

# **East Anglia ONE North Offshore Windfarm**

## **Appendix 21.1**

### **Land Use Cumulative Impact Assessment with the Proposed East Anglia TWO Project**

Preliminary Environmental Information

Volume 3

Document Reference: EA1N-DEVWF-ENV-REP-IBR-  
000290\_001

Revision Summary					
Rev	Date	Document Status	Prepared by	Checked by	Approved by
01	11/01/2019	For issue	Paolo Pizzolla	Ian Mackay	Helen Walker

Description of Revisions			
Rev	Page	Section	Description
01	N/A	N/A	Final draft

# Table of Contents

<b>21.1</b>	<b>Land Use Cumulative Impact Assessment with the Proposed East Anglia TWO Project</b>	<b>1</b>
21.1	Introduction	1
21.2	Construction Scenarios Realistic Worst Case Parameters	1
21.3	Cumulative Impact Assessment	9
21.4	Cumulative Impacts Assessment during Operation	12
21.5	Summary	13

**Appendix 21.1** is supported by the tables listed below.

Table Number	Title
<b>Table A21.1</b>	Scenario 1 Realistic Worst Case Assumptions
<b>Table A21.2</b>	Scenario 2 Realistic Worst Case Assumptions
<b>Table A21.3</b>	Comparison of Construction Footprint for Project Alone Assessment and Construction Scenario 1
<b>Table A21.4</b>	Summary of Potential Impacts Identified for Land Use under Construction Scenario 1
<b>Table A21.5</b>	Comparison of Construction Footprint for Project Alone Assessment, Construction Scenario 1 and Construction Scenario 2
<b>Table A21.6</b>	Summary of Potential Impacts Identified for Land Use under Construction Scenario 2
<b>Table A21.7</b>	Summary of Scenario 1 and Scenario 2 Realistic Worst Case Assumptions

## Glossary of Acronyms

CCS	Construction Consolidation Sites
CIA	Cumulative Impact Assessment
DCO	Development Consent Order
ES	Environmental Statement
HDD	Horizontal Directional Drilling
MW	Megawatt
NGET	National Grid Electricity Transmission
Ohl	Overhead Line
PEIR	Preliminary Environmental Information Report

## Glossary of Terminology

Applicant	East Anglia ONE North Limited.
Development area	The area comprising the Proposed Onshore Development Area and the Offshore Development Area
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one offshore construction operation and maintenance platform, inter-array cables, platform link cables, up to one construction operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and the information required to support HRA.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.
National Grid infrastructure	A National Grid substation, connection to the existing electricity pylons and National Grid overhead line realignment works which will be consented as part of the proposed East Anglia ONE North project Development Consent Order but will be National Grid owned assets.
National Grid overhead line realignment works	Works required to upgrade the existing electricity pylons and overhead lines to transport electricity from the National Grid substation to the national electricity grid
National Grid overhead line realignment works area	The proposed area for National Grid overhead line realignment works.
National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia ONE North project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia ONE North project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.
Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables and two fibre optic cables.
Proposed onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.

Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia ONE North project from landfall to the connection to the national electricity grid.
Onshore substation	The East Anglia One North substation and all of the electrical equipment, both within and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia ONE North project.

# 21.1 Land Use Cumulative Impact Assessment with the Proposed East Anglia TWO Project

## 21.1 Introduction

1. This appendix covers the Cumulative Impact Assessment (CIA) of the proposed East Anglia ONE North project with the proposed East Anglia TWO project in relation to land use and agriculture.
2. The East Anglia TWO offshore windfarm project (the proposed East Anglia TWO project) is also in the pre-application phase. The proposed East Anglia TWO project will have a separate Development Consent Order (DCO) application but is working to the same programme of submission as the proposed East Anglia ONE North project. The two projects will share the same landfall location and cable route and the two onshore substations will be co-located, the onshore substation location is shown in **Chapter 21 Land Use Figure 21.7**, and feed into the same National Grid substation
3. The land use and agriculture proposed East Anglia ONE North project CIA will therefore initially consider the cumulative impact with only the proposed East Anglia TWO project against two different construction scenarios (i.e. construction of the two projects simultaneously and sequentially). The realistic worst case scenario of each impact is then carried through to the main body of the CIA assessment which considers other developments which are in close proximity to the proposed East Anglia ONE North project.
4. For a more detailed description of the CIA please refer to **Chapter 5 EIA Methodology**.

## 21.2 Construction Scenarios Realistic Worst Case Parameters

5. This appendix considers the proposed East Anglia ONE North project and the proposed East Anglia TWO project under two construction scenarios:
  - Scenario 1 - the proposed East Anglia ONE North project and proposed East Anglia TWO project are built simultaneously; and
  - Scenario 2 - the proposed East Anglia ONE North project and the proposed East Anglia TWO project are built sequentially.



6. As discussed in **section 21.1**, the realistic worst case (based on the assessment of these two construction scenarios) for each impact is then carried through to the wider CIA which considers other developments, projects or plans which have been screened into the CIA assessment for the proposed East Anglia ONE North project.
7. It should be noted that the operational phase impacts on land use and agriculture will be the same irrespective of the construction scenario. Therefore, operational impacts identified in Scenario 1 will be the same as those for Scenario 2.
8. Mitigation measures for the proposed East Anglia ONE North project and proposed East Anglia TWO project will be the same. These are detailed in **Chapter 21 Land Use**.

### 21.2.1 Scenario 1

9. **Table A21.1** presents the realistic worst case parameters of Scenario 1. In this instance, the proposed East Anglia ONE North project and proposed East Anglia TWO project are built simultaneously.

**Table A21.1 Scenario 1 Realistic Worst Case**

Impact	Parameter	Notes
<b>Construction</b>		
Impacts related to the landfall	HDD temporary works area: 13,300m <sup>2</sup> (70m x 190m) Transition bay excavation footprint (for 4 transition bays): 3,108m <sup>2</sup> (37m x 42m) Landfall CCS: 40,950m <sup>2</sup> (210m x 195m) Landfall transition bays approximate quantity of spoil material (for 4 transition bays): 908m <sup>3</sup>	Landfall to be achieved via HDD. No beach access required.
Impacts related to the onshore cable corridor	Onshore cable route: 574,720m <sup>2</sup> (8,980m x 64m) Jointing bay construction excavation footprint: 570m <sup>2</sup> (30.6m x 18.6m). Total for 72 jointing bays: 41,040m <sup>2</sup> (570m <sup>2</sup> x 36) HDD (retained as an option to cross SPA / SSSI): <ul style="list-style-type: none"> <li>• Entrance pit CCS (x1): 13,650m<sup>2</sup> (195m x 70m)</li> <li>• Exit pit CCS (x1): 5,850m<sup>2</sup> (195m x 30m)</li> </ul> Onshore cable route CCS: 40,950m <sup>2</sup> (210m x 195m). Total for 5 CCS: 204,750m <sup>2</sup> (40,950m <sup>2</sup> x 5)	Onshore cable corridor construction footprint may be located anywhere within the proposed onshore development area. The location strategy for access routes, CCS and jointing bays will be to site them near to field boundaries or roads as far as practical. Two link boxes sit underground beside each jointing bay at a depth of approximately 1.2m. The construction footprint of these is included in the jointing

Impact	Parameter	Notes
	<p>Temporary roads:</p> <ul style="list-style-type: none"> <li>Onshore cable route haul road between landfall and Snape Road (4.5m wide with additional 4m for passing places at approximately 87m intervals): 41,376m<sup>2</sup></li> <li>Onshore cable route and substation access haul road (9m width): 18,675m<sup>2</sup></li> <li>Temporary access road: 23,495m<sup>2</sup></li> </ul> <p>Onshore cable trench approximate quantity of spoil material: 26,642m<sup>3</sup></p>	<p>bay construction excavation footprint.</p>
Impacts related to the onshore substation(s)	<p>Onshore substation CCS: 17,100m<sup>2</sup> (190m x 90m). Total for 3 CCS: 51,300m<sup>2</sup></p> <p>Permanent footprint (used as CCS during construction): 36,100m<sup>2</sup> (190m x 190m). Total for 2: 72,200m<sup>2</sup></p> <p>Substation operational access road: 12,800m<sup>2</sup> (1,600m x 8m)</p>	<p>Construction access is included above as the onshore cable route and substation access haul road.</p>
Impacts related to the National Grid Infrastructure	<p>National Grid substation CCS: 78,750m<sup>2</sup> (250m x 315m)</p> <p>Permanent footprint (used as CCS during construction): 45,500m<sup>2</sup> (325m x 140m)</p>	<p>Design for the required overhead line (OHL) realignment work (including cable sealing end CCSs and pylon realignment CCS) is currently on going. As more detail is made available, this will be fully assessed and included in the Environmental Statement (ES) and DCO application. However, indicative locations for cable sealing end CCSs and pylon realignment CCS are shown in <b>Figure 6.6 of Chapter 6 Project Description</b>.</p> <p>Construction access is included above as the onshore cable route and substation access haul road.</p> <p>Operational access is included above as the substation operational access road,</p>
<b>Operation</b>		
Impacts related to the landfall	<p>4 transition bays will be installed underground, each with an operational volume of 227m<sup>3</sup></p>	<p>Transition bays will be buried approximately 1.2m underground – there will no above ground infrastructure.</p>

Impact	Parameter	Notes
Impacts related to the onshore cable corridor	72 jointing bays will be installed underground, each with an operational volume of 77m <sup>3</sup> 144 link boxes will be installed underground (2 per jointing bay), each with an operational volume of 3m <sup>3</sup>	Jointing bays will be buried approximately 1.2m underground – there will no above ground infrastructure.  Link boxes will be located underground immediately adjacent to jointing bays – there will be no above ground infrastructure.
Impacts related to the onshore substation(s)	Operational footprint: 36,100m <sup>2</sup> (190m x 190m). Total for 2: 72,200m <sup>2</sup>  Substation operational access road: 12,800m <sup>2</sup> (1,600m x 8m)	The operational footprint does not include the additional landscaping footprint (which will be agreed post-PEIR).
Impacts related to the National Grid Infrastructure	National Grid operational substation: 45,500m <sup>2</sup> (325m x 140m)	The operational footprint does not include the additional landscaping footprint (which will be agreed post-PEIR).  Design for the required overhead line (OHL) realignment work (including cable sealing end CCSs and pylon realignment CCS) is currently on going. As more detail is made available, this will be fully assessed and included in the Environmental Statement (ES) and DCO application. However, indicative locations for cable sealing end CCSs and pylon realignment CCS are shown in <b>Figure 6.6 of Chapter 6 Project Description</b> .
<b>Decommissioning</b>		
No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. However, the onshore substation will likely be removed and be reused or recycled. It is expected that the onshore cables will be removed and recycled, with the transition bays and cable ducts (where used) left <i>in situ</i> . The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. A decommissioning plan will be provided. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.		

## 21.2.2 Scenario 2

10. Scenario 2, and **Table A21.2**, represents the realistic worst case scenario in the eventuality that the proposed East Anglia ONE North project and proposed East Anglia TWO project are built with a construction gap. It is intended that the construction of the proposed East Anglia TWO project will be progressed prior to commencing construction of the proposed East Anglia ONE North project.
11. Scenario 2 assumes that when permission is granted, the proposed East Anglia ONE North project will be constructed as soon as permission is granted. The proposed East Anglia TWO project will leave the largest possible gap (between the reinstatement of the proposed East Anglia ONE North project and start of construction for the proposed East Anglia TWO project) to begin construction within the consent period. Further detail regarding the likely construction gap is provided in **Chapter 5 EIA Methodology**.

**Table A21.2 Scenario 2 Realistic Worst Case**

Impact	Proposed East Anglia TWO Project Parameters	Proposed East Anglia ONE North Project Parameters (on the assumption that the proposed East Anglia TWO project is post-construction)	Notes
<b>Construction</b>			
Impacts related to the landfall	HDD temporary works area: 7,000m <sup>2</sup> (70m x 100m) Transition bay excavation footprint (for 2 transition bays): 1,554m <sup>2</sup> (37m x 42m) Landfall CCS: 18,400m <sup>2</sup> (160m x 115m) Landfall transition bays approximate quantity of spoil material (for 2 transition bays): 454m <sup>3</sup>	HDD temporary works area: 7,000m <sup>2</sup> (70m x 100m) Transition bay excavation footprint (for 2 transition bays): 1,554m <sup>2</sup> (37m x 42m) Landfall CCS: 18,400m <sup>2</sup> (160m x 115m) Landfall transition bays approximate quantity of spoil material (for 2 transition bays): 454m <sup>3</sup>	Landfall to be achieved via HDD. No beach access required.
Impacts related to the onshore cable corridor	Onshore cable route: 287,360m <sup>2</sup> (8,980m x 32m) Jointing bay construction excavation footprint: 570m <sup>2</sup> (30.6m x 18.6m). Total for 36 jointing bays: 20,520m <sup>2</sup> (570m <sup>2</sup> x 36) HDD (retained as an option to cross SPA / SSSI): <ul style="list-style-type: none"> <li>Entrance pit CCS (x1): 7,000m<sup>2</sup> (100m x 70m)</li> </ul>	Onshore cable route: 287,360m <sup>2</sup> (8,980m x 32m) Jointing bay construction excavation footprint: 570m <sup>2</sup> (30.6m x 18.6m). Total for 36 jointing bays: 20,520m <sup>2</sup> (570m <sup>2</sup> x 36) HDD (retained as an option to cross SPA / SSSI): <ul style="list-style-type: none"> <li>Entrance pit CCS (x1): 7,000m<sup>2</sup> (100m x 70m)</li> </ul>	Onshore cable corridor construction footprint may be located anywhere within the proposed onshore development area. The location strategy for access routes, CCS and jointing bays will be to site them near to field

Impact	Proposed East Anglia TWO Project Parameters	Proposed East Anglia ONE North Project Parameters (on the assumption that the proposed East Anglia TWO project is post-construction)	Notes
	<ul style="list-style-type: none"> <li>Exit pit CCS (x1): 3,000m<sup>2</sup> (100m x 30m)</li> </ul> <p>Onshore cable route CCS: 18,400m<sup>2</sup> (160m x 115m). Total for 5 CCS: 92,000m<sup>2</sup> (18,400m<sup>2</sup> x 5)</p> <p>Temporary roads:</p> <ul style="list-style-type: none"> <li>Onshore cable route haul road between landfall and Snape Road (4.5m wide with additional 4m for passing places at approximately 87m intervals): 41,376m<sup>2</sup></li> <li>Onshore cable route and substation access haul road (9m width): 18,675m<sup>2</sup></li> <li>Temporary access road: 23,495m<sup>2</sup></li> </ul> <p>Onshore cable trench approximate quantity of spoil material: 13,321m<sup>3</sup></p>	<ul style="list-style-type: none"> <li>Exit pit CCS (x1): 3,000m<sup>2</sup> (100m x 30m)</li> </ul> <p>Onshore cable route CCS: 18,400m<sup>2</sup> (160m x 115m). Total for 5 CCS: 92,000m<sup>2</sup> (18,400m<sup>2</sup> x 5)</p> <p>Temporary roads:</p> <ul style="list-style-type: none"> <li>Onshore cable route haul road between landfall and Snape Road (4.5m wide with additional 4m for passing places at approximately 87m intervals): 41,376m<sup>2</sup></li> <li>Onshore cable route and substation access haul road (9m width): 18,675m<sup>2</sup></li> <li>Temporary access road: 23,495m<sup>2</sup></li> </ul> <p>Onshore cable trench approximate quantity of spoil material: 13,321m<sup>3</sup></p>	<p>boundaries or roads as far as practical.</p> <p>Two link boxes sit underground beside each jointing bay at a depth of approximately 1.2m. The construction footprint of these is included in the jointing bay construction excavation footprint.</p>
Impacts related to the onshore substation	<p>Onshore substation CCS: 17,100m<sup>2</sup> (190m x 90m)</p> <p>Permanent footprint (used as CCS during construction): 36,100m<sup>2</sup> (190m x 190m)</p> <p>Substation operational access road: 12,800m<sup>2</sup> (1,600m x 8m)</p>	<p>Onshore substation CCS: 17,100m<sup>2</sup> (190m x 90m)</p> <p>Permanent footprint (used as CCS during construction): 36,100m<sup>2</sup> (190m x 190m)</p> <p>Substation operational access road: 12,800m<sup>2</sup> (1,600m x 8m)</p>	<p>Construction access is included above as the onshore cable route and substation access haul road.</p>
Impacts related to the National Grid Infrastructure	<p>National Grid substation CCS: 78,750m<sup>2</sup> (250m x 315m)</p> <p>Permanent footprint (used as CCS during construction): 45,500m<sup>2</sup> (325m x 140m)</p>	<p>National Grid substation CCS: 78,750m<sup>2</sup> (250m x 315m)</p> <p>Permanent footprint (used as CCS during construction): 45,500m<sup>2</sup> (325m x 140m)</p>	<p>Design for the required overhead line (OHL) realignment work (including cable sealing end CCSs and pylon realignment CCS) is currently on going. As more detail is made available, this will be fully assessed</p>

Impact	Proposed East Anglia TWO Project Parameters	Proposed East Anglia ONE North Project Parameters (on the assumption that the proposed East Anglia TWO project is post-construction)	Notes
			<p>and included in the Environmental Statement (ES) and DCO application. However, indicative locations for cable sealing end CCSs and pylon realignment CCS are shown in <b>Figure 6.6</b> of <b>Chapter 6 Project Description</b>.</p> <p>Construction access is included above as the onshore cable route and substation access haul road.</p> <p>Operational access is included above as the substation operational access road,</p>
<b>Operation</b>			
Impacts related to the landfall	2 transition bays will be installed underground, each with an operational volume of 227m <sup>3</sup>	2 transition bays will be installed underground, each with an operational volume of 227m <sup>3</sup>	Transition bays will be buried approximately 1.2m underground – there will no above ground infrastructure.
Impacts related to the onshore cable corridor	<p>36 jointing bays will be installed underground, each with an operational volume of 77m<sup>3</sup></p> <p>72 link boxes will be installed underground (2 per jointing bay), each with an operational volume of 3m<sup>3</sup></p>	<p>36 jointing bays will be installed underground, each with an operational volume of 77m<sup>3</sup></p> <p>72 link boxes will be installed underground (2 per jointing bay), each with an operational volume of 3m<sup>3</sup></p>	<p>Jointing bays will be buried approximately 1.2m underground – there will no above ground infrastructure.</p> <p>Link boxes will be located underground immediately adjacent to jointing bays – there will be no above ground infrastructure.</p>

Impact	Proposed East Anglia TWO Project Parameters	Proposed East Anglia ONE North Project Parameters (on the assumption that the proposed East Anglia TWO project is post-construction)	Notes
Impacts related to the onshore substation	Operational footprint: 36,100m <sup>2</sup> (190m x 190m) Substation operational access road: 12,800m <sup>2</sup> (1,600m x 8m)	Operational footprint: 36,100m <sup>2</sup> (190m x 190m) Substation operational access road: 12,800m <sup>2</sup> (1,600m x 8m)	The operational footprint does not include the additional landscaping footprint (which will be agreed post-PEIR).
Impacts related to the National Grid Infrastructure	National Grid operational substation: 45,500m <sup>2</sup> (325m x 140m)	National Grid operational substation: 45,500m <sup>2</sup> (325m x 140m)	The operational footprint does not include the additional landscaping footprint (which will be agreed post-PEIR).  Design for the required overhead line (OHL) realignment work (including cable sealing end CCSs and pylon realignment CCS) is currently on going. As more detail is made available, this will be fully assessed and included in the Environmental Statement (ES) and DCO application. However, indicative locations for cable sealing end CCSs and pylon realignment CCS are shown in <b>Figure 6.6 of Chapter 6 Project Description</b> .
<b>Decommissioning</b>			
No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. However, the onshore substation will likely be removed and be reused or recycled. It is expected that the onshore cables will be removed and recycled, with the transition bays and cable ducts (where used) left <i>in situ</i> . The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. A decommissioning plan will be provided. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.			

## 21.3 Cumulative Impact Assessment

12. In terms of construction impacts relating to land use and agriculture, cumulative impacts are predominantly dictated by:

- The total onshore footprint of the construction works;
- The quality of the land which falls within this construction footprint; and
- The length of the expected construction duration.

13. The following sections discuss which of the two construction scenarios detailed in **section 21.2** will be the realistic worst case in terms of cumulative impacts to land use and agriculture.

### 21.3.1 Impact 1: Land Taken out of Existing Use

14. Land would be directly taken out of existing use or isolated due to construction activities and effectively taken out of use. During construction scenario 1 or 2, land taken out of existing use will be double the footprint size than that affected by the proposed East Anglia One North project alone.

15. Taking into account the combined footprint of the proposed East Anglia One North and East Anglia TWO projects, this represents a small contribution to county resource of farmed land and the areas of land take ranging from ALC Grades 2-4, the sensitivity of this land is of medium sensitivity. Under construction Scenario 1, this impact would have a low magnitude. However, under Scenario 2 due to the increase in construction phase duration, therefore increasing the magnitude of impact to medium. Under construction Scenario 2 as the worst case, the impact is considered to be of **moderate adverse** significance.

### 21.3.2 Impact 2: Impact to Environmental Stewardship Schemes

16. During the construction period, there would be the potential for impacts on ESS. The effect on individual landowners / occupiers is likely to be specific to their own scheme and may potentially result in ecological and/or financial implications. During construction Scenario 1 or 2, land taken out of existing use will be double the footprint size than that affected by the proposed East Anglia ONE North project alone.

17. Taking into account the combined footprint of the proposed East Anglia One North and East Anglia TWO projects, this represents a small contribution to county resource of ESS and the level of the ESS impacted being a lower, entry level area, the sensitivity of this receptor is medium. Under construction Scenario 1, this impact would have a low magnitude. However, under Scenario 2 due to the increase in construction phase duration, therefore increasing the magnitude of impact to



medium. Under construction Scenario 2 as the worst case, the impact is considered to be of **moderate adverse** significance. The Applicant will engage in consultation with those landowners affected and land will be reinstated following construction in such a way that similar ESS agreements being re-established will not be inhibited.

### 21.3.3 Impact 3: Impact to Land Drainage

18. Construction works such as excavation and stockpiling of soils has the potential to cause an impact to the natural and artificial field drainage systems. It would be necessary to truncate the drainage systems temporarily during excavation and installation and reinstate following construction. Given the soil types found within the proposed onshore development area, some sections would have existing field drainage systems in place. The sensitivity of the receptor is considered to be high overall as the soil is vulnerable to erosion or structural damage.
19. During construction Scenario 1 or 2, the soil resource impacted will be double that affected by the proposed East Anglia ONE North project alone. The sensitivity of the receptor remains high, as it is for the proposed East Anglia ONE North project alone.
20. The magnitude of the effect is considered to be low for Scenario 1. This magnitude will increase to medium under construction Scenario 2 due to the increase in construction phase duration. Under construction Scenario 2 as the worst case, the impact is considered to be of major adverse significance. Additional mitigation measures which could include the use of a specialist drainage contractor and the development of a drainage remediation plan means that the residual impact on land drainage under Scenario 2 is **moderate adverse**.

### 21.3.4 Impact 4: Degradation to Natural Resource

21. There is the potential for soils to be compacted and soil structure to deteriorate during the construction of the proposed East Anglia One North and East Anglia TWO North projects. The effect of this impact is usually reduced fertility and crop yields. During construction Scenario 1 or 2, land taken out of existing use will be double the footprint size than that affected by the proposed East Anglia TWO project alone.
22. The soils within the proposed onshore development area are dominated by freely draining slightly acid sandy soils, therefore susceptible to compaction, and difficult to handle during wet periods using machinery without causing structural degradation. Given these characteristics, the soil resource at the site is conservatively considered to be of high sensitivity with respect to potential for degradation during the construction period.
23. The magnitude of the effect is considered to be low for Scenario 1. This magnitude will increase to medium under construction Scenario 2 due to the increase in

construction phase duration. Under construction Scenario 2 as the worst case, the impact is considered to be of major adverse significance. Additional mitigation measures which could include the Applicant consulting on private agreements with landowners regarding any measures required in relation to crop loss incurred as an indirect consequence of degradation of the soil resource. This additional mitigation results in the residual impact on land drainage under Scenario 2 being **minor adverse**.

### 21.3.5 Impact 5: Impact to Utilities

24. The onshore cable corridor of the proposed East Anglia ONE North project alone has been selected to avoid major buried utilities; however, the additional footprint affected by the proposed East Anglia One North and East Anglia TWO projects together (under Scenario 1 or 2), there is potential that additional utilities will intersect with the onshore infrastructure than for the proposed East Anglia ONE North project alone.
25. However, the Applicant would be required to contact potentially affected utility providers and identify the location of existing services on the ground prior to construction. Major utilities will be covered by identifying protective provisions in the drafting of the DCO, and with the use of crossing agreements. The Applicant would undertake utility crossings or diversions in accordance with the appropriate standards for such crossings or works. The continuation of water supplies will be ensured. Therefore, **no impacts** associated with existing utilities are anticipated during the construction of the proposed East Anglia One North and East Anglia TWO projects regardless of construction scenario.

### 21.3.6 Impact 6: Impact to Common Land

26. During the construction period, there is potential for impacts on common access land. One area of common land falls within the proposed onshore development area, at the landfall (Thorpeness Common) and five are adjacent to the proposed onshore development area. Common access land is of medium sensitivity as it is protected by local planning policy.
27. The magnitude of the impact is low irrespective of construction scenario due to the types of construction activity associated with the common land. Construction works at the landfall will primarily comprise of drilling under the land with no construction footprint on Thorpeness Common (except where emergency access may be required). Potential accesses for construction on Thorpeness Common will be along already existing access routes. Common land which is adjacent to the proposed onshore development area will not be subject to closures or loss of access because they can be accessed from the side which is not adjacent to the proposed onshore development area, therefore users of the land are unlikely to be affected in terms of

access. Overall, the impact on common land is **minor adverse** irrespective of construction scenario.

## 21.4 Cumulative Impacts Assessment during Operation

28. During the operational phase of the proposed East Anglia ONE North project alone, there will be no above ground infrastructure at the landfall or along the onshore cable route. Permanent infrastructure is associated with the onshore substation and National Grid infrastructure.
29. During the cumulative operational phase of the proposed East Anglia One North and East Anglia TWO projects, similarly there will be no above ground infrastructure at the landfall or along the onshore cable route. Permanent infrastructure is associated with the East Anglia One North and East Anglia TWO onshore substations and National Grid infrastructure, therefore the cumulative operational footprint at the substation site will be greater than that for the proposed East Anglia ONE North project alone.
30. The East Anglia One North and East Anglia TWO onshore substations will be co-located (**Figure 21.7**) meaning that no differing parcels of land (with an increased sensitivity) will be affected by the addition of the second substation. The footprint increase from the proposed East Anglia ONE North project alone is not considerable when agricultural activities considered at a regional level.
31. It should additionally be noted that the East Anglia TWO onshore substation will be subject to the same mitigation measures as those applied to the East Anglia ONE North onshore substation.
32. Overall, cumulative operational impacts on land use and agriculture for the proposed East Anglia One North and East Anglia TWO projects will be no greater than operational impacts for the proposed East Anglia ONE North project alone.

## 21.5 Summary

33. **Table A21.3** gives an overarching summary of which of the two construction scenarios, detailed above, will be the realistic worst case in terms of impacts relating to land use and agriculture.

**Table A21.3 Summary of Scenario 1 and Scenario 2 Realistic Worst Case Assumptions**

Impact	Worst Case	Notes
Impact 1: Land taken out of Existing Use	Scenario 2	Duration is longer for scenario 2
Impact 2: Impact to ESS	Scenario 2	Duration is longer for scenario 2
Impact 3: Impact to Land Drainage	Scenario 2	Duration is longer for scenario 2
Impact 4: Degradation to Natural Resource	Scenario 2	Impact is the same regardless of construction scenario
Impact 5: Impact to Utilities	n/a	Impact is the same regardless of construction scenario
Impact 6: Impact to Common Land	n/a	Impact is the same regardless of construction scenario

34. Overall, construction scenario 2 creates a realistic worst case in terms of impacts to land use and agriculture. Therefore, scenario 2 will be carried through into the wider CIA with other developments, see **section 21.7** in **Chapter 21 Land Use**.