East Lindsey District Council LCA (Ref 8.28). None of the study areas fall within South Holland District Council LCA;
- Borough Council of King's Lynn and West Norfolk (Ref 8.29); and

- Any other emerging landscape characterisation studies or information at a local scale to inform the baseline.

8.4.13 Review of OS mapping (1:50,000 mapping and terrain data) and aerial photography (where available) to identify other potential features such as settlements, properties, walking routes, cycling routes etc.

8.4.14 Extrapolation of OS OpenData to identify further environmental features.

8.4.15 Review of other local information through online and published media such as tourism sites and walking routes.

8.4.16 A number of site walkovers were undertaken to inform the CPRSS, between March – June 2023, with a focus on the proposed landfalls at Theddlethorpe/Anderby Creek and the proposed substation and converter station siting areas.

8.4.17 A familiarisation site walkover, with a particular focus on the proposed Walpole substation and converter station siting areas near Wisbech has been undertaken between the dates of 26th April – 28th April 2024.

Current Baseline

8.4.18 The current baseline section is divided into two sections, covering landscape character and visual amenity. Landscape character areas and designations are shown on **Figure 8.1: Landscape Character Areas and Designations**.

Figure 8-1
Landscape Character Areas and Designations

Legend

- Scoping Boundary
- Lincolnshire Connection Substation (LCS) Converter Station Station and Direct Current Switching Station (DCSS) Siting Zone
- Walpole Substation and Converter Stations Preferred Siting Zone
- Scoping Boundary 2KM Buffer
- Lincolnshire Connection Substation (LCS) Converter Station Station and Direct Current Switching Station (DCSS) Siting Zone 3KM Buffer
- Walpole Substation and Converter Stations Preferred Siting Zone 3KM Buffer

National Character Areas

- Northamptonshire Vales

Lincolnshire Wolds AONB/National Landscape

- Lincolnshire Wolds
- Norfolk Coast

Local Landscape Character Areas

- WLDC Landscape Character Area
- NLC North Lincs Landscape Character Area
- NELC Landscape Characterisation
- NELC Landscape Character Area
- NE East Midlands Region Landscape Character Areas
- KLWNBC Landscape Character Areas
- FDC Landscape Character Area
- ELDC Landscape Character Area

Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 538852.986 Sheet Y Centroid Coordinate: 340198.489

0 5 10 Kilometres

Issue	Date	Remarks	Drawn	Checked	Approved
1	23/07/2024	DRAFT	NM	BS	JR

Title

Figure 8-1
Landscape Character Areas and Designations

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Figure Number: Figure 8-1

Drawing Reference: EGL-WSP-CON8-XX_DR-G-032 P01

Scale	Sheet Size	Sheet	Issue
1:500,000	A3	SHEET 1 of 1	1

Landscape Designations

8.5.1 The Lincolnshire Wolds National Landscape (hereafter described as the Lincolnshire Wolds) is situated approximately 11 km west of the proposed landfall areas. The Projects briefly route within the southernmost extent of the Lincolnshire Wolds, adjacent to Section 3 of the Scoping Boundary between Willoughby and Gunby (Welton le Marsh – Little Steeping).

8.5.2 Paragraph 182 of the NPPF (Ref 8.5) states that National Parks and NLs have been confirmed by the Government as having the highest status of protection in relation to landscape and scenic beauty. It makes clear that development consent in these areas can be granted in exceptional circumstances. It is noted in paragraph 5.10.32 of NPS EN-1 (Ref 8.3) and paragraph 183 of the NPPF (Ref 8.5) that in such exceptional circumstances, the development should be demonstrated to be in the public interest and consideration of such applications should include an assessment of:

> *"a) the need for the development, including in terms of national considerations, and the impact of consenting or not consenting it upon the local economy;*
>
> *b) the cost of, and scope for, developing elsewhere outside the designated area or meeting the need for it in some other way, taking account of the policy on alternatives; and*
>
> *c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated."*

8.5.3 The Lincolnshire Wolds is a nationally important landscape and was designated in 1973 as an AONB. The Lincolnshire Wolds covers an area of 558 km^2 and contains the highest ground in eastern England between Yorkshire and Kent.

8.5.4 The landscape of the Lincolnshire Wolds is comprised of rolling chalk hills, with an unusual and distinctive topography of steep sided valleys. The Lincolnshire Wolds has a high scenic quality, depending almost entirely upon the area's use for agriculture with seasonally changing field and cropping patterns, interspersed with pasture and small woodlands.

8.5.5 Other relevant designations located within the study area comprise:

- Gunby Hall Park and Garden lies directly adjacent to the Scoping Boundary, around Welton le Marsh and Candlesby Firsby;
- Well Hall Park and Garden lies approximately 1 km from the Scoping Boundary (within the study area), around Well;
- Welton Low Wood Ancient Woodland is located adjacent to the Scoping Boundary, within the study area, and located towards Welton le Marsh;
- The South Wolds Cycle Route, which routes to the north of Theddlethorpe, through Alford and Well;
- National Cycle Network Route 1 (NCN1) cycle path which routes through the centre of Boston;
- The Macmillan Way and Cross Britain Way Long Distance Footpaths, which routes east to west across the UK and routes through the centre of Boston;
- The Nene Way Long Distance Path, which routes south from Holbeach; and
- The Public Rights of Way (PRoW) network.

Landscape Characterisation: National Character Areas (NCAs)

8.5.6 There are four NCAs, as defined by Natural England, that occupy the Projects study area and Scoping Boundary between the landfalls and the River Welland. The purpose of the NCA definition is to provide a national categorisation of the broad variation of landscape and ecological characteristics across England. Those which fall within the study area are as follows:

- the Lincolnshire Coast and Marshes NCA 42 (Ref 8.23): The Lincolnshire Coast and Marshes NCA is characterised by a wide coastal plain extending from Barton-upon-Humber in the north, across to Grimsby at the mouth of the Humber and south to Skegness;
- the Lincolnshire Wolds NCA 43 (Ref 8.24): The Lincolnshire Wolds NCA is characterised by a range of varied yet unified features including open, arable plateau hill tops, chalk escarpments, deep dry valleys with sinuous beech woods and isolated ash trees punctuating the skyline;
- the Central Lincolnshire Vale NCA 44 (Ref 8.25): The Central Lincolnshire Vale NCA is a predominantly broad, low-lying, very gently undulating arable vale lying between the higher ground of the Northern Lincolnshire Edge with Coversands NCA to the west and the Lincolnshire Wolds NCA to the east. The area is characterised by a rural and sparsely settled landscape, largely used for agricultural production, mainly for the growing of arable crops; and
- The Fens NCA 46 (Ref 8.26): The Fens NCA is characterised by a large, low-lying, flat landscape with many drainage ditches, dykes and rivers that slowly drain towards the Wash. The area is notable for its large-scale, flat, open landscape with extensive vistas to level horizons.

Landscape Characterisation: Local Landscape Character Areas

8.5.7 The Lincolnshire Wolds Character Assessment (Ref 8.22) has recognised four landscape character areas within the National Landscape boundary, of which two are relevant to the study area.

8.5.8 The study area encompasses the King's Lynn and West Norfolk Borough Council and the S&ELCP – which includes Boston Borough Council LCA (Ref 8.27) and East Lindsey District Council LCA (Ref 8.28). None of the study areas fall within South Holland District Council (which also forms part of the S&ELCP) LCA, therefore this LCA has been excluded from the report.

S&ELCP LCA: Holland Reclaimed Fen (A1)

8.5.9 The area is bounded to the north by the canalised River Witham and the East Lindsey District boundary, to the south by New Hammond Beck and Bicker to Wyberton Settled Fen, and to the west by North Kesteven District boundary. Boston town lies to the east of the LCA. (Ref 8.27)

8.5.10 The LCA is flat with low-lying reclaimed fenland and open and expansive views with some views semi-enclosed at ground level by large embankments. There are more distant views to Boston Stump and to the Lincolnshire Wolds in East Lindsey District to the north. The land is a man-made and intensive arable landscape laid out in a regular, geometric pattern with narrow roads and trackways alongside drains, dykes and ditches. The large North Forty Foot Drain and South Forty Foot Drain are key dominating features of the area. Field boundaries are typically open with wet ditches,

dykes and drains and the occasional hedgerow. The LCA is sparsely populated with occasional small hamlets, scattered farmsteads, and occasional rows of former workers' cottages. Occasional derelict farm cottages and field buildings are also present. The LCA exhibits sparse tree cover confined to shelterbelts, with occasional hedgerows and small blocks of mixed woodland with shrubby edges. Bicker windfarm and large scale pylons on the south western tip of the LCA are landmark features. Overall the LCA is a semi-remote, tranquil and intact working agricultural landscape. (Ref 8.27)

S&ELCP LCA: Wrangle Common to Freiston Ings Reclaimed Fen (A2)

8.5.11 Wrangle Common to Freiston Ings Reclaimed Fen forms part of the agricultural fenland that surrounds The Wash. The area is bounded to the south by the Cowbridge Drain, Hobhole Drain and Wrangle Bank, and to the west, north and east by the East Lindsey District boundary. (Ref 8.27)

8.5.12 The LCA is flat and low-lying reclaimed fenland with open views, although semi-enclosed at a low level by large drain embankments. Views in the LCA include those from Wrangle to Cowbridge Settled Fen to the south, to the Pilgrim Hospital on the outskirts of Boston, and distant views to the Lincolnshire Wolds in East Lindsey to the north. The LCA is a man-made, intensively farmed arable landscape laid out with a strong geometric pattern of narrow roads and tracks alongside drains, dykes and ditches. Cowbridge and Hobhole Drain embankments and a small reservoir contained by embankments are prominent features of the area. Tree cover is sparse and is mostly confined to tree shelterbelts around farmsteads, dwellings and settlements on the edge of the character area. There are very few remnant hedgerows and an occasional small block of deciduous woodland. The LCA is sparsely populated with scattered farmsteads, former workers' cottages and occasional derelict farm cottages and field buildings. Large and small scale pylons are present across the whole area. Access is limited across the LCA with few roads and tracks and very occasional short dead end public rights of way. Overall, the LCA is a relatively remote, tranquil and intact working agricultural landscape. (Ref 8.27)

S&ELCP LCA: Bicker to Wyberton Settled Fen (B1)

8.5.13 Bicker to Wyberton Settled Fen is located to the west of Boston town. It is bounded by Frampton to Fosdyke Settled Fen to the southeast and east, South Holland District boundary to the southwest and New Hammond Beck and Holland Reclaimed Fen to the north. At its eastern tip it abuts the outskirts of Boston town. (Ref 8.27)

8.5.14 The LCA is a largely flat landform slightly elevated above the adjacent drained fenland. The LCA exhibits open views with views to landmark water towers, and church towers and spires set amongst mature trees in historic villages. Other visible landmarks within the LCA include the windfarm at Bicker and Boston Stump. The LCA is an intact working rural landscape with a relatively large-scale organic network of winding roads is infilled by a geometric field pattern of predominantly arable fields. Generally tree cover is sparse with occasional hedgerows and hedgerow trees and infrequent blocks of mixed woodland. Listed buildings are present and there are some designated conservation areas within historic villages. Towards the outskirts of Boston there are more modern influences including converging rows of large scale pylons and new recreational sites. Overall, the LCA is a distinctive, cohesive and legibly evolving agricultural landscape, which is peaceful in parts but not particularly remote. (Ref 8.27)

S&ELCP LCA: Frampton to Fosdyke Settled Fen (B2)

8.5.15 Frampton to Fosdyke Settled Fen is located to the southwest of Bicker to Wyberton Settled Fen, east of South Holland District and northwest of the relict sea bank, which forms the boundary with Welland to Haven Reclaimed Saltmarsh to the southeast. (Ref 8.27)

8.5.16 The LCA is a largely flat farmed landscape with a patchwork of predominantly arable fields with some pasture. The LCA exhibits open views to landmark church towers and spires set amongst mature trees in historic villages. Other visible landmarks include Boston Stump and the windfarm at Bicker. Tree cover is generally sparse with occasional hedgerows and trees and infrequent blocks of mixed woodland. Some areas under Environmental Stewardship Schemes have more established hedgerows with hedgerow trees. The LCA displays a small-scale landscape pattern of winding narrow roads enclosing small irregularly shaped fields bounded by dykes and ditches. There is presence of a marina at Fosdyke. There are listed buildings and designated conservation areas within historic villages. Limited large scale modern influences include rows of pylons and views to working cranes at Boston port. Overall, the LCA is an intact, fairly remote and evolving working rural landscape. (Ref 8.27)

S&ELCP LCA: Wrangle to Cowbridge Settled Fen (B3)

8.5.17 Wrangle to Cowbridge Settled Fen is located to the north and east of Boston town. It is enclosed by the sea banks which form the boundary with Glebe Farm Reclaimed Saltmarsh to the southeast and Wrangle Bank which forms the boundary with Wrangle Common to Freiston Ings Reclaimed Fen to the north. (Ref 8.27)

8.5.18 The LCA is largely flat, but slightly elevated above the drained fenland to the west and the reclaimed coastal marsh to the east. There are some open views within the LCA and some views to windmills, water towers, and church towers and spires set amongst mature trees in villages. Also, there are views to Boston Pilgrim Hospital and Boston Stump. The LCA has a small to medium scale pattern of winding roads, ditches and dykes infilled with a mix of both geometric and irregularly shaped arable fields. The LCA is an evolving intensively farmed landscape with a scattering of listed buildings and designated conservation areas in villages. Overall, the LCA is relatively tranquil away from the A52, although with frequent traffic associated with the activity of farm workers, farm and goods vehicles. (Ref 8.27)

S&ELCP LCA: Welland to Haven Reclaimed Saltmarsh (C1)

8.5.19 Welland to Haven Reclaimed Saltmarsh is a small area of reclaimed land surrounded and enclosed by sea banks. It extends from the southern extremity of Boston town and includes areas along both sides of the Haven to the east of Fosdyke Bridge where the River Welland opens out onto the Wash Saltmarsh. It lies between the inland Frampton to Fosdyke and Bicker to Wyberton Settled Fens, and the coastal Welland to Haven Wash Saltmarsh. (Ref 8.27)

8.5.20 The LCA is a fairly remote man-made, flat landscape of reclaimed saltmarsh which is surrounded and enclosed by sea banks of varying ages. Longer views in the LCA from the tops of the sea banks extend towards The Wash and the Norfolk coast. The LCA has a predominantly geometric pattern of medium to large scale fields bordered by open ditches and dykes. Land use in the LCA is a mix of pasture and intensive arable and pasture for cattle, and also small areas for the outdoor rearing of pigs. Tree and hedgerow cover in the LCA is mostly confined to the inland relict sea bank and also shelter belts around farmsteads and dwellings. The LCA is sparsely populated with

occasional farmsteads and dwellings with limited access via a very small number of minor roads and farm tracks. There is presence of a long distance footpath in the LCA, the Macmillan Way, runs along the top of the coastal sea bank. (Ref 8.27)

S&ELCP LCA: Stickney to Sibsey Reclaimed Fen (A1)

8.5.21 Stickney to Sibsey Reclaimed Fen lies at the southern tip of East Lindsey District at the foot of Mareham to Little Steeping Fenside Woodland and Farmland. It is bounded by the River Witham to the west, by Wainfleet All Saints to Friskney Settled Fen to the east and the Borough of Boston to the south. It includes the Friskney, East, West and Wildmore Fens which were the latest of the fens to be reclaimed from the freshwater wetlands. (Ref 8.28)

8.5.22 The LCA is a flat and low-lying drained fenland with open, expansive views. The landscape in the LCA is intensively farmed medium to large scale arable fields. Field boundaries in the LCA are typically open with ditches, occasional hedgerows or remnant hedgerows. The LCA is drained by a hierarchy of dykes forming an extensive grid network, emphasised by adjacent raised minor roads and telegraph poles and wires. The LCA exhibits sparse tree cover confined to shelter belts, along some roads and around dwellings and settlements including occasional coniferous belts and short lines of poplars. Overall, the LCA is fairly remote and tranquil away from the A16. (Ref 8.28)

S&ELCP LCA: Wainfleet All Saints to Friskney Settled Fen (B1)

8.5.23 Wainfleet All Saints to Friskney Settled Fen is a small character area in the south of the District which extends from Wainfleet All Saints and Steeping River in the north to the Wainfleet Relief Channel, the southern District border just south of Friskney. It is bounded by the A52 and Wainfleet Reclaimed Saltmarsh in the east and by Stickney to Sibsey Reclaimed Fen in the west. (Ref 8.28)

8.5.24 The LCA is largely flat with some gentle undulations and slightly elevated above the surrounding drained fens and coastal marsh. The LVA is small to medium scale well settled rural landscape with many dwellings and farmsteads scattered throughout. The LCA is a relatively organic pattern of predominantly arable fields with occasional hedgerows and a mix of small scale arable and pastoral fields with hedgerows are found in and around the historic port and town of Wainfleet All Saints. The LCA exhibits frequent settlements, farmsteads and dwellings set amongst mature tree planting and shelter belts. The Steeping River extends across the north of the area with short, canalised sections enclosed by elevated grassed embankments. There are a limited network of minor roads and tracks in the LCA. Small scale tourist and leisure activities including; small caravan parks, a golf club and public houses. Overall, the LCA is a relatively diverse but intact rural landscape. (Ref 8.28)

S&ELCP LCA: Wainfleet Reclaimed Saltmarsh (C1)

8.5.25 Wainfleet Reclaimed Saltmarsh is a small area which extends from the Wainfleet Haven/Steeping River in the northeast to the Borough of Boston in the southwest, Wainfleet Wash Saltmarsh to the southeast and to the A52 and Wainfleet All Saints to Friskney Settled Fen in the northwest. (Ref 8.28)

8.5.26 The LCA is a relatively remote man-made flat landscape of drained reclaimed saltmarsh. Within the LCA lines of relict grassed sea banks running parallel to the coast. Views within the LCA partially constrained by sea banks with longer views from the tops

of sea banks. The LCA is made up of intensive large to medium scale arable fields of wheat and brassicas bordered by open ditches and dykes. The LCA presents short straight narrow roads and tracks which feed from the A52 through to the coastal sea bank. The LCA is sparsely populated with occasional farmsteads and dwellings of mixed of ages and styles along ends of the roads next to the A52. There are few trees or hedgerows present within the LCA. There is activity of field workers which reduces sense of remoteness in the LCA. Overall the LCA is a distinctive and intact, intensively farmed landscape. (Ref 8.28)

S&ELCP LCA: Wainfleet Wash Saltmarsh (D1)

8.5.27 Wainfleet Wash Saltmarsh is a small area formed by a flat tidal strip in the southeast corner of East Lindsey District which includes Wainfleet Sands and Friskney Flats. It stretches from Gibraltar Point in the north to the Borough of Boston in the south. It is separated from Wainfleet Reclaimed Saltmarsh to the west by a sea bank and to the east it meets Boston Deeps, a shipping channel in the Wash. (Ref 8.28)

8.5.28 The LCA is an extensive network of open saltmarsh and inter-tidal mud and sand flats with winding creeks. The LCA is a largely inaccessible, remote and wild landscape. Views within the LCA are open with wide horizons which are influenced by changing tides, light and weather conditions. The LCA displays a rich mosaic of saltmarsh vegetation which is protected by many international and national nature conservation designations. The LCA presents an infrequent scattering of small man-made elements associated with the RAF Wainfleet Air Weapons Range. Overall, the LCA is a very distinctive, naturalistic and dramatic coastal landscape. (Ref 8.28)

S&ELCP LCA: Little Cawthorpe to Skendleby Wolds Farmland (G2)

8.5.29 Little Cawthorpe to Skendleby Wolds Farmland is located in the south of the Wolds stretching from the steep sided valley head of the Great Eau on the border with Binbrook to Tetford Wolds Farmland in the north down to Mareham to Little Steeping Fenside Woodland and Farmland in the south. It lies between Holton le Clay to Great Steeping Middle Marsh in the east and the edge of the Lymn River Valley and bordering to Hainton to Toyton All Saints Wolds Farmland in the west. (Ref 8.28)

8.5.30 The LCA is an elevated rolling agricultural landscape that descends to Holton le Clay to Great Steeping Middle Marsh and the Lymn River Valley in Hainton to Toyton All Saints Wolds Farmland. The LCA displays a mix of arable farmland, pasture and woodland which frames views. The LCA has many hedgerows with hedgerow trees, and frequent woodland blocks including ancient and semi-natural and ancient replanted woodlands. Within the LCA streams and rivers drain eastwards into the marshes and south to the Lymn Valley. Within the LCA there are scattered villages nestled into valleys which are often associated with small parkland estates. The A16 and A1028 roads provide a fast north to south transport route in the LCA. There are also a network of wide verged drove roads in the LCA. The LCA has a high level of landscape and nature conservation designations and it lies in the Lincolnshire Wolds. Many heritage features including historic parks and gardens, archaeological remains of deserted medieval villages and groups of pre-historic barrow groups are present within the LCA. Overall, the LCA is a peaceful and rural landscape. (Ref 8.28)

S&ELCP LCA: Hainton to Toyton All Saints Wolds Farmland (G3)

8.5.31 Hainton to Toyton All Saints Wolds Farmland stretches from the boundary with West Lindsey District and the A631 border with Binbrook to Tetford Wolds Farmland in the

north to Mareham to Little Steeping Fenside Woodland and Farmland in the south. The Bluestone Heath Road, and western scarp of the Wolds forms part of the eastern border with both Binbrook to Tetford Wolds Farmland and Little Cawthorpe to Skendleby Wolds Farmland. To the west it is bordered by Wragby to Horsington Vale Woodland and Farmland. (Ref 8.28)

8.5.32 The LCA is an elevated undulating landscape of ridges, wide and narrow valleys, plateaux and scarp. The LCA presents views to and from open hilltops and some open skylines. Longer views extending to Boston, the Vale of Lincoln and the Wash in the LCA. The LVA comprises mixed agriculture which is mostly fields of wheat with some pasture around villages and on steeper slopes. Many streams in the LCA drain to the Rivers Bain and Lymn in the south of the character area. Mature hedgerows with trees and occasional blocks of woodland are scattered throughout the LCA. The LCA has a high level of landscape designation and many nature conservation designations, with most of the area being within the Lincolnshire Wolds and parts being an Area of Greal Landscape Value (AGLV). The A158 provides a fast east-west route across the LCA. Several telecommunications masts including the prominent Belmont mast are prominent landmarks within the LCA Overall, the LCA is a very tranquil rural landscape with few detractors. (Ref 8.28)

S&ELCP LCA: Mareham to Little Steeping Fenside Woodland and Farmland (H1)

8.5.33 Mareham to Little Steeping Fenside Woodland and Farmland lies in a narrow band of land between Stickney to Sibsey Reclaimed Fen to the south and Hainton to Toyton All Saints Wolds Farmland and Little Cawthorpe to Skendleby Wolds Farmland to the north. It is bordered to the west by Woodhall Spa to Coningsby River Terrace, where the Central Lincolnshire Vale opens out towards the Wash Basin and Holton le Clay to Great Steeping Middle Marsh to the east. (Ref 8.28)

8.5.34 The LCA is a rolling landscape at the foot of the Lincolnshire Wolds rising gently to the Wolds from Stickney to Sibsey Reclaimed Fen. There are views to the Borough of Boston and to Boston Stump to the south and to closer church spires and towers within settlements in and out of the LCA. The Land within the LCA is a patchwork of arable fields with some ancient and semi natural and ancient replanted mixed woodland and grazed parkland. Streams, ditches and dykes drain towards the fens, becoming more geometric in layout towards the southern boundary of the LCA. The LCA is part of an AGLV. It has a busy transport corridor with the east-west A155 passing through, skirting both the lower wet fenlands and higher land of the Lincolnshire Wolds and includes the crossroads with the southbound A16 Boston Road and in between is a sparse network of minor roads. Overall, away from the busy A115 the LCA is a very tranquil and idyllic rural landscape. (Ref 8.28)

S&ELCP LCA: Holton le Clay to Great Steeping Middle Marsh (I1)

8.5.35 Holton le Clay to Great Steeping Middle Marsh lies between Tetney Lock to Skegness Coastal Outmarsh and both Binbrook to Tetford Wolds Farmland and Little Cawthorpe to Skendleby Wolds Farmland in the east. It extends from the North East Lincolnshire District boundary in the north down to the Great Steeping River in the south. (Ref 8.28)

8.5.36 The LCA displays gently undulating foothills to the Wolds rising from Tetney Lock to Skegness Coastal Outmarsh with views to Binbrook to Tetford Wolds Farmland and Little Cawthorpe to Skendleby Wolds Farmland. The LCA is predominantly arable farmland with medium to large scale fields, some pasture with grazing sheep and cattle, bounded by ditches and dykes. Meandering rivers and streams are present within the

LCA and the Louth Canal contained by flood embankments, which flow from the Wolds eastwards to the coast. The LCA presents scattered blocks of mixed deciduous woodland throughout but more frequent around the southwestern boundary. There are frequent scattered villages, hamlets, farmsteads and dwellings include a line of merging villages at the foot of the Wolds. Overall, the LCA is a distinctive and tranquil rural landscape with very few minor detractors. (Ref 8.28)

S&ELCP LCA: Tetney Lock to Skegness Coastal Outmarsh (J1)

8.5.37 Tetney Lock to Skegness Coastal Outmarsh runs down the eastern side of East Lindsey District forming the hinterland of Donna Nook to Gibraltar Point Naturalistic Coast. It extends from the North Lincolnshire District boundary in the north down to the Great Steeping River in the south and across to Holton le Clay to Great Steeping Middle Marsh in the west. (Ref 8.28)

8.5.38 The LCA is a low lying, drained coastal plain contained to the east by sea embankments, sand dunes and sea defences. The LCA is mostly flat with some areas of gentle undulations including some saltern mounds. There are some wide open views in the LCA. Some views in the LCA are enclosed by landform, embankments, sand dunes or trees. There is an extensive network of drains, ditches and dykes with a strong geometric pattern in the northern and central parts of the LCA. Rivers and the historic Louth Canal cross from the Lincolnshire Wolds in the west towards the coast within the LCA. The LCA is predominantly mixed agricultural land use with both arable and pasture, and some remnants of ridge and furrow. There are several important coastal nature reserves with a high level of nature conservation designation with associated wildlife within the LCA. There is a stretch of coastal resorts from Mablethorpe to Skegness with caravan parks in the LCA, and new residential and commercial developments on their outskirts. There is an extensive network of raised minor roads with a few larger A-roads serving the coastal resorts in the LCA. Overall, the LCA is a predominantly intact and distinctive rural landscape with some man-made influences including a gas terminal, an oil storage facility and several wind farms. (Ref 8.28)

S&ELCP LCA: Donna Nook to Gibraltar Point Naturalistic Coast (K1)

8.5.39 Donna Nook to Gibraltar Point Naturalistic Coast lies in the narrow strip of tidal coast between the North Sea and Tetney Lock to Skegness Coastal Outmarsh. The area stretches from Tetney High Sands, just south of Cleethorpes to Gibraltar Point just north of the Wash. (Ref 8.28)

8.5.40 The LCA is a flat tidal strip with some stretches of long sandy beaches and mud flats with areas of saltmarsh. There are wide open views with big skies which extend out to sea in this LCA. There are views influenced by and contained to the landward side in some areas by concrete promenades defending coastal sea resorts, and in other areas by vegetated sea banks or coastal sand dunes in the LCA. Drains flowing onto the tidal marshes create intricate dendritic patterns emphasised by the saltmarsh vegetation within the LCA. The LCA presents a mosaic of coastal, dune, mudflat and saltmarsh vegetation. There are no settlements within the LCA but there are occasional small scale built structures in Ministry of Defence (MoD) designated Danger Areas, protected by international, national and local nature conservation designations. The LCA is remote and tranquil for the most part, but less tranquil adjacent to coastal resorts and designated MoD Danger Areas. Overall, the LCA is a very distinctive and mostly unspoilt natural landscape with very few detractors. (Ref 8.28)

King's Lynn and West Norfolk Borough Council LCA: Terrington (B1)

8.5.41 This Landscape Character Area lies to the west of the King's Lynn and West Norfolk Borough and in the northeast is constrained by sea defence banks. The LCA is intensively managed farmland which dominates this largely undeveloped strikingly flat reclaimed land. Within this LCA there are a regular network of drainage ditches, in places lined with reeds and rushes delineate the medium sized predominantly arable fields. Views across the LCA and beyond to adjacent character areas are far-reaching, open and panoramic, occasionally framed by the odd shelterbelt. In views seaward in the LCA, sea defence banks define the horizon. There are few points of focus in this low-lying, uncomplicated landscape with rows of communication masts, dispersed isolated farmsteads, shelterbelts, a few poplar rows and orchards, and fragmented gappy low hedges (species-rich) providing the only vertical elements against the horizontal plane of the surrounding uncomplicated landscape. The LCA lacks settlement with the only settlements in the area being dispersed, isolated farmsteads and houses, dotted along the roads running through the area. Overall, the communication pattern in the LCA is sparse and consists of a handful of rural roads (frequently lined with drainage ditches) connecting the few farms and houses. Despite the very obvious manmade character of the landscape in this LCA there is a very strong sense of openness, remoteness and exposure which is apparent throughout the entire area. (Ref 8.29)

King's Lynn and West Norfolk Borough Council LCA: Walpole, Terrington and Clenchwarten (D2)

8.5.42 This Landscape Character Area is situated at the northern extent of the Settled Inland Fens, in between Drained Coastal Marshes to the north and Open Inland Fens to the southeast. The Borough boundary confines the area in the west while West Lynn demarcates its eastern border. (Ref 8.29)

8.5.43 This large-scale, low-lying LCA offers extensive panoramic views in all directions. In this LCA dykes and ditches, often aligned with reeds and rushes, demarcate the small to medium sized mainly irregular fields, and often also follow the course of rural roads. Dykes are low within this LCA and often only visible from a short distance, greatly adding to the continuous expansive character of the area. The horizon appears cluttered in places due to the variety of vertical elements of differing sizes, including buildings – farmsteads, glasshouses and residential, communication masts, and tall vegetation in this LCA. Pylons and village churches are conspicuous landmarks in all directions within this LCA. Settlement pattern in this LCA consists of large-scale farmsteads and nucleated hamlets and villages, including Walpole St. Andrew and St. Peter, Terrington St. Clement and Clenchwarton. A network of narrow rural roads, frequently lined with tall vegetation, connects villages in this LCA. Tranquillity in the area largely depends on proximity to the fast moving traffic corridors of the A17 and A47, which dissect this character area and provide a constant source of noise and movement. (Ref 8.28)

King's Lynn and West Norfolk Borough Council LCA: Terrington St. John (D3)

8.5.44 Situated to the northeast of Wisbech and bordered by the A47 to the east and south. The land use in this LCA is mainly arable with the small generally regular fields often demarcated by dykes and ditches (usually lined with reeds and rushes). The LCA exhibits a strong sense of tranquillity, emphasised by the general lack of development in the area. Settlement pattern comprises the village of Terrington St. John, scattered (mainly brickwork) houses and large farmsteads. There are open views across the

landscape, with prominent shelterbelt planting of poplar trees and rows of communication masts that form the main focal points in this expansive, large-scale LCA. The combination of differing vertical elements including rows of trees, pylons, orchards, buildings and tall vegetation (occasionally lining the roads), makes for a cluttered skyline in places within the LCA. There are a number of straight, fairly busy roads (with a linear settlement pattern along these roads) that bisect the area from north to south and connect with a network of minor, more rural roads. (Ref 8.29)

King's Lynn and West Norfolk Borough Council LCA: Emneth, West Walton and Walksoken (D4)

8.5.45 This character area is situated to the east of Wisbech and is bordered by the Open Inland Fens to the east. The LCA encompasses a mix of arable fields, fruit orchards, plantations and pasture. The LCA is intensively managed with agricultural fields dominating this remarkably flat, low-lying landscape. There are presence of dykes and ditches within this LCA, frequently lined with reeds, rushes and occasionally shrubs (including ash, willow and hawthorn) which divide the generally large fields and bring topographical change. The LCA displays a patchwork of arable fields, orchards, plantation woodlands, together with a variety of vertical elements including large-scale farms, glasshouses, pylons, frequent rows of poplars and other tall vegetation, give the landscape a cluttered appearance with few points of focus. Orchards are particularly abundant directly east of Wisbech in this LCA and provides a sense of enclosure (with the neat rows of low trees channelling views) which contrasting greatly with the expansiveness in the rest of the area. The settlement pattern within the LCA consists of farms, which are generally dotted along the rural roads, and several mainly linear villages including Tilney St. Lawrence, Emneth and Marshland St. James. In the LCA the sense of tranquillity varies in the area depending on proximity to the busy transport corridor of the A47 (with its visual, noise and movement intrusion) and the urban fringe around Wisbech. (Ref 8.29)

The Lincolnshire Wolds Character Assessment

8.5.46 The Lincolnshire Wolds Landscape Character Assessment (Ref 8.21) recognised four LCAs within the Lincolnshire Wolds identified by their distinct group of special features, two of which are relevant to the study area and are as follows:

The Ridges and Valleys of the South-West LCA

8.5.47 Summary characteristics:

- *"Dramatic views south Bluestone Heath Road and Nab Hill – Hoe Hill ridge"*
- *"Mixed pattern of arable and pastoral farming"*
- *"Old mixed hedgerows" and "Herb rich roadside verges"*

The Lincolnshire Wolds Character Assessment: South-Eastern Claylands LCA

8.5.48 Summary characteristics:

- *"Views across the Middle Marsh to the coast"*
- *"Extensive oak-ash woodland"*
- *"Ridge top roads and their associated archaeology"*

Visual Amenity

8.5.49 Visual receptors have the potential to experience views of the construction of the landfall cable route, and the construction and subsequent operation of, the proposed LCS converter station and DCSS, and the new Walpole substation and converter stations within the study area. The following visual receptors have been considered for inclusion in the assessment:

- Local communities including occupiers of residential properties, workers at their place of work, users of local facilities; this will include visual receptors in settlements, villages and larger towns throughout the study area corridor;
- People using nationally designated or regionally promoted footpaths, cycle routes or other Public Rights of Way. This will comprise Areas of Open Access (Countryside and Rights of Way (CRoW) Act, 2000), including Common Land; Recreational routes including PRoW, and long-distance recreational routes including;
- The South Wolds Cycle Route, which routes to the north of Theddlethorpe, through Alford and Well;
- National Cycle Network Route 1 (NCN1) cycle path which routes through the centre of Boston;
- The Macmillan Way and Cross Britain Way Long Distance Footpaths, which routes east to west across the UK and routes through the centre of Boston;
- The Nene Way, which begins at Holbeach and routes south from there;
- Public Rights of Way network;
- Visitors of publicly accessible sites including historic parks and gardens, historic sites and other visitor attractions; and
- Users of public roads and railways; including users of A-roads (A1031, A1104, A157, A16 and A17), B-roads and unclassified roads within the study area; and passengers travelling on the Poacher Railway Line, which routes between Nottingham and Skegness.

Future Baseline

8.5.50 Landscape change is an ongoing and inevitable process and would continue across the LVIA study area irrespective of whether the Projects proceed. Change can arise through natural processes (e.g. the maturity of woodlands) and natural systems (e.g. river erosion) or, as is often the case, occurs due to human activity, land use, management, or neglect.

8.5.51 Climate change, across the southeast of England in general is predicted to result in hotter drier summers, warmer wetter winters, and higher sea levels. This in turn may result in the following land use changes which may influence landscape character and visual context:

- Drier summers could lead to drought-stress for semi-natural habitats and agricultural crops. This could lead to degradation and loss of certain habitats and species;
- Hotter and drier summers, milder winters and changes in seasonal rainfall patterns could lead to changes in species composition of some habitats with changes to tree productivity;
- Potential for double cropping and/or growing different crops; and

- Increased prevalence of pests and diseases, such as oak decline, may result in changes to the composition and the visual role of ancient woodlands and mature, ancient and veteran trees.

8.5.52 It is recognised that there are a number of other proposed and committed developments within the surrounding area that could alter the future baseline in the absence of the Projects, including an increased presence of energy related development (for more information see **Part 4, Chapter 35: Cumulative Effects).**

8.5 Design and Control Measures

8.5.1 A high-level optioneering study (the CPRSS, as described in **Part 2, Chapter 3: Consideration of Alternatives**) has been undertaken to identify the preferred routeing and siting of the proposed infrastructure to ensure that significant environmental effects are avoided where possible. As part of the Projects design process, design and control measures would be proposed to reduce the potential for impacts on landscape and visual amenity receptors. These measures would evolve as part of design development and in response to consultation. These measures typically include those measures that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements.

8.5.2 Mitigation measures are undertaken as a response to anticipated adverse landscape and visual amenity effects and are described as primary or secondary. Primary mitigation measures are steps taken during the design phase to help lower potential effects, based on key sensitivities, constraints and opportunities identified through baseline study. Landscape and visual amenity considerations to date have contributed to the converter and landfall site selection process and in identifying potential cable route corridor options, and would continue to inform the form, location and routeing of elements throughout the design process.

8.5.3 Secondary mitigation measures are those that seek to further reduce potential effects that cannot be entirely designed out. These would be identified and informed by the detailed assessment stage and would likely include:

- Landscape reinstatement of hedgerows and other vegetation along the cable route corridor and along temporary access tracks; opportunities to improve the connectivity of green infrastructure assets; avoidance of loss and/or replacement of any vegetation loss along the development corridors, in particular hedgerow and tree planting pertinent to landscape character, recognised as special features within The Lincolnshire Wolds Landscape Character Assessment (Ref 8.22);
- Landscape integration of substation, converter station and DCSS locations, through planting measures and/or landform design; design collaboration on the visual appearance and massing of structures in combination with landscape measures; and
- The incorporation of screening measures where appropriate, to help reduce the extent or significance of adverse effects on particular visual receptors in the longer term.

8.5.4 Landscape mitigation measures would be developed to support the landscape strategies and guidelines identified in published landscape character assessments. A collaborative approach to mitigation would be pursued and opportunities sought to integrate with all discipline objectives including ecological, flood risk, noise, biodiversity net gain (BNG), carbon reduction and other mitigation measures.

8.6 Scope of the Assessment

Potential Sensitive Receptors

8.6.1 This section details the approach to identifying landscape and visual amenity receptors that could be significantly affected by the Projects and that therefore need to be taken forward for further consideration.

8.6.2 The general principle is that landscape and visual amenity receptors likely to be significantly affected will be identified on the basis of their value/sensitivity and the magnitude of change to which they are exposed as a result of the construction and operation of the Projects.

Landscape Receptors

8.6.3 Landscape effects are direct physical changes to the landscape caused by the Projects, or indirect changes to landscape character and how the landscape is perceived as a result of the Projects.

8.6.4 The LCAs described in **Section 8.4** Baseline Conditions will inform the basis of assessment for landscape effects, based on their key characteristics, associated landscape elements, designations and special landscape qualities. Where LCAs or designations overlap with the study area, the full extent of the LCA or designation will be considered in the overall assessment.

8.6.5 20 LCAs (landscape receptors) have been identified that fall within the study area, these comprise:

South & East Lincolnshire Council Partnership:

- Holland Reclaimed Fen (A1) (Ref 8.27)
- Wrangle Common to Freiston Ings Reclaimed Fen (A2) (Ref 8.27)
- Bicker to Wyberton Settled Fen (B1) (Ref 8.27)
- Frampton to Fosdyke Settled Fen (B2) (Ref 8.27)
- Wrangle to Cowbridge Settled Fen (B3) (Ref 8.27)
- Welland to Haven Reclaimed Saltmarsh (C1) (Ref 8.27)
- Stickney to Sibsey Reclaimed Fen (A1) (Ref 8.28)
- Wainfleet All Saints to Friskney Settled Fen (B1) (Ref 8.28)
- Wainfleet Reclaimed Saltmarsh (C1) (Ref 8.28)
- Wainfleet Wash Saltmarsh (D1) (Ref 8.28)
- Little Cawthorpe to Skendleby Wolds Farmland (G2) (Ref 8.28)
- Hainton to Toyton All Saints Wolds Farmland (G3) (Ref 8.28)
- Mareham to Little Steeping Fenside Woodland and Farmland (H1) (Ref 8.28)
- Holton le Clay to Great Steeping Middle Marsh (I1) (Ref 8.28)
- Tetney Lock to Skegness Coastal Outmarsh (J1) (Ref 8.28)

- Donna Nook to Gibraltar Point Naturalistic Coast (K1) (Ref 8.28)

King's Lynn and West Norfolk Borough Council:

- King's Lynn and West Norfolk Borough Council LCA: Terrington (B1) (Ref 8.29)
- King's Lynn and West Norfolk Borough Council LCA: Walpole, Terrington and Clenchwarten (D2) (Ref 8.29)
- King's Lynn and West Norfolk Borough Council LCA: Terrington St. John (D3) (Ref 8.29)
- King's Lynn and West Norfolk Borough Council LCA: Emneth, West Walton and Walksoken (D4) (Ref 8.29)

Visual Receptors

8.6.6 Visual effects result from changes in the composition and character of views available in the areas affected by the Projects, considering the response of the individuals who experience these effects. Visual receptors include those groups or individuals who may be living or working in the area, enjoying recreational activities, or simply passing through the landscape.

8.6.7 The following section-by-section descriptions and descriptions of landfalls describe the visual receptors (residential, recreational users and travellers) within the study area extents where there is potential for significant effects:

Landfalls: Theddlethorpe

Residential receptors:

- Isolated properties along Sea Lane;
- Isolated properties along Brick Lane; and
- Isolated properties along Crook Bank.

Recreational Receptors:

- Users of Theddlethorpe Beach; and
- Users of Saltfleetby – Theddlethorpe Dunes National Nature Reserve.

Landfalls: Anderby Creek

Residential receptors:

- Isolated properties along Sea Lane;
- Isolated properties along Roman Bank; and
- Isolated properties along Sea Road.

Recreational Receptors:

- Users of Theddlethorpe Beach;

- Users of Saltfleetby – Theddlethorpe Dunes National Nature Reserve;
- Users of Meadowview Caravan Park;
- Users of The Shambles Motorhome Parking;
- Users of Huttoft Beach; and
- Users of National Trust – Sandilands.

Section 1: Landfalls - Bilsby

8.6.8 The following receptors are applicable to Section 1 and the LCS Converter Station Area which overlaps Section 1.

Residential receptors:

- Residential receptors at Theddlethorpe St Helen settlement, Mablethorpe settlement, Maltby le Marsh settlement, Strubby settlement, Markby settlement, Hannah settlement, Withern settlement, Huttoft settlement, Rigsby settlement, Well settlement, Alford settlement and Anderby settlement;
- Isolated properties/receptors along the A1104 Alford Road and along Mill Lane (east of Saleby);
- Isolated residential properties/receptors between Hannah and the A52 Station Road;
- Primarily scattered residential properties between Hannah and the A1111 or those located at Asserby (west);
- Isolated residential properties/receptors primarily located along Hutoft Bank and Sea Lane to the east, however scattered properties are also present on the eastern side of the A52 and Hutoft; and
- Isolated residential properties/receptors primarily located adjacent to the A52 and at Hutoft (west). Within the wider area are the settlements of Anderby (south), and Anderby Creek (south).

Recreational Receptors:

- Approximately 12 PRoW, mostly near Theddlethorpe, and two holiday parks (Applebough Camp Site and Grange Leisure Park);
- Approximately four PRoW located at Strubby Airfield and south of Saleby;
- Approximately five PRoW mostly located between Asserby and Hutoft;
- Approximately nine PRoW, which predominantly route east towards the coast;
- The South Wolds Cycle Route, which routes to the north of Theddlethorpe, through Alford and Well;
- Woodthorpe Hall Caravan/Leisure Park and golf course and The Galley Hill Caravanning Club, located to the west of Beesby;
- Five caravan parks/holiday homes at Huttoft and Anderby, and the disused Sandilands golf course (now a nature reserve) adjacent to Huttoft Bank; and
- Water bodies including: The Cut, Long Eau, Great Eau, Wold Grift Drain.

Vehicular Receptors:

- Users of A1031 Mablethorpe Road;
- Users of A1104 Alford Road;
- Users of A1111;
- Users of A52;
- Users of A157 Peter's Lane/Strubby Road;
- Users of B1373; and
- Thacker Bank (south of Theddlethorpe All Saints).

Section 2: Bilsby – Welton le Marsh

Residential Receptors:

- Residential receptors at Mumby settlement, Farlesthorpe settlement, Cumberworth settlement, Willoughby settlement, and Welton le Marsh settlement;
- Scattered residential receptors along the B1449 and along Mill Road and Younger's Lane;
- Isolated residential receptors primarily located along the B1449 which includes the settlements of Bilsby and Thurlby; and
- Isolated residential receptors primarily located at the settlements of Mumby (east) and Cumberworth and towards the A158.

Recreational Receptors:

- Eight PRoW, four of which route to and from the B1449;
- The South Wolds cycle route, which routes to the north of Theddlethorpe, through Alford and Well;
- Orchard Leaze Caravan Site;
- Four camp sites/caravan parks located at Addlethorpe, Burgh le Marsh, Mumby and Hogsthorpe; and
- Water bodies including: Willoughby High Drain, Wyche Drain, Hogs Beck, Burlands Beck, and Boy Grift Drain.

Vehicular Receptors:

- Users of A52;
- Users of B1196;
- Users of B1449; and
- Between Cumberworth and Mumby, along Younger's Lane.

Section 3: Welton le Marsh – Little Steeping

Residential Receptors:

- Residential receptors at Orby settlement, Burgh le Marsh settlement, Ashby by Partney settlement, Spilsby settlement, Halton Holegate settlement, Firsby settlement, Little Steeping settlement, Toynton Saint Peter settlement;
- Scattered residential receptors primarily located along Mill Lane to the west of Sloothby, west of Habertoft and near Little Steeping; and
- Isolated residential receptors primarily located at the settlements of Sloothby, Hasthorpe, Habertoft, Great Steeping and Little Steeping.

Recreational Receptors:

- 12 PRoW, including paths to, from and within the Lincolnshire Wolds and the South Wolds Cycle Route, Lakeside Holiday Park, Gunby Lake Caravan Park, and Twit Twoos Camping Site (located adjacent to the Scoping Boundary at Little Steeping, Gunby and Orby respectively);
- Gunby Estate Hall and Gardens; and
- Water bodies including: Steeping River, Welton Beck, The Beck, and Lady Wath's Beck.

Vehicular Receptors:

- Users of A1028;
- Users of A16;
- Users of A158 North/west of Gunby Estate Hall and Gardens, along the B1196 Station Road, to the west of Hunger Hill, and surrounding Little Steeping; and
- Users of B1195.

Section 4 and 5: Little Steeping – Sibsey Northlands, and Sibsey Northlands – Hubbert's Bridge

Residential Receptors:

- Residential receptors at Toynton Fen Side settlement, Friskney settlement, New Leake settlement, Midville settlement, Stickney settlement, Carrington settlement, Sibsey settlement, Frithville settlement, Gipsey Bridge settlement, Langrick settlement, Hilldyke settlement, Hall Hills settlement, and Boston settlement;
- Isolated residential receptors primarily located near Burgh le Marsh, Sibsey Northlands, Frithville, New Leake and Boston; and
- Isolated residential receptors primarily located at the settlements of Croft, Sibsey Northlands, Frithville, and Kirton Holme.

Recreational Receptors:

- 11 PRoW;
- The South Wolds Cycle Route between Croft and Thorpe Fendykes;

- National Cycle Route 1 which crosses the Scoping Boundary adjacent to the River Witham;
- 14 caravan parks and/or leisure centres located at Croft, Frithville, New Leake and Midville; and
- Drain Water bodies including: River Witham, Wainfleet Haven/Steeping River and South Forty Foot Drain, East Fen Catchwater Drain, West Fen Catchwater Drain Bell Water Drain Bank, Fodder Dike Bank, Medlam Drain.

Vehicular Receptors:

- The Poacher Railway Line (including Hubbert's Bridge Station) which crosses the Scoping Boundary near the River Steeping, near Thorpe Fendykes and near Hubbert's Bridge;
- Receptors using major and minor roads which cross or route parallel to the Scoping Boundary at Croft, north and south of Sibsey Northlands, at the River Witham/Firth Bank Drain, and between South Forty Foot Drain and the B1391;
- Users of A16 and A52; and
- Users of B1184, B1183.

Section 6: Hubbert's Bridge – Moulton Sea's End

Residential Receptors:

- Residential receptors at Wyberton settlement, Kirton settlement, Algarkirk settlement, Swineshead settlement, Fosdyke settlement, Sibsey Northlands, Frithville, and Kirton Holme, Strugg's Hill and Fosdyke Bridge;
- Isolated residential receptors primarily located near Little Steeping, Sibsey Northlands, Frithville, New Leake and Boston; and
- Scattered residential properties, primarily located near the A16 and A17.

Recreational Receptors:

- 10 PRoW, six of which route mostly near rivers and drains, four including the Macmillan Way and Cross Britain Way Long Distance Footpaths;
- National Cycle Route 1 which crosses the Scoping Boundary adjacent to the River Witham;
- The Poacher Railway Line, which crosses the Scoping Boundary at the northernmost edge, running adjacent to the A1121;
- Five caravan parks located at Frithville, New Leake and Midville; and
- Water bodies including: Reiver Welland, South Forty Foot Drain, Three Towns Drain, Kirton Drain, Wigtoft Bank, Five Towns Drain and Risegate Eau.

Vehicular Receptors:

- The Poacher Railway Line (including Hubbert's Bridge Station) which crosses the Scoping Boundary near Thorpe Fendykes and near Hubbert's Bridge;

- North and south of Sibsey Northlands, at the River Witham/Firth Bank Drain, and between South Forty Foot Drain and the B1391, B1397, the A16 A52 A1121 and A17;
- Users of A1121, A52, A16 A17; and
- Users of B1192, B1391, B1192, and B1397.

Section 7: Moulton Sea's End – Foul Anchor

Residential Receptors:

- Scattered residential receptors primarily located at Whaplode and Holbeach St Johns; and
- Residential receptors primarily located at the settlements of Whaplode and Holbeach St Johns, Holbeach St Marks, Moulton Seas End and Sutton St James, Moulton Common (south), Weston, Moulton Common (south), Little Common (south), Cowfield Gould, Sutton St James, Tydd St Giles (east), Newton-in-the-Isle (south), Four Gotes (north) and Ingleborough (south), Lutton, Lutton Gowts, Long Sutton, Sutton Bridge, Clark's Hill (west), Moulton Marsh, Holland Ho (south), Tydd St Mary (south), and Walpole Marsh (east).

Recreational Receptors:

- Six PRoW, including the Nene Way; and
- Water bodies including: Moulton River, Lords Drain, Holbeach River, South Holland Main Drain, Whaplode River.

Vehicular Receptors:

- Users of A1101 and A17;
- Users of B1357, B1390, B1165, B1168; and
- Receptors in the wider area using major and minor roads which cross or route parallel to the study area.

Section 8 Foul Anchor - Walpole

8.6.9 The following receptors are applicable to Section 8 and the Walpole Stations Area, which overlaps Section 8.

Residential Receptors:

- Residential receptors primarily located at the settlements of Tydd St Giles, Walpole Cross Keys, Terrington St Clement, Walpole St Peter, West Walton, Saracen's Head, Cackle Hill and Walsoken.

Recreational Receptors:

- Approximately two PRoW; and
- Water bodies including: The River Nene, South Holland Main Drain.

Vehicular Receptors:

- Users of A47;
- Users of A17;
- Users of A1101;
- Users of A47;
- B198; and
- Receptors in the wider area using major and minor roads which cross or route parallel to the study area.

Likely Significant Effects

8.6.10 **Table 8-5** below outlines the likely significant effects associated with landscape and visual sensitive receptors which have been scoped into the landscape and visual assessment.

Table 8-5: Receptors and Impact Pathways for each phase of the Projects (Landscape and Visual Amenity)

Development phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped in / out
Construction	The appearance of construction plant and activity, including construction compounds, horizontal drilling machinery, cranes and vehicle movement, open trenches, along with the removal of mature trees and hedgerows throughout the cable route corridor.	Landscape receptors: LCAs falling wholly or partly within the defined study area Visual receptors located within the defined study area	**Yes** – There is the potential for significant effects in the absence of further design and control or additional mitigation measures.	**Scoped in**
Construction	Night-time lighting associated with construction activity throughout the	Landscape receptors: LCAs falling wholly or partly within the defined study area	**Yes** – There is the potential for significant effects in the absence of further design and control or additional	**Scoped in**

Development phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped in / out
	cable route corridor	Visual receptors located within the defined study area	mitigation measures.	
Operation / Maintenance	Absence of vegetation removed during construction throughout the cable route corridor. The appearance of above ground structures, including the LCS converter station / DCSS and the Walpole Substation and converter stations	Landscape receptors: LCAs falling wholly or partly within the defined study area Visual receptors located within the defined study area	**Yes** – There is the potential for significant effects in the absence of further design and control or additional mitigation measures.	**Scoped in**
Operation / Maintenance	Night-time lighting associated with above ground structures at Bilsby and Walpole	Landscape receptors: LCAs falling wholly or partly within 3km of structures. Visual receptors located within the defined study area and within 3km of structures.	**Yes** – There is the potential for significant effects in the absence of further design and control or additional mitigation measures.	**Scoped in**

Effects Scoped out from Further Assessment

8.6.11 Table **8-6** below summaries the effects scoped out of the landscape and visual assessment together with justification for the outcome.

Table 8-6: Receptors and impact pathways for each phase of the Projects (Landscape and Visual Amenity)

Development phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped out
Construction and Operation / Maintenance	The appearance of construction plant and activity, including construction compounds, horizontal drilling machinery, cranes and vehicle movement, open trenches, along with the removal of mature trees and hedgerows throughout the cable route corridor.	Landscape receptors: LCAs falling wholly outside of the defined study area Visual receptors located beyond the extent of the defined study area	**No** – Upon initial desktop review and following initial site walkovers, the 2 km study area extent for the cable corridor and 3 km study area extent for above ground infrastructure (substation, converter stations, and DCSS) and the Lincolnshire Wolds, is considered proportionate to the type of English Onshore Scheme. It is unlikely that the receiving landscape, or visual receptors beyond these thresholds would experience significant effects	**Scoped out**
Operation	Impacts upon landscape character and visual effects during hours of darkness (cable route corridor)	Landscape receptors: LCAs intersecting with the proposed cable route corridor. Visual receptors within 2km of the proposed cable route corridor	**No** – There would be no lighting element associated with the cable route corridor during the Operational Stage.	**Scoped out**

8.7 Assessment Methodology

Further Data to be Gathered / Processed

8.7.1 The LVIA will follow guidance described in GLVIA3 (Ref 8.15).

8.7.2 The approach to impact assessment will also be undertaken in accordance with the methods outlined in the good practice documents referenced in **Section 8.2** above.

8.7.3 Reference will also be made to relevant local planning policy documents, regional and local guidance, including landscape character assessments as well as aerial photographs and Ordnance Survey data.

8.7.4 The visual assessment will reference a series of representative viewpoints, which shall be determined through desk and site-based appraisal and in consultation/agreement with key stakeholders. These viewpoints will provide a proportionate representation of the views experienced by visual receptors throughout the study area, with an emphasis on identified receptor locations with the potential for significant effects and taking account of any noted key views or protected views where applicable.

8.7.5 A digital Zone of Theoretical Visibility (ZTV) of the tallest built elements of the Projects would be produced by computer modelling, based on the Ordnance Survey digital terrain model (DTM) and/or the Environment Agency LIDAR digital surface model to inform the visual assessment process and location of viewpoints.

8.7.6 The necessity for photomontages from agreed viewpoints will be determined in consultation with local authorities. All photographs and visualisations will be produced in line with Landscape Institute Technical Guidance Note (TGN) 06/19 (Ref 8.1); 'Visual Representation of Development Proposals'. Annotated photo-panoramas (to TGN 06/19 Type 1) or wirelines (to TGN 06/19 Type 2) of the English Onshore Scheme would be produced for all viewpoints, and photomontages (to TGN 06/19 Type 3) for a limited number of viewpoints.

8.7.7 The LVIA is intended to determine the effects that the Projects would have on the landscape and visual amenity resource. For the purpose of assessment, the potential effects on the landscape and visual amenity resource are grouped into the following categories.

- *Physical effects:* physical effects are restricted to the area within the site and are the direct effects on the existing fabric of the site. This category of effects is made up of landscape elements, which are the components of the landscape that may be directly and physically affected by the Projects.
- *Effects on landscape character*: landscape character is the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape and the way that this pattern is perceived. Effects on landscape character arise either through the introduction of new elements that physically alter this pattern of elements or through visibility of the Projects that may alter the way in which the pattern of elements is perceived. This category of effects is made up of landscape character receptors, which fall into two groups; landscape character areas and landscape-related designated areas.
- *Effects on views*: the assessment of the effects on views is an assessment of how the introduction of the Projects would affect views throughout the study area. The assessment of effects on views is carried out in relation to representative viewpoints and principal visual receptors.
- *Cumulative effects:* cumulative effects arise where the study areas for two or more large-scale developments overlap so that both of the large-scale developments when viewed in combination may have a greater incremental effect or combine to have a sequential effect. Cumulative effects with any other proposed development of a similar type within the study area will be considered in the assessment, according to the approach outlined in **Part 4, Chapter 35: Cumulative Effects.**

8.7.8 The objective of the LVIA is to predict the likely significant effects on the landscape and visual amenity resource. In line with the EIA Regulations, the LVIA effects are assessed to be either significant or not significant.

8.7.9 The significance of effect would be determined by combining the assessed sensitivity (derived from value of the receptor and susceptibility to the Projects) of the landscape or visual receptor with the anticipated scale, extent and duration of impacts from the Projects. Effects would be assessed for the Construction Stage, Operational Stage (year 1 or when changes are most obvious), and 15 years after commencement of operations when any mitigation planting if required would be considered to have matured to maximum effectiveness.

8.7.10 Relevant design measures (in relation to site selection and iterative design of the layout of each of the onshore components) have been detailed in **Section 8.5**.

8.8 Limitations and Assumptions

8.8.1 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- As exact heights and massing of the Projects are not confirmed at this stage, the proposed study area and viewpoint locations may be subject to change and further refinement at later stages in the EIA process as the design evolves;
- The assessment of views from private properties will be based on representative viewpoints from publicly accessible locations and using professional judgement. A residential visual amenity survey is not proposed; and
- The need for assessment of the effects of lighting on visual amenity during the Construction Stages would be considered when details become available.

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9. Water Environment

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9. Water Environment

9.1 Introduction

9.1.1 The Water Environment assessment will consider the potentially significant effects on the water environment that may arise from the construction and operation of the English Onshore Scheme.

9.1.2 This chapter of the Scoping Report sets out the relevant legislation, planning policy context and technical guidance used to inform the scope of the assessment and summarises any consultation and engagement in relation to the water environment undertaken to date. It provides an overview of the baseline conditions relevant to the water environment within/around the Scoping Boundary, the measures which will be incorporated into the English Onshore Scheme to mitigate effects, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.

9.1.3 This chapter should be read in conjunction and considered alongside the following chapters found in Volume 1:

- **Part 2, Chapter 4: English Onshore Scheme**
- **Part 2, Chapter 5: EIA Approach and Methodology**
- **Part 2, Chapter 6: Biodiversity**
- **Part 2, Chapter 10: Geology and Hydrogeology**
- **Part 4, Chapter 35: Cumulative Effects**

9.1.4 The assessment of potentially significant effects on sensitive groundwater receptors is presented in **Part 2, Chapter 10: Geology and Hydrogeology.**

9.1.5 There is also spatial overlap with the offshore assessments that are being progressed for the English Offshore Scheme (see **Volume 1, Part 3 English Offshore Scheme**), with the intertidal zone being a common receptor with regards to the Water Framework Directive (WFD). This scoping chapter should therefore be read in conjunction with the following chapters found in Volume 1:

- **Part 3, Chapter 23: Marine Physical Processes**
- **Part 3, Chapter 25: Fish and Shellfish**

9.1.6 This chapter is supported by the following figures:

- **Figure 9.1: Study Area and Water Environment Receptors**
- **Figure 9.2: Flood Zones**
- **Figure 9.3: Risk of Flooding from Surface Water**

9.1.7 The water environment assessment will be supported by a Flood Risk Assessment (FRA) and a WFD Screening Assessment. The scopes of these will be agreed with the relevant stakeholders.

9.2 Relevant Legislation, Planning Policy and Technical Guidance

9.2.1 This section identifies the relevant legislation, national and local policy and guidance which has informed the scope of the water environment assessment.

Legislation

9.2.2 A summary of the key legislation considered, but not limited to, in the scope of effects on the water environment is outlined in **Table 9-1.**

Table 9-1: Legislation relevant to the Water Environment

Legislation	Legislative Context	Section Considered
The Water Environment (Water Framework Directive) (England and Wales) Regulations (2017) (Ref 9.1)	The 2017 Regulations place a general duty on the Secretary of State (SoS), the Welsh Ministers, the Environment Agency, and Natural Resources Wales to exercise their 'relevant functions' so as to secure compliance with the WFD (Regulation 3).	Section 9.7 – Assessment Methodology
Flood and Water Management Act (2010) (Ref 9.2)	The Act created the role of the Lead Local Flood Authority (LLFA) to take responsibility for leading the co-ordination of local flood risk management in their areas. In accordance with the Act the Environment Agency is responsible for the management of risks associated with main rivers, the sea and reservoirs; and the LLFAs are responsible for the management of risks associated with local sources of flooding such as ordinary watercourses, surface water and groundwater.	Section 9.7 – Assessment Methodology
The Environmental Permitting (England and Wales) Regulations (2018) (Ref 9.3)	Under these Regulations it is an offence to cause or knowingly permit a water discharge activity, unless complying with an exemption or an Environmental Permit obtained from the Environment Agency. The Regulations also manage works in, under or near a main river to ensure no detrimental impacts on these watercourses.	Section 9.7 – Assessment Methodology
Environment Act (2021) (Ref 9.4)	Part 5 brings together measures to strengthen and update the existing regulatory and long-term planning framework for water, helping to reduce environmental risks, including to water quality and land drainage. It also strengthens the regulation of water and sewerage undertakers by the newly	Section 9.7 – Assessment Methodology

Legislation	Legislative Context	Section Considered
	established Office for Environmental Protection.	
The Land Drainage Act (1991) (Ref 9.5) together with the Water Resources Act (1991) (Ref 9.6)	Provides for the Environment Agency to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure in a main river. Where culverting or other works have a potential to affect the flow regime on ordinary watercourses, consent is required from the Lead Local Flood Authority (LLFA) under the Flood and Water Management Act (2010) (Ref 9.5) which provides a more comprehensive flood risk management framework for people, homes and businesses.	Section 9.3 - Consultation and Engagement

Planning Policy

9.2.3 A summary of the planning policies at both a national and local level relevant to the scope of effects on the water environment is given in **Table 9-2** and **Table 9-3.**

Table 9-2: National Planning Policy relevant to the Water Environment

Policy Reference	Policy Context	Section Considered
Overarching National Policy Statement for Energy (EN-1) (2024) (Ref 9.7)		
Paragraph 5.8.13	Sets out when a site-specific flood risk assessment should be provided including for "*all energy projects in Flood Zones 2 and 3 in England*".	Section 9.7 - An FRA will be prepared in accordance with a scope agreed with the Environment Agency, LLFAs and Internal Drainage Boards (IDBs), and informed by data provided by these flood risk management authorities and potentially by bespoke modelling studies.
Paragraph 5.8.14	This paragraph states that FRAs "*should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account*."	Section 9.7 - The FRA will assess all applicable sources of flooding to and arising from the English Onshore Scheme and identify any mitigation measures required to ensure flood resilience, taking climate change into account, and to prevent any off-site impacts.
Paragraph 5.8.18	Pre-application discussions should be arranged with relevant bodies such as	Section 9.3 - Discussions will be held with the Environment Agency, the LLFAs and IDBs to

Policy Reference	Policy Context	Section Considered
	the Environment Agency, LLFAs and IDBs.	agree the FRA scope and to request baseline flood risk data. Engagement will continue throughout the environmental impact assessment.
Paragraph 5.16.1	Outlines some of the adverse effects infrastructure developments can have on the water environment. Indicates how these effects can result in "*surface waters, groundwaters or protected areas failing to meet environmental objectives established under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and the Marine Strategy Regulations 2010".*	Section 9.6 which sets out the proposed scope of the assessments. The water environment assessment will consider the potential for likely significant effects on surface water quality, water resources and flood risk receptors during the construction, operation, and maintenance of the English Onshore Scheme. Effects on protected habitats and species and groundwaters are covered in **Part 2, Chapter 6: Biodiversity and Chapter 10: Geology and Hydrogeology** respectively.
Paragraph 5.16.14	Regard should be given to current River Basin Management Plans and the requirements of the WFD Regulations. Development will be refused consent where it is "*likely to cause deterioration of a water body or its failure to achieve good status or good potential, unless the requirements set out in Regulation 19 are met*."	Section 9.7 - a WFD Screening Assessment will be prepared with reference to the Anglian River Basin Management Plan. The assessment will appraise the potential for the English Onshore Scheme to cause waterbody status deterioration or limit future achievement of good status/potential and will describe measures to avoid or reduce these risks.
Paragraphs 5.16.8 to 5.16.10	These paragraphs set out requirements regarding mitigation.	Section 9.5 - Measures to mitigate adverse effects on the water environment are described in Section 10.5. These measures will be further developed throughout the EIA process in consultation with relevant bodies, and will be secured within the application.
Paragraph 5.16.15	"*The SoS should also consider the interactions of the proposed project with other plans such as Water*	Section 9.7 - Data sources proposed to be used to inform the water environment assessment are outlined.

Policy Reference	Policy Context	Section Considered
	Resources Management Plans and Shoreline/Estuary Management Plans."	
Paragraph 5.16.16	"*The SoS should consider proposals to mitigate adverse effects on the water environment and any enhancement measures put forward by the applicant and whether appropriate requirements should be attached to any development consent and/or planning obligations are necessary*."	Section 9.5 - Measures to mitigate adverse effects on the water environment are described . These will be further developed throughout the EIA process and secured within the application.
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
Section 2.3	This section of EN-5 covers resilience to climate change and the need to look to design for flood resilience. Paragraph 2.3.2 states "*Applicants should in particular set out to what extent the proposed development is expected to be vulnerable, and, as appropriate, how it would be resilient to flooding, particularly for substations that are vital for the electricity transmission and distribution network*". Paragraph 2.3.3 advises that "*the resilience of the project to the effects of climate change must be assessed in the Environmental Statement (ES) accompanying an application', also stating that 'future increased risk of flooding would be covered in any flood risk assessment*".	Section 9.7 - An FRA will be prepared in line with the requirements of EN-5.

Table 9-3: Local Planning Policy relevant to the Water Environment

Local Authority Plan/Strategy	Summary of Relevant Policies Relating to the Water Environment	Section considered
King's Lynn and West Norfolk Borough Council: Local Development Framework – Core Strategy, (2011) (Adopted 2011)	Strategic Policy (SP) 16: Inland Flood Risk Proposals in areas at risk of flooding must be accompanied by a site-specific flood risk assessment and development will be supported that demonstrates an integrated approach to sustainable drainage. Policy CS07: Coastal Areas The council will ensure that any development on the coast is sustainable and able to withstand the effects of climate change.	Section 9.7 - An FRA will be prepared which will set out how the Project will embed climate change resilience.
South Holland District and Boston Borough Councils: Southeast Lincolnshire Local Plan, (2011-2036) (Adopted 2019)	Policy 4: Approach to Flood Risk Development proposed within an area at risk of flooding will be permitted where it can be demonstrated that the sequential test is passed, wider sustainability benefits to the community that outweigh flood risk are delivered, an appropriate level of safety for its lifetime is maintained and that the proposal will not increase risk elsewhere. Policy 30: Pollution Development proposals will not be permitted where they would lead to unacceptable adverse impacts upon surface and groundwater quality. Policy 31: Climate Change and Renewable and Low Carbon Energy All development proposals will be required to demonstrate that the consequences of current climate change have	Section 9.7 - An FRA will be prepared in line with the requirements of policy 4 and 31. Measures to mitigate adverse effects on the water environment, including water quality are described in Section 9.5.

Local Authority Plan/Strategy	Summary of Relevant Policies Relating to the Water Environment	Section considered
	been addressed, minimised and mitigated.	
Fenland District Council: Fenland Local Plan, (2014) (Adopted 2014)	Policy LP14: Responding to Climate Change and Managing the Risk of Flooding in Fenland All developments are encouraged to incorporate water saving measures and measures to help the development withstand the longer term impacts of climate change and that all development proposals should adopt a sequential approach to flood risk from all forms of flooding.	Section 9.7 - An FRA will be prepared which describes the sequential approach to development design. Water use efficiency measures will be secured through the Outline CoCP.
Fenland District Council: Local Plan (2021 – 2040) (Draft)	Policy LP24: Natural Environment The Council will, through development management processes, aid the management, protection, enhancement and creation of priority habitats, including washlands, rivers and flood meadows. Policy LP32: Flood and Water Management Development located in areas known to be at risk from any form of flooding will only be permitted following the successful completion of the NPPF sequential and exception tests (where relevant), submission of a site-specific flood risk assessment, setting out appropriate flood risk management and demonstrating no increased risk of flooding to the development site or to surrounding properties or elsewhere and the incorporation of Sustainable	Section 9.7 – a WFD screening assessment will be prepared that sets out how the project will protect WFD waterbodies and associated habitats, and where practicable, implement enhancement measures. Section 9.7 - An FRA will be prepared in line with the requirements of this policy and commitments to sustainable drainage will be secured.

Local Authority Plan/Strategy	Summary of Relevant Policies Relating to the Water Environment	Section considered
	Drainage Systems (SuDS) into the proposals.	
East Lindsey District Council: East Lindsey Local Plan Core Strategy, (2018) (Adopted 2018)	Strategic Policy (SP) 16: Inland Flood Risk Proposals in areas at risk of flooding must be accompanied by a site-specific flood risk assessment and that development will be supported that demonstrates an integrated approach to sustainable drainage.	Section 9.7 - An FRA will be prepared in line with the requirements of this policy and commitments to sustainable drainage will be secured.

Technical Guidance

9.2.4 Relevant technical guidance is summarised below:

- Advice Note 18: Water Framework Directive Assessments (Ref 9.11) - explains the information that the Planning Inspectorate considers an Applicant must provide with their application in order to clearly demonstrate that the WFD and the 2017 Regulations have been appropriately considered;
- Various Construction Industry Research and Information Association (CIRIA) publications that provide construction good practice for preventing pollution of the water environment, for example, C532: Control of water pollution from construction sites (Ref 9.12);
- Guidance for Pollution Prevention Series (Ref 9.13) – provide environmental good practice and environmental regulatory guidance for a range of topics, for example, GPP5 Works and maintenance in and near watercourses;
- Design Manual for Roads and Bridges (DMRB) LA 113: Road drainage and the water environment (Ref 9.14) - describes the requirements for assessment and management of the impacts that linear infrastructure projects can have on the water environment;
- Local flood risk management guidelines published by the LLFAs (various dates) (Ref 9.15, Ref 9.16 and Ref 9.17) – these provide baseline flood risk data and design guidance and criteria for the management of surface water runoff from new developments; and
- National Planning Policy Framework (Ref 9.8) and its accompanying Flood Risk and Coastal Change; and Water Quality and Supply planning practice guidance (Ref 9.9, Ref 9.10) - the Flood Risk and Coastal Change guidance provides recommended allowances for climate change effects on future peak river flows, sea levels and rainfall intensities. These allowances will be taken forward to the FRA.

9.3 Consultation and Engagement

9.3.1 An initial meeting with the Environment Agency was held on the 25th March 2024 to provide a high level overview of the English Onshore Scheme.

9.3.2 In advance of the PEIR and ES, engagement will also be undertaken with the following key stakeholders relevant to the water environment to discuss the proposed assessment methodology:

- South and East Lincolnshire Council Partnership, comprising East Lindsey District Council, South Holland District Council and Boston Borough Council;
- King's Lynn and West Norfolk Borough Council;
- Fenland District Council;
- the Environment Agency;
- LLFAs (Lincolnshire County Council, Norfolk County Council and Cambridgeshire County Council; and
- IDBs.

9.3.3 Engagement will inform the scope of the FRA and the WFD Screening Assessment alongside the evolving design.

9.4 Baseline Conditions

Study Area

9.4.1 The study area for the water environment assessment is proposed to include all land within the Scoping Boundary, and in addition, a buffer of 500 m from this boundary. The study area, illustrated in **Figure 9.1: Study Area and Water Environment** Receptors, is considered appropriate based on technical knowledge of similar schemes and has been set following consideration of the distance over which likely significant effects can reasonably be expected to occur.

9.4.2 The assessment will consider predominantly terrestrial waterbodies and will also include the intertidal zone down to Mean Low Water Springs notably at the proposed landfall (at either Theddlethorpe or Anderby Creek), where there is interaction with the offshore components of the Projects.

9.4.3 The FRA that will be prepared to inform the EIA may cover a larger study area where necessary, for example assessing the potential for changes to baseline flood risk at the local catchment scale or within a floodplain cell which may cover areas up to several square kilometres. The WFD Screening Assessment will include a study area that is set at the water body scale and include all those WFD waterbodies with the potential to be affected, including intertidal areas where the English Onshore Scheme make landfall.

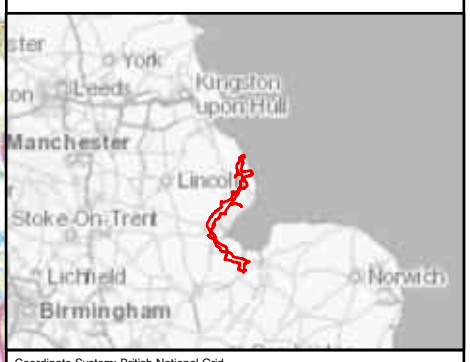
Figure 9-1 Study Area and Water Environment Receptors(Overview)

Legend

- Scoping Boundary
- Scoping Boundary Section Break

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



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Title

Figure 9-1
Study Area and Water Environment Receptors

nationalgrid

Figure Number
FIGURE 9-1

Drawing Reference
EGL-ARC-CONS-XX-DR-G-003

Scale	Sheet Size	Sheet	Issue
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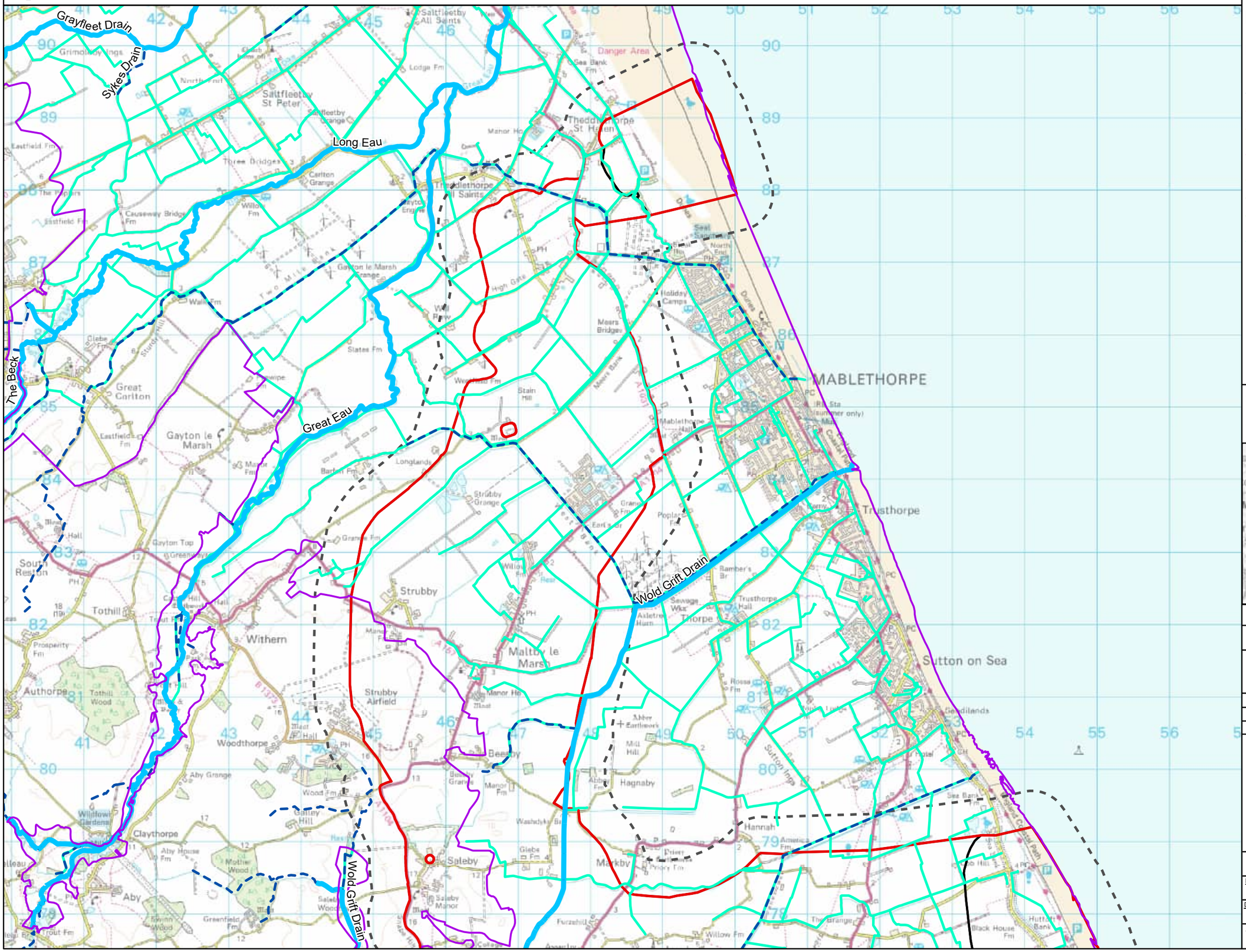
Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Internal Drainage Boundary
- Main Rivers
- Ordinary Watercourses
- South Holland Drains
- Kings Lynn Drains
- Welland and Deeping Drains
- North Level Drains
- North East Lindsey Drains
- Black Sluice Drains
- Lindsay Marsh Maintained Watercourses

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

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Figure 9-1
Study Area and Water Environment Receptors

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Figure Number			
FIGURE 9-1			
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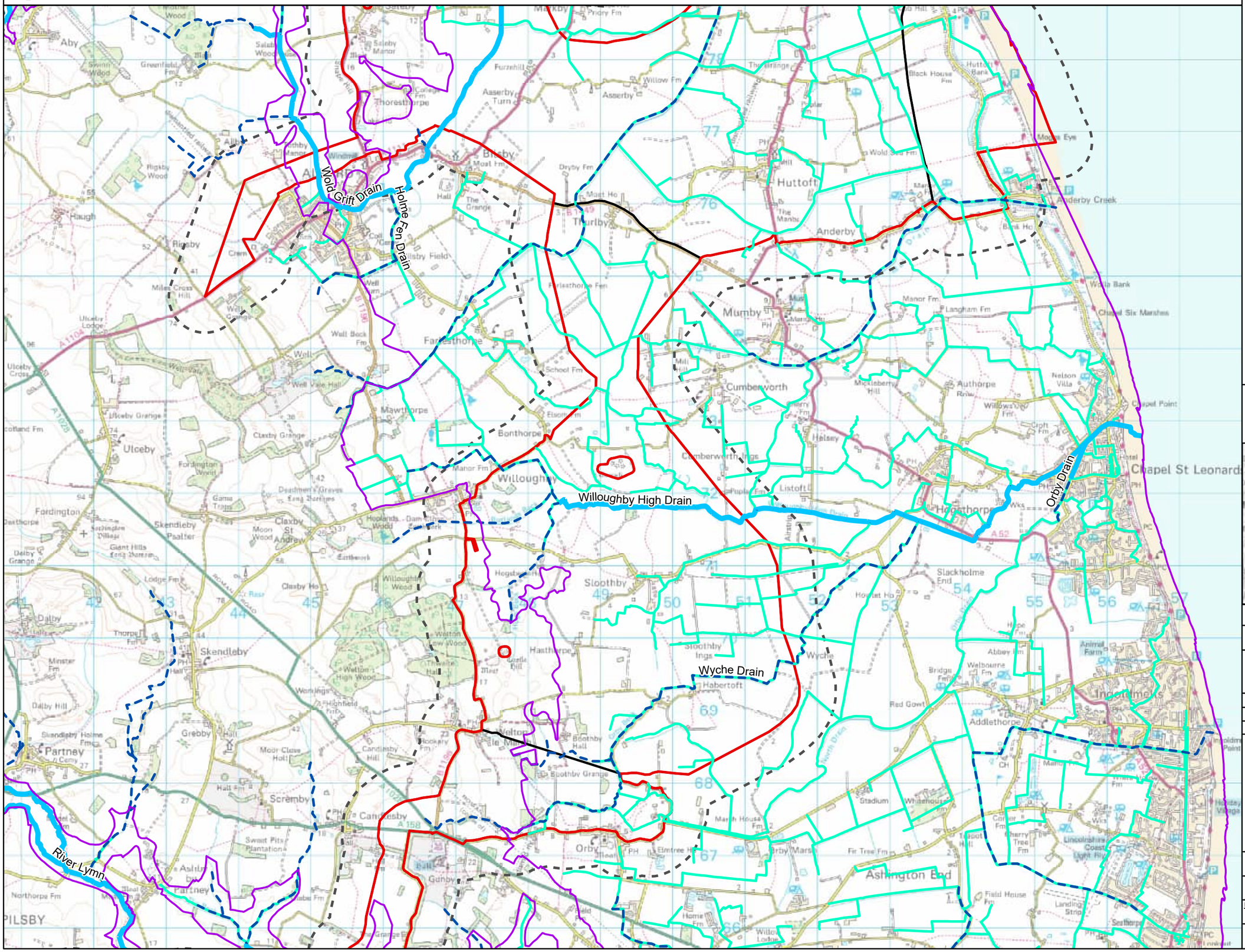
Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Internal Drainage Boundary
- Main Rivers
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Figure 9-1
Study Area and Water Environment Receptors

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Figure Number			
FIGURE 9-1			
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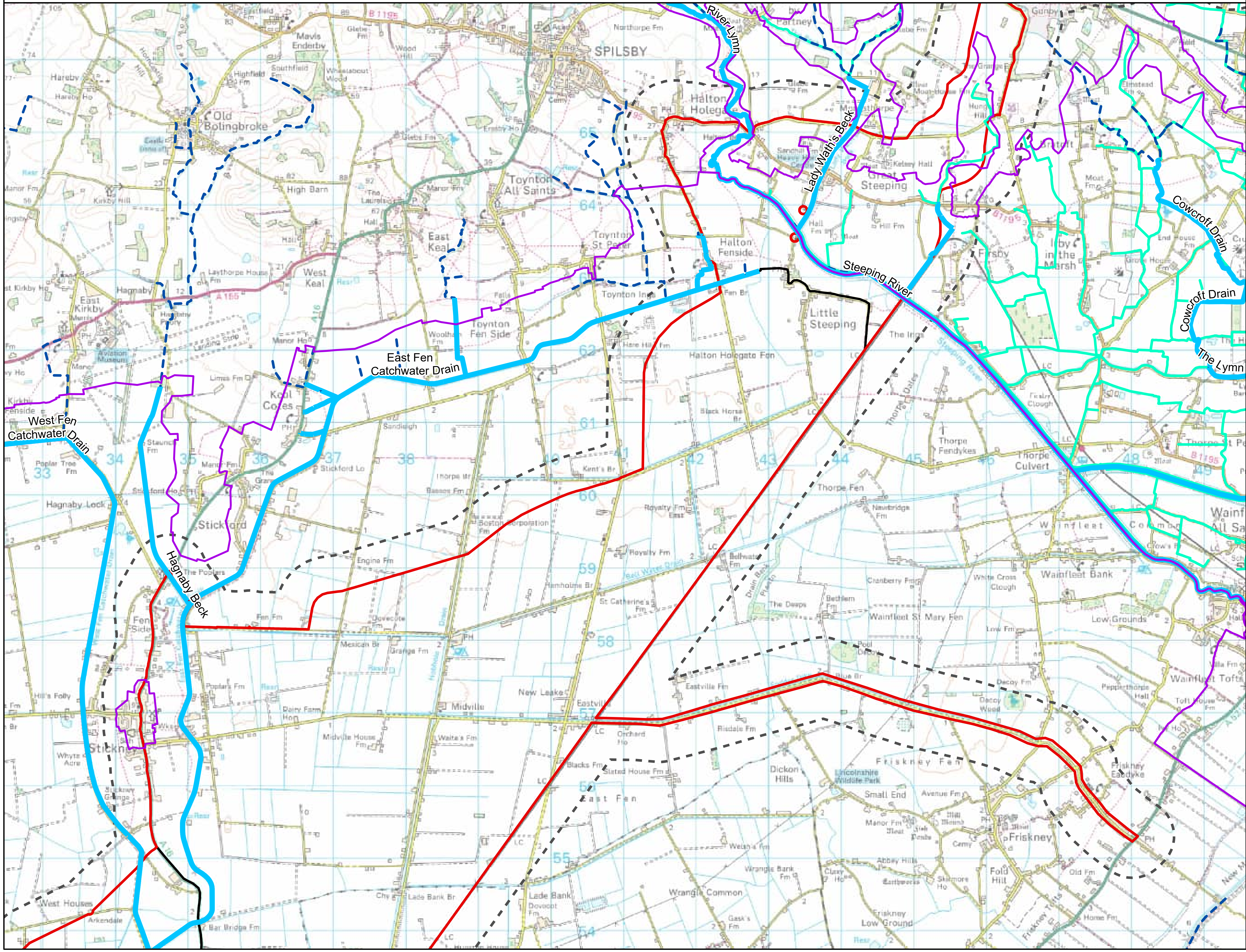
Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
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Figure 9-1
Study Area and Water Environment Receptors

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Figure Number
FIGURE 9-1

Drawing Reference
EGL-ARC-CONS-XX-DR-G-003

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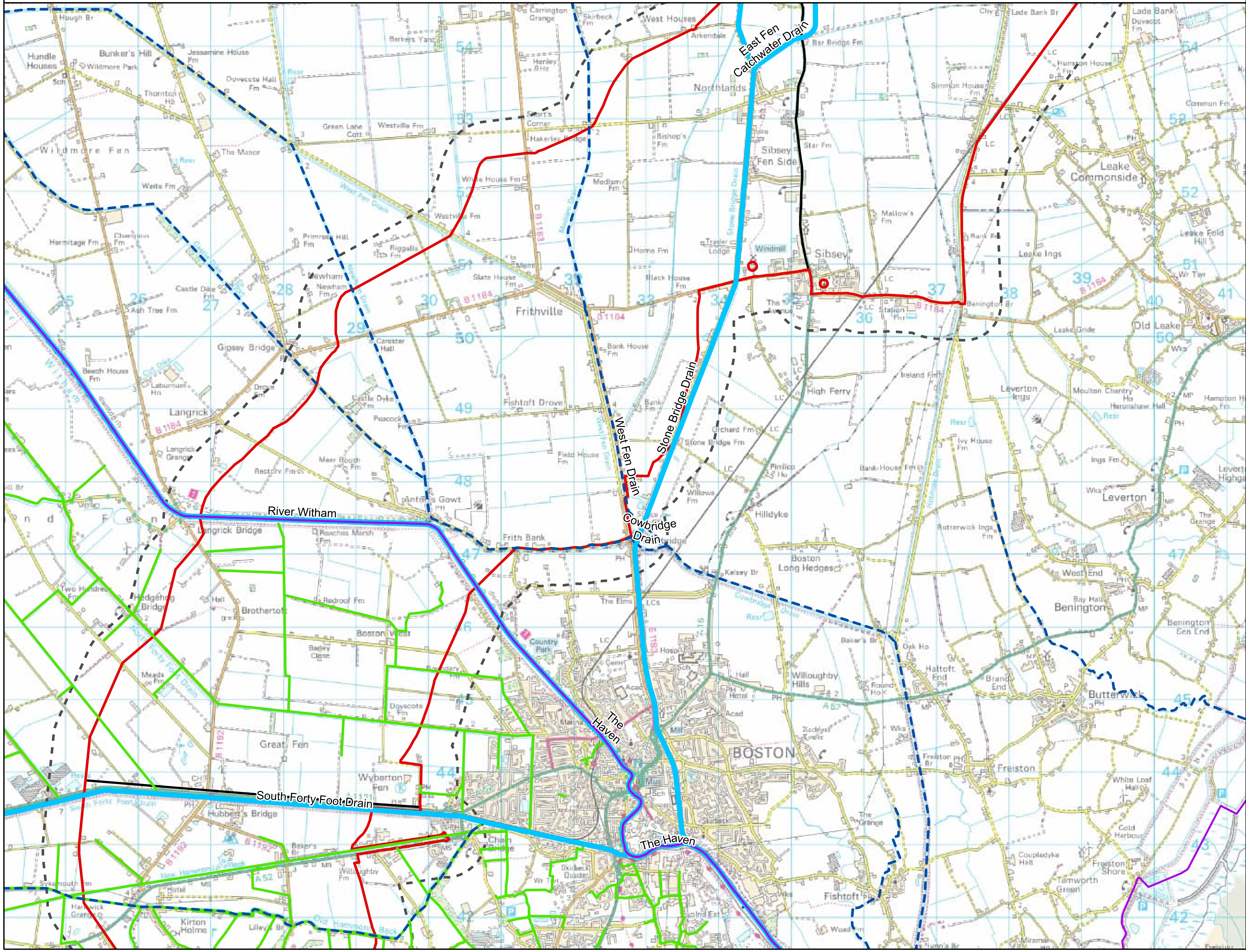
Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Internal Drainage Boundary
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- Ordinary Watercourses
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Figure 9-1
Study Area and Water Environment Receptors

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Figure Number
FIGURE 9-1

Drawing Reference
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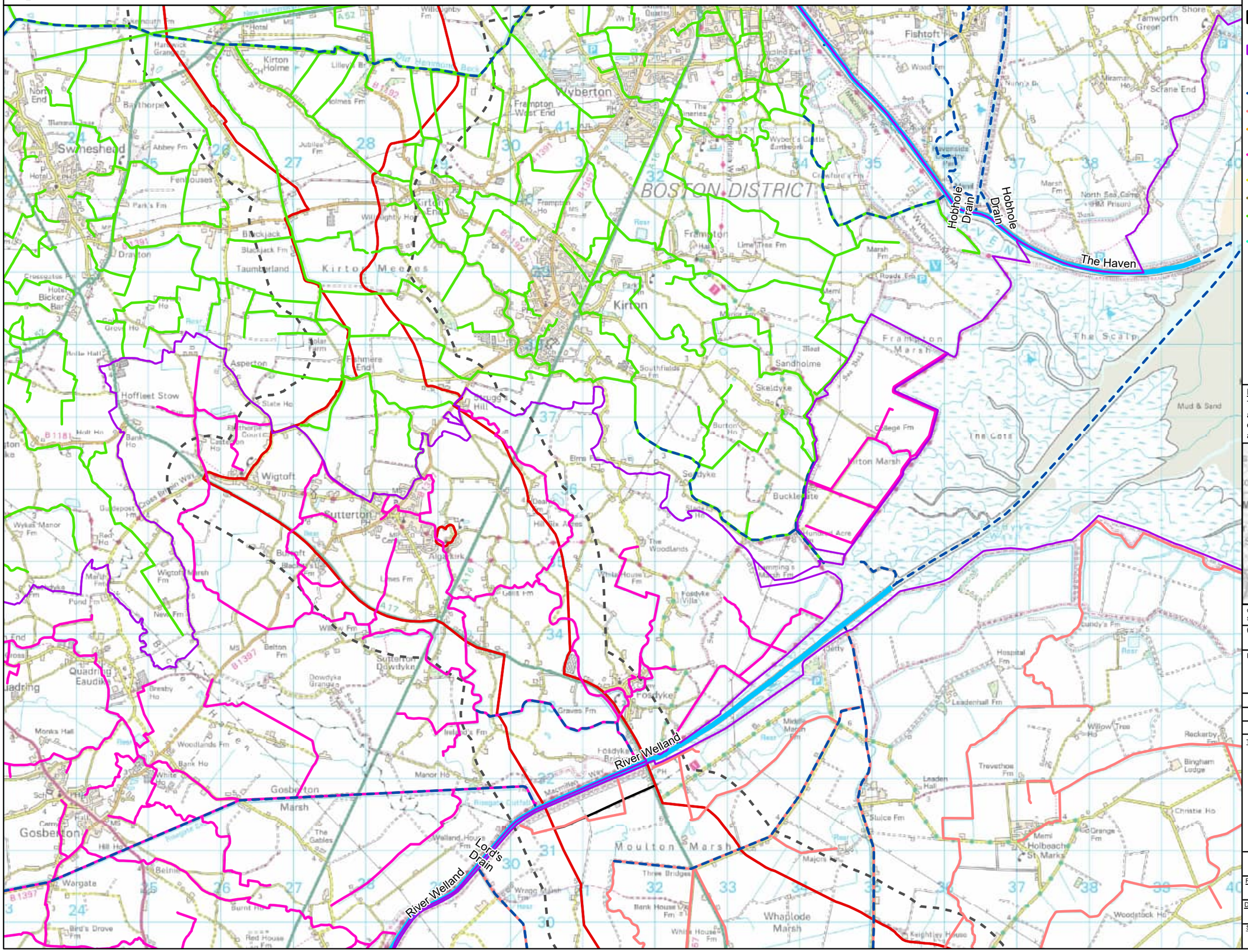
1:50,000	A3	SHEET 4 OF 7	1

Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Internal Drainage Boundary
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Figure 9-1
Study Area and Water Environment Receptors

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Figure Number	Drawing Reference	Scale	Sheet Size	Sheet	Issue
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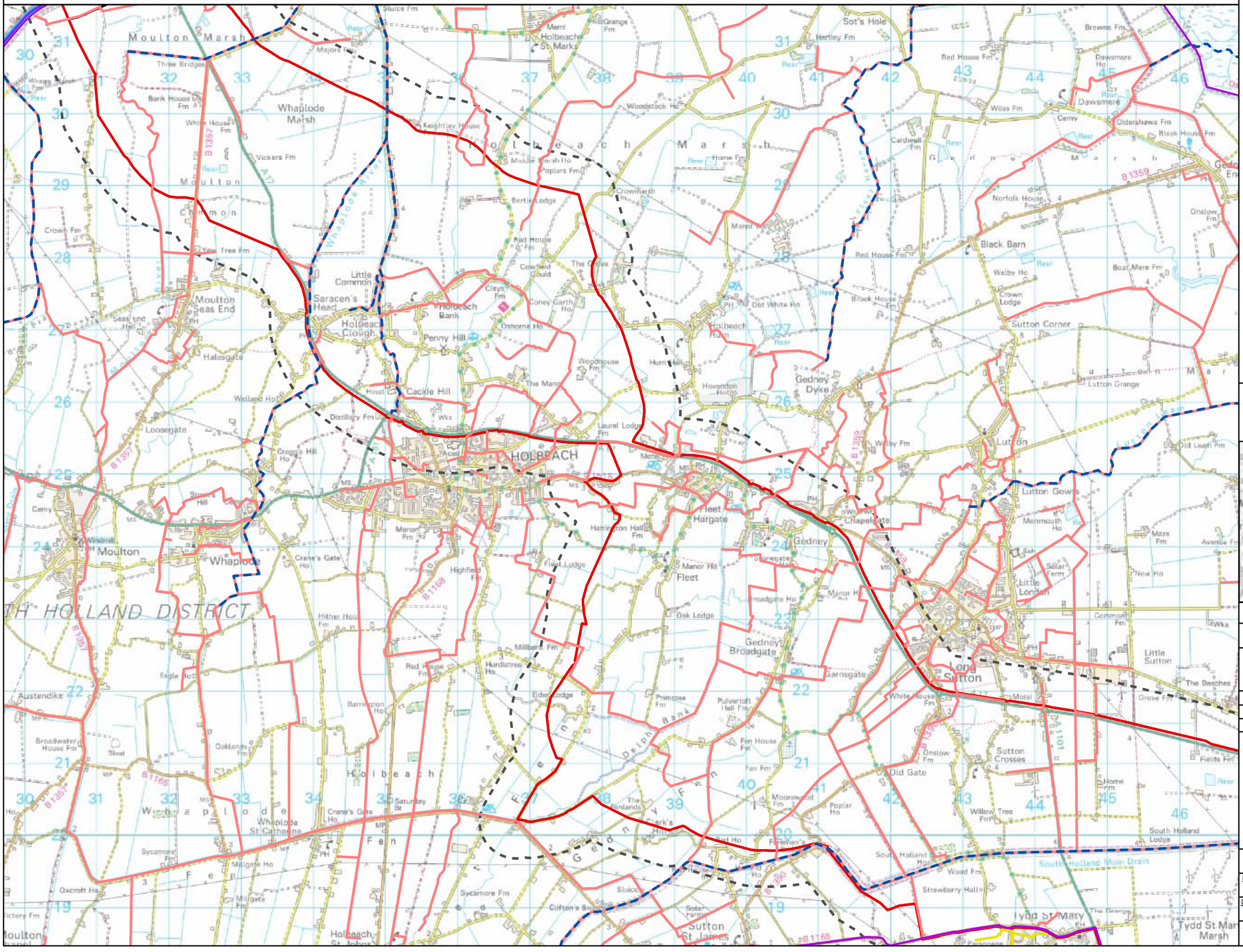
Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
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Figure 9-1
Study Area and Water Environment Receptors

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Figure Number
FIGURE 9-1

Drawing Reference
EGL-ARC-CONS-XX-DR-G-003

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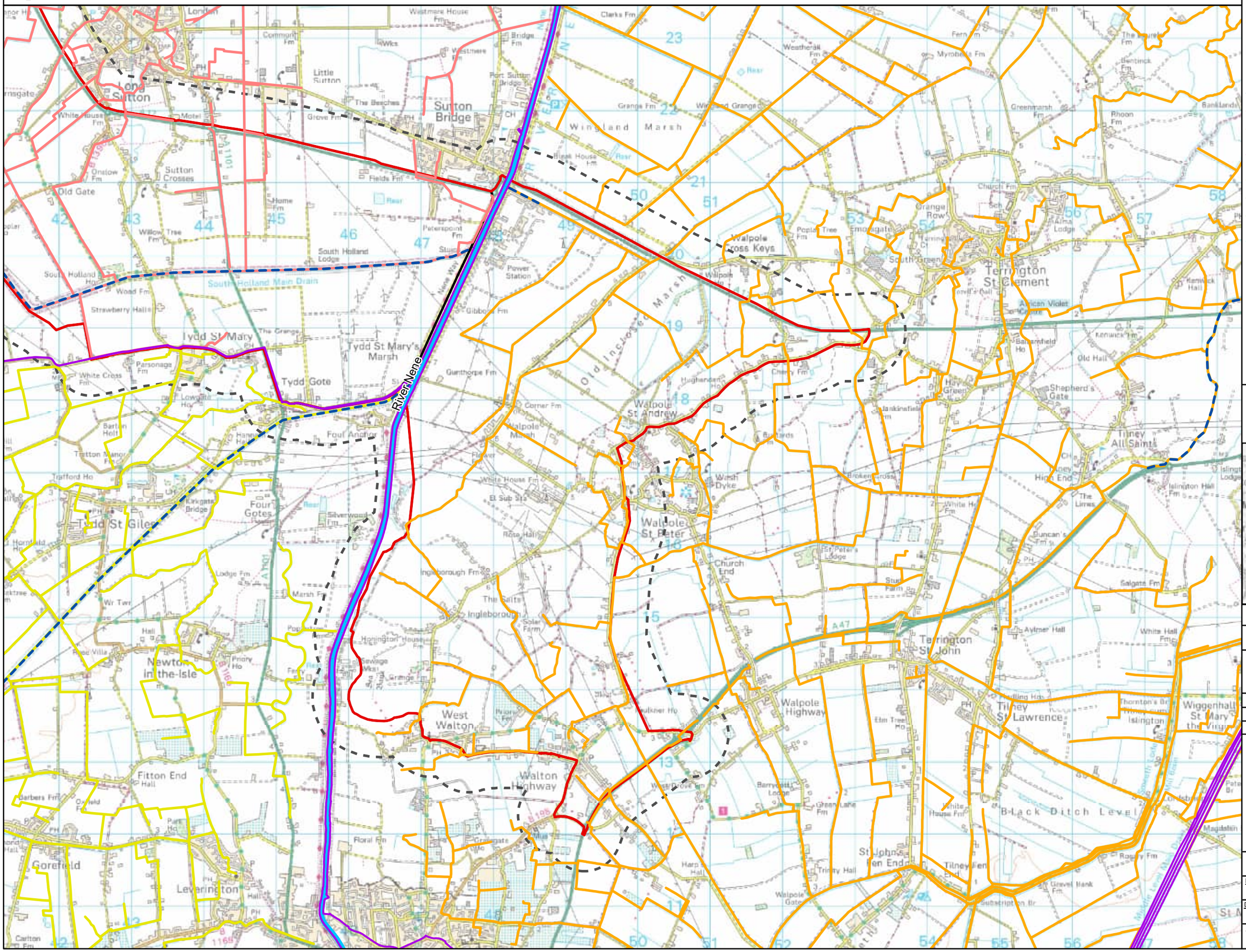
Figure 9-1 Study Area and Water Environment Receptors



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
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Title

Figure 9-1
Study Area and Water Environment Receptors

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Figure Number: FIGURE 9-1

Drawing Reference: EGL-ARC-CONS-XX-DR-G-003

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 7 OF 7	1

Data Gathering Methodology

9.4.4 The known or predicated current and future baseline environment described in this section has been informed by the following data sources:

- Statutory Main River map for England (Ref 9.18);
- Catchment data explorer database (Ref 9.19) of Cycle 2 and 3 Water Framework Directive information;
- Flood Maps for Planning (Ref 9.20);
- Multi-Agency Geographic Information for the Countryside (MAGIC) Maps (Ref 9.21); and
- AIMS Spatial Flood Defences (inc. standardised attributes) (Ref 9.22).

9.4.5 In addition, data requests have been made to the Environment Agency, LLFAs and IDBs to provide information on the following to support the future assessment:

- baseline flood risk data, including available modelled flood data for main rivers, and local flood risk data from commissioned studies; and
- data on consented discharges to surface waters and licenced and exempted (private) abstractions from surface waters.

9.4.6 All of the further information received from stakeholders will be incorporated into future stages of the assessment.

Current Baseline

9.4.7 The study area crosses the catchment of numerous watercourses and is located within the Anglian River Basin district. The features of the water environment are illustrated in:

- **Figure 9.1: Study Area and Water Environment Receptors;**
- **Figure 9.2: Flood Zones;** and
- **Figure 9.3: Risk of Flooding from Surface Water.**

9.4.8 The Scoping Boundary has been subdivided into eight sections, in addition to the two landfall option areas, and the current baseline is described below for each of these.

9.4.9 Any nature reserves and/or protected environmental areas with a hydrological dependency will be considered in future stages of assessment. Baseline data regarding designated sites is included in **Part 2, Chapter 6: Biodiversity**.

Figure 9-2 Flood Zones

Legend

- Scoping Boundary
- Scoping Boundary Section Break

Notes

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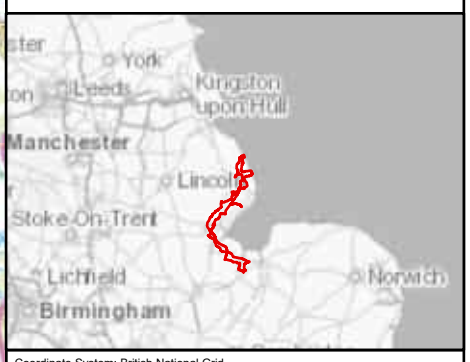

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Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number: FIGURE 9-2

Drawing Reference: EGL-ARC-CONS-XX-DR-G-004

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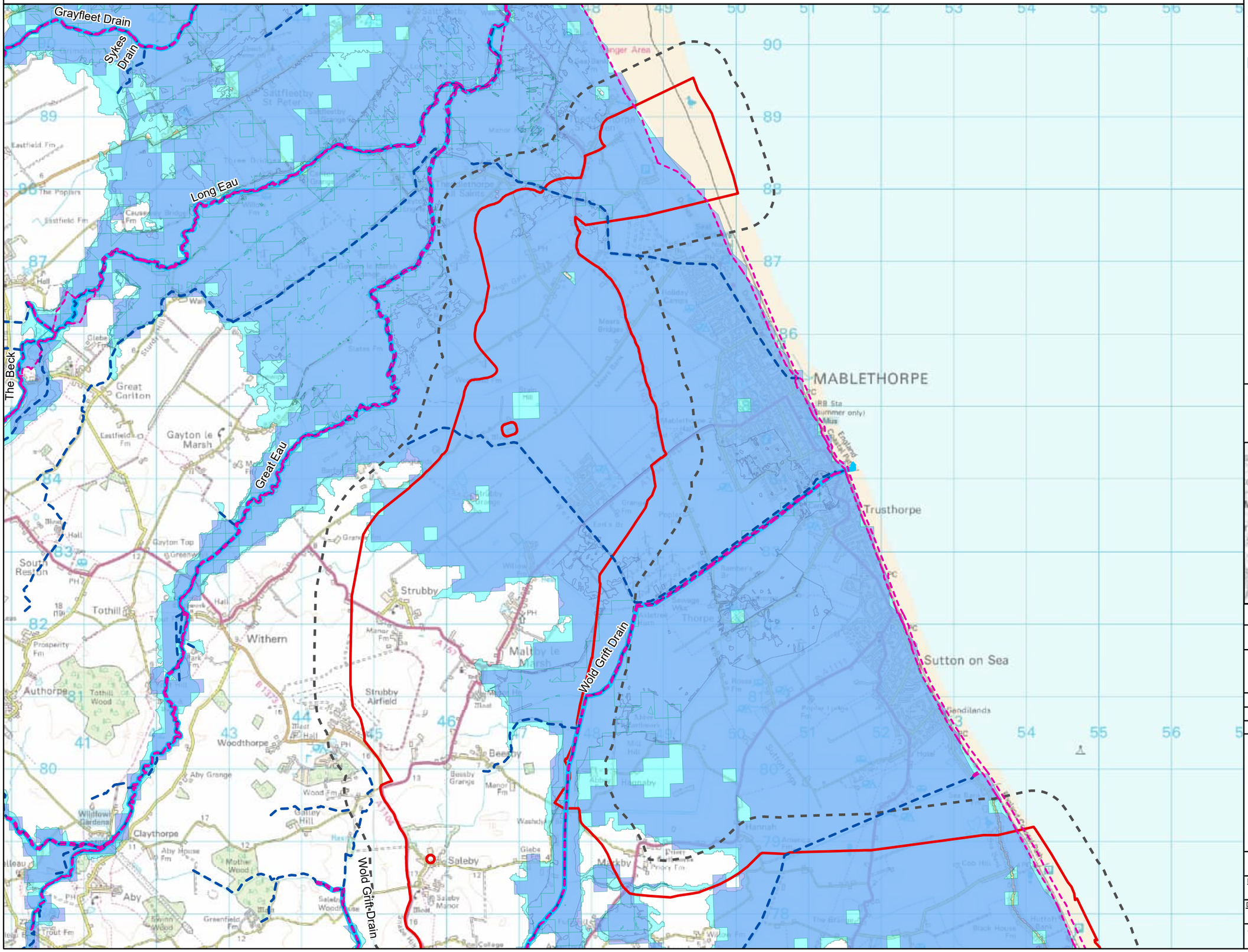
Figure 9-2 Flood Zones



Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

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0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
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Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number
FIGURE 9-2

Drawing Reference
EGL-ARC-CONS-XX-DR-G-004

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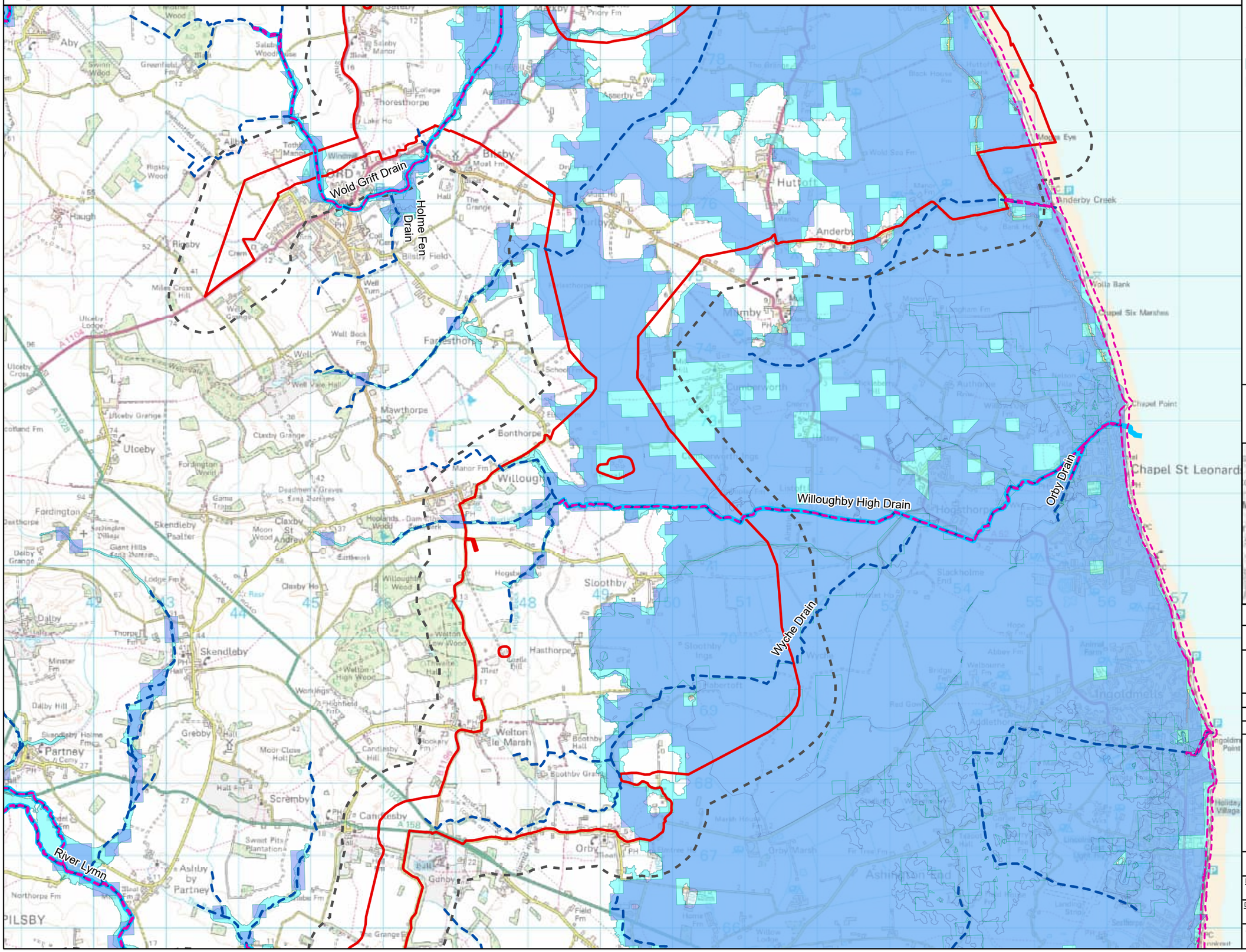
Figure 9-2 Flood Zones



Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved
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Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number	Drawing Reference		
FIGURE 9-2	EGL-ARC-CONS-XX-DR-G-004		
Scale	Sheet Size	Sheet	Issue
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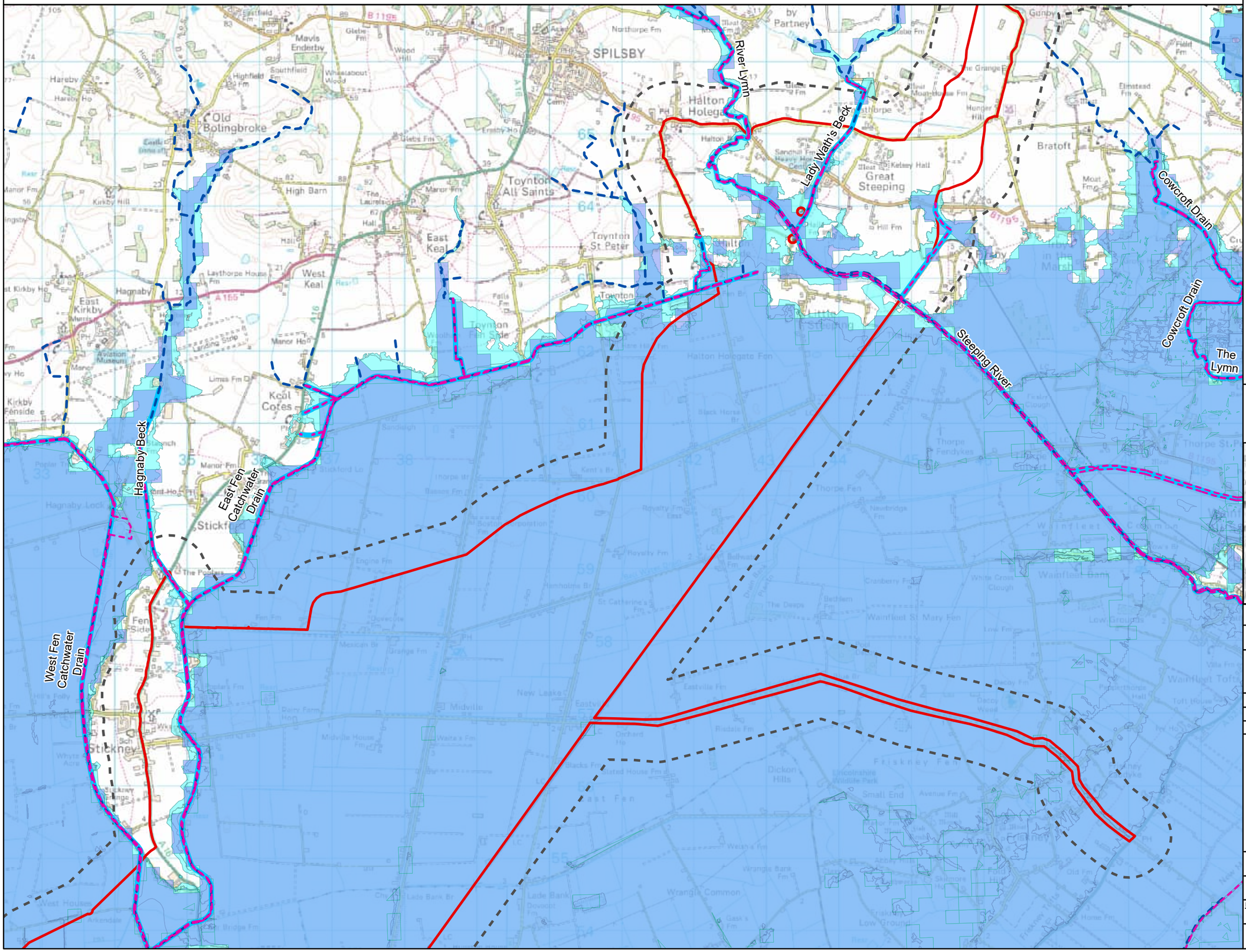
Figure 9-2 Flood Zones



Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved
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Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number: FIGURE 9-2

Drawing Reference: EGL-ARC-CONS-XX-DR-G-004

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 3 OF 7	1

Figure 9-2 Flood Zones

East Fen Catchwater Drain
Sibsey Fen Side
Windmill
Stone Bridge Drain
West Fen Drain
River Witham
Cowbridge Drain
The Haven
South Forty Foot Drain
New Hammond Beck
The Haven
Maud Foster Drain

Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 532708.17E Sheet Y Centroid Coordinate: 348074.66N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

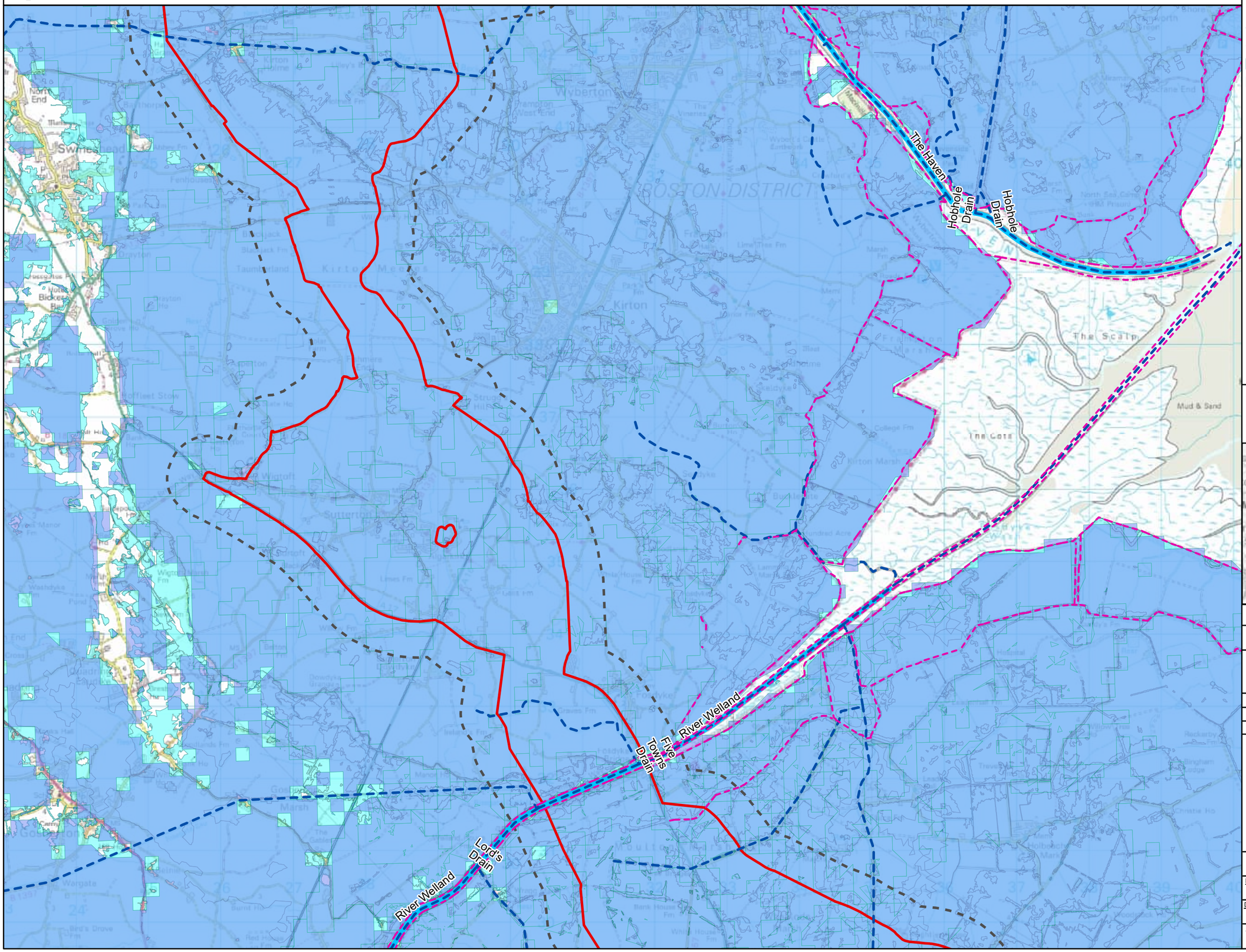
Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number	Drawing Reference			
FIGURE 9-2	EGL-ARC-CONS-XX-DR-G-004			
Scale	Sheet Size	Sheet	Issue	
1:50,000	A3	SHEET 4 OF 7	1	

Figure 9-2 Flood Zones



Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 531553.29E Sheet Y Centroid Coordinate: 336163.14N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

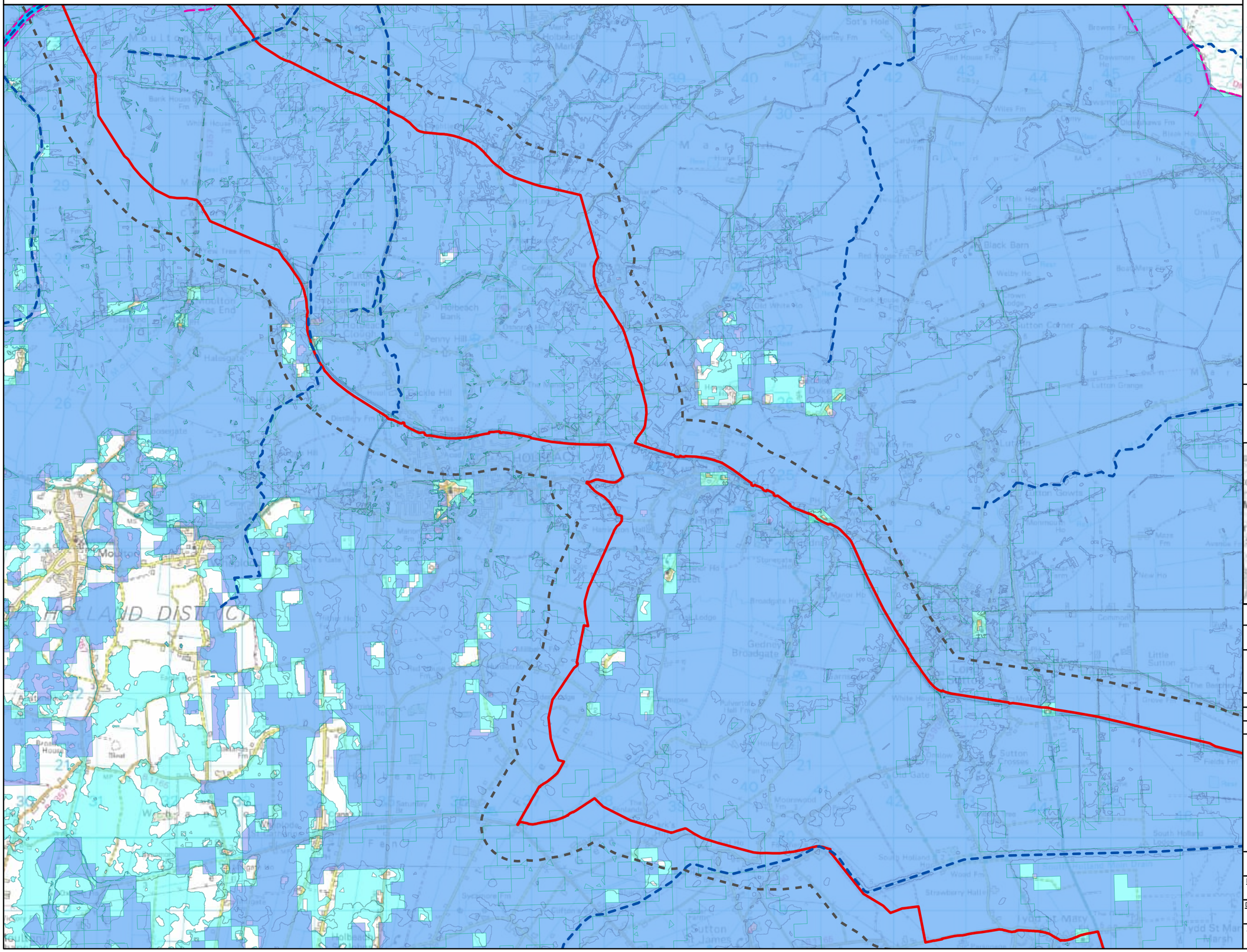
Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number			
FIGURE 9-2			
Drawing Reference			
EGL-ARC-CONS-XX-DR-G-004			
Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 5 OF 7	1

Figure 9-2 Flood Zones



Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 538264.29E Sheet Y Centroid Coordinate: 324986.6N

0 500 1,000 2,000
Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number
FIGURE 9-2

Drawing Reference
EGL-ARC-CONS-XX-DR-G-004

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 6 OF 7	1

Figure 9-2 Flood Zones

River Nene

Legend

- Scoping Boundary
- Study Area
- Main Rivers
- Ordinary Watercourses
- EA Spatial Flood Defences
- Flood Zone 2
- Flood Zone 3

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 549787.61E Sheet Y Centroid Coordinate: 316932.42N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

Figure 9-2
Flood Zones

nationalgrid

Figure Number: FIGURE 9-2

Drawing Reference: EGL-ARC-CONS-XX-DR-G-004

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 7 OF 7	1

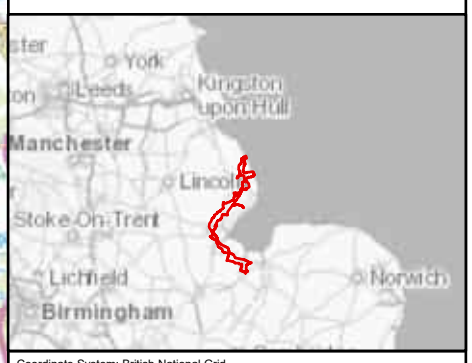
Figure 9-3 Risk Of Flooding From Surface Water

Legend

- Scoping Boundary
- Scoping Boundary Section Break

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 540239.88E Sheet Y Centroid Coordinate: 350760.07N

0 2.5 5 10 Kilometres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

Figure 9-3
Risk Of Flooding From Surface Water

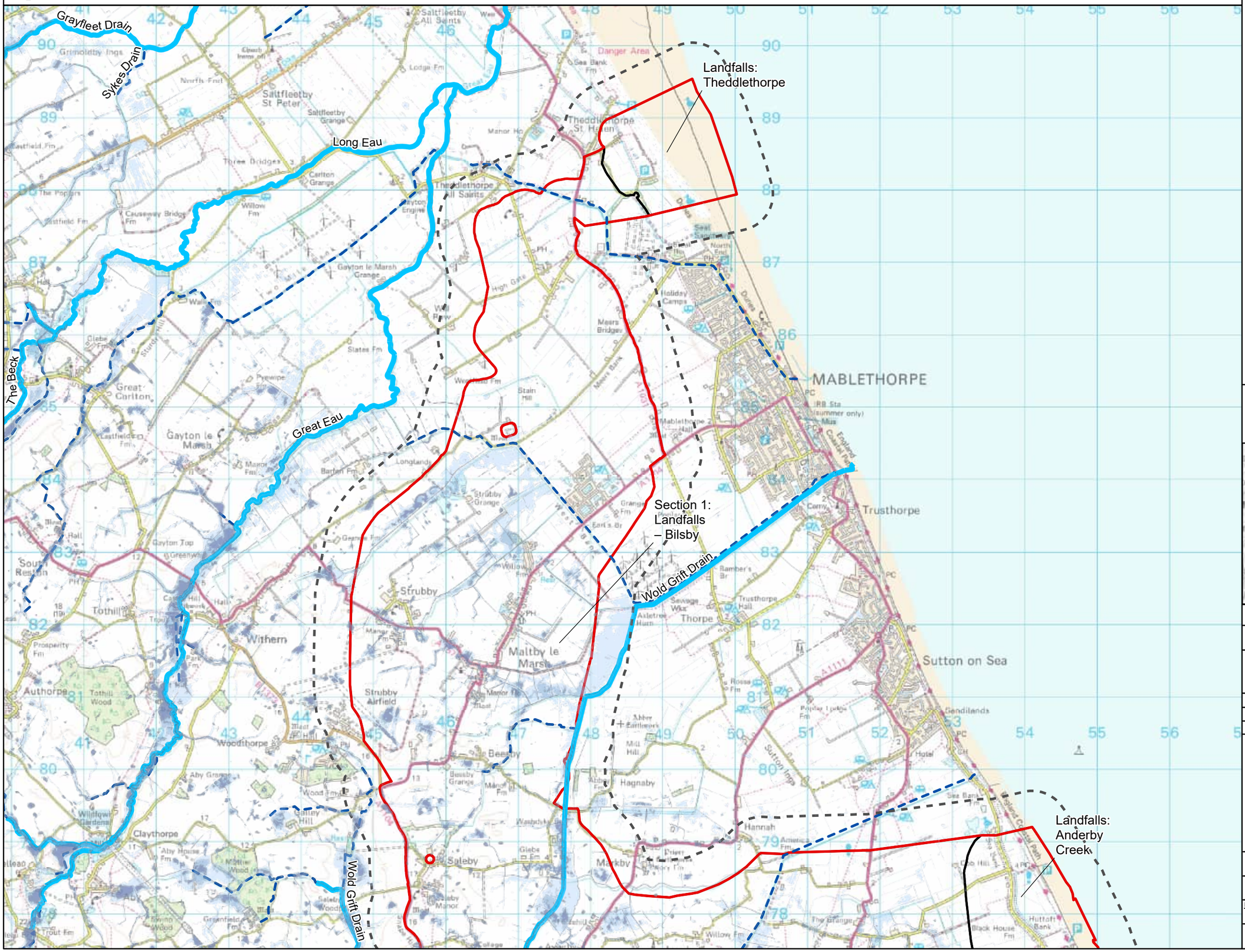
nationalgrid

Figure Number: FIGURE 9-3

Drawing Reference: EGL-ARC-CONS-XX-DR-G-005

Scale	Sheet Size	Sheet	Issue
1:250,000	A3	OVERVIEW	1

Figure 9-3 Risk Of Flooding From Surface Water



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 548445.38E Sheet Y Centroid Coordinate: 384032.9N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

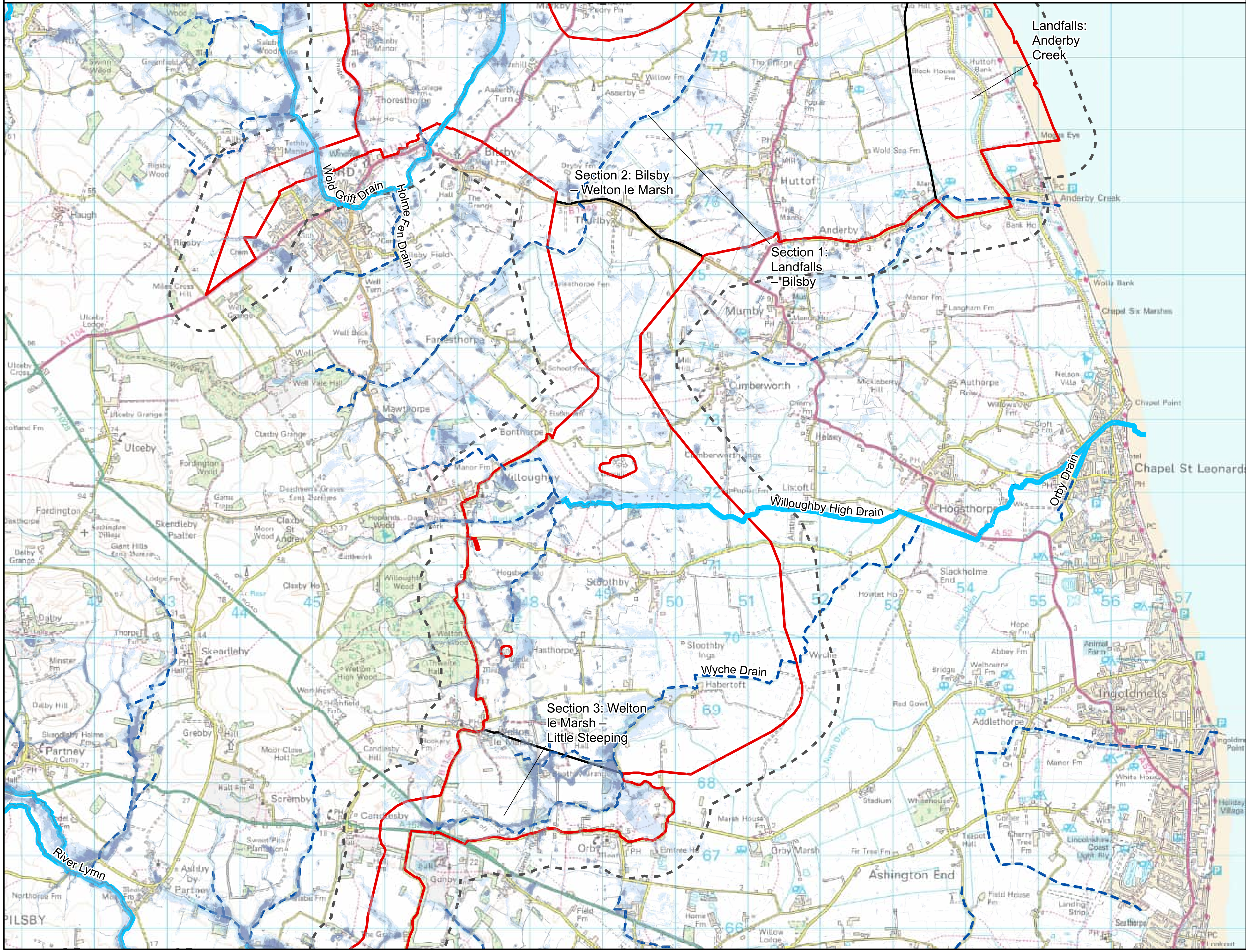
Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number	
	FIGURE 9-3
Drawing Reference	EGL-ARC-CONS-XX-DR-G-005

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 1 OF 7	1

Figure 9-3 Risk Of Flooding From Surface Water



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 549309.24E Sheet Y Centroid Coordinate: 372223.16N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number
FIGURE 9-3

Drawing Reference
EGL-ARC-CONS-XX-DR-G-005

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 2 OF 7	1

Figure 9-3 Risk Of Flooding From Surface Water

River Lymn
Lady Wath's Beck
Steeping River
Cowcroft Drain
The Lymn
East Fen Catchwater Drain
West Fen Catchwater Drain
Hagnaby Beck
Section 3: Welton le Marsh – Little Steeping
Section 4: Little Steeping – Sibsey Northlands
Section 5: Sibsey Northlands – Hubbert's Bridge

Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 541021.2E Sheet Y Centroid Coordinate: 360260N

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Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

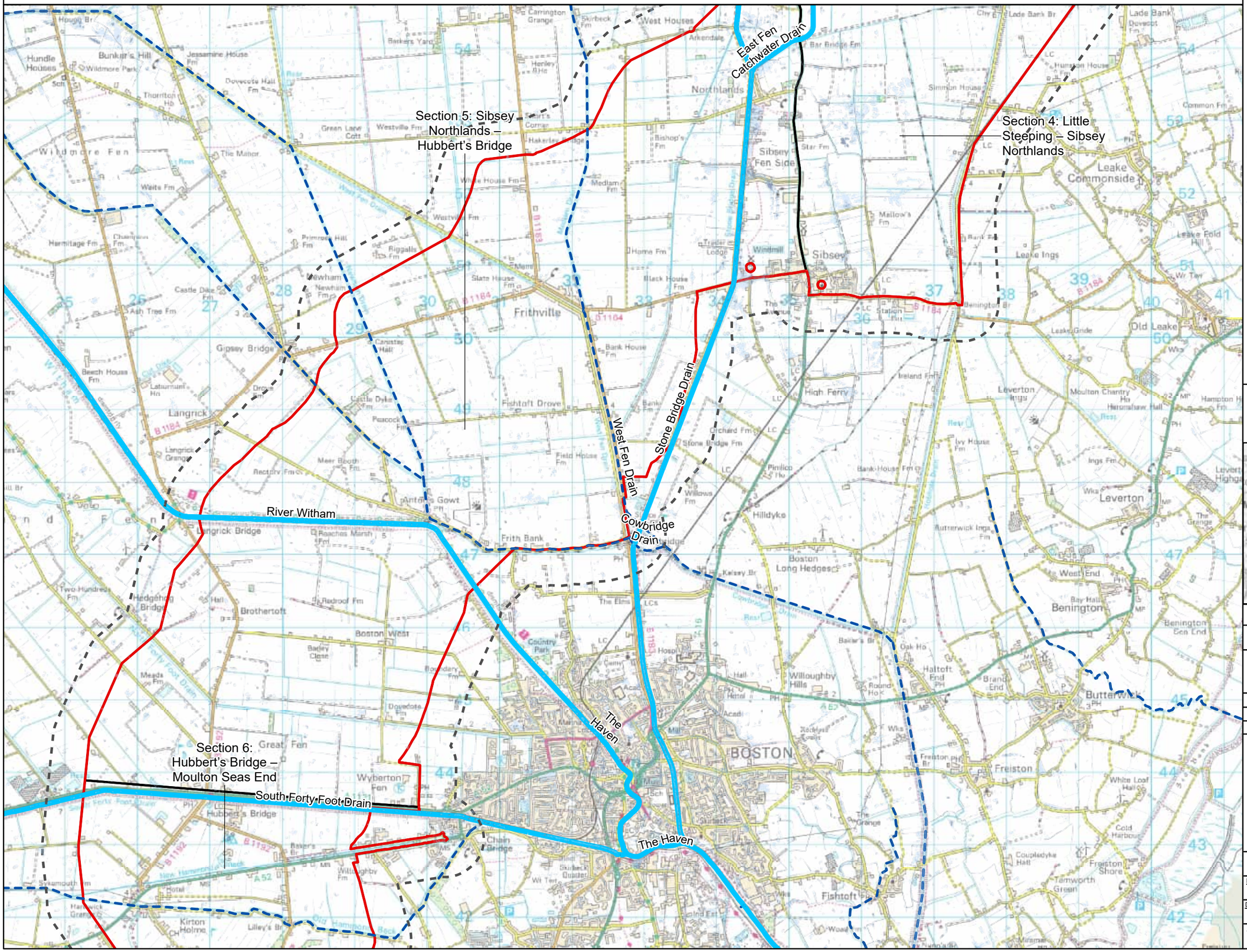
Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number	
	FIGURE 9-3
Drawing Reference	EGL-ARC-CONS-XX-DR-G-005

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 3 OF 7	1

Figure 9-3 Risk Of Flooding From Surface Water



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

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Sheet X Centroid Coordinate: 532708.17E Sheet Y Centroid Coordinate: 348074.66N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

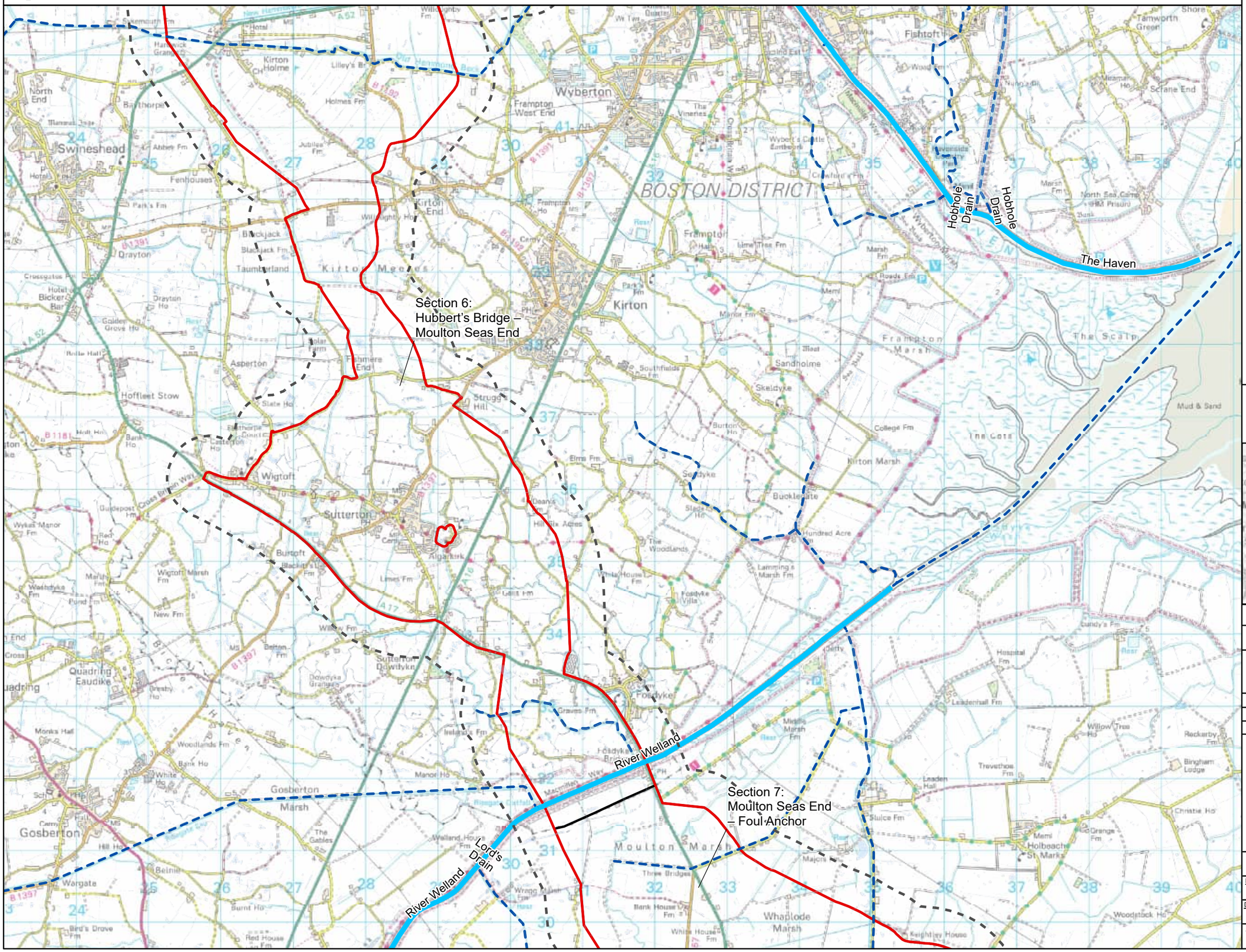
Title

Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number			
FIGURE 9-3			
Drawing Reference			
EGL-ARC-CONS-XX-DR-G-005			
Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 4 OF 7	1

Figure 9-3 Risk Of Flooding From Surface Water



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

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0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number			
FIGURE 9-3			
Drawing Reference			
EGL-ARC-CONS-XX-DR-G-005			
Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 5 OF 7	1

Figure 9-3 Risk Of Flooding From Surface Water

Section 6:
Hubbert's Bridge –
Moulton Seas End

Section 7:
Moulton Seas End
– Foul Anchor

Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 538264.29E Sheet Y Centroid Coordinate: 324986.6N

0 500 1,000 2,000
Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

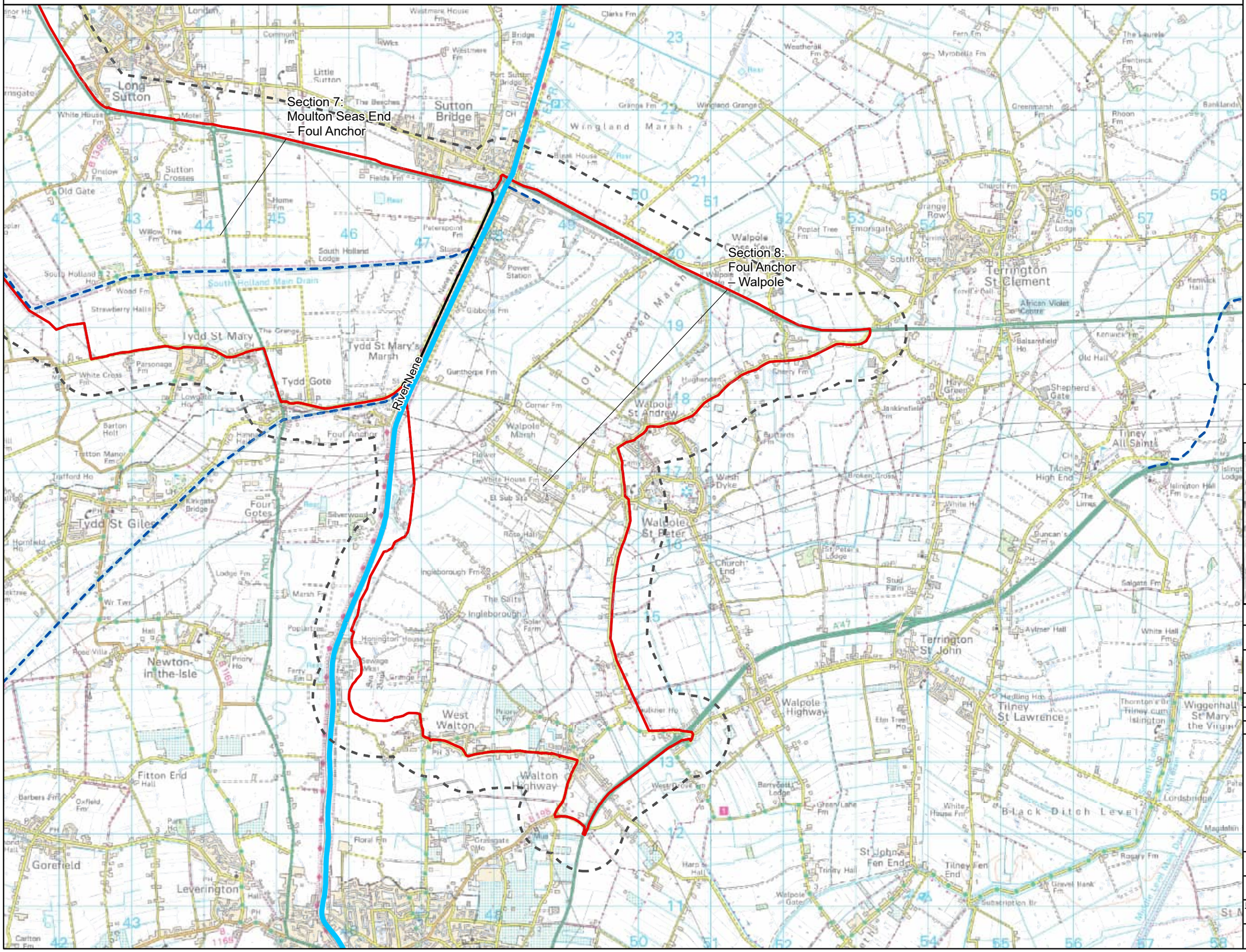
Title

Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number			
FIGURE 9-3			
Drawing Reference			
EGL-ARC-CONS-XX-DR-G-005			
Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 6 OF 7	1

Figure 9-3 Risk Of Flooding From Surface Water



Legend

- Scoping Boundary
- Study Area
- Scoping Boundary Section Break
- Environment Agency Risk of flooding from Surface Water Extent 0.1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 1% annual chance
- Environment Agency Risk of flooding from Surface Water Extent 3.3% annual chance
- Main Rivers
- Ordinary Watercourses

Notes

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Coordinate System: British National Grid
Sheet X Centroid Coordinate: 549787.61E Sheet Y Centroid Coordinate: 316932.42N

0 500 1,000 2,000 Metres

Issue	Date	Remarks	Drawn	Checked	Approved
1	JUN 24	DRAFT	SB	LD	MW

Title

Figure 9-3
Risk Of Flooding From Surface Water

nationalgrid

Figure Number			
FIGURE 9-3			
Drawing Reference			
EGL-ARC-CONS-XX-DR-G-005			
Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 7 OF 7	1

Landfall - Theddlethorpe

Surface Water Features

9.4.10 In the Theddlethorpe landfall area there are no main rivers, however a network of smaller watercourses and ditches function at a local scale to drain the land. The catchments of these watercourses are rural in their land use, with relatively flat topography.

9.4.11 The Theddlethorpe landfall is wholly within the Lindsey Marsh IDB area which maintains several of the watercourses within this part of the Scoping Boundary, including the watercourses that flow alongside Crook Bank and Sea Lane.

9.4.12 OS mapping does not indicate the presence of any natural or artificial ponds.

Water Quality

9.4.13 At the proposed Theddlethorpe landfall location, the Scoping Boundary is located within the both the Lincolnshire Transitional and Coastal (TraC) and the Trusthorpe Pump Drain WFD waterbodies. These waterbodies have a moderate ecological status and a chemical status of fail due to exceedance of priority hazardous substances.

9.4.14 The Theddlethorpe landfall area of the Scoping Boundary is partially located within a Drinking Water Protected Area and a Drinking Water Safeguard Zone (Surface Water) and partially located within a Nitrate Vulnerable Zone.

Flood Risk and Land Drainage

9.4.15 Based on the online Flood Maps (Ref 9.20) the majority of the Theddlethorpe landfall area is at high risk of flooding, with the Scoping Boundary crossing large extents of coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones**.

9.4.16 Flood defences are situated along the coastal frontage of this landfall area. These comprise of raised embankments and dunes that reduce the risk of tidal flooding.

9.4.17 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.18 The Trusthorpe Pump Drain waterbody has a hydromorphological designation of artificial, with the Lincolnshire TraC waterbody designated as heavily modified. Many of the water features in the Theddlethorpe landfall area have been subject to modifications for the purposes of land drainage and flood defence. The ordinary watercourses in the study area, particularly those maintained by the Lindsey Marsh IDB, also serve a land drainage function and have a relatively low hydromorphological diversity.

Landfall – Anderby Creek

Surface Water Features

9.4.19 Within the Anderby Creek landfall area there are no main rivers. However, a network of watercourses and ditches function at a local scale to drain the land. The catchments of these watercourses are rural in their land use, with relatively flat topography.

9.4.20 The Anderby Creek landfall is wholly within the Lindsey Marsh IDB area which maintains several of the watercourses within this part of the Scoping Boundary, including the Main Drain and a drain that flows alongside Roman Bank.

9.4.21 Other water features within the Anderby Creek landfall area include numerous natural and artificial ponds.

Water Quality

9.4.22 At the proposed Anderby Creek landfall location, the Scoping Boundary is located within both the Lincolnshire Transitional and Coastal (TraC) and the Anderby Main Drain WFD waterbody catchments. These waterbodies have a moderate ecological status and a chemical status of fail due to exceedance of priority hazardous substances.

9.4.23 The Anderby Creek landfall area of the Scoping Boundary is partially located within a SPZ3 (total catchment).

Flood Risk and Land Drainage

9.4.24 Based on the online Flood Maps (Ref 9.20) the majority of the Anderby Creek landfall area is at high risk of flooding, with the Scoping Boundary crossing large extents of coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones.**

9.4.25 Flood defences are situated along the coastal frontage of this landfall area. These comprise of raised embankments and dunes, which reduce the risk of tidal flooding.

9.4.26 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.27 The Anderby Main Drain waterbody has a hydromorphological designation of artificial, with the Lincolnshire TraC waterbody is designated as heavily modified. Many of the water features in this landfall area have been subject to modifications for the purposes of land drainage and flood defence. The ordinary watercourses in the study area, particularly those maintained by the Lindsey Marsh IDB, also serve a land drainage function and have a relatively low hydromorphological diversity.

Section 1 – Landfalls to Bilsby (including the LCS Converter Station Area)

Surface Water Features

9.4.28 Within Section 1, which includes the LCS Converter Station Area, the Woldgrift Drain is the only main river that is crossed by the Scoping Boundary. The Woldgrift Drain flows

in a north-easterly direction, discharging into the North Sea at Mablethorpe. There is also an extensive network of watercourses and drainage ditches, that function at a local scale, located throughout Section 1, including The Cut and West Bank Drain. In some places these are managed to facilitate land drainage and control flood risk. The catchments of the watercourses in Section 1 can be categorised as generally rural in their land use, with relatively flat topography.

9.4.29 Section 1 is partially within the Lindsey Marsh IDB area and the IDB manage several watercourses within this part of the Scoping Boundary.

9.4.30 Other water features within Section 1 include numerous natural and artificial ponds.

Water Quality

9.4.31 Section 1 of the Scoping Boundary is mostly located within the Steeping and Eaus Operational Catchment. The WFD waterbodies in this catchment generally achieve moderate ecological status, with one, the Great Eau (downstream of South Thoresby), achieving poor ecological status. Reasons for not achieving good status vary, with a wide range of issues cited, including poor physio-chemical and biological quality. All waterbodies share a chemical status of 'fail' due to exceedance of priority hazardous substances in particular mercury and its compounds and polybrominated diphenyl ethers (PBDE).

9.4.32 Section 1 of the Scoping Boundary is partially located within a SPZ 1 (inner protection zone), 2 (outer protection zone) and 3 (total catchment). Section 1 is partially located within a Nitrate Vulnerable Zone.

Flood Risk and Land Drainage

9.4.33 Based on the online Flood Maps (Ref 9.20) large parts of the northern and eastern parts of Section 1 are at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on Figure 10.2 Flood Zones.

9.4.34 There are flood defences along the Woldgrift Drain. These comprise Natural High Ground and reduce the risk of fluvial flooding.

9.4.35 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.36 All of the WFD waterbodies that are crossed by the Scoping Boundary in Section 1 have a hydromorphological designation of artificial or heavily modified. Many of the water features in Section 1 have been subject to modifications for the purposes of land drainage and flood defence. The ordinary watercourses in the study area, particularly those within the IDB district, also serve a land drainage function and have a relatively low hydromorphological diversity.

Section 2 - Bilsby to Welton le Marsh

Surface Water Features

9.4.37 Within Section 2 the Willoughby High Drain is the only main river crossed by the Scoping Boundary. This watercourse flows from west to east, discharging to the North Sea at Chapel St Leonards. As with Section 1, there is also an extensive network of smaller watercourses and drainage ditches within Section 2. The catchments of the watercourses in Section 2 are relatively flat and can be categorised as generally rural in their land use, with some small urban areas.

9.4.38 The majority of Section 2 is within the Lindsey Marsh IDB district and the Board maintain several watercourses within the Scoping Boundary, including the Boygrift Drain and the Wyche Drain.

9.4.39 There are several ponds within Section 2 of the Scoping Boundary.

Water Quality

9.4.40 Section 2 of the Scoping Boundary is entirely located within the Steeping and Eaus Operational Catchment. The WFD waterbodies within this catchment achieve moderate ecological status and have a chemical status of ‘fail' due to mercury and its compounds and PBDE. Reasons for not achieving good status include poor livestock and nutrient management and physical modification.

9.4.41 Section 2 of the Scoping Boundary is partially located within SPZs 1 (inner protection zone), 2 (outer protection zone) and 3 (total catchment) and a Nitrate Vulnerable Zone.

Flood Risk and Land Drainage

9.4.42 Based on the online Flood Maps (Ref 9.20) large parts of the land within Section 2 are at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones.**

9.4.43 There are flood defences along the Willoughby High Drain within this Section. These comprise of Natural High Ground and reduce the risk of fluvial flooding.

9.4.44 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.45 The WFD waterbodies in Section 2 have a hydromorphological designation of artificial. Many of the watercourses in this Section serve a land drainage function and hence have a relatively low hydromorphological diversity.

Section 3 - Welton le Marsh to Little Steeping

Surface Water Features

9.4.46 Within Section 3 there are three main rivers: the Steeping River, Lady Wath’s Beck and East Fen Catchwater Drain. Lady Wath’s Beck is a tributary of the Steeping River which

flows in a south-easterly direction across the Scoping Boundary. East Fen Catchwater Drain flows in a westerly and southerly direction before it combines with the West Fen Catchwater Drain. There are also numerous smaller watercourses and drainage ditches in this Section. Their catchments can be categorised as generally rural in their land use, with relatively flat topography.

9.4.47 Section 3 is partially within the Lindsey Marsh IDB area and the Witham Fourth IDB area. These IDBs manage several watercourses within the Scoping Boundary.

9.4.48 There are some small ponds within this Section.

Water Quality

9.4.49 Section 3 lies on the border of the Steeping and Eaus Operational Catchment and the Fens East and West Operational Catchment, with the majority of the area sitting within Steeping and Eaus. The Steeping River represents the border as it passes north of Little Steeping. The Lymn / Steeping WFD waterbody achieves a moderate ecological status whereas the East & West Fen Drains WFD waterbody has an ecological status of bad due to its biological quality (fish). Reasons for not achieving good status include physical modification and several agricultural and land management sources. Both waterbodies share a chemical status of 'fail' due to mercury and its compounds and PBDE which are common to both, with the East & West Fen Drains WFD waterbody also failing due to perfluorooctane sulphonate (PFOS).

9.4.50 Section 3 of the Scoping Boundary is partially located within SPZs 1 (subsurface activity), 2 (subsurface activity) and 3 (total catchment) and is entirely within a Nitrate Vulnerable Zone.

Flood Risk and Land Drainage

9.4.51 Based on the online Flood Maps (Ref 9.20) the majority of Section 3 is at low risk of flooding, although some parts of the Scoping Boundary are at high risk of flooding, as shown on **Figure 9.2: Flood Zones.** These areas of high risk are concentrated around the main rivers.

9.4.52 There are flood defences along the main rivers within this Section, which reduce the risk of fluvial flooding. These comprise of both Natural High Ground and Embankments. flooding.

9.4.53 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.54 The Lymm / Steeping WFD waterbody has a hydromorphological designation of heavily modified and the East & West Fen Drains WFD waterbody is designated as artificial. Many watercourses in Section 3 have been subject to modifications for the purposes of land drainage. As such, the ordinary watercourses in this Section, particularly those within IDB districts, typically have a relatively low hydromorphological diversity.

Section 4 - Little Steeping to Sibsey Northlands

Surface Water Features

9.4.55 There are two main rivers within Section 4: the East Fen Catchwater Drain and the West Fen Catchment Drain. Both these watercourses flow in a southerly direction through this Section, into Section 5. As with previous Sections, there is also an extensive network of ordinary watercourses and drainage ditches with Section 4. Their catchments can be categorised as generally rural in their land use, with relatively flat topography.

9.4.56 Section 4 is located within the Witham IDB area. The board maintains several culverts and combined sewers within the Scoping Boundary.

9.4.57 There are numerous small ponds within this Section.

Water Quality

9.4.58 Section 4 lies entirely within the Fens East and West Operational Drainage Catchment. There are two WFD waterbodies in this operational catchment; the East and West Fen Drains and the Maud Foster and Fen Catchwater Drains. The East and West Fen Drains are discussed previously under Section 3. The Maud Foster and Fen Catchwater Drains WFD waterbody has a moderate ecological status despite having a status of bad for fish and dissolved oxygen. The waterbody has a chemical status of 'fail' due to mercury and its compounds and PBDE. Reasons for not achieving good are similar to the East and West Fen Drains WFD waterbody.

9.4.59 Section 4 of the Scoping Boundary is located within a Nitrate Vulnerable Zone. It is not within a surface water Drinking Water Protected Area or Safeguard Zone.

Flood Risk and Land Drainage

9.4.60 Based on the online Flood Maps (Ref 9.20) almost all of Section 4 is at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones.**

9.4.61 There are flood defences along the main rivers within this Section which reduce the risk of fluvial flooding. These comprise of both Natural High Ground and embankments.

9.4.62 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.63 The WFD waterbodies within Section 4 have a hydromorphological designation of artificial. Many of the watercourses in this Section have been modified for the purposes of land drainage and hence typically have a low hydromorphological diversity.

Section 5 - Sibsey Northlands to Hubbert's Bridge

Surface Water Features

9.4.64 There are two main rivers passing through Section 5 (Stone Bridge Drain and River Witham), with another on the southern border with Section 6 at Hubbert's Bridge (South Forty Foot Drain). The Stone Bridge Drain originates of the confluence of the East and West Fen drains (see Section 4) and flows south. The River Witham crosses the Scoping Boundary and flows southeast towards Boston. There are also several smaller watercourses and drainage ditches, that function at a local scale, located throughout Section 5. Their catchments have relatively flat topography and can be categorised as generally rural in their land use, with some urban areas in some catchments.

9.4.65 Section 5 is located within the Witham IDB and Black Sluice IDB areas. These boards maintain several watercourses and land drainage assets within the Scoping Boundary.

9.4.66 There are some small natural and artificial ponds within this Section.

Water Quality

9.4.67 Section 5 is entirely within the Fens East and West Operational Catchment and the East & West Fens Drains WFD waterbody. The water quality baseline data associated with the East & West Fens WFD waterbody is described under Section 4.

9.4.68 Section 5 of the Scoping Boundary is located within a Nitrate Vulnerable Zone. It is not within a surface water Drinking Water Protected Area or Safeguard Zone.

Flood Risk and Land Drainage

9.4.69 Based on the online Flood Maps (Ref 9.20) all of Section 5 is at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on Figure 10.2 Flood Zones.

9.4.70 There are flood defences along the main rivers within this Section, comprising embankments, which reduce the risk of fluvial flooding.

9.4.71 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.72 As described in Section 4, the East & West Fens Drains WFD waterbody has a hydromorphological designation of artificial. Many of the watercourses in this Section have been modified for the purposes of land drainage and hence typically have a low hydromorphological diversity.

Section 6 - Hubbert's Bridge to Moulton Seas End

Surface Water Features

9.4.73 South Forty Foot Drain, mentioned in Section 5, is one of the two main rivers in Section 6. The South Forty Foot Drain flows eastwards past Hubbert's Bridge. The River

Welland flows northeast into The Wash, and is tidal at the point it crosses the Scoping Boundary. There are also several smaller watercourses and drainage ditches, that function at a local scale, located throughout Section 6. Their catchments can be categorised as generally rural in their land use, with relatively flat topography.

9.4.74 Section 6 is partially within the South Holland, Welland & Deepings and Black Sluice IDB areas. The boards manage several watercourses and other land drainage assets within the Scoping Boundary, including the Five Towns Drain.

9.4.75 There are several ponds within this Section.

Water Quality

9.4.76 Section 6 spans three Operational Catchments: Welland Lower, Wash TraC and South Forty Foot Drain. Although the Whaplode River and Welland TraC WFD waterbodies have a moderate ecological status, the other WFD waterbodies within Section 6 have an ecological status of poor and bad due to invertebrates and fish. The WFD waterbodies within Section 6 share a chemical status of 'fail' due to exceedances in priority hazardous substances. Reasons for not achieving good status vary between waterbodies, although there is a common reason of point source pollution from sewage discharges.

9.4.77 Section 6 of the Scoping Boundary is partially located within a Nitrate Vulnerable Zone. It is not within a surface water Drinking Water Protected Area or Safeguard Zone.

Flood Risk and Land Drainage

9.4.78 Based on the online Flood Maps (Ref 9.20) almost all of Section 6 is at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones.**

9.4.79 The River Welland is tidal up to 14 miles inland and has flood defences, in the form of earth embankments, within the Scoping Boundary. The surrounding drainage ditches are pumped into the River Welland. It is understood that the ditches are heavily managed in the area.

9.4.80 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.81 The WFD waterbodies within Section 6 have a hydromorphological designation of artificial or heavily modified. Many of the ordinary watercourses in the Section, particularly those within IDB districts, serve a land drainage function and have a relatively low hydromorphological diversity.

Section 7 - Moulton Seas End to Foul Anchor

Surface Water Features

9.4.82 The River Nene is the only main river in Section 7 and runs along the border of Section 7 and Section 8. The River Nene flows north into The Wash, and is tidal at the point it

crosses the Scoping Boundary. There are several other watercourses and drainage ditches, that function at a local scale, located throughout Section 7. Their catchments can be categorised as generally rural in their land use, with relatively flat topography.

9.4.83 Section 7 is within the South Holland IDB area. The Board manages numerous watercourses within this section of the Scoping Boundary, including the South Holland Main Drain.

9.4.84 There are some small ponds within this Section.

Water Quality

9.4.85 Section 7 is within the Welland Lower, Nene Lower and The Wash TraC Operational Catchments. Water quality data for the Whaplode River WFD waterbody is described under Section 6. The other WFD waterbodies within Section 7 are the South Holland Main Drain and the Nene TraC. All of the WFD waterbodies within Section 7 have an ecological status of moderate and have a chemical status of 'fail' due to exceedances in priority hazardous substances (mercury and its compounds and PBDE).

9.4.86 A small part of the Scoping Boundary in Section 7 is located within a Nitrate Vulnerable Zone. It is not within a surface water Drinking Water Protected Area or Safeguard Zone.

Flood Risk and Land Drainage

9.4.87 Based on the online Flood Maps (Ref 9.20) Section 7 is almost entirely at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones**

9.4.88 The River Nene is tidal up to 28 miles inland and has flood defences in the form of earth embankments along its length throughout Section 7. South Holland Main Drain discharges into the River Nene via a sluice gate which acts to reduce tidal flood risk upstream.

9.4.89 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.90 The WFD waterbodies within Section 7 have a hydromorphological designation of artificial or heavily modified. Many of the ordinary watercourses in the Section, particularly those within IDB districts, serve a land drainage function and have a relatively low hydromorphological diversity.

Section 8 - Foul Anchor to Walpole (including the Walpole Stations Area)

Surface Water Features

9.4.91 The River Nene is the only main river in Section 8 and has been described under Section 7. There are several small watercourses and drainage ditches, that function at a local scale, located throughout the section. Their catchments can be categorised as generally rural in their land use, with relatively flat topography.

9.4.92 Section 8 is within the King's Lynn IDB area, which manages numerous watercourses within this section of the Scoping Boundary, including several within the Walpole Stations Area.

9.4.93 There are some small ponds in this Section.

Water Quality

9.4.94 Section 8 is located within The Wash TraC and Great Ouse Operational Catchments. The WFD waterbodies in this Section are the Nene (TraC) and Great Ouse (TraC). The former is covered under Section 7. The Great Ouse TraC WFD waterbody has an ecological status of poor due to phytoplankton and a chemical status of 'fail' due to exceedances of priority hazardous substances.

9.4.95 Section 8 of the Scoping Boundary is not within a surface water Drinking Water Protected Area or Safeguard Zone nor a Nitrate Vulnerable Zone.

Flood Risk and Land Drainage

9.4.96 Based on the online Flood Maps (Ref 9.20) Section 8 is almost entirely at high risk of flooding, with the Scoping Boundary crossing large extents of fluvial and coastal floodplain (initially defined by the extents of Environment Agency Flood Zone 2 and Flood Zone 3). This is shown on **Figure 9.2: Flood Zones.**

9.4.97 The River Nene and it's flood defences are described under Section 7.

9.4.98 The previously described network of watercourses and drainage ditches are key to the land drainage regime in this area. Formal drainage systems include those serving existing roads and areas of urban development. Agricultural land is also expected to be served by piped and open drainage systems.

Hydromorphology

9.4.99 The WFD waterbodies within Section 8 have a hydromorphological designation of heavily modified. The Nene has been subject to modifications for the purposes of land drainage and flood defence. The ordinary watercourses in this Section, particularly those within IDB districts, also serve a land drainage function and have a relatively low hydromorphological diversity.

Future Baseline

9.4.100 The future baseline relates to known or anticipated changes to the current baseline in the future which should be assessed as part of the English Onshore Scheme.

9.4.101 With regard to flood risk and land drainage, future baseline conditions would be forecast, drawing on current best practice guidelines (Ref 9.23) taking into account the likely impacts of climate change on rainfall intensities, and where applicable, peak river flows and sea level rise. These future conditions would be considered to factor climate change resilience into the design of the English Onshore Scheme.

9.4.102 It is expected that the WFD legislation will drive future improvements in the ecological and chemical quality of water bodies. The effects of the implementation of future cycles of river basin management plans would therefore also be considered when assigning value to water environment receptors.

9.4.103 It is recognised that there are several other proposed and committed developments within the surrounding area that could alter the future baseline in the absence of the English Onshore Scheme. For water environment, this includes future developments that share the same hydrological catchments as the study area. The potential for cumulative effects will be considered as part of the future EIA documents in accordance with the approach and guidance outlined within **Part 4, Chapter 35: Cumulative Effects**.

9.5 Design and Control Measures

9.5.1 A high-level optioneering study (the CPRSS as described in **Part 2 Chapter 3: Consideration of Alternatives**) has been undertaken to identify the preferred routeing and siting of the proposed infrastructure to ensure that environmental effects would be avoided. As part of the English Onshore Scheme design process, a number of design and control measures will be proposed to reduce the potential for impacts on water environment receptors. These measures will evolve as part of design development and in response to consultation. These measures will be fed iteratively into the assessment process. These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements.

9.5.2 As there is a commitment to implementing these design and control measures these have been considered in the scoping assessment.

Construction Phase

9.5.3 A range of standard measures for the English Onshore Scheme are likely to be adopted throughout the duration of the construction phase. Design and Control measures relevant to the water environment and proportionate to risk would be outlined in the Outline Code of Construction Practice (Outline CoCP), prepared to accompany the ES. A summary of these measures is detailed below (which is not an exhaustive list):

- The Construction Contractor(s) will undertake daily site inspections to check conformance to the CoCP (developed in accordance with the Outline CoCP) and other Management Plans;
- Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors. All refuelling, oiling and greasing of construction plant and equipment will take place above drip trays and also away from drains as far as is reasonably practicable. Appropriate spill kits will be made easily accessible for these activities;
- Establish an Emergency Action Plan for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents;
- Runoff from working areas will be managed appropriately during construction with respect to both quantity and quality;
- Existing land drainage systems impacted by the English Onshore Scheme during its construction would be re-provided to maintain the land drainage regime; and
- Where flood defences are crossed, appropriate construction methodologies will be adopted, and defences would be suitably monitored to ensure no effects on their integrity.

9.5.4 It is anticipated that the English Onshore Scheme would require crossings of multiple ditches, drains and watercourses, both for the purposes of construction access and for installation of the underground cables. The design of these crossings would be dependent on the size and sensitivity of the watercourses. For example, it is anticipated that those designated as main river, and those with WFD status, would be crossed using clear span bridges (for access) and using trenchless techniques for cable installation, where practically feasible.

Operational Phase

9.5.5 Suitable flood resilience and surface water drainage provisions will be embedded within the design for any Above Ground infrastructure (AGI) in line with national and local policy.

9.6 Scope of the Assessment

9.6.1 The water environment assessment will consider the construction, operation and maintenance phases of the English Onshore Scheme.

Potential Sensitive Receptors

9.6.2 **Table 9-4** provides a summary of the impact pathways and sensitive receptors during each of the phases of the English Onshore Scheme.

Table 9-4: Receptors and Impact Pathways for each phase of the English Onshore Scheme

Development Phase	Impact	Receptor
Construction	Physical disturbance and change to flow regime and hydromorphology.	Main rivers and ordinary watercourses, intertidal zone, existing water interests (surface water abstractions and discharges), hydrologically sensitive nature conservation sites.
	Pollution risks (e.g. bentonite breakout) and water consumption.	Main rivers*, intertidal zone, existing water interests and nature conservation sites.
	Increased flood risk and detriment to land drainage systems.	People, existing land drainage regime, property and infrastructure.
	Temporary works within the floodplain or in proximity to flood defences causing loss of floodplain storage / detriment to defence integrity.	Flood defences, people, property and infrastructure.

Development Phase	Impact	Receptor
Operation/Maintenance	Increased flood risk and detriment to land drainage	People, existing land drainage regime, property and infrastructure.

*Assumed trenchless crossings would be utilised at main rivers

9.6.3 Groundwater receptors are covered in **Part 2, Chapter 10: Geology and Hydrogeology**.

Likely Significant Effects

Construction Phase

9.6.4 The construction phase effects described below have been scoped in for further assessment due to the potential for likely significant effects.

9.6.5 During construction, new crossings of watercourses would be required for temporary access and could result in channel bed/bank modifications causing disruption to flow regimes and increased flood risk. There is also an associated risk of pollution from construction traffic using these temporary access routes, for example linked to mud from tyres and other debris entering the watercourses. Other construction activities with a risk of opening pollution pathways to water environment receptors include the dewatering of excavations and drilling for trenchless crossings (with potential for outbreaks of drilling muds). There would also be changes to land surface permeabilities at the proposed direct current switching station, converter stations and substation and at permanent access tracks which could disrupt the current land drainage regime.

9.6.6 There is the potential for the English Onshore Scheme to increase flood risk during construction through the creation of soil stockpiles and temporary working areas, which could result in the temporary loss of floodplain storage or could impede flood flows.

9.6.7 The English Onshore Scheme would create new areas of temporary impermeable land cover, such as construction compounds and haul routes, along with topsoil stripping and earthworks, which could locally reduce rainfall infiltration rates, increase runoff rates and induce overland flow during construction. This could contribute to localised changes to the land drainage regime, resulting in ponding of water or waterlogging of soils. Areas with a sloping topography where topsoil has been stripped would be particularly vulnerable to these changes.

9.6.8 There are existing flood defences throughout the study area and there will need to be further discussions with the Environment Agency to understand the effects of any temporary works on the design and integrity of these. It is anticipated that any requirements in relation to the flood defences would be agreed under the protective provisions secured for the Environment Agency.

Operational Phase

9.6.9 There would be limited potential for likely significant effects during operation of the underground cables as the working areas, including watercourse crossing and existing land drainage regimes, would be reinstated.

9.6.10 Once the underground cables have been installed, the land (including watercourses and riparian habitat) would be reinstated. There would be no impermeable footprint associated with the underground cable sections.

9.6.11 Following construction all temporary watercourse crossings would be removed unless it has been identified that it would be preferential for them to remain.

9.6.12 Land within the cable construction swathe would be reinstated following construction and there would be appropriate post construction provision for land drainage within the cable corridor. There would be a permanent impermeable footprint associated with the LCS converter station and Walpole stations and their associated permanent access routes. The designs of these elements of the English Onshore Scheme would incorporate appropriate surface water drainage measures and suitable drainage provisions would also be included for accesses. However, given the potential for the siting of the Walpole stations within the floodplain flood risk and land drainage is scoped in for further assessment.

9.6.13 **Table 9-5** presents a summary of the likely significant effects associated with the above impact pathways and sensitive receptors which have been scoped in to the water environment assessment. The potential for the English Onshore Scheme to result in likely significant effects takes into account the design and control measures described in Section 9.5.

Table 9-5: Summary of likely Significant Effects on Water Environment Receptors for each phase of the English Onshore Scheme

Development Phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped in / out
Construction	Physical disturbance and change to flow regime and hydromorphology.	Main rivers, ordinary watercourses, intertidal zone, existing water interests, nature conservation sites.	Yes – the English Onshore Scheme would cross numerous watercourses and floodplains, with potential for temporary physical disturbance and impacts on flow regimes.	**Scoped in**
	Pollution risks (e.g. bentonite breakout) and water consumption.	Main rivers*, intertidal zone, existing water interests and nature conservation sites.	Yes – the English Onshore Scheme is likely to cross some watercourses and would make landfall using trenchless techniques.	**Scoped in**
	Increased flood risk and detriment to land drainage.	People, existing land drainage regime,	Yes – due to the large swathes of floodplain within the Scoping Boundary,	**Scoped in**

Development Phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped in / out
		property and infrastructure.	temporary works in the floodplain cannot be avoided. New areas of temporary impermeable land cover would be created.	
	Temporary works in the floodplain / in proximity to flood defences.	Flood defences, people, property and infrastructure.	Yes – discussions with the Environment Agency are required to understand the effects of any temporary works on the design and integrity of these.	**Scoped in**
Operation	Increased flood risk and detriment to land drainage	People, existing land drainage regime, property and infrastructure.	Yes – due to the large swathes of floodplain within the Scoping Boundary, some AGI in the floodplain cannot be avoided. New permanent areas of impermeable land cover would be introduced.	**Scoped in**

Effects Scoped out from Further Assessment

9.6.14 **Table 9-6** below summarises the effects scoped out of the water environment assessment, together with justification for the outcome.

Table 9-6: Effects Scoped out of the Water Environment Assessment

Development Phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped in / out
Construction	Pollution due to soil stripping, earthworks and excavations and use and refuelling of plant.	Main rivers, ordinary watercourses, intertidal zone, existing water interests, nature conservation sites.	No - Measures outlined in Section 9.5 would act to manage work site runoff to ensure watercourses are not polluted, nor their flow capacities reduced, and the function of existing land drainage routes	**Scoped out**

Development Phase	Impact	Receptor	Potential for significant effects	Proposed to be scoped in / out
			and systems are retained	
Operation /Maintenance	Pollution due to discharges of operational surface water drainage	Main rivers, ordinary watercourses, existing water interests, nature conservation sites.	No - rainfall runoff from AGI would be sustainably attenuated (and if required treated) prior to discharge to the receiving water environment. There would be no other operational discharges to surface watercourses.	**Scoped out**
	Physical disturbance and change to flow regime and hydromorphology	Main rivers, ordinary watercourses and their floodplains	No - given the nature of the English Onshore Scheme, there would be no permanent impacts on watercourse flow regimes or their hydromorphology.	**Scoped out**
	Pollution and physical disturbance	Main rivers, ordinary watercourses, existing water interests, nature conservation sites.	No – maintenance activities would be low impact, generally limited to non-intrusive inspections undertaken in line with the Applicant's operational management procedures.	**Scoped out**

9.7 Assessment Methodology

Further Data to be Gathered / Processed

9.7.1 In addition to the data sources used to inform this Scoping Report and described in Section 9.4, the following data sources are proposed to be used to inform the water environment assessment:

- long term flood risk map for England (Ref 9.24);
- data from Environment Agency flood models;
- drainage and flood data from Local Authority Surface Water Management Plans and Strategic Flood Risk Assessments;

- land drainage data and information from relevant IDBs;
- Anglian River Basin Management Plan (Ref 9.25);
- data defining surface water catchment areas and hydrological properties (e.g. rainfall, slopes, and soil permeability) from the Flood Estimation Handbook webservice (Ref 9.26);
- relevant Shoreline Management (Ref 9.27, Ref 9.28) and Water Resources Management (Ref 9.29) Plans; and
- field notes and photographs collected during walkover surveys.

9.7.2 Surveys of all main river crossing sites are proposed, in addition to the study area around the landfall sites and any area where it is confirmed as necessary to undertake bespoke flood modelling.

Proposed Methodology

9.7.3 The water environment assessment will be based on the methodology described in DMRB LA 113 (Ref 9.14). Whilst primarily intended for use in assessing the impacts of highway projects on the water environment, the methodology is widely accepted as suitable for assessing the effects of other types of linear infrastructure. It promotes assessment that is proportionate to the scale and nature of the proposals and that considers the sensitivity of the local water environment to change.

9.7.4 Given the size of the English Onshore Scheme and the presence of large areas of Flood Zone 3, a FRA will be produced in accordance with the requirements of the Energy National Policy Statements EN-1 and EN-5 and local flood risk management guidelines published by the LLFAs. The FRA will consider flood risk from all relevant sources during both construction and operation, incorporating allowance for climate change in accordance with published guidance where applicable (Ref 9.23). It will also include details of the measures proposed to adhere to local drainage and flood risk planning policies. A WFD Screening Assessment will also be produced for the English Onshore Scheme guided by Planning Inspectorate Advice Note 18: The Water Framework Directive (Ref 9.11). It is noted that there is an overlap between the onshore and offshore elements of the Projects in the inter-tidal area. The WFD will cover waterbodies within the inter-tidal area as well as the land based WFD waterbodies.

9.7.5 The effects of the English Onshore Scheme on the Anglian River Basin Management Plan (Ref 9.25) and the waterbodies therein will be described, and the assessment will set out how the design of the English Onshore Scheme has been developed to align with the requirements of the Regulations. A qualitative approach is proposed, and the assessment will identify how the design will avoid waterbody deterioration, as well as any other mitigation necessary.

9.7.6 The method set out in the DMRB provides guidance on assigning value (sensitivity) to receptors, for example watercourses and floodplains (Table 3.70 of LA 113), and this will be used to assign value to water environment receptors. The DMRB approach also provides criteria for assigning impact magnitude (Table 3.71 of LA 113). The criteria consider the scale/extent of the predicted change and the nature and duration of the impact. The significance of effect will then be derived using the matrix set out in **Part 2 Chapter 5: EIA Approach and Methodology**.

9.8 Assessment Limitations and Assumptions

9.8.1 The following limitations and assumptions have been identified:

- no water quality sampling and analysis is proposed as it is considered that sufficient baseline data is available to generally characterise the water quality of surface water receptors; and
- it is assumed there is sufficient data from the Environment Agency to identify and define the current condition and standards of protection provided by existing flood defences, and that no baseline condition surveys will be required.

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