



Code: UKCAL1-ARP-GEN-ENV-RPT-00004

Volume 7 Standalone Appendices

Appendix 1 Onshore Scoping Report

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Volume 7 Appendix 1 Onshore Scoping Report

Code	UKCAL1-ARP-GEN-ENV-RPT-00004
Revision	Issued
Date	18 October 2024

This document contains the following existing report: 'Onshore Scoping Report' as prepared by Arup in December 2022. The Onshore Scoping Report was submitted to Aberdeenshire Council in December 2022, who then circulated the report to relevant consultees. For the purpose of Consent Application, the document has been retitled to: 'Volume 7 Appendix 1 Onshore Scoping Report', alongside the addition of a new front cover.



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Caledonia Offshore Wind Farm

Onshore Scoping Report

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Title

Caledonia Offshore Wind Farm Onshore Scoping Report

Code	UKCAL1-ARP-GEN-ENV-RPT-00004
Revision	006
Date	December 02, 2022

	Prepared by	Reviewed by	Approved by
Company	[Redacted]	[Redacted]	[Redacted]
Name	[Redacted]	[Redacted]	[Redacted]
Date	[Redacted]	[Redacted]	[Redacted]

Distribution & Confidentiality (please mark with X)

Unclassified	Internal	External	Restricted	Confidential
		X		



Revision history:

Revision	Date	Purpose of the revision	Updates
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Table of Contents

DEFINITIONS	14
EXECUTIVE SUMMARY	1-6
1 INTRODUCTION	1-7
1.1 INTRODUCTION	1-7
1.2 BACKGROUND	1-7
1.3 DOCUMENT PURPOSE	1-8
1.4 THE DEVELOPER	1-9
1.5 THE CALEDONIA OFFSHORE WIND FARM AND PROPOSED DEVELOPMENT	1-10
1.6 OBJECTIVE OF THE ONSHORE SCOPING REPORT	1-10
1.7 STRUCTURE OF THE SCOPING REPORT	1-11
1.8 REFERENCES	1-14
2 POLICY AND LEGISLATIVE CONTEXT	2-5
2.1 INTRODUCTION	2-5
2.2 BACKGROUND	2-5
2.3 CLIMATE CHANGE LEGISLATIVE AND POLICY CONTEXT	2-5
2.4 APPLICATION AND CONSENTING PROCESS	2-6
2.5 LEGISLATIVE AND REGULATORY FRAMEWORK	2-7
2.5.1 Town and Country Planning (Scotland) Act 1997	2-7
2.5.2 The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013	2-7
2.5.3 The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021	2-8
2.5.4 Planning (Scotland) Act 2019	2-8
2.5.5 Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	2-8
2.5.6 Marine (Scotland) Act 2010, Electricity Act 1989 (as amended) and Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017	2-8
2.6 PLANNING POLICY CONTEXT	2-8
2.6.1 National Planning Framework 3 (NPF3)	2-8
2.6.2 National Planning Framework 4 (NPF4)	2-9
2.6.3 Scottish Planning Policy	2-10
2.6.4 Aberdeen City and Shire Strategic Development Plan 2020	2-10
2.6.5 Aberdeenshire LDP 2017	2-11
2.6.6 Aberdeenshire (Proposed) LDP 2022	2-11
2.7 REFERENCES	2-12
3 DESCRIPTION OF PROPOSED DEVELOPMENT	3-5
3.1 INTRODUCTION	3-5
3.2 APPLICATION OF DESIGN ENVELOPE APPROACH	3-5
3.3 ONSHORE SCOPING AREA FOR THE SITE BOUNDARY	3-6
3.4 PROPOSED DEVELOPMENT COMPONENTS	3-7
3.4.2 Offshore Export Cables	3-7

3.4.3	<u>Landfall Site</u>	3-8
3.4.4	<u>Onshore Cable Circuits</u>	3-8
3.4.5	<u>Onshore Substation</u>	3-8
3.4.6	<u>Onshore Cable Circuits from Onshore Substation to Grid Connection Point</u>	3-9
3.5	<u>PROPOSED DEVELOPMENT PHASES</u>	3-9
3.5.1	<u>Overview</u>	3-10
3.5.2	<u>Construction</u>	3-10
3.5.3	<u>Operation</u>	3-11
3.5.4	<u>Decommissioning</u>	3-11
3.6	<u>CONSIDERATION OF ALTERNATIVES</u>	3-11
3.6.1	<u>Onshore Substation</u>	3-11
3.6.2	<u>Onshore Cable Corridor</u>	3-11
3.6.3	<u>Landfall Site</u>	3-12
3.7	<u>REFERENCES</u>	3-13
4	<u>THE EIA PROCESS</u>	4-5
4.1	<u>INTRODUCTION</u>	4-5
4.2	<u>REGULATIONS AND GUIDANCE</u>	4-5
4.3	<u>CHARACTERISATION OF THE EXISTING ENVIRONMENT</u>	4-6
4.4	<u>ASSESSMENT OF POTENTIAL SIGNIFICANT EFFECTS</u>	4-6
4.4.2	<u>Evaluation of Significance</u>	4-7
4.4.3	<u>Mitigation</u>	4-8
4.4.4	<u>Residual Effects</u>	4-8
4.5	<u>CUMULATIVE AND IN-COMBINATION IMPACT ASSESSMENT</u>	4-8
4.5.1	<u>Cumulative Effects</u>	4-8
4.5.2	<u>In-Combination Effects – Onshore Construction Works</u>	4-9
4.5.3	<u>In-Combination Effects – Between Onshore and Offshore Construction Works</u>	4-9
4.6	<u>TRANSBOUNDARY EFFECTS</u>	4-10
4.7	<u>ADDITIONAL EIA MATTERS AND SCOPED OUT TOPICS</u>	4-10
4.8	<u>REFERENCES</u>	14
5	<u>CONSULTATION PROCESS</u>	5-5
5.1	<u>INTRODUCTION</u>	5-5
5.2	<u>CONSENTING PROCEDURE AND RELEVANT LEGISLATION</u>	5-6
5.3	<u>STAKEHOLDER ENGAGEMENT</u>	5-6
5.3.2	<u>Initial Engagement</u>	5-6
5.3.3	<u>Planned Statutory Engagement</u>	5-7
5.3.4	<u>Stakeholder Identification</u>	5-8
5.4	<u>REFERENCES</u>	5-10
6	<u>LAND USE AND AGRICULTURE</u>	6-6
6.1	<u>INTRODUCTION</u>	6-6
6.2	<u>LEGISLATIVE AND POLICY CONTEXT</u>	6-6
6.2.2	<u>National Planning Framework 3</u>	6-6
6.2.3	<u>Draft National Planning Framework 4</u>	6-6
6.2.4	<u>Scottish Planning Policy</u>	6-6
6.2.5	<u>Aberdeen City and Shire Strategic Development Plan 2020</u>	6-6

6.2.5	<u>Aberdeen City and Shire Strategic Development Plan 2020</u>	6-6
6.2.6	<u>Aberdeenshire Local Development Plan</u>	6-7
6.3	<u>STUDY AREA</u>	6-7
6.4	<u>BASELINE ENVIRONMENT</u>	6-7
6.4.2	<u>Land-Use Designations</u>	6-8
6.4.3	<u>Agriculture</u>	6-9
6.4.4	<u>Forestry</u>	6-9
6.5	<u>ASSESSMENT METHODOLOGY</u>	6-10
6.6	<u>EMBEDDED MITIGATION</u>	6-10
6.7	<u>POTENTIAL IMPACTS</u>	6-11
6.7.2	<u>Construction</u>	6-11
6.7.3	<u>Operation</u>	6-11
6.7.4	<u>Decommissioning</u>	6-11
6.8	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	6-12
6.9	<u>POTENTIAL SECONDARY MITIGATION</u>	6-12
6.10	<u>PROPOSED SCOPE</u>	6-12
6.11	<u>CONSULTATION</u>	6-12
6.12	<u>QUESTIONS TO CONSULTEES</u>	6-12
6.13	<u>REFERENCES</u>	6-14
7	<u>TERRESTRIAL ECOLOGY AND BIODIVERSITY</u>	7-8
7.1	<u>INTRODUCTION</u>	7-8
7.2	<u>LEGISLATIVE AND POLICY CONTEXT</u>	7-8
7.3	<u>STUDY AREA</u>	7-9
7.4	<u>BASELINE ENVIRONMENT</u>	7-9
7.4.2	<u>Designated Sites</u>	7-9
7.4.3	<u>Habitats</u>	7-15
7.4.4	<u>Protected Species</u>	7-16
7.5	<u>ASSESSMENT METHODOLOGY</u>	7-19
7.5.1	<u>Ecological Impact Assessment</u>	7-19
7.5.2	<u>Desk-Based Assessment</u>	7-20
7.5.3	<u>Field Surveys</u>	7-20
7.6	<u>EMBEDDED MITIGATION</u>	7-28
7.7	<u>POTENTIAL IMPACTS</u>	7-28
7.7.2	<u>Construction</u>	7-28
7.7.3	<u>Operation</u>	7-29
7.7.4	<u>Decommissioning</u>	7-30
7.8	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	7-30
7.9	<u>POTENTIAL SECONDARY MITIGATION</u>	7-30
7.10	<u>PROPOSED SCOPE</u>	7-31
7.11	<u>CONSULTATION</u>	7-31
7.12	<u>QUESTIONS TO CONSULTEES</u>	7-31
7.13	<u>REFERENCES</u>	7-33
8	<u>LANDSCAPE AND VISUAL</u>	8-6
8.1	<u>INTRODUCTION</u>	8-6
8.2	<u>LEGISLATIVE AND POLICY CONTEXT</u>	8-6
8.3	<u>STUDY AREA</u>	8-7

8.4	<u>BASELINE ENVIRONMENT</u>	8-7
8.4.2	<u>Landscape Elements</u>	8-7
8.4.3	<u>Landscape Character Types</u>	8-7
8.4.4	<u>Landscape Planning Designations</u>	8-9
8.4.5	<u>Visual Receptors</u>	8-10
8.5	<u>ASSESSMENT METHODOLOGY</u>	8-10
8.5.2	<u>Cumulative and In-Combination Assessment</u>	8-15
8.6	<u>EMBEDDED MITIGATION</u>	8-15
8.7	<u>POTENTIAL IMPACTS</u>	8-16
8.7.2	<u>Construction</u>	8-16
8.7.3	<u>Operation</u>	8-16
8.7.4	<u>Decommissioning</u>	8-17
8.8	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	8-17
8.9	<u>POTENTIAL SECONDARY MITIGATION</u>	8-17
8.10	<u>PROPOSED SCOPE</u>	8-17
8.11	<u>CONSULTATION</u>	8-18
8.12	<u>QUESTIONS TO CONSULTEES</u>	8-18
8.13	<u>REFERENCES</u>	8-19
9	<u>TERRESTRIAL ARCHAEOLOGY AND CULTURAL HERITAGE</u>	9-6
9.1	<u>INTRODUCTION</u>	9-6
9.2	<u>LEGISLATIVE AND POLICY CONTEXT</u>	9-6
9.3	<u>STUDY AREA</u>	9-6
9.4	<u>BASELINE ENVIRONMENT</u>	9-7
9.4.1	<u>Designated Cultural Heritage Assets</u>	9-7
9.5	<u>ASSESSMENT METHODOLOGY</u>	9-8
9.5.1	<u>Supporting Assessment Methodology</u>	9-8
9.5.2	<u>EIA Assessment Methodology</u>	9-8
9.6	<u>EMBEDDED MITIGATION</u>	9-11
9.6.1	<u>Approach to physical impacts</u>	9-11
9.7	<u>POTENTIAL IMPACTS</u>	9-12
9.7.1	<u>Introduction</u>	9-12
9.7.2	<u>Construction</u>	9-12
9.7.3	<u>Operation</u>	9-12
9.7.4	<u>Decommissioning</u>	9-13
9.8	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	9-13
9.9	<u>POTENTIAL SECONDARY MITIGATION</u>	9-13
9.9.1	<u>Approaches to Secondary Mitigation</u>	9-13
9.9.2	<u>Construction</u>	9-14
9.9.3	<u>Operation</u>	9-14
9.9.4	<u>Decommissioning</u>	9-14
9.10	<u>PROPOSED SCOPE</u>	9-14
9.11	<u>CONSULTATION</u>	9-14
9.12	<u>QUESTIONS TO CONSULTEES</u>	9-15
9.13	<u>REFERENCES</u>	9-16
	<u>APPENDIX A: NATIONAL DESIGNATION</u>	9-17
10	<u>HYDROLOGY AND HYDROGEOLOGY</u>	10-7

10.1	<u>INTRODUCTION</u>	10-7
10.2	<u>LEGISLATIVE AND POLICY CONTEXT</u>	10-7
10.2.2	<u>The Flood Risk Management (Scotland) Act 2009</u>	10-7
10.2.3	<u>Water Environment and Water Services (Scotland) Act 2003</u>	10-7
10.2.4	<u>The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021</u>	10-7
10.2.5	<u>Planning Advice on Flood Risk</u>	10-8
10.2.6	<u>SEPA Technical Flood Risk Guidance for Stakeholders 2019</u>	10-8
10.2.7	<u>SEPA Land Use Planning System Guidance Note 24</u>	10-8
10.3	<u>STUDY AREA</u>	10-9
10.4	<u>BASELINE ENVIRONMENT</u>	10-9
10.4.2	<u>Protected sites</u>	10-9
10.4.3	<u>Surface water</u>	10-10
10.4.4	<u>Coastal Waters</u>	10-11
10.4.5	<u>Groundwater</u>	10-12
10.4.6	<u>Flood risk</u>	10-13
10.4.7	<u>Coastal</u>	10-13
10.4.8	<u>River</u>	10-13
10.4.9	<u>Surface water</u>	10-13
10.4.10	<u>Groundwater</u>	10-14
10.5	<u>ASSESSMENT METHODOLOGY</u>	10-14
10.5.1	<u>Study Area</u>	10-14
10.5.2	<u>Desk-Based Assessment</u>	10-14
10.5.3	<u>Surveys</u>	10-15
10.5.4	<u>Assessment Method</u>	10-15
10.6	<u>EMBEDDED MITIGATION</u>	10-16
10.6.2	<u>Construction</u>	10-16
10.6.3	<u>Operation</u>	10-18
10.7	<u>POTENTIAL IMPACTS</u>	10-18
10.7.2	<u>Construction</u>	10-18
10.7.3	<u>Operation</u>	10-19
10.7.4	<u>Decommissioning</u>	10-19
10.8	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	10-19
10.9	<u>POTENTIAL SECONDARY MITIGATION</u>	10-19
10.9.1	<u>Construction</u>	10-19
10.9.2	<u>Operation</u>	10-19
10.9.3	<u>Decommissioning</u>	10-20
10.10	<u>PROPOSED SCOPE</u>	10-20
10.11	<u>CONSULTATION</u>	10-20
10.12	<u>QUESTIONS TO CONSULTEES</u>	10-20
10.13	<u>REFERENCES</u>	10-22
11	<u>GEOLOGY, SOILS AND CONTAMINATED LAND</u>	11-6
11.1	<u>INTRODUCTION</u>	11-6
11.2	<u>LEGISLATIVE AND POLICY CONTEXT</u>	11-6
11.3	<u>STUDY AREA</u>	11-6
11.4	<u>BASELINE ENVIRONMENT</u>	11-6
11.4.2	<u>Superficial Geology</u>	11-6

<u>11.4.3</u>	<u>Bedrock Geology</u>	11-7
<u>11.4.4</u>	<u>Geologically Designated Sites</u>	11-7
<u>11.4.5</u>	<u>Mineral Resources</u>	11-7
<u>11.4.6</u>	<u>Carbon and Peatland</u>	11-8
<u>11.4.7</u>	<u>Contaminated Land</u>	11-8
<u>11.5</u>	<u>ASSESSMENT METHODOLOGY</u>	11-8
<u>11.6</u>	<u>EMBEDDED MITIGATION</u>	11-9
<u>11.7</u>	<u>POTENTIAL IMPACTS</u>	11-10
<u>11.8</u>	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	11-10
<u>11.9</u>	<u>POTENTIAL SECONDARY MITIGATION</u>	11-10
<u>11.10</u>	<u>PROPOSED SCOPE</u>	11-11
<u>11.11</u>	<u>CONSULTATION</u>	11-11
<u>11.12</u>	<u>QUESTIONS TO CONSULTEES</u>	11-11
<u>11.13</u>	<u>REFERENCES</u>	11-12
12	<u>AIR QUALITY</u>	12-7
<u>12.1</u>	<u>INTRODUCTION</u>	12-7
<u>12.2</u>	<u>LEGISLATIVE AND POLICY CONTEXT</u>	12-7
<u>12.3</u>	<u>STUDY AREA</u>	12-8
<u>12.4</u>	<u>BASELINE ENVIRONMENT</u>	12-8
<u>12.5</u>	<u>SCOPING ASSESSMENT METHODOLOGY</u>	12-8
<u>12.6</u>	<u>EMBEDDED MITIGATION</u>	12-8
<u>12.6.2</u>	<u>Proposed Mitigation for Communications</u>	12-9
<u>12.6.3</u>	<u>Proposed Mitigation for Site Management</u>	12-9
<u>12.6.4</u>	<u>Proposed Mitigation for Preparing and Maintaining the Site</u>	12-9
<u>12.6.5</u>	<u>Proposed Mitigation for Construction Site Operations</u>	12-10
<u>12.6.6</u>	<u>Proposed Mitigation Specific to Earthworks</u>	12-10
<u>12.6.7</u>	<u>Proposed Mitigation Specific to Construction Activities</u>	12-10
<u>12.6.8</u>	<u>Proposed Mitigation Specific to Track-out</u>	12-11
<u>12.6.9</u>	<u>Proposed Mitigation for Monitoring</u>	12-11
<u>12.7</u>	<u>POTENTIAL IMPACTS</u>	12-11
<u>12.7.2</u>	<u>Construction</u>	12-11
<u>12.7.3</u>	<u>Operation</u>	12-14
<u>12.7.4</u>	<u>Decommissioning</u>	12-14
<u>12.8</u>	<u>POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS</u>	12-14
<u>12.9</u>	<u>POTENTIAL SECONDARY MITIGATION</u>	12-14
<u>12.10</u>	<u>PROPOSED SCOPE</u>	12-14
<u>12.11</u>	<u>QUESTIONS TO CONSULTEES</u>	12-15
<u>12.12</u>	<u>REFERENCES</u>	12-16
13	<u>AIRBORNE NOISE AND VIBRATION</u>	13-5
<u>13.1</u>	<u>INTRODUCTION</u>	13-5
<u>13.2</u>	<u>LEGISLATIVE AND POLICY CONTEXT</u>	13-5
<u>13.3</u>	<u>STUDY AREA</u>	13-5
<u>13.4</u>	<u>BASELINE ENVIRONMENT</u>	13-6
<u>13.5</u>	<u>ASSESSMENT METHODOLOGY</u>	13-6
<u>13.5.2</u>	<u>Baseline</u>	13-6
<u>13.5.3</u>	<u>Construction Phase Assessment</u>	13-6

13.5.4	Construction Vibration	13-7
13.5.5	Operational Phase Assessment	13-7
13.6	EMBEDDED MITIGATION	13-8
13.6.2	Construction Mitigation	13-8
13.6.3	Operational Mitigation	13-8
13.7	POTENTIAL IMPACTS	13-9
13.7.2	Construction	13-9
13.7.3	Operation	13-10
13.7.4	Decommissioning	13-10
13.8	POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	13-10
13.9	POTENTIAL SECONDARY MITIGATION	13-11
13.9.1	Construction	13-11
13.9.2	Operation	13-11
13.9.3	Decommissioning	13-11
13.10	PROPOSED SCOPE	13-11
13.11	CONSULTATION	13-12
13.12	QUESTIONS TO CONSULTEES	13-12
13.13	REFERENCES	13-13
14	TRAFFIC AND TRANSPORT	14-6
14.1	INTRODUCTION	14-6
14.2	LEGISLATIVE AND POLICY CONTEXT	14-6
14.3	STUDY AREA	14-6
14.4	BASELINE ENVIRONMENT	14-7
14.4.2	Local Road Network	14-7
14.4.3	Local Road Network	14-7
14.4.4	Walking and Cycling	14-8
14.4.5	Public Transport	14-8
14.5	ASSESSMENT METHODOLOGY	14-9
14.5.2	Sensitivity of Receptors	14-11
14.5.3	Evaluation of Significance	14-11
14.6	EMBEDDED MITIGATION	14-12
14.7	POTENTIAL IMPACTS	14-12
14.7.2	Construction	14-12
14.7.3	Operation	14-13
14.7.4	Decommissioning	14-13
14.8	POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	14-14
14.9	POTENTIAL SECONDARY MITIGATION	14-14
14.10	PROPOSED SCOPE	14-14
14.11	CONSULTATION	14-15
14.12	QUESTIONS TO CONSULTEES	14-15
14.13	REFERENCES	14-16
15	CLIMATE	15-6
15.1	INTRODUCTION	15-6
15.2	LEGISLATIVE AND POLICY CONTEXT	15-6
15.3	STUDY AREA	15-9
15.3.1	GHG Assessment	15-9

15.3.2	CCR Assessment	15-10
15.3.3	ICCI Assessment	15-11
15.4	BASELINE ENVIRONMENT	15-11
15.4.1	GHG Assessment	15-11
15.4.2	CCR Assessment	15-11
15.4.3	ICCI Assessment	15-12
15.5	ASSESSMENT METHODOLOGY	15-12
15.5.1	GHG Assessment	15-12
15.5.2	CCR Assessment	15-13
15.5.3	ICCI Assessment	15-15
15.6	EMBEDDED MITIGATION	15-15
15.7	POTENTIAL IMPACTS	15-16
15.7.2	GHG Assessment	15-16
15.7.3	CCR Assessment	15-17
15.8	POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	15-18
15.9	POTENTIAL SECONDARY MITIGATION	15-18
15.10	PROPOSED SCOPE	15-18
15.11	CONSULTATION	15-19
15.12	QUESTIONS TO CONSULTEES	15-19
15.13	REFERENCES	15-20
16	SOCIO-ECONOMICS, TOURISM AND RECREATION	16-6
16.1	INTRODUCTION	16-6
16.2	LEGISLATIVE AND POLICY CONTEXT	16-6
16.2.1	Policy	16-6
16.2.2	Guidance	16-8
16.3	STUDY AREA	16-9
16.4	BASELINE ENVIRONMENT	16-10
16.4.1	Data Sources	16-10
16.4.2	Socio-Economics Baseline	16-11
16.4.3	Population	16-11
16.4.4	Population Projections	16-12
16.4.5	Economic Activity	16-12
16.4.6	Industrial Structure	16-13
16.4.7	Tourism and Recreation Baseline	16-14
16.4.8	Visits and Spend of Tourists	16-14
16.4.9	Local Tourism Attractions	16-15
16.4.10	Other Tourism and Recreation Assets	16-16
16.5	ASSESSMENT METHODOLOGY	16-16
16.5.1	Socio-economic Impacts	16-16
16.5.2	Tourism and Recreation	16-17
16.6	EMBEDDED MITIGATION	16-17
16.7	POTENTIAL IMPACTS	16-18
16.7.2	Construction	16-18
16.7.3	Operation	16-18
16.7.4	Decommissioning	16-18
16.8	POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	16-19
16.9	POTENTIAL SECONDARY MITIGATION	16-19

16.9.1	Construction	16-19
16.10	PROPOSED SCOPE	16-19
16.11	CONSULTATION	16-20
16.12	QUESTIONS TO CONSULTEES	16-20
16.13	REFERENCES	16-21
17	HUMAN HEALTH	17-5
17.1	INTRODUCTION	17-5
17.2	LEGISLATIVE AND POLICY CONTEXT	17-5
17.3	STUDY AREA	17-5
17.4	BASELINE ENVIRONMENT	17-6
17.4.2	Ground Conditions	17-6
17.4.3	Noise and Vibration	17-6
17.4.4	Landscape and Visual	17-6
17.4.5	Air Quality	17-6
17.4.6	Electromagnetic Fields	17-7
17.5	SCOPING ASSESSMENT METHODOLOGY	17-7
17.6	EMBEDDED MITIGATION	17-7
17.6.2	Ground Conditions	17-7
17.6.3	Noise and Vibration	17-8
17.6.4	Landscape and Visual	17-8
17.6.5	Air Quality	17-8
17.6.6	Electromagnetic Fields	17-8
17.7	POTENTIAL IMPACTS	17-9
17.7.1	Ground Conditions	17-9
17.7.2	Noise and Vibration	17-9
17.7.3	Landscape and Visual	17-9
17.7.4	Air Quality	17-10
17.7.5	Electromagnetic Fields	17-10
17.8	POTENTIAL ADDITIONAL MITIGATION	17-11
17.9	PROPOSED SCOPE	17-11
17.10	QUESTIONS TO CONSULTEES	17-11
17.11	REFERENCES	17-13
18	MAJOR ACCIDENTS AND DISASTERS	18-5
18.1	INTRODUCTION	18-5
18.2	LEGISLATIVE AND POLICY CONTEXT	18-5
18.2.2	The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	18-5
18.2.3	Health and Safety at Work etc. Act 1974 (HSWA) and regulations made thereunder	18-5
18.2.4	Construction Design and Management (CDM) 2015 Regulations ..	18-5
18.2.5	Institute of Environmental Management and Assessment Guidance	18-6
18.3	STUDY AREA	18-6
18.4	BASELINE ENVIRONMENT	18-6
18.5	SCOPING ASSESSMENT METHODOLOGY	18-7
18.6	EMBEDDED MITIGATION	18-7

18.7 POTENTIAL IMPACTS 18-8
18.8 POTENTIAL ADDITIONAL MITIGATION..... 18-9
18.9 PROPOSED SCOPE..... 18-9
18.10 QUESTIONS TO CONSULTEES 18-9
18.11 REFERENCES..... 18-10

19 SUMMARY OF ONSHORE SCOPING REPORT 19-5

19.1 TOPICS SCOPED IN TO THE ENVIRONMENTAL IMPACT ASSESSMENT 19-5
 19.2 TOPICS SCOPED OUT OF ENVIRONMENTAL IMPACT ASSESSMENT 19-5

20 PROPOSED STRUCTURE OF THE EIAR..... 20-5

20.1 INTRODUCTION 20-5
 20.2 EIAR STRUCTURE 20-5

Definitions

Array Area	The area of the Proposed Development within the Moray Firth in which the Wind Turbine Generators (WTGs) and inter-array/interconnector cables and Offshore Substation Platforms (OSPs) would be located.
Caledonia Offshore Wind Farm (OWF)	The wind farm and all associated offshore and onshore components.
Caledonia Offshore Wind Farm Ltd	The developer of Caledonia OWF.
Foundations	The subsea infrastructure which supports the WTGs or OSPs.
Grid Connection Point	The Transmission Interface Point (TIP) substation which connects to the National Electricity Transmission System (NETS).
Landfall Site	The areas of Aberdeenshire coast in which the Offshore Transmission Infrastructure (OfTI) makes land. Ongoing technical assessment and design development may identify that more than one landfall is considered within the EIA.
Offshore Export Cable Corridor	The area within which the offshore export cables are installed.
Offshore Transmission Infrastructure	The OfTI associated with the Caledonia OWF comprising OSPs, offshore export cables and landfall, up to Mean High Water Springs (MHWS).
OfTI Site	The area of the Moray Firth within which the OfTI will be located. It includes all offshore infrastructure associated with transmission of the power generated.
OSP	The offshore substation platform(s) that facilitates the transfer of power from the WTGs and inter-array cables to the offshore export cables.
Onshore Cable Corridor	A 500m wide corridor, within which the Onshore Cable Route will be located. Physical works may be required anywhere within this corridor and planning permission would therefore be sought over this area of land.
Onshore Cable Route	A temporary working corridor approximately 100m in width, within which the onshore cable circuits will be installed.
Onshore Transmission Infrastructure (OnTI)	The OnTI associated with the Caledonia OWF comprising the onshore cable circuits and Onshore Substation and Landfall Site landward from Mean Low Water Springs (MLWS).
Onshore Scoping Report	This document which is being submitted to Aberdeenshire Council, and has been drafted to seek the opinion of statutory and non-statutory consultees on the scope of the Proposed Development EIA.
Onshore Substation	The Onshore Substation for the Proposed Development.
Onshore Substation Scoping Area	Broad area of land referred to in the Onshore Scoping Report to identify the area where the Onshore Substation will be located and to inform which environmental assessments will be required as part of the EIA.

Onshore Substation Site	The area where the Onshore Substation will be located for the Proposed Development.
Outline CEMP	Outline Construction Environmental Management Plan
Proposed Development	This includes all onshore aspects comprising a Landfall Site, landward from Mean Low Water Springs (MLWS), onshore cable circuits, Onshore Substation and associated ancillary works such as compound and laydown areas.
WTGs	The wind turbines that generate electricity consisting of tubular towers, blades and the nacelle which houses the electrical generating equipment.



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 1

Introduction

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS 1-5

EXECUTIVE SUMMARY 1-6

1 INTRODUCTION 1-7

1.1 INTRODUCTION 1-7

1.2 BACKGROUND 1-7

1.3 DOCUMENT PURPOSE 1-8

1.4 THE DEVELOPER 1-9

1.5 THE CALEDONIA OFFSHORE WIND FARM AND PROPOSED DEVELOPMENT 1-10

1.6 OBJECTIVE OF THE ONSHORE SCOPING REPORT 1-10

1.7 STRUCTURE OF THE SCOPING REPORT 1-11

1.8 REFERENCES 1-14

List of Figures

FIGURE 1.1: LOCATION OF PROPOSED DEVELOPMENT

FIGURE 1.2: ONSHORE SCOPING AREA

List of Tables

TABLE 1.1: STRUCTURE OF THE ONSHORE SCOPING REPORT 1-12

Acronyms and Abbreviations

CEA	Cumulative Effects Assessment
CES	Crown Estate Scotland
EDP	Energias de Portugal
EDPR	Energias de Portugal Renewables
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ESO	Electricity System Operator
GW	Gigawatt
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MW	Megawatt
NETS	National Electricity Transmission System
O&M	Operation and Maintenance
OfTI	Offshore Transmission Infrastructure
OnTI	Onshore Transmission Infrastructure
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PAC	Pre-Application Consultation
SMP	Sectoral Marine Plan
TIP	Transmission Interface Point
UK	United Kingdom
WTG	Wind Turbine Generator

Executive Summary

In response to the Scottish Government's target of net-zero emissions of all greenhouse gases by 2045 and the aim to generate 50% of Scotland's overall energy consumption from renewable sources by 2030, the Crown Estate Scotland (CES) launched the ScotWind Leasing process in 2021, which released new areas of seabed within Scottish waters for future offshore development. The ambition was to offer 10 Gigawatts (GW) of offshore capacity within a series of Plan Options identified by the Scottish Government as the most suitable area for development as set out within the Sectoral Marine Plan (SMP) for Offshore Wind.

In January 2022, as part of the ScotWind bidding round, Ocean Winds was successfully awarded an Option Agreement (granting exclusive rights) to develop an offshore wind farm (OWF) within the NE4 Plan Option, which is located within the Moray Firth, off the northeast coast of Scotland. Ocean Winds are now currently progressing the proposals for this OWF, which has been named the Caledonia OWF.

The Terms of the Agreement are dependent upon Ocean Winds being awarded all key consents and permissions to construct and operate the OWF from the relevant regulatory authorities. This process will be subject to Environmental Impact Assessment (EIA), with an Environmental Impact Assessment Report (EIAR) to underpin any consent applications.

The Applicant has entered into a Bilateral Connection Agreement and Construction Agreement with National Grid Electricity System Operator (ESO) that provides the Proposed Development with a Grid Connection Point to the National Electricity Transmission System (NETS) at a proposed new substation called New Deer 2. In the Holistic Network Design (HND) study National Grid ESO published that the Proposed Development's Grid Connection Point to the NETS would be at the existing New Deer substation. The Grid Connection Point for the Proposed Development will be finalised through detailed design that is currently being completed by National Grid ESO and the onshore transmission owner Scottish and Southern Energy Networks Transmission. The onshore elements of the Proposed Development, for which this Onshore Scoping Report relates, will incorporate the Onshore Transmission Infrastructure (OnTI) to facilitate connection of the Caledonia OWF to the NETS in proximity of New Deer. This Onshore Scoping Report, which is being submitted to Aberdeenshire Council, has been prepared to support two purposes, as follows:

- To gather further information on potential constraints to siting the Proposed Development and assist in refining the design envelope; and
- To seek the opinion of statutory and non-statutory consultees on the scope of the EIA which will be submitted with the application for the relevant consents required for the construction and operation of the Proposed Development.

Details of the Proposed Development, based on the scoping design envelope, along with baseline environmental information currently available, are provided in this Onshore Scoping Report. The report also summarises key legislation and policy, outlines the proposed EIA methodology, identifies potential impacts that may arise as a result of the Proposed Development and describes how these impacts are proposed to be assessed. Within this Onshore Scoping Report, studies and surveys are proposed in order to inform the EIA process and preliminary discussion on potential mitigation measures are included.

1 Introduction

1.1 Introduction

1.1.1.1 This Chapter of the Onshore Scoping Report provides the background information of relevance to the Proposed Development. This Chapter also presents the purpose, the objective and the structure of the Onshore Scoping Report. Information on the Developer, the Client and the Proposed Development is included in this Chapter.

1.1.1.2 This Chapter is supported by the following figures:

- Figure 1.1: Location of Proposed Development; and
- Figure 1.2: Onshore Scoping Area.

1.2 Background

1.2.1.1 In response to the Scottish Government's target of net-zero emissions of all greenhouse gases by 2045 and the aim to generate 50% of Scotland's overall energy consumption from renewable sources by 2030, the CES launched the ScotWind Leasing process in 2021, which released new areas of seabed within Scottish waters for future offshore development. The ambition was to offer 10 Gigawatt (GW) of offshore capacity within a series of Plan Options identified by the Scottish Government as the most suitable areas for development as set out within the SMP for Offshore Wind¹.

1.2.1.2 In January 2022, as part of the ScotWind bidding round, Ocean Winds (the Developer) was successfully awarded an Option Agreement (granting exclusive rights) to develop an OWF within the NE4 Plan Option, which is located within the Moray Firth, off the north-east coast of Scotland. Ocean Winds is now progressing the proposals for this offshore wind farm (OWF), which has been named the Caledonia OWF via the newly incorporated limited company of Caledonia Offshore Wind Farm Ltd (the Applicant). The Proposed Development Onshore and Offshore Scoping Areas are shown in Figure 1.1.

1.2.1.3 Caledonia Offshore Wind Farm Ltd therefore intends to apply for the relevant consents and permissions required to enable construction, operation, and maintenance (O&M) of the Caledonia OWF. This process includes the requirement for Environmental Impact Assessment (EIA) for both offshore and onshore elements, with an EIA Report (EIAR) to underpin any consent applications. In 2021, the Applicant commenced site-specific baseline characterisation surveying and data gathering to inform the EIA, and this data gathering process and Pre-Application Consultation (PAC) is ongoing.

1.2.1.4 Ocean Winds is in an advantageous position in developing the Caledonia OWF of having considerable knowledge and experience in the Moray Firth region and Aberdeenshire, Moray and Highland local authority areas through the development of the Moray East and Moray West OWFs and the construction and operation of the Moray East OWF (the Moray Firth projects). The advantages include:

- An extensive local, regional and national network of stakeholders built through 12+ years of engagement;

- Successfully constructing the 950 Megawatts (MW) Moray East OWF in the Moray Firth using foundation technology currently proposed for the Caledonia OWF;
- Closure of major contracts and the soon to be installation of XXL monopiles in the Moray Firth through the construction of the Moray West OWF;
- Potential for synergies with Moray Firth projects through data sharing, cost sharing and use of existing infrastructure;
- Good understanding of environmental baseline conditions through project-specific data collection/monitoring programmes and strategic research projects within the Moray Firth;
- Tried and tested mitigation measures in the Moray Firth; and
- Ongoing strategic engagement with industry and research steering groups through the involvement of both Moray Firth projects.

1.2.1.5 These advantages mean that Caledonia OWF does not have a standing start and will build on the lessons learned through the development of both Moray Firth projects.

1.3 Document Purpose

1.3.1.1 The purpose of this Onshore Scoping Report is to request a Scoping Opinion from Aberdeenshire Council in relation to the scope of the onshore EIA and the content of the supporting EIAR for the Caledonia OWF. A Scoping Opinion is requested under Regulation 17 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as “the 2017 EIA Regulations”)².

1.3.1.2 This Onshore Scoping Report provides the background to, a description of and the need for the onshore elements of the Caledonia OWF (OnTI; referred to as the Proposed Development) the legislative and planning context, an overview of the site selection and development design undertaken to date, a summary of the proposed EIA methodology including cumulative assessment, the proposed receptors and impacts to be included (scoped in) and excluded (scoped out) from the EIA, and a preliminary list of mitigation measures.

1.3.1.3 For the purpose of EIA and provision of clarity regarding the onshore and offshore consenting regimes in relation to the intertidal area located between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS), the following distinctions are made:

1.3.1.4 This Onshore Scoping Report considers all activities associated with the OnTI aspects of the Proposed Development extending landwards from MLWS. This includes:

- Offshore export cables (only where they will be located landwards from between MLWS);
- A Landfall Site and associated transition joint bays along the Aberdeenshire coastline;

- Onshore Cable Corridor, an approximately 500m wide corridor, within which the onshore cable route will be located. Physical works may be required anywhere within this corridor and planning permission would therefore be sought over this area of land;
- A new Onshore Substation which will transform the power;
- Underground onshore cable circuits between the Onshore Substation and the Grid Connection Point; and
- Any associated ancillary infrastructure such as such as access roads, compound, and laydown areas.

1.3.1.5 The Offshore Scoping Report³ considers all activities associated with the Proposed Development extending seawards from MHWS. This includes the Array Area, the inter-array and interconnector cabling, any offshore substation platform(s) (OSP) infrastructure requirements, the offshore export cables and Landfall Site. The Offshore Scoping Report was submitted to Marine Scotland – Licensing Operations Team (MS-LOT) in September 2022 to seek the opinion of statutory and non-statutory consultees on the scope of the offshore EIA.

1.3.1.6 Where there is an overlap in jurisdiction of consenting and regulatory regimes (i.e., within the intertidal area between MHWS and MLWS), both the Onshore Scoping Report and the Offshore Scoping Report, as well as the subsequent EIAR, will present relevant technical assessments.

1.4 The Developer

1.4.1.1 As outlined in Section 1.1, Ocean Winds is the Developer of the Caledonia OWF and Caledonia Offshore Windfarm Ltd is the Applicant. Caledonia Offshore Windfarm Ltd is a wholly owned subsidiary of Ocean Winds.

1.4.1.2 Ocean Winds is an international offshore wind developer, created in 2019, as a 50:50 joint venture by Energias de Portugal Renewables (EDPR) and ENGIE. Both companies share the vision in which renewables, particularly offshore wind, play a key role in the global energy transition.

1.4.1.3 EDPR and ENGIE combined their offshore wind assets and project pipeline under Ocean Winds, with 1.5 GW in operation, 0.9 GW under construction and 12.2 GW under development (totalling 14.6 GW in gross capacity), with the target of reaching 5-7 GW of projects in operation or construction and 5-10 GW under advanced development by 2025. After the results of the ScotWind Clearing process, Ocean Winds' Scottish portfolio of projects now reaches 6.1 GW of gross capacity. Ocean Winds' primary target markets are in Europe, the United States, South America and selected Asian countries, from where most of the growth is expected to come. The main office supporting the Proposed Development is in Edinburgh, Scotland. As noted in Section 1.1, Ocean Winds has considerable knowledge and experience in the Moray Firth region through the development of the Moray East and Moray West OWFs and the construction and operation of the Moray East OWF.

- 1.4.1.4 Madrid-based EDPR is a global leader in the renewable energy sector and the world's fourth-largest wind energy producer. EDPR was created in 2007 to operate the Energias de Portugal (EDP) group's renewable power business.
- 1.4.1.5 ENGIE is a French multinational energy and services company, with its headquarters in La Défense, Courbevoie. It focuses on the production and supply of energy, services, and regeneration. It was established in 2008 by Gaz de France and Suez.

1.5 The Caledonia Offshore Wind Farm and Proposed Development

- 1.5.1.1 As indicated above, the Proposed Development is located within the NE4 Plan Option identified in the Scottish Government's SMP for Offshore Wind Energy (Scottish Government, 2020)¹. The Array Area is located within the NE4 Plan Option and is approximately 429 km² in size, located within the Moray Firth off the northeast coast of Scotland, with the north limit of the site being approximately 22 km from Wick and the southern limit of the site being approximately 38 km from Banff.
- 1.5.1.2 As part of the ScotWind Leasing process, Ocean Winds was awarded an option agreement to develop an OWF within the NE4 Plan Option (the Caledonia OWF) with the potential to deliver capacity in the region of 2GW. A maximum of 150 wind turbine generators (WTGs) will be located within the Array Area, with WTG capacities ranging from 14 to 25 MW.
- 1.5.1.3 The Applicant has entered into a Bilateral Connection Agreement and Construction Agreement with National Grid Electricity System Operator (ESO) that provides the Proposed Development with a Grid Connection Point to the National Electricity Transmission System (NETS) at a proposed new substation called New Deer 2. In the Holistic Network Design (HND) study National Grid ESO published that the Proposed Development's Grid Connection Point to the NETS would be at the existing New Deer substation. The Grid Connection Point for the Proposed Development will be finalised through detailed design that is currently being completed by National Grid ESO and the onshore transmission owner Scottish and Southern Energy Networks Transmission. The Proposed Development comprises the onshore components landward of MLWS which includes the OnTI that facilitates connection of the Caledonia OWF to the NETS in proximity of New Deer.
- 1.5.1.4 The Proposed Development Onshore Scoping Area is presented in Figure 1.2.
- 1.5.1.5 The Caledonia OWF also incorporates various offshore infrastructure within the Array Area and offshore export cables between the Array Area and preferred Landfall Site (covered in the Offshore Scoping Report).
- 1.5.1.6 Further details of the Proposed Development are provided in Chapter 3 (Description of Proposed Development), specifically the individual onshore elements of relevance to this Onshore Scoping Report. This includes the design envelope for infrastructure landward of the MLWS such as (among other details) potential Landfall Sites, number and dimensions of onshore cable circuits, Onshore Substation search area and Onshore Substation footprint / layouts.

1.6 Objective of the Onshore Scoping Report

1.6.1.1 This Onshore Scoping Report accompanies a request to Aberdeenshire Council to adopt a formal Scoping Opinion in relation to the onshore elements of the Proposed Development. It is anticipated that the Scoping Opinion issued by Aberdeenshire Council will be based on and informed by responses to this Onshore Scoping Report received from statutory and non-statutory consultees, and that the Scoping Opinion will then be used to guide the Applicant in progressing the EIA. The EIA process is outlined in Chapter 4 (The EIA Process). The EIA Scoping process has a key role in the development of the Proposed Development by enabling an understanding of the matters that will be subject to assessment, and to:

- Develop an understanding of the application site and identify the potential environmental impacts resulting from the proposed work programme;
- As far as possible identify the likely significant environmental effects as a basis for collating the appropriate baseline data and defining the impact assessment methodology;
- Enable the project team to take cognisance of and therefore avoid or mitigate potential adverse environmental impacts; and
- Provide a basis for discussion with Aberdeenshire Council, statutory consultees and non-statutory consultees of the scope of the EIA to be reported within the EIAR.

1.6.1.2 A proportionate EIA approach will be adopted as far as possible, with this Onshore Scoping Report seeking to scope out those issues which are shown to be non-significant through the identification of baseline study areas, potential effects and implementation of embedded mitigation. The report also proposes the scope of the cumulative effects assessment (CEA) and relevant transboundary impacts that may also require consideration. Ocean Winds welcomes the opportunity for early engagement with stakeholders to obtain feedback on the Proposed Development and the proposed scope of onshore assessments within the EIAR.

1.6.1.3 This Onshore Scoping Report includes the following information in accordance with Regulation 17 (2) of the 2017 EIA Regulations to enable Aberdeenshire Council to adopt a Scoping Opinion:

- a) A description of the location of the Proposed Development (Chapter 3), including a plan to sufficiently identify the Onshore Scoping Area (Figure 1.2); and
- b) A brief description of the nature and purpose of the development (Chapter 3) And its likely significant effects on the environment (Chapter 6 to Chapter 18).

1.7 Structure of the Scoping Report

1.7.1.1 This Onshore Scoping Report is structured as is set out in Table 1.1.

Table 1.1: Structure of the Onshore Scoping Report

Chapter / Appendix	Chapter Title	Overview
1	Introduction	This Chapter provides an introduction to the Developer and the Proposed Development and outlines the key objective of the Onshore Scoping Report.
2	Policy and Legislation Context	Sets out the need for the Proposed Development and the relevant policy and legislative context.
3	Description of Proposed Development	Provides a description of the key components that comprise the Proposed Development and the iterative design process of the Proposed Development.
4	The EIA Process	Describes the EIA methodology proposed and demonstrates the measures taken to progress a proportionate EIA.
5	Consultation Process	Outlines the approach to stakeholder consultation for the Proposed Development.
6 – 18	Onshore Scoping Topics	<p>Each topic specific chapter covers:</p> <ul style="list-style-type: none"> ▪ An outline of the topic specific study area used for the assessment. ▪ An outline of baseline characterisation. ▪ An overview of the topic specific methodology to be employed during the EIA. ▪ Scoping of potential impacts and significant effects, including any suggested or anticipated embedded mitigation and/or additional mitigation. ▪ Identification of potential cumulative and in-combination effects. ▪ An outline of proposed approach to the EIA. <p>Topics include:</p> <ul style="list-style-type: none"> ▪ Land Use and Agriculture (Chapter 6); ▪ Terrestrial Ecology and Biodiversity (Chapter 7); ▪ Landscape and Visual (Chapter 8); ▪ Terrestrial Archaeology and Cultural Heritage (Chapter 9); ▪ Hydrology and Hydrogeology (Chapter 10); ▪ Geology Soils and Contaminated Land (Chapter 11); ▪ Air Quality (Chapter 12); ▪ Airborne Noise and Vibration (Chapter 13); ▪ Traffic and Transport (Chapter 14); ▪ Climate Change (Chapter 15);

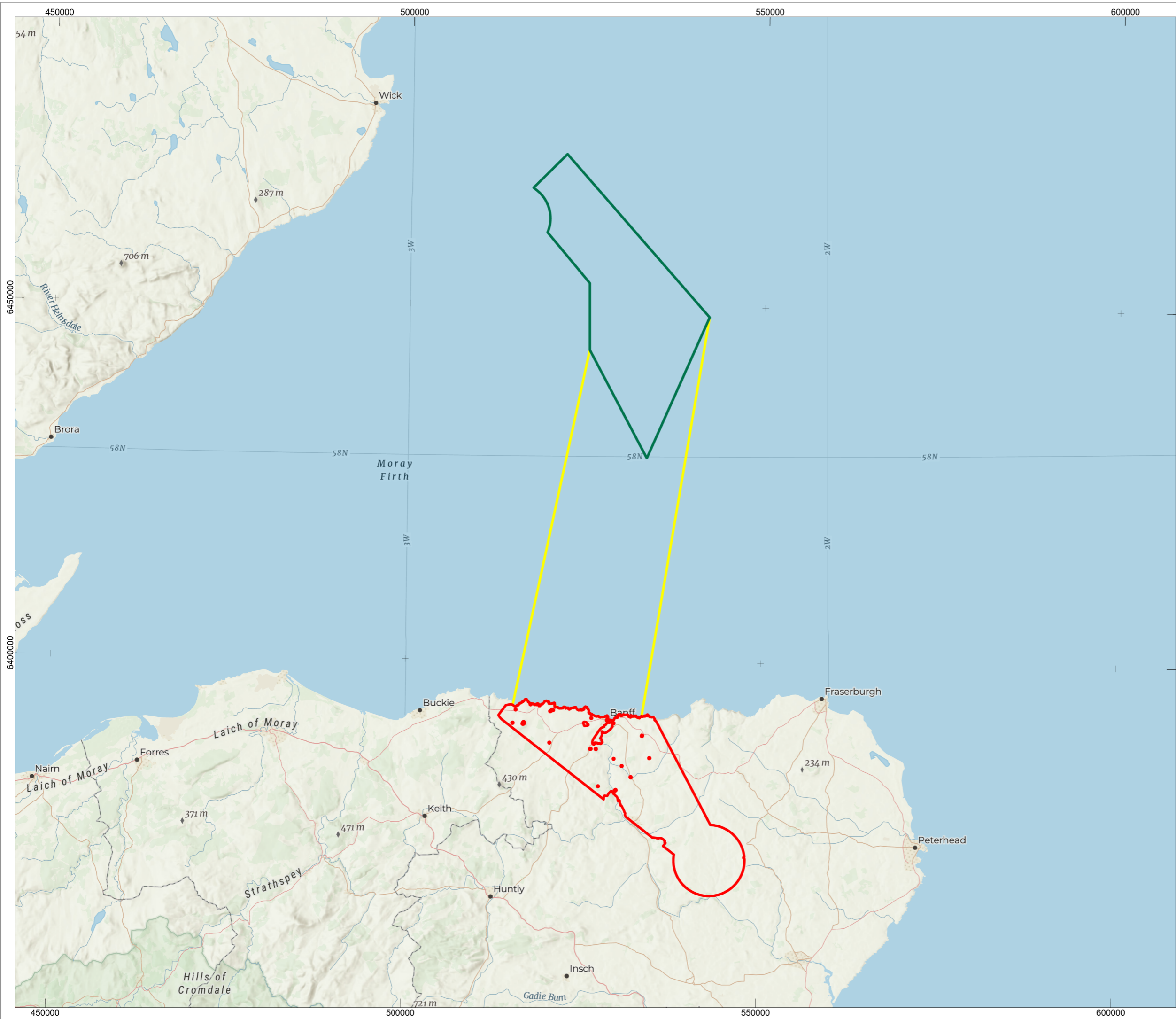
Chapter / Appendix	Chapter Title	Overview
		<ul style="list-style-type: none"> ▪ Socioeconomics, Tourism and Recreation (Chapter 16); ▪ Human Health (Chapter 17); and ▪ Major Accidents and Disasters (Chapter 18).
19	Summary of Onshore EIA Scoping	Provides a summary of the approach taken to scoping and the key findings of the Onshore Scoping Report.
20	Proposed Structure of the EIAR	Outlines the proposed structure of the EIAR, including Offshore and Onshore elements of the Proposed Development.
Appendix A	Terrestrial Archaeology and Cultural Heritage National Designations	Sets out the National Designations of relevance to the Terrestrial Archaeology and Cultural Chapter (Chapter 9)

1.8 References

¹ The Scottish Government (2020), *Sectoral Marine Plan for Offshore Wind Energy*, Available at: <https://www.gov.scot/publications/sectoral-marine-plan-offshore-wind-energy/> [Accessed 14/09/2022]

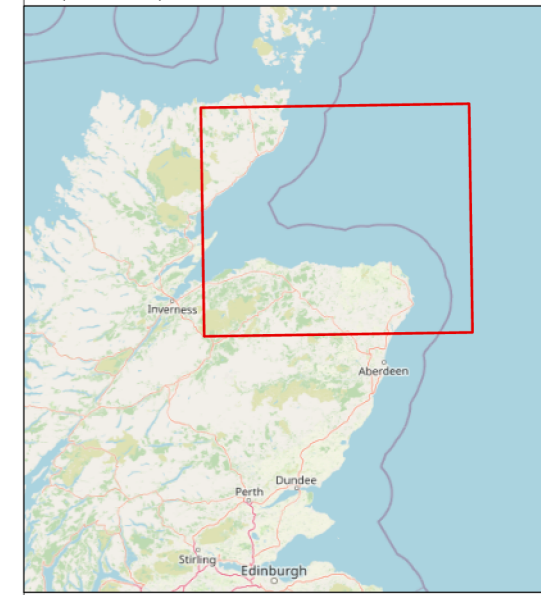
² *Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017*, Available at: <https://www.legislation.gov.uk/ssi/2017/102/contents/made> [Accessed 14/09/2022]

³ Ocean Winds (2022), *Caledonia Offshore Wind Farm Offshore Scoping Report*, Available at: <https://www.caledoniaoffshorewind.com/the-project/public-engagement/>



- Offshore Scoping Area - Array Area
- Offshore Scoping Area - Offshore Export Cable
- Onshore Scoping Area

© OpenStreetMap (and) contributors, CC-BY-SA, Esri, CGIAR, N Robinson, NCEAS, USGS, Esri UK, Esri, HERE, Garmin, Foursquare, FAO, MET/NASA, USGS



Scale at A3: 1:500,000

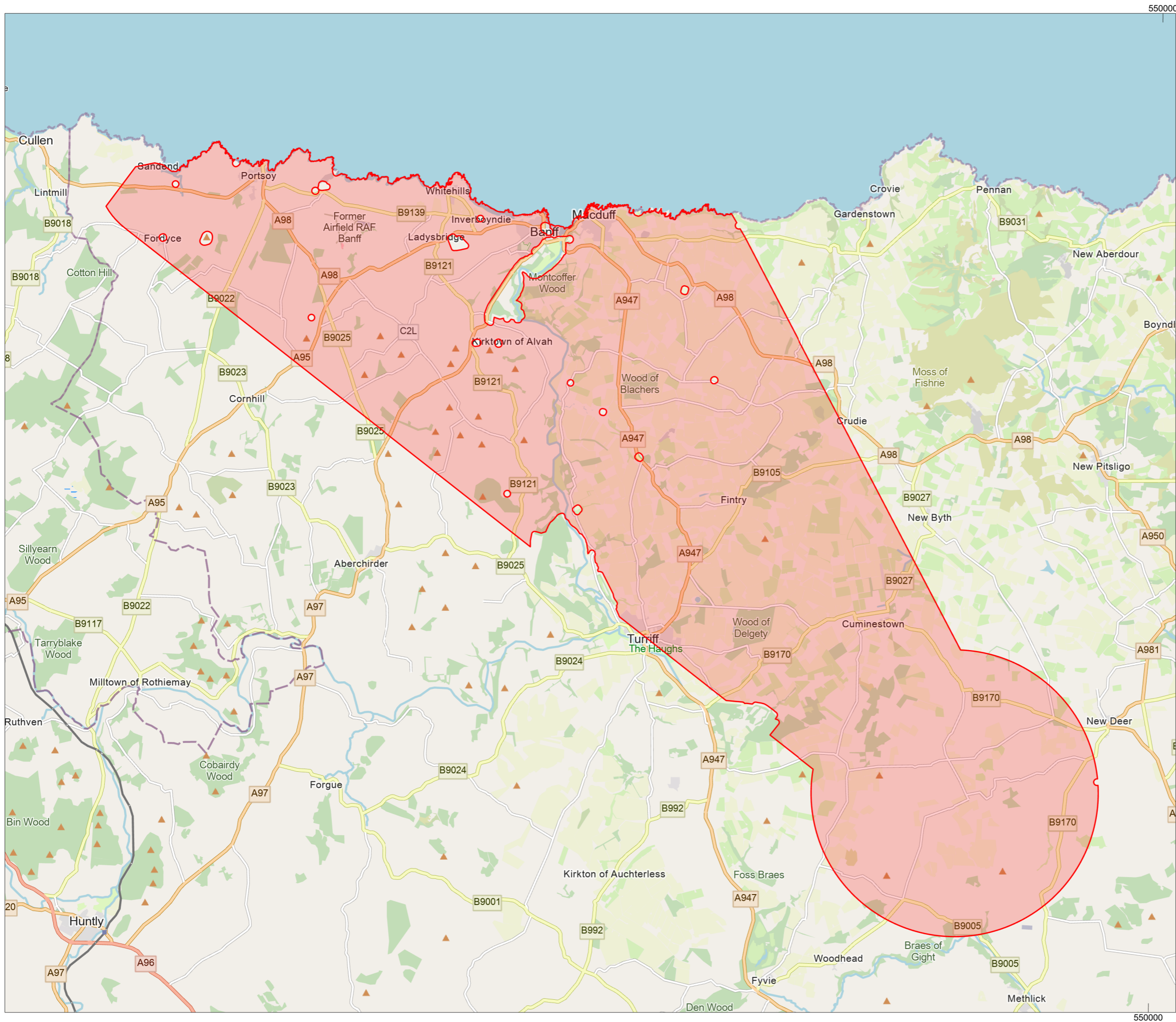
0 10 20 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
MMAZ	GSWE	AMIT
Date: 12/2/2022		Revision: 03
REF: UKCAL1_ARP_WNF_ENV_MAP_00001		

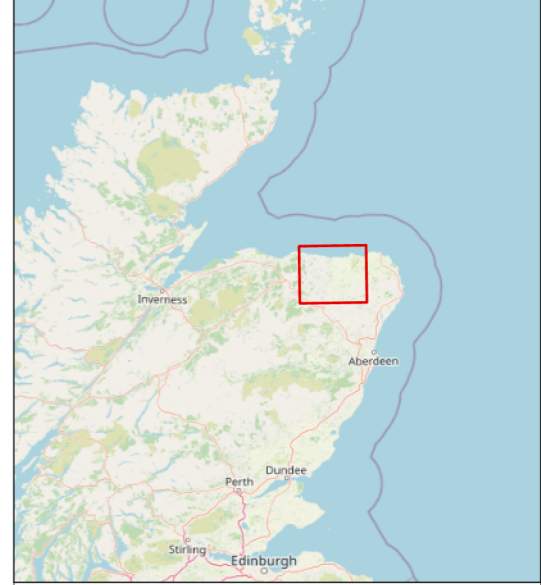
Figure 1.1
Location of Proposed Development





 Onshore Scoping Area

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri



Scale at A3: 1:125,000
 0 3 6 km

CRS: British National Grid (EPSG:27700)
 Produced: MMAZ Reviewed: GSWE Approved: AMIT
 Date: 12/2/2022 Revision: 03
 REF: UKCAL1_ARP_WNF_ENV_MAP_00002

Figure 1.2
 Onshore Scoping Area



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 2

Policy and Legislative Context

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	2-4
2 POLICY AND LEGISLATIVE CONTEXT	2-5
2.1 INTRODUCTION	2-5
2.2 BACKGROUND	2-5
2.3 CLIMATE CHANGE LEGISLATIVE AND POLICY CONTEXT	2-5
2.4 APPLICATION AND CONSENTING PROCESS.....	2-6
2.5 LEGISLATIVE AND REGULATORY FRAMEWORK.....	2-7
2.5.1 Town and Country Planning (Scotland) Act 1997	2-7
2.5.2 The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013	2-7
2.5.3 The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021.	2-8
2.5.4 Planning (Scotland) Act 2019	2-8
2.5.5 Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	2-8
2.5.6 Marine (Scotland) Act 2010, Electricity Act 1989 (as amended) and Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017.....	2-8
2.6 PLANNING POLICY CONTEXT	2-8
2.6.1 National Planning Framework 3 (NPF3)	2-8
2.6.2 National Planning Framework 4 (NPF4)	2-9
2.6.3 Scottish Planning Policy	2-10
2.6.4 Aberdeen City and Shire Strategic Development Plan 2020	2-10
2.6.5 Aberdeenshire LDP 2017	2-11
2.6.6 Aberdeenshire (Proposed) LDP 2022	2-11
2.7 REFERENCES	2-12

List of Tables

TABLE 2.1: CLIMATE CHANGE LEGISLATION AND POLICY 2-5
TABLE 2.2: CONSENTING PROCESS SUMMARY 2-7

Acronyms and Abbreviations

CCC	Committee on Climate Change
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GW	Gigawatt
kV	Kilovolt
LDP	Local Development Plan
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NPF3	Third National Planning Framework
NPF4	Draft Fourth National Planning Framework
OnTI	Onshore Transmission Infrastructure
OWF	Offshore Wind Farm
PAC	Pre-Application Consultation
PAN	Proposal of Application Notice
SDP	Strategic Development Plan
SPP	Scottish Planning Policy
UK	United Kingdom

2 Policy and Legislative Context

2.1 Introduction

2.1.1.1 This Chapter of the Onshore Scoping Report provides the policy and legislative framework of relevance to the Proposed Development, including the climate change and policy context, the application and consenting process, the legislative and regulatory framework, the planning policy context.

2.2 Background

2.2.1.1 The need for a secure energy supply in response to the climate crisis has led to a number of international, national, and local legislation and policies being put in place, designed to help guide development within the renewable energy sector. A number of these legislation and policies are of relevance to the Proposed Development. This Chapter identifies some of the key relevant legislation and guidance relevant to the development of Offshore Wind Farms (OWF)s and in particular the Onshore Transmission Infrastructure (OnTI), and thus of relevance to the consenting process for the Proposed Development.

2.3 Climate Change Legislative and Policy Context

2.3.1.1 The challenges of climate change, energy and security of supply are driving governmental policy and decision making on renewable energy developments. Table 2.1 provides an overview of the key legislation and policy concerning climate change as the driving force behind the need for renewable energy development.

Table 2.1: Climate Change Legislation and Policy

Legislation / policy	Overview
The Climate Change Act 2008 ¹	This sets out emission reduction targets that the United Kingdom (UK) must comply with legally. The Act committed the UK to reducing its greenhouse gas emissions by 80 per cent by 2050, compared to 1990 levels. It represents the first global legally binding climate change mitigation target set by a country.
The Climate Change (Scotland) Act 2009 ²	This includes a 2050 Scottish emissions target of a reduction of at least 80% from the baseline year, 1990.
The Climate Change Act 2008 (2050 Target Amendment) Order 2019 ³	Amended the Climate Change Act 2008 and passed into law the UK target of greenhouse gas emissions to be at least 100% lower than the 1990 baseline by 2050 (net zero by 2050).
The Energy White Paper – Powering our Net Zero Future 2020 ⁴	Outlines the main route to achieving the above targets as the further deployment of renewable energy generation.
Committee on Climate Change (CCC) – Progress in reducing emissions and Progress in adapting to climate change ⁵ – 2021 Progress Reports to Parliament ⁶ and CCC – Net Zero and the UKs contribution to stopping	The most recent publications from the CCC, these documents send out an urgent message regarding the need to tackle climate change, noting the crucial role that the renewables sector has to play in facing this challenge.

Legislation / policy	Overview
global warming ⁷ and The Sixth Carbon Budget 2020 ⁸	
The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 ⁹	An amendment to The Climate Change (Scotland) Act 2009, making the commitment for Scotland to become net-zero by 2045. There is also an interim target of a 75% reduction in emissions by 2030, at least 56% by 2020 and 90% by 2040, relative to the 1990/95 baseline.
Reducing Emissions in Scotland – 2020 Progress Report to the Scottish Parliament ⁶	Progress report on achieving targets to reduce greenhouse gas emissions and considers the actions required to help to achieve the net-zero 2045 target.
The Scottish Government’s Programme for Scotland 2020-2021 ‘Protecting Scotland, Renewing Scotland’ 2020 ¹⁰	The focus is on achieving a green recovery post COVID-19 and sets the commitment to addressing climate change within this aim.
Update to the Climate Change Plan 2018 – 2032: Securing a Green Recovery on a Path to Net Zero 2020 ¹¹	An update to the Scottish Government’s legislative commitment to reduce emissions by 75% by 2030 and to reach net-zero by 2045. Includes a focus update policy to continue the growth of renewable energy generation.
The Scottish Government’s Offshore Wind Policy Statement 2020 ¹²	Scottish Government states that up to 11Gigawatt (GW) of offshore wind capacity exists in Scottish waters by 2030. Aims to improve the planning and consenting processes in order to achieve this.
Sectoral Marine Plan for Offshore Wind Energy 2020 ¹³	The Plan aims to identify the most sustainable options for future development of commercial—scale offshore wind energy in Scotland.

2.3.1.2 The Proposed Development will play an important role in achieving the UK and Scottish Governments’ targets to meet net-zero carbon emissions, and to meet the suite of interim targets set by the legislation. The development of large-scale renewable energy generating capabilities within the UK is a major focus of national energy policy. Growing the proportion of the UK’s energy coming from home-grown renewable sources contributes to climate change targets while helping to achieve security of energy supply and reduce exposure to fossil fuel markets.

2.4 Application and Consenting Process

- 2.4.1.1 The OnTI will be determined under the Town and Country Planning (Scotland) Act 1997¹⁴, which extends to Mean Low Water Springs (MLWS).
- 2.4.1.2 Aberdeenshire Council are the Regulatory Authority in respect of the necessary consents for the construction and operation of the OnTI.
- 2.4.1.3 Table 2.2 outlines the high-level consenting process that will be followed.

Table 2.2: Consenting Process Summary

Development Stage	Activities Undertaken
Pre-application	Undertaking of preparatory works, scoping, Environmental Impact Assessment (EIA), and statutory consultation on the proposed development
Application	Submission of application to Aberdeenshire Council, circulation of information to consultees and public advertisement of the application.
Consideration of Application	Consultees make representations on the application.
Application Evaluation	Aberdeenshire Council review the application and consultation responses.
Application Determination	Aberdeenshire Council provide the determination on the application.
Post-decision	Developer compliance with conditions associated with consent.

2.5 Legislative and Regulatory Framework

2.5.1 Town and Country Planning (Scotland) Act 1997

2.5.1.1 The primary legislation setting the structure of the planning system is the Town and Country Planning (Scotland) Act 1997¹⁴. This Act governs the day-to-day operation of the planning system in Scotland and seeks to ensure that future development and use of land is sustainable. Its primary objectives are to promote sustainable economic development, encourage regeneration and to maintain and enhance the quality of the natural heritage and built environment.

2.5.1.2 That Act was amended by the Planning (Scotland) Act 2019¹⁵.

2.5.1.3 It includes the requirement for Pre-Application Consultation (PAC) with local communities for all major and national developments. There are effectively 3 steps to this process:

- Notifying the Council and the Community Council of their intention to consult with the community. This is notification is called a – Proposal of Application Notice (PAN);
- Consulting with the community to gather their views on the Proposed Development. The PAC must include at least 2 public events, held at least 14 days apart. At the final public event held, applicants must feedback on the comments received throughout the PAC; and
- The submission of a PAC report in support of a planning application.

2.5.2 The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013

2.5.2.1 The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013¹⁶ set out in detail the requirements/procedure at each stage of the development management process, from pre-application through to post

decision, as relevant to both the applicant and the determining authority.

2.5.3 The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021.

2.5.3.1 The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013¹⁶ were amended by The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021¹⁷. This changed some of the consultation activities required by the applicant for Notices submitted after 1 October 2022.

2.5.4 Planning (Scotland) Act 2019

2.5.4.1 The Planning (Scotland) Act 2019¹⁵ contains a wide range of changes to our planning system which are currently being implemented. These include the National Planning Framework (NPF) being amalgamated with Scottish Planning Policy (SPP), with enhanced status as part of the statutory development plan.

2.5.4.2 Scotland's fourth National Planning Framework (NPF4)¹⁸ will incorporate these changes and provide a combined strategic policy and spatial perspective. A revised draft NPF4 was laid before Parliament on 8 November 2022. The final adoption date will depend on the approval of NPF4 by the Scottish Parliament.

2.5.5 Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

2.5.5.1 The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) set out the circumstances under which the 2017 Regulations apply to development within Scotland and how they should be applied.

2.5.5.2 The EIA Regulations set out the statutory process and minimum requirements for EIA, to which the Proposed Development will adhere.

2.5.6 Marine (Scotland) Act 2010, Electricity Act 1989 (as amended) and Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

2.5.6.1 The offshore aspects of the Proposed Development) require separate consents for a Marine Licence under the Marine (Scotland) Act 2010¹⁹ and Section 36 Consent under the Electricity Act 1989²⁰. A separate Offshore Scoping Report has been produced to support the EIA under the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017²¹, and associated consent application. The Town and Country Planning (Scotland) Act 1997 extends to MLWS, while the Marine (Scotland) Act 2010 extends up to Mean High Water Spring (MHWS), hence there will be an overlap between the marine and onshore planning regimes. As such, the intertidal area is considered within both the Offshore Scoping Report and the Onshore Scoping Report, as well as the Environmental Impact Assessment Report (EIAR) (which will combine both offshore and onshore elements).

2.6 Planning Policy Context

2.6.1 National Planning Framework 3 (NPF3)

2.6.1.1 NPF3²² provides a statutory framework for Scotland's long-term spatial development. NPF3 identifies national developments and other strategically

important development opportunities in Scotland. Statutory development plans must have regard to the NPF, and Scottish Ministers expect planning decisions to support its delivery.

2.6.1.2 Within NPF3 is clear that planning must facilitate the transition to a low carbon economy and recognises that the energy sector has accounted for a significant share of Scotland’s greenhouse gas emissions and that the decarbonisation of this sector is vital in meeting the challenging targets set out by the Scottish Government.

2.6.1.3 Paragraph 3.9 of the NPF3 states that the Scottish Government wants ‘to continue to capitalise on our wind resource, and for Scotland to be a world leader in offshore renewable energy’ and specifically mentions the potential of the wind resource and existing skills of the Moray Firth and Aberdeenshire to further facilitate this. The Proposed Development is therefore in line with this aim and will support the delivery of this strategy within the NPF.

2.6.1.4 The proposed development meets the criteria of a National Development, as set out by NPF3 Annex A High Voltage Electricity Transmission Network. Specifically, that development consisting of new and/or upgraded onshore electricity transmission cabling of or in excess of 132 kilovolts is considered a National Development, and are needed to support the delivery of an enhanced high voltage electricity transmission grid which is vital in meeting national targets for electricity generation, statutory climate change targets, and security of energy supplies.

2.6.2 National Planning Framework 4 (NPF4)

2.6.2.1 The Revised Draft Fourth National Planning Framework (Draft NPF4)¹⁸ details the Scottish Government’s long-term plan for what Scotland could be in 2045. The current National Planning Framework (NPF3)²² and SPP²³, both published in 2014, will remain in place until NPF4 is adopted by Scottish Ministers.

2.6.2.2 The Revised Draft NPF4 comprises three parts:

- National Spatial Strategy – a shared vision where each part of Scotland can be planned and developed to create: Sustainable, Liveable, Productive places.
- National Planning Policy – Unlike NPF3, NPF4 will incorporate SPP which will contain detailed national policy on several planning topics.
- Annexes – National Development Statements of Need, Spatial Planning Priorities, Six Qualities of Successful Places, the Minimum All-Tenure Housing Land Requirement for each planning authority in Scotland, along with a Glossary of terms and Acronyms.

2.6.2.3 Given the focus of the draft document on the climate crisis and what planning and development can do to achieve a net zero, sustainable Scotland by 2045, it is evident that a drive to increase offshore wind energy features heavily throughout. Part 1 – National Spatial Strategy includes the North East area, inclusive of the Moray Firth and Aberdeenshire. The document highlights an important contribution the area can make to Scotland’s climate change targets by supporting renewable energy generation and highlights the ‘potential to increase offshore wind energy capacity’, along with the necessary improvement to the electricity

distribution and transmission network.

- 2.6.2.4 The draft proposed Policy 1: Tackling the climate and nature crises, sets out an intent to “encourage, promote and facilitate development that addresses the global climate emergency and nature crisis.”
- 2.6.2.5 The draft proposed Policy 11: Energy, also sets out the broad and wide-ranging presumption in favour of renewable energy projects stating, ‘Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported.
- 2.6.2.6 The Proposed Development meets the criteria of a National Development, as set out by Revised Draft NPF4 Part 3. Section 3: Strategic Renewable Electricity Generation Transmission Infrastructure. Specifically, that a development within one or more of the Classes of Development described below is designated a national development:
 - a) On and offshore electricity generation, including electricity storage, from renewables exceeding 50 megawatts capacity;
 - b) New and/or replacement upgraded on and offshore high voltage electricity transmission lines, cables and interconnectors of 132 kilovolts (kV) or more; and New and/or upgraded Infrastructure directly supporting on and offshore high voltage electricity lines, cables and interconnectors including converter stations, switching stations and substations.
- 2.6.3 Scottish Planning Policy
 - 2.6.3.1 Scottish Planning Policy (SPP)²³ is a statement of Scottish Government policy on how nationally important land use planning matters should be addressed across the country. The SPP sets out policy that will help to deliver the objectives of the NPF. The SPP is non-statutory however as a statement of Scottish Ministers' priorities the content of the SPP is a material consideration that carries significant weight with regards development management by local authorities.
 - 2.6.3.2 Paragraph 153 of the SPP states that the ‘generation of heat and electricity from renewable energy sources are vital to reducing greenhouse gas emissions and can create significant opportunities for communities.
 - 2.6.3.3 SPP lists development management considerations in relation to proposals for energy infrastructure developments, which includes the scale and contribution to renewable energy generation targets, along with impacts and effects on communities, the historic environment, natural heritage, and the water environment.
- 2.6.4 Aberdeen City and Shire Strategic Development Plan 2020
 - 2.6.4.1 The Aberdeen City and Shire Strategic Development Plan (SDP) 2020²⁴ is a statutory planning document which is prepared at a City Region level by Aberdeen City council and Aberdeenshire Council. It is one of four SDPs across Scotland and covers a twenty-year period to 2040. The SDP focusses on nationally or regionally important issues and informs the Local Development Plans (LDP) prepared by both Aberdeen City and Aberdeenshire Councils.

2.6.4.2 Although the preparation of the SDP pre-dates designation of the project site it does recognise the strategic role the region plays in the provision of renewable energy and renewable energy transmission infrastructure, and seeks to provide benefit from this, for example stating *"the opportunities for harbours along the North Coast to play a vital role in supplying services to offshore renewable energy facilities in the Moray Firth should also be recognised, and proposals encouraged where appropriate. Fraserburgh in particular has significant opportunities to support the delivery of offshore windfarms in the Moray Firth"*.

2.6.5 Aberdeenshire LDP 2017

2.6.5.1 The Aberdeenshire LDP²⁵ was adopted in 2017 and as such is nearing the end of its duration and materiality. It will be replaced by the proposed Aberdeenshire LDP in Autumn 2022 at which point it will no longer form part of the statutory development plan and will cease to be a material consideration.

2.6.6 Aberdeenshire (Proposed) LDP 2022

2.6.6.1 Having been through the statutory period of consultation, including the publication of a Main Issues Report and a Proposed LDP, the Aberdeenshire LDP 2022²⁶ is entering the final phases of development and it is expected that the LDP 2022 can be adopted in the late Autumn/Winter of 2022.

2.6.6.2 The Proposed LDP has been written to accord with NPF3²², and to be consistent with the Aberdeen City and Shire SDP 2020²⁴.

2.6.6.3 The Proposed LDP includes Section 13: Climate Change explicitly recognising the need for Aberdeenshire to support development that contributes to sustainable development and policies, to support action to tackle climate change and to promote energy generation by renewable sources.

2.6.6.4 Policy C2 Renewable Energy notes that the Council will approve wind energy developments that are appropriately sited and avoid unacceptable environmental effects.

2.6.6.5 In accordance with the NPF, development associated with the generation of renewable energy will be supported in principle, subject to detailed consideration.

2.6.6.6 Policy PR2 Reserving and Protecting Important Development Sites protects and does not allow alternative development on sites that may reasonably be needed in the future to support national developments identified in the NPF.

2.7 References

-
- ¹ *The Climate Change Act 2008*, Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents> [Accessed 14/09/2022]
- ² *The Climate Change (Scotland) Act 2009*, Available at: <https://www.legislation.gov.uk/asp/2009/12/contents> [Accessed 14/09/2022]
- ³ *The Climate Change Act 2008 (2050 Target Amendment) Order 2019*, Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111187654> [Accessed 14/09/2022]
- ⁴ Department for Business, Energy & Industrial Strategy (2020), *The Energy White Paper – Powering our Net Zero Future 2020*, Available at: <https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future> [Accessed 14/09/2022]
- ⁵ Committee on Climate Change (2021), *Progress in reducing emissions and Progress in adapting to climate change – 2021 Progress Reports to Parliament*, Available at: <https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/> [Accessed 14/09/2022]
- ⁶ Committee on Climate Change (2020), *Reducing Emissions in Scotland – 2020 Progress Report to the Scottish Parliament*, Available at: <https://www.theccc.org.uk/publication/reducing-emissions-in-scotland-2020-progress-report-to-parliament/> [Accessed 14/09/2022]
- ⁷ Committee on Climate Change (2019), *Net Zero and the UKs contribution to stopping global warming*, Available at: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> [Accessed 14/09/2022]
- ⁸ Committee on Climate Change (2020), *The Sixth Carbon Budget*, Available at: <https://www.theccc.org.uk/publication/sixth-carbon-budget/> [Accessed 14/09/2022]
- ⁹ *The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019*, Available at: <https://www.legislation.gov.uk/asp/2019/15/enacted> [Accessed 14/09/2022]
- ¹⁰ The Scottish Government (2020), *The Scottish Government’s Programme for Scotland 2020-2021 ‘Protecting Scotland, Renewing Scotland’*, Available at: <https://www.gov.scot/publications/protecting-scotland-renewing-scotland-governments-programme-scotland-2020-2021/> [Accessed 14/09/2022]
- ¹¹ The Scottish Government (2020), *Securing a Green Recovery on a Path to Net Zero: Climate Change Plan 2018 – 2032*, Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/> [Accessed 14/09/2022]
- ¹² The Scottish Government (2020), *Offshore Wind Policy Statement*, Available at: <https://www.gov.scot/publications/offshore-wind-policy-statement/> [Accessed 14/09/2022]

-
- ¹³ The Scottish Government (2020), *Sectoral Marine Plan for Offshore Wind Energy*, Available at: <https://www.gov.scot/publications/sectoral-marine-plan-offshore-wind-energy/> [Accessed 24/11/2022]
- ¹⁴ *Town and Country Planning (Scotland) Act 1997*, Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents> [Accessed 14/09/2022]
- ¹⁵ *Planning (Scotland) Act 2019*, Available at: <https://www.legislation.gov.uk/asp/2019/13/contents/enacted> [Accessed 24/11/2022]
- ¹⁶ *The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013*, Available at: <https://www.legislation.gov.uk/ssi/2013/155/contents/made> [Accessed 14/09/2022]
- ¹⁷ *The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021*, Available at: <https://www.legislation.gov.uk/ssi/2021/99/regulation/1/made> [Accessed 14/09/2022]
- ¹⁸ The Scottish Government (2022), *Revised Draft National Planning Framework 4*, Available at: [National Planning Framework 4: Revised Draft \(www.gov.scot\)](https://www.gov.scot/publications/national-planning-framework-4-revised-draft/) [Accessed 11/11/2022]
- ¹⁹ *Marine (Scotland) Act 2010*, Available at: <https://www.legislation.gov.uk/asp/2010/5/contents> [Accessed 14/09/2022]
- ²⁰ *Electricity Act 1989*, Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> [Accessed 14/09/2022]
- ²¹ *The Marine Works (EIA) (Scotland) Regulations 2017*, Available at: <https://www.legislation.gov.uk/ssi/2017/115/contents/made>
- ²² The Scottish Government (2014), *National Planning Framework 3*, Available at: <https://www.gov.scot/publications/national-planning-framework-3/> [Accessed 22/08/2022]
- ²³ The Scottish Government (2014), *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/> [Accessed 22/08/2022]
- ²⁴ Aberdeen City and Shire Strategic Development Planning Authority (2020), *Strategic Development Plan*, Available at: <http://www.aberdeencityandshire-sdpa.gov.uk/> [Accessed 22/08/2022]
- ²⁵ Aberdeenshire Council (2017), *Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/> [Accessed 22/08/2022]
- ²⁶ Aberdeenshire Council (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 3

Description of Proposed Development

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	3-4
3 DESCRIPTION OF PROPOSED DEVELOPMENT	3-5
3.1 INTRODUCTION	3-5
3.2 APPLICATION OF DESIGN ENVELOPE APPROACH	3-5
3.3 ONSHORE SCOPING AREA FOR THE SITE BOUNDARY	3-6
3.4 PROPOSED DEVELOPMENT COMPONENTS	3-7
3.4.2 Offshore Export Cables.....	3-7
3.4.3 Landfall Site	3-8
3.4.4 Onshore Cable Circuits	3-8
3.4.5 Onshore Substation.....	3-8
3.4.6 Onshore Cable Circuits from Onshore Substation to Grid Connection Point	3-9
3.5 PROPOSED DEVELOPMENT PHASES.....	3-9
3.5.1 Overview.....	3-10
3.5.2 Construction.....	3-10
3.5.3 Operation	3-11
3.5.4 Decommissioning	3-11
3.6 CONSIDERATION OF ALTERNATIVES	3-11
3.6.1 Onshore Substation.....	3-11
3.6.2 Onshore Cable Corridor	3-11
3.6.3 Landfall Site	3-12
3.7 REFERENCES	3-13

List of Figures

FIGURE 3.1: ONSHORE SUBSTATION SCOPING AREA

Acronyms and Abbreviations

AIS	Air Insulated Switchgear
CT	Current Transformer
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ESO	Electricity System Operator
GIS	Gas Insulated Switchgear
HDD	Horizontal Directional Drill
HND	Holistic Network Design
HVAC	High Voltage Alternating Current
kV	Kilovolt
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MSR	Mechanically Switched Reactors
NETS	National Electricity Transmission System
OFTI	Offshore Transmission Infrastructure
OnTI	Onshore Transmission Infrastructure
OWF	Offshore Wind Farm
SAC	Special Areas of Conservation
SGT	Supergrid Transformer
SPA	Special Protection Areas
STATCOM	Static Synchronous Compensators
SVC	Static VAR Compensators
VT	Voltage Transformer

3 Description of Proposed Development

3.1 Introduction

- 3.1.1.1 This Chapter provides a high-level description of the Proposed Development – comprising all onshore elements of the Caledonia Offshore Wind Farm (OWF) – based on the information available at the time of writing. It sets out the location, design, and main components of the Proposed Development.
- 3.1.1.2 This Chapter also describes the proposed construction, operation, and decommissioning of the Proposed Development. Detailed project design and likely construction approach will be refined throughout the Environmental Impact Assessment (EIA) process, therefore, the description of the Proposed Development provided is high-level to provide context for the development of the onshore EIA scope.
- 3.1.1.3 This Chapter is supported by the following figure:
 - Figure 3.1: Onshore Substation Scoping Area

3.2 Application of Design Envelope Approach

- 3.2.1.1 The Applicant has adopted a design envelope approach to inform the EIA for the Proposed Development. At this time the Proposed Development is in the early stages of definition, and it is not possible to apply exact specifications for the Onshore Transmission Infrastructure (OnTI). An Onshore Scoping Area is therefore identified at this stage, which is a wider area within which the Proposed Development will be located.
- 3.2.1.2 At Environmental Impact Assessment Report (EIAR) stage, an approximately 500m wide Onshore Cable Corridor will be identified along with a Landfall Site and Onshore Substation Site. Should ongoing technical assessment and design development identify that more than one landfall needs to be taken forward to the EIAR stage, they will be identified, assessed and reported on within the EIAR
- 3.2.1.3 The design envelope will identify a range of parameters associated with each aspect of the Proposed Development, enabling a realistic assessment of the likely worst-case environmental effects upon a particular receptor. A more developed project design envelope will be presented in the EIAR than that used in the Onshore Scoping Report, which will provide the maximum envelope of the consent sought, allowing appropriate flexibility to enable the refinement of the Proposed Development design after consent (if granted). Each topic specific assessment within the EIAR will consider the relevant design parameters that give rise to the greatest potential impact for the receptors in question, while only considering realistic solutions. Any design parameter that is equal or less than those assessed will have an equal or lesser impact.
- 3.2.1.4 By employing the design envelope approach, Caledonia OWF seeks to retain a reasonable level of flexibility in the design of the Proposed Development within certain maximum extents and ranges, all of which will be fully assessed in the EIAR. The design envelope will be developed in parallel with the wider iterative EIA, and design development (including the identification of embedded mitigation) process and will be influenced by the results of environmental and technical

studies where relevant, as well as taking on board feedback through stakeholder consultation.

3.3 Onshore Scoping Area for the Site Boundary

3.3.1.1 To inform the Onshore Scoping Report an Onshore Scoping Area has been used. The Onshore Scoping Area identifies a wider area within which the Proposed Development will be located in, to be refined throughout the EIA process.

3.3.1.2 The Onshore and Offshore Scoping Areas are shown on Figure 1.1. The northern part of the Onshore Scoping Area extends across approximately 22km of Aberdeenshire coastline between Sandend and Gamrie. From the northern extent the area runs approximately 33km inland towards the village of New Deer. At its narrowest point the Onshore Scoping Area measures approximately 7km.

3.3.1.3 The Onshore Scoping Area incorporates a 10km diameter search area around the existing New Deer substation (the Onshore Substation Scoping Area), located approximately 6km west of the village of New Deer. The Applicant has entered into a Bilateral Connection Agreement and Construction Agreement with National Grid Electricity System Operator (ESO) that provides the Proposed Development with a Grid Connection Point to the National Electricity Transmission System (NETS) at a proposed new substation called New Deer 2. In the Holistic Network Design (HND) study ¹ National Grid ESO published that the Proposed Development's Grid Connection Point to the NETS would be at the existing New Deer substation. The Grid Connection Point for the Proposed Development will be finalised through detailed design that is currently being completed by National Grid ESO and the onshore transmission owner Scottish and Southern Energy Networks Transmission. The Onshore Substation Scoping Area will enable the Applicant to identify a suitable substation site in proximity to the Grid Connection Point. The Onshore Substation Scoping Area is shown on Figure 3.1.

3.3.1.4 The Onshore Scoping Area takes the form of a corridor between potential Landfall Sites along the Aberdeenshire coast and the Onshore Substation Scoping Area in the proximity of New Deer. The Onshore Scoping Area avoids overlaps with statutory designated sites such as Special Protection Areas (SPA), Special Areas of Conservation (SAC), RAMSAR sites and National and Local Nature Reserves. The corridor has also been refined to avoid direct impacts on Scheduled Monuments and Gardens and Designed Landscapes.

3.3.1.5 As described above, the Onshore Scoping Area reflects the early stage of the design development. The design envelope will be further refined through the EIA with identification of a preferred Landfall Site and Onshore Substation Site and identification of the Onshore Cable Corridor. The design will be developed in line with duties under Schedule 9 to the Electricity Act 1989 and with consideration of key environmental and technical constraints including consideration of potential impacts to:

- Technical constraints such as utilities, roads, infrastructure;
- Environmental constraints including:
 - Ancient woodland;

- Peat;
- Listed buildings;
- Conservation areas;
- Watercourses;
- Core paths and recreational routes/resources; and
- Local landscape areas.

3.4 Proposed Development Components

3.4.1.1 The Proposed Development will supply the power being generated by the Caledonia OWF to the NETS onshore. To achieve this, underground cables from a Landfall Site along the Aberdeenshire coast to a new Onshore Substation in the proximity of New Deer will be installed. From the Onshore Substation, cables will be installed to the Grid Connection Point.

3.4.1.2 As described above, reasonable worst-case design parameters will be developed on which to base the EIA and a full description will be presented within the EIAR. For the purposes of this Onshore Scoping Report indicative parameters of each of the Proposed Development components are presented within the following subsections.

3.4.1.3 The main components of the Proposed Development are:

- Up to six offshore export cables, with a nominal voltage of up to 275kV, (between Mean Low Water Springs (MLWS) and the transition joint bays only) with the remainder comprising the Offshore Transmission Infrastructure (OfTI) (subject to a separate Offshore Scoping Report (Ocean Winds, 2022)²;
- Landfall Site, with up to six transition joint bays inland of Mean High Water Spring (MHWS) (the interface between the offshore export cables and onshore cable circuits);
- Up to six onshore cable circuits with a nominal voltage of up to 275kV between the Landfall Site and Onshore Substation;
- An Onshore Substation; and
- Up to six onshore cable circuits with a nominal voltage of up to 400kV (from the Onshore Substation to the Grid Connection Point).

3.4.2 Offshore Export Cables

3.4.2.1 Electricity generated by the Caledonia OWF will be transmitted to shore by up to six offshore export cables each up to 330mm in diameter. The offshore export cables are High Voltage Alternating Current (HVAC) with each circuit installed in a separate trench and buried to a target depth of 1m below the seabed. Burial methods will include jet trenching, mechanical trenching, and cable ploughing.

3.4.2.2 As mentioned above, the Proposed Development includes these offshore export cables only where they will be located between MLWS and the transition joint bays.

3.4.2.3 Depending upon the final location of the Landfall Site, burial of the offshore export

cables within the intertidal area from MLWS to the transition joint bay will either be via an open cut trenching method, via a trenchless technique such as Horizontal Directional Drill (HDD), rockpinned, or using a combination of these methods.

3.4.3 Landfall Site

3.4.3.1 The offshore export cables and cable ducts will be installed through the intertidal area and enter the transition joint bays (the interface between offshore export cables and onshore cable circuits) located at the Landfall Site. There will be up to six transition joint bays and ancillary infrastructure installed.

3.4.3.2 The Applicant has identified several Landfall Sites for the Proposed Development, based on information acquired from previous projects and following high level geotechnical and environmental review as set out in Section 3.6.3.

3.4.3.3 The possible Landfall Sites are located along the Aberdeenshire coast and include both cliff and beach cable landing locations.

3.4.3.4 The final selection of a Landfall Site for the Proposed Development will be determined following further environmental, engineering/technical, and economic analysis, of both the onshore and offshore export cable corridors, to ensure the most appropriate location is identified.

3.4.4 Onshore Cable Circuits

3.4.4.1 From the Landfall Site, up to six onshore cable circuits with a nominal voltage of up to 275kV will be routed inland to the Onshore Substation. Each onshore cable circuit will consist of three single core cables up to 350mm in diameter.

3.4.4.2 The main burial method for the onshore cable circuits will be trenching however, other installation methods such as HDD or other trenchless methodologies may be used in sensitive areas to minimise disturbance or to address site-specific technical constraints for example in areas where watercourse crossings or potential conflicts within infrastructure/utilities are identified.

3.4.5 Onshore Substation

3.4.5.1 The Onshore Substation will be located within the Onshore Substation Scoping Area, as identified in Figure 3.1, within a 10km diameter of the existing New Deer substation to enable the Applicant to identify a suitable Onshore Substation Site in proximity to the Grid Connection Point.

3.4.5.2 The footprint of the Onshore Substation will be approximately 250m x 360m, up to 15m high, with a construction area of approximately 250m x 120m. The Onshore Substation parameters identified are a reasonable conservative case. These parameters will therefore be subject to further design development and confirmed within the planning application. The Onshore Substation will comprise HVAC equipment. In addition, the EIA will consider whether there may be any phasing in the delivery of the substation infrastructure.

3.4.5.3 The layout of the Onshore Substation and potential buildings/equipment within the Onshore Substation footprint will be confirmed within the final planning application however it is anticipated to include:

- Access road and main entrance;
- Substation internal road and car park;
- Control building including office facilities and any required amenities;
- Security fencing;
- Incoming 220/275 kilovolt (kV) cable (incomings, poles, Current Transformers (CT)s, Voltage Transformer (VT)s);
- 220/275 kV Shunt Reactors;
- 220/275 kV Circuit Breakers and busbars (Air Insulated Switchgear (AIS)/Gas Insulated Switchgear (GIS));
- 220/275 kV Cable system
- 220/275 kV Harmonic Filters;
- Supergrid Transformers (SGT)s;
- 33kV Circuit Breakers and busbars (AIS/GIS);
- 33kV Cable system;
- Mechanically Switched Reactors (MSR)s/Static Synchronous Compensators (STATCOM)s/Static VAR Compensators (SVC)s;
- SVC building;
- 400kV Circuit Breakers and busbars (AIS/GIS);
- 400kV Cable system;
- 400 kV Harmonic Filters;
- GIS building(s);
- Low voltage system;
- Control and protection system;
- Water retention pond; and
- Landscaping areas.

3.4.6 Onshore Cable Circuits from Onshore Substation to Grid Connection Point

3.4.6.1 From the Onshore Substation, up to six onshore cable circuits will be installed to the Grid Connection Point with a nominal voltage of 400kV. Each onshore cable circuit will consist of three single core cables up to 350mm in diameter.

3.4.6.2 The main burial method for the onshore cable circuits from the onshore substation to the grid connection point will be trenching however, other installation methods such as HDD or other trenchless methodologies may be used in sensitive areas to minimise disturbance or to address site-specific technical constraints for example in areas where watercourse crossings or potential conflicts within infrastructure/utilities are identified. The cables will be connected into 400kV circuit breakers within the Grid Connection Point.

3.5 Proposed Development Phases

3.5.1 Overview

3.5.1.1 The key milestones of the Caledonia OWF are:

- Commencement of onshore construction – 2027 (duration of 2.5 years);
- Commencement of offshore construction – 2028 (duration of 3 years); and
- First power – 2030.

3.5.1.2 It is noted that, at this scoping stage, the above timescales/durations are indicative only and there could be an element of phasing considered as part of the EIA.

3.5.2 Construction

3.5.2.1 It is expected that construction of the Proposed Development for the OnTI will take approximately two and a half years with construction activities taking place throughout this period, this programme reflects the Applicant’s current understanding and will be developed further with an indicative construction programme presented within the EIAR with more specific information on the proposed construction approach.

3.5.2.2 Precise information on the construction process will become available once the final design of the Proposed Development has been defined. A general list of construction activities associated with the installation of the Proposed Development is outlined below. The order of these activities are indicative only with some activities likely to be undertaken in parallel.:

- Establishing construction compounds;
- Enabling works, including potential road widening and alterations to bellmouths;
- HDD works;
- Cable trenching and duct installation;
- Cable trench backfilling;
- Joint bay excavation and installation;
- Cable pulling and jointing/terminating;
- Reinstatement of joint bays;
- Substation civil and building works;
- Substation equipment installation and mechanical and electrical completion;
- Testing and commissioning;
- Substation landscaping works;and
- Reinstatement of construction compounds.

3.5.2.3 Temporary construction compounds will be required at the Landfall Site, along the Onshore Cable Route and at the Onshore Substation. The number and location of construction compounds will be identified within the EIAR.

3.5.2.4 A temporary Onshore Cable Route of approximately 100m in width will be required

to install the onshore cable circuits. In specific locations, where hard constraints are identified it may be required for the Onshore Cable Route to split (into more than one corridor) or widen. Where practicable, efforts will be made to limit the footprint of works. Areas disturbed during construction will be suitably reinstated once the onshore cable circuits have been installed.

3.5.3 Operation

3.5.3.1 At operation stage the OnTI will be transferred to an Offshore Transmission Owner (OFTO)

3.5.3.2 During operation, the OnTI will not be permanently staffed. It is expected that the presence of staff onsite will be limited to maintenance visits. The onshore cable circuits will be installed with protection such that their operation will largely be maintenance free. Non-intrusive routine monitoring will be undertaken. Should damage or a fault occur, testing will identify its specific location so that any excavations or infrastructure replacement can be targeted and isolated. During operation, it is likely that the Onshore Substation will be visited fortnightly for routine inspection. Each visit will generally involve one or two service engineers undertaking standard maintenance activities.

3.5.4 Decommissioning

3.5.4.1 The decommissioning phases will commence of when the operational lifetime of the Proposed Development ends.

3.5.4.2 Although individual pieces of equipment will be replaced as and when required, no major refurbishment works are currently envisaged during the design life. In the event of decommissioning, it is likely that all underground equipment and the Onshore Substation foundations will remain in-situ. Above ground equipment at the Onshore Substation Site will be cleared and the site reinstated. It is considered that the environmental effects of this approach to decommissioning will be less than those arising from the breakup and removal of infrastructure. A decommissioning plan will be submitted and agreed with the relevant authorities close to the OnTI's end of life. Any applicable new legislation or guidelines published prior to decommissioning will be considered and taken into account in relation to any design of mitigation prior to decommissioning taking place. The EIAR will provide an overview of the estimated decommissioning events and an assessment of the anticipated significant effects of this phase on relevant receptors, where applicable.

3.6 Consideration of Alternatives

3.6.1 Onshore Substation

3.6.1.1 As set out above in Section 3.4.5, the Onshore Substation location will provide a connection to the NETS in the proximity of New Deer, and the Applicant is undertaking a substation site selection process within this wider area. This process is being undertaken with consideration of National Grid Horlock Rules and considers technical, environmental, and commercial constraints. This will be detailed within the EIAR.

3.6.2 Onshore Cable Corridor

3.6.2.1 The Applicant has also commenced a process of identifying an Onshore Cable Corridor taking into account, and avoiding where possible, environmental, and technical constraints. This is being undertaken through the desk-based analysis of constraints data and will be refined through further technical assessment and analysis in advance of the EIA. Site surveys undertaken as part of the EIA process will also feed data into the design process. The process undertaken to identify the Onshore Cable Corridor will be detailed within the EIAR.

3.6.3 Landfall Site

3.6.3.1 The Applicant originally identified several Landfall Sites along the Aberdeenshire coastline in proximity to the Caledonia OWF Array Area. These locations were subject to a desk-based analysis of environmental and geo-technical constraints with consideration of the following criteria:

- Suitability of ground conditions for open cut/trenching/HDD at Landfall Sites;
- Access for cable vessels / barges;
- Access to onshore area and availability of space for transition joint bays;
- Access to shoreline / intertidal area; and
- Environmental constraints including natural heritage, the water environment, cultural heritage, people/land use and planning.

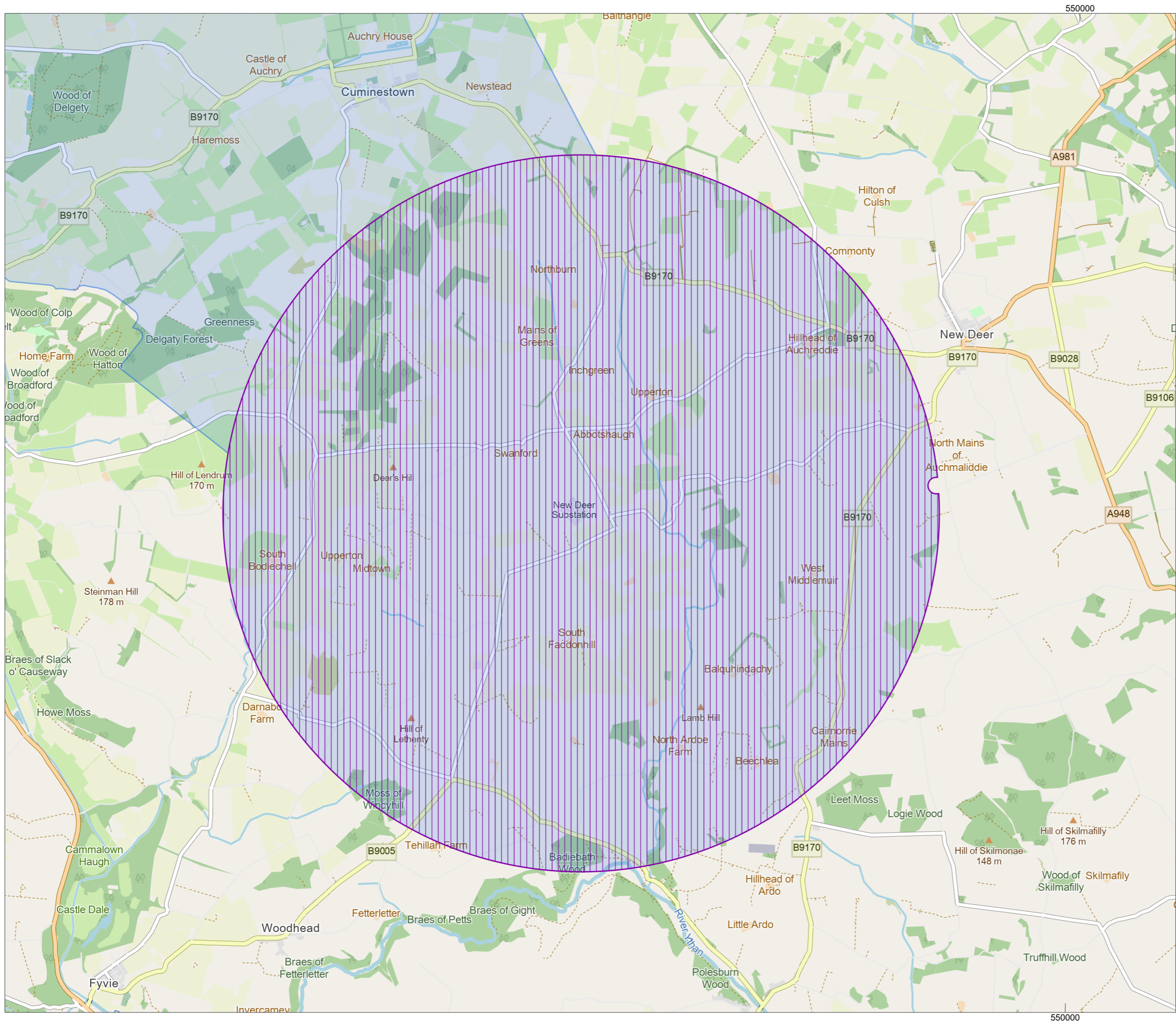
3.6.3.2 Through this process a short list of Landfall Sites have been selected for further detailed geo-technical and environmental review. This process is ongoing and will be detailed within the EIAR.

3.6.3.3 Through developing and delivering Moray East and Moray West offshore windfarms, the Applicant has a history of engagement with coastal communities of the Moray Firth which extends back over a decade and has appreciated and responded to the views and opinions of those communities in the development of its plans. Accordingly, recognising previous public consultation and community engagement, Sandend Bay will not be considered as a Landfall Site.

3.7 References

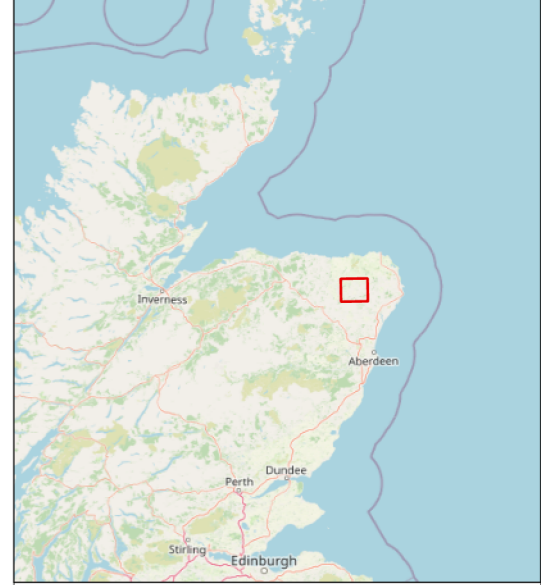
¹ National Grid ESO (2022), *Pathway to 2030 Holistic Network Design*, Available at: <https://www.nationalgrideso.com/document/262681/download> [Accessed 15/09/2022]

² Ocean Winds (2022), *Caledonia Offshore Wind Farm Offshore Scoping Report*, Available at: <https://www.caledoniaoffshorewind.com/the-project/public-engagement/>



- Onshore Scoping Area
- Substation Scoping Area

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri



Scale at A3: 1:50,000

0 1 2 km

N

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
MMAZ	GSWE	AMIT
Date: 11/10/2022		Revision: 02
REF: UKCAL1_ARP_WNF_ENV_MAP_00004		

Figure 3.1
Onshore Substation Scoping Area



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 4

The EIA Process

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	4-4
4 THE EIA PROCESS.....	4-5
4.1 INTRODUCTION	4-5
4.2 REGULATIONS AND GUIDANCE	4-5
4.3 CHARACTERISATION OF THE EXISTING ENVIRONMENT	4-6
4.4 ASSESSMENT OF POTENTIAL SIGNIFICANT EFFECTS	4-6
4.4.2 Evaluation of Significance	4-7
4.4.3 Mitigation	4-8
4.4.4 Residual Effects.....	4-8
4.5 CUMULATIVE AND IN-COMBINATION IMPACT ASSESSMENT	4-8
4.5.1 Cumulative Effects	4-8
4.5.2 In-Combination Effects – Onshore Construction Works.....	4-9
4.5.3 In-Combination Effects – Between Onshore and Offshore Construction Works 4-9	
4.6 TRANSBOUNDARY EFFECTS.....	4-10
4.7 ADDITIONAL EIA MATTERS AND SCOPED OUT TOPICS	4-10
4.8 REFERENCES	14

List of Tables

TABLE 4.1: DESCRIPTION OF IMPACT MAGNITUDE4-7

TABLE 4.2: INTERACTION BETWEEN IMPACT MAGNITUDE AND RECEPTOR SENSITIVITY TO ASSIGN SIGNIFICANCE4-8

TABLE 4.3: ONSHORE TOPICS TO BE SCOPED OUT OF THE EIA4-10

Acronyms and Abbreviations

CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPUK	Environmental Protection United Kingdom
EU	European Union
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment
ICE	Institute of Civil Engineers
ICCI	In-Combination Climate Impacts
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
O&M	Operation and Maintenance
OWF	Offshore Wind Farm
SEPA	Scottish Environment Protection Agency
SNH	Scottish Natural Heritage
SPP	Scottish Planning Policy

4 The EIA Process

4.1 Introduction

- 4.1.1.1 This Chapter presents a general overview of the methodology that will be employed for the Environmental Impact Assessment (EIA) to identify and evaluate potential likely significant environmental effects, including the identification and evaluation of potential cumulative and inter-related impacts.
- 4.1.1.2 Individual topic methodologies may diverge from this general methodology where required to align with topic-specific best practice EIA guidance (for example, published by professional bodies such as the Chartered Institute of Ecology and Environmental Management or the Chartered Institute of Water and Environmental Management), however the methodology presented here represents the foundational principles of the assessment.
- 4.1.1.3 The approach to determining significance of environmental effects will include consideration of the following:
- Characterising the existing environment and receptors (identification of baseline);
 - Assigning sensitivity of receptors;
 - Assigning magnitude of impact; and
 - Assigning significance of effect.

4.2 Regulations and Guidance

- 4.2.1.1 The Town and County Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 transposed the European Union (EU) Directive on the assessment of the effects of certain public and private projects on the environment (EIA Directive) (2011/92/EU, as amended by Directive 2014/52/EU) into Scottish law. The 2017 EIA Regulations remain in force post Brexit and continue to form the principal legal framework for assessing the likely significant environmental effects arising from a proposed development and determining how these can be reduced or enhanced depending on their nature.
- 4.2.1.2 The Applicant recognises that an EIA is required for the Proposed Development as it meets the criteria defined under Schedule 2 of the 2017 EIA Regulations. The EIA for the Proposed Development will meet the requirements of the 2017 EIA Regulations.
- 4.2.1.3 In addition to legislative requirements, the EIA methodology presented here draws from a number of guidance and best practice documents including:
- Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment, as amended, 2004¹;
 - IEMA Environmental Impact Assessment Guide to Shaping Quality Development, 2015²;
 - IEMA Delivering Proportionate EIA, A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice, 2016³;

- Institute of Civil Engineers (ICE), Environmental Impact Assessment Handbook: A practical guide for planners, developers and communities, 3rd Edition, 2019⁴;
- Planning Advice Note 1/2013: Environmental Impact Assessment⁵;
- Planning Circular 1/2017: Environmental Impact Assessment regulations 2017⁶; and
- A Handbook on Environmental Impact Assessment v5 (NatureScot (formerly Scottish Natural Heritage (SNH)), 2018)⁷.

4.2.1.4 Topic-specific guidance and best practice documents are detailed in the relevant technical topic sections of this Onshore Scoping Report.

4.3 Characterisation of the Existing Environment

4.3.1.1 A comprehensive evaluation of the existing environment will be undertaken to facilitate a robust assessment of the effects of the Proposed Development on receiving receptors. The baseline environmental receptors for each technical topic will be determined through a combination of desk-based research, primary data gathering and consultation. Broadly, baseline conditions will be determined by:

- Defining a study area for each topic and corresponding receptor(s) based on their relevant characteristics;
- Desk-based review and, where appropriate, ground truthing of the baseline data information available;
- Considering the potential impacts and effects that might arise as a result of the Proposed Development (including the consideration of future baseline developments); and
- Gather and review further baseline data if required to ensure there is sufficient data to make robust judgements about the significance of potential effects.

4.3.1.2 Once receptors have been identified and the baseline environment characterised, receptor sensitivity will be assigned by considering the following:

- Designations, value, and importance;
- Prevalence/rarity;
- Vulnerability to change;
- Recoverability from a temporary impact; and
- Usage.

4.4 Assessment of Potential Significant Effects

4.4.1.1 This Onshore Scoping Report outlines the potential environmental effects of the Proposed Development and sets out those topics that are proposed to be scoped in or scoped out of the EIA. The final list of topics to be considered in the EIA will be confirmed upon receipt of the EIA Scoping Opinion from Aberdeenshire Council and through targeted discussions with relevant stakeholders and consultees.

- 4.4.1.2 The Environmental Impact Assessment Report (EIAR) will make a distinction between the term 'impact' and 'effect'. An impact is defined as the likely change to the characteristics and attributes of the identified receptors caused by an action, whereas the 'effect' relates to the consequence of an impact.
- 4.4.1.3 To assign significance of an effect, the EIAR will consider the potential magnitude of an impact in relation to the sensitivity of the receptor or receiving environment.
- 4.4.1.4 Impact magnitude will vary across technical topics but will follow the principles outlined in Table 4.1.

Table 4.1: Description of Impact Magnitude

Impact Magnitude	Description
High	Complete loss and/or alteration to qualifying / key elements and features of the receptor or receiving environment.
Medium	Partial loss and/or alteration to qualifying / key elements and features of the receptor or receiving environment.
Low	Minor loss / divergence from baseline conditions.
Negligible	Very slight / no change to baseline conditions.

4.4.1.5 Sensitivity will be classed as 'High', 'Medium', 'Low' or 'Negligible' and assigned based on the considerations outlined in Section 4.3 above. The approach to defining sensitivity may also vary across individual technical topics and will be defined within each environmental topic section of the EIAR in accordance with requirements and best practice guidance relevant to that topic.

4.4.2 Evaluation of Significance

4.4.2.1 The assessment of effects for each environmental topic scoped into the EIA will consider environmental impacts of the construction, operation and decommissioning phases of the Proposed Development as well as the environmental impacts in the absence of the Proposed Development (the do-nothing scenario).

4.4.2.2 Table 4.2 below sets out how impact magnitude and receptor sensitivity interact to facilitate a judgement of significance of effect. For example, a major adverse loss / alteration to key elements and features of a receptor of low value (sensitivity) will have an effect of lesser significance than the same impact on a receptor or site of high importance. Significance attributed to the effects will use Table 4.2 as a guide, however professional judgement will be equally important in deciding the suitability of this matrix for assessing effect significance.

Table 4.2: Interaction Between Impact Magnitude and Receptor Sensitivity to Assign Significance

Significance of Effect		Sensitivity of Receptor			
		Negligible	Low	Medium	High
Impact Magnitude	Negligible	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Minor
	Medium	Negligible	Minor	Moderate	Moderate
	High	Negligible	Minor	Moderate	Major

4.4.2.3 Effects that are considered to be significant prior to secondary mitigation, but after implementation of embedded mitigation and best practice will be identified in the EIAR

4.4.2.4 By applying professional judgement and by taking into account the Guidelines for Environmental Impact Assessment (IEMA, 2004)¹, the assessments within the EIAR are likely to consider moderate or major effects to be significant. Minor or negligible effects are likely to be considered not significant. Professional judgement will be used to determine whether an effect of minor-moderate significance is considered significant or non-significant.

4.4.3 Mitigation

4.4.3.1 Two forms of mitigation will be presented in the EIAR and identified for each topic:

- Embedded mitigation: measures that have altered the design of the Proposed Development, site selection, or associated construction, operation, or decommissioning methodologies so as to avoid or reduce potential significant environmental effects. Section 3.2 above identifies how a design envelope will be developed with embedded mitigation fundamental to the design development of the Proposed Development and crucial to an iterative EIA process; and
- Secondary mitigation: where there are significant effects identified which cannot be mitigated through the implementation of the embedded mitigation or best practice, secondary mitigation will be identified to further avoid and/or reduce the significant adverse effects.

4.4.3.2 In addition to embedded and secondary mitigation should environmental monitoring measures be required during the lifecycle of the Proposed Development, these will be detailed in the mitigation sections of the EIAR.

4.4.4 Residual Effects

4.4.4.1 Following the identification of any necessary secondary mitigation measures, effects will be re-assessed to determine and describe the residual effects using the same methodology as the assessment of the potential effects. Where no additional mitigation measure is proposed, the EIAR will explain why the significance of effect cannot be reduced through mitigation.

4.5 Cumulative and In-Combination Impact Assessment

4.5.1 Cumulative Effects

4.5.1.1 As well as considering the impacts from the Proposed Development alone, there is

the potential for cumulative effects between the Proposed Development and other, existing, or planned, developments within the identified study area. A cumulative effects assessment (CEA) is also a requirement under the 2017 EIA Regulations. Each technical chapter of the EIAR will provide a CEA with regards to their respective receptors. Each technical chapter of this Onshore Scoping Report has provided a high-level overview of the cumulative impacts relevant to that topic and an indication as to whether cumulative impacts will be relevant at EIA.

4.5.1.2 The main source of information to identify other developments would be the Aberdeenshire planning portal, which would be searched at an agreed point in advance of completion of the EIA. As per Scottish Planning Policy (SPP)⁸ the EIA will consider developments which are:

- Under construction;
- Permitted but permissions have not yet been implemented; and
- Live applications not yet determined.

4.5.1.3 A cut-off date would be agreed in consultation with Aberdeenshire Council, at which point a final search would be concluded and a final list of developments to be included in the CEA would be confirmed. The list will be screened in consultation with the relevant local planning authorities (most likely to be Aberdeenshire Council but may be a neighbouring local authority) to determine whether there is potential for overlap of environmental effects with the Proposed Development, leading to a significant effect for a receptor. Should the local planning authority identify a requirement for engagement with any other stakeholders this would also be undertaken. This screening exercise will also remove any small-scale developments that do not need to be considered further.

4.5.1.4 Where the information is available from associated planning application documentation it will be used to inform the CEA.

4.5.2 In-Combination Effects – Onshore Construction Works

4.5.2.1 In-combination effects of the Proposed Development refer to the inter-relationships between EIA topics that may lead to different or greater environmental effects than in isolation. Examples of this might include the construction of a watercourse crossing in an identified location which may have combined effects on both ecology and hydrology receptors, or noise and dust effects combining to increase a person’s perception of construction disruption. This in-combination effect will be considered within the assessment undertaken for each technical chapter within the EIAR.

4.5.2.2 In-combination effects might relate two levels of effects:

1. effects within a *single* technical topic occurring throughout the lifetime of the Proposed Development, across more than one phase (construction, operation, and decommissioning); and
2. effects between and across *different* technical topics that interact to result in greater effects upon receptors than when considered in isolation.

4.5.3 In-Combination Effects – Between Onshore and Offshore Construction

Works

4.5.3.1 There is a direct overlap in jurisdiction of consenting and regulatory regimes within the intertidal area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS). Offshore works below MHWS will therefore take place alongside onshore works at the landing point up to the MLWS. There is therefore the potential for in-combination effects resulting from onshore and offshore works in this area. This will be considered within the assessment undertaken for each technical chapter within the EIAR and will allow for a whole project assessment of both the onshore and offshore elements of the Caledonia Offshore Wind Farm (OWF).

4.6 Transboundary Effects

4.6.1.1 The Proposed Development would not have transboundary effects and therefore this will not be considered further within the Onshore Scoping Report or the EIAR.

4.7 Additional EIA Matters and Scoped Out Topics

4.7.1.1 Under the EIA Regulations, an EIA must provide a description of the likely significant impacts of the Proposed Development.

4.7.1.2 As a renewable energy project, it is not anticipated that the Proposed Development will have a significant adverse effect on climate or Green House Gases (GHG), but there will be material benefits as they relate to the overall response to climate change. A separate chapter of this Onshore Scoping Report has been provided to consider climate (Chapter 15 (Climate Change)). The topic will be scoped in for the EIA, with the assessment based on the design envelope and construction approach/details that are taken forward for assessment. As well as assessing potential adverse effects from the Proposed Development arising from emissions, the EIAR will outline the benefits that the Proposed Development will deliver in reducing GHG and meeting renewable energy targets.

4.7.1.3 Table 4.3 identifies those topics which are either proposed to be scoped out of the EIA as no likely significant impacts are identified or those topics which will not require a standalone topic chapter within the EIA as potential likely significant impacts will be identified within other technical chapters.

Table 4.3: Onshore Topics to be Scoped out of the EIA

Topic	Justification
Human Health (Standalone Chapter)	Chapter 17 (Human Health) has been provided within this Onshore Scoping Report to identify the potential effects on human health. The Chapter identifies that potential human health effects will be assessed within other technical topic chapters within the EIA such as airborne noise, air quality and landscape and visual. It is therefore proposed to scope out the inclusion of a standalone human health chapter within the EIAR.
Air Quality	Chapter 12 (Air Quality) of this Onshore Scoping Report sets out the potential air quality impacts from the Proposed Development. The Chapter identifies potential impacts associated with the construction such as the generation of dust and exhaust emissions from construction traffic.

Topic	Justification
	<p>The generation of dust and particulates potentially having an adverse (smothering) impact on dust sensitive ecological receptors and effects on human health and nuisance caused by dust soiling of surfaces at residential properties.</p> <p>Exhaust emissions from construction traffic and plant and equipment having the potential to increase local ambient concentrations of NO2 and particulate matter and impact human health and ecological receptors.</p> <p>During construction with the implementation of embedded mitigation (an Outline Construction Environmental Management Plan (CEMP)), the potential effects of construction dust on ecological receptors are considered to be negligible.</p> <p>With the implementation of the Outline CEMP and a design aim to ensure there are no residential properties within 50m of the Onshore Cable Corridor it is identified that dust emission magnitudes will be low and therefore the effects of dust soiling at residential properties during the construction phase will be negligible.</p> <p>Construction phase traffic will not exceed the Environmental Protection United Kingdom (EPUK) & Institute of Air Quality Management (IAQM), guidance⁹ of an increase of 500 light duty vehicles (LDVs) and/or 100 heavy duty vehicles (HDVs) as an Annual Average Daily Traffic (AADT) count on the local road network within 50m of any high sensitivity residential receptor. It is therefore considered that further assessment of human health impacts at residential receptors during the construction phase is not required.</p> <p>During Operation it is considered unlikely that the Proposed Development will have any impacts on local air quality or result in the generation of dust due to a very low number of vehicle trips associated with O&M of the Proposed Development and the completion of construction works.</p> <p>Subject to the implementation of the mitigation outlined in within Chapter 12 (Air Quality) further assessment of air quality impacts can be scoped out of the EIA.</p>
<p>Major Accidents and/or Disasters</p>	<p>Chapter 18 (Major Accidents and Disasters) of this Onshore Scoping Report identifies Major Accidents and Disasters receptors of relevance to the Proposed Development.</p> <p>Potential major accidents may occur because of physical accidents during construction and decommissioning, spills of fuels and chemicals, electrical accidents associated with commissioning and decommissioning, fires/explosions involving diesel or combustible materials stored in the construction compounds, and failure at the Onshore Substation resulting in potential electrocution, fire or explosion.</p>

Topic	Justification
	<p>Good design of electrical systems, implementation of safe systems of work and pollution prevention measures will further ensure no significant major accidents risk to or from the Proposed Development.</p> <p>There is also potential for external major accidents risk associated with ground conditions on any onshore construction work, including the potential for Unexploded Ordnance (UXO) and historic ground contamination. Where appropriate, risks to the Proposed Development from potential areas of vulnerability from ground conditions will be assessed in Chapter 11 (Geology, Soils and Contaminated Land) of the EIAR.</p> <p>The risk of disasters as a result of adverse weather conditions or other natural hazards which have the potential to affect the construction of the Proposed Development is low. Potential flood risks and procedures for working in areas of flooding will be established and considered as part of Hydrology and Hydrogeology sections of the EIAR.</p> <p>Climate hazards, such as future extreme weather events, which have the potential to result in disaster during operational or decommissioning phases will be considered in the Chapter 15 (Climate Change) of the EIAR. This will include an assessment of in-combination climate change impacts (ICCCI).</p> <p>The likelihood of any other external hazard resulting in a major accident or disasters risk as a result of the Proposed Development is considered to be low. It is therefore proposed to scope out the inclusion of a standalone Major Accidents and Disasters Chapter (Chapter 18) within the EIAR.</p>
Waste and Materials	<p>The Proposed Development will adopt good construction and management practices to ensure that waste is minimised as far as practicable. This will include reusing site-won excavated materials, primarily associated with cable trenching, as far as possible. Where material is unsuitable for reuse, for example, contaminated soils, these will be appropriately managed (refer to Chapter 11 Geology, Soils and Contaminated Land).</p> <p>The storage, transport and eventual disposal of waste will be managed through implementation of and adherence to a Site Waste Management Plan (SWMP) to ensure that no significant environmental effects arise. Chapter 14 Traffic and Transport considers construction traffic movements as a result of the Proposed Development.</p> <p>The Proposed Development is not anticipated to consume key material resources in quantities likely to result in a significant effect (i.e., impact the availability of national construction resources). Additionally, no sensitive resources (such as rare earth metals) will be required for construction of the Proposed Development.</p>

Topic	Justification
	<p>Consumption of key materials is not anticipated during operation of the Proposed Development.</p> <p>It is therefore proposed to scope out the inclusion of a standalone Waste and Materials Chapter within the EIAR.</p>

4.8 References

¹ Institute of Environmental Management and Assessment (2004), *Guidelines for Environmental Impact Assessment, as amended*

² Institute of Environmental Management and Assessment (2015), *Environmental Impact Assessment Guide to Shaping Quality Development*

³ Institute of Environmental Management and Assessment (2016), *Delivering Proportionate EIA, A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice*

⁴ Institute of Civil Engineers (2019), *Environmental Impact Assessment Handbook: A practical guide for planners, developers and communities, 3rd Edition*

⁵ The Scottish Government (2013), *Planning Advice Note 1/2013: Environmental Impact Assessment*

⁶ The Scottish Government (2017), *Planning Circular 1/2017: Environmental Impact Assessment regulations 2017*

⁷ NatureScot (formerly Scottish Natural Heritage) (2018), *A Handbook on Environmental Impact Assessment v5*

⁸ The Scottish Government, *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/> [Accessed 24/11/2022]

⁹ Environmental Protection United Kingdom & Institute of Air Quality Management (2017), *Environmental Protection United Kingdom & Institute of Air Quality Management Land-Use Planning & Development Control: Planning For Air Quality*



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 5

Consultation Process

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

- ACRONYMS AND ABBREVIATIONS 5-4**
- 5 CONSULTATION PROCESS 5-5**
 - 5.1 INTRODUCTION 5-5**
 - 5.2 CONSENTING PROCEDURE AND RELEVANT LEGISLATION 5-6**
 - 5.3 STAKEHOLDER ENGAGEMENT 5-6**
 - 5.3.2 Initial Engagement..... 5-6**
 - 5.3.3 Planned Statutory Engagement..... 5-7**
 - 5.3.4 Stakeholder Identification 5-8**
 - 5.4 REFERENCES 5-10**

List of Tables

TABLE 5.1: IDENTIFICATION OF KEY STATUTORY AND NON-STATUTORY STAKEHOLDERS.....5-8

Acronyms and Abbreviations

BWEA	British Wind Energy Council
CWS	Scottish/Local Wildlife Sites
EIA	Environmental Impact Assessment
ESO	Electricity System Operator
HES	Historic Environment Scotland
JNCC	Joint Nature Conservation Council
MoD	Ministry of Defence
NNR	National Nature Reserves
Ofgem	Office of Gas and Electricity Market
OnTI	Onshore Transmission Infrastructure
ORE	Offshore Renewable Energy
OWIC	Offshore Wind Industry Council
PAC	Pre-Application Consultation
RSPB	Royal Society for Protection of Birds
RUK	Renewable United Kingdom
SEPA	Scottish Environment Protection Agency
SOWEC	Scottish Offshore Wind Energy Council
SSEN	Scottish and Southern Electricity Networks
SWT	Scottish Wildlife Trust
TS	Transport Scotland
UK	United Kingdom

5 Consultation Process

5.1 Introduction

- 5.1.1.1 This Chapter of the Onshore Scoping Report presents a general overview of the consenting procedure and relevant legislation of relevance to the Proposed Development. This Chapter also presents the stakeholder engagement process, including identification of stakeholder, initial engagement, and the planned statutory engagement.
- 5.1.1.2 The onshore element of the Proposed Development consisting of the Onshore Transmission Infrastructure (OnTI), constitute a national development in accordance with The Town and Country Planning (Scotland) Act 1997.
- 5.1.1.3 The 1997Act sets out the statutory requirements for Pre-Application Consultation (PAC) as relevant to all national developments and as such those that inform the consultation process detailed in this Chapter.
- 5.1.1.4 Stakeholder engagement and consultation is a key aspect for the successful delivery of a consent application for any national development. Without statutory stakeholder input and collaboration to address concerns, the achievement of United Kingdom (UK) and Scottish renewable energy targets and the provision of clean energy would not be possible. It is equally important to consult other non-statutory bodies, interested parties and the general public in order to take into consideration aspects that can affect specialist interests, livelihoods, employment, and daily life activities. This approach to stakeholder consultation will ensure a robust planning application is made that takes into consideration all potential environmental and socio-economic receptors that might be impacted by the Proposed Development.
- 5.1.1.5 This Chapter of the Onshore Scoping Report sets out the planned consultation process, including the anticipated key stages for when the Applicant and the wider project team intend to carry out engagement with relevant stakeholders, other interested parties, and the public.
- 5.1.1.6 Stakeholder engagement comprises of two main elements: communication and consultation. The former is the provision of information to enable stakeholders to understand the progress of the Proposed Development, while the latter provides the opportunity for stakeholders to provide information and express views which influence the Proposed Development.
- 5.1.1.7 This leads to four basic objectives for the engagement strategy:
- Identify – identification of those stakeholders with an interest in the Proposed Development;
 - Communicate – provide appropriate information on the Proposed Development to stakeholders including any potential positive (beneficial) or negative (adverse) impacts that the Proposed Development may have;
 - Consult – seek and record views and potential concerns of stakeholders; and
 - Communicate again – provide information to stakeholders detailing the results of consultation and provide reassurance to any concerns raised.

5.2 Consenting Procedure and Relevant Legislation

5.2.1.1 The statutory consultation requirements as relevant to the Town and Country Planning process and pre-application community consultation are set out by:

- The Town and Country Planning (Scotland) Act 1997 (as amended)¹;
- The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013²; and
- The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021³.

5.2.1.2 The Applicant will undertake the Environmental Impact Assessment (EIA) process for the Proposed Development in line with The Town and Country Planning (EIA) (Scotland) Regulations 2017. These Regulations are collectively referred to as "the EIA Regulations" and they take into account the requirement for public participation in the Proposed Development. As part of the EIA, a full public consultation will be undertaken.

5.2.1.3 The Aarhus Convention is created to empower the role of citizens and civil society organisations in environmental matters and is founded on the principles of participative democracy. The Aarhus Convention establishes a number of rights to the individuals and civil society organisations with regard to the environment. The Applicant will undertake an EIA in line with the Aarhus Convention which establishes the rights of the general public to environmental information. This includes the public's right to receive environmental information held by public authorities, the right to participation in decision-making regarding the environment and the right to review procedures and challenge decisions that have been made without due regard to public review or input.

5.2.1.4 The Regulations listed above set out the statutory consultation requirements relevant to the pre-application stage of the consenting process and of the EIA process, covering requirements such as advertising of consent applications.

5.2.1.5 Both the requirements of the EIA process and the Town and Country Planning process will be adhered to.

5.3 Stakeholder Engagement

5.3.1.1 The Applicant will follow best practice guidelines set out by the British Wind Energy Association with the aims of inclusiveness and equality. Key stakeholders will be given the opportunity to determine how they wish to be consulted with regards to the Proposed Development through early engagement. The Applicant will also ensure they follow consenting guidance and advice given by statutory stakeholders on matters regarding engagement and stakeholders.

5.3.1.2 Development and consent of the Proposed Development will rely on engagement with relevant stakeholders from the pre-EIA phases through to consent application, and beyond.

5.3.2 Initial Engagement

5.3.2.1 The Applicant understands the utility of building and maintaining strong professional relationships with statutory stakeholders from early project stages

through to the consent application. The Applicant has already actively begun the process of engaging with key statutory stakeholders during this scoping stage of development. An introductory meeting was held between Aberdeenshire Council and the Applicant in August 2022. This meeting introduced the Proposed Development to Aberdeenshire Council and outlined the main activities being undertaken and Proposed Development timeline. A programme of monthly calls has been agreed between the Council and the Project Team, with a view to encouraging free and open engagement, co-operation, and communication.

5.3.2.2 The Applicant is committed to building on this initial engagement in preparation for the EIA and will regularly have meetings with Aberdeenshire Council as the Proposed Development progresses. Relevant stakeholders being consulted/to be consulted across all stages of the Proposed Development (such as pre-application, application submission and review, pre-construction, construction, commissioning, operation and maintenance, and decommissioning, (as set out in Section 2.3.1.1) include:

- National and local authorities;
- Local communities/community councils;
- A long list of local and international interest organisations;
- Suppliers/industry;
- National/regional grid providers; and
- landowners including agricultural owners and occupiers.

5.3.2.3 It is acknowledged that stakeholders will hold different information needs and will have different levels of involvement in the Proposed Development.

5.3.3 Planned Statutory Engagement

5.3.3.1 The Applicant has initiated early consultation with Aberdeenshire Council in order to understand their preferred method of scheduling engagement and consultation throughout the EIA and pre-application stage (which involves regular project update meetings throughout the Proposed Development consenting timeline).

5.3.3.2 The Proposed Development will adhere to all statutory consultation requirements that are required as part of the EIA and consenting process'. Engagement with stakeholders will be ongoing and iterative during this process, but it is also expected to be focused on the following key stages:

- Formal submission and publication of this Onshore Scoping Report and request for a Scoping Opinion;
- If required, consultation on the survey scopes of work for key survey campaigns;
- Provision of key technical reports and data, used to inform the assessments, to relevant stakeholders for information and feedback;
- Completion of statutory PAC (community engagement);
- Formal submission and publication of planning application; and

- Additional public/stakeholder-specific engagement events that will take place at intervals during the consenting process, together with the issue of Proposed Development communications and documentation to the Proposed Development’s website.

5.3.3.3 To inform the onshore elements of the EIA, the Applicant is planning to hold two rounds of consultation events. The first round will be undertaken at three representative locations during the early stages of development, while the second will involve events prior to submission of the application. Both rounds of physical consultation events will be accompanied by a round of virtual community engagement enabling those who cannot attend in person to engage fully with the consultation process.

5.3.4 Stakeholder Identification

5.3.4.1 This Chapter of the Onshore Scoping Report has been informed by the Applicant’s Project Team’s experience of previous stakeholder engagement in relation to the consenting of such projects in Scotland. The Applicant has built positive stakeholder relationships over the last 12+ years through the development of Moray East and Moray West Offshore Wind Farms, and the subsequent construction of the Moray East Offshore Wind Farm. The Applicant will ensure these relationships are maintained in order to deliver the Proposed Development.

5.3.4.2 The Applicant is already aware of, and has anticipated, those key stakeholders expected to have an interest in the Proposed Development. These stakeholders are identified within Table 5.1; however, it is recognised that this list is not exhaustive and other relevant stakeholders are likely to be consulted as the Proposed Development progresses through the EIA and further details are confirmed.

Table 5.1: Identification of Key Statutory and Non-Statutory Stakeholders

Type / Receptor	Stakeholder
Governmental	<ul style="list-style-type: none"> ▪ NatureScot; ▪ Joint Nature Conservation Committee (JNCC); ▪ Scottish Environment Protection Agency (SEPA); ▪ Historic Environment Scotland (HES); ▪ Transport Scotland (TS); ▪ Planning Authorities and other Departments within the Scottish Government; ▪ Ministry of Defence (MoD); ▪ Office of Gas and Electricity Market (Ofgem); ▪ Forestry and Land Scotland; and ▪ Scottish Forestry.
Tourists and Recreation	<ul style="list-style-type: none"> ▪ Local Tourists Board; ▪ Local Water Sports Groups; ▪ Visit Scotland; ▪ Sustrans; ▪ Surfers Against Sewage; and ▪ Mountaineering Scotland.
Local Authorities and Organisations	<ul style="list-style-type: none"> ▪ Community Councils and representatives; and ▪ Local Educational Institutions.

Type / Receptor	Stakeholder
Grid Operators	<ul style="list-style-type: none"> ▪ National Grid Electricity System Operator (ESO); and ▪ Scottish and Southern Electricity (SSEN) Transmission.
Environmental Organisations	<ul style="list-style-type: none"> ▪ Royal Society for Protection of Birds (RSPB); ▪ Scottish Wildlife Trust (SWT); ▪ National Trust for Scotland; ▪ National Nature Reserves (NNR); ▪ Scottish/Local Wildlife Sites (CWS); ▪ The River Deveron District Salmon Fishery Board; ▪ The Deveron, Bogie and Isla Rivers Charitable Trust; and ▪ Keep Scotland Beautiful.
Wind Energy Interest	<ul style="list-style-type: none"> ▪ Scottish Renewables; ▪ Renewable UK (RUK); ▪ Scottish Renewable Forum; ▪ Offshore Wind Industry Council (OWIC) and Offshore Wind Growth; ▪ Partnership – funded by OWIC; ▪ Offshore Renewable Energy (ORE) Catapult; ▪ Deep Wind Cluster; ▪ Scottish Offshore Wind Energy Council (SOWEC); ▪ Other Regional Advisory Groups; and ▪ British Wind Energy Association (BWEA).
Supply/Industry	<ul style="list-style-type: none"> ▪ Wind turbine, foundation, and substation manufacturing; ▪ Cable suppliers; and ▪ Suppliers of local services.
Other	<ul style="list-style-type: none"> ▪ Oil and Gas operators; ▪ Scottish gas distributors; ▪ Landowners; ▪ Other ScotWind Developers (including north, north-east and east Plan Option developers); ▪ Media, Public Relation; ▪ Health & Safety Executive: ▪ The Coal Authority; ▪ Sports Scotland and ▪ Utilities companies/Scottish Water.

5.4 References

¹ *Town and Country Planning (Scotland) Act 1997*, Available at:
<https://www.legislation.gov.uk/ukpga/1997/8/contents> [Accessed 14/09/2022]

² *The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013*, Available at:
<https://www.legislation.gov.uk/ssi/2013/155/contents/made> [Accessed 14/09/2022]

³ *The Town and Country Planning (Pre-Application Consultation) (Scotland) Amendment Regulations 2021*, Available at:
<https://www.legislation.gov.uk/ssi/2021/99/regulation/1/made> [Accessed 14/09/2022]



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 6

Land Use and Agriculture

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	6-5
6 LAND USE AND AGRICULTURE	6-6
6.1 INTRODUCTION	6-6
6.2 LEGISLATIVE AND POLICY CONTEXT	6-6
6.2.2 National Planning Framework 3	6-6
6.2.3 Draft National Planning Framework 4	6-6
6.2.4 Scottish Planning Policy	6-6
6.2.5 Aberdeen City and Shire Strategic Development Plan 2020	6-6
6.2.6 Aberdeenshire Local Development Plan	6-7
6.3 STUDY AREA	6-7
6.4 BASELINE ENVIRONMENT.....	6-7
6.4.2 Land-Use Designations.....	6-8
6.4.3 Agriculture	6-9
6.4.4 Forestry	6-9
6.5 ASSESSMENT METHODOLOGY.....	6-10
6.6 EMBEDDED MITIGATION	6-10
6.7 POTENTIAL IMPACTS	6-11
6.7.2 Construction.....	6-11
6.7.3 Operation	6-11
6.7.4 Decommissioning	6-11
6.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	6-12
6.9 POTENTIAL SECONDARY MITIGATION	6-12
6.10 PROPOSED SCOPE	6-12
6.11 CONSULTATION	6-12
6.12 QUESTIONS TO CONSULTEES.....	6-12
6.13 REFERENCES	6-14

List of Figures

FIGURE 6.1: LAND USE

List of Tables

TABLE 6.1: PROPOSED SCOPE.....6-12

Acronyms and Abbreviations

AWI	Ancient Woodland Inventory
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
km	Kilometre
LDP	Local Development Plan
m	metre
MLWS	Mean Low Water Spring
NPF3	Third National Planning Framework
NPF4	Draft Fourth National Planning Framework
OnTI	Onshore Transmission Infrastructure
OS	Ordnance Survey
SDP	Strategic Development Plan
SPP	Scottish Planning Policy

6 Land Use and Agriculture

6.1 Introduction

6.1.1.1 This Chapter of the Onshore Scoping Report identifies the land use and agricultural receptors of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, and an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation, and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

6.1.1.2 This Chapter is supported by Figure 6.1: Land Use.

6.2 Legislative and Policy Context

6.2.1.1 The following legislation, policy and guidelines will be taken into consideration during the land use and agriculture assessment.

6.2.2 National Planning Framework 3

6.2.2.1 The third National Planning Framework¹ (NPF3) sets out a long-term strategy for development and investment across Scotland. All local authorities are required to reflect the NPF3 within their Local Development Plan (LDP).

6.2.3 Draft National Planning Framework 4

6.2.3.1 The Revised Draft Fourth National Planning Framework (NPF4)² was published in November 2022 and provides the Scottish Government's long-term plan for what Scotland could be in 2045.

6.2.3.2 Given the focus of the draft document on the climate crisis and what planning and development can do to achieve a net zero, sustainable Scotland by 2045, it is evident that a drive to increase offshore wind energy features heavily throughout. Part 1 – National Spatial Strategy which acknowledges that the North East area, including the Moray Firth and Aberdeenshire, makes an important contribution to Scotland's climate change targets by supporting renewable energy generation and highlights the 'potential to increase offshore wind energy capacity', along with the necessary improvement to the electricity distribution and transmission network.

6.2.4 Scottish Planning Policy

6.2.4.1 The Scottish Planning Policy (SPP)³ sets out national planning policies for operation of the planning system and for the development and use of land.

6.2.4.2 The SPP works in conjunction with other national planning policy and, in particular, it sits alongside the National Planning Framework.

6.2.4.3 The SPP lists development management considerations in relation to proposals for energy infrastructure developments, which includes the scale and contribution to renewable energy generation targets, along with impacts and effects on communities, the historic environment, natural heritage, and the water environment.

6.2.5 Aberdeen City and Shire Strategic Development Plan 2020

6.2.5.1 The Strategic Development Plan (SDP)⁴ is a statutory planning document which is prepared at a City Region level by Aberdeen City Council and Aberdeenshire

Council. It is one of four SDPs across Scotland and covers a twenty-year period to 2040. The SDP focusses on nationally or regionally important issues and informs the LDPs prepared by both Aberdeen City and Aberdeenshire Councils.

6.2.5.2 The SDP identifies priority regeneration areas along the Aberdeenshire coastline including coastal towns of Banff and Macduff. It also identifies the opportunity for harbours along the North Coast to play a role in supplying services to offshore renewable energy facilities in the Moray Firth with proposals encouraged where appropriate.

6.2.6 Aberdeenshire Local Development Plan

6.2.6.1 The Aberdeenshire LDP 2017⁵ contains settlement statements which allocate or designate land in and around settlements for future development or certain uses, e.g. amenity greenspace, sports areas, green corridors, and civic space.

6.2.6.2 Aberdeenshire Council is due to adopt the Aberdeenshire (Proposed) LDP 2022⁶ (hereby identified in this Chapter as the Aberdeenshire LDP 2022) in Summer/Autumn 2022. The Aberdeenshire LDP 2022 will replace the current adopted LDP (2017).

6.3 Study Area

6.3.1.1 The Land Use and Agriculture study area within this Scoping Chapter is defined by the Onshore Scoping Area. The Onshore Scoping Area, as shown in Figure 1.2 consists of:

- An Onshore Cable Corridor Scoping Area which runs approximately 33km inland from the Aberdeenshire coastline where the proposed Landfall Site will be located, towards the village of New Deer; and
- A Substation Scoping Area, a 10km diameter area within the south of the Onshore Scoping Area.

6.3.1.2 The Onshore Scoping Area includes a number of settlements. The three largest settlements are the coastal towns of Banff and Macduff, in the north, and the town of Turriff which is located on the western boundary of the Onshore Scoping Area. Land cover within the Onshore Scoping Area is predominantly arable and horticultural, interspersed with areas of improved grassland and woodland. In comparison to the north and central sections of the Onshore Scoping Area, the southern section has a larger concentration of improved grassland, with only small areas of woodland.

6.3.1.3 The Onshore Scoping Area will be refined throughout the Environmental Impact Assessment (EIA) process though refinement of the Onshore Transmission Infrastructure (OnTI) and identification of the Landfall Site, Onshore Substation Site and Onshore Cable Corridor. The land use study area will therefore be refined for the EIA and the Environmental Impact Assessment Report (EIAR) study area will be based on these areas.

6.4 Baseline Environment

6.4.1.1 The baseline characteristics of land-use within the study area have been established through a desk study using the following sources;

- Ordnance Survey (OS) mapping;
- Aberdeenshire LDP 20175;
- Aberdeenshire (Proposed) LDP 20226;
- Aberdeen City and Shire SDP 2020; and
- The Macaulay Land Use Research Institute (2010) Land Capability for Agriculture in Scotland.

6.4.2 Land-Use Designations

6.4.2.1 Within the study area the Aberdeenshire LDP 2017 and the Aberdeenshire LDP 2022 identifies settlement statements for settlements within the Banff and Buchan, Buchan, Formartine, Garioch, Kincardine and Mearns and Marr Areas. These statements allocate land for future development and certain uses.

6.4.2.2 Policy B4 (Special Development Areas) within the Aberdeenshire LDP 2017 and the Aberdeenshire LDP 2022 identifies Regeneration Priority Areas within Banff and Macduff within the study area. Banff Harbour and Marina are promoted and being developed as part of an Action Programme which aims to support the regeneration of the area. The Action Programme has identified the need to improve and promote a network of walking and cycling routes around Macduff and Banff.

6.4.2.3 The area directly surrounding the settlements in the north of the study area (Sandend, Portsoy, Whitehills, Inverboyndie, Banff and Macduff) fall within the Coastal Zone identified in the Aberdeenshire LDP 2017 and Aberdeenshire LDP 2022. Policy R1 (Special Rural Areas) within the Aberdeenshire LDP 2017 and Aberdeenshire LDP 2022 details that Aberdeenshire Council will restrict development proposals in these areas and will only allow development if it is essential and cannot be allocated elsewhere.

6.4.2.4 Policy PR1 (Protecting Important Resources) within the Aberdeenshire LDP 2017 and Aberdeenshire LDP 2022 emphasises the importance of conserving natural resources and promoting sustainable economic development by protecting land suitable for specific uses and not losing this land to other types of development.

6.4.2.5 Policy PR1.5 (Prime Agricultural Land) within the Aberdeenshire LDP 2022 identifies agricultural land within the study area. Prime agricultural is defined as classes 1, 2 and 3.1 of the Soil Survey for Scotland, Land Capability for Agriculture series⁷. The study area contains large areas of prime agricultural land (specifically class 3.1). While this land is protected from other types of development, Policy PR1.5 clarifies that proposals for renewable energy generation on this land may be considered providing that the site will be restored and returned to its original status.

6.4.2.6 Policy PR1.9 (Minerals) identifies areas safeguarded or identified as areas of search for mineral development. Major non-minerals developments will be permitted in the areas of search if an opportunity is given for the extraction of mineral resources before the development commences. Areas of search (the boundaries of which are identified in Appendix 14 of the Aberdeenshire LDP 2022) which fall within the study area are as follows:

- Roughhilly, Portsoy;
- Banff West;
- Auchlin, Turriff;
- Bo, Turriff;
- Turriff South;
- North Garmond; and
- Idoch, Cuminestown.

6.4.2.7 The Aberdeenshire LDP 2017 spatial strategy for the Aberdeenshire administrative areas of Banff and Buchan, Buchan and Formartine, which fall within the study area, identifies large areas with strategic capacity for small, medium, and large wind turbines.

6.4.2.8 Policy PR2 (Protecting Important Development Sites) within Aberdeenshire LDP 2017 and Aberdeenshire LDP 2022 details that Aberdeenshire Council will protect and not allow alternative development on sites that may reasonably be needed in future to generate and provide energy. These areas are defined within settlement statements and informed by identified National developments that directly affect the area covered in each Plan.

6.4.3 Agriculture

6.4.3.1 The Onshore Scoping Area (shown in Figure 6.1) is largely comprised of arable and horticultural land and improved grassland. The Macaulay Land Use Research Institute's Land Use Capability system is the official agricultural classification system used in Scotland. According to the Macaulay Land Use Research Institute⁸ the study area predominantly consists of Class 3.1 (land capable of producing a moderate range of crops with high yields) and Class 3.2 (land capable of producing a moderate with an increasing trend towards grass within the rotation). The north of the study area is mainly a mix of Class 3.1 and Class 3.2 with a small area of Class 4.1 (land that is capable of producing a narrow range of crops) south of Banff and some small areas of Class 5.3 (land capable of use as improved grassland) near Portsoy. The study area between Banff and Turriff is predominantly Class 3.1, with some areas of Class 3.2 and small areas of Class 4.1. Land surrounding Turriff (to the east of the study area) and towards Garmond (to the west) is predominantly Class 3.2. This area is interspersed with areas of Class 3.1 and areas of Class 4.1 to the south of Turriff. The south of the study area consists mainly of Class 3.1, with some areas of Class 3.2 and some small areas (to the south-east) of Class 4.1 and Class 5.2 (land capable of use as improved grassland).

6.4.4 Forestry

6.4.4.1 Within the study area forestry accounts for a smaller percentage of the land cover, when compared to the land suitable for agricultural use (arable and horticulture and improved grassland). A number of woodlands (30+) within the study area are classified under the Ancient Woodland Inventory (AWI) with large areas of ancient woodland identified adjacent to the River Deveron in proximity to Banff, within the

northern study area, and in proximity to King Edward and Turriff.

6.5 Assessment Methodology

- 6.5.1.1 There is no specific guidance on assessing the impact of projects on land use therefore a methodology will be developed for this assessment based on the methodology set out within Design Manual for Roads and Bridges (DMRB) LA 112 Population and Human Health⁹.
- 6.5.1.2 The methodology will be informed by inputs received from statutory consultees during consultation.
- 6.5.1.3 The methodology will follow the process set out within Chapter 4 (The EIA Process), a process that involves defining the sensitivity of the receptors and the magnitude of the impacts.
- 6.5.1.4 The significance of the effect upon land use and agriculture is then determined by correlating the magnitude of the impact and the sensitivity of the receptor.
- 6.5.1.5 The land use assessment will take into account both existing and proposed land use within the study area and will do so through a desk study, supported by site visits. The following data sources will be utilised:
- OS mapping;
 - Aberdeenshire LDP 20175;
 - Aberdeenshire (Proposed) LDP 20226;
 - Aberdeen City and Shire SDP 2020;
 - Aberdeenshire Council Planning Portal; and
 - The Macaulay Land Use Research Institute (2010) Land Capability for Agriculture in Scotland.
- 6.5.1.6 The assessment will also take into account previous experience and data compiled when undertaking the Moray East Project.

6.6 Embedded Mitigation

- 6.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment. The following embedded mitigation measures will be implemented:
- Throughout the EIA process, the location of the OnTI will consider existing and future land uses, to avoid, where practicable sensitive land uses and limit land take.
 - Engagement with landowners throughout the EIA process as part of the evolution of the design process;
 - Following construction, agricultural land not required through the operational phase will be reinstated to ensure it can return to existing agricultural use.

6.6.1.2 Effects that are considered to be significant after the implementation of embedded mitigation and best practice will be identified in the EIAR. Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

6.7 Potential Impacts

6.7.1.1 This Section identifies the potential impacts in relation to the construction, operation, and decommissioning of the Proposed Development.

6.7.2 Construction

6.7.2.1 The construction of the Proposed Development has the potential to disturb or change existing land uses. Potential impacts include direct (physical) impacts to agricultural land or development allocations as a result of temporary land take associated with construction works including disturbance associated with the construction of permanent infrastructure, temporary access tracks, roads, temporary logistical compound areas and temporary storage areas.

6.7.2.2 Potential impacts will be temporary in nature and will be constrained to the Onshore Cable Corridor and the Onshore Substation site.

6.7.3 Operation

6.7.3.1 During operation of the Proposed Development the existing land use above the underground Onshore Cable Corridor will be able to be reinstated.

6.7.3.2 However, land use above the underground Onshore Cable Corridor such as planting certain plant species will be constrained (once reinstated) by the presence of the underground OnTI.

6.7.3.3 Some elements of the Onshore Cable Corridor such as link boxes will also remain in-situ however the land required for these components is expected to be negligible.

6.7.3.4 Embedded mitigation, set out within Section 6.6 and secondary mitigation set out within Section 6.8.1.1, adopted during the construction phase will mean effects during the operational phase of these Proposed Development components are negligible.

6.7.3.5 The Onshore Substation will remain in-situ and therefore for operation any changes to future land use in this area will be permanent until decommissioning. The significance of the Onshore Substation land take will be determined by the substation site selection and existing land uses in the area.

6.7.4 Decommissioning

6.7.4.1 During the decommissioning phase of the Proposed Development all underground equipment and the Onshore Substation Foundations will remain in-situ. The above ground Onshore Substation and equipment will be removed, and the site will be reinstated.

6.7.4.2 The potential impacts of the decommissioning phase will be managed through the development of a decommissioning plan to be approved by the Aberdeenshire Council and therefore it is suggested that this be scoped out of the land use assessment.

6.8 Potential Cumulative and In-Combination Impacts

6.8.1.1 Onshore cumulative impacts will be considered as part of the EIA process. Developments of a similar type, nature, and scale will be identified and a list of cumulative developments to be considered will be agreed with Aberdeenshire Council.

6.8.1.2 In combination effects of the Proposed Development between Land Use and other EIA topics and offshore works will be identified where applicable.

6.8.1.3 The assessment presented within the Land Use Chapter of the EIAR will consider the potential for significant cumulative and in-combination impacts (where relevant) to arise as a result of the construction, operation and decommissioning of the Proposed Development.

6.9 Potential Secondary Mitigation

6.9.1.1 During construction of the Proposed Development the following measures can be made to avoid or mitigate the impact of land use changes:

- Limiting Onshore Cable Corridor construction activities within a working corridor of approximately 100m in width (the Onshore Cable Route); and
- Carefully considering and agreeing access routes for installation of the Onshore Cable Corridor.

6.10 Proposed Scope

6.10.1.1 Table 6.1 below summarised the potential impacts proposed to be scoped in and out of the EIA.

Table 6.1: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Land use impacts	✓	x	x

6.11 Consultation

6.11.1.1 Consultation is proposed with Aberdeenshire Council and Forestry and Land Scotland and Scottish Forestry and will commence on receipt of the Scoping Opinion.

6.12 Questions to Consultees

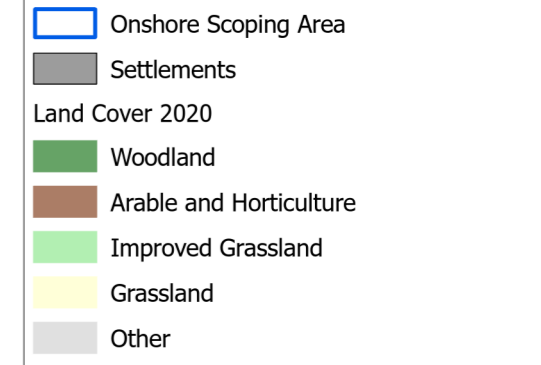
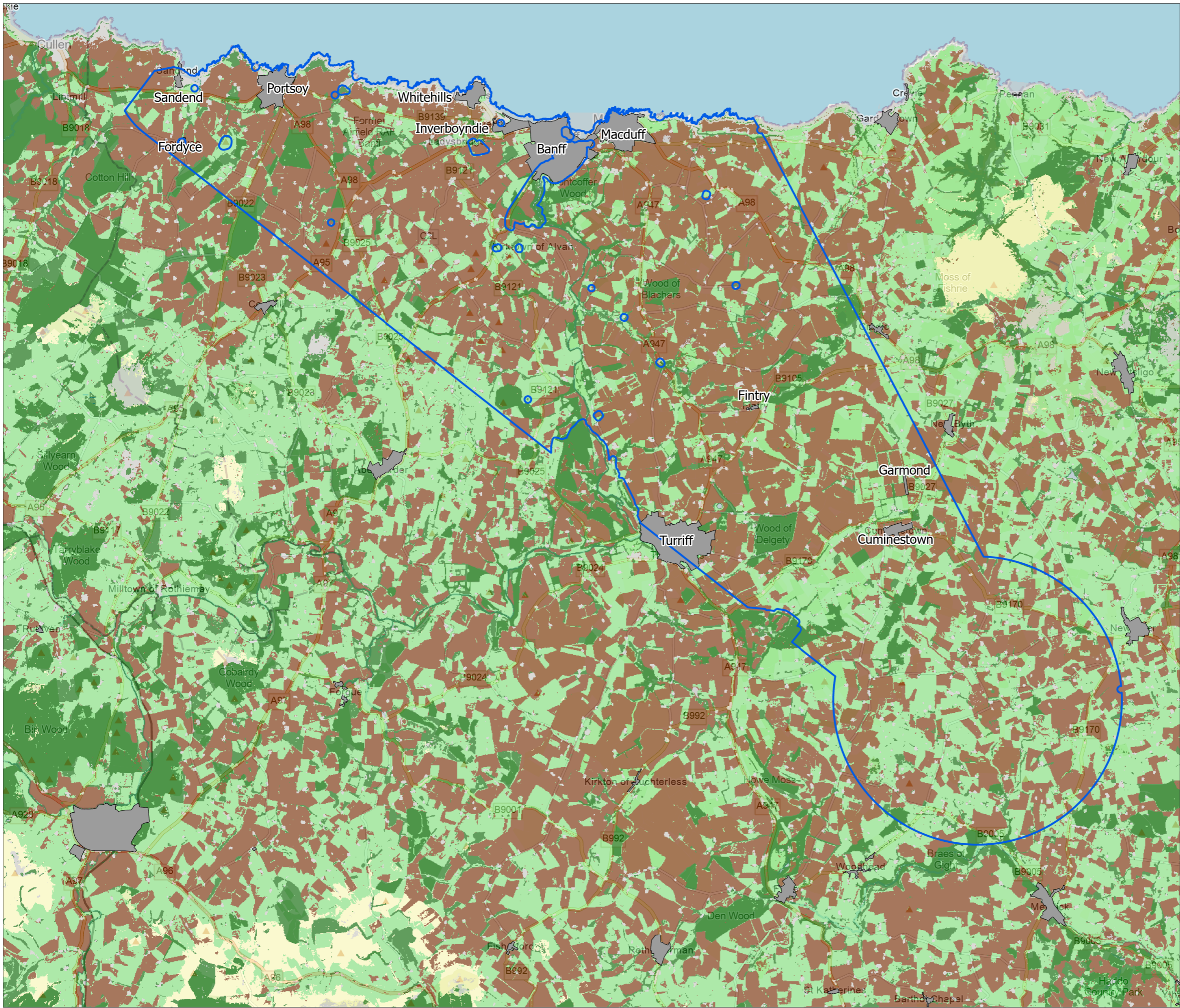
6.12.1.1 The following questions are posed to consultees to frame and focus responses to the Land Use and Agriculture scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree that receptors and potential impacts have been identified?

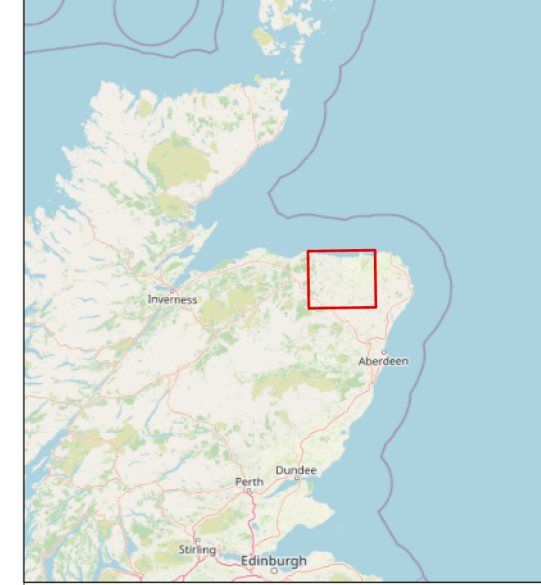
- Do you agree with the impacts which have been scoped out of the EIA?
- Do you agree with the proposed approach to assessment?
- Do you have any useful data sources that should be used as part of the land use and agriculture assessment?

6.13 References

- ¹ The Scottish Government (2014), *National Planning Framework 3*, Available at: <https://www.gov.scot/publications/national-planning-framework-3/pages/2/> [Accessed 22/08/2022]
- ² The Scottish Government (2022), *Draft National Planning Framework 4*, Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2022/11/national-planning-framework-4-revised-draft/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4-rev> [Accessed 22/08/2022]
- ³ The Scottish Government (2020), *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/pages/2/> [Accessed 22/08/2022]
- ⁴ Aberdeen City and Shire Strategic Development Planning Authority (2020), *Strategic Development Plan*, Available at: <http://www.aberdeencityandshire-sdpa.gov.uk/> [Accessed 22/08/2022]
- ⁵ Aberdeenshire Council (2017), *Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/> [Accessed 22/08/2022]
- ⁶ Aberdeenshire Council (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]
- ⁷ Scottish Government (2022), *Scotland's Soils, National scale land capability for agriculture*, Available at: https://map.environment.gov.scot/Soil_maps/?layer=5
- ⁸ The Macaulay Land Use Research Institute (2010), *Land Capability for Agriculture in Scotland*, Available at: <https://www.hutton.ac.uk/learning/exploring-scotland/land-capability-agriculture-scotland>
- ⁹ Standards for Highways (2020), *Design Manual for Roads and Bridges, LA 112 Population and Human Health*, Available at: <https://www.standardsforhighways.co.uk/prod/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a> [Accessed 22/08/2022]



© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri Contains Aberdeenshire public sector information licensed under the Open Government Licence v3.0.



Scale at A3: 1:125,000
 0 3 6 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
MMAZ	AHUN	AMIT
Date: 11/10/2022	Revision: 02	
REF: UKCAL1_ARP_WNF_ENV_MAP_00005		

Figure 6.1
Land Use



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 7

Terrestrial Ecology and Biodiversity

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	7-5
7 TERRESTRIAL ECOLOGY AND BIODIVERSITY	7-8
7.1 INTRODUCTION	7-8
7.2 LEGISLATIVE AND POLICY CONTEXT	7-8
7.3 STUDY AREA	7-9
7.4 BASELINE ENVIRONMENT.....	7-9
7.4.2 Designated Sites	7-9
7.4.3 Habitats	7-15
7.4.4 Protected Species.....	7-16
7.5 ASSESSMENT METHODOLOGY	7-19
7.5.1 Ecological Impact Assessment	7-19
7.5.2 Desk-Based Assessment	7-20
7.5.3 Field Surveys.....	7-20
7.6 EMBEDDED MITIGATION	7-28
7.7 POTENTIAL IMPACTS	7-28
7.7.2 Construction.....	7-28
7.7.3 Operation	7-29
7.7.4 Decommissioning	7-30
7.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	7-30
7.9 POTENTIAL SECONDARY MITIGATION	7-30
7.10 PROPOSED SCOPE	7-31
7.11 CONSULTATION	7-31
7.12 QUESTIONS TO CONSULTEES.....	7-31
7.13 REFERENCES	7-33

List of Figures

FIGURE 7.1: EUROPEAN DESIGNATED SITES WITHIN 20KM OF THE ONSHORE SCOPING AREA

FIGURE 7.2: NATIONALLY DESIGNATED SITES WITHIN 10KM OF THE ONSHORE SCOPING AREA

FIGURE 7.3: ANCIENT WOODLAND INVENTORY WOODLANDS WITHIN 2KM OF THE ONSHORE SCOPING AREA

List of Tables

TABLE 7.1: INTERNATIONAL AND EUROPEAN DESIGNATED SITES WITHIN 20KM OF THE SCOPING AREA.....	7-9
TABLE 7.2: NATIONALLY DESIGNATED SITES WITHIN 10KM OF THE SCOPING AREA	7-14
TABLE 7.3: PROPOSED SCOPE.....	7-31

Acronyms and Abbreviations

AWI	Ancient Woodland Inventory
BAP	Biodiversity Action Plan
BBS	Breeding Bird Survey
BoCC	Birds of Conservation Concern
BS	British Standards
BTO	British Trust for Ornithology
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
Defra	Department for the Environment, Food, and Rural Affairs
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GCN	Great Crested Newt
GPP	Guidance for Pollution Prevention
GWDE	Groundwater-Dependent Terrestrial Ecosystem
HRA	Habitats Regulations Appraisal
INNS	Invasive Non-native Species
JNCC	Joint Nature Conservation Committee
LDP	Local Development Plan
LNCS	Local Nature Conservation Site
MLWS	Mean Low Water Spring

MPA	Marine Protected Areas
NBN	National Biodiversity Network
NESBReC	North East Scotland Biological Records Centre
NPF3	Third National Planning Framework
NPF4	Draft Fourth National Planning Framework
NVC	National Vegetation Classification
OnTI	Onshore Transmission Infrastructure
PEA	Preliminary Ecological Appraisal
PPG	Pollution Prevention Guidelines
PRF	Potential Roost Feature
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SNH	Scottish Natural Heritage
SPA	Special Protection Areas
SPP	Scottish Planning Policy
SSSI	Sites of Special Scientific Interest
SWT	Scottish Wildlife Trust
UK	United Kingdom
VP	Vantage Point
WANE	Wildlife and Natural Environment (Scotland) Act 2011
WBS	Wintering Bird Survey

WCA	Wildlife and Countryside Act
WeBS	Wetland Bird Survey
WFD	Water Framework Directive
ZoI	Zone of Influence

7 Terrestrial Ecology and Biodiversity

7.1 Introduction

7.1.1.1 This Chapter of the Onshore Scoping Report identifies the terrestrial ecology and biodiversity features of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation, and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

7.1.1.2 This Chapter is supported by the following figures:

- Figure 7.1: European Designated Sites within 20km of the Onshore Scoping Area;
- Figure 7.2: Nationally Designated Sites within 10km of the Onshore Scoping Area; and
- Figure 7.3: Ancient Woodland Inventory Woodlands within 2km of the Onshore Scoping Area.

7.1.1.3 This is the first stage in the process of an Ecological Impact Assessment (EcIA). This Chapter of the Onshore Scoping Report determines the issues that will be covered by the EcIA and seeks to identify key areas for consultation with stakeholders.

7.2 Legislative and Policy Context

7.2.1.1 There is a comprehensive system of legislation, both domestic and international, which aims to protect biodiversity at the landscape, habitat, and species levels. Much of this legislation exists within, and also independently of, the planning process.

7.2.1.2 The legislation relevant to this assessment comprises:

- Nature Conservation (Scotland) Act 2004¹;
- Protection of Badgers Act 1992 (as amended)²;
- Wildlife and Natural Environment (Scotland) Act 2011 (WANE)³;
- Electricity Act 1989⁴
- Wildlife and Countryside Act (WCA) 1981 (as amended)⁵; and
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)⁶.

7.2.1.3 The planning policy relevant to this assessment comprises:

- Aberdeenshire Local Development Plan (LDP) 2017⁷ and (Proposed) LDP 2022⁸;
- Third National Planning Framework (NPF3)⁹;
- Draft Fourth National Planning Framework (NPF4)¹⁰;
- Scottish Biodiversity Strategy¹¹; and
- Scottish Planning Policy (SPP)¹².

7.3 Study Area

7.3.1.1 The Terrestrial Ecology and Biodiversity study area considered within this Scoping Chapter, is currently defined by the Onshore Scoping Area and additional buffers:

- European designated sites such as Special Areas of Conservation (SAC) and Special Protection Areas (SPA) within 20km of the Onshore Scoping Area;
- Nationally designated sites such as Sites of Special Scientific Interest (SSSI) and Marine Protected Areas (MPA) within 10km of the Onshore Scoping Area;
- Ancient Woodland Inventory (AWI) woodlands and Local Nature Conservation Sites (LNCS) within 2km of the Onshore Scoping Area; and
- Protected habitats and species within the Onshore Scoping Area including, but not limited to, Scottish Biodiversity List (SBL)¹³ and United Kingdom (UK) Biodiversity Action Plan (BAP) priority habitats and species¹⁴.

7.3.1.2 Following the refinement of the Onshore Transmission Infrastructure (OnTI) and identification of the Landfall Site, Onshore Substation Site and Onshore Cable Corridor, a suite of ecological surveys will be conducted to inform the EcIA. These will be targeted to specific survey areas based on the Zone of Influence (ZoI) of the Proposed Development in relation to each relevant ecological feature. This is described in Section 7.5.3.

7.4 Baseline Environment

7.4.1.1 A desk study assessment was carried out to identify designated sites, notable habitats and protected and notable species within the study areas using the following sources of information:

- National Biodiversity Network (NBN) Atlas¹⁵; and
- NatureScot Sitelink¹⁶.

7.4.2 Designated Sites

7.4.2.1 The desk study identified 11 European designated sites within 20km of the Onshore Scoping Area. There are no International and European designated sites located within the Onshore Scoping Area. These designated sites and their qualifying features are outlined in Table 7.1.

Table 7.1: International and European Designated Sites Within 20km of the Onshore Scoping Area

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features
Moray Firth ¹⁷	SPA	Adjacent to the western coastal edge of the Onshore Scoping Area.	The Moray Firth SPA qualifies under Article 4.1 by regularly supporting a non-breeding population of European importance of the following Annex 1 species: <ul style="list-style-type: none"> ▪ Great northern diver <i>Gavia immer</i>; ▪ Red-throated diver <i>Gavia stellata</i>; and

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features
			<ul style="list-style-type: none"> ▪ Slavonian grebe <i>Podiceps auratus</i>. <p>The SPA further qualifies under Article 4.2 for regularly populations of European importance of the following migratory species (non-breeding):</p> <ul style="list-style-type: none"> ▪ Greater scaup <i>Aythya marila</i>; ▪ Common eider <i>Somateria mollissima</i>; ▪ Long-tailed duck <i>Clangula hyemalis</i>; ▪ Common scoter <i>Melanitta nigra</i>; ▪ Velvet scoter <i>Melanitta fusca</i>; ▪ Common goldeneye <i>Bucephala clangula</i>; ▪ Red-breasted merganser <i>Mergus serrator</i>; and ▪ European shag <i>Phalacrocorax aristotelis</i>.
Reidside Moss ¹⁸	SAC	1.2km west of the Onshore Scoping Area.	Reidside Moss SAC is designated for the priority habitat 'Active raised bog' and the habitat 'Degraded raised bog'. Both these habitats are currently assessed as being in an Unfavourable recovering condition.
Troup, Pennan and Lion's Heads ¹⁹	SPA	3.2km east of the eastern coastal edge of the Onshore Scoping Area.	The Troup, Pennan and Lion's Heads SPA qualifies under Article 4.2 by regularly supporting over 20,000 individual breeding seabirds. The SPA further qualifies under Article 4.2 by regularly supporting internationally important breeding populations of the migratory species black-legged kittiwake <i>Rissa tridactyla</i> and common guillemot <i>Uria aalge</i> . In addition to the species mentioned above, the assemblage of breeding seabirds includes the regularly occurring migratory species Northern fulmar <i>Fulmarus glacialis</i> , herring gull <i>Larus argentatus</i> and razorbill <i>Alca torda</i> .
Turclossie Moss ²⁰	SAC	8.2km east of the Onshore Scoping Area.	Turclossie Moss SAC is designated for the priority habitat 'Active raised bog' and the habitat 'Degraded raised bog'. The Active raised bog is assessed as being in 'Unfavourable no change'

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features
			condition, and the Degraded raised bog is in 'Unfavourable declining' condition.
Ythan Estuary, Sands of Forvie and Meikle Loch ²¹	SPA	15.9km south-east of the Onshore Scoping Area.	<ul style="list-style-type: none"> ▪ Ythan Estuary SPA is designated under Article 4.1 by regularly supporting populations of European importance of the Annex 1 species: ▪ Sandwich tern <i>Sterna sandvicensis</i> (breeding); ▪ Common tern <i>Sterna hirundo</i> (breeding); and ▪ Little tern <i>Sterna albifrons</i> (breeding). <p>Ythan Estuary, Sands of Forvie and Meikle Loch SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species pink-footed goose <i>Anser brachyrhynchus</i>.</p> <p>Ythan Estuary, Sands of Forvie and Meikle Loch SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl</p>
Ythan Estuary, Sands of Forvie and Meikle Loch ²²	Ramsar	15.9km south-east of the Onshore Scoping Area.	<p>The Ythan Estuary and Meikle Loch Ramsar site qualifies under Ramsar Criterion 2 by supporting:</p> <ul style="list-style-type: none"> ▪ Common tern; and ▪ Little tern. <p>The Ythan Estuary and Meikle Loch Ramsar site also qualifies under Ramsar Criterion 5 by regularly supporting waterbirds in numbers of 20,000 individuals or more.</p> <p>The site also qualifies under Ramsar Criterion 4 by supporting the following waterbird species at a critical stage in their life cycles:</p> <ul style="list-style-type: none"> ▪ Eider (wintering); ▪ Redshank <i>Tringa totanus</i>; ▪ Greater than 2,000 individuals of lapwing <i>Vanellus vanellus</i>; ▪ Ythan Estuary and Meikle Loch Ramsar site further qualifies under Ramsar Criterion 6 by regularly

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features
			<p>supporting 1% or more of the individuals in a population of waterbirds:</p> <ul style="list-style-type: none"> ▪ Sandwich tern; and ▪ Pink-footed goose.
Mortlach Moss ²³	SAC	17.3km south-west of the Onshore Scoping Area.	The Mortlach Moss SAC is designated for the priority habitat Base-rich fens currently assessed as being in 'Favourable maintained' condition.
Moray and Nairn Coast ²⁴	SPA	18.5km west of the Onshore Scoping Area.	<p>Moray and Nairn Coast SPA qualifies under Article 4.1 by regularly supporting populations of European importance of the Annex 1 species:</p> <ul style="list-style-type: none"> ▪ Osprey <i>Pandion haliaetus</i> (breeding and non-breeding); and ▪ Bar-tailed godwit <i>Limosa lapponica</i> (wintering). <p>Moray and Nairn Coast SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species:</p> <ul style="list-style-type: none"> ▪ Pink-footed goose (wintering) ▪ Greylag goose <i>Anser anser</i> (wintering); and ▪ Redshank (wintering). <p>Moray and Nairn Coast SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl. Including nationally important populations of the following species:</p> <ul style="list-style-type: none"> ▪ Bar-tailed godwit; ▪ Pink-footed goose; ▪ Greylag goose; ▪ Redshank; ▪ Red-breasted merganser; ▪ Dunlin <i>Calidris alpina</i>; ▪ Oystercatcher <i>Haematopus ostralegus</i>; and ▪ Wigeon <i>Anas Penelope</i>.

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features
Moray and Nairn Coast ²⁵	Ramsar	18.5km west of the Onshore Scoping Area.	<p>The Moray and Nairn Coast Ramsar site qualifies under Ramsar Criterion 1 by containing a variety of wetland types:</p> <ul style="list-style-type: none"> ▪ Sand dunes; ▪ Recently deposited and more stable vegetated shingle; ▪ Large intertidal mudflats; and ▪ Estuarine alder woodland (dominated by alder with areas of willow and mixed stands of alder/ash). <p>The Moray and Nairn Coast Ramsar site qualifies under Ramsar Criterion 2 by supporting a number of rare and endangered vascular plants and invertebrates.</p> <p>The Ramsar further qualifies under Criterion 2 for supporting the species listed under the SPA designation.</p>
Lower River Spey-Spey Bay ²⁶	SAC	18.5km west of the Onshore Scoping Area.	<p>The Lower River Spey- Spey Bay SAC is designated for the priority habitat 'Alder woodland on floodplains' and the habitat 'coastal shingle vegetation outside the reach of waves'. The alder woodlands are assessed as having a 'Unfavourable no change' condition and the coastal shingle is assessed as having a 'Favourable declining' condition.</p>
River Spey ²⁷	SAC	18.5km west of the Onshore Scoping Area.	<p>The River Spey is designated for the following qualifying features:</p> <ul style="list-style-type: none"> ▪ Freshwater pearl mussel <i>Margaritifera margaritifera</i>; ▪ Sea lamprey <i>Petromyzon marinus</i>; ▪ Atlantic salmon <i>Salmo salar</i>; and ▪ Otter <i>Lutra lutra</i>.

7.4.2.2 The desk study identified 11 nationally designated sites within 10km of the Scoping Area, of which three are located within the Scoping Area itself. These designated sites and their qualifying features are outlined in Table 7.2.

Table 7.2: Nationally Designated Sites Within 10km of the Scoping Area

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features (Biological)
Cullen to Stake Ness Coast ²⁸	SSSI	Within the Onshore Scoping Area, along the northern coastal boundary.	Designated for the following habitats: <ul style="list-style-type: none"> Coastlands; Saltmarsh; Shingle; Fens; Springs (including flushes); Lowland heathland; and Lowland dry heath.
Whitehills to Melrose Coast ²⁹	SSSI	Within the Onshore Scoping Area, along the northern coastal boundary.	Designated for geological features.
Gamrie and Pennan Coast ³⁰	SSSI	Partly within the Onshore Scoping Area, along the northern coastal boundary.	Designated for the following features: <ul style="list-style-type: none"> Coastlands; Maritime Cliff; and Birds: <ul style="list-style-type: none"> Seabird colony (breeding); Kittiwake <i>Rissa tridactyla</i> (breeding); Guillemot <i>Uria aalge</i> (breeding); Razorbill <i>Alca torda</i> (breeding); Fulmar <i>Fulmarus glacialis</i> (breeding); Gannet <i>Morus bassanus</i> (breeding); and Puffin <i>Fratercula arctica</i> (breeding).
Southern Trench ³¹	MPA	Adjacent to northern coastal boundary of the Onshore Scoping Area.	Designated for the following biological features: <ul style="list-style-type: none"> Burrowed mud; Fronts; Shelf deeps; and

Site Name	Designation	Approximate Distance from Onshore Scoping Area	Designating Features (Biological)
			<ul style="list-style-type: none"> Minke whale <i>Balaenoptera acutorostrata</i>.
Windy Hills ³²	SSSI	100m south-west of the Onshore Scoping Area.	Designated for geological features.
Gight Woods ³³	SSSI	100m south of the Onshore Scoping Area.	Designated for the following habitats: <ul style="list-style-type: none"> Upland mixed ash woodland; and Upland oak woodland.
Reidside Moss ³⁴	SSSI	1.2km west of the Onshore Scoping Area.	Designated for the habitat 'Raised bog'.
Tore of Troup ³⁵	SSSI	3.6km east of the Onshore Scoping Area.	Designated for the following habitats: <ul style="list-style-type: none"> Woodland: <ul style="list-style-type: none"> Upland mixed ash woodland; and Upland birch woodland. Upland: <ul style="list-style-type: none"> Upland assemblage.
Moss of Crombie ³⁶	SSSI	6.9km west of the Onshore Scoping Area.	Designated for the habitat 'Intermediate bog (blanket)'.
Red Moss, Oldtown ³⁷	SSSI	7.2km south of the Onshore Scoping Area.	Designated for the habitat 'Basin fen'.
Shiel Wood Pastures ³⁸	SSSI	9.1km west of the Onshore Scoping Area.	Designated for the following habitats: <ul style="list-style-type: none"> Fens: <ul style="list-style-type: none"> Fen meadow. Lowland grasslands: <ul style="list-style-type: none"> Lowland calcareous grassland; Lowland neutral grassland; and Lowland acidic grassland.

7.4.2.3 There are no LNCS within 2km of the Onshore Scoping Area.

7.4.3 Habitats

7.4.3.1 The land use Onshore Scoping Area (as shown in Figure 6.1) is largely comprised of manged, agricultural, arable land. Woodland habitats are scattered throughout the Onshore Scoping Area and are a mix of semi-natural and plantation woodland.

7.4.3.2 A number of woodlands (30+) classified under the AWI are located within the Onshore Scoping Area. These woodlands are shown in Figure 7.3. The AWI categorises woodland blocks into three categories:

- Ancient (of semi-natural origin);
- Long-established (of plantation origin); and
- Other (on Roy maps).

7.4.3.3 Within the Onshore Scoping Area there are predominately long-established woodlands, however a number of semi-natural ancient woodlands are also present, particularly around Dunlugas, Keilhill, along the Burn of Boyne and along the River Deveron in Banff.

7.4.3.4 There are a number of watercourses and their tributaries within the Onshore Scoping Area. The main watercourse running through the Onshore Scoping Area is the River Deveron. Further information on these waterbodies can be found within Chapter 10 (Hydrology and Hydrogeology) of this Onshore Scoping Report.

Intertidal

7.4.3.5 The intertidal zone within the Onshore Scoping Area consists of the Moray/Aberdeenshire coastline stretching from Sandend to Gamrie. This includes several beach areas, exposed rocky shores and sea cliffs.

7.4.3.6 With the exception of parts of Sandend Bay, Boyndie Bay, and Banff Bay, the coastline is designated as SSSI's and/or part of the Moray Firth SPA (Table 7.1, Table 7.2, Figure 7.1 and Figure 7.2).

7.4.3.7 The Southern Trench MPA is also located offshore and is considered further within the Offshore Environmental Impact Assessment (EIA) Scoping Report.

7.4.4 Protected Species

7.4.4.1 Desk study records of protected and notable species from within the last ten years were considered representative of the status of biodiversity in the study area in the baseline review. The following species were identified as being previously recorded:

- Amphibians:
 - Common toad *Bufo bufo*;
- Bats:
 - Brown long eared bat *Plecotus auritus*;
 - Soprano pipistrelle *Pipistrellus pygmaeus*;
 - Common pipistrelle *Pipistrellus pipistrellus*; and
 - Daubenton's bat *Myotis daubentonii*.
- Birds:
 - A large number of Schedule 1⁵, Amber and Red Birds of Conservation Concern (BoCC)³⁹ birds, as well as those listed as qualifying interests of the

European designated sites.

- Fish:
 - Atlantic salmon *Salmo salar*;
 - Sea trout/Brown trout *Salmo trutta*; and
 - European eel *Anguilla anguilla*;
- Invertebrates:
 - Aquatic Invertebrates;
 - Terrestrial Invertebrates;
- Other mammals:
 - Badger *Meles meles*;
 - Otter *Lutra lutra*;
 - Pine marten *Martes martes*;
 - Polecat *Mustela putorius*;
 - Hedgehog *Erinaceus europaeus*;
 - Brown hare *Lepus europaeus*; and
 - Wildcat *Felis silvestris*.
- Reptiles:
 - Common lizard *Zootoca vivipara*.
- Rodents:
 - Red squirrel *Sciurus vulgaris*; and
 - Water vole *Arvicola amphibius*.

Amphibians

- 7.4.4.2 Ponds and other waterbodies that may be present within the Onshore Scoping Area may have the potential to support amphibian species, specifically common toad, which is a UK BAP Priority Species⁴⁰.
- 7.4.4.3 These ponds and waterbodies may have the potential to support great crested newt (GCN) *Triturus cristatus*, however, at this time it is considered unlikely that this species will be present within the area due to a lack of known records across Moray and Aberdeenshire. Consultation with NatureScot will be undertaken to confirm this conclusion. As GCN are not considered likely to be within the scope of this assessment, they have not been discussed further. If, following consultation, GCN need to be considered, they will be scoped into the EcIA.

Bats

- 7.4.4.4 Habitats, trees, and structures across the Onshore Scoping Area have the potential to support a number of bat species. Trees and structures including, but not limited to, houses, barns, other buildings, and bridges will be assessed for their potential

to support roosting bats.

- 7.4.4.5 Habitats including marshy grasslands, wetlands, and linear features such as hedgerows, rows of trees and watercourses may also have the potential to support commuting and foraging bats. Such habitats will be assessed for their potential to support bats.

Birds

- 7.4.4.6 Habitats across the Onshore Scoping Area have the potential to support breeding, nesting, foraging and overwintering birds.

Fish

- 7.4.4.7 Watercourses and their tributaries have the potential to support a number of aquatic species. As noted in the Chapter 10 (Hydrology and Hydrogeology), a number of watercourses across the Onshore Scoping Area have a Water Framework Directive (WFD) classification of Good to Moderate ecological potential.
- 7.4.4.8 In particular, the River Deveron is known to be an important fishery for salmon and sea/brown trout.
- 7.4.4.9 The NBN records did not identify any freshwater pearl mussel, river, brook, or sea lamprey however due to the presence of suitable habitats and likely under recording of these species, there is the potential that watercourses within the Onshore Scoping Area may support these species.

Invertebrates

Aquatic Invertebrates

- 7.4.4.10 Watercourses, their tributaries, and other waterbodies within the Onshore Scoping Area have the potential to support aquatic invertebrates due to the likely presence of a diversity of riparian habitats and the known importance of the River Deveron to salmon and trout.

Terrestrial Invertebrates

- 7.4.4.11 Habitats throughout the Onshore Scoping Area have the potential to support terrestrial invertebrates, however the main consideration will be habitats that can support a large number of notable invertebrate species and contain suitable resources for at least one part of their lifecycle. Habitats that may support diverse terrestrial invertebrate assemblages include marshy grassland, species-rich grassland, and diverse woodland/scrub.

Other Mammals

Badger

- 7.4.4.12 Habitats throughout the Onshore Scoping Area have suitability to support badger. A large number of badger records were returned from NBN across the Onshore Scoping Area. Badger, their setts and territories can be found in agricultural and arable fields, grasslands, and woodlands.

Otter and Water Vole

- 7.4.4.13 The network of watercourses within the Onshore Scoping Area may support otter

and water vole due to the presence of food resources for otter and a diversity of watercourses and small tributaries suitable for burrowing water vole and holt creation for otter.

Pine Marten and Red Squirrel

7.4.4.14 Mature, well-connected woodlands within the Onshore Scoping Area are likely to support species such as pine marten and red squirrel.

Wildcat

7.4.4.15 Habitats within the Onshore Scoping Area have the potential to support wildcat. Wildcat are found in a mosaic of habitats including mature and plantation woodlands, they forage in open areas such as grasslands and agricultural fields where prey sources are found.

Reptiles

7.4.4.16 Reptiles can be found in arable and agricultural fields, grasslands, heaths, and moorland. They prefer open sites which are exposed to the sun, well-drained, not regularly disturbed, and often south-facing. They may utilise rock piles and old stone fences as hibernacula. Although the NBN records did not identify adder *Viper berus* or slow worm *Anguis fragilis* records within the last 10 years, both species are known to be widespread across Scotland. Habitats within the Onshore Scoping Area may be suitable to support these species.

7.4.4.17 Grass snake *Natrix helvetica* have been recorded in Scotland, however these are mostly considered to be escaped pets, and/or are limited to southern Scotland. Natural grass snake populations are therefore not considered present in the region of the Onshore Scoping Area.

7.5 Assessment Methodology

7.5.1 Ecological Impact Assessment

7.5.1.1 The EcIA will be in line with the best practice guidance as set out by the Chartered Institute of Ecology and Environmental Management (CIEEM)⁴¹. The impact assessment process involves:

- Identifying and characterising impacts (from construction, operation, and decommissioning, including cumulative impacts and effects);
- Incorporating measures to avoid and mitigate (reduce) these impacts;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

7.5.1.2 Based on the EcIA best practice guidelines, the following definitions will be used when characterising the ecological impacts during all stages of the Proposed Development:

- Positive or Negative: Positive is a change that improves the quality of the environment, whereas negative reduces the quality of the environment.
- Extent: The spatial or geographical area over which the positive or negative impact/effect occurs such as local, regional, national etc.
- Magnitude: The intensity, size and/or volume of the impact/effect that may occur. This may include a discussion on the amount of habitat lost or the decline in a species population.
- Duration: This would be defined as the length of time over which the impact/effect may occur, such as the lifecycle of a species or for the duration of the construction period.
- Frequency and timing: The number of times an activity may occur and how this will influence the impact/effect. The timing of the activity and how this may result in an impact such as during the breeding bird season or night time working.
- Reversibility: This may include irreversible effects where recovery of a habitat or a population is not possible (such as loss of ancient woodland), or where recovery may be counteracted by mitigation.

7.5.2 Desk-Based Assessment

7.5.2.1 A comprehensive desk-based assessment will be completed using publicly available data and data received through stakeholder consultation. Data will be sought from, but not limited to, the following organisations:

- British Trust for Ornithology (BTO) including Wetland Bird Survey data (WeBS);
- Deveron, Bogie, and Isla Rivers Charitable Trust;
- District Salmon Fisheries Board;
- Marine Scotland;
- NatureScot;
- NBN Atlas;
- North East Scotland Biological Records Centre (NESBReC);
- North East Scotland Raptor Study Group;
- Royal Society for the Protection of Birds (RSPB);
- Scottish Environment Protection Agency (SEPA); and
- Scottish Wildlife Trust (SWT).

7.5.3 Field Surveys

7.5.3.1 A suite of ecological surveys will be completed within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and additional survey areas to assess the potential presence of protected and notable habitats and species. These surveys will be focussed upon important ecological features and will take place

within the ZoI of each of these features in the context of the Proposed Development.

Habitat Surveys

- 7.5.3.2 An extended Phase 1 Habitat survey will be undertaken to identify and map the habitats within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and a 100m buffer area using Phase 1 Habitat survey guidance provided by the Joint Nature Conservation Committee (JNCC)⁴².
- 7.5.3.3 As part of the field survey, habitats will be assessed for their potential to support protected or notable species in accordance with the CIEEM Preliminary Ecological Appraisal (PEA) guidelines⁴³. Habitats are classified based principally on vegetation, and the survey allows for the location, extent, and distribution of these habitats to be recorded.
- 7.5.3.4 Habitats identified at the Phase 1 stage as being particularly species diverse and/or sensitive, of a type restricted in the UK/Region (e.g. the presence of an Invasive Non-Native Species (INNS)), and which could be directly or indirectly affected by the Proposed Development are likely to require further survey to Phase 2 National Vegetation Classification (NVC) level. The NVC surveys will follow the published methodology appropriate to the vegetation being surveyed, and the NVC users handbook^{44, 45, 46}.
- 7.5.3.5 In order to identify most habitats accurately, the Phase 1 Habitat survey should ideally be undertaken between April and September. NVC surveys should ideally be undertaken between May and July.

Protected Species Surveys

- 7.5.3.6 Following the results of the desk study assessment and extended Phase 1 Habitat surveys, further dedicated species surveys will be undertaken.
- 7.5.3.7 The exact scope of these surveys will be determined following refinement of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and following consultation with NatureScot; however the following sections detail the anticipated likely survey scope. Best practice methodology, survey timings and most likely ZoI has been detailed.
- 7.5.3.8 Detailed survey methodologies for each species scoped in for assessment will be produced and detailed within the EcIA.

Bats

- 7.5.3.9 Bat surveys will be undertaken in line with best practice guidelines as set out by the Bat Conservation Trust⁴⁷ and NatureScot⁴⁸.
- 7.5.3.10 Desk study data will be used to identify previous records of bat species within 1km of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site. The majority of this data will be sourced from NESBReC, local bat groups, and other local wildlife groups. Additional data may also be sourced from previous reports and projects that have been undertaken within the Onshore Scoping Area.
- 7.5.3.11 Scoping assessments for bats are split into two categories: Habitat Suitability

Assessment for commuting and foraging bats, and Potential Roost Feature (PRF) Assessment of structures and trees for roosting bats. During scoping assessments, the potential suitability of structures and trees for winter hibernation roost sites will also be considered. Scoping assessments will be undertaken up to 100m from the Onshore Cable Corridor, Onshore Substation Site and Landfall Site.

7.5.3.12 PRF assessments of structures and trees can be undertaken year-round.

7.5.3.13 If further surveys are required to determine if a bat roost is present, dusk emergence and dawn re-entry surveys will be undertaken. In line with best practice guidelines, these surveys should be completed from May to September (inclusive) and spread throughout this season in order to capture different roost types (if present).

7.5.3.14 If a structure or tree is identified as being suitable for hibernating bats, bat hibernation surveys will be undertaken in January and February.

7.5.3.15 If further surveys are required to determine the suitability of a habitat for foraging and commuting bats, transect surveys will be undertaken and static detectors may be deployed. The extent of the deployment is dependent upon the suitability of the habitat features. Bat activity surveys should ideally be undertaken between May and August (inclusive).

Breeding Bird Surveys

7.5.3.16 Following the desk study assessment and extended Phase 1 Habitat surveys, surveyors will identify areas of likely importance for breeding birds. The extent of these areas will vary based on the nature of the habitats present and the proposed engineering design of the Proposed Development.

7.5.3.17 In line with best practice and to coincide with the peak breeding bird season, breeding bird surveys (BBS) should ideally be undertaken between April and July (inclusive). Five transect surveys of suitable habitat should be undertaken.

7.5.3.18 Following the completion of the BBS, territory analysis and mapping will be undertaken.

7.5.3.19 Where required to inform a robust assessment, further specific surveys will be undertaken for protected and/or notable species such as barn owl *Tyto alba*, a species listed under Schedule 1 of the WCA 1981 (as amended)⁵. The requirement for such species-specific surveys will be determined following the Phase 1 Habitat surveys.

Wintering Bird Surveys

7.5.3.20 The scope and scale of the Wintering Bird Surveys (WBS) will be based on the results of the desk study assessment and extended Phase 1 Habitat surveys.

7.5.3.21 The WBS will be undertaken using the following best practice guidance and methodology:

- Bird Census Techniques guide on counting individual species⁴⁹;
- Bird Monitoring Methods: a manual of techniques for key UK species⁵⁰;

- Survey methods for use in assessing impacts of onshore windfarms on bird communities⁵¹; and
- WeBS Core Counts Methods⁵².

7.5.3.22 WBS should ideally be completed once per month, at approximately four week intervals, from October to March.

7.5.3.23 The WBS methodology is partly adapted from the WeBS Core Count methodology which uses the 'look-see' technique, whereby the surveyor will observe the whole of a survey area for a specific target species, the habitat and the flight lines to and from the area. Surveys will be carried out in dry weather, when wind speed is low and cloud coverage is minimal.

7.5.3.24 A vantage point (VP) will be chosen in an area where the surveyor has an unrestricted view over a survey area with a scanning arc of 180°, in order to avoid loss of sight of the bird. The VP should be no more than 2km away from the survey area to ensure maximum visibility, reliable observations, and minimal disturbance to the target species. Where survey sites are over a large area, and with areas of reduced visibility due to topography or landscape features, additional VPs will be used to ensure maximum coverage of a survey area.

7.5.3.25 Surveyors will also undertake transects of suitable habitat. Surveyors will walk the suitable habitat and record the location of birds seen or heard.

7.5.3.26 For both the VP surveys and transects, species present in a relatively small number will be counted individually. Birds present in a large flock will be estimated by mentally dividing the birds into smaller groups and counting the number of groups. The surveyor will also take note of any birds in flight and their route and direction to determine common flight lines across the Onshore Cable Corridor, Onshore Substation Site and Landfall Site.

Fish

7.5.3.27 The requirement to undertake fish surveys, the survey effort, methodology and programme will be determined following a review of the desk study data, extended Phase 1 Habitat survey results and consultation with relevant stakeholders.

7.5.3.28 Watercourses affected by the Proposed Development will be categorised for fish habitat quality and the potential for use by fish. Surveys may be necessary for moderate and high-quality habitats that could be directly or indirectly affected by the Proposed Development and where no existing recent data is held by SEPA. Further surveys are unlikely to be required for poor quality habitats.

7.5.3.29 If required, the primary method is likely to be electrofishing, which should be undertaken in accordance with British Standard (BS) EN 14011:2003, BS 6068-5.32:2003 Water Quality: Sampling of Fish with Electricity⁵³ and Environmental Agency Guidelines for Electric Fishing Best Practice⁵⁴.

Aquatic and Terrestrial Invertebrates

7.5.3.30 Following a review of the desk study assessment, consultation with relevant stakeholders and extended Phase 1 Habitat survey results, habitats found to potentially support important aquatic or terrestrial invertebrates which may be

affected by the Proposed Development, will be surveyed.

7.5.3.31 Invertebrate surveys will be undertaken in line with best practice guidance as provided by Natural England⁵⁵ and CIEEM⁵⁶.

7.5.3.32 Terrestrial invertebrate survey methodology will be dependent on the taxa and habitats under consideration. Such methods may include, but are not limited to:

- Sweep netting - standardised through timed netting in appropriate habitats, if required;
- Hand searches of specific host plants of particular species;
- Egg searches;
- Conspicuous aggregations;
- Pitfall trapping;
- White tray trapping;
- Suction sampling;
- Light trapping; and
- Visual searches/ transects for some groups such as (but not limited to) Lepidoptera (most butterflies) and Hymenoptera (bumblebees and some other readily identifiable species).

7.5.3.33 Methods selected are to be as species-specific as possible and/or focussed on habitats of actual or potential importance. Natural England⁵⁵ provides details of standard methodologies, and the selection of appropriate methods in terms of habitats and taxa. The methods adopted will follow this guidance wherever possible.

7.5.3.34 Aquatic invertebrate surveys of waterbodies will follow one of the methods approved by the Freshwater Habitats Trust as part of the National Pond Monitoring Network⁵⁷. The method used will depend on the location of the waterbodies and the potential impact upon it.

7.5.3.35 Surveys will be undertaken within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site, with the number and timing of site visits dependent on the habitats to be surveyed and the taxa under consideration.

Badger

7.5.3.36 Dedicated badger surveys will be undertaken within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and a 100m buffer area. These will identify locations and classification of badger setts where suitable habitat and/or badger field signs have been identified. Where there is the potential for significant severance/fragmentation of territories, an understanding of territory use through detailed survey, including use of bait marking studies, may be necessary.

7.5.3.37 These surveys will be done in line with best practice methodology by Harris *et al* (1989)⁵⁸ and guidance provided by NatureScot⁵⁹, Scottish Badgers⁶⁰, and the Highland Council⁶¹.

7.5.3.38 Badger surveys to identify field signs (setts, hairs, latrine, footprints etc) are ideally undertaken in early spring or autumn/winter when vegetation is at its lowest.

7.5.3.39 If required, bait marking should ideally be undertaken during late February, March, and April when territorial activity is typically at its highest.

Otter and Water vole

7.5.3.40 Following the desk study assessment and extended Phase 1 Habitat survey, dedicated otter and water vole surveys will be undertaken where there is the potential for the Proposed Development to affect watercourses that are suitable for these species.

7.5.3.41 Surveys will consider the use of terrestrial habitat by otter including location of both actual and potential holts (i.e. underground resting sites) and of couches (i.e. above-ground resting sites), and linear routes that may be important for movement between watercourses.

7.5.3.42 The otter surveys will be conducted in line with best practice guidance as provided by Natural England and the Department for the Environment, Food, and Rural Affairs (Defra)⁶² and NatureScot⁶³.

7.5.3.43 The water vole surveys will also be conducted in line with best practice guidance as provided by Natural England and Defra⁶⁴ and NatureScot⁶⁵.

7.5.3.44 Otter surveys can be conducted throughout the year. Water vole surveys should have at least two survey visits to each identified suitable watercourse. In accordance with best practice guidance, a survey should be undertaken in the early season (mid-April to June) and another in late season (July to September). Every survey will be conducted up to 250m upstream and 250m downstream of any potential watercourse crossing point.

7.5.3.45 Otter and water vole surveys should not be conducted during or after periods of heavy rainfall as field signs may have been washed away.

Pine Marten

7.5.3.46 The methodology for undertaking dedicated pine marten surveys will be designed in line with the following documents:

- Interim guidance of survey methodologies for pine marten, produced by the Mammal Society⁶⁶;
- NatureScot Standing advice for planning consultations – Pine Marten⁶⁷;
- Are scat surveys a reliable method for assessing distribution and population status of pine martens?⁶⁸;
- Expansion zone survey of pine marten distribution in Scotland, a report by Scottish Natural Heritage (SNH) (now known as NatureScot)⁶⁹;
- Distribution of the pine marten in southern Scotland in 2013, a report by SNH⁷⁰; and

- Measuring and Monitoring Biological Diversity, Standard Methods for Mammals⁷¹.

7.5.3.47 Where the need for pine marten surveys is identified, surveys of the habitat within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and a 100m buffer zone will be undertaken to determine presence based on field signs. The surveys will comprise transects along pre-determined routes, targeting the most suitable habitat. These transect surveys should be undertaken between May and August in accordance with best practice guidance.

7.5.3.48 If required, scat will be collected and sent to a lab for genetic analysis for further confirmation of pine marten identification.

7.5.3.49 The requirement for further surveys, such as camera trapping, will be determined following the results of the habitat suitability assessment and the first round of targeted surveys.

Wildcat

7.5.3.50 The methodology for undertaking dedicated wildcat surveys will be designed in line with the following documents:

- The distribution of Scottish wildcats (*Felis silvestris*) in Scotland (2006-2008), a report by SNH⁷²;
- The use of camera trapping as a method to survey for the Scottish wildcat, a report by SNH⁷³;
- Interim guidance of survey methodologies for wildcat, produced by the Mammal Society⁷⁴;
- A diagnosis for the Scottish wildcat (*Felis silvestris*): a tool for conservation action for a critically-endangered felid⁷⁵;
- Survey and scoping of wildcat priority areas, a report by SNH⁷⁶;
- Importance of scrub–pastureland mosaics for wildliving cats occurrence in a Mediterranean area: implications for the conservation of the wildcat (*Felis silvestris*)⁷⁷;
- Monitoring European wildcat *Felis silvestris* populations using scat surveys in central Spain: are population trends related to wild rabbit dynamics or to landscape features?⁷⁸;
- Local-level determinants of wildcat occupancy in Northeast Scotland⁷⁹; and
- Measuring and Monitoring Biological Diversity, Standard Methods for Mammals⁷¹.

7.5.3.51 Following the desk study assessment and extended Phase 1 Habitat surveys, dedicated wildcat surveys would be undertaken where there is the potential for the Proposed Development to affect habitats found to be suitable for this species within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and a 100m buffer zone.

7.5.3.52 Field surveys will consist of dedicated walkover surveys, camera trapping, and

collection and DNA analysis of potential wildcat scat.

- 7.5.3.53 Field surveys can be conducted throughout the year but should ideally be undertaken in autumn and winter, after breeding and when vegetation is at its lowest.

Reptiles

- 7.5.3.54 Following the results of the desk study assessment and extended Phase 1 Habitat surveys, where necessary, dedicated reptile surveys will be conducted. These will be undertaken in line with best practice guidance from JNCC⁸⁰, the Amphibian and Reptile Conservation Trust⁸¹ and Froglife⁸².
- 7.5.3.55 Walkover surveys will be conducted within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site across habitats that are identified during the extended Phase 1 Habitat survey as being highly suitable for reptiles. Walkover surveys will involve surveyors traversing areas and identifying habitat that may be utilised by foraging and sheltering reptiles.
- 7.5.3.56 Where further dedicated reptile surveys are required, presence/absence surveys will be conducted and if reptiles are found, further population assessments may be required. These surveys are completed using artificial refuge searches where sheets of roofing felt and/or corrugated iron are placed in suitable habitat to attract reptiles. In line with best practice guidelines, these surveys should ideally be completed between March and October, with the optimal period being from being from April to May (inclusive) and September as the surveys are temperature dependent.

Red Squirrel

- 7.5.3.57 Following the desk study assessment and extended Phase 1 Habitat survey, dedicated red squirrel surveys will be conducted in line with best practice guidance from Gurnell *et al*^{83,84,85}.
- 7.5.3.58 Woodland habitats within the Onshore Cable Corridor, Onshore Substation Site and Landfall Site and a 100m buffer zone that are identified as being suitable for red squirrel would be systematically walked by suitably qualified ecologists, with any field signs of red squirrel recorded (for example, individuals, dreys, and feeding signs).
- 7.5.3.59 Where red squirrel or their field signs are recorded, the habitats will be assessed as either having:
- Low potential (few feeding signs, no dreys);
 - Moderate potential (less than four dreys, scattered feeding signs); or
 - High potential (greater than four dreys and numerous feeding signs).

Brown Hare, Hedgehog and Polecat

- 7.5.3.60 The requirement for dedicated surveys for brown hare, hedgehog or polecat will be determined following the extended Phase 1 Habitat surveys and review of the desk study assessment. Where suitable habitat is present and signs are recorded, these species will be assumed to be present for the purposes of the EcIA.

7.6 Embedded Mitigation

- 7.6.1.1 Mitigation measures will be considered throughout the design process through site selection, routing and design development of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment.
- 7.6.1.2 An Outline Construction Environmental Management Plan (CEMP) will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further with submission of a detailed full planning application and supporting CEMP at a later date. The CEMP will be implemented to avoid, minimise or mitigate effects on the environment during the construction and decommissioning phases of the Proposed Development.
- 7.6.1.3 The Outline CEMP will be produced in line with the good practice guidance including, but not limited to, the SEPA Pollution Prevention Guidelines (PPG) (withdrawn in 2015)⁸⁶, the relevant Construction Industry Research and Information Association (CIRIA) publications and best practice measures outlined in the PPG replacement series Guidance for Pollution Prevention (GPP).
- 7.6.1.4 The Outline CEMP will be a live document with the measures set out monitored during the construction phase to ensure their suitability and effectiveness.
- 7.6.1.5 The Outline CEMP will include ecology specific measures such as, but not limited to:
- restrictions and targets for specific work activities to limit noise and vibration;
 - buffers surrounding sensitive habitats where construction activities are occurring; and
 - working methodologies such as covering open excavations or providing ramps to stop mammals from becoming trapped and biosecurity methods to reduce the spread of INNS.
- 7.6.1.6 Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

7.7 Potential Impacts

- 7.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.
- 7.7.1.2 The impacts that occur may be direct, indirect, secondary and/or cumulative. impacts may also be temporary or permanent and may also be positive or negative.
- 7.7.1.3 For the purpose of this Section, potential negative impacts are considered at a high level with the potential for direct, indirect, secondary and/or cumulative impacts also identified.
- 7.7.2 Construction

7.7.2.1 During construction, potential impacts may include:

- Negative impacts on the qualifying features of statutory and non-statutory designated sites. The potential impacts on European designated sites will be assessed within a Habitats Regulations Appraisal (HRA) following refinement of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site;
- Direct and indirect effects on otherwise scarce, notable or irreplaceable habitats such as, but not limited to, ancient and native woodland, SBL species, and wetland habitats, including groundwater-dependent terrestrial ecosystems (GWDTE);
- Fragmentation of habitat corridors which would otherwise facilitate the safe dispersal of species across the landscape impacted by the Proposed Development;
- Loss of, obstruction, displacement or disturbance to habitat used for breeding, foraging and other life cycle stages by notable and protected species including, but not limited to those listed in Section 7.4.4;
- Disturbance to protected and notable species through construction related lighting, noise, or vibration;
- Increased pollution or siltation of watercourses, impacting aquatic ecology including fish and invertebrates;
- Increased mortality of faunal species due to construction works (for example, entrapment in excavations);
- Spread of INNS into the wild as a result of construction activities; and
- Positive impacts through the incorporation of mitigation and habitat enhancements. This may include the creation of new habitats, removal of INNS and/or the enhancement of existing habitats to provide additional benefits to protected and notable species.

7.7.3 Operation

7.7.3.1 During operation, it is envisaged that much of the disturbed habitats will be reinstated with the exception of the Onshore Substation. Disturbance is likely to be limited to the Onshore Substation building, maintenance work, or unlikely emergency events. Ground disturbance is likely to be limited to areas previously disturbed during construction.

7.7.3.2 The operational impacts may therefore be:

- Disturbance to habitat used for breeding, foraging and other life cycle stages by notable and protected species through operational activities;
- Disturbance to protected and notable species through operational related lighting, noise, vibration, or pollution;
- Spread of INNS (biosecurity) into the wild as a result of operational activities; and
- Increased mortality of faunal species due to operational works (for example,

increased car movements).

7.7.4 Decommissioning

7.7.4.1 During decommissioning, it is envisaged that much of the infrastructure will remain in situ and thus disturbance to habitats will be minimised. Ground disturbance is likely to be limited to small areas of infrastructure that have to be removed, and would be in areas previously disturbed during construction and/or during operation.

7.7.4.2 However, as decommissioning is likely to occur in the future, there is the potential for new habitats or previously absent protected and notable species (including INNS) to be present.

7.7.4.3 The decommissioning impacts may therefore be:

- Disturbance to habitat used for breeding, foraging and other life cycle stages by notable and protected species through decommissioning activities;
- Disturbance to protected and notable species through decommissioning related lighting, noise, vibration, or pollution;
- Spread of INNS (biosecurity) into the wild as a result of decommissioning activities; and
- Increased mortality of faunal species due to decommissioning works (for example, increased car movements).

7.8 Potential Cumulative and In-Combination Impacts

7.8.1.1 Cumulative impacts may occur through the loss of and/or disturbance to other habitats or the same habitat within the scope of this assessment that is suitable for a protected species. Whilst the impact caused by the Proposed Development may be considered insignificant, the impact of the Proposed Development and a secondary development may together cause a significant impact.

7.8.1.2 Consultation with local authorities will identify any potential Proposed Developments within the study area that may result in cumulative impacts.

7.8.1.3 Combined impacts (where relevant) will also be considered.

7.8.1.4 The cumulative and in-combination assessment will be reported within the Terrestrial Ecology and Biodiversity EIAR Chapter.

7.9 Potential Secondary Mitigation

7.9.1.1 Where possible, works should be carried out in advance of sensitive seasons for nearby receptors. In particular, works should be undertaken out with the breeding bird season (March to August inclusive). If this is not possible, pre-construction surveys for breeding birds will be undertaken in advance with any necessary mitigation implemented.

7.9.1.2 Where possible, proposed works and locations of infrastructure will be re-located to avoid protected or notable habitats and species such as potential or actual GWDTEs and badger setts.

7.9.1.3 Pre-construction surveys for other protected and notable species will be undertaken a minimum of eight weeks in advance of any works commencing to allow for any necessary mitigation to be implemented. Should avoidance of potential effects through design changes not be possible, species-specific mitigation plans will be developed and disturbance licence applications made to NatureScot.

7.10 Proposed Scope

7.10.1.1 Potential impacts are outlined in Table 7.3.

Table 7.3: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Designated sites	✓	✓	✓
Habitats	✓	✓	✓
European protected species	✓	✓	✓
Other protected and notable species	✓	✓	✓
INNS	✓	✓	✓

7.11 Consultation

7.11.1.1 This Onshore Scoping Report will be provided to statutory consultees for comment. If required, additional consultation will be sought with the statutory consultees and where relevant, the non-statutory consultees.

7.11.1.2 Where guidance is not provided in standing advice, consultation with NatureScot will be undertaken to discuss the scope of the ecological field surveys. This will include a discussion on which species can be scoped out of assessment (e.g. GCN) and the study area required for each species being assessed.

7.11.1.3 Where necessary, additional consultation will be undertaken with relevant stakeholders regarding specific species (e.g. RSPB and birds) where information on species records and distribution will be discussed.

7.12 Questions to Consultees

7.12.1.1 The following questions are posed to consultees to frame and focus responses to the Terrestrial Ecology and Biodiversity scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree that all features and potential impacts have been identified for Terrestrial Ecology and Biodiversity?

7.12.1.2 Do you agree on the proposed study areas and methodologies?

- Do you agree with the project impacts which have been scoped in for EIA for Terrestrial Ecology and Biodiversity?
- Do you agree with the proposed approach to assessment?

7.13 References

¹ *Nature Conservation (Scotland) Act 2004*, Available at: <https://www.legislation.gov.uk/asp/2004/6/contents>

² *Protection of Badgers Act 1992 (as amended)*, Available at: <https://www.legislation.gov.uk/ukpga/1992/51/contents>

³ *Wildlife and Natural Environment (Scotland) Act 2011*, Available at: <https://www.legislation.gov.uk/asp/2011/6/contents/enacted>

⁴ *Electricity Act 1989*, Available at: <https://www.legislation.gov.uk/ukpga/1989/29/schedule/9?view=extent>

⁵ *Wildlife and Countryside Act 1981 (as amended)*, Available at: <https://www.legislation.gov.uk/ukpga/1981/69>

⁶ *Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)*, Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents/made>

⁷ Aberdeenshire Council (2017), *Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/> [Accessed 22/08/2022]

⁸ Aberdeenshire Council (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]

⁹ The Scottish Government (2014), *National Planning Framework 3*, Available at: <https://www.gov.scot/publications/national-planning-framework-3/> [Accessed 22/08/2022]

¹⁰ The Scottish Government (2022), *Draft National Planning Framework 4*, Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2022/11/national-planning-framework-4-revised-draft/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4-rev> [Accessed 11/11/2022]

¹¹ NatureScot (2022), *Scottish Biodiversity Strategy* (currently in consultation), Available at: <https://consult.gov.scot/environment-forestry/scottish-biodiversity-strategy-2022/>

¹² The Scottish Government (2014), *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/> [Accessed 22/08/2022]

¹³ NatureScot (2020), *Scottish Biodiversity List*, Available at: <https://www.nature.scot/doc/scottish-biodiversity-list>

¹⁴ Joint Nature Conservation Committee (2019), *United Kingdom Biodiversity Action Plan Priority Habitats and Species*, Available at: <https://jncc.gov.uk/our-work/uk-bap/>

¹⁵ National Biodiversity Network Atlas (2022), *National Biodiversity Network Atlas*, Available at: <https://nbnatlas.org/>

-
- ¹⁶ NatureScot (2022), *NatureScot Sitelink*, Available at: <https://sitelink.nature.scot/home>
- ¹⁷ NatureScot (2022), *Moray Firth SPA*, Available at: <https://sitelink.nature.scot/site/10490> [Accessed 16 August 2022]
- ¹⁸ NatureScot (2022), *Reidside Moss SAC*, Available at: <https://sitelink.nature.scot/site/8351> [Accessed 16 August 2022]
- ¹⁹ NatureScot (2022), *Troup, Pennan and Lion's Heads SPA*, Available at: <https://sitelink.nature.scot/site/8587> [Accessed 16 August 2022]
- ²⁰ NatureScot (2022), *Turclossie Moss SAC*, Available at: <https://sitelink.nature.scot/site/8402> [Accessed 16 August 2022]
- ²¹ NatureScot (2022), *Ythan Estuary, Sands of Forvie and Meikle Loch SPA*, Available at: <https://sitelink.nature.scot/site/8592> [Accessed 23 August 2022]
- ²² NatureScot (2022), *Ythan Estuary, Sands of Forvie and Meikle Loch Ramsar*, Available at: <https://sitelink.nature.scot/site/8460> [Accessed 23 August 2022]
- ²³ NatureScot (2022), *Mortlach Moss SAP*, Available at: <https://sitelink.nature.scot/site/8329> [Accessed 16 August 2022]
- ²⁴ NatureScot (2022), *Moray and Nairn Coast SPA*, Available at: <https://sitelink.nature.scot/site/8550> [Accessed 16 August 2022]
- ²⁵ NatureScot (2022), *Moray and Nairn Coast Ramsar*, Available at: <https://sitelink.nature.scot/site/8447> [Accessed 16 August 2022]
- ²⁶ NatureScot (2022), *Lower River Spey-Spey Bay SAC*, Available at: <https://sitelink.nature.scot/site/8311> [Accessed 16 August 2022]
- ²⁷ NatureScot (2022), *River Spey SAC*, Available at: <https://sitelink.nature.scot/site/8365> [Accessed 16 August 2022]
- ²⁸ NatureScot (2022), *Cullen to Stake Ness Coast SSSI*, Available at: <https://sitelink.nature.scot/site/480> [Accessed 17 August 2022]
- ²⁹ NatureScot (2022), *Whitehills to Melrose Coast SSSI*, Available at: <https://sitelink.nature.scot/site/1631> [Accessed 17 August 2022]
- ³⁰ NatureScot (2022), *Gamrie and Pennan Coast SSSI*, Available at: <https://sitelink.nature.scot/site/666> [Accessed 17 August 2022]
- ³¹ NatureScot (2022), *Southern Trench MPA*, Available at: <https://sitelink.nature.scot/site/10477> [Accessed 17 August 2022]
- ³² NatureScot (2022), *Windy Hills SSSI*, Available at: <https://sitelink.nature.scot/site/1642> [Accessed 17 August 2022]
- ³³ NatureScot (2022), *Gight Woods SSSI*, Available at: <https://sitelink.nature.scot/site/687> [Accessed 17 August 2022]

-
- ³⁴ NatureScot (2022), *Reidside Moss SSSI*, Available at: <https://sitelink.nature.scot/site/1343> [Accessed 17 August 2022]
- ³⁵ NatureScot (2022), *Tore of Troup SSSI*, Available at: <https://sitelink.nature.scot/site/1547> [Accessed 17 August 2022]
- ³⁶ NatureScot (2022), *Moss of Crombie SSSI*, Available at: <https://sitelink.nature.scot/site/1196> [Accessed 17 August 2022]
- ³⁷ NatureScot (2022), *Red Moss, Oldtown SSSI*, Available at: <https://sitelink.nature.scot/site/1337> [Accessed 17 August 2022]
- ³⁸ NatureScot (2022), *Shiel Wood Pastures SSSI*, Available at: <https://sitelink.nature.scot/site/1423> [Accessed 17 August 2022]
- ³⁹ Bird Trust for Ornithology (2022), *Birds of Conservation Concern 5*, Available at: <https://www.bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf>
- ⁴⁰ Joint Nature Conservation Committee (2007), *United Kingdom Biodiversity Action Plan Priority Habitats and Species: Herptile Species*, Available at: <https://data.jncc.gov.uk/data/98fb6dab-13ae-470d-884b-7816afce42d4/UKBAP-priority-herptiles.pdf>
- ⁴¹ Chartered Institute of Ecology and Environmental Management (2018), *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*
- ⁴² Joint Nature Conservation Committee (2016), *Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit: Revised Re-Print*
- ⁴³ Chartered Institute of Ecology and Environmental Management (2017), *Guidelines for Preliminary Ecological Appraisal: 2nd Edition*
- ⁴⁴ Rodwell, J.S. (1991), *British Plant Communities. Publication in Five Volumes.*
- ⁴⁵ Rodwell, J.S., Dring, J.C., Averis, A.B.G., Proctor, M.C.F., Malloch, A.J.C., Schaminee, J.H.J. and Dargie, T.C.D. (2000), *Joint Nature Conservation Committee: Review of Coverage of the National Vegetation Classification*
- ⁴⁶ Rodwell, J.S. (2006), *Joint Nature Conservation Committee: National Vegetation Classification: User's Handbook*, Available at http://jncc.defra.gov.uk/pdf/pub06_NVCusershandbook2006.pdf
- ⁴⁷ Bat Conservation Trust (2016), *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*
- ⁴⁸ NatureScot (2020), *Bats*, Available at: <https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/bats>
- ⁴⁹ Bibby, C., Burgess, N., Hill, D. (1992 and 2000), *Bird Census Techniques: Chapter 7 - Counting Individual Species. (2nd edition)*

-
- ⁵⁰ Gilbert, G., Gibbons, D., Evans, J. (2011), *Bird Monitoring Methods: a Manual of Techniques for Key UK Species*
- ⁵¹ NatureScot (previously Scottish Natural Heritage) (2005), *Survey Methods for Use in Assessing the Impacts of Onshore Windfarms on Bird Communities*. Available at: <https://tethys.pnnl.gov/sites/default/files/publications/SNH-2005.pdf>
- ⁵² Bird Trust for Ornithology (2017), *Wetland Bird Survey Core Counts Methods*, Available at: <https://www.bto.org/volunteer-surveys/webs/taking-part/core-counts-methods>
- ⁵³ British Standard Institution (2003), *BS EN 14011:2003, BS6068-5.32: 2003 Water Quality. Sampling of Fish with Electricity*
- ⁵⁴ Beaumont, W.R.C., Taylor, A.A.L., Lee, M.J., Welton, J.S. (2002), *Environment Agency, Guidelines for Electric Fishing Best Practice. R and D Technical Report W2 – 054/TR Almondsbury*
- ⁵⁵ Drake, C.M., Lott, D.A., Alexander, K.N.A. & Webb, J.R (2007), *Natural England Surveying Terrestrial and Freshwater Invertebrates for Conservation Evaluation, Natural England Research Report, NERR005*
- ⁵⁶ Jukes, A (2021), *Chartered Institute of Ecology and Environmental Management: Considering Invertebrates in Preliminary Ecological Appraisals, In Practice. 40-45, Issue 111*
- ⁵⁷ National Pond Monitoring Network (2013), *Pond Conservation*, Available at <http://freshwaterhabitats.org.uk/habitats/surveys/npmn/>
- ⁵⁸ Harris S., Cresswell P., Jefferies D. (1989), *Surveying Badgers, The Mammal Society*, Available: http://www.mammal.org.uk/wp-content/uploads/2016/04/Surveying_Badgers_Mammal_Society.compressed.pdf
- ⁵⁹ NatureScot (2022), *Standing Advice for Planning Consultations – Badger*, Available at: <https://www.nature.scot/doc/standing-advice-planning-consultations-badgers>.
- ⁶⁰ Scottish Badgers (2018), *Surveying for Badger: Good Practice Guidelines*, Available at: https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf
- ⁶¹ The Highland Council (2007), *General Planning Guidance: Badger Policy Guidance Note*, Available at: https://www.highland.gov.uk/downloads/file/2643/badger_policy_guidance_note_march_2007
- ⁶² Natural England and Department for the Environment, Food, and Rural Affairs (2014), *Otters: Survey and Mitigation for Development Projects*, Available at: <https://www.gov.uk/guidance/otters-protection-surveys-and-licences>
- ⁶³ NatureScot (2020), *Protected Species Advice for Developers: Otter*, Available at: <https://www.nature.scot/doc/standing-advice-planning-consultations-otters>

⁶⁴ Natural England and Department for the Environment, Food, and Rural Affairs (2014), *Water Voles: Survey and Mitigation for Development Projects*, Available at: <https://www.gov.uk/guidance/water-voles-protection-surveys-and-licences>

⁶⁵ NatureScot. (2020), *Protected Species Advice for Developers: Water vole*, Available: <https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-water-voles>

⁶⁶ Chartered Institute of Ecology and Environmental Management (2012), *United Kingdom Biodiversity Action Plan Mammals: Interim Guidance of Survey Methodologies, Impact Assessment and Mitigation – Pine Marten*

⁶⁷ NatureScot (2020), *Standing Advice for Planning Consultations – Pine Marten*, Available at: <https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens>

⁶⁸ Birks J., Messenger J., Braithwaite T., Davidson A., Brookes R., Stachan C. (2005), *Chapter 12 – Are Scat Surveys a Reliable Method for Assessing Distribution and Population Status of Pine Martens? (in Harrison D.J., Fuller A.K., Gilbert, P. (eds.) Martens and Fishers (Martes) in Human-Altered Environments. Springer-Verlag, New York)*

⁶⁹ Croose, E., Birks, J.D.S., Schofield, H.W., (2013), *Expansion Zone Survey of Pine Marten (Martes martes) Distribution in Scotland, Scottish Natural Heritage Commissioned Report No. 520*

⁷⁰ Croose, E., Birks, J.D.S., Schofield, H.W., O'Reilly, C. (2014), *Distribution of the Pine Marten (Martes martes) in Southern Scotland in 2013, Scottish Natural Heritage Commissioned Report No. 740.*

⁷¹ Wilson, D.E., Russell Cole, F., Nichols, J.D., Rudran, R., Foster, M.S. (1996), *Measuring and Monitoring Biological Diversity: Standard Methods for Mammals*

⁷² Davis, A.R. and Gray, D. (2010), *The Distribution of Scottish Wildcats (Felis silvestris) in Scotland (2006-2008), Scottish Natural Heritage Commissioned Report No. 36*

⁷³ Kilshaw, K. and Macdonald, D.W. (2011), *The Use of Camera Trapping as a Method to Survey for the Scottish Wildcat, Scottish Natural Heritage Commissioned Report No.*

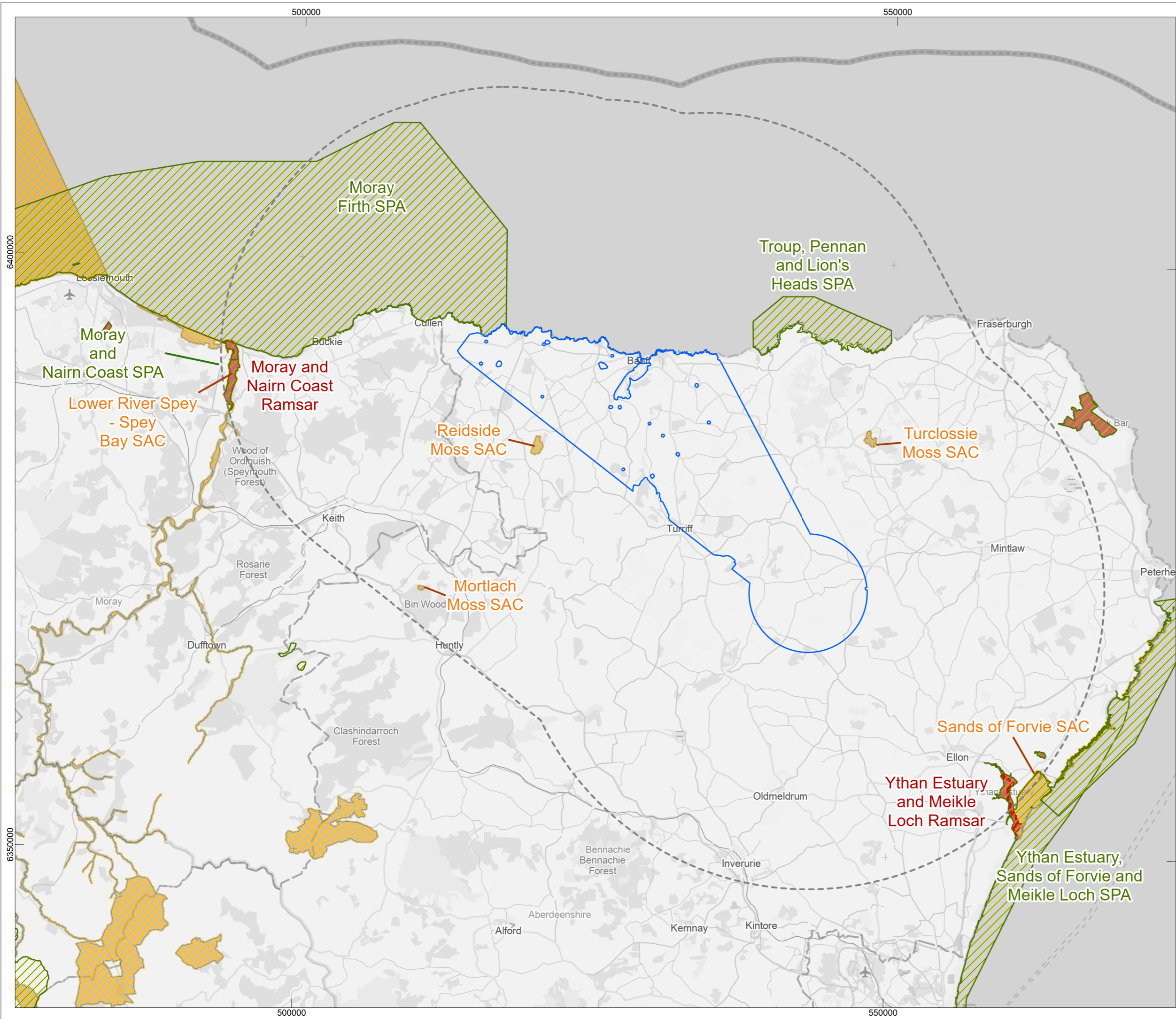
479

⁷⁴ Chartered Institute of Ecology and Environmental Management (2012), *United Kingdom Biodiversity Action Plan Mammals: Interim Guidance of Survey Methodologies, Impact Assessment and Mitigation – Polecat*

⁷⁵ Kitchener, A.C., Yamaguchi, N., Macdonald, D. (2012), *A Diagnosis for the Scottish Wildcat (Felis silvestris): a Tool for Conservation Action for a Critically-Endangered Felid*

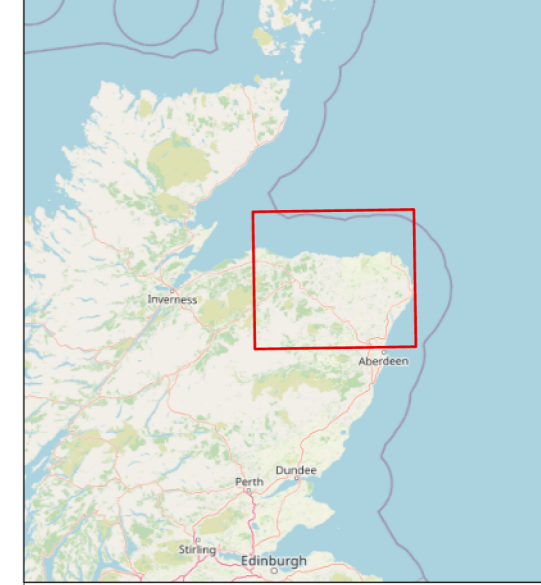
⁷⁶ NatureScot (previously Scottish Natural Heritage) (2014), *Survey and Scoping of Wildcat Priority Areas*

-
- ⁷⁷ Lozano, J., Virgos, E., Malo, A. (2003), *Importance of Scrub–Pastureland Mosaics for Wild-Living Cats Occurrence in a Mediterranean Area: Implications for the Conservation of the Wildcat (Felis silvestris)*
- ⁷⁸ Lozano, J., Virgos, E., Cabezas-Diaz, S. (2013), *Monitoring European Wildcat Felis Silvestris Populations using Scat Surveys in Central Spain: Are Population Trends Related to Wild Rabbit Dynamics or to Landscape Features?*
- ⁷⁹ Silva, A.P., Rosalino, L.M., Johnson, P.J., Macdonald, D. (2013), *Local-Level Determinants of Wildcat Occupancy in Northeast Scotland*
- ⁸⁰ Gent, T., Gibson, S. (2003), *Joint Nature Conservation Committee, Herpetofauna Workers Manual.*
- ⁸¹ Edgar, P., Foster, J., Baker, J. (2010), *Reptile Habitat Management Handbook*
- ⁸² Froglife (1999), *Froglife Advice Sheet 10: Reptile Survey*
- ⁸³ Gurnell, J., Wauters, L.A., Lurz, P.W.W., Tosi, (2004), *Alien Species and Interspecific Competition: Effects of Introduced Eastern Grey Squirrels on Red Squirrel Population Dynamics*
- ⁸⁴ Gurnell, J., Lurz, P.W.W., McDonald, R., Pepper, H. (2009), *Practical Techniques for Surveying and Monitoring Squirrels*
- ⁸⁵ Cockel, C., Gurnell, A., Gurnell, J. (2012), *Consequences of the Physical Management of an Invasive Alien Plant for Riparian Plant Species Richness and Diversity, River Research and Applications 30:217-229 (JA)*
- ⁸⁶ Scottish Environment Protection Agency (2022), *Pollution Prevention Guidelines (withdrawn in 2015)*, Available at: <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>



- Onshore Scoping Area
- Onshore Scoping Area 20km Buffer
- Ramsar Sites
- Special Protection Areas
- Special Areas of Conservation

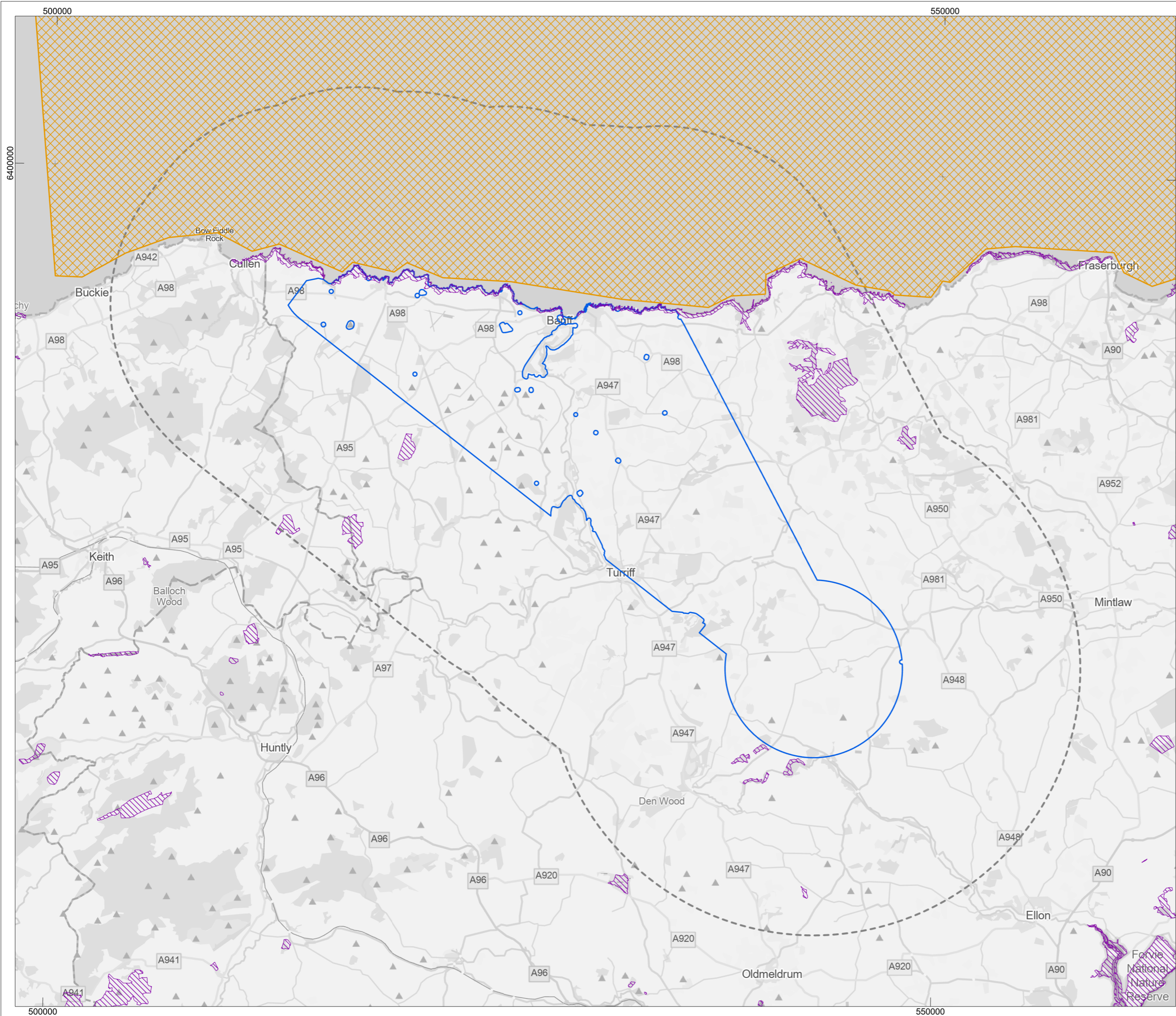
© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri (Copyright Scottish Natural Heritage) Contains Ordnance Survey data © Crown copyright and database right (2022)



Scale at A3: 1:300,000
 0 8 16 km

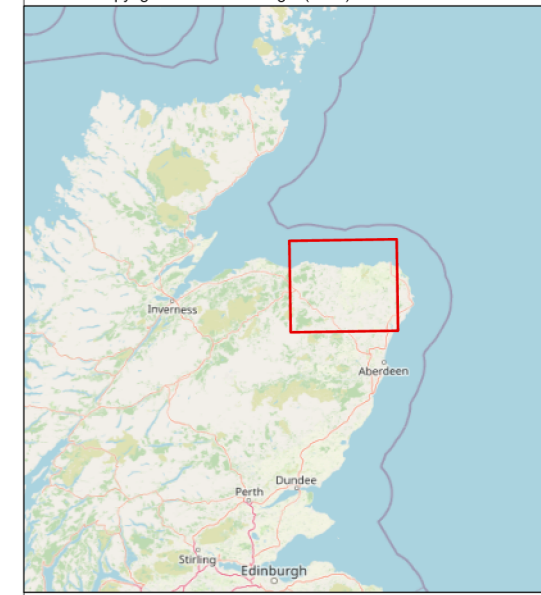
CRS: British National Grid (EPSG:27700)
 Produced: MMAZ Reviewed: ZWEB Approved: AMIT
 Date: 11/10/2022 Revision: 02
 REF: UKCAL1_ARP_WNF_ENV_MAP_00006

Figure 7.1
 European Designated Sites
 within 20km of the
 Onshore Scoping Area



- Onshore Scoping Area
- Onshore Scoping Area 10km Buffer
- Southern Trench Nature Conservation MPA
- Sites of Special Scientific Interest

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri (Copyright Scottish Natural Heritage) Contains Ordnance Survey data © Crown copyright and database right (2022)

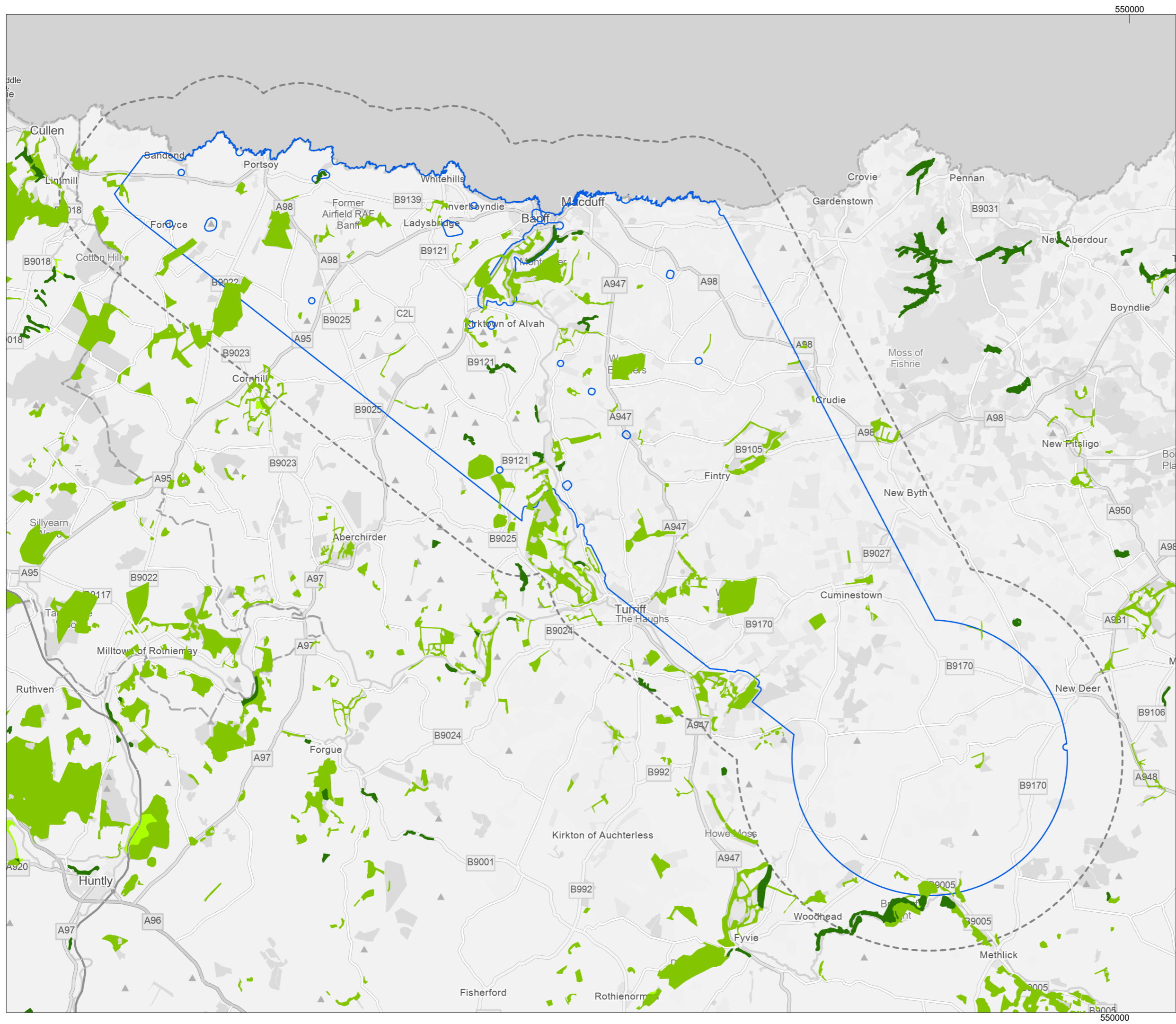


Scale at A3: 1:200,000
 0 5 10 km N

CRS: British National Grid (EPSG:27700)

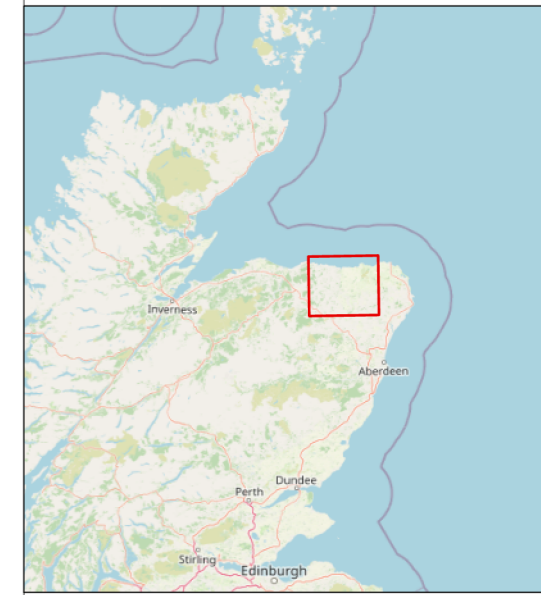
Produced:	Reviewed:	Approved:
MMAZ	ZWEB	AMIT
Date: 11/10/2022		Revision: 02
REF: UKCAL1_ARP_WNF_ENV_MAP_00007		

Figure 7.2
 Nationally Designated Sites within 10km of the Onshore Scoping Area



Onshore Scoping Area
 Onshore Scoping Area 2km Buffer
Ancient Woodland Classes
 Ancient (of semi-natural origin)
 Long-Established (of plantation origin)
 Other (on Roy map)

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri (Copyright Scottish Natural Heritage) Contains Ordnance Survey data © Crown copyright and database right (2022)



Scale at A3: 1:130,000
 0 3.5 7 km N

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
MMAZ	ZWEB	AMIT
Date: 11/10/2022	Revision: 02	
REF: UKCAL1_ARP_WNF_ENV_MAP_00008		

Figure 7.3
 Ancient Woodland Inventory Woodlands within 2km of the Onshore Scoping Area



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 8

Landscape and Visual

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	8-5
8 LANDSCAPE AND VISUAL.....	8-6
8.1 INTRODUCTION	8-6
8.2 LEGISLATIVE AND POLICY CONTEXT	8-6
8.3 STUDY AREA.....	8-7
8.4 BASELINE ENVIRONMENT.....	8-7
8.4.2 Landscape Elements.....	8-7
8.4.3 Landscape Character Types.....	8-7
8.4.4 Landscape Planning Designations	8-9
8.4.5 Visual Receptors	8-10
8.5 ASSESSMENT METHODOLOGY.....	8-10
8.5.2 Cumulative and In-Combination Assessment	8-15
8.6 EMBEDDED MITIGATION	8-15
8.7 POTENTIAL IMPACTS	8-16
8.7.2 Construction.....	8-16
8.7.3 Operation	8-16
8.7.4 Decommissioning	8-17
8.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	8-17
8.9 POTENTIAL SECONDARY MITIGATION	8-17
8.10 PROPOSED SCOPE	8-17
8.11 CONSULTATION	8-18
8.12 QUESTIONS TO CONSULTEES.....	8-18
8.13 REFERENCES	8-19

List of Figures

FIGURE 8.1: LANDSCAPE VISUAL IMPACT ASSESSMENT STUDY AREA

FIGURE 8.2: LANDSCAPE CHARACTER.

FIGURE 8.3: LANDSCAPE PLANNING DESIGNATIONS.

FIGURE 8.4: VISUAL RECEPTORS.

List of Tables

TABLE 8.1: INTERACTION BETWEEN IMPACT MAGNITUDE AND RECEPTOR SENSITIVITY TO ASSIGN SIGNIFICANCE8-13

TABLE 8.2: PROPOSED SCOPE.....8-17

Acronyms and Abbreviations

AVR	Accurate Visual Representative
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ELC	Europe Landscape Convention
GLVIA3	Guidelines for Landscape and Visual Impact Assessment: Third Edition
HDD	Horizontal Directional Drilling
km	Kilometre
LCT	Landscape Character Type
LDP	Local Development Plan
LVIA	Landscape and Visual Impact Assessment
MLWS	Mean Low Water Spring
NCR	National Cycle Route
NPF3	Third National Planning Framework
NPF4	Fourth National Planning Framework (Draft)
OnTI	Onshore Transmission Infrastructure
OW	Ocean Winds
SLA	Special Landscape Areas
SPP	Scottish Planning Policy
ZTV	Zone of Theoretical Visibility

8 Landscape and Visual

8.1 Introduction

8.1.1.1 This Chapter of the Onshore Scoping Report identifies the landscape and visual receptors of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

8.1.1.2 This Chapter is supported by the following figures:

- Figure 8.1: Landscape Visual Impact Assessment Study Area;
- Figure 8.2: Landscape Character;
- Figure 8.3: Landscape Planning Designations; and
- Figure 8.4: Visual Receptors.

8.2 Legislative and Policy Context

8.2.1.1 The following legislation, policy and guidelines will be taken into consideration during the assessment of landscape and visual effects:

- Council of Europe Landscape Convention (ELC)¹;
- National Planning Framework 3 (NPF3)²;
- National Planning Framework 4 (Draft) (NPF4) due to be published in the near future³;
- Scottish Planning Policy (SPP)⁴;
- Aberdeenshire Local Development Plan (LDP) 2017⁵ (Aberdeenshire (Proposed) LDP 2022⁶ is currently in the final phases of development) Policy E2 Landscape and Policy HE2 Protecting historic and cultural areas (Aberdeenshire Council, 2017, 2022);
- Aberdeenshire LDP 2017 (Aberdeenshire (Proposed) LDP 2022 is currently in the final phases of development) Supplementary Guidance 9 Aberdeenshire Special Landscape Areas (SLA) (if not superseded) (Aberdeenshire Council, 2017, 2022);
- Landscape Institute and Institute of Environmental Management & Assessment, Guidelines for Landscape and Visual Impact Assessment: Third Edition' ('GLVIA3')⁷;
- Carys Swanwick Department of Landscape University of Sheffield and Land Use Consultants for The Countryside Agency and NatureScot, Landscape Character Assessment Guidance for England and Scotland⁸;
- NatureScot, Assessing the Cumulative Impact of Onshore Wind Energy Developments⁹;
- Landscape Institute, Visual representation of Development Proposals: Landscape Institute Technical Guidance Note 06/19¹⁰;

- Landscape Institute, Assessing landscape value outside national designations; Technical Guidance Note 02/21¹¹; and
- Scottish Government, Guidance for applicants on using the design envelope for applications under section 36 of the Electricity Act 1989¹².

8.3 Study Area

- 8.3.1.1 The LVIA scoping study area is shown on Figure 8.1 and reflects the Onshore Scoping Area. The study area incorporates a 10km diameter search area around the existing New Deer substation (the Substation Scoping Area). The LVIA study area shown on Figure 8.1 is considered to cover the maximum potential area that may be significantly affected by the Proposed Development.
- 8.3.1.2 The Onshore Scoping Area will be refined throughout the Environmental Impact Assessment (EIA) process through refinement of the Onshore Transmission Infrastructure (OnTI) with a proposed Onshore Cable Corridor width of a maximum of approximately 500m, a preferred Onshore Substation and Landfall Site identified through an iterative feasibility and assessment process, which includes consideration of landscape and visual matters.
- 8.3.1.3 The landscape and visual impact assessment (LVIA) study area for the EIA will be defined in relation to the refinement of the Onshore Transmission Infrastructure (OnTI) and identification of the Landfall Site, Onshore Substation Site and Onshore Cable Corridor.
- 8.3.1.4 For the Environmental Impact Assessment Report (EIAR) a study area that includes a 1km buffer from the Onshore Cable Corridor will be used in the assessment of the landscape and visual impact of the Onshore Cable Corridor, which will in the main be temporary, during construction only.
- 8.3.1.5 The LVIA will be based on a Design Envelope approach with a reasonable worst-case scenario for the extent of the Onshore Cable Corridor works, Landfall Site and the Onshore Substation, which will be agreed with NatureScot and Aberdeenshire Council.

8.4 Baseline Environment

- 8.4.1.1 The baseline environment of the LVIA study area includes landscape elements, Landscape Character Types (LCT)s, landscape planning designations and visual receptors (people) that may gain visibility of the Proposed Development.

8.4.2 Landscape Elements

- 8.4.2.1 Within the landscape of Aberdeenshire, the landscape elements that may be affected by the Proposed Development are likely to include amenity grassland, agricultural land, hedgerows, individual trees, plantation forestry and mixed/deciduous trees.

8.4.3 Landscape Character Types

- 8.4.3.1 The LCTs are derived from information prepared by NatureScot in 2019. This is a web-based data set of mapped boundaries and descriptions¹³. The LCTs located within the study area are shown on Figure 8.2.

8.4.3.2 The Proposed Development Landfall Site would occur within the Cliffs and Rocky Coast – Aberdeenshire LCT 10 the key characteristics of which are described as:

- “Fragmented coastline featuring caves, numerous jagged islets and arches;
- Raised beaches, some with distinctive small former fishing villages;
- Colonisation of every available sheltered area by short creeping grasses and wind-pruned gorse;
- Deep rocky ravines cut by small water courses (known locally as dens) with lush vegetation;
- Farmland extending to cliff edges;
- Historic towns, often where rivers join the sea;
- Lighthouses, and ruined castles and coastal churches occur infrequently along the coast and form landmark features seen from roads and coastal footpaths; and
- Absence of development along more remote stretches of coast.”

8.4.3.3 Further inland within the Onshore Scoping Area there is a swathe of the Gently Undulating Coastal Farmland LCT 14. The key characteristics of this are described by NatureScot as:

- “Very gently undulating broad shallow valleys and low ridges. More rounded and distinct small hills close to the coast;
- Small insignificant burns running north to the coast;
- Simple pattern of large, geometric, mainly arable fields, pinky-brown when ploughed;
- Few field boundaries;
- Few trees, limited to small clumps of broadleaves around farms and villages and ash planted along roadsides in some areas;
- Blocks of forestry within shallow basins and on hillsides;
- Fragments of moss and rushy pastures, studded with birch;
- Even distribution of farmsteads, and only occasional villages;
- Views of the sea and landmark hills; and
- General feeling of openness.”

8.4.3.4 The Gently Undulating Coastal Farmland LCT is dissected by the valley of the River Deveron. The associated valley and those of the Rive Ythan and Burn of Turrif to the south are defined as the Farmed and Wooded River Valleys LCT 32. The key characteristics of this LCT are described as:

- “The Ythan has an open character between Turrif and Fyvie, in a broad shallow valley with fenced pasture floodplain. The river is narrow and straightened in this area. East of Fyvie, it is narrow, deeply incised and meandering, contained by steep slopes;

- The River Deveron, aligned through a relatively broad valley strongly contained by rolling hills;
- Wooded policies and small parklands in places;
- Little marginal or wetland vegetation on the floodplains, with farmland abutting both rivers except where semi-natural woodland comes down to the river banks in more inaccessible, steep-sided areas;
- Mixed woodland with policies of designed landscapes extending onto the rolling hills;
- Well settled hill slopes overlooking the valleys with relatively large farms;
- Villages and large market towns;
- Castles, mansion houses and historic built features; and
- Quiet roads and paths giving a sense of seclusion, contrasting with the busy A947 Aberdeen to Banff arterial route.”

8.4.3.5 The majority of the remainder of the study area is covered by LCT 20 Undulating Agricultural Heartland. This LCT is likely to contain the Onshore Substation as well as the Onshore Cable Corridor. Its key characteristics are described by NatureScot as:

- “Gently undulating, rolling landform of low hills and ridges, with broad shallow valleys;
- Smoothly rounded terrain;
- Large fields;
- Occasional beech and thorn hedges, with stone dykes more common in parts;
- Generally sparse woodland cover, with broadleaf trees concentrated in shelterbelts along ridges, and around farms. Larger coniferous forests occur in some areas, and estate policies and occasional beech shelterbelts also occur;
- A well settled landscape with a number of small settlements including historic planned fermtouns, castles and designed landscapes;
- Frequent, regularly dispersed medium-sized farms, with pockets of smaller farms and crofts; and
- Open, expansive character with views to landmark hills; the Culsh monument above New Deer is a key landmark feature.”

8.4.3.6 Notably within the study area, but not mentioned in the key characteristics set out by NatureScot, there are several onshore wind farms and pylon-mounted transmission lines. These are largely located within the Gently Undulating Coastal Farmland LCT 14 and the Undulating Agricultural Heartland LCT 20.

8.4.4 Landscape Planning Designations

8.4.4.1 Landscape planning designations are illustrated on Figure 8.3 and include SLA identified by Aberdeenshire Council as the North Aberdeenshire Coast SLA and the Deveron Valley SLA. The Landfall Site and sections of the Onshore Cable Corridor

would run through one or both of these SLAs.

8.4.4.2 In addition, the study area includes a number of Gardens and Designed Landscapes included in the Historic Environments Scotland Inventory. These are Duff House, Forglen, Hatton Castle, Fyvie Castle and Haddo House. Whilst these areas are excluded from the Onshore Cable Corridor and the Onshore Substation Scoping Area they may be affected through views of the Proposed Development as part of their settings.

8.4.5 Visual Receptors

8.4.5.1 Visual receptors are people that may gain views of the Proposed Development. People are likely to be found using routes through the landscape, within settlements, homes and at visitor attractions.

8.4.5.2 Within the study area the main west to east route is the A98. From it a number of other A class roads head southwards. West of the River Deveron are the A95 and A97 whilst to the east the A947 runs between Banff and Turriff. These are linked by several B class roads with the main coastal route being formed by the B9139 and the B9031. Coastal routes through the study area are promoted as part of the North East 250.

8.4.5.3 Across this landscape there is also a wide network of minor roads linking farms and small settlements.

8.4.5.4 There are no long-distance routes within the potential extent of the LVIA study area. However, Figure 8.4 indicates that there are several Local Adopted Core Paths from where people may gain views of the Proposed Development. These are primarily shown to occur within the coastal area to the west of Macduff, to the south of Macduff and Banff and extending south and broadly following the route of National Cycle Route (NCR) 1. There are also Local Adopted Core Paths in the vicinity of New Deer, Fyvie Castle, to the north of Woodhead and extending north from Methlick.

8.4.5.5 NCR1 passes through the study area along the coast through Portsoy, Whitehills and Banff. At Banff the route runs inland alongside the valley of the River Deveron to Turrif and then east through Cuminestown towards Maud.

8.4.5.6 Concentrations of people are to be found in the towns and villages. Along and near to the coast these include Sandend, Portsoy, Whitehills, Inverboyndie, Boyndie, Banff and Macduff. Further inland the farmland is host to numerous scattered farmsteads and properties whilst towns are also present in the form of Turrif, Cuminestown, New Deer and Methlick.

8.4.5.7 Visitor attractions and Ordnance Survey viewpoints that may be affected by changes in their views include Duff House to the south of Banff, which is under the custodianship of Historic Environment Scotland, Fyvie Castle, which is owned by the National Trust for Scotland, Hill of Maunderlea Ordnance Survey viewpoint near the A97 and B9025 junction, Findlater Castle and viewpoint east of Cullen. A further review of such locations will be undertaken once the LVIA study area is defined for the assessment.

8.5 Assessment Methodology

- 8.5.1.1 The objective of the assessment of the Proposed Development will be to predict the significant effects on the landscape, and visual resource. To accord with the EIA Regulations, the LVIA effects will be assessed to be either significant or not significant. The methodology to undertake the LVIA will reflect on the GLVIA3⁷.
- 8.5.1.2 The LVIA will assess the effects of changes resulting from the Proposed Development on the landscape and visual resource. For the purpose of assessment, the potential effects on the landscape and visual resource are grouped as follows.
- Physical effects: physical effects are restricted to within the Onshore Scoping Area and are also referred to as 'direct' effects. This category of effects is made up of landscape elements and features, which are the components of the landscape fabric
 - Effects on landscape character and landscape planning designations: 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 Project that may alter the way in which the pattern of elements is perceived. The associated value of the landscape within areas identified as being within landscape planning designations will be considered in the assessment of their sensitivity.
 - Effects on key visual receptors and views: the assessment of the effects on views is an assessment of how the introduction of the Proposed Development would affect views throughout the Study Areas. The LVIA will include a baseline assessment of the relevant key visual receptors and assess the potential impacts of the onshore infrastructure in respect of the different types of viewers. The visual assessment of the Onshore Substation will be based on a series of representative viewpoints. These viewpoints will be chosen to provide a cross-section of receptor types and locations within the Study Areas, focused on those with the potential for significant effects.
- 8.5.1.3 A preliminary or 'simple' assessment will be undertaken of the landscape and visual receptors using desk-based information and Zone of Theoretical Visibility (ZTV) analysis, to identify which, landscape and visual receptors are unlikely to be significantly affected and can be scoped out of the assessment and those that are more likely to be significantly affected by the Proposed Development, which require to be assessed in full.
- 8.5.1.4 Potential impacts during construction would relate to a combination of the presence of the associated plant, materials and other temporary structures, and the activity associated with the OnTI construction process. This will include the Landfall Site, Onshore Cable Corridor and Onshore Substation construction.
- 8.5.1.5 The underground location of the Landfall Site and Onshore Cable Corridor, means that their potential impact on landscape and visual receptors would be very limited. Visible components would be limited to smaller scale forms such as signage and link boxes as well as permanent and temporary removal of

vegetation. Given the temporary and theoretically reversible effects of the majority of these aspects of the Project, it is proposed that operational effects of the Onshore Cable Corridor and Landfall Site be scoped out of the LVIA.

- 8.5.1.6 The operational effects of the Onshore Substation will be the main focus of the LVIA.
- 8.5.1.7 It is anticipated that the decommissioning impacts would be similar in nature to those of construction but would be more limited in geographical extent and timescale.
- 8.5.1.8 Decommissioning would include potential impacts on the landscape character and visual amenity. The impacts would relate principally to the decommissioning process, associated plant, materials, infrastructure, and temporary structures, as well as the presence of dismantled structures, where they would be visible above ground. There may be some short-term, localised impacts along the Onshore Cable Corridor should the cable not remain in-situ.
- 8.5.1.9 In line with Chapter 4 Methodology the significance of effects is assessed through a combination of two considerations: the sensitivity of the landscape or visual receptor and the magnitude of change that would result from the Proposed Development. In the LVIA the criteria considered in the determination of sensitivity and magnitude will differ from those set out in Chapter 4 Methodology as advised in GLVIA37.
- 8.5.1.10 An assessment of the susceptibility of landscape and visual receptors to specific change and the value attached to landscape receptors and views is undertaken based on defined criteria, combining these judgements to assess the sensitivity of the landscape and visual receptors to the Proposed Development. An overall level of sensitivity is applied for each landscape and visual receptor or view - high, medium-high, medium, medium-low or low.
- 8.5.1.11 An assessment of the size/ scale of landscape effect, the degree to which landscape elements are altered and the extent to which the effects change the key characteristics of the landscape is undertaken, combining these judgements to assess the magnitude of change on the landscape receptor.
- 8.5.1.12 An assessment of the size/ scale of visual effect, the extent to which the change would affect views, whether this is unique or representative of a wider area, and the position of the Proposed Development in relation to the principal orientation of the view and activity of the receptor. These judgements are combined to assess the magnitude of change on the visual receptor.
- 8.5.1.13 GLVIA3⁷ sets out an approach to the assessment of magnitude of change in which three separate considerations are combined within the magnitude of change rating. These are the size or scale of the effect, its geographical extent and its duration and reversibility. Notably GLVIA3 is not a prescriptive methodology but guidance. The guidance suggests that this approach is to be applied in respect of both landscape and visual receptors. It is considered that the process of combining all three considerations in one rating can distort the aim of identifying likely significant effects of development. For example, a high magnitude of change, based on size or scale, may be reduced to a lower rating if it occurred in a

localised geographical area and for a short duration. This might mean that a potentially significant effect will be overlooked if effects are diluted down due to their limited geographical extents and/ or duration or reversibility.

- 8.5.1.14 As advocated by GLVIA3 the assessment will use professional judgement in defining the methodology for the LVIA. The consideration of the size or scale of the effect, its geographical extent and its duration and reversibility will therefore be undertaken separately, by basing the magnitude of change on size or scale to determine where significant and not significant effects occur, and then describing the geographical extents of these effects and their duration and reversibility separately. Duration and reversibility will be stated separately in relation to the assessed effects (for example as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about likely significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.
- 8.5.1.15 The assessment methodology will set out six scales of magnitude of change - high, medium-high, medium, medium-low, low and negligible/none; which are preferred to the 'maximum of five categories' suggested in GLVIA3 as a means of clearly defining and summarising magnitude of change judgements.
- 8.5.1.16 The landscape and visual assessment, unavoidably, involves a combination of quantitative and qualitative assessment and wherever possible cross reference has been made to objective evidence, baseline figures and / or to photomontage visualisations to support the assessment conclusions. Often a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach. Importantly, each effect results from its own unique set of circumstances and has been assessed on a case by case basis. The matrix presented in Table 8.1 will be used as a guide to help inform the threshold of significance when combining sensitivity and magnitude to assess significance. On this basis potential effects are assessed as Negligible, Minor, Moderate-Minor, Moderate, Moderate-Major and Major.
- 8.5.1.17 For the purposes of the assessment, any effects with a significance level of Major and Moderate-Major have been deemed significant in EIA terms. 'Moderate' levels of effect have the potential, subject to the assessor's professional judgement, to be considered as significant or not significant, depending on the sensitivity and magnitude of change factors evaluated.

Table 8.1: Interaction Between Impact Magnitude and Receptor Sensitivity to Assign Significance

		Magnitude of Impact					
		High	Medium-High	Medium	Medium-Low	Low	Negligible / No Change
Sensitivity	High	Major (Significant)	Major (Significant)	Moderate - Major (Significant)	Moderate	Moderate - Minor	Minor (Not Significant)
	Medium	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate	Moderate - Minor	Minor (Not Significant)
Low	High	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate	Moderate - Minor	Minor (Not Significant)
	Medium	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate	Moderate - Minor	Minor (Not Significant)
Negligible / No Change	High	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate	Moderate - Minor	Minor (Not Significant)
	Medium	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate - Major (Significant)	Moderate	Moderate - Minor	Minor (Not Significant)

					(Significant / Not Significant)	(Not Significant)	
Medium-High	Major (Significant)	Moderate - Major (Significant)	Moderate (Significant / Not Significant)	Moderate (Significant / Not Significant)	Moderate (Significant / Not Significant)	Moderate - Minor (Not Significant)	Minor (Not Significant)
Medium	Moderate - Major (Significant)	Moderate (Significant / Not Significant)	Moderate (Significant / Not Significant)	Moderate (Significant / Not Significant)	Moderate - Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)
Medium-Low	Moderate (Significant / Not Significant)	Moderate (Significant / Not Significant)	Moderate - Minor (Not Significant)	Moderate - Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)	Negligible (Not Significant)
Low	Moderate (Significant / Not Significant)	Moderate - Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)

8.5.1.18 Consideration of the Proposed Development and landscape and visual impacts is based on a 'Design Envelope' approach following the Scottish Government (2022) Guidance for applicants on using the design envelope for applications under Section 36 of the Electricity Act 1989¹². A design envelope assessment approach is used in the LVIA due to the uncertainty of the detail of the final project due to the nature of the Proposed Development and evolving technology.

8.5.1.19 In accordance with the guidance the LVIA will:

- Be undertaken on the basis of the relevant design parameters applicable to the characteristics of the Proposed Development included in the application documents; and
- For each of the different receptors, establish those parameters likely to result in the maximum adverse effect (the worst-case scenario) and be undertaken accordingly to determine significance.

8.5.1.20 A viewpoint assessment will be carried out to determine the potential effects of the Onshore Substation on specific receptors and representative viewpoints within the LVIA study area. Representative viewpoints proposed for inclusion in the assessment will be agreed through consultation with Aberdeenshire Council.

8.5.1.21 The representative viewpoints will allow an assessment of the Onshore Substation to be made from a range of locations within the study area.

8.5.1.22 The existing and predicted view of the Onshore Substation will be described and illustrated using photography. A 35mm equivalent camera (specifically a full frame digital single lens reflex camera) with a 50mm lens is the chosen format for recording the viewpoint photography, which is endorsed as the most suitable camera combination/focal length for LVIA work. The photography will be presented showing the existing view, together with visualisations (for example block model and photomontage as appropriate) to illustrate the predicted view of the Proposed Development.

8.5.1.23 The visualisations will be prepared in accordance with the Landscape Institute (2019) Visual Representation of Development Proposals (TGN 06/19)¹⁰. The visualisations will be Type 4 Accurate Visual Representative (AVR) Level 1 showing the maximum extent of the Onshore Substation within a Design Envelope. Visualisations will be presented without planting mitigation and with planting mitigation after a 15-year establishment period. It may be appropriate to consider the need for photography that reflects views seen in different seasons at certain locations and the need and opportunities for this will be agreed with relevant stakeholders as part of the viewpoint and visualisation selection process.

8.5.2 Cumulative and In-Combination Assessment

8.5.2.1 Onshore cumulative impacts and in-combination impacts will be considered as part of the EIA process. Developments of a similar type, nature, and scale will be identified and a list of cumulative developments to be considered in the LVIA will be agreed with Aberdeenshire Council and NatureScot. Combined impacts (where relevant) with other EIA topics will be assessed.

8.5.2.2 The assessment will consider the potential for significant cumulative impacts to arise as a result of the construction, operation and decommissioning of the Proposed Development, and during the construction phase of the OnTI, in the context of other developments that are either existing, consented/under construction, or at application stage.

8.5.2.3 The objective of the cumulative LVIA is to describe, visually represent and assess the ways in which the Proposed Development will have additional effects when considered together with other existing, consented or application stage developments of a similar nature and to identify related significant cumulative effects arising. The guiding principle in preparing the cumulative LVIA will be to focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process. Existing and under construction energy development will form part of the baseline and the addition of the Proposed Development to this will be part of the main assessment. Developments that have been consented, but for which construction has not commenced will be considered within the cumulative assessment presented within the Landscape and Visual Chapter of the EIAR in line with the methodology set out in Chapter 4.

8.6 Embedded Mitigation

8.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment.

- 8.6.1.2 Landscape and visual effects are a factor in determining the site of the Onshore Substation and the Onshore Cable Corridor. Where possible removal of landscape elements will be avoided through the refinement of the Onshore Cable Corridor. Where it is not possible to avoid the removal of landscape elements compensatory will be considered as appropriate.
- 8.6.1.3 The Onshore Substation proposals are likely to include screening in the form of earthworks and screen planting.
- 8.6.1.4 Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

8.7 Potential Impacts

- 8.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.

8.7.2 Construction

- 8.7.2.1 Landscape elements may be altered through the construction of the OnTI where construction processes for the Onshore Cable Corridor, the Landfall Site and Onshore Substation Site require their removal. In some cases, vegetation can be reinstated in its previous location, however, trees cannot be replanted over the onshore cable circuits, which would therefore cause some longer-term effects.
- 8.7.2.2 During the construction of the OnTI the key changes will be the disruption of the soil surface and landform as well as the temporary storage of materials, including the cables. Around the Landfall Site and along the Onshore Cable Corridor, works will be fenced and at road crossings there would be wider access points into fields where there would be necessary signage and access controls. Cable laying plant would also be present and there would be several compound areas close to the Landfall Site and along the Onshore Cable Corridor, and these may include cabins, plant, parking, materials and potentially Horizontal Directional Drilling (HDD) equipment.
- 8.7.2.3 At the Onshore Substation there would be a further large construction compound. The main impacts within the fenced off site would be the incidence of movement, plant, cranes, earthworks, materials storage and the building of the equipment itself.

8.7.3 Operation

- 8.7.3.1 During the operation of the Landfall Site and the Onshore Cable Corridor the landcover will have been returned largely to its preconstruction state. Since the Landfall Site and onshore cable circuits are underground, their presence would be marked only by occasional warning signage and potentially the incidence of ground level covers and cable link boxes which may be visible at locations along the route above ground level. In addition, there may be gaps in tree cover where reinstatement in-situ is not possible.
- 8.7.3.2 During the operation of the Onshore Substation the key changes will occur as a

result of the visibility of a large area of electrical infrastructure and buildings within an area that was previously open fields. This would result in changes to the landscape character and views from the local area.

8.7.3.3 Screen planting and earthworks may be proposed around the Onshore Substation in order to reduce the impacts on these receptors. Screen planting would establish over time to reduce the effects.

8.7.4 Decommissioning

8.7.4.1 It is assumed that the cables would be removed from their underground trunking by pulling them through from close to the cable junction boxes. The junction boxes and signage would then be removed.

8.7.4.2 At the Onshore Substation the land would be reinstated to its former use with similar effects on the landscape and visual resource occurring during the decommissioning process to the construction process, although shorter in duration.

8.8 Potential Cumulative and In-Combination Impacts

8.8.1.1 Cumulative landscape and visual effects may arise through the introduction of the Proposed Development to a context that is already or may be in the future affected by other similar, energy infrastructure development within the study area.

8.8.1.2 In-combination impacts may also occur through the inter-relationship with another EIAR topic that may lead to different or greater environmental effects than in isolation.

8.8.1.3 There is also the potential for in-combination impacts resulting from onshore and offshore works.

8.8.1.4 The assessment presented within the Landscape and Visual Chapter of the EIAR will consider the potential for significant cumulative and in-combination impacts (where relevant) to arise as a result of the construction, operation and decommissioning of the Proposed Development.

8.9 Potential Secondary Mitigation

8.9.1.1 Any landscape mitigation proposed at the Onshore Substation Site would be the subject of a maintenance and management plan to be agreed with Aberdeenshire Council as part of the discharge of conditions.

8.10 Proposed Scope

8.10.1.1 Potential impacts on the landscape and visual resource have been identified which may occur during the construction, operation and decommissioning phases of the Proposed Development. These impacts are outlined in Table 8.2.

Table 8.2: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Landscape elements within the Onshore Cable Corridor and Landfall Site	✓	×	×

Potential Impacts	Construction	Operation	Decommissioning
Landscape character within 1km of the Onshore Cable Corridor and Landfall Site	x	x	x
Visual amenity within 1km of the Onshore Cable Corridor and Landfall Site	✓	x	x
Landscape elements within the Onshore Substation	✓	x	x
Landscape character within 3km of the Onshore Substation.	✓	✓	✓
Visual amenity within 3km of the Onshore Substation Site	✓	✓	✓
Landscape, visual and cumulative impacts beyond the agreed study area boundary (TBC).	x	x	x

8.11 Consultation

8.11.1.1 The key consultees for the LVIA are anticipated to be Aberdeenshire Council, NatureScot and Marine Scotland. Once the Onshore Substation Site, Landfall Site and Onshore Cable Corridor have been established the Applicant will approach the consultees to agree the refined LVIA study area and suitable viewpoint locations based on the ZTV for the maximum three-dimensional design envelope for the Onshore Substation.

8.11.1.2 Thereafter, we would seek agreement of the maximum design scenario for assessment and cumulative developments to be included in the cumulative LVIA, if any. A discussion around the Outline Landscape Mitigation Plan, to be developed as part of the Proposed Development may also be sought.

8.12 Questions to Consultees

8.12.1.1 The following questions are posed to consultees to frame and focus responses to the landscape and visual scoping exercise, which will in turn inform the Scoping Opinion:

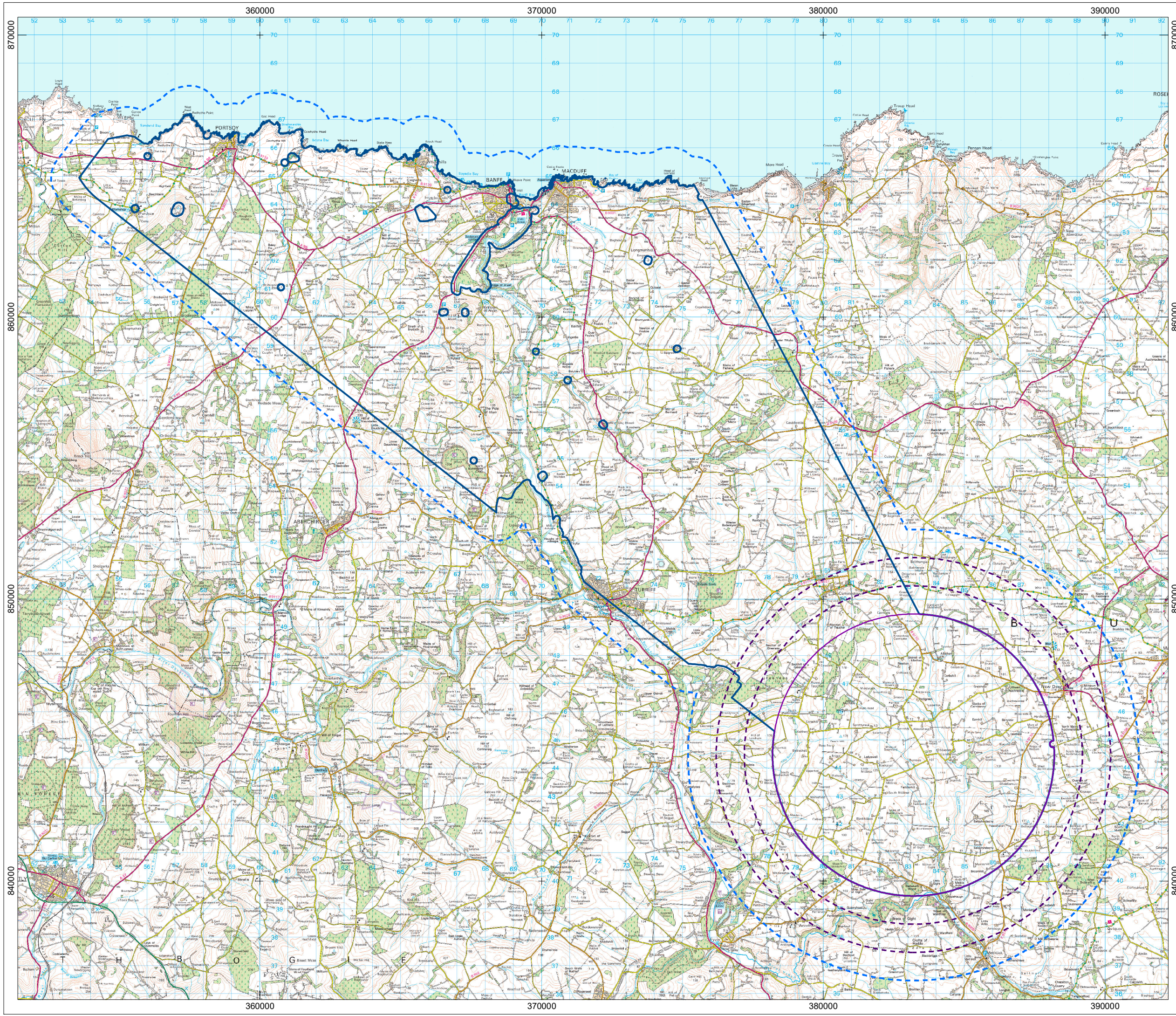
- Do you agree with the proposed approach to defining the LVIA study area and the suggested buffers?
- Do you agree that receptors and potential impacts have been identified for the LVIA?
- Do you agree with the project impacts which have been scoped out of the EIA for LVIA?
- Do you agree with the proposed approach to assessment?

8.13 References

- ¹ European Council (2000), *Council of Europe Landscape Convention (ETS No. 176), as amended by the 2016 Protocol*, Available at: <https://rm.coe.int/16807b6bc7> [Accessed 13/10/2022]
- ² The Scottish Government (2014), *National Planning Framework 3*, Available at: <https://www.gov.scot/publications/national-planning-framework-3/pages/2/> [Accessed 22/08/2022]
- ³ The Scottish Government (2022), *Draft National Planning Framework 4*, Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2022/11/national-planning-framework-4-revised-draft/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4-rev> [Accessed 11/11/2022]
- ⁴ The Scottish Government (2020), *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/pages/2/> [Accessed 22/08/2022]
- ⁵ Aberdeenshire Council (2017), *Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/>
- ⁶ Aberdeen City and Shire Strategic Development Planning Authority (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]
- ⁷ Landscape Institute and Institute of Environmental Management & Assessment (2013), *Guidelines for Landscape and Visual Impact Assessment: Third Edition*
- ⁸ Carys Swanwick Department of Landscape University of Sheffield and Land Use Consultants for The Countryside Agency and NatureScot (2002), *Landscape Character Assessment: Guidance for England and Scotland*, Available at: <https://www.nature.scot/sites/default/files/2018-02/Publication%202002%20-%20Landscape%20Character%20Assessment%20guidance%20for%20England%20and%20Scotland.pdf> [Accessed 13/10/2022]
- ⁹ NatureScot (2012), *Guidance: Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments*, Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> [Accessed 13/10/2022/]
- ¹⁰ Landscape Institute (2019), *Visual Representation of Development Proposals: Technical Guidance Note 06/19*, Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf [Accessed 13/10/2022]
- ¹¹ Landscape Institute (2021), *Assessing Landscape Value outside National Designations: Technical Guidance Note 02/21*, Available at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/05/tgn-02-21-assessing-landscape-value-outside-national-designations.pdf> [Accessed 13/10/2022]

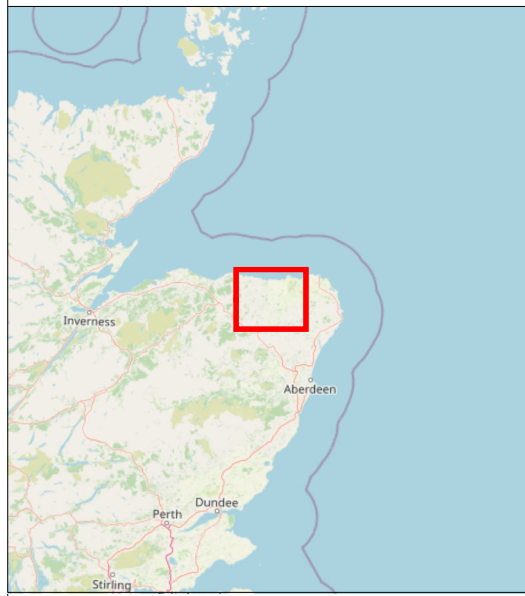
¹² The Scottish Government (2022), *Electricity Act 1989 – Section 36 Applications: Guidance for Applicants on Using the Design Envelope*, Available at: <https://www.gov.scot/publications/guidance-applicants-using-design-envelope-applications-under-section-36-electricity-act-1989/> [Accessed 13/10/2022]

¹³ NatureScot (2019), *Map Search*, Available at: <https://sitelink.nature.scot/map>



- Onshore Scoping Area
- Substation Scoping Area
- 1km radii buffer
- Potential extent of LVIA Study Area

© OpenStreetMap (and) contributors, CC-BY-SA
 OpenStreetMap data: © OpenStreetMap contributors
 © Crown copyright. All rights reserved (2022) Ordnance Survey
 Licence 0100031673.



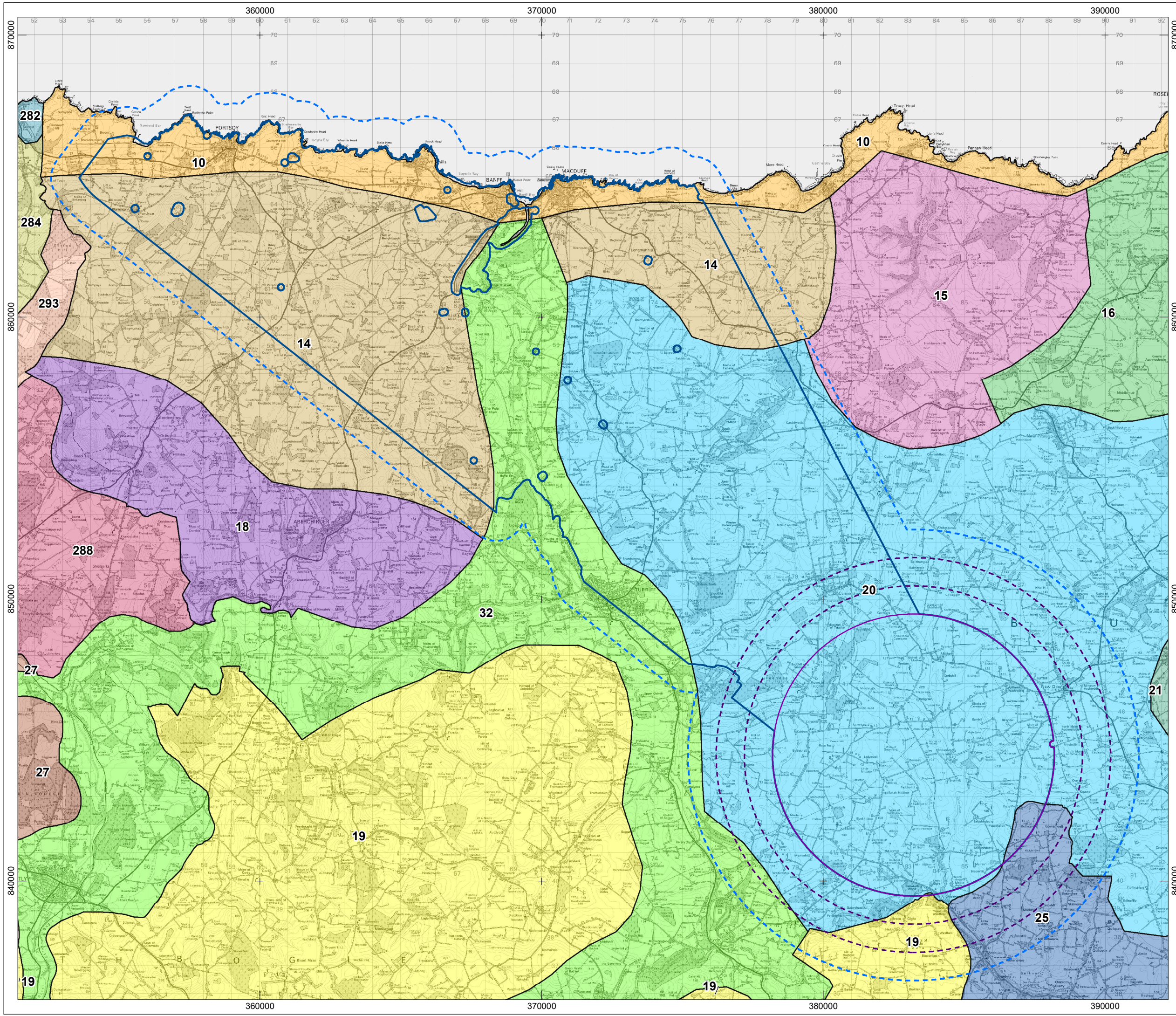
Scale at A3: 1:125,000
 0 3 6 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
JMAC	LTHO	DHON
Date: 10/10/2022		Revision: 02
REF: UKCAL1_GO_WNF_ELS_MAP_00007		

Figure 8.1
 Landscape Visual Impact
 Assessment Study Area





- Onshore Scoping Area
 - Substation Scoping Area
 - 1km radii buffer
 - Potential extent of LVIA Study Area
- NatureScot (2019) Landscape Character Types**

- (only listed LCTs within LVIA Study Area)
- 10. Cliffs and Rocky Coast - Aberdeenshire
 - 14. Gently Undulating Coastal Farmland
 - 15. Broad Ridges and Valleys
 - 19. Farmed Rolling Ridges and Hills
 - 20. Undulating Agricultural Heartland
 - 25. Farmed Strath - Aberdeenshire
 - 32. Farmed and Wooded River Valleys

© OpenStreetMap (and) contributors, CC-BY-SA
 OpenStreetMap data: © OpenStreetMap contributors
 © Crown copyright. All rights reserved (2022) Ordnance Survey Licence 0100031673.
 Contains public sector information licensed under the terms of the Open Government Licence v.3.0.





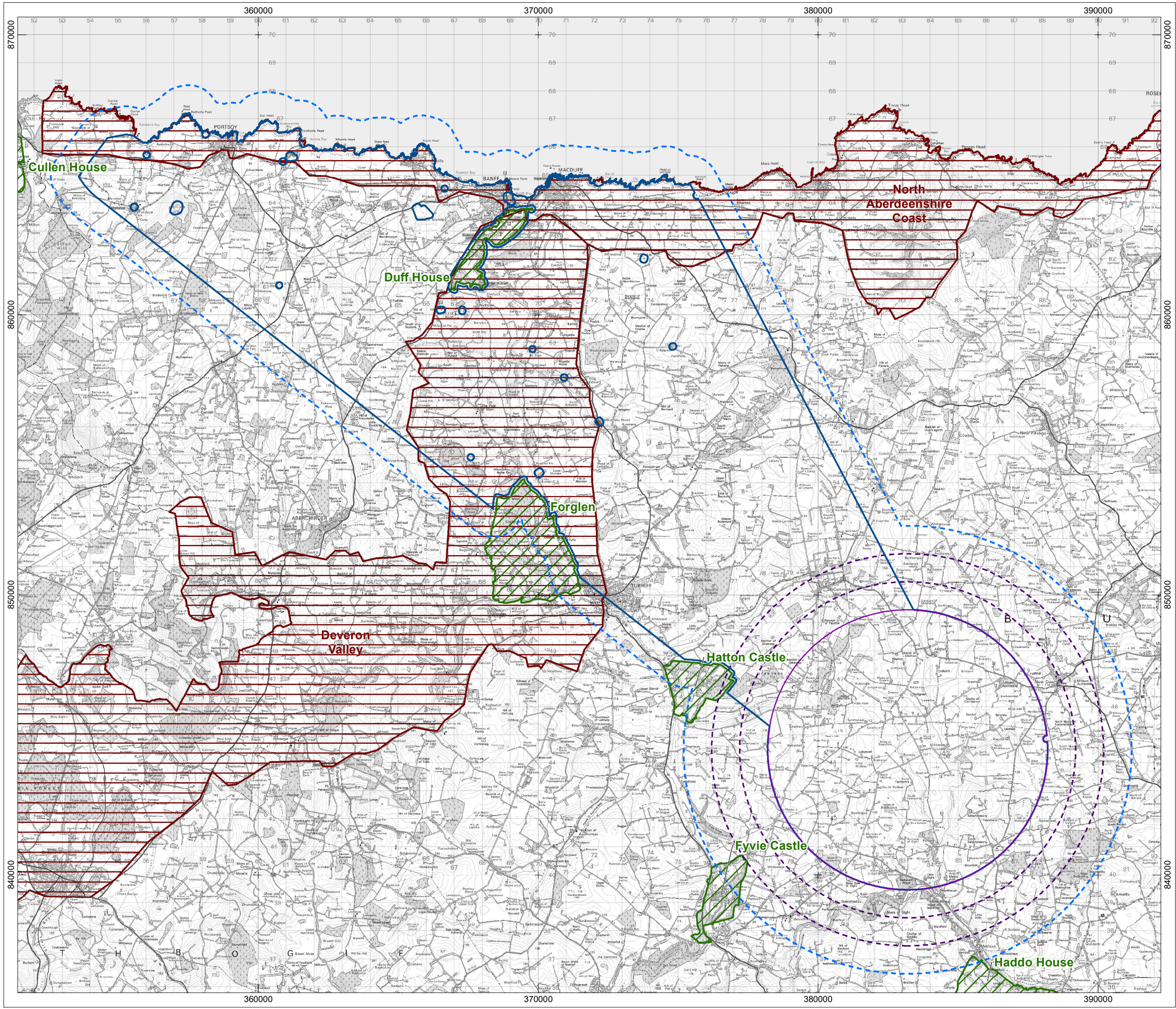
Scale at A3: 1:125,000

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
JMAC	LTHO	DHON
Date: 10/10/2022	Revision: 02	
REF: UKCAL1_GO_WNF_ELS_MAP_00008		

Figure 8.2
Landscape Character



- Onshore Scoping Area
- Substation Scoping Area
- 1km radii buffer
- Potential extent of LVIA Study Area
- Garden and Designed Landscape
- Special Landscape Area

© OpenStreetMap (and) contributors, CC-BY-SA
 OpenStreetMap data: © OpenStreetMap contributors
 © Crown copyright. All rights reserved (2022) Ordnance Survey
 Licence 0100031673.
 Contains public sector information licensed under the terms of the
 Open Government Licence v.3.0.

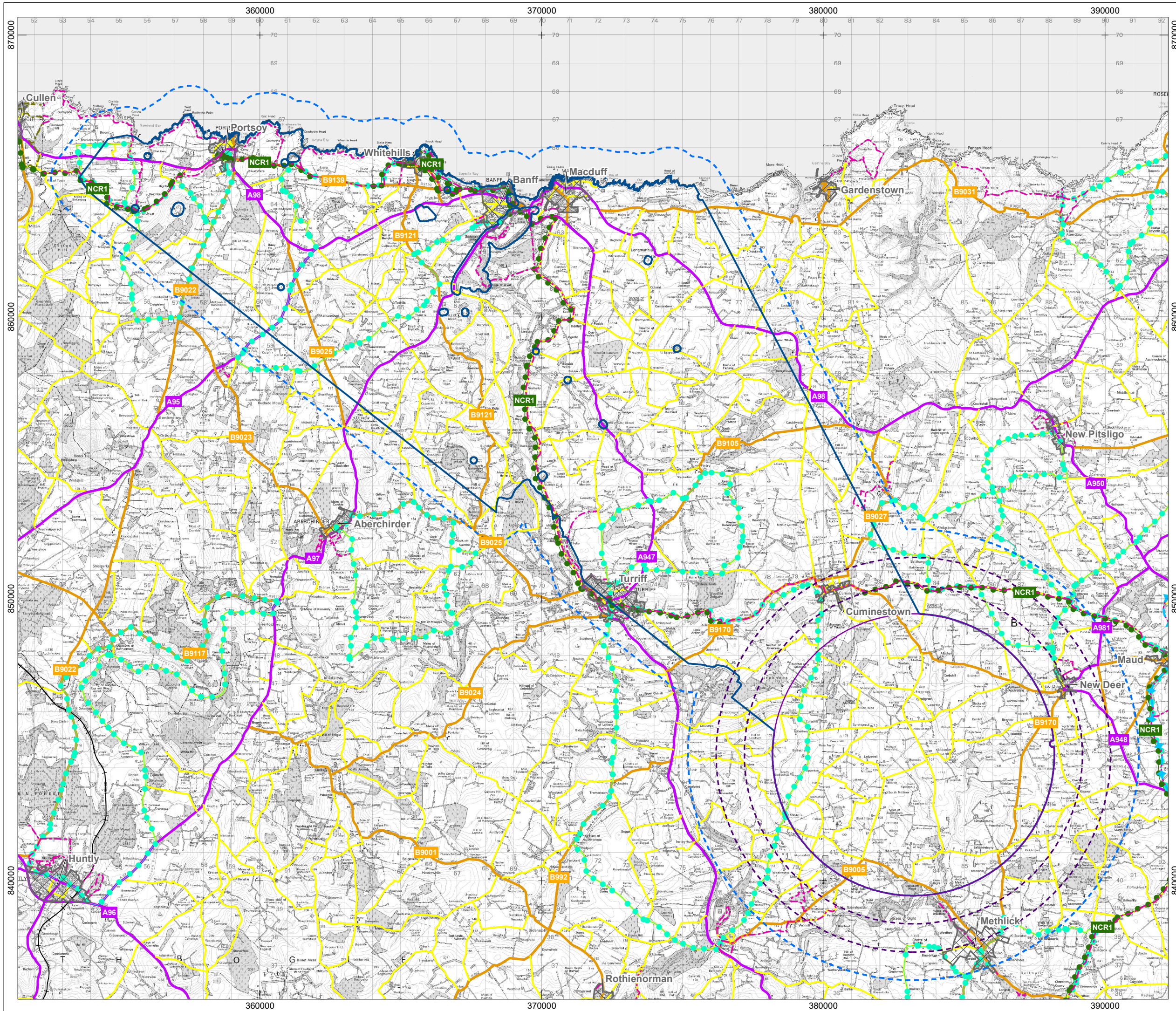


Scale at A3: 1:125,000
 0 3 6 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
JMAC	LTHO	DHON
Date: 10/10/2022	Revision: 02	
REF: UKCAL1_GO_WNF_ELS_MAP_00009		

Figure 8.3
 Landscape Planning Designations



- Onshore Scoping Area
- Substation Scoping Area
- 1km radii buffer
- Potential extent of LVIA Study Area
- ◆ Formartine and Buchan Way
- National Cycle Network
- Local Cycle Network
- Core Path (as defined by Nature Scot)
- Local Adopted Core Paths
- + Railway
- Primary and A Road
- B Road
- Minor Road
- Settlement

© OpenStreetMap (and) contributors, CC-BY-SA
 OpenStreetMap data: © OpenStreetMap contributors
 © Crown copyright. All rights reserved (2022) Ordnance Survey
 Licence 0100031673.
 Contains public sector information licensed under the terms of the
 Open Government Licence v.3.0.



Scale at A3: 1:125,000
 0 3 6 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
JMAC	LTHO	DHON
Date: 10/10/2022	Revision: 02	
REF: UKCAL1_GO_WNF_ELS_MAP_00010		

Figure 8.4
Visual Receptors



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 9

Terrestrial Archaeology and Cultural Heritage

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS 9-5

9 TERRESTRIAL ARCHAEOLOGY AND CULTURAL HERITAGE 9-6

9.1 INTRODUCTION 9-6

9.2 LEGISLATIVE AND POLICY CONTEXT 9-6

9.3 STUDY AREA 9-6

9.4 BASELINE ENVIRONMENT 9-7

9.4.1 Designated Cultural Heritage Assets 9-7

9.5 ASSESSMENT METHODOLOGY 9-8

9.5.1 Supporting Assessment Methodology 9-8

9.5.2 EIA Assessment Methodology 9-8

9.6 EMBEDDED MITIGATION 9-11

9.6.1 Approach to physical impacts 9-11

9.7 POTENTIAL IMPACTS 9-12

9.7.1 Introduction 9-12

9.7.2 Construction 9-12

9.7.3 Operation 9-12

9.7.4 Decommissioning 9-13

9.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS 9-13

9.9 POTENTIAL SECONDARY MITIGATION 9-13

9.9.1 Approaches to Secondary Mitigation 9-13

9.9.2 Construction 9-14

9.9.3 Operation 9-14

9.9.4 Decommissioning 9-14

9.10 PROPOSED SCOPE 9-14

9.11 CONSULTATION 9-14

9.12 QUESTIONS TO CONSULTEES 9-15

9.13 REFERENCES 9-16

APPENDIX A: NATIONAL DESIGNATION 9-17

List of Figures

FIGURE 9.1: ONSHORE NATIONAL HERITAGE DESIGNATIONS

List of Tables

TABLE 9.1: MAGNITUDE OF IMPACT	9-9
TABLE 9.2: INTERACTION BETWEEN IMPACT MAGNITUDE AND RECEPTOR SENSITIVITY TO ASSIGN SIGNIFICANCE	9-11
TABLE 9.3: PROPOSED SCOPE.....	9-14

Acronyms and Abbreviations

DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
HDD	Horizontal Directional Drilling
HEDBA	Historic Environment Desk-Based Assessment
HER	Historic Environment Record
HES	Historic Environment Scotland
IEMA	Institute of Environmental Management and Assessment
km	Kilometre
LDP	Local Development Plan
LIDAR	Light Detection and Ranging
m	metres
MLWS	Mean Low Water Springs
NPF3	Third National Planning Framework
NPF4	Draft Fourth National Planning Framework
OnTI	Onshore Transmission Infrastructure
OW	Ocean Winds
SPP	Scottish Planning Policy
UK	United Kingdom

9 Terrestrial Archaeology and Cultural Heritage

9.1 Introduction

9.1.1.1 This Chapter of the Onshore Scoping Report identifies the terrestrial archaeology and cultural heritage receptors of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of the Mean Low Water Springs (MLWS).

9.1.1.2 This Chapter is supported by Figure 9.1: Onshore National Heritage Designations.

9.2 Legislative and Policy Context

9.2.1.1 The following legislation will be taken into consideration during the archaeological and cultural heritage assessment:

- Ancient Monuments and Archaeological Areas Act, 1979¹ (as amended by the Historic Environment (Amendment)(Scotland) Act, 2011)²;
- Protection of Military Remains Act, 1986³;
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act, 1997⁴ (as amended by the Historic Environment (Amendment)(Scotland) Act, 2011¹) and;
- Electricity Act 1989, Schedule 9 *Preservation of amenity and fisheries: Scotland*⁵, (i.e. para 3 (1a)).

9.2.1.2 In addition to the above, the following policies are also applicable:

- Scottish Planning Policy (SPP)⁶;
- National Planning Framework 3 (NPF3)⁷;
- Draft National Planning Framework 4 (NPF4)⁸; and
- The Aberdeenshire Local Development Plan (LDP) 2017⁹.

9.2.1.3 It must be noted that, while the adopted April 2017 Aberdeenshire LDP is still applicable, Aberdeenshire Council is currently in the process of working on the Aberdeenshire (Proposed) LDP 2022¹⁰. In the meantime, the 2017 LDP remains applicable, and as such the following policies outlined in that document are applicable to this assessment:

- Policy HE1 Protecting historic buildings, sites and monuments; and
- Policy HE2 Protecting historic and cultural areas.

9.3 Study Area

9.3.1.1 For the purposes of this Onshore Scoping Report, this Chapter focuses on those heritage assets which have been identified within and immediately surrounding the Onshore Scoping Area presented on Figure 9.1.

9.3.1.2 The Terrestrial Archaeology and Cultural Heritage assessment study area will be refined for the Environmental Impact Assessment Report (EIAR) following the refinement of the Onshore Transmission Infrastructure (OnTI) and the

identification of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site.

- 9.3.1.3 For purposes of consideration of potential direct impacts upon the archaeological resource within the EIAR, a study area of 500 metres (m) either side of the Onshore Cable Corridor, is proposed and a 500m buffer area from the Onshore Substation Site and Landfall Site . This will provide sufficient data to inform a consideration of the potential for unknown remains to survive and allow a sufficient coverage to allow flexibility in designed location of the final OnTI within the study area.
- 9.3.1.4 For purposes of consideration of indirect effects during construction of the Onshore Cable Corridor and Landfall Site on the settings of designated assets, within the EIAR, a study area of 500m either side of the Onshore Cable Corridor will be applied (as for the archaeological study area). This will be extended as required to account for access tracks/ Horizontal Directional Drilling (HDD) and other compounds and ancillary works.
- 9.3.1.5 For the purposes of consideration of effects on settings and heritage significance of the Onshore Substation, at this stage, an initial study area of 5km is proposed to be considered within the EIAR. This will allow for initial identification of potential sensitive heritage receptors. This study area may be reduced as design parameters become refined, in consultation with the relevant consultees.

9.4 Baseline Environment

9.4.1 Designated Cultural Heritage Assets

9.4.1.1 Within the Onshore Scoping Area, there are a total of 813 designated cultural heritage assets including:

- 26 Scheduled Monuments;
- 40 Category A Listed Buildings;
- 333 Category B Listed Buildings;
- 404 Category C Listed Buildings;
- Six Conservation Areas;
- Three Gardens and Designed Landscapes; and
- One Battlefield.

9.4.1.2 In addition to the above, there is also one asset which has also been classified as a Property in the Care of Scottish Ministers.

9.4.1.3 There are no World Heritage Sites within or immediately surrounding the Onshore Scoping Area.

9.4.1.4 The locations of the above identified designated heritage assets can be seen on Figure 9.1, and a full list is provided in the accompanying Appendix A: National Designation.

9.4.1.5 Generally, the Listed Buildings, Conservation Areas and Gardens and Designed Landscapes are located within or surrounding existing settlements such as

Fordyce, Portsoy, Whitehills, Banff, Turiff and Cuminestown: with higher densities within the area between Portsoy and Banff along the Aberdeenshire coast to Cuminestown approximately 16km to the south of the coast. Comparatively, the Scheduled Monuments are scattered across the Onshore Scoping Area, however, there is a similar paucity within the southern part of the Onshore Scoping Area to the north-west, south, south-west and west of New Deer. Overall, the Onshore Scoping Area around New Deer is relatively devoid of designated heritage assets (as shown in Figure 9.1).

- 9.4.1.6 While the Scheduled Monuments largely capture prehistoric to medieval activity, the other designated heritage assets mainly date to the post-medieval period. It is presumed that the non-designated heritage asset record would largely reflect that of the designated heritage assets and a Historic Environment Record (HER) of the EIAR study areas will be collated to undertake further assessment for the EIAR to fully understand the known and likely archaeological resource.

9.5 Assessment Methodology

9.5.1 Supporting Assessment Methodology

- 9.5.1.1 Following the confirmation of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site, it is proposed to produce a Historic Environment Desk-Based Assessment (HEDBA) to act as a supporting technical appendix to the Archaeology and Cultural Heritage EIAR Chapter.

- 9.5.1.2 The study areas to be used in the HEDBA are those set out in Section 9.3 above.

- 9.5.1.3 As a minimum, the scope of the HEDBA would include:

- A review of the Historic Environment Scotland (HES) dataset on designated heritage assets within the study areas;
- A review of the HER data to collate information on the known and potential non-designated heritage assets;
- A review of relevant online sources such as Canmore (the National Record of the Historic Environment)¹¹;
- A review of aerial photography and Light Detection and Ranging (LiDAR) data of the study areas (as far as is practicable and proportionate); and
- A site walkover survey of the Onshore Cable Corridor, Landfall Site and Onshore Substation Site.

9.5.2 EIA Assessment Methodology

- 9.5.2.1 There is currently no single accepted or standard guidance for the assessment of the likely effects of a development on the archaeological and cultural heritage resource within Scotland, however, a mixture of the Environmental Impact Assessment (EIA) outlined in the Design Manual for Roads and Bridges (DMRB 2020, LA 104, Revision 1)¹² and the Principles of Cultural Heritage Impact Assessment in the UK by the Institute of Environmental Management and Assessment (IEMA)¹³ is commonly applied.

- 9.5.2.2 Combined with professional judgement, this is commonly recognised as the most rigorous methodology available for archaeology and cultural heritage assessment

as part of the EIA process which firstly identifies the value/importance of an asset and then considers the magnitude of change which, when combined, results into an overall score on likely effects. This score can either be significant or not significant in EIA terms.

9.5.2.3 Generally, the value/importance of an asset can be Very High, High, Medium, Low or Negligible as follows:

- Very High: World Heritage Sites and non-designated assets of equivalent heritage significance of international importance and directly associated with a World Heritage Site;
- High: Scheduled Monuments, Category A Listed Buildings, Inventory Battlefields, Inventory Gardens and Designed Landscapes, and non-designated assets of equivalent heritage significance which are considered to be potentially nationally important;
- Medium: Category B and C Listed Buildings, regionally important archaeological features and areas (as defined in the HER). Conservation Areas, which are considered regionally important;
- Low: Sites and features noted as locally important in the HER. Other, non-designated features of cultural heritage significance; and
- Negligible: Badly preserved / damaged or very common archaeological features / buildings of little or no value at local or other scale.

9.5.2.4 The magnitude of change reflects the degree to which the significance of a heritage asset (further described below) is altered due to a Proposed Development (Table 9.1). The assignment of a magnitude of impact is a matter of professional judgement and takes into account the nature of the change, whether elements contributing to significance are affected, and the proportion of the feature affected.

Table 9.1: Magnitude of Impact

Magnitude of Impact	Description
High	<p><i>Adverse</i></p> <p>Total loss of or major physical damage to or significant alteration to a site, building or other feature.</p> <p>Extensive change (e.g., loss of dominance, intrusion on key view or sightline) to the setting of a designated heritage asset or other feature recognised to be of national importance, which may lead to a major reduction in the contribution of that setting to the heritage significance of the asset so that the asset loses heritage significance, and a major reduction in the ability to experience and/or appreciate that heritage significance.</p> <p><i>Beneficial</i></p>

Magnitude of Impact	Description
	<p>Large scale or major improvement to a site, building or other feature.</p> <p>Extensive change (e.g., re-establishment of dominance, key view of sightline) to the setting of a designated heritage asset or other feature to be recognised to be of national importance, which may lead to a major improvement in the contribution of that setting to the heritage significance of the asset, and major improvement to the ability to experience and/or appreciate that heritage significance.</p>
Medium	<p><i>Adverse</i></p> <p>Damage or alteration to a site, building or other feature.</p> <p>Change in setting (e.g., intrusion on designed sight-lines and vistas) to monuments / buildings and other features, which may lead to a moderate reduction in the contribution of that setting to the heritage significance of the asset. Change/reduction in the ability to experience/appreciate that heritage significance.</p> <p><i>Beneficial</i></p> <p>Improvement to a site, building or other feature.</p> <p>Change in setting (e.g., improvement on designed sight-lines and vistas) to monuments / buildings and other features, which may lead to a moderate increase in the contribution of that setting to the heritage significance of the asset. Increase in the ability to experience/appreciate that heritage significance.</p>
Low	<p><i>Adverse</i></p> <p>Minor damage or alteration to a site, building or other feature.</p> <p>Minor change in setting (e.g., above historic skylines or in designed vistas) of Monuments, Listed Buildings, sites and other features, which may lead to a small reduction in the contribution the setting makes to the heritage significance of the heritage asset, and limited loss of heritage significance. Limited change in or reduction of the ability to experience or appreciate the heritage significance of an asset.</p> <p><i>Beneficial</i></p> <p>Minor improvement to a site, building or other feature.</p> <p>Minor beneficial change in setting (e.g., above historic skylines or in designed vistas) of monuments, building, sites and other features, which may lead to a small improvement in the contribution the setting</p>

Magnitude of Impact	Description
	makes to the heritage significance of the heritage asset. Limited improvement in the ability to experience or appreciate the heritage significance of an asset.
Negligible	No physical effect, either adverse or beneficial. Slight or no change in setting (either adverse or beneficial), with no or very limited change in the contribution that setting makes to the heritage significance of the asset. No or minimal change in the ability to experience or appreciate the heritage significance of the asset.

- 9.5.2.5 The magnitude of change can either be beneficial or adverse and can come through either direct or indirect impacts. Direct impacts are often caused by physical changes during the construction process, while indirect impacts can often cause to changes in the setting of a heritage asset which could in turn harm the significance of a heritage asset.
- 9.5.2.6 Effects can be temporary or permanent, short term or long term and in some cases, but not all, are reversible. For example, archaeological remains once removed cannot be reinstated.
- 9.5.2.7 The significance of effects is calculated by way of measuring the magnitude of impact against the value/importance of the heritage asset. This matrix is presented in Table 9.2.

Table 9.2: Interaction Between Impact Magnitude and Receptor Sensitivity to Assign Significance

		Sensitivity of Heritage Receptor				
		Very High	High	Medium	Low	Negligible
Magnitude of Impact	High	Major (Significant)	Major (Significant)	Moderate (Significant)	Minor (Not Significant)	Not Significant
	Medium	Moderate (Significant)	Moderate (Significant)	Moderate (Significant)	Minor (Not Significant)	Negligible (Not Significant)
	Low	Minor (Not Significant)	Minor (Not Significant)	Minor (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
	Negligible	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)

9.6 Embedded Mitigation

9.6.1 Approach to physical impacts

- 9.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to

reduce the potential for impacts upon the environment.

9.6.1.2 Embedded mitigation at this stage includes the provision of a 100m buffer zone around Scheduled Monuments and Inventory Gardens and Designed Landscapes (and other designated structures therein) to ensure that the Proposed Development is designed around these sensitive areas, as shown in Figure 9.1.

9.6.1.3 Where possible, archaeological sites will be taken into account during the evolving design process and routing/siting decisions for the OnTI, to avoid impacts and the need to specific secondary mitigation measures. Similarly, consideration may be given to the provision of screening (via hard and/or soft landscaping) to mitigation effects on the heritage significance of designated assets (if any are assessed and where practicable). Embedded mitigation, where incorporated, will be set out in the EIAR chapter as relevant.

9.7 Potential Impacts

9.7.1 Introduction

9.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.

9.7.2 Construction

9.7.2.1 At present, it is considered that there is potential for the partial truncation or complete loss of archaeological remains (known and currently unknown), however, this would need to be confirmed once the Onshore Cable Corridor, Onshore Substation and Landfall Site has been established and the HER data has been reviewed.

9.7.2.2 In regards to cultural heritage, while there may be some harm to the significance of heritage assets by way of a change in setting during the construction process, for example, due to a temporary increase or change in noise or light, arising from the presence of construction plant, access track provision and temporary compounds (HDD and construction camps), such effects are likely to be temporary and short term, lasting for as long as the construction phase.

9.7.2.3 Overall, the following impacts may lead to potential significant effects during the construction phase:

- Physical impact to known and unknown archaeological remains through construction works, e.g., landscaping, service excavation, new Foundations etc;
- Harm to the significance of a non-designated heritage asset through physical impacts from construction e.g., demolition, refurbishment or alteration; and
- Harm to the significance of a designated heritage asset through an alteration of its setting.

9.7.3 Operation

9.7.3.1 It is anticipated that there would be no impacts to the archaeological resource once the Proposed Development is operational.

9.7.3.2 In regard to cultural heritage, the operational phase of the Proposed Development

could lead to harm to the significance of designated (or non-designated) heritage assets through an alteration of their settings. Assessment of any effects on the heritage significance of designated and non-designated assets which are scoped in will be based on the final, built form of the Proposed Development.

9.7.4 Decommissioning

9.7.4.1 It is anticipated that there would be no significant impacts to the archaeological resource from decommissioning, except in the unlikely event that new land take is required to facilitate the decommissioning process. In this eventuality, any impacts at this stage will be subject to the same mitigation process as detailed for construction.

9.7.4.2 Any effects assessed to occur to the settings and heritage significance of heritage assets from the presence of the substation will be removed upon decommissioning and, in the absence of other change, the current setting would effectively be restored.

9.8 Potential Cumulative and In-Combination Impacts

9.8.1.1 Onshore cumulative impacts will be considered as part of the EIA process. Developments of a similar type, nature, and scale will be identified and a list of cumulative developments to be considered in the assessment will be agreed with Aberdeenshire Council.

9.8.1.2 The assessment will consider the potential for significant cumulative impacts to arise as a result of the construction, operation and decommissioning of the Proposed Development, and during the construction phase of the OnTI, in the context of other developments that are either existing, consented/under construction, or at application stage.

9.8.1.3 In-combination impacts may occur through the inter-relationship with another EIAR topic that may lead to different or greater environmental effects than in isolation. In-combination impacts (where relevant) between the terrestrial and marine archaeology topics (and in particular, across the intertidal zone) as well as between archaeology and cultural heritage and other non-heritage related EIA topics will be considered within the EIAR (in line with the approach set out in 4.5.3) of this document.

9.8.1.4 The offshore array is located c. 35km from the closest point on the Aberdeenshire Coast. Given this distance and taking into account the height of the turbines, it is currently considered that there would unlikely be any significant in-combination effects on the heritage significance of onshore cultural heritage assets from the presence of the offshore infrastructure, even where the offshore infrastructure may be visible at distance from onshore, coastal assets. As such, it is currently proposed not to assess this further.

9.9 Potential Secondary Mitigation

9.9.1 Approaches to Secondary Mitigation

9.9.1.1 Where mitigation by design is not possible, secondary mitigation might be necessary. In this eventuality, where appropriate, effects on the archaeological resource will be mitigated by the agreement and implementation of a programme

of archaeological works leading to “preservation by record”. The scope, extent and timing of any such works would be set out in the form of a Written Scheme of Investigation and agreed with the relevant consultees prior to commencement.

9.9.2 Construction

9.9.2.1 Secondary mitigation measures during the construction process would likely include the provision of a suitable and proportionate programme of archaeological works prior to and during the construction process.

9.9.3 Operation

9.9.3.1 Mitigation measures during the operation of the Proposed Development could include, for example, the provision of additional natural screening in the form of tree planting in order to somewhat mitigate visual intrusions which could change the setting of a heritage asset in such a way as to lead to harm to significance.

9.9.4 Decommissioning

9.9.4.1 It is anticipated that there would be no further mitigation during the decommissioning process, unless in facilitating the process new access tracks and construction would be required.

9.10 Proposed Scope

9.10.1.1 Table 9.3 outlines the potential impacts to the archaeology and cultural heritage resource based on the current known information of the Proposed Development.

Table 9.3: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Buried archaeology (both known and as yet unknown) within 500m of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site	✓	×	×
Harm to significance based on change in setting to designated heritage assets from onshore infrastructure. Within 500m of the Onshore Cable Corridor and Landfall Site and 5km from the Onshore Substation Site.	✓	✓	×

9.11 Consultation

9.11.1.1 It is proposed that consultations with the following consultees will commence following the submission of the Onshore Scoping Report:

- HES;
- Aberdeenshire Council Conservation Officer; and
- Aberdeenshire Council Planning Archaeologist.

9.12 Questions to Consultees

9.12.1.1 The following questions are posed to consultees to frame and focus responses to the archaeology and cultural heritage scoping exercise:

- Do you agree with the proposed study areas for the purposes of the proposed HEDBA?
- Do you agree with the extent of buffer zones applied to the Scheduled Monuments to avoid direct physical impacts?
- Do you agree with the proposed approach to assessment?

9.13 References

- ¹ *Ancient Monuments and Archaeological Areas Act, 1979*, Available at: <https://www.legislation.gov.uk/ukpga/1979/46> [Accessed 22/08/2022]
- ² *Historic Environment (Amendment)(Scotland) Act, 2011*, Available at: <https://www.legislation.gov.uk/asp/2011/3/contents> [Accessed 22/08/2022]
- ³ *Protection of Military Remains Act, 1986*, Available at: <https://www.legislation.gov.uk/ukpga/1986/35/contents> [Accessed 22/08/2022]
- ⁴ *Planning (Listed Buildings and Conservation Areas) (Scotland) Act, 1997*, Available at: <https://www.legislation.gov.uk/ukpga/1997/9/contents> [Accessed 22/08/2022]
- ⁵ *Electricity Act 1989 Schedule 9 Preservation Of Amenity And Fisheries: Scotland*, Available at: <https://www.legislation.gov.uk/ukpga/1989/29/schedule/9> [Accessed 09/11/2022]
- ⁶ The Scottish Government (2020), *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/pages/2/> [Accessed 22/08/2022]
- ⁷ The Scottish Government (2014), *National Planning Framework 3*, Available at: <https://www.gov.scot/publications/national-planning-framework-3/pages/2/> [Accessed 22/08/2022]
- ⁸ The Scottish Government (2022), *Draft National Planning Framework 4*, Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2022/11/national-planning-framework-4-revised-draft/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4-rev> [Accessed 11/11/2022]
- ⁹ Aberdeenshire Council (2017), *Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/> [Accessed 22/08/2022]
- ¹⁰ Aberdeenshire Council (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]
- ¹¹ *Canmore, National Record of the Historic Environment*. Available at <https://canmore.org.uk/>
- ¹² Standards for Highways (2020), *Design Manual for Roads and Bridges LA 104 Environmental Assessment and Monitoring, Revision 1*, Available at: <https://www.standardsforhighways.co.uk/prod/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a?inline=true> [Accessed 22/08/2022]
- ¹³ Institute of Environmental Management and Assessment (2021), *Principles of Cultural Heritage Impact Assessment in the UK*, Available at: [GUIDANCE - OneDrive \(sharepoint.com\)](#)

Appendix A: National Designation

Scheduled Monuments

Designation No.	WA No.	Name	Easting	Northing
SM9392	1000	North Mains of Auchmaliddie, stone circle 500m SW of	388156	844856
SM2508	1002	Gight Castle	382708	839172
SM8229	1003	Gight Castle, dovecot 200m WNW of	382415	839327
SM11022	1029	Law of Melrose, cairn	375663	864267
SM11027	1042	Law of Balgreen, cairn	374809	858876
SM341	1046	Longman Cairn, long barrow, Longman Hill	373779	862012
SM2458	1060	Castle of King Edward	372190	856190
SM11021	1061	Cleaved Head, promontory fort	372184	864752
SM5617	1072	King Edward Old Parish Church, church 220m SW of Den Bridge	370928	857763
SM5780	1119	Boghead, souterrain & settlement 400m SSE of	370036	854357
SM5638	1129	Eden Castle	369797	858781
SM6645	1172	Banff, St Mary's parish church and burial ground	369051	864052
SM2927	1264	Banff Castle	368927	864191
SM343	1446	North Burreldales, stone circle	367590	854916
SM11035	1447	Stirling Cairn, cairn 750m SW of Mill of Alvah	367287	860162
SM5668	1454	Boyndie Old Kirk, church 200m NW of Boyndie Bridge	366656	864512
SM11034	1456	Hill of Alvah, cairns 1350m WSW of Mill of Alvah	366485	860170
SM5779	1458	Hills of Boyndie, barrows & enclosures 700m SW of Mill of Boyndie	365849	863654

SM5317	1542	Craig of Boyne,castle	361628	866156
SM354	1543	Boyne,castle	361169	865649
SM11112	1547	Scotsmill, enclosure 150m WNW of	360884	865479
SM345	1549	St Brandan's Stanes,stone circle	360749	861058
SM11111	1697	Castle Point, promontory fort 250m NNE of Westerwards Croft	358137	866459
SM13748	1698	Fort, Durn Hill	357088	863816
SM4271	1699	Sandend Windmill,Fordyce	356013	865713
SM352	1727	Fordyce, old church and burial ground	355572	863850

Listed Buildings

Designation No.	WA No.	Designation	Name	Easting	Northing
LB10623	1723	A-listed	Fordyce Village, Fordyce Castle	355579	863797
LB10650	1700	A-listed	Glassaugh House Dovecot	355902	864787
LB10694	1703	A-listed	Glassaugh House	355829	864773
LB13603	1126	A-listed	Forglen House	369887	851856
LB16421	1036	A-listed	Delgatie Castle	375445	850532
LB16431	1028	A-listed	Hatton Castle	375713	846976
LB21885	1358	A-listed	11 Boyndie Street, Banff Town And Country Club And Enclosing Walls	368832	864023
LB21893	1147	A-listed	Bridge Of Banff Over River Deveron	369473	863779
LB21941	1353	A-listed	31, 33, 35 Castle Street And 2 Seafield Street, Town Hall	368838	864205
LB21957	1255	A-listed	Banff Castle Including Flanking Pavilions And Well, Castle Street, Banff	368936	864201

LB21985	1170	A-listed	Duff House	369063	863317
LB21988	1435	A-listed	Duff House Mausoleum	368043	862826
LB22004	1189	A-listed	1 High Shore	369015	864010
LB22035	1366	A-listed	Institution Terrace, Banff Primary School (Former Banff Academy) With Lamp Standards	368814	863761
LB22056	1207	A-listed	8-16 (Even Nos) Low Street, (Former Fife Arms), Fife House	368996	863813
LB22056	1208	A-listed	8-16 (Even Nos) Low Street, (Former Fife Arms), Fife House	368996	863834
LB22056	1211	A-listed	8-16 (Even Nos) Low Street, (Former Fife Arms), Fife House	368995	863845
LB22056	1214	A-listed	8-16 (Even Nos) Low Street, (Former Fife Arms), Fife House	368992	863864
LB22062	1218	A-listed	Low Street, Tolbooth Steeple	368989	863949
LB22063	1219	A-listed	34 Low Street, Townhouse	368988	863963
LB22077	1298	A-listed	Quayside, Banff Harbour And Pillbox	368883	864581
LB22098	1349	A-listed	1 St Catherine Street, St Catherine's	368842	864326
LB22111	1221	A-listed	2 Water Path, Ingleuek House Garden Walls And Garden Summer House	368988	864055
LB22111	1226	A-listed	2 Water Path, Ingleuek House Garden Walls And Garden Summer House	368981	864066
LB2883	1436	A-listed	Bridge Of Alvah	368020	861067
LB2885	1168	A-listed	Duff House, Fishing Temple	369065	862848
LB2888	1141	A-listed	Dunlugas House	369560	855491
LB3049	1470	A-listed	Inchdrewer Castle	365598	860714
LB40262	1651	A-listed	23, 25 And 27 North High Street And Rear Garden Walls	358874	866233

LB40262	1652	A-listed	23, 25 And 27 North High Street And Rear Garden Walls	358872	866218
LB40262	1653	A-listed	23, 25 And 27 North High Street And Rear Garden Walls	358872	866229
LB40268	1639	A-listed	16, 18, 20 North High Street 'Old Star Inn'	358894	866232
LB40268	1645	A-listed	16, 18, 20 North High Street 'Old Star Inn'	358885	866231
LB40268	1648	A-listed	16, 18, 20 North High Street 'Old Star Inn'	358883	866217
LB40292	1671	A-listed	10 Shorehead	358848	866309
LB40293	1667	A-listed	Shorehead, Corf Warehouse (Portsoy Marble)	358855	866331
LB40296	1640	A-listed	Shorehead, Old Harbour	358894	866347
LB50788	1063	A-listed	Tarlair Swimming Pool Including Boating Pool, Paddling Pool, Tea Pavilion, Changing Rooms, Kiosks And Fence	371999	864646
LB6662	1452	A-listed	South Colleonard With Urns, Gates And Gatepiers	366793	862712
LB9392	1017	A-listed	Craigston Castle	376221	855021
LB10581	1062	B-listed	Montbletton Farm, Windmill Stump	372107	861106
LB10587	1544	B-listed	Boyne Castle Dovecot	361043	865626
LB10589	1636	B-listed	Durn Bridge Over The Burn Of Durn	358910	865099
LB10590	1683	B-listed	Durn House And Gatepiers	358816	865066
LB10591	1662	B-listed	Durn House Dovecot	358862	865123
LB10595	1725	B-listed	Fordyce Village, Castle Lane (West Side) House At Angle With Church Street	355576	863777
LB10596	1720	B-listed	Fordyce Village, Castle Lane, Cottages At West Side Of Lane	355582	863746
LB10596	1722	B-listed	Fordyce Village, Castle Lane, Cottages At West Side Of Lane	355580	863755

LB10596	1724	B-listed	Fordyce Village, Castle Lane, Cottages At West Side Of Lane	355578	863765
LB10600	1741	B-listed	Fordyce Village, 34, 35 Church Street	355533	863781
LB10600	1748	B-listed	Fordyce Village, 34, 35 Church Street	355526	863787
LB10601	1751	B-listed	Fordyce Village, Church Street, Old Smithy	355521	863769
LB10615	1715	B-listed	Fordyce Village, School Road, Academy House And Garden Walls	355597	863680
LB10618	1706	B-listed	Fordyce Village, School Road, Easter Villa (Former Free Church Manse)	355654	863731
LB10620	1759	B-listed	Fordyce Village, St Tarquins Place, Old Schoolhouse	355514	863669
LB10621	1675	B-listed	Durn House Stables	358836	865139
LB10624	1728	B-listed	Fordyce Castle, Stand Pump On Pavement Beside Castle	355570	863801
LB10625	1717	B-listed	Fordyce Village, Fordyce House (Former Church Of Scotland Manse) Steading, And Garden Walls	355588	863906
LB10626	1731	B-listed	Fordyce Village, Back Street, South View	355552	863735
LB10630	1744	B-listed	Fordyce Village, Bridge Street, Clifton Cottage	355530	863848
LB10633	1780	B-listed	17 Sandend	355491	866497
LB10636	1812	B-listed	Fordyce Village, Church Street, Fordyce Parish Church (Church Of Scotland) And Enclosing Walls	355406	863646
LB10637	1813	B-listed	Fordyce Village, Church Street, Old Lime Kilns	355351	863552
LB10643	1718	B-listed	Fordyce Village, Church Street, Culfoich	355587	863781
LB10648	1701	B-listed	Glassaugh House Bridge Over The Burn Of Fordyce	355879	864715
LB10651	1704	B-listed	Glassaugh Lodge	355802	864804
LB10653	1696	B-listed	Mill Of Durn	358252	863753

LB10655	1552	B-listed	Portsoy, East Links, Old Ropery Complex Including Back Green Cottages	359363	866014
LB10660	1791	B-listed	2 Sandend	355481	866547
LB10662	1807	B-listed	4 Sandend	355471	866543
LB10664	1787	B-listed	7 Sandend	355484	866529
LB10667	1803	B-listed	10 Sandend	355472	866515
LB10669	1785	B-listed	12 Sandend	355485	866509
LB10674	1757	B-listed	36 Sandend	355518	866446
LB10676	1747	B-listed	38 Sandend	355528	866458
LB10677	1736	B-listed	39 Sandend, The Muckle Hoose	355544	866469
LB10681	1746	B-listed	44 Sandend And Store	355528	866441
LB10693	1712	B-listed	Fordyce Village, 1, 2, 3, 4, St Tarquins Place	355607	863598
LB10693	1714	B-listed	Fordyce Village, 1, 2, 3, 4, St Tarquins Place	355600	863603
LB10693	1721	B-listed	Fordyce Village, 1, 2, 3, 4, St Tarquins Place	355581	863610
LB10693	1726	B-listed	Fordyce Village, 1, 2, 3, 4, St Tarquins Place	355574	863614
LB10709	1769	B-listed	19 Sandend	355505	866496
LB10710	1761	B-listed	21 Sandend	355512	866492
LB10713	1756	B-listed	27 Sandend	355519	866472
LB10714	1745	B-listed	28 Sandend	355529	866470
LB12873	1136	B-listed	Manse Of Forglen Kirklands With Outbuildings And Walled Garden	369651	850003
LB12875	1133	B-listed	Old Church, Forglen, With Walled Graveyard, Gatepiers And Gates	369700	849920

LB13471	1067	B-listed	Balchers Farmhouse	371465	858073
LB13597	1120	B-listed	Forglen, Coachhouse And Stables	370011	851610
LB13599	1138	B-listed	Forglen, Dovecot	369642	851695
LB13600	1073	B-listed	Forglen, Eastside Lodge With Gatepiers And Gates	370921	850166
LB13602	1144	B-listed	Forglen Home Farm	369540	851735
LB13606	1128	B-listed	Forglen Mausoleum, With Boundary Retaining Walls, Railings, Gates And Gatepiers	369851	851085
LB13608	1125	B-listed	Forglen, North Lodge, Gatepiers And Quadrant Walls	369904	852503
LB13612	1066	B-listed	King Edward Parish Church, Walls And War Memorial	371566	857935
LB13617	1048	B-listed	Strocherie Farmhouse	373103	855972
LB16107	1011	B-listed	Manse Of Monquhitter, Cuminestown Including Garden Walls.	380112	850465
LB16108	1005	B-listed	Millfield House.	381246	852162
LB16110	1007	B-listed	Auchry House, Dovecot.	380372	851167
LB16111	1012	B-listed	Auchry House, Lodge.	379702	850781
LB16122	1009	B-listed	Monquhitter Parish Church, Cuminestown	380238	850523
LB16123	1010	B-listed	Monument To William Cumine (Gulielmi Coming') Of Auchry Monquhitter Churchyard.	380200	850500
LB16160	1001	B-listed	Cairnbanno House (Now Farmhouse).	384718	844284
LB16397	1023	B-listed	Hatton Castle, Sundial	375782	846977
LB16401	1027	B-listed	Hatton Home Farm	375720	846641
LB16402	1043	B-listed	Hatton, North Lodge	374642	847439

LB16416	1069	B-listed	Deveron (Or Eastside) Bridge Over River Deveron Between Knockiemill And Eastside.	371412	850344
LB16417	1068	B-listed	Old Tollhouse, Turriff (Knockiemill Lodge)	371437	850387
LB16419	1070	B-listed	Knockiemill Farmhouse	371270	850986
LB16420	1026	B-listed	Fintry Farmhouse	375726	854559
LB16422	1035	B-listed	Delgatie Dovecot Near Delgatie Castle	375473	850654
LB16423	1034	B-listed	Delgatie Castle Laundry (Now Forester's Cottage)	375494	850621
LB16424	1038	B-listed	Delgatie Home Farm At Delgatie Castle	375162	850685
LB16425	1033	B-listed	Delgatie Castle, Bridge Over Burn Of Burnside At Head Of Fish Pond	375542	850602
LB16428	1047	B-listed	Greengate Lodge And Gates Delgatie	373272	850397
LB16429	1041	B-listed	North Lodge (Birkwood) Delgatie	374822	850995
LB16430	1016	B-listed	Idoch Dovecot Idoch Farm	376885	849063
LB21877	1248	B-listed	3, 4, 5 Back Path And Garden Walls	368953	863839
LB21877	1254	B-listed	3, 4, 5 Back Path And Garden Walls	368943	863839
LB21878	1272	B-listed	6 Back Path And Garden Walls	368908	863833
LB21879	1275	B-listed	7 Back Path	368904	863834
LB21880	1288	B-listed	8 Back Path And 18 High Street	368894	863833
LB21881	1390	B-listed	Bellevue Road, Bellevue With Garden Walls, Gates And Gatepiers	368732	863605
LB21882	1402	B-listed	Bellevue Road, St Ann's Hill Garden Walls And Gatepiers	368713	863651
LB21883	1338	B-listed	5, 7, 7a Boyndie Street	368847	864022
LB21884	1352	B-listed	9 Boyndie Street, Boyndie House	368839	864021

LB21886	1367	B-listed	13 Boyndie Street	368813	864018
LB21887	1333	B-listed	4, 6 Boyndie Street	368849	864007
LB21894	1149	B-listed	Bridge Road, Bridge Gates House	369359	863779
LB21901	1201	B-listed	49, 51, 53 Bridge Street	369002	863896
LB21901	1209	B-listed	49, 51, 53 Bridge Street	368996	863897
LB21902	1157	B-listed	2, 4 And 6 Bridge Street	369136	863950
LB21906	1175	B-listed	36 Bridge Street	369035	863924
LB21929	1200	B-listed	9 Carmelite Street	369004	864003
LB21930	1206	B-listed	4, 6 Carmelite Street	368997	863979
LB21931	1195	B-listed	10 Carmelite Street, Former Post Office	369012	863975
LB21932	1177	B-listed	16, 18 Carmelite Street	369031	863982
LB21933	1285	B-listed	2 Castle Lane	368896	864083
LB21935	1355	B-listed	Castle Street, Trinity And Alvah Church, Church Of Scotland	368836	864118
LB21938	1334	B-listed	23, 25 Castle Street	368848	864163
LB21940	1335	B-listed	29 Castle Street And Rear Garden Walls	368848	864193
LB21942	1347	B-listed	37 Castle Street, Seafield House	368842	864247
LB21950	1351	B-listed	77 Castle Street	368841	864420
LB21952	1356	B-listed	83 Castle Street Old Brewery	368835	864532
LB21953	1302	B-listed	4 Castle Street	368878	864033
LB21954	1301	B-listed	6 Castle Street	368879	864044
LB21955	1303	B-listed	8, 10 Castle Street	368878	864057

LB21958	1307	B-listed	Castle Street, Banff Castle Enclosing Walls Surrounding Policies	368871	864137
LB21959	1306	B-listed	Castle Street, Banff Castle Gate Lodges Gatepiers And Gates	368872	864176
LB21960	1311	B-listed	Castle Street, War Memorial	368867	864230
LB21965	1325	B-listed	76 Castle Street	368859	864415
LB21966	1326	B-listed	78 Castle Street	368859	864427
LB21967	1321	B-listed	86 Castle Street	368860	864467
LB21969	1328	B-listed	96 Castle Street, Railway Inn	368859	864513
LB21974	1371	B-listed	5 Clunie Street, Royston	368810	864428
LB21975	1382	B-listed	19 Clunie Street, Former Free School	368764	864425
LB21978	1365	B-listed	Clunie Street, Chalmers Hospital (Original Building Only)	368818	864465
LB21983	1180	B-listed	11 Deveronside	369029	864218
LB21984	1187	B-listed	12 Deveronside And Garden Walls	369023	864231
LB21986	1389	B-listed	Duff House, Fife Gates	368734	863178
LB21989	1171	B-listed	Duff House Walled Garden	369054	863729
LB21990	1391	B-listed	1 Fife Street	368730	864341
LB21991	1392	B-listed	3 Fife Street	368729	864352
LB21993	1394	B-listed	11 Fife Street And Rear Garden Walls	368727	864374
LB21994	1398	B-listed	13 Fife Street And Rear Garden Walls	368725	864389
LB21996	1310	B-listed	1 George Street And Garden Walls	368868	864332
LB22005	1191	B-listed	3 High Shore	369014	864019
LB22006	1192	B-listed	5 High Shore, Market Arms	369013	864031

LB22007	1220	B-listed	9 High Shore, Fernlee And Garden Walls	368988	864041
LB22008	1193	B-listed	11 High Shore	369013	864053
LB22009	1199	B-listed	High Shore, Banff Police Station And Garden Wall	369006	864109
LB22012	1185	B-listed	14 High Shore	369024	864067
LB22013	1182	B-listed	16 High Shore	369025	864075
LB22014	1174	B-listed	High Shore, Gordons Granaries	369040	864097
LB22015	1323	B-listed	1 High Street	368859	863782
LB22016	1324	B-listed	3 High Street	368859	863796
LB22017	1329	B-listed	5 High Street	368856	863809
LB22018	1308	B-listed	29, 31 High Street	368870	863871
LB22019	1309	B-listed	33, 35 High Street	368870	863885
LB22020	1316	B-listed	39 High Street	368864	863895
LB22021	1314	B-listed	41, 43, 45, 47 High Street And Rear Garden Walls	368865	863907
LB22022	1320	B-listed	77, 79, 81 High Street, Forbes House	368860	864006
LB22025	1278	B-listed	High Street, St Brandon's Close	368902	863861
LB22027	1279	B-listed	High Street, St Brandon's And Garden Walls	368901	863873
LB22028	1282	B-listed	High Street, St Andrew's Episcopal Church And Front Railings	368897	863908
LB22029	1280	B-listed	Banff Parish Church (Formerly Known As St Mary's Church), Church Of Scotland, High Street, Banff	368899	863797
LB22030	1283	B-listed	High Street, Episcopal Rectory And Front Railings	368897	863920
LB22032	1287	B-listed	30, 32 High Street	368895	863943

LB22033	1284	B-listed	32 High Street, County Hotel	368897	863965
LB22034	1295	B-listed	40 High Street, Royal Bank Of Scotland	368890	864009
LB22036	1346	B-listed	1 Institution Terrace	368842	863790
LB22037	1357	B-listed	2 Institution Terrace	368833	863795
LB22038	1260	B-listed	Low Street, Collie Lodge With Lamp Standards	368929	863785
LB22039	1227	B-listed	Banff Sheriff Court And Justice Of The Peace Court, Including Boundary Walls And Railings, Low Street, Banff	368979	863812
LB22039	1236	B-listed	Banff Sheriff Court And Justice Of The Peace Court, Including Boundary Walls And Railings, Low Street, Banff	368964	863813
LB22040	1237	B-listed	3, 5, 7 Low Street	368964	863846
LB22041	1230	B-listed	9, 11, 13 Low Street	368973	863852
LB22041	1231	B-listed	9, 11, 13 Low Street	368972	863859
LB22042	1232	B-listed	15, 17 Low Street	368970	863870
LB22042	1245	B-listed	15, 17 Low Street	368956	863866
LB22043	1238	B-listed	23, 25, 27 Low Street	368962	863884
LB22043	1241	B-listed	23, 25, 27 Low Street	368961	863895
LB22044	1246	B-listed	29 Low Street, Bank Of Scotland	368956	863911
LB22046	1242	B-listed	35, 37, 41 Low Street	368960	863934
LB22046	1243	B-listed	35, 37, 41 Low Street	368958	863943
LB22047	1250	B-listed	43, 45, 47 Low Street And Rear Garden Walls	368947	863947
LB22047	1253	B-listed	43, 45, 47 Low Street And Rear Garden Walls	368945	863958

LB22048	1251	B-listed	49, 51 Low Street, Clydesdale Bank	368947	863969
LB22049	1252	B-listed	53 Low Street, Tolbooth Hotel And Old Jail	368947	863982
LB22050	1234	B-listed	55, 57, 59 Low Street	368966	863998
LB22051	1240	B-listed	Low Street, Biggar Fountain	368962	863981
LB22052	1228	B-listed	Low Street, Former New Market Archway	368978	863994
LB22053	1205	B-listed	2 Low Street	368998	863787
LB22054	1210	B-listed	4, 4a Low Street	368995	863804
LB22060	1204	B-listed	30 Low Street, Carmelite House And Front Garden Wall	368999	863931
LB22064	1225	B-listed	36, 38 Low Street And 2 Carmelite Street	368985	863973
LB22068	1290	B-listed	2 Old Castlegate And Rear Garden Wall	368893	864020
LB22069	1274	B-listed	6 Old Castlegate	368905	864041
LB22070	1269	B-listed	8 Old Castlegate, St Ninians And Garden Walls	368912	864048
LB22071	1268	B-listed	14 Old Castlegate And Garden Walls	368915	864065
LB22072	1150	B-listed	Old Market Place, Former Smithy	369206	863952
LB22073	1156	B-listed	1 Old Market Place, Front Wall And Gatepiers	369138	863976
LB22074	1153	B-listed	2 Old Market Place, Panton House	369163	863959
LB22075	1152	B-listed	9 Old Market Place	369174	864008
LB22080	1364	B-listed	3, 4 Sandyhill Road, Seafield Hotel	368818	863709
LB22090	1400	B-listed	Sandyhill Road, Our Lady Of Mount Carmel Rc Church	368715	863562
LB22095	1396	B-listed	21 Seafield Street, Cape House	368725	864242
LB22096	1386	B-listed	22 Seafield Street, Chattonville	368755	864206

LB22099	1368	B-listed	3 St Catherine Street	368813	864321
LB22100	1374	B-listed	5 St Catherine Street	368803	864325
LB22101	1378	B-listed	7 St Catherine Street	368790	864326
LB22102	1380	B-listed	9 St Catherine Street	368775	864329
LB22107	1259	B-listed	6 Strait Path	368932	863987
LB22109	1262	B-listed	Water Path, Path House And Path Cottage	368928	864099
LB22109	1267	B-listed	Water Path, Path House And Path Cottage	368918	864095
LB22110	1261	B-listed	Water Path, Path House Garden Walls	368928	864088
LB22112	1203	B-listed	3 Water Path	369000	864061
LB22113	1198	B-listed	4 Water Path	369006	864059
LB2884	1111	B-listed	Corskie	370155	862805
LB2886	1142	B-listed	Dunlugas Bridge And Gatepiers	369559	855542
LB2890	1116	B-listed	Gavenwood With Gatepiers	370090	863039
LB2891	1439	B-listed	Kirkton Of Alvah Church With Walled Graveyard, Gates And Gatepiers, And Ogilvy Burial Enclosure	367872	860301
LB2891	1440	B-listed	Kirkton Of Alvah Church With Walled Graveyard, Gates And Gatepiers, And Ogilvy Burial Enclosure	367829	860244
LB2891	1441	B-listed	Kirkton Of Alvah Church With Walled Graveyard, Gates And Gatepiers, And Ogilvy Burial Enclosure	367816	860232
LB2891	1442	B-listed	Kirkton Of Alvah Church With Walled Graveyard, Gates And Gatepiers, And Ogilvy Burial Enclosure	367816	860251
LB2891	1444	B-listed	Kirkton Of Alvah Church With Walled Graveyard, Gates And Gatepiers, And Ogilvy Burial Enclosure	367789	860248

LB2893	1305	B-listed	Mains Of Auchinbadie	368876	858503
LB2894	1235	B-listed	Mill Of Auchinbadie	368965	858298
LB2896	1395	B-listed	Montcoffer Dovecot	368726	861266
LB3051	1459	B-listed	Lower Inchdrewer	365833	861116
LB3165	1484	B-listed	Whitehills, Seafield Street, Trinity Church (Church Of Scotland)	365500	865234
LB3166	1483	B-listed	Whitehills, 22 Seafield Street, Greystones And Garden Walls	365507	865412
LB3173	1511	B-listed	Whitehills, 9 Low Shore	365302	865416
LB3179	1505	B-listed	Whitehills, 17 Low Shore Stormcrest	365340	865439
LB3182	1501	B-listed	Whitehills, 21 Low Shore	365354	865442
LB3185	1500	B-listed	Whitehills, 25 Low Shore	365370	865451
LB3196	1462	B-listed	Whitehills, 19 Knock Street	365669	865555
LB3199	1468	B-listed	Whitehills 10 And 10a Knock Street, Knock House And Garden Walls	365611	865518
LB3199	1469	B-listed	Whitehills 10 And 10a Knock Street, Knock House And Garden Walls	365599	865516
LB3205	1482	B-listed	Whitehills, Low Shore/ Seafield Street, Seafield Estate Giral/Warehouse	365523	865578
LB3209	1518	B-listed	Whitehills, 4 Low Shore	365253	865412
LB3214	1546	B-listed	Scotsmill Bridge Over The Burn Of Boyne	361024	865435
LB3215	1545	B-listed	Scotsmill Mill And Former Steading	361028	865412
LB3223	1486	B-listed	Whitehills, Chapel Street, Methodist Chapel, Enclosing Walls And Gatepiers	365446	865413
LB3224	1485	B-listed	Whitehills, Chapel Street, Seafield Arms Hotel, Garden Walls And Gatepiers	365458	865390

LB3225	1472	B-listed	Whitehills, Harbour Place, Lifeboat House And Slipway	365589	865674
LB3226	1481	B-listed	Whitehills, 1 Knock Street	365525	865516
LB3233	1536	B-listed	'Art Caput', Boyndie	364149	863862
LB3234	1535	B-listed	Boyndie Parish Church (Church Of Scotland), Former Beadle's Cottage And Steading	364213	863864
LB3235	1534	B-listed	Boyndie Church Of Scotland Manse	364274	863860
LB3236	1451	B-listed	Inverboyndie Bridge Over The Burn Of Boyndie	366829	864424
LB3237	1455	B-listed	St Brandon's Church Burial Ground, Including Boundary Wall And Gatepiers And Excluding Scheduled Monument No 5668 Óçyboyndie Old Kirk, Church 200m MW Of Boyndie Bridgeôçö, Inverboyndie	366652	864535
LB3238	1533	B-listed	Ladysbridge Hospital, Troup, Administration And Moor Newton Blocks	364975	863807
LB3241	1541	B-listed	Mains Of Baldavie House	362112	861202
LB3242	1457	B-listed	Mill Of Boyndie Farmhouse	366482	864094
LB37616	1112	B-listed	Church Street, Doune Church Of Scotland, Church Cottage And Burial Ground	370141	864358
LB37617	1113	B-listed	Church Street, Burgh Cross	370128	864381
LB37618	1087	B-listed	27 Crook O'ness Street, Yard And Office	370574	864742
LB37618	1088	B-listed	27 Crook O'ness Street, Yard And Office	370573	864763
LB37619	1084	B-listed	29 Crook O'ness Street, Rosedale And Walled Gardens	370591	864749
LB37623	1140	B-listed	Doune, Fairs Cottage	369583	863448
LB37624	1130	B-listed	Doune, Hill Of Doune, Temple Of Venus	369764	863779
LB37625	1093	B-listed	31 Duff Street	370501	864563

LB37626	1091	B-listed	41 Duff Street, Craighdu And Garden Walls	370531	864551
LB37627	1080	B-listed	61 Duff Street, Gardner Church Of Scotland (Former Free Church)	370610	864490
LB37630	1077	B-listed	10 High Shore	370786	864748
LB37631	1094	B-listed	The Knowes, War Memorial	370464	864314
LB37632	1075	B-listed	Manner Street Mill	370889	864676
LB37634	1103	B-listed	17 Shore Street, Town Hall	370368	864521
LB37635	1100	B-listed	18, 19 Shore Street, Clydesdale Bank, Walled Garden And Rear Outbuilding	370401	864526
LB37635	1101	B-listed	18, 19 Shore Street, Clydesdale Bank, Walled Garden And Rear Outbuilding	370391	864531
LB37635	1102	B-listed	18, 19 Shore Street, Clydesdale Bank, Walled Garden And Rear Outbuilding	370374	864539
LB37637	1108	B-listed	1 Union Road	370178	864437
LB37638	1110	B-listed	3 Union Road	370160	864451
LB37640	1114	B-listed	9, 11 Union Road And Rear Yard With Outbuildings	370099	864412
LB37640	1115	B-listed	9, 11 Union Road And Rear Yard With Outbuildings	370093	864423
LB37640	1117	B-listed	9, 11 Union Road And Rear Yard With Outbuildings	370087	864404
LB37640	1118	B-listed	9, 11 Union Road And Rear Yard With Outbuildings	370081	864414
LB40214	1601	B-listed	Aird Street, Roman Catholic Church Of The Annunciation And Enclosing Wall	359013	865638
LB40215	1594	B-listed	54 Aird Street, Presbytery, Rc Church Of The Annunciation And Garden Wall	359028	865637
LB40220	1584	B-listed	15, 17, 19 Church Street	359053	865989

LB40220	1585	B-listed	15, 17, 19 Church Street	359052	865982
LB40220	1586	B-listed	15, 17, 19 Church Street	359049	865993
LB40223	1595	B-listed	28, 30, 32 Church Street, Soye House, And Rear Garden Walls	359028	866091
LB40226	1599	B-listed	38 Church Street, Millheugh House	359016	866111
LB40235	1635	B-listed	5, 7, 9 Culbert Street	358911	866184
LB40236	1627	B-listed	11-21 (Odd Nos) Culbert Street And Courtyard Wall With Arched Entrance	358931	866189
LB40236	1628	B-listed	11-21 (Odd Nos) Culbert Street And Courtyard Wall With Arched Entrance	358925	866174
LB40238	1623	B-listed	18, 20, 22 Culbert Street	358937	866165
LB40243	1686	B-listed	6 Hill Street, With Garden Walls And Former Gig-House	358770	866011
LB40247	1630	B-listed	13, 15 Low Street	358919	866219
LB40249	1633	B-listed	21, 23 Low Street, 'Malvern', And Garden Walls	358914	866242
LB40250	1632	B-listed	29 Low Street	358915	866257
LB40251	1634	B-listed	31, 33 Low Street	358912	866268
LB40259	1568	B-listed	Main Street, Salmon House And Ramp	359123	866341
LB40260	1663	B-listed	1, 3 North High Street	358862	866169
LB40261	1655	B-listed	5, 7 North High Street And Rear Garden Walls	358866	866190
LB40261	1660	B-listed	5, 7 North High Street And Rear Garden Walls	358863	866181
LB40265	1644	B-listed	4 North High Street	358886	866183
LB40266	1647	B-listed	10 North High Street	358883	866202

LB40267	1642	B-listed	12 North High Street	358888	866214
LB40269	1637	B-listed	22, 24 North High Street	358902	866254
LB40270	1638	B-listed	26 North High Street	358898	866278
LB40275	1620	B-listed	Seafield Street, Church Hall And War Memorial	358940	865961
LB40275	1621	B-listed	Seafield Street, Church Hall And War Memorial	358938	865974
LB40277	1674	B-listed	2, 4 Seafield Street	358837	865923
LB40279	1614	B-listed	26 Seafield Street, Bank Of Scotland	358967	865931
LB40280	1685	B-listed	Seafield Terrace, Episcopal Church Of St John The Baptist	358777	865939
LB40281	1689	B-listed	2 Seafield Terrace, 'Sunnybank' And Garden Walls	358709	865914
LB40282	1690	B-listed	Seafield Terrace, Church Of Scotland And Enclosing Walls	358695	865908
LB40283	1691	B-listed	4 Seafield Terrace, Church Of Scotland Manse	358681	865894
LB40284	1687	B-listed	7 Seafield Terrace, 'Hermiston' With Garden Walls And Gatepiers	358751	865859
LB40285	1692	B-listed	13 Seafield Terrace, Nile Cottage	358675	865825
LB40286	1597	B-listed	18, 20 Shillinghill	359017	866040
LB40286	1604	B-listed	18, 20 Shillinghill	359009	866035
LB40287	1602	B-listed	22 Shillinghill And Front Garden	359012	866025
LB40289	1654	B-listed	6, 7 Shorehead	358871	866284
LB40290	1658	B-listed	9 Shorehead	358865	866293
LB40294	1669	B-listed	Shorehead, Portsoy Marble Workshop (Former James Watt's Warehouse)	358850	866340
LB40295	1661	B-listed	Shorehead, Old Co-Operative Grain Store	358863	866358

LB40298	1591	B-listed	Shore Street, New Harbour	359033	866455
LB40309	1553	B-listed	St Comb's Road, Old Lifeboat House	359243	866057
LB42162	1055	B-listed	Turriff Parish Church (St. Ninian's) Church Street	372343	850099
LB42180	1050	B-listed	Panton House, Fife Street	372597	849967
LB49835	1539	B-listed	Boyndie Airfield, Control Tower	362301	864221
LB49836	1537	B-listed	Boyndie Airfield, Operations Block	362365	863360
LB6649	1430	B-listed	Montcoffer House With Garden Walls And Gatepiers	368499	861269
LB6650	1428	B-listed	Montcoffer House, Game Larders	368503	861296
LB6650	1429	B-listed	Montcoffer House, Game Larders	368500	861306
LB6650	1431	B-listed	Montcoffer House, Game Larders	368496	861296
LB6652	1169	B-listed	Mountblairy Home Farm	369064	854425
LB6653	1167	B-listed	Mountblairy Mausoleum With Memorial, Boundary Walls And Railings	369066	855261
LB6655	1376	B-listed	Mountblairy Gatepiers, Gates, Railings And Quadrant Walls	368797	854842
LB6656	1229	B-listed	Mountblairy Bridge	368974	854165
LB6658	1453	B-listed	Rosieburn, Former Mission Hall	366681	855966
LB6661	1434	B-listed	Sandyhills Dovecote	368203	863202
LB6760	1762	B-listed	Fordyce Village, Church Street, Fairholm	355511	863783
LB6762	1809	B-listed	1 And A Half Sandend	355467	866560
LB6763	1795	B-listed	1a Sandend	355478	866562
LB6765	1798	B-listed	1c And 1d Sandend With Fish Smoking Kiln Abutting No 1c	355476	866583
LB6765	1808	B-listed	1c And 1d Sandend With Fish Smoking Kiln Abutting No 1c	355470	866578

LB6765	1811	B-listed	1c And 1d Sandend With Fish Smoking Kiln Abutting No 1c	355460	866570
LB9393	1020	B-listed	Craigston Castle, Dovecote	376097	855003
LB9394	1021	B-listed	Craigston Castle, Home Farm	376078	855080
LB9395	1022	B-listed	Craigston Castle, Bridge Over Craigston Burn	376077	854968
LB9397	1014	B-listed	Craigston Mill	377178	855456
LB9400	1145	B-listed	Eden, Bridge Of Eden	369526	857909
LB9401	1127	B-listed	Eden House	369878	859959
LB9402	1123	B-listed	Eden House, Walled Garden And Glasshouses	369962	859731
LB9404	1124	B-listed	Eden, The Coach House	369934	859786
LB9406	1121	B-listed	Eden, South Lodge	369970	859175
LB9408	1107	B-listed	Eden, Home Farm, Dovecote / Poultry House	370191	859639
LB9629	1004	B-listed	Millbrex Church	382102	843208
LB10578	1044	C-listed	Mains Of Melrose	374461	864297
LB10579	1045	C-listed	Mill Of Melrose, Bridge Over Burn Of Melrose	373781	864165
LB10588	1551	C-listed	Cowhythe Farmhouse	360573	865466
LB10594	1713	C-listed	Fordyce Village, Back Street, Corrie Cottage	355607	863744
LB10597	1732	C-listed	Fordyce Village, Church Street, Telephone Kiosk, By Post Office	355551	863790
LB10598	1730	C-listed	Fordyce Village, Church Street, Post Office Store	355556	863795
LB10599	1735	C-listed	Fordyce Village Church Street, Post Office House And Post Office	355544	863787
LB10602	1765	C-listed	Fordyce Village, 42 Church Street	355508	863748

LB10603	1782	C-listed	Fordyce Village, St Tarquins, Church Street, Garden Store And Enclosing Walls	355489	863717
LB10604	1789	C-listed	Fordyce Village, 50 Church Street And Enclosing Walls	355481	863689
LB10614	1709	C-listed	Fordyce Village, 6 East Church Street	355612	863792
LB10616	1711	C-listed	Fordyce Village, School Road, Academy House, East Wing	355608	863688
LB10617	1708	C-listed	Fordyce Village, School Road, Viewmount	355635	863767
LB10619	1734	C-listed	Fordyce Village, St Tarquins Place, Kirkton Cottage And Outbuildings.	355544	863680
LB10622	1583	C-listed	Durn Old Toll Cottage	359057	864876
LB10627	1770	C-listed	Fordyce Village, Bridge Street, Anvil Cottage	355503	863844
LB10628	1763	C-listed	Fordyce Village, Bridge Street, Bridge Over The Burn Of Fordyce	355511	863860
LB10629	1752	C-listed	Fordyce Village, Bridge Street, Bridge Cottage	355521	863856
LB10631	1784	C-listed	14 Sandend	355485	866504
LB10632	1774	C-listed	15 Sandend	355499	866505
LB10634	1797	C-listed	18 Sandend, The Haven And Fishing Store	355476	866488
LB10635	1796	C-listed	Fordyce Village, Church Street, Hawthorn Cottage (Hawthorn Restaurant) And Enclosing Walls	355477	863682
LB10638	1754	C-listed	Fordyce Village, Church Street, Roseau And Garden Walls	355519	863731
LB10639	1750	C-listed	Fordyce Village, Church Street, Stand Pump On Pavement Beside Roseau	355522	863748
LB10640	1743	C-listed	Fordyce Village, Church Street, North View	355531	863757
LB10641	1737	C-listed	Fordyce Village, 2 Church Street	355543	863766
LB10642	1729	C-listed	Fordyce Village, Church Street, Dolen	355569	863778

LB10644	1710	C-listed	Fordyce Village, Church Street/School Road, Former Shop And Cottages	355610	863778
LB10645	1707	C-listed	Fordyce Village, Church Street, Hamewith	355637	863774
LB10646	1705	C-listed	Fordyce Village, Church Street, Church Hall (Former Free Church)	355683	863749
LB10647	1716	C-listed	Fordyce Village, 4 East Church Street	355594	863794
LB10649	1702	C-listed	Glassaugh House Walled Garden	355859	864834
LB10656	1719	C-listed	Sandend, Harbour And Breakwater	355587	866532
LB10656	1733	C-listed	Sandend, Harbour And Breakwater	355548	866540
LB10657	1788	C-listed	1 Sandend	355482	866554
LB10658	1779	C-listed	Fish Smoking Kiln Opposite Gable End Of 1a Sandend	355492	866569
LB10659	1783	C-listed	Fish Smoking Kiln Opposite Gable End Of 1b Sandend	355487	866577
LB10661	1806	C-listed	3 Sandend	355472	866551
LB10663	1805	C-listed	6 Sandend (Formerly 5 And 6 Sandend)	355472	866537
LB10665	1804	C-listed	8 Sandend	355472	866523
LB10666	1786	C-listed	9 Sandend	355484	866522
LB10668	1778	C-listed	11 Sandend	355492	866515
LB10670	1801	C-listed	13 Sandend	355473	866505
LB10671	1768	C-listed	33 Sandend	355505	866446
LB10672	1773	C-listed	34 Sandend And Fishing Store	355501	866436
LB10673	1767	C-listed	35 Sandend	355506	866458
LB10675	1753	C-listed	37 Sandend And Fishing Store (Opposite)	355520	866455

LB10678	1738	C-listed	40 Sandend	355541	866456
LB10679	1739	C-listed	41 Sandend	355536	866444
LB10680	1740	C-listed	42 Sandend	355535	866438
LB10682	1758	C-listed	45 Sandend	355515	866439
LB10683	1764	C-listed	46 Sandend	355509	866429
LB10684	1749	C-listed	47 Sandend	355525	866429
LB10685	1766	C-listed	48 Sandend	355508	866421
LB10686	1771	C-listed	52 Sandend	355503	866386
LB10687	1776	C-listed	53 Sandend	355496	866376
LB10688	1777	C-listed	54 Sandend	355492	866368
LB10689	1794	C-listed	56 Sandend, Gospel Hall (Former School)	355478	866301
LB10690	1793	C-listed	57 Sandend, Inchard	355479	866291
LB10708	1802	C-listed	Fishing Stores To Rear Of 18 Sandend	355472	866476
LB10711	1781	C-listed	23 Sandend	355490	866464
LB10712	1760	C-listed	25 Sandend	355514	866477
LB10715	1755	C-listed	29 Sandend	355519	866464
LB10716	1772	C-listed	32 Sandend	355502	866452
LB13473	1058	C-listed	Castleton New Bridge Over Burn Of King Edward	372229	856124
LB13474	1057	C-listed	Castleton Old Bridge Over Burn Of King Edward	372269	856179
LB13598	1146	C-listed	Forglen, Crossbrae	369491	852454
LB13601	1139	C-listed	Forglen, Garden Cottage	369600	852167

LB13604	1134	C-listed	Forglen, Ice House	369691	852268
LB13605	1132	C-listed	Forglen, The Kennels	369729	851250
LB13607	1433	C-listed	Forglen Memorial Hall And War Memorial	368306	851884
LB13609	1131	C-listed	Forglen, Walled Garden	369742	852115
LB13610	1135	C-listed	Forglen, Walled Garden Cottage	369690	852196
LB13611	1420	C-listed	Forglen, Westwood	368605	851925
LB13613	1049	C-listed	Mill Of King Edward, Bridge Over Burn Of King Edward	372706	855993
LB13614	1019	C-listed	Moreless Farmhouse	376209	857041
LB16106	1008	C-listed	Monquhitter Churchyard	380309	850526
LB16112	1013	C-listed	Everton Of Auchry, Farmhouse.	379689	851927
LB16398	1030	C-listed	Hatton Castle Coach House	375629	846877
LB16399	1032	C-listed	Hatton Castle Estate Houses	375601	846833
LB16400	1024	C-listed	Hatton Castle Garden Walls Within Policies	375779	846959
LB16403	1040	C-listed	Hatton, Mausoleum	374838	847234
LB16407	1053	C-listed	Wrae Farmhouse	372510	852886
LB16408	1099	C-listed	Mill Of Ashogle	370428	852704
LB16409	1056	C-listed	Dulcerstone Bridge Over Burn Of Dulcerstone	372286	851026
LB16426	1037	C-listed	Delgatie Castle, Garden Walls	375217	850855
LB16427	1039	C-listed	Delgatie Castle, Gates At Garden Cottages	375000	850900
LB19777	1006	C-listed	Old Hall Buildings, Garmond.	380677	852210
LB21875	1263	C-listed	1 Back Path, Trevona	368927	863821

LB21876	1233	C-listed	2 Back Path	368969	863838
LB21889	1271	C-listed	1 Braeheads	368910	864360
LB21890	1273	C-listed	2 Braeheads	368907	864370
LB21891	1286	C-listed	4 Braeheads, St John's Masonic Hall Including Boundary Walls	368896	864397
LB21892	1312	C-listed	8 And 9 Braeheads	368867	864461
LB21892	1327	C-listed	8 And 9 Braeheads	368859	864459
LB21895	1155	C-listed	1, 3, 5 Bridge Street	369138	863933
LB21896	1158	C-listed	7 Bridge Street	369132	863934
LB21897	1160	C-listed	9 Bridge Street	369125	863931
LB21898	1161	C-listed	13, 15 Bridge Street	369102	863925
LB21898	1162	C-listed	13, 15 Bridge Street	369095	863924
LB21899	1178	C-listed	39 Bridge Street	369030	863907
LB21900	1188	C-listed	41-47 (Odd Nos) Bridge Street	369021	863904
LB21900	1190	C-listed	41-47 (Odd Nos) Bridge Street	369014	863890
LB21903	1159	C-listed	8 Bridge Street	369127	863949
LB21904	1164	C-listed	10 Bridge Street, Royal Oak Hotel	369083	863939
LB21905	1173	C-listed	28, 30, 32 Bridge Street	369042	863931
LB21907	1186	C-listed	38, 40 Bridge Street	369023	863920
LB21908	1196	C-listed	42, 44 Bridge Street	369010	863916
LB21909	1202	C-listed	46 Bridge Street	369001	863914
LB21910	1410	C-listed	1 Campbell Street	368632	864565

LB21911	1411	C-listed	3 Campbell Street	368626	864551
LB21912	1415	C-listed	5 Campbell Street	368617	864536
LB21913	1418	C-listed	7 Campbell Street	368613	864524
LB21914	1419	C-listed	9 Campbell Street	368609	864513
LB21915	1421	C-listed	11 Campbell Street	368604	864503
LB21916	1422	C-listed	13 Campbell Street	368597	864487
LB21917	1423	C-listed	15 Campbell Street	368590	864472
LB21918	1424	C-listed	17 Campbell Street	368588	864462
LB21919	1406	C-listed	2 Campbell Street	368648	864558
LB21920	1407	C-listed	4 Campbell Street	368642	864545
LB21921	1408	C-listed	6 Campbell Street	368637	864531
LB21922	1409	C-listed	8 Campbell Street	368633	864519
LB21923	1412	C-listed	10 Campbell Street	368625	864504
LB21924	1413	C-listed	12 Campbell Street	368624	864496
LB21925	1417	C-listed	16 Campbell Street	368616	864482
LB21926	1416	C-listed	18 Campbell Street	368616	864469
LB21927	1223	C-listed	1, 1a Carmelite Street	368987	863999
LB21928	1213	C-listed	5 Carmelite Street	368993	864019
LB21934	1332	C-listed	19 Castle Street	368851	864096
LB21936	1362	C-listed	Castle Street Trinity And Alvah Church Halls	368822	864129
LB21937	1341	C-listed	Castle Street, Manse Of Trinity And Alvah	368846	864152

LB21939	1350	C-listed	27, 27a Castle Street	368841	864176
LB21943	1342	C-listed	39 Castle Street, Winston House	368844	864267
LB21944	1343	C-listed	41, 43 Castle Street	368843	864277
LB21944	1344	C-listed	41, 43 Castle Street	368843	864284
LB21945	1348	C-listed	47 Castle Street, Castle Bar And Garden Walls	368842	864295
LB21946	1339	C-listed	49, 51 Castle Street	368847	864341
LB21947	1336	C-listed	53, 55 Castle Street	368848	864350
LB21948	1337	C-listed	57, 59 Castle Street	368848	864359
LB21949	1340	C-listed	61, 63 Castle Street	368847	864366
LB21951	1345	C-listed	79, 81 Castle Street	368843	864432
LB21956	1297	C-listed	12, 14, 16 Castle Street Elm Bank	368884	864087
LB21956	1304	C-listed	12, 14, 16 Castle Street Elm Bank	368878	864096
LB21961	1313	C-listed	62, 64 Castle Street	368866	864361
LB21961	1315	C-listed	62, 64 Castle Street	368865	864368
LB21962	1317	C-listed	66, 66a Castle Street	368863	864376
LB21963	1319	C-listed	68, 70 Castle Street And Rear Courtyard Walls	368862	864389
LB21964	1318	C-listed	72, 74 Castle Street	368863	864403
LB21968	1322	C-listed	94 Castle Street And Rear Garden Wall	368860	864509
LB21968	1330	C-listed	94 Castle Street And Rear Garden Wall	368856	864509
LB21970	1163	C-listed	3 Church Street	369089	864054
LB21971	1151	C-listed	Church Street, House Incorporated Into Banff Tyre Service Premises	369181	864030

LB21972	1354	C-listed	1 Clunie Street	368838	864435
LB21973	1361	C-listed	3 Clunie Street	368825	864432
LB21976	1399	C-listed	23, 25 Clunie Street	368718	864425
LB21976	1403	C-listed	23, 25 Clunie Street	368712	864425
LB21977	1405	C-listed	27 Clunie Street	368706	864421
LB21979	1414	C-listed	7 Coldhome Street, Chapelhome Including Garden Wall	368623	864418
LB21980	1176	C-listed	6 Deveronside, 30a, 32a High Shore	369035	864168
LB21980	1181	C-listed	6 Deveronside, 30a, 32a High Shore	369028	864166
LB21981	1179	C-listed	7, 8 Deveronside, Ship Inn	369030	864185
LB21982	1183	C-listed	10 Deveronside	369025	864201
LB21987	1427	C-listed	Duff House Icehouse	368524	862858
LB21992	1393	C-listed	5, 7 Fife Street	368729	864360
LB21992	1397	C-listed	5, 7 Fife Street	368725	864367
LB21995	1388	C-listed	16 Fife Street And 21 Clunie Street	368741	864422
LB21997	1299	C-listed	2 George Street	368882	864336
LB21998	1291	C-listed	3 George Street	368893	864340
LB21999	1277	C-listed	4 George Street	368903	864346
LB22000	1270	C-listed	5 George Street	368911	864350
LB22001	1256	C-listed	Harbour Place, The Vaults	368936	864375
LB22002	1257	C-listed	Harbour Place, Old Customs House	368934	864403
LB22010	1197	C-listed	21 High Shore, Shore House And Garden Walls	369008	864128

LB22011	1184	C-listed	12 High Shore	369024	864055
LB22023	1281	C-listed	High Street, St Mary's Church Hall	368897	863813
LB22024	1292	C-listed	High Street, Banff Museum And Library	368891	863856
LB22026	1276	C-listed	High Street, The Cottage, St Brandon's Close	368904	863851
LB22031	1289	C-listed	24 High Street, Oakbank	368894	863890
LB22045	1239	C-listed	31, 33 Low Street	368962	863923
LB22045	1249	C-listed	31, 33 Low Street	368949	863921
LB22055	1194	C-listed	6 Low Street	369012	863805
LB22057	1215	C-listed	20, 22 Low Street	368991	863880
LB22057	1216	C-listed	20, 22 Low Street	368989	863884
LB22058	1224	C-listed	24 And 26 Low Street And 55 Bridge Street	368986	863895
LB22059	1212	C-listed	28 Low Street (With 48 Bridge Street)	368993	863915
LB22059	1222	C-listed	28 Low Street (With 48 Bridge Street)	368987	863913
LB22061	1217	C-listed	32 Low Street	368989	863940
LB22065	1300	C-listed	1 And 3 Old Castlegate, Greystone House Including Shop To Ground	368880	864025
LB22066	1296	C-listed	5 Old Castlegate	368887	864043
LB22067	1293	C-listed	7 Old Castlegate	368891	864051
LB22078	1294	C-listed	7 Quayside	368891	864499
LB22079	1331	C-listed	Quayside, Warehouse	368856	864603
LB22081	1359	C-listed	5, 6 Sandyhill Road And Rear Garden Wall	368828	863697
LB22081	1360	C-listed	5, 6 Sandyhill Road And Rear Garden Wall	368825	863692

LB22082	1363	C-listed	8 Sandyhill Road	368820	863679
LB22083	1369	C-listed	9 Sandyhill Road	368811	863672
LB22084	1370	C-listed	10 Sandyhill Road	368810	863666
LB22085	1372	C-listed	11, 12 Sandyhill Road	368808	863657
LB22086	1375	C-listed	13 Sandyhill Road And Rear Garden Wall	368799	863650
LB22087	1377	C-listed	14, 15 Sandyhill Road	368790	863635
LB22087	1379	C-listed	14, 15 Sandyhill Road	368784	863629
LB22089	1385	C-listed	18 Sandyhill Road And Rear Yard Wall	368755	863598
LB22091	1404	C-listed	Sandyhill Road, Rc Presbytery	368708	863553
LB22092	1373	C-listed	Seafield Street, Ymca Hall	368807	864252
LB22093	1384	C-listed	Seafield Street, Methodist Church	368756	864243
LB22094	1381	C-listed	Seafield Street, Mansefield	368768	864244
LB22097	1426	C-listed	Seafield Street, Kingswell Nursery School	368530	864266
LB22103	1383	C-listed	11 St Catherine Street	368761	864330
LB22104	1401	C-listed	St Catherine Street, Jail Walls	368714	864323
LB22105	1247	C-listed	1, 3 Strait Path	368955	863996
LB22106	1258	C-listed	9 Strait Path, The Broken Fiddle	368933	863998
LB22108	1265	C-listed	8,10 Strait Path	368925	863988
LB22108	1266	C-listed	8,10 Strait Path	368920	863988
LB2882	1083	C-listed	Beekie Cottage	370594	863535
LB2887	1143	C-listed	Dunlugas Cottages	369547	855577

LB2889	1148	C-listed	Dunlugas, Walled Garden	369470	855817
LB2892	1443	C-listed	Kirkton Of Alvah, The Manse, With Garden Walls And Gatepiers	367804	860204
LB2895	1387	C-listed	Montcoffer Cottages	368745	861349
LB3047	1538	C-listed	Beechgrove, (Former Ord Church Of Scotland) And War Memorial	362316	858302
LB3048	1448	C-listed	Eagles Gate Lodge, Gatepiers And Quadrant Walls	367146	861621
LB3050	1449	C-listed	Inverboyndie, Jandar And Brandon View With Garden Walls	366932	864429
LB3050	1450	C-listed	Inverboyndie, Jandar And Brandon View With Garden Walls	366923	864427
LB3163	1490	C-listed	Whitehills, 34 Low Shore	365398	865474
LB3164	1487	C-listed	Whitehills, 23 Ogilvie Street	365418	865455
LB3167	1532	C-listed	Whitehills, 12 West End	365188	865439
LB3168	1530	C-listed	Whitehills, 13 West End	365193	865433
LB3169	1527	C-listed	Whitehills, 14 West End, Honey Cottage	365207	865427
LB3170	1529	C-listed	Whitehills, 15 West End	365199	865417
LB3171	1531	C-listed	Whitehills, 17 West End	365192	865409
LB3172	1526	C-listed	Whitehills, 18 West End	365208	865404
LB3174	1510	C-listed	Whitehills, 10 Low Shore, Drumfergus	365307	865422
LB3175	1509	C-listed	Whitehills, 11 Low Shore	365318	865426
LB3176	1507	C-listed	Whitehills, 13, 14 Low Shore, Cuil-Na-Mara	365330	865433
LB3176	1508	C-listed	Whitehills, 13, 14 Low Shore, Cuil-Na-Mara	365325	865430
LB3177	1506	C-listed	Whitehills, 15 Low Shore	365333	865436
LB3178	1504	C-listed	Whitehills, 16 Low Shore	365344	865429

LB3180	1502	C-listed	Whitehills, 18 Low Shore	365352	865430
LB3181	1503	C-listed	Whitehills, 19 Low Shore	365347	865440
LB3183	1497	C-listed	Whitehills, 22 Low Shore	365375	865431
LB3184	1498	C-listed	Whitehills, 24 Low Shore	365375	865444
LB3186	1494	C-listed	Whitehills, 26 Low Shore	365385	865442
LB3187	1496	C-listed	Whitehills, 27 Low Shore	365378	865452
LB3188	1493	C-listed	Whitehills, 28 Low Shore	365387	865455
LB3189	1495	C-listed	Whitehills, 29 Low Shore	365384	865476
LB3190	1492	C-listed	Whitehills, 30 Low Shore	365393	865478
LB3191	1491	C-listed	Whitehills, 31 Low Shore	365396	865457
LB3192	1489	C-listed	Whitehills, 32 Low Shore	365405	865460
LB3193	1488	C-listed	Whitehills, 33 Low Shore	365411	865460
LB3195	1464	C-listed	Whitehills, 17 Knock Street	365657	865553
LB3197	1477	C-listed	Whitehills, 6 Knock Street	365574	865510
LB3198	1473	C-listed	Whitehills, 8 Knock Street	365588	865514
LB3200	1466	C-listed	Whitehills, 14 Knock Street	365633	865526
LB3201	1465	C-listed	Whitehills, 16 Knock Street	365649	865531
LB3202	1463	C-listed	Whitehills, 18 Knock Street	365662	865536
LB3203	1461	C-listed	Whitehills, 22 Knock Street	365686	865542
LB3204	1460	C-listed	Whitehills, 24 Knock Street	365700	865546
LB3206	1524	C-listed	Whitehills, 1 Low Shore	365232	865418

LB3207	1522	C-listed	Whitehills, 2 Low Shore	365239	865416
LB3208	1521	C-listed	Whitehills, 3 Low Shore	365246	865416
LB3210	1516	C-listed	Whitehills, 5 Low Shore And Store	365263	865410
LB3211	1514	C-listed	Whitehills, 6 Low Shore	365270	865416
LB3212	1513	C-listed	Whitehills, 7 Low Shore	365274	865412
LB3213	1512	C-listed	Whitehills, 8 Low Shore	365283	865409
LB3216	1528	C-listed	Whitehills, 3 Boyne Street	365206	865388
LB3217	1525	C-listed	Whitehills, 4 Boyne Street	365218	865387
LB3218	1520	C-listed	Whitehills, 7 Boyne Street	365246	865384
LB3219	1517	C-listed	Whitehills, 10 Boyne Street	365253	865383
LB3220	1515	C-listed	Whitehills, 11 Boyne Street	365264	865382
LB3221	1523	C-listed	Whitehills, 6 Boyne Street	365232	865400
LB3222	1519	C-listed	Whitehills, 8 Boyne Street	365251	865400
LB3227	1480	C-listed	Whitehills, 3 Knock Street	365542	865522
LB3228	1479	C-listed	Whitehills, 5 Knock Street	365556	865525
LB3229	1478	C-listed	Whitehills, 7 Knock Street	365568	865528
LB3230	1474	C-listed	Whitehills, 9 And 9a Knock Street	365587	865535
LB3230	1476	C-listed	Whitehills, 9 And 9a Knock Street	365580	865533
LB3231	1471	C-listed	Whitehills, 11 Knock Street, Elaness	365598	865537
LB3232	1467	C-listed	Whitehills, 13 Knock Street, Corein Cott	365626	865544
LB3239	1548	C-listed	Lintmill Of Boyne, Old Lintmill And Garden Wall At South	360754	864616

LB3240	1550	C-listed	Lintmill Bridge Over The Burn Of Boyne	360711	864939
LB37620	1098	C-listed	2 Crook O'ness Street	370430	864691
LB37621	1096	C-listed	4 Crook O'Ness Street (Former Macduff Arms) Excluding The Interior, The Single-Storey Lean-To Addition To The North Gable And The Two-Storey Additions To The Rear, Macduff	370434	864707
LB37621	1097	C-listed	4 Crook O'Ness Street (Former Macduff Arms) Excluding The Interior, The Single-Storey Lean-To Addition To The North Gable And The Two-Storey Additions To The Rear, Macduff	370433	864706
LB37622	1090	C-listed	30, 32 Crook O'ness Street	370559	864733
LB37628	1092	C-listed	Bodie Fountain, Crook O'ness Street, Macduff	370520	864751
LB37629	1079	C-listed	75, 77, 79 Duff Street	370689	864415
LB37633	1095	C-listed	Nicol's Brae	370440	864685
LB37636	1064	C-listed	Tarlair Wellhouse, Well Of Tarlair	371758	864691
LB37641	1085	C-listed	1, 2, 3 West Skene Street	370588	864774
LB37641	1086	C-listed	1, 2, 3 West Skene Street	370580	864780
LB37641	1089	C-listed	1, 2, 3 West Skene Street	370571	864785
LB37642	1082	C-listed	4 West Skene Street	370596	864768
LB37643	1081	C-listed	5 West Skene Street	370604	864763
LB40	1499	C-listed	Whitehills, 24a Low Shore	365372	865439
LB40206	1565	C-listed	1, 3 Aird Street	359140	865946
LB40206	1566	C-listed	1, 3 Aird Street	359138	865937
LB40207	1559	C-listed	5, 7 Aird Street	359155	865934

LB40207	1563	C-listed	5, 7 Aird Street	359147	865931
LB40208	1564	C-listed	9 Aird Street And Steading	359146	865949
LB40209	1555	C-listed	1, 3, 5, 7, 9 Aird Street Walls Enclosing Rear Garden	359183	865952
LB40210	1561	C-listed	11, 13 Aird Street, Aird House And Garden Walls	359148	865926
LB40210	1562	C-listed	11, 13 Aird Street, Aird House And Garden Walls	359147	865915
LB40211	1560	C-listed	15 Aird Street	359150	865905
LB40212	1558	C-listed	17 Aird Street	359155	865894
LB40213	1556	C-listed	19, 21 Aird Street	359169	865905
LB40213	1557	C-listed	19, 21 Aird Street	359161	865896
LB40216	1672	C-listed	18 Barbank Street	358844	866276
LB40217	1615	C-listed	2, 4 Bridge Street	358955	866162
LB40218	1625	C-listed	9 Burnside And Garden Walls	358932	866097
LB40219	1582	C-listed	3 Church Street	359060	865968
LB40221	1593	C-listed	29 Church Street	359029	866030
LB40222	1596	C-listed	31 Church Street	359025	866043
LB40224	1587	C-listed	28-32 Church Street, Cottage To Rear	359049	866094
LB40225	1598	C-listed	34 Church Street	359017	866105
LB40227	1603	C-listed	40, 42 Church Street	359011	866131
LB40228	1607	C-listed	46, 48 Church Street, Morven	359000	866152
LB40229	1609	C-listed	52, 54 Church Street	358997	866157
LB40229	1610	C-listed	52, 54 Church Street	358994	866168

LB40230	1611	C-listed	56 Church Street And Rear Cottage	358992	866175
LB40231	1612	C-listed	60 Church Street	358985	866182
LB40232	1616	C-listed	84, 86 Church Street	358954	866245
LB40232	1619	C-listed	84, 86 Church Street	358943	866243
LB40233	1618	C-listed	88, 88a Church Street	358945	866252
LB40234	1626	C-listed	Church Street, Shore Inn With Boundary Wall	358932	866266
LB40237	1629	C-listed	14 Culbert Street	358921	866157
LB40239	1693	C-listed	36 Cullen Street	358666	866134
LB40240	1694	C-listed	38 Cullen St, 'Marine Villa' And Rear Garden Wall	358657	866137
LB40241	1695	C-listed	40 Cullen Street And Rear Garden Wall	358648	866141
LB40242	1688	C-listed	15 Hill Street	358743	866030
LB40244	1592	C-listed	3 Institute Street	359030	866074
LB40245	1588	C-listed	5 Institute Street	359047	866081
LB40246	1600	C-listed	Lodging Brae, 1, 2, 3, 4 Old Coastguards Houses	359015	866274
LB40246	1605	C-listed	Lodging Brae, 1, 2, 3, 4 Old Coastguards Houses	359009	866271
LB40246	1606	C-listed	Lodging Brae, 1, 2, 3, 4 Old Coastguards Houses	359004	866269
LB40246	1608	C-listed	Lodging Brae, 1, 2, 3, 4 Old Coastguards Houses	358998	866264
LB40248	1631	C-listed	17 Low Street	358915	866233
LB40252	1574	C-listed	1 Main Street	359094	866372
LB40253	1578	C-listed	2 Main Street	359076	866360
LB40254	1579	C-listed	3 Main Street	359068	866353

LB40255	1577	C-listed	4 Main Street	359082	866355
LB40256	1576	C-listed	6 Main Street	359091	866350
LB40257	1575	C-listed	8 Main Street	359093	866340
LB40258	1570	C-listed	9 Main Street	359106	866327
LB40263	1649	C-listed	37 North High Street	358880	866265
LB40264	1641	C-listed	2 North High Street, The Boyne Hotel	358888	866169
LB40271	1580	C-listed	26 Schoolhendry Street, The Brig	359062	866244
LB40272	1589	C-listed	3 Seafield Place And Rear Garden Walls	359038	865921
LB40273	1590	C-listed	5 Seafield Place And Garden Walls	359035	865912
LB40274	1677	C-listed	1, 3 Seafield Street	358832	865959
LB40274	1679	C-listed	1, 3 Seafield Street	358825	865966
LB40276	1569	C-listed	45 Seafield Street And Pend Arch To Commercial Hotel	359121	865952
LB40278	1617	C-listed	22, 24 Seafield Street, 2 Roseacre Street	358945	865926
LB40278	1622	C-listed	22, 24 Seafield Street, 2 Roseacre Street	358937	865935
LB40288	1650	C-listed	5 Shorehead	358877	866280
LB40291	1666	C-listed	10 Shorehead, Warehouse Sited Immediately To East	358856	866300
LB40297	1613	C-listed	2, 4 Shore Street	358974	866334
LB40299	1684	C-listed	7, 9 South High Street	358812	865993
LB40300	1680	C-listed	17, 19, 21 South High Street	358819	866006
LB40300	1682	C-listed	17, 19, 21 South High Street	358818	866011
LB40301	1676	C-listed	39, 41 South High Street	358833	866072

LB40302	1681	C-listed	43 South High Street	358819	866079
LB40303	1678	C-listed	47 South High Street, Clydesdale Bank	358827	866093
LB40304	1670	C-listed	12 South High Street, The Elms, With Garden Walls	358849	865983
LB40305	1673	C-listed	14 South High Street	358843	866002
LB40306	1659	C-listed	36, 38 South High Street	358864	866085
LB40307	1664	C-listed	40 South High Street	358861	866090
LB40308	1624	C-listed	Soy Park, Scout Hut (Former Railway Station)	358934	865687
LB40310	1554	C-listed	St Comb's Road, St Comb's Well	359223	865998
LB40311	1668	C-listed	The Square, The Hall	358850	866165
LB40312	1657	C-listed	13, 14 The Square	358865	866165
LB40312	1665	C-listed	13, 14 The Square	358856	866165
LB40313	1643	C-listed	18, 19 The Square	358886	866130
LB40314	1646	C-listed	24 The Square	358883	866103
LB40315	1656	C-listed	26 The Square	358865	866102
LB40316	1573	C-listed	1 Wood Street	359099	866389
LB40317	1571	C-listed	2 Wood Street	359105	866376
LB40318	1567	C-listed	3 Wood Street, 'Clifton'	359124	866362
LB40319	1572	C-listed	5 Wood Street	359100	866366
LB42174	1059	C-listed	Municipal Buildings, High Street	372417	849783
LB42175	1051	C-listed	Clydesdale Bank, 1 Main Street And Balmellie Street	372561	849793
LB42177	1052	C-listed	39-41 Main Street S.E. Corner Of Square	372532	849937

LB42179	1054	C-listed	Fife Arms Hotel Square And Market Street	372503	850034
LB47126	1445	C-listed	Scotstown, Banff Links, Former Store Building	367665	864492
LB49407	1025	C-listed	Craigston Castle, South Lodge With Entrance Gates, Gatepiers And Railings	375742	854919
LB50913	1078	C-listed	Skene Street, Manor House Including Summerhouse, Boundary Walls And Railings	370750	864622
LB6651	1425	C-listed	Montcoffer Steading	368547	861269
LB6654	1154	C-listed	Mountblairy Walled Garden	369159	854429
LB6657	1437	C-listed	North Burreldales	367990	855323
LB6660	1540	C-listed	Manse Of Ord, Strathord	362248	858447
LB6663	1438	C-listed	The Wrack, Former Industrial Building	367928	862281
LB6764	1799	C-listed	1b Sandend	355475	866573
LB6766	1810	C-listed	3a Sandend	355464	866550
LB6767	1800	C-listed	13 And A Half Sandend	355473	866496
LB6768	1792	C-listed	14 And A Half Sandend	355480	866500
LB6769	1790	C-listed	56a Sandend	355481	866312
LB9388	1105	C-listed	Eden, Home Farm, Former Mill	370194	859590
LB9389	1074	C-listed	Glencairn, With Rear Service Cottage, Garden Walls And Gates And Gatepiers	370892	857786
LB9389	1076	C-listed	Glencairn, With Rear Service Cottage, Garden Walls And Gates And Gatepiers	370886	857798
LB9390	1071	C-listed	Glencairn, Steading	370938	857795

LB9396	1018	C-listed	Craigston Castle, Bridge Over Craigston Burn (Immediately South Of Castle)	376211	854958
LB9398	1065	C-listed	Danshillock, Old School	371713	857531
LB9403	1122	C-listed	Eden, Bell Cottage	369963	859851
LB9405	1104	C-listed	Eden, North Lodge	370316	860047
LB9407	1109	C-listed	Eden, Home Farm Farmhouse	370167	859669
LB9409	1106	C-listed	Eden, Home Farm Steading	370194	859685

Gardens and Designed Landscapes

Designation No.	WA No.	Name	Easting	Northing
GDL00399	1031	Hatton Castle	375623	846755
GDL00398	1137	Forglen	369645	851567
GDL00148	1165	Duff House	369073	863289

Battlefields

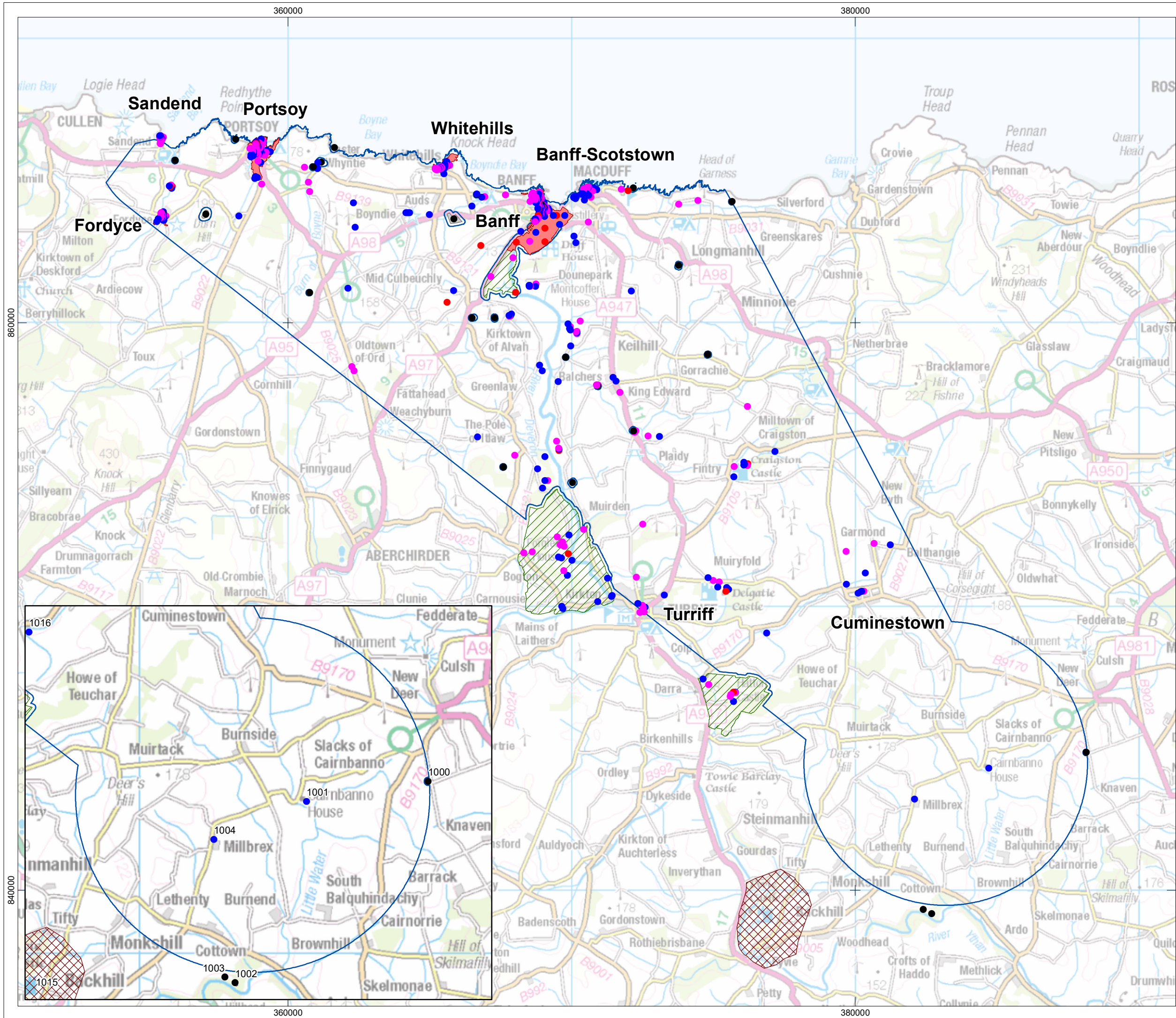
Designation No.	WA No.	Name	Easting	Northing
BTL22	1015	Battle of Fyvie	377082	839012

Properties in Care

Designation No.	WA No.	Name	Easting	Northing
PIC239	1166	Duff House	369072	863276

Conservation Areas

Designation No.	WA No.	Name	Easting	Northing
CA412	1244	BANFF	368957	863397
CA413	1432	BANFF - SCOTSTOWN	368338	864545
CA424	1475	WHITEHILLS	365582	865605
CA422	1581	PORTSOY	359061	866021
CA419	1742	FORDYCE	355531	863699
CA423	1775	SANDEND	355498	866466



- Onshore Scoping Area
- Designated Heritage Assets**
- Scheduled Monuments
- Category A Listed Buildings
- Category B Listed Buildings
- Category C Listed Buildings
- Scheduled Monuments
- Conservation Areas
- Gardens and Designated Landscapes
- Battlefields

Contains OS data © Crown Copyright and database right 2022
 OpenStreetMap data: © OpenStreetMap contributors



Scale at A3: 1:3,000,000
 0 75 150 km

CRS: British National Grid (EPSG:32630)

Produced:	Reviewed:	Approved:
AWRI	KFOS	ABIC
Date: 12/09/2022	Revision: 01	
REF: UKCAL1_WA_WNF_EHR_MAP_00001		

Figure 9.1
 Onshore National Heritage Designations



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 10

Hydrology and Hydrogeology

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	10-5
10 HYDROLOGY AND HYDROGEOLOGY	10-7
10.1 INTRODUCTION	10-7
10.2 LEGISLATIVE AND POLICY CONTEXT	10-7
10.2.2 The Flood Risk Management (Scotland) Act 2009	10-7
10.2.3 Water Environment and Water Services (Scotland) Act 2003.....	10-7
10.2.4 The Water Environment (Controlled Activities) (Scotland)	
Amendment Regulations 2021	10-7
10.2.5 Planning Advice on Flood Risk.....	10-8
10.2.6 SEPA Technical Flood Risk Guidance for Stakeholders 2019.....	10-8
10.2.7 SEPA Land Use Planning System Guidance Note 24	10-8
10.3 STUDY AREA.....	10-9
10.4 BASELINE ENVIRONMENT.....	10-9
10.4.2 Protected sites	10-9
10.4.3 Surface water.....	10-10
10.4.4 Coastal Waters.....	10-11
10.4.5 Groundwater	10-12
10.4.6 Flood risk	10-13
10.4.7 Coastal	10-13
10.4.8 River	10-13
10.4.9 Surface water.....	10-13
10.4.10 Groundwater	10-14
10.5 ASSESSMENT METHODOLOGY.....	10-14
10.5.1 Study Area	10-14
10.5.2 Desk-Based Assessment	10-14
10.5.3 Surveys	10-15
10.5.4 Assessment Method	10-15
10.6 EMBEDDED MITIGATION.....	10-16
10.6.2 Construction	10-16
10.6.3 Operation.....	10-18
10.7 POTENTIAL IMPACTS	10-18
10.7.2 Construction	10-18
10.7.3 Operation	10-19
10.7.4 Decommissioning	10-19
10.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	10-19
10.9 POTENTIAL SECONDARY MITIGATION.....	10-19
10.9.1 Construction	10-19
10.9.2 Operation	10-19
10.9.3 Decommissioning	10-20
10.10 PROPOSED SCOPE	10-20
10.11 CONSULTATION	10-20
10.12 QUESTIONS TO CONSULTEES.....	10-20
10.13 REFERENCES	10-22

List of Figures

FIGURE 10.1: SURFACE WATER FEATURES

FIGURE 10.2: WFD SURFACE WATER BODIES

FIGURE 10.3 WFD GROUNDWATER BODIES

List of Tables

TABLE 10.1: SURFACE WATERBODIES WITHIN THE STUDY AREA	10-10
TABLE 10.2: COASTAL WATERBODIES WITHIN THE STUDY AREA	10-12
TABLE 10.3: GROUNDWATER BODIES WITHIN THE STUDY AREA	10-12
TABLE 10.4: INTERACTION BETWEEN IMPACT MAGNITUDE AND RECEPTOR SENSITIVITY TO ASSIGN SIGNIFICANCE	10-15
TABLE 10.5: PROPOSED SCOPE.....	10-20

Acronyms and Abbreviations

BGS	British Geological Survey
CAR	Controlled Activities Regulations
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
FRA	Flood Risk Assessment
GBR	General Binding Rules
GPP	Guidance for Pollution Prevention
GDWPA	Groundwater Drinking Water Protected Area
GDTE	Groundwater Dependent Terrestrial Ecosystems
km	Kilometre
LUPS-GU24	Land Use Planning System Guidance Note 24
m	Metres
MLWS	Mean Low Water Spring
OnTI	Onshore Transmission Infrastructure
OS	Ordnance Survey
PPG	Pollution Prevention Guidelines
PWS	Private Water Supplies
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency

SPP	Scottish Planning Policy
SSAFO	Silage, Slurry and Agricultural Fuel Oil
SSSI	Site of Special Scientific Interest
WFD	Water Framework Directive

10 Hydrology and Hydrogeology

10.1 Introduction

10.1.1.1 This Chapter of the Onshore Scoping Report identifies the hydrology and hydrogeology receptors of relevance to the Proposed Development, including surface water, groundwater and flood risk. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

10.1.1.2 This Chapter is supported by the following figures:

- Figure 10.1: Surface Water Features;
- Figure 10.2: WFD Surface Water Bodies; and
- Figure 10.3: WFD Groundwater Bodies.

10.2 Legislative and Policy Context

10.2.1.1 The key legislation, policy, and guidance is summarised below.

10.2.2 The Flood Risk Management (Scotland) Act 2009

10.2.2.1 The Flood Risk Management (Scotland) Act 2009¹ sets in place a statutory framework for delivering a sustainable and risk-based approach to managing flooding. This includes the preparation of assessments of the likelihood and impacts of flooding, as well as catchment focused plans to address these impacts. The Act also places a duty on Scottish Ministers, Scottish Environment Protection Agency (SEPA), Local Authorities, Scottish Water and other responsible parties to exercise their legislative control with a view to managing and reducing flood risk and to promote sustainable flood risk management.

10.2.3 Water Environment and Water Services (Scotland) Act 2003

10.2.3.1 The Water Environment and Water Services (Scotland) Act 2003² is the enabling legislation for the Water Framework Directive (WFD). It identifies the SEPA as the competent authority. Part 1 makes provision for protection of the water environment, whilst Part 2 deals with water and sewerage services.

10.2.3.2 The Directive requires Member States to put in place systems for managing their water environments based on natural river basin districts and underpinned by extensive environmental monitoring and scientific investigation called "river basin management".

10.2.4 The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021

10.2.4.1 The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)³ provide a regulatory framework for controlling activities which could have an adverse effect on Scotland's water environment, including abstraction, impoundments, engineering, dredging, surface water drainage, and pollution.

10.2.4.2 The amendments incorporate the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003 (SSAFO)⁴ into the Regulations and introduce some new measures, with the aim of protecting the water environment.

10.2.5 Planning Advice on Flood Risk

10.2.5.1 The Scottish Government webpage, flood risk: planning advice provides background information and best practice advice in support of Scottish Planning Policy (SPP)⁵. Sections 32, 33 and 34 give information on Flood Risk Assessments (FRA).

10.2.5.2 These sections highlight that a FRA should assess the likely risk to the proposed development and to adjacent people and property. The FRA will assess factors such as the source and type of potential flood, flood depths, extent, speeds, flow pathways across a site, and details of structures which may influence site hydraulics. It will also detail flood mitigation options.

10.2.6 SEPA Technical Flood Risk Guidance for Stakeholders 2019

10.2.6.1 The Technical Flood Risk Guidance for Stakeholders⁶ was designed by SEPA to outline the information that is required to be submitted within an FRA and to outline methodologies for the appropriate hydrological and hydraulic modelling.

10.2.7 SEPA Land Use Planning System Guidance Note 24

10.2.7.1 SEPA's Land Use Planning System Guidance Note 24 (LUPS-GU24)⁷ was created to assist in the understanding and assessment of the relative vulnerability to flooding of different types of land uses, and to assist in the interpretation of SEPA's flood risk planning guidance.

10.2.7.2 The land use vulnerability comprises five categories, with the following examples of uses¹:

- Most Vulnerable Uses: Units intended for civil infrastructure, such as fire stations, schools and hospitals, residential institutions, residential dwellings and dwelling houses situated behind informal embankments;
- Highly Vulnerable Uses: Buildings used for dwelling houses, social services homes, hostels and hotels, student halls of residence, non-residential uses for health service and landfill and sites used for waste management facilities for hazardous waste;
- Least Vulnerable Uses: Units intended for shops, financial, professional, and other services, restaurants and cafés, drinking establishments, offices, leisure, non-residential institutions and waste treatment not included in 'Most Vulnerable' or 'Highly Vulnerable Uses';
- Essential Infrastructure: Essential transport infrastructure (including mass evacuation routes) that has to cross the area at risk and essential utility

¹ Full list of examples found on Page 5 of LUPS-GU24 v.4

infrastructure that has to be located in a flood risk area for operational reasons; and

- Water Compatible: Flood control infrastructure, environmental monitoring stations, water transmission infrastructure and pumping stations, sewage transmission infrastructure and pumping stations, amenity open space and nature conservation and biodiversity.

10.3 Study Area

10.3.1.1 The Hydrology and Hydrogeology study area is defined by the Onshore Scoping Area with an additional 1km buffer, shown in Figure 10.1. This is based on the 'source-pathway-receptor' pollutant linkage principle. It includes all surface water features and groundwater features, and any intertidal features located landward of the MLWS.

10.3.1.2 The study area will be refined for the Environmental Impact Assessment Report (EIAR) following the refinement of the Onshore Transmission Infrastructure (OnTI) and the identification of the Onshore Cable Corridor, Onshore Substation site and Landfall Site. A 1km buffer will be applied to these areas and will form the basis of the EIAR study area.

10.4 Baseline Environment

10.4.1.1 The baseline describes the existing condition of surface water, groundwater and flood risk receptors within the study area. The following information sources have been used to complete the baseline assessment:

- WFD data, from the SEPA Water Environment Hub⁸;
- Ordnance Survey (OS) Open Data⁹;
- Flood risk maps from SEPA Flood Maps¹⁰;
- British Geological Survey (BGS) Onshore GeoIndex¹¹; and
- Scotland's Environment Map¹² for environmental designations and protected sites.

10.4.1.2 Groundwater Dependent Terrestrial Ecosystems (GWDTE) will be assessed if relevant following identification of potential GWDTEs within the Biodiversity study area (see Chapter 7: Terrestrial Ecology and Biodiversity) and the development of a conceptual hydrogeological model, which will demonstrate the potential interactions between the Proposed Development and groundwater. If necessary, this assessment will be presented within the EIAR.

10.4.1.3 The key receptors are presented on Figure 10.1, Figure 10.2 and Figure 10.3. Flood risk areas are available to view on the SEPA Flood Maps (SEPA 2020)¹⁰ and are described below.

10.4.2 Protected sites

10.4.2.1 Several designated sites are within the study area. Further detailed information for the respective designations is provided within Chapter 7: Terrestrial Ecology and Biodiversity and Chapter 11: Geology, Soils and Contaminated Land. This Chapter of the Onshore Scoping Report considers only those designated sites with a

hydrological or hydrogeological relevance (shown in Figure 10.1). These include:

- Reidside Moss Special Area of Conservation (SAC) – located on the western edge of the study area between Cornhill and Blacklaw, this site is designated for active and degraded raised bog, which is a habitat type that may be reliant on local hydrological and hydrogeological conditions; and
- Gight Woods Site of Special Scientific Interest (SSSI) – located in the south of the study area along the banks of the River Ythan. This site is designated for ancient woodland, which may be reliant on local hydrological and hydrogeological conditions.

10.4.3 Surface water

10.4.3.1 The study area is within the North East WFD basin district. A number of main river and coastal catchments are located in the study area, including include Banff Coastal in the north, River Deveron in central study area, and the south of the study area contains River Ythan, and River Ugie catchments.

10.4.3.2 There are 20 surface river waterbody catchments within the study area that have been assigned a WFD classification, which, along with their tributaries, are considered to be potential surface water receptors within the study area, surface waterbodies are detailed in Table 10.1

Table 10.1: Surface Waterbodies within the Study Area

Waterbody Name (Code)	Location	Current Overall Status ²
Fordyce Burn (UKSC023052)	Located in north-east of study area, flows north through Fordyce village.	Moderate ecological potential
Durn Burn (UKSC023053)	Located in north-east of study area, flows from Toux north to Portsoy.	Good ecological potential
Boyne Burn / Corncairn Burn (UKSC023054)	Located in north-west of study area and flows north between Portsoy and Whitehills.	Good ecological potential
Boyndie Burn (UKSC023055)	Located in north in central study area, east of Boyndie, and flows northwards.	Moderate ecological potential
Burn of Auchintoul – U/S Arkland Burn (UKSC023168)	Located in west of the study area, flowing south near Finnygaud.	Moderate
Burn of Brydock (UKSC023156)	Located in north in the central study area. Flows east to the north of Fattahead.	Good
Rosy Burn (UKSC023157)	Located in north in the central study area. Flows east from Blacklaw to Dunlugas.	Good ecological potential
Cunning Burn (UKSC023158)	Located in west in the central study area. Flows south near Bogton.	Moderate ecological potential

² The year 2020 is the most recent classification year.

Waterbody Name (Code)	Location	Current Overall Status ²
River Deveron – Turriff to tidal limit (UKSC023155)	Located in the northern central area of the study area from Turriff to Banff and flows north.	Good
Burn of King Edward (UKSC023160)	Located in north-east of the study area and flows west. It is made up of a number of tributaries.	Moderate ecological potential
Burn of Fortrie (UKSC023159)	Located in north-east of the study area. Flows south into Burn of King Edward.	Moderate ecological potential
Burn of Turriff (UKSC023162)	Located in south of the study area and flows north through Turriff.	Moderate ecological potential
Idoch Water (UKSC023161)	Located in south of the study area. Idoch Water has a number of tributaries that flow west through New Byth, Crossfields, Hatton Castle.	Moderate ecological potential
River Ythan – Upper catchment above Fyvie (UKSC023233)	Located in south-west of the study area. River Ythan has a number of tributaries that flow through Kirktown of Auchterless, Inverythan, and Tifty.	Moderate ecological potential
River Ythan – Fyvie to Methlick (UKSC023232)	Located in south of the study area and flows south-east	Moderate ecological potential
Burn of Stonehouse (UKSC023236)	Located in south of the study area and flows south through Millbrex and Gight.	Good ecological potential
Little Water / Black Burn (UKSC023237)	Located in east of the study area and flows south from Balhangie to Ardo in the south of the study area.	Moderate ecological potential
South Ugie Water – New Deer to Stuartfield (UKSC023230)	Located in south-east of the study area and flows east through Maud.	Moderate ecological potential

10.4.3.3 In addition to the watercourses detailed in Table 10.1 there are artificial agricultural and forestry drainage features, ponds, dams and small tributaries throughout the study area.

10.4.3.4 The River Deveron is an important fishery for salmon, sea trout, and brown trout, which is conserved and maintained through a Fisheries Management Plan¹³.

10.4.4 Coastal Waters

10.4.4.1 The study area interacts with the intertidal coastal zone, landward of MLWS. This incorporates two coastal WFD waterbodies, as detailed in Table 10.2

Table 10.2: Coastal Waterbodies Within the Study Area

Waterbody name (code)	Location	Current overall status ³
Findochty to Knock Head (UKSC200497)	Located in west of study area on the north coast.	Good
Banff and MacDuff (UKSC200498)	Located in east of study area on the north coast.	Good

10.4.5 Groundwater

10.4.5.1 BSG mapping shows that the study area is underlain by a wide variety of bedrock types, including the prominent groups, these are shown in Figure 11.2:

- Southern Highland Group – psammite and pelite, located throughout the study area from north to south in the central region;
- Middle Old Red Sandstone (Undifferentiated) – conglomerate, sandstone, siltstone and mudstone, located in the east of the study area;
- Lower Old Red Sandstone – conglomerate, sandstone, siltstone and mudstone, located along the eastern boundary of the study area;
- Unnamed Igneous Intrusion, Ordovician to Silurian – mafic igneous-rock, located in the north-west of the study area; and
- Argyll Group – psammite, semipelite and pelite, located in the west of the study area.

10.4.5.2 The bedrock is overlain by superficial deposits, (shown in Figure 11.1, within Chapter 11, Geology, Soils and Contaminated Land Superficial Geology) comprising predominantly of Devensian – Diamicton Till, with pockets of glaciofluvial deposits of gravel sand and silt which tend to be concentrated around watercourses and floodplains. Glaciofluvial Ice Contact Deposits are recorded in the north of the study area. Some small pockets of peat are located in the south of the study area, within the Substation Scoping Area.

10.4.5.3 The majority of the study area is underlain by low productivity aquifers. The eastern side of the study area has an area of moderate productivity aquifers, which is related to the Middle and Lower Old Red Sandstone.

10.4.5.4 The study area is underlain by the WFD groundwater bodies detailed in Table 10.3.

Table 10.3: Groundwater Bodies Within the Study Area

Waterbody name (code)	Location	Current overall status ⁴
Banff (150632)	Located in west of study area	Good

³ The year 2020 is the most recent classification year.

⁴ The year 2020 is the most recent classification year.

Banff Coastal (150753)	Located in the north of study area	Good
Huntly (150671)	Located in north and central sections of study area.	Good
Turriff (150600)	Located in south and central sections of study area	Good
Mintlaw (150655)	Located in east of study area	Good
Ellon (150676)	Located in south of study area	Poor

10.4.5.5 The study area is located entirely within a Groundwater Drinking Water Protected Area (GDWPA).

10.4.6 Flood risk

10.4.6.1 SEPA Flood Maps (SEPA 2020)¹⁰ identify areas of flooding and classify the risk of flooding into three categories:

- High likelihood: Each year the area has a 10% chance of flooding;
- Medium likelihood: Each year the area has a 0.5% chance of flooding; and
- Low likelihood: Each year the area has a 0.1% chance of flooding.

10.4.6.2 The following sub-sections provide a high-level summary of flood risk within the study area.

10.4.7 Coastal

10.4.7.1 Coastal flooding is the result of coastal waters inundating dry and low-lying areas which are not usually found to be underwater. The north of the study area, along the north Aberdeenshire coast, is within an area of 'high' likely coastal flood risk area which follows the coastline for the majority of the study area. The coastal flood risk extends south into the estuary of the River Deveron, shown on flood maps to inundate residential areas of Banff that are located adjacent to the estuary.

10.4.8 River

10.4.8.1 River flooding, also referred to as fluvial flood risk, occurs when the water level in a river, lake, or stream rise and overflows onto neighbouring land. Areas of flood risk from rivers which is of 'medium' and 'high' likelihood within the study area appear to be largely confined to natural watercourse their floodplains, with increased extents in the lower catchment areas.

10.4.9 Surface water

10.4.9.1 Surface water flooding, also referred to as pluvial flood risk, occurs when extreme weather events create a flood independent of watercourses or waterbodies. Small pockets of 'high' and 'moderate' flooding are located across the study area, likely to be associated with farm drainage and appearing coincident with river flood

likelihood areas. Small pockets are observed across the study area and are likely to be situated within localised depressions in the landscape.

10.4.10 Groundwater

10.4.10.1 Groundwater flooding is caused by water rising up from underlying rocks or flowing from springs. Groundwater is generally a contributing factor to flooding rather than the primary source.

10.4.10.2 Areas likely to be influenced by groundwater flooding are located across the north of the study area following the northern coastline. There are additional localised areas near Turriff and Ardo.

10.5 Assessment Methodology

10.5.1 Study Area

10.5.1.1 At the assessment stage, the hydrological and hydrogeological study area will be determined by the Onshore Cable Corridor, Landfall Site and Onshore Substation site. A 1km buffer will be applied to this area to create the EIAR study area. This 1km study area will be extended to 3km for the Private Water Supplies (PWS) desk-based review.

10.5.1.2 For direct effects on surface waters, the study area will include the geographical extent of the Onshore Cable Corridor, Landfall Site and Onshore Substation Site and all surface water features, including main rivers and their tributaries, ordinary watercourses, surface water abstractions and flood zones within 1km, where features may have hydrological connectivity to the Proposed Development.

10.5.1.3 For groundwater, the study area will include the geographical extent of the Onshore Cable Corridor, Landfall Site and Onshore Substation Site and all groundwater features which include underlying aquifers, source protection zones, springs, groundwater abstractions and GWDTes within 1km where features have hydrological connectivity to the Proposed Development.

10.5.1.4 Extension of the study area beyond the 1km buffer may be necessary to capture potential impacts to receptors beyond the standard study area. This may be important where the Proposed Development is likely to impact receptors upstream and downstream of the study area. A risk-based approach will be taken to the extension of the study area based on assessment of impact pathways and this will be kept under review as understanding of interactions evolves.

10.5.2 Desk-Based Assessment

10.5.2.1 A comprehensive desk-based study will be completed using publicly available data and data received from stakeholders through consultation. The desk study will identify potential water receptors and sensitive areas within the study area, which may include peat, groundwater and surface water dependant features, PWS and locations of watercourse crossings that cannot be avoided.

10.5.2.2 A review of PWS will be completed for a 3km study area.

10.5.2.3 Potential GWDTes will be identified following identification of relevant habitats from Proposed Development ecology data.

10.5.3 Surveys

10.5.3.1 Surveys will be conducted to ground-truth and expand on the data received during the desk study and to gain a complete understanding of the existing topography, hydrological and hydrogeological conditions of the study area. Additionally, the surveys will include collection of data at the proposed watercourse crossing locations to inform design and construction methods.

10.5.3.2 If the desk-based study reveals a presence of potential GWDTes, then they may be subject to further hydrological and hydrogeological surveys.

10.5.3.3 Presence of peat will be assessed within Chapter 11: Geology Soils and Contaminated Land.

10.5.4 Assessment Method

10.5.4.1 The Hydrology and Hydrogeology chapter of the EIAR will follow the methodology outlined in Chapter 4: The Environmental Impact Assessment (EIA) Process for the characterisation of the existing environment (Section 4.3).

10.5.4.2 A qualitative assessment methodology will be used to assess the magnitude of the potential impacts, using guidance from NatureScot¹⁴ and the Design Manual for Roads and Bridges (DMRB) documentation LA113¹⁵ and LA104¹⁶ (Highways England 2020). The assessment of effects will consider environmental impacts of the construction, operation and decommissioning phases of the Proposed Development as well as the environmental impacts in the absence of the Proposed Development (the do-nothing scenario).

10.5.4.3 Impact magnitude and receptor sensitivity are defined within DMRB LA103¹⁷ Table 3.2N and Table 3.4N. They interact to facilitate a judgement of significant of effect, using professional judgement and the matrix set out in Table 10.4.

Table 10.4: Interaction Between Impact Magnitude and Receptor Sensitivity to Assign Significance

		Magnitude of Impact				
		No change	Negligible	Minor	Moderate	Major
Sensitivity of Receptor	Very High	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Sight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

10.5.4.4 The significance of the potential effects will be defined by considering the sensitivity of the receptors and the potential effect of potential impacts that may occur.

- 10.5.4.5 The EIAR will include a figure displaying water features the Proposed Development interacts with and a photographic inventory of all watercourse crossings.
- 10.5.4.6 An assessment of GWDTE will be undertaken based on habitat mapping and following SEPA guidance¹⁸. If significant areas of GWDTE are located in proximity to the Onshore Cable Corridor, Landfall Site or Onshore Substation Site, additional studies may be required to define whether these are truly groundwater dependent, refine their extent, conceptualise the hydrogeology and assess if there are any potential effects to them. Where possible, the design will be modified to minimise potential effects on these features.
- 10.5.4.7 It is expected that a FRA will be necessary due to potential water crossings and the sensitivity of the proposed sub-station. The scope of this will be discussed in consultation with SEPA once the study area has been refined.
- 10.5.4.8 There is the potential for a series of activities associated with the Proposed Development to require a Controlled Activities Regulations (CAR) licence, registration, and/or comply with SEPAs General Binding Rules (GBR)s as described in the guidance¹⁹.

10.6 Embedded Mitigation

- 10.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment. Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

10.6.2 Construction

- 10.6.2.1 An Outline Construction Environmental Management Plan (CEMP) will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further with submission of a detailed full planning application and supporting CEMP at a later date. The CEMP will be implemented to avoid, minimise or mitigate effects on the environment during the construction and decommissioning phases of the Proposed Development.
- 10.6.2.2 The Outline CEMP will include good practice measures relevant to the site and its risks that will be required to be implemented by any appointed contractor to reduce the likelihood of impacts, or their magnitude if they were to occur. The Outline CEMP will include ground and surface water monitoring plans, if required.
- 10.6.2.3 Standard measures to be included in the Outline CEMP will be based on the SEPA Pollution Prevention Guidelines (PPG) (which are currently being reviewed and replaced where necessary), the relevant Construction Industry Research and Information Association (CIRIA) publications and best practice measures outlined in the PPG replacement series, Guidance for Pollution Prevention (GPP).

10.6.2.4 Examples of standard practice mitigation measures that will be included in the Outline CEMP include the provision of spill kits, locating machinery cleaning stations away from watercourses, and restricting concrete mixing to at least 10m away from watercourses.

10.6.2.5 The Outline CEMP may also include a selection of the following mitigation:

- A surface water management system using measures such as temporary silt fencing, cut off ditches, settlement ponds and bunds set up early in the construction period to capture all runoff and prevent ingress of sediments and contaminants into existing drainage ditches where necessary. This would be managed in accordance with CIRIA Guidelines and SEPAs approach to groundwater protection and groundwater protection guidelines;
- Water with a higher risk of contamination which requires discharge, including groundwater pumped out of pilings during concrete pouring, would be contained and treated using appropriate measures such as coagulation of sediments, dewatering and pH neutralisation prior to discharge;
- Contaminated water that cannot be treated on site would, if necessary, be pumped to a suitably licenced tanker before being exported off site for treatment at an appropriately permitted facility;
- A Flood Warning and Evacuation Plan will be developed where works are within areas potentially affected by flooding. This will set out the potential risks and identify a procedure for receiving and acting on flood warnings or for monitoring conditions on site to ensure that site operatives are aware of potential risks and how to mitigate them through safe working practices;
- Works in the floodplain would be suspended during out-of-bank river flows or during intense rainstorms;
- A suitable strategy will be developed for managing any temporary impacts on floodplain storage or conveyance which may include identifying specific areas outside the floodplain for storage of materials or providing compensatory storage on a temporary basis;
- Water use efficiency measures will be adopted where applicable, for example rainwater harvesting and grey water re-use for wheel washing and dust suppression; and
- Consideration of local groundwater catchment and flow regimes that may be affected by dewatering design and discharging the abstracted water to the same groundwater catchment and down gradient of the dewatered element.

10.6.2.6 Effective delivery of the measures set out in the Outline CEMP is to be monitored during the construction phase.

10.6.2.7 Works will be carried out in accordance with permitting requirements, including the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)³. These will include information on all works, including temporary works, methodology and permanent design approval. Measures that are non-standard or site-specific will be incorporated into any appointed contractor's construction method statement. Discharge from dewatering activities such as

earthworks, works within a floodplain or within 10m of a watercourse may require a tailored risk assessment, registration and licences via the CAR regulations.

10.6.3 Operation

- 10.6.3.1 Any works impacting the floodplain (areas of Flood Zones 2 and 3) will be accompanied by a suitable floodplain compensation strategy to include measures to manage the impacts of loss of floodplain storage or conveyance.
- 10.6.3.2 Any works within or alongside watercourses will be designed to ensure no significant detrimental impact on flow conveyance and no localised or catchment-wide impacts on flood risk; this will include any watercourse diversions, or any culverting required as a result of the permanent works.
- 10.6.3.3 Any permanent watercourse diversions will be designed to ensure continuity of conveyance and floodplain utilisation such that there is no significant detrimental impact on the wider catchment.
- 10.6.3.4 A surface water and groundwater monitoring plan will be implemented if any permanent works could affect quality or quantity of surface waters, groundwater aquifers or groundwater dependant waterbodies or habitats.
- 10.6.3.5 Mitigation measures will be agreed with SEPA to ensure compliance with their requirements. Design of culverts will adhere to guidance outlined in the SEPA position statement on culverting of watercourses (WAT-PS-06-02).

10.7 Potential Impacts

10.7.1.1 This section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.

10.7.2 Construction

- 10.7.2.1 During construction, significant potential impacts to surface water and groundwater features and flood risk could arise from:
- Increased pollution entering the watercourses from mobilised suspended solids and spillage of fuels or other harmful substances that may migrate to surface water and groundwater receptors;
 - Increased areas of hardstanding leading to potential increased flood risk to third party land;
 - Impacts to the hydromorphological and ecological quality of watercourses associated with works within or in close proximity to watercourses, including physical change to the watercourses and longer-term changes associated with sediment deposition;
 - Impacts to local land drainage structures, that may alter existing drainage patterns within catchments and provide potential pathways for pollution;
 - Changes to catchments and pathways may alter existing surface water and groundwater flows with potential impacts on abstractions and PWS; and
 - Impacts on local hydrogeology and groundwater resources. Changes to groundwater levels, flows and quality arising from construction activities,

primarily dewatering earthworks and intrusive investigation works creating new flow paths for groundwater.

10.7.3 Operation

10.7.3.1 During operation, significant potential impacts to surface water features and groundwater features and flood risk could arise from:

- Permanent impact to the hydromorphological and ecological quality of water features associated with works within or in close proximity to water features;
- Permanent impacts to catchment hydrology and hydrogeology caused by the introduction of a barrier to natural overland flow;
- Permanent changes in river baseflow and groundwater availability for GWDTes due to dewatering effects; and
- Increased flood risk to the Proposed Development and to people and property elsewhere caused by crossing of watercourses thus affecting flood flow conveyance.

10.7.4 Decommissioning

10.7.4.1 The same potential impacts to surface water features and groundwater features are expected at the decommissioning phase as in the construction phase.

10.8 Potential Cumulative and In-Combination Impacts

10.8.1.1 Potential cumulative impacts may be in the form of increased impermeable surfaces, diversions of watercourses or watercourse crossings, and discharges to watercourses or groundwater features.

10.8.1.2 Consultation with local authorities will identify any potential developments within the study area that may result in cumulative impacts. This will be assessed and reported within the Hydrology and Hydrogeology EIAR Chapter.

10.8.1.3 In-combination impacts may occur through the inter-relationship with another EIAR topic that may lead to different or greater environmental effects than in isolation.

10.8.1.4 There is also the potential for in-combination impacts resulting from onshore and offshore works.

10.8.1.5 In-combination impacts (where relevant) will be considered within the Hydrology and Hydrogeology EIAR Chapter.

10.9 Potential Secondary Mitigation

10.9.1 Construction

10.9.1.1 In the case that watercourses are to be temporarily diverted to allow for the construction of the Proposed Development, a suitable strategy will be developed to ensure no detrimental impact on flows and floodplain utilisation.

10.9.1.2 Following the assessment, secondary mitigation may be identified and will be outlined within the EIAR.

10.9.2 Operation

10.9.2.1 Site-specific mitigation may be required to comply with the WFD regulations and mitigate any potential impacts on WFD status. The required mitigation will be established through a WFD assessment and cannot be embedded before this point.

10.9.2.2 Site-specific mitigation may be required if GWDTes are identified within an area of potential impact. This will be assessed, and mitigation outlined within the EIAR if considered necessary.

10.9.3 Decommissioning

10.9.3.1 Secondary mitigation is not expected to be required.

10.10 Proposed Scope

10.10.1.1 Potential impacts on have been identified which may occur during the construction, operation and decommissioning phases of the Proposed Development.

10.10.1.2 These impacts are outlined in Table 10.5.

Table 10.5: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Water environment	✓	✓	✓
WFD	✓	✓	✓
PWS	✓	✓	✓
Hydrogeology	✓	✓	✓
GWDTes	✓	✓	✓

10.11 Consultation

10.11.1.1 Consultation with SEPA will be carried out to discuss potential impacts to surface water and groundwater receptors and to develop appropriate mitigation suitable for the site.

10.11.1.2 Information on abstractions and PWS will be sought through consultation with SEPA, local councils and Scottish Water.

10.11.1.3 Local authorities and SEPA will be consulted on potential flood risk and any required mitigation.

10.12 Questions to Consultees

10.12.1.1 The following questions are posed to consultees to frame and focus responses to the Hydrology and Hydrogeology scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree that receptors and potential impacts have been identified for hydrology and hydrogeology?
- Do you agree with the potential impacts which have been scoped out of the EIA for hydrology and hydrogeology?
- Do you agree with the proposed approach to the assessment?

10.13 References

- ¹ *The Flood Risk Management (Scotland) Act 2009*, Available at: <https://www.legislation.gov.uk/asp/2009/6/contents> [Accessed 09/08/2022]
- ² *The Water Environment and Water Services (Scotland) Act 2003*, Available at: <https://www.legislation.gov.uk/asp/2003/3/contents> [Accessed 09/08/2022]
- ³ *The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)*, Available at: <https://www.legislation.gov.uk/ssi/2011/209/contents/made> [Accessed 09/08/2022]
- ⁴ *The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003 (SSAFO)*, Available at: <https://www.legislation.gov.uk/ssi/2003/531/contents/made> [Accessed 13/10/2022]
- ⁵ The Scottish Government (2014), *Scottish Planning Policy*, Available at: <https://www.gov.scot/publications/scottish-planning-policy/> [Accessed 22/08/2022]
- ⁶ Scottish Environmental Protection Agency (2019) *Technical Flood Risk Guidance for Stakeholders*, Available at: <https://www.sepa.org.uk/media/162602/ss-nfr-p-002-technical-flood-risk-guidance-for-stakeholders.pdf> [Accessed 09/08/2022]
- ⁷ Scottish Environmental Protection Agency (2018) *Flood Risk and Land Use Vulnerability Guidance Note 24 (LUPS-GU24)*, Available at: <https://www.sepa.org.uk/media/143416/land-use-vulnerability-guidance.pdf> [Accessed 22/08/2022]
- ⁸ Scottish Environmental Protection Agency (2021) *Water Environment Hub*, Available at: <https://informatics.sepa.org.uk/RBMP3/> [Accessed 02/08/2022]
- ⁹ Ordnance Survey (2020) Open Data
- ¹⁰ Scottish Environment Protection Agency (2020), *Flood Maps*, Available at: <https://www.sepa.org.uk/environment/water/flooding/flood-maps/> [Accessed: 02/08/2022]
- ¹¹ British Geological Survey (BGS) Onshore GeoIndex
- ¹² The Scottish Government (2022), *Scotland's Environment Map*, Available at: <https://www.environment.gov.scot/maps/scotlands-environment-map/> [Accessed:02/08/2022]
- ¹³ The Deveron, Bogie and Isla Rivers Charitable Trust (2020), *River Deveron Fisheries District Management Plan 2020-2023*, Available at: <https://deveron.org/deveron-district-fishery-managment-plan-2020-23/> [Accessed 03/08/2022]
- ¹⁴ NatureScot (2018), *Environmental Impact Assessment Handbook V5*, Available at: <https://www.nature.scot/doc/handbook-environmental-impact-assessment-guidance-competent-authorities-consultees-and-others> [Accessed 09/08/2022]
- ¹⁵ Standards for Highways (2020), *Design Manual for Roads and Bridges, LA 113 Road Drainage and the Water Environment*, Available at:

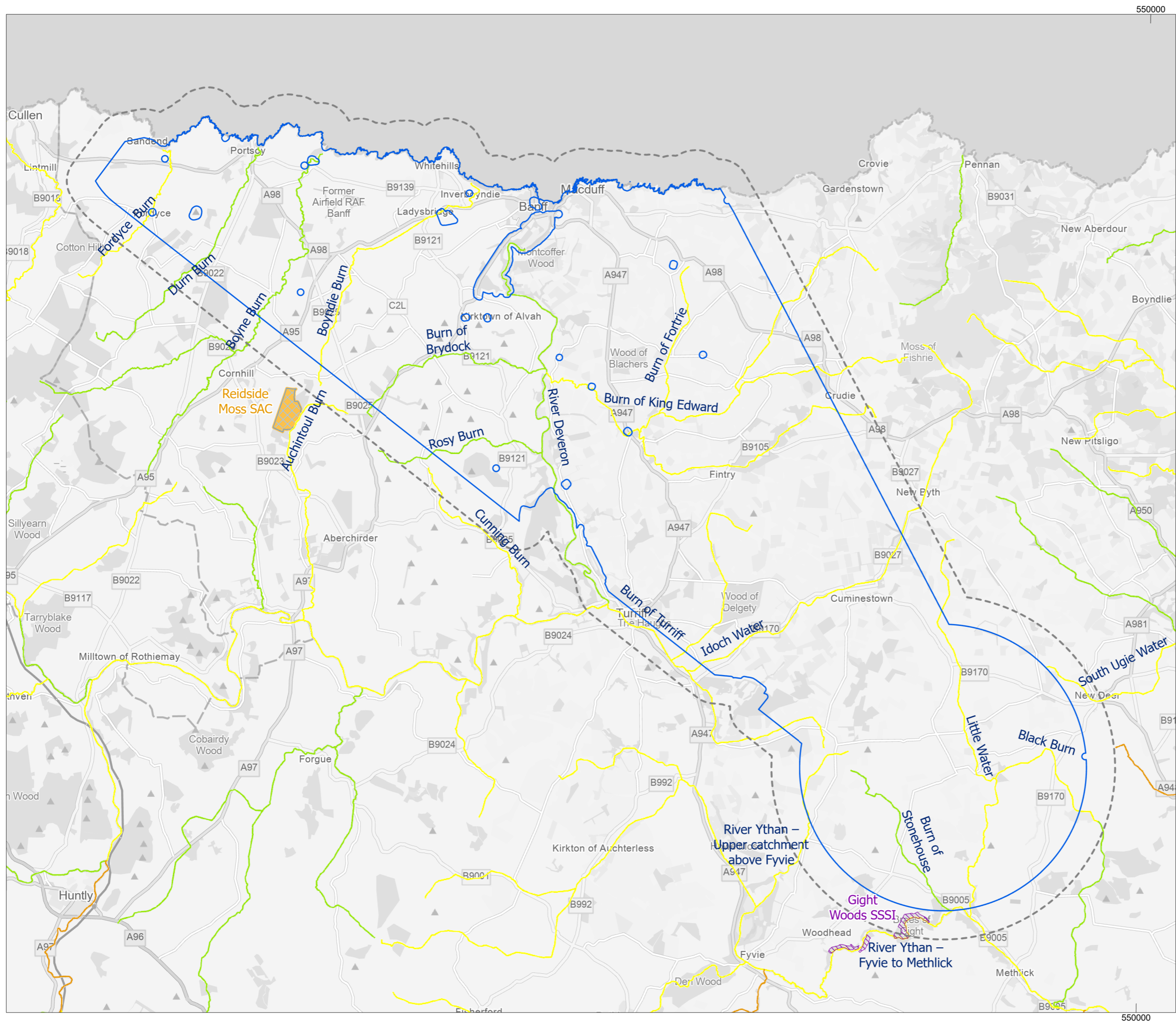
<https://www.standardsforhighways.co.uk/prod/attachments/d6388f5f-2694-4986-ac46-b17b62c21727?inline=true> [Accessed 22/08/2022]

¹⁶ Standards for Highways (2020), *Design Manual for Roads and Bridges, LA 104 Environmental Assessment and Monitoring*, Available at: <https://www.standardsforhighways.co.uk/prod/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a?inline=true> [Accessed 22/08/2022]

¹⁷ Standards for Highways (2020), *Design Manual for Roads and Bridges, LA 103 Scoping Projects for Environmental Assessment*, Available at: <https://www.standardsforhighways.co.uk/prod/attachments/fb43a062-65ad-48d3-8c06-374cfd3b8c23?inline=true> [Accessed 22/08/2022]

¹⁸ Scottish Environment Protection Agency (2017), *Land Use Planning System: SEPA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems*, Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf> [Accessed 09/08/2022]

¹⁹ Scottish Environment Protection Agency (2022), *CAR A Practical Guide, The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), Version 9.1*, Available at: https://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf [Accessed 09/08/2022]



Onshore Scoping Area

- Onshore Scoping Area
- Onshore Scoping Area 1km Buffer

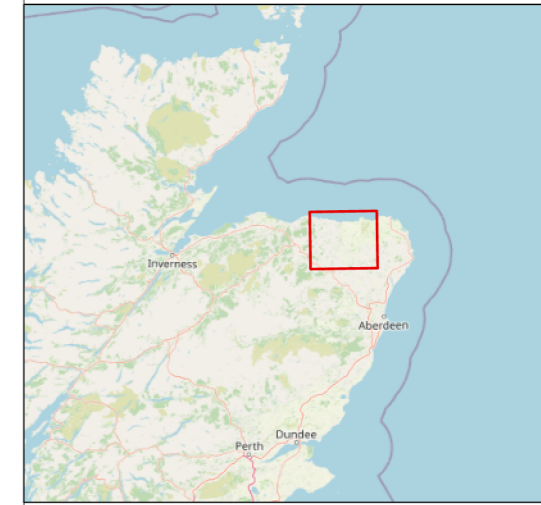
Main River Status

- Good / Potential
- Moderate / Potential
- Poor / Potential

Other Features

- Gight Woods SSSI
- Reidside Moss SAC

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri Contains SEPA data © Scottish Environment Protection Agency and database right [2022]. All rights reserved. Contains public sector information licensed under the Open



Scale at A3: 1:125,000

0 2.5 5 km

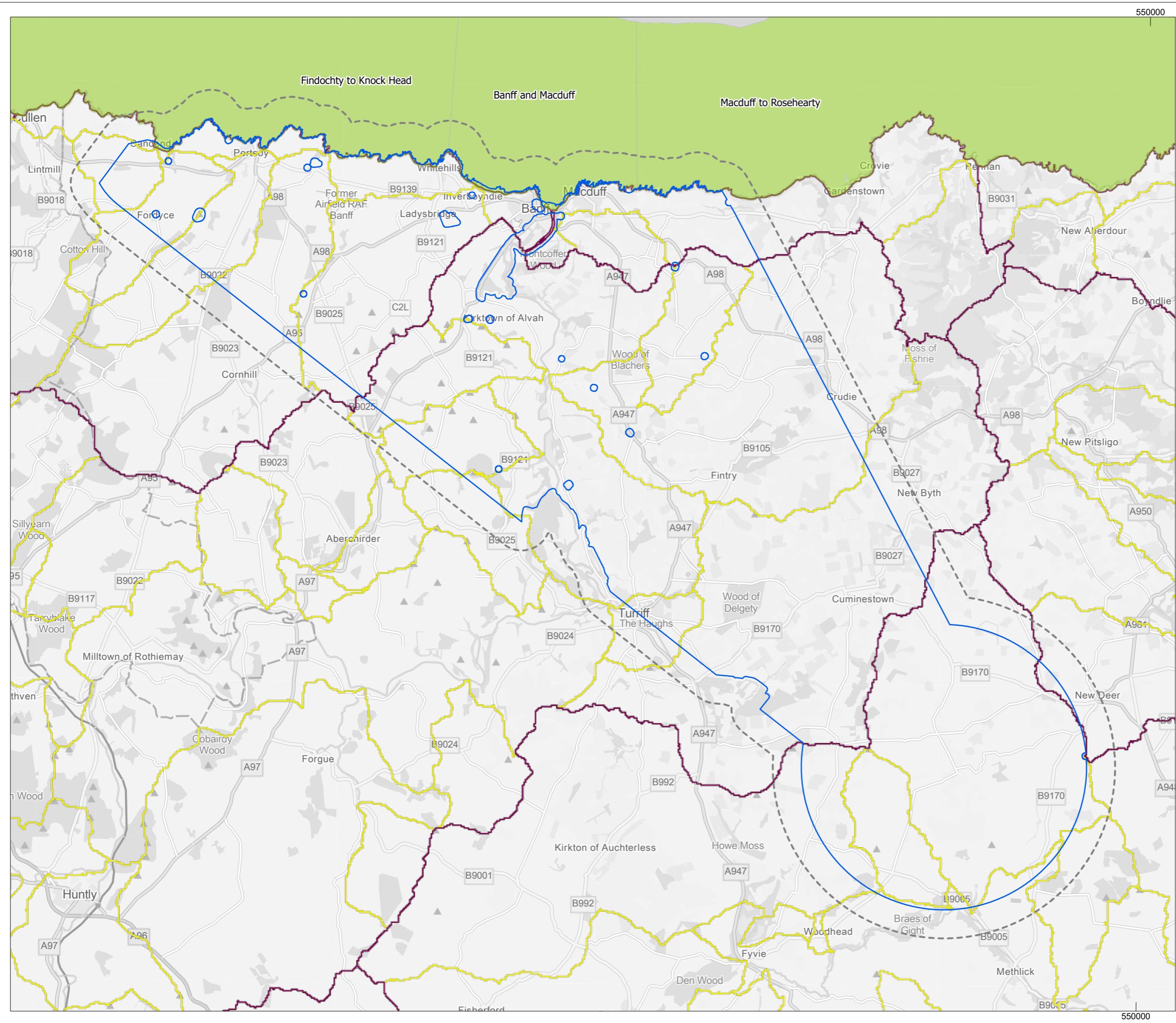
CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
CHAL	MBRE	AMIT
Date: 11/10/2022	Revision: 03	
REF: UKCAL1_ARP_WNF_ENV_MAP_00009		

Figure 10.1
Surface Water Features

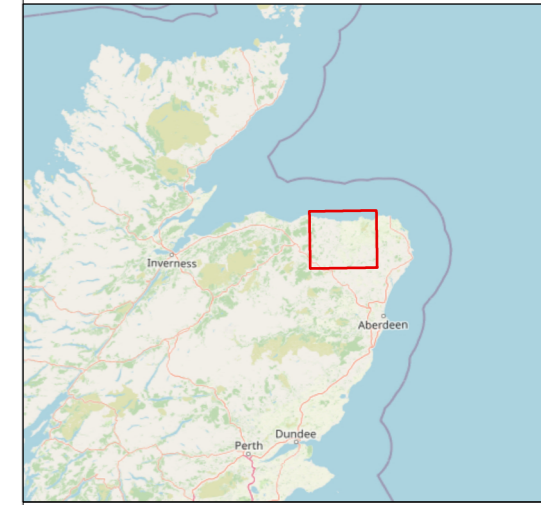
CALEDONIA
Offshore Wind Farm

OW
OCEAN WINDS



Onshore Scoping Area
 Onshore Scoping Area 1km Buffer
Catchment Type
 Main river and coastal catchments
 River and loch waterbody nested catchments
Coastal Hydrography Status
 Good / Potential

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri Contains SEPA data © Scottish Environment Protection Agency and database right [2022]. All rights reserved.



Scale at A3: 1:125,000
 0 2.5 5 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
CHAL	MBRE	AMIT
Date: 11/10/2022		Revision: 02
REF: UKCAL1_ARP_WNF_ENV_MAP_00010		

Figure 10.2
WFD Surface Water Bodies



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 11

Geology, Soils and Contaminated Land

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	11-5
11 GEOLOGY, SOILS AND CONTAMINATED LAND	11-6
11.1 INTRODUCTION	11-6
11.2 LEGISLATIVE AND POLICY CONTEXT	11-6
11.3 STUDY AREA	11-6
11.4 BASELINE ENVIRONMENT.....	11-6
11.4.2 Superficial Geology	11-6
11.4.3 Bedrock Geology	11-7
11.4.4 Geologically Designated Sites	11-7
11.4.5 Mineral Resources.....	11-7
11.4.6 Carbon and Peatland	11-8
11.4.7 Contaminated Land	11-8
11.5 ASSESSMENT METHODOLOGY	11-8
11.6 EMBEDDED MITIGATION	11-9
11.7 POTENTIAL IMPACTS	11-10
11.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	11-10
11.9 POTENTIAL SECONDARY MITIGATION	11-10
11.10 PROPOSED SCOPE	11-11
11.11 CONSULTATION	11-11
11.12 QUESTIONS TO CONSULTEES.....	11-11
11.13 REFERENCES	11-12

List of Figures

FIGURE 11.1: SUPERFICIAL GEOLOGY

FIGURE 11.2: BEDROCK GEOLOGY (2 SHEETS)

FIGURE 11.3: GEOLOGY AND SOIL CONSTRAINTS

List of Tables

TABLE 11.1: PROPOSED SCOPE..... 11-11

Acronyms and Abbreviations

BS	British Standards
BSI	British Standards Institution
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
EIA	Environmental Impact Assessment
GCR	Geological Conservation Review
LCRM	Land Contamination Risk Management
LDP	Local Development Plan
MLWS	Mean Low Water Spring
OnTI	Onshore Transmission Infrastructure
PPE/RPE	Personal Protective Equipment / Respiratory Protective Equipment
RAF	Royal Air Force
SEPA	Scottish Environment Protection Agency
SSSI	Sites of Special Scientific Interest

11 Geology, Soils and Contaminated Land

11.1 Introduction

11.1.1.1 This chapter of the Onshore Scoping Report identifies the Geology, Soils and Contaminated Land receptors of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

11.1.1.2 This Chapter is supported by the following figures:

- Figure 11.1: Superficial Geology;
- Figure 11.2: Bedrock Geology; and
- Figure 11.3: Geology and Soil Constraints.

11.2 Legislative and Policy Context

11.2.1.1 The following policies and best practice guidance have been considered during the scoping exercise, and will be used to inform the Environmental Impact Assessment (EIA) :

- Aberdeenshire Local Development Plan (LDP) 2017¹;
- Aberdeenshire (Proposed) LDP 2022²;
- Code of Practice for ground investigations British Standards (BS) 5930:2015³ (British Standards Institution (BSI), 2015);
- Construction Industry Research and Information Association (CIRIA) C552 Contaminated Land Risk Assessment⁴; and
- Environment Agency: Land Contamination Risk Management⁵ (Environment Agency, 2020) (LCRM).

11.3 Study Area

11.3.1.1 The Geology, Soils and Contaminated Land study area within this Scoping Chapter, is defined by the Onshore Scoping Area, with a 100m buffer applied in relation to potential impacts and receptors associated with contaminated land. The study area is shown on Figures 11.1 to 11.3.

11.3.1.2 The study area will be refined for the Environmental Impact Assessment Report (EIAR) following the refinement of the Onshore Transmission Infrastructure (OnTI) and the identification of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site. A 100m buffer will be applied to these areas and will form the basis of the EIAR study area.

11.4 Baseline Environment

11.4.1.1 A desk-based study has been undertaken to provide an initial understanding of the baseline environment.

11.4.2 Superficial Geology

11.4.2.1 Glacial till (diamicton) is mapped at the surface across the majority of the Onshore Scoping Area. Extensive glaciofluvial deposits are mapped in the northern central zone of the Onshore Scoping Area around Macduff and Whitehills, and also in vicinity of watercourses such as the Burn of Boyne, Burn of Durn, The Soy, and the River Deveron. Glaciolacustrine deposits are shown in the north-west of the Onshore Scoping Area.

11.4.2.2 Alluvium is shown locally in vicinity of current watercourses. Marine deposits including raised beach deposits and blown sand are present in coastal areas. Shallow rock, peat and head/hillwash deposits are shown locally in areas of high ground.

11.4.2.3 The Superficial Geology of the Onshore Scoping Area is shown on Figure 11.1.

11.4.3 Bedrock Geology

11.4.3.1 Bedrock formations within the Onshore Scoping Area are variable, including sedimentary, metamorphic and igneous rock types. Metamorphic rocks cover the greatest geographical extent within the Onshore Scoping Area, and include pelite, psammite, quartzite and meta-limestone lithologies.

11.4.3.2 Conglomerate, sandstone, siltstone and mudstone rock of the Old Red Sandstone Formation are present in the south of the Onshore Scoping Area. Intrusive igneous rocks (felsic to mafic) are present locally in the north of the Onshore Scoping Area.

11.4.3.3 The Bedrock Geology of the Onshore Scoping Area is shown on Figure 11.2.

11.4.4 Geologically Designated Sites

11.4.4.1 The majority of the coastline within the Onshore Scoping Area lies within one of two geological Sites of Special Scientific Interest (SSSIs), shown on Figure 11.3.

11.4.4.2 Cullen to Stake Ness Coast SSSI is designated for features of both geological and biological interest. Features of geological interest include structural geology, metamorphic geology, quaternary geology and geomorphology. Within the Onshore Scoping Area, this SSSI extends from Sandend bay to Whitehill, comprising a near-continuous stretch of coastline between these points.

11.4.4.3 Whitehills to Melrose Coast SSSI is designated for features of geological interest, specifically structural and metamorphic geology. Within the Onshore Scoping Area, this SSSI comprises discontinuous sections of coastline between Whitehills and Melrose.

11.4.4.4 The majority of the coastline within the Onshore Scoping Area also lies within the Cullen to Troup Head Geological Conservation Review (GCR) site, also shown on Figure 11.3. The GCR site extends along the full length of the coastline within the study area, with localised gaps in vicinity of coastal towns such as Banff and Macduff.

11.4.4.5 Away from the coastline, there are no geologically designated sites within the Onshore Scoping Area.

11.4.5 Mineral Resources

11.4.5.1 The Aberdeenshire LDP (2017) and the Aberdeenshire (Proposed) LDP 2022⁶ contains details on Areas of Mineral Safeguarding, and Areas of Search for Minerals Development.

11.4.5.2 One Area of Mineral Safeguarding is present within the Onshore Scoping Area. This comprises the area around and existing quarry at Cottonhill (east of Macduff), where metamorphic rock from the Macduff Formation is extracted for crushed rock aggregate, shown on Figure 11.3.

11.4.5.3 Nine areas of search for mineral development are present within the Onshore Scoping Area. These are spread across the Onshore Scoping Area, and all comprise sand and gravel reserves.

11.4.6 Carbon and Peatland

11.4.6.1 The James Hutton and Scottish Natural Heritage mapping⁷ (James Hutton Institute, 2016) shows the majority of the Onshore Scoping Area comprises Class 0 mineral soil, where peatland is not typically found, however small areas of peat and carbon-rich soils are present within the Onshore Scoping Area. This includes a limited extent of Class 1 Nationally important carbon-rich soils in the south of the Onshore Scoping Area, within the Onshore Substation Scoping Area.

11.4.7 Contaminated Land

11.4.7.1 Scottish Environment Protection Agency (SEPA) records⁸ (SEPA, n.d.,) indicate two landfill sites within the Onshore Scoping Area: an inert waste landfill site located to the south-east of Turriff and not currently operational; and a non-hazardous waste landfill site located between Whitelills and Banff, also not currently operational.

11.4.7.2 A former WW2 airfield (Royal Air Force Banff) is present within the Onshore Scoping Area, between Portsoy and Banff. The Onshore Scoping Area is not within a region where heavy industry is understood to have occurred historically.

11.4.7.3 Anthropogenic soils and potentially contaminated land may be encountered within the Onshore Scoping Area in vicinity of urban areas, roads and railways, energy infrastructure, and other developments. Contamination may also be present in relation to agricultural activities across the Onshore Scoping Area.

11.5 Assessment Methodology

11.5.1.1 A detailed geotechnical and geo-environmental desk-based study will be carried out to establish the characteristics of the EIAR Area, building on the features and receptors already identified in the baseline. This will include:

- Review of published geological maps, memoirs, and previous ground investigation data (if available) to establish the ground conditions within the EIAR study area;
- Review of historical mapping to identify potential sources of contaminated land arising from historic land-uses and activities;
- Consultation to obtain information on geology, soils, and contaminated land within the EIAR study area;

- Review of environmental sensitivity databases and mapping to identify receptors or constraints relating to geology, soils and contaminated land within the EIAR study area; and
- Site walkover / reconnaissance survey to supplement the findings of the desk-based review, through further investigation of identified constraints and receptors.

11.5.1.2 The above information will inform the characterisation of the existing environment in relation to geology, soils and contaminated land.

11.5.1.3 The impact assessment of the onshore development works on geology and soils shall be undertaken using the methodology outlined in Chapter 4.

11.5.1.4 The impact assessment of all phases of the onshore development works on contaminated land shall be undertaken using guidance within CIRIA C552 ¹ to classify the likelihood of pollution linkages, the magnitude of potential harm, and the resulting risk and significance of impacts from contaminated land during each phase of the works.

11.6 Embedded Mitigation

11.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment.

11.6.1.2 Embedded mitigation which applies to geology, soils and contaminated land will include the implementation of good practice measures during construction, operation and decommissioning of the OnTI.

11.6.1.3 Adverse effects on geology and soils shall primarily be managed during the design phase of the OnTI, through selection of Landfall Sites, Onshore Cable Corridor and Onshore Substation site and designs which avoid or minimise overall impacts on geology, soils and other environmental receptors. Opportunities to offset impacts and enhance geological features will also be explored, such as through improved access to exposures.

11.6.1.4 The presence and nature of contaminated land and potential risks to human health shall be assessed and managed in line with guidance listed in Section 11.2 and reported within the Geology, Soils and Contaminated Land Chapter of the EIAR. This shall comprise a phased approach to the investigation of contaminated land, including desk-based study, ground investigation, laboratory analysis, geoenvironmental risk assessment, re-use and waste classification of soils, and, if required, remediation and verification. A further discussion of potential risks to human health as a result of ground conditions and contaminated land is provided in Chapter 17: Human Health.

11.6.1.5 Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

11.7 Potential Impacts

11.7.1.1 The following potential impacts on geology, soils and contaminated land are identified in relation to the construction, operation and decommissioning of the Proposed Development:

- Direct and indirect effects on statutory (SSSI) and non-statutory (GCR) sites designated for their geological interest through partial/full removal, defacement or obscuring of rock outcrops/landforms;
- Impacts upon human health of site users and adjacent site occupiers as a result of works in potentially contaminated land;
- Pollution/contamination of soils from construction, operation or decommissioning activities;
- Sterilisation of mineral resource through developments at surface, or prevention of extraction through removal of access to mineral resource; and
- Physical damage to peat or carbon-rich soils, resulting in loss of carbon storage.

11.7.1.2 Potential impacts on hydrology and hydrogeology are covered in Chapter 10, which includes impacts on surface water bodies, aquifers, and private water supplies/abstractions arising from pollution/contamination from the Proposed Development. These impacts are not included in the scope of the 'Geology, Soils, and Contaminated Land' assessment.

11.7.1.3 Potential impacts on agriculture and land use are covered in Chapter 6, including impacts on agricultural soils. These impacts are not included in the scope of the 'Geology, Soils, and Contaminated Land' assessment.

11.8 Potential Cumulative and In-Combination Impacts

11.8.1.1 The cumulative impact assessment will consider other proposed developments in vicinity of the onshore works which may be constructed at the same time. Other developments to be included in the cumulative assessment will be identified and agreed with statutory consultees following the methodology described in Chapter 4: The EIA Process.

11.8.1.2 The in-combination assessment will consider where the onshore works and offshore works will interface at the Landfall Site, and where designated geological sites have been identified through the baseline study on the landward and seaward sides of the MLWS.

11.8.1.3 In-combination effects of the Proposed Development between Geology, Soils and Contaminated Land and other EIA topics will also be reported in the EIAR where applicable.

11.9 Potential Secondary Mitigation

11.9.1.1 Following Secondary Mitigation, residual impacts on geology and soils will be managed during construction through selection of suitable construction methodologies, and through procedures detailed in an Outline Construction Environmental Management Plan (CEMP). The Outline CEMP will be produced and included alongside the EIAR to support the planning application in principle. The

Outline CEMP will then be developed further on submission of the detailed full planning application at a later date.

- 11.9.1.2 Following Secondary Mitigation, measures to reduce or prevent adverse effects arising from contaminated land during construction shall be detailed in an Outline CEMP and may include procedures for dust suppression, safe storage of fuels and other contaminative materials, management of drainage and run-off, and provision of welfare and Personal Protective Equipment / Respiratory Protective Equipment (PPE/RPE) for site operatives as appropriate.

11.10 Proposed Scope

- 11.10.1.1 Potential impacts have been identified which may occur during the construction, operation and decommissioning phases of the Proposed Development. These impacts are outlined in

11.10.1.2 Table 11.1.

Table 11.1: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Geological sites (SSSIs and GCRs)	✓	×	×
Peat and Carbon-rich soils	✓	×	×
Mineral Resources	✓	×	×
Impact on human-health from Contaminated Land	✓	✓	✓
Pollution/contamination of soils as a result of the Proposed Development	✓	✓	✓

11.11 Consultation

- 11.11.1.1 The following consultees will be approached for information to inform the EIA.

- SEPA – for information on contaminated land;
- NatureScot – for information on designated geological sites, peat and carbon-rich soils; and
- Aberdeenshire Council – for information on contaminated land, mineral resources, and previous ground investigations.

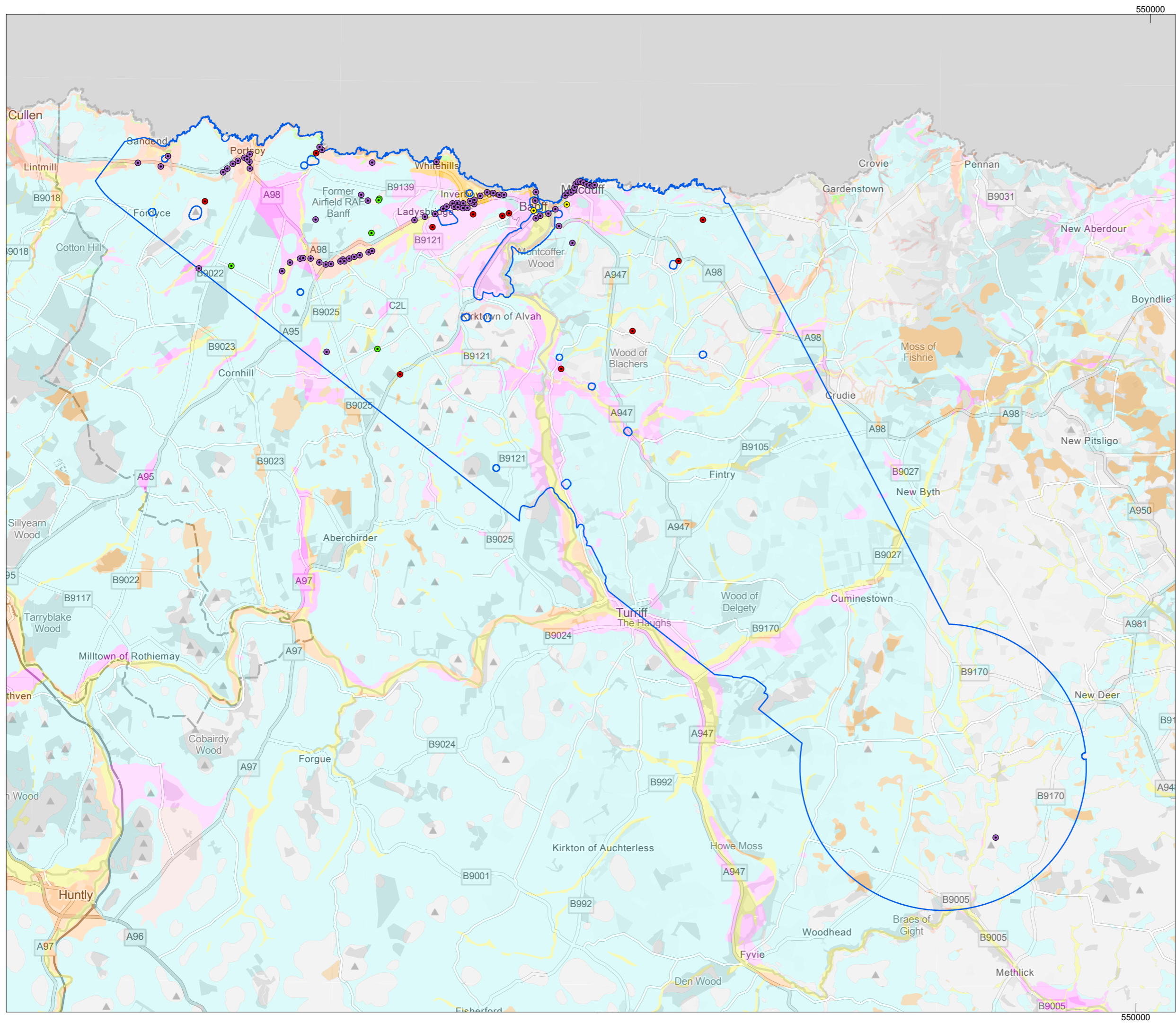
11.12 Questions to Consultees

- 11.12.1.1 The following questions are posed to consultees to frame and focus responses to the Geology, Soils and Contaminated Land scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree that receptors and potential impacts have been identified for Geology, Soils, and Contaminated Land?
- Do you agree with the impacts which have not been included in the EIA for Geology, Soils, and Contaminated Land?
- Do you agree with the proposed approach to assessment?

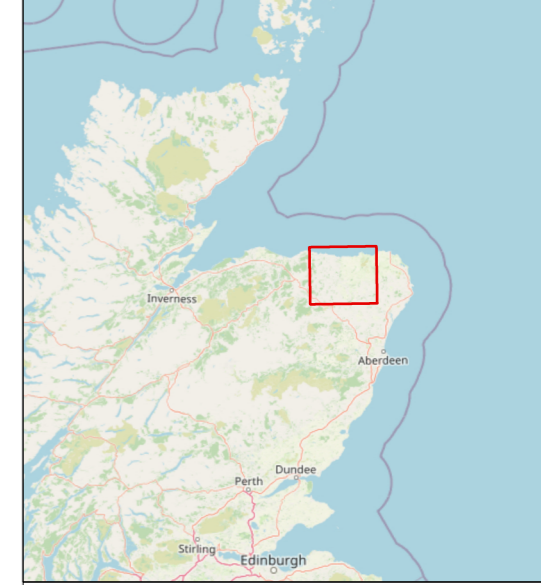
11.13 References

- ¹ Aberdeenshire Council (2017) Local Development Plan. Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/> [Accessed 30 08 2022]
- ² Aberdeenshire Council (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]
- ³ British Standards Institute (BSI) (2015) BS 5930:2015 - Code of Practice for Ground Investigations
- ⁴ CIRIA (2001) C552: Contaminated Land Risk Assessment, A guide to good practice 2001.
- ⁵ Environment Agency (2020) Land Contamination Risk Management (LCRM)
- ⁶ Aberdeenshire Council (2022), *(Proposed) Local Development Plan*, Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]
- ⁷ James Hutton Institute (2016), "Carbon and peatland 2016 map,". Available at: https://map.environment.gov.scot/Soil_maps/?layer=10. [Accessed 30 08 2022]
- ⁸ Scottish Environment Protection Agency (n.d.,) Landfill Sites and Capacity. Available at: <https://www.sepa.org.uk/data-visualisation/waste-sites-and-capacity-tool/>. [Accessed 30 08 2022]



- Onshore Scoping Area
- Artificial Ground - Approximate locations
 - Infilled Ground
 - Landscaped Ground
 - Made Ground
 - Worked Ground
- Superficial Deposits
 - Alluvium
 - Glacial Till
 - Glaciofluvial Deposits
 - Raised Marine Deposits
 - Peat
 - Kirk Burn Silt Formation

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri Contains British Geological Survey materials © UKRI [2022].



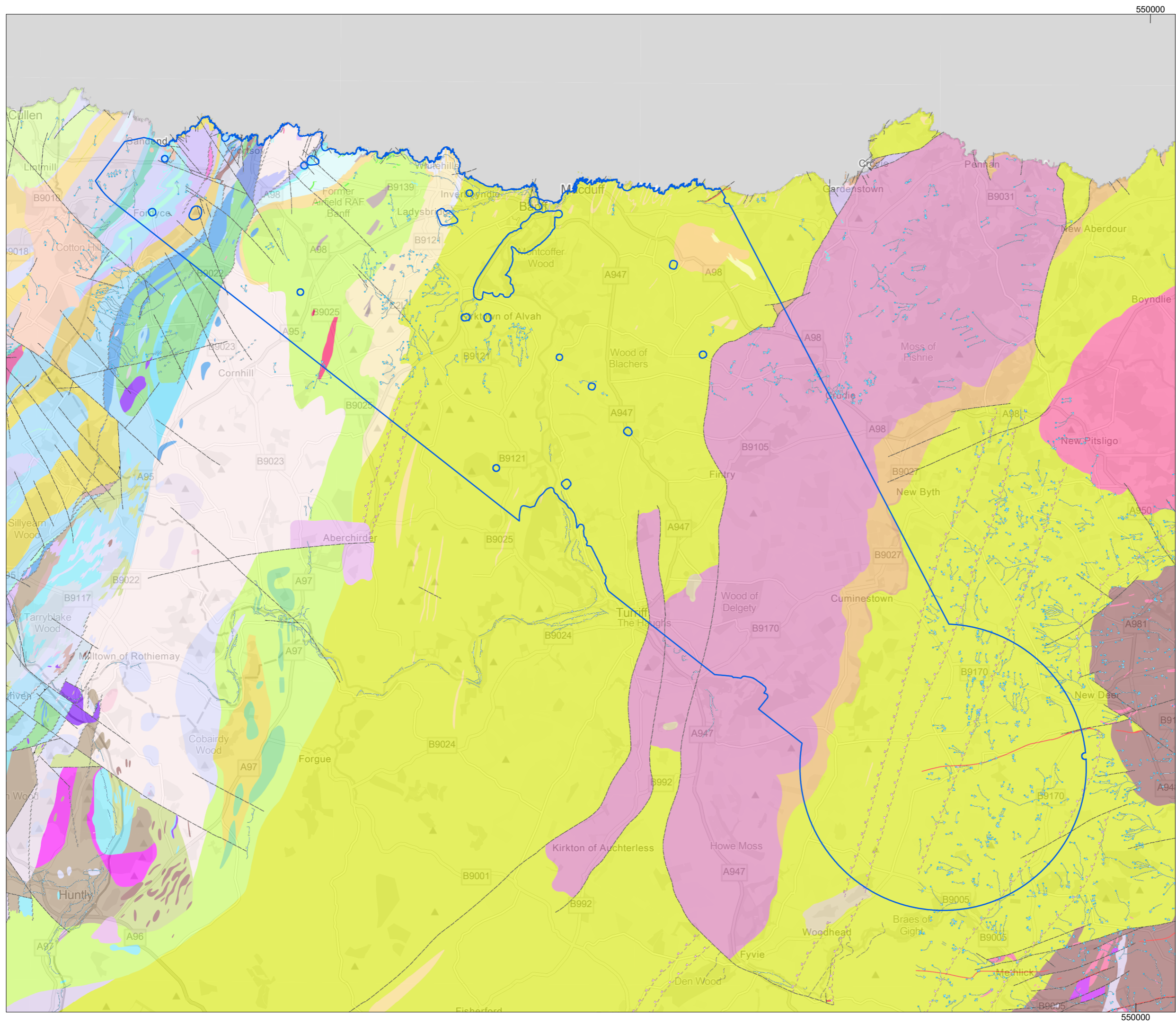
Scale at A3: 1:125,000

0 2.5 5 km

CRS: British National Grid (EPSG:27700)


Produced:	Reviewed:	Approved:
CHAL	JGIL	AMIT
Date: 11/10/2022		Revision: 02
REF: UKCAL1_ARP_WNF_ENV_MAP_00013		

Figure 11.1
Superficial Geology



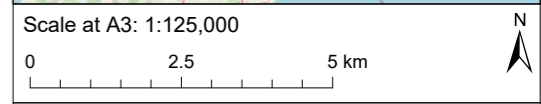
550000

550000

 Onshore Scoping Area

*Bedrock symbology can be found on Sheet 2 of 2.

© OpenStreetMap (and) contributors, CC-BY-SA. Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri/Contains British Geological Survey materials © UKRI [2022]



CRS: British National Grid (EPSG:27700)		
Produced:	Reviewed:	Approved:
CHAL	JGIL	AMIT
Date: 11/10/2022	Revision: 02	
REF: UKCAL1_ARP_WNF_ENV_MAP_00014		

Figure 11.2
Sheet 1 of 2
Bedrock Geology

BGS 1:50k Linear Features

- Mineral Vein
- ←● Glacial Meltwater Channel
- Fault Unspecified
- - - Metamorphic Alteration Zone
- ~ ~ Shear Zone

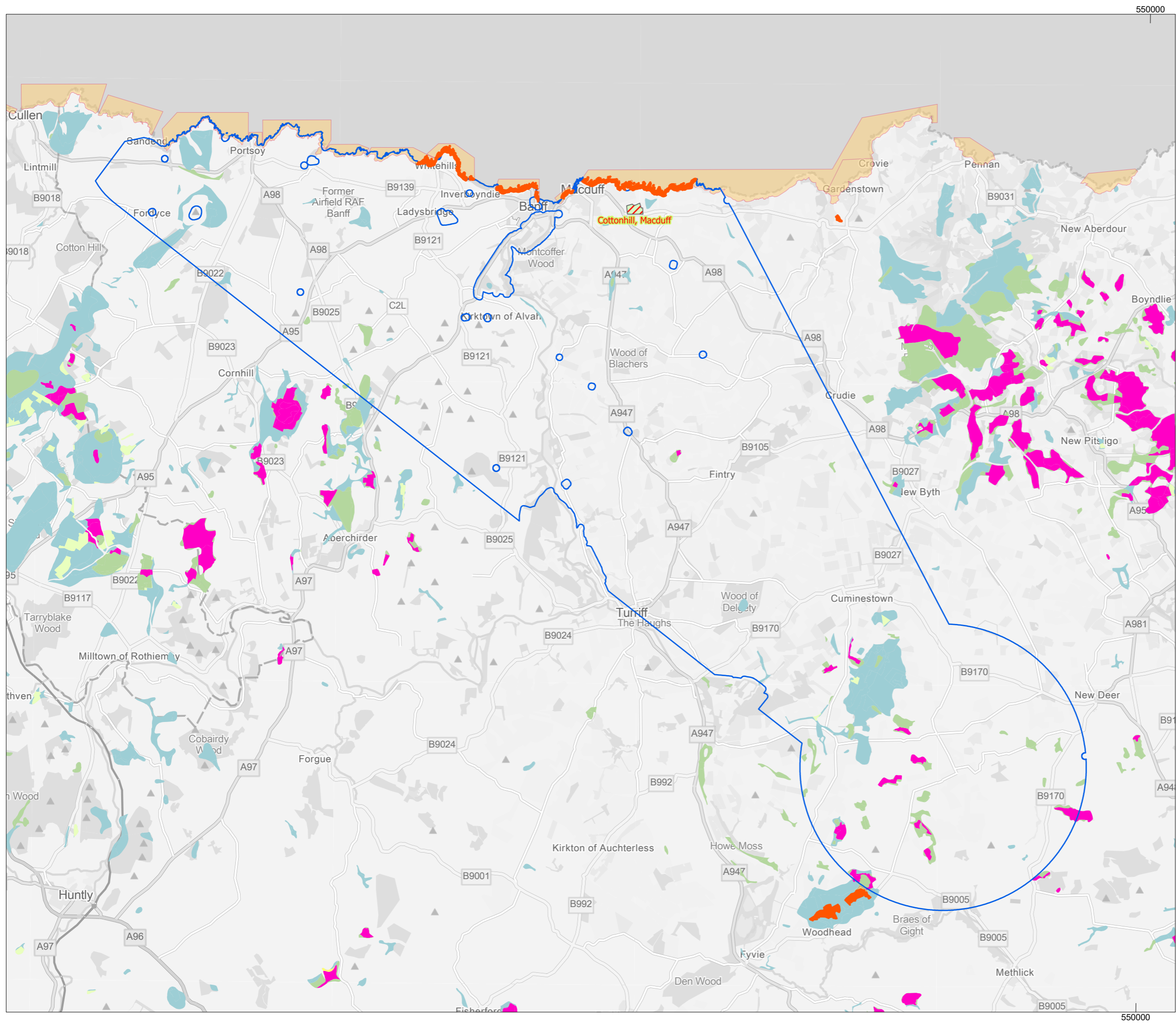
BGS 1:50k Bedrock

- Whyntie Brae Limestone Member - Calcsilicate-rock
- Cowhythe Psammite Formation - Migmatitic psammite with migmatitic semipelite
- Cairns Of Ord Intrusion - Microgranite
- North Britain Late Carboniferous Tholeiitic Suite - Quartz-microgabbro.
- Unnamed Metamorphosed Igneous Rocks, Pre-caledonian To Caledonian
- Whitehills Grit Formation - Psammite, gritty
- Whitehills Grit Formation - Psammite and pelite
- Knock Head Grit Member - Semipelite, schistose, and psammite
- Knock Head Grit Member - Psammite
- Macduff Formation - Psammite, gritty
- Vein-quartz Of Unknown Age and Affinity
- Macduff Formation - Micaceous psammite, semipelite and pelite
- Crovie Sandstone Group
- Gardenstown Conglomerate Formation
- Boyne Castle Limestone Member - Metalimestone and calcsilicate-rock
- Old Hythe Semipelite Member - Semipelite and psammite
- Cowhythe Psammite Formation - Migmatitic psammite with migmatitic semipelite
- Portsoy Igneous Complex - Ultramafic-rock and gabbroic-rock
- Portsoy Igneous Complex - Gabbroic rock magnetic
- Portsoy Igneous Complex - Serpentinite
- Portsoy Igneous Complex - Olivine-gabbro and norite
- Castle Point Pelite Formation - Pelite and semipelite
- Durn Hill Quartzite Formation - Quartzite and psammite
- Arnbath Psammite Formation - Psammite and semipelite
- Boggierow Intrusion - Metagranite foliated
- Portsoy Igneous Complex - Metagabbro sheared
- Fordyce Limestone Formation - Pelite and semipelite
- Limehillock Limestone Member - Metacarbonate-rock
- Tarnash Phyllite and Limestone Formation
- Tarnash Phyllite and Limestone Formation - Metalimestone and calcsilicate-rock
- Redhythe Quartzite Member - Quartzite
- Old Red Sandstone Supergroup - Breccia
- Mortlach Graphitic Schist Formation - Pelite graphitic
- Sandend Harbour Limestone Member - Pelite and metalimestone
- Garron Point Tremolitic Flag Member - Semipelite calcareous

Produced:	Reviewed:	Approved:
CHAL	JGIL	AMIT
Date: 9/14/2022		Revision: 01
REF: UKCAL1_ARP_WNF_ENV_MAP_00019		

Figure 11.1
Sheet 2 of 2
Bedrock Geology Legend





Onshore Scoping Area
Geological SSSI
Geological Conservation Review Sites
Mineral Safeguarding Areas

Peat Class

- 1
- 2
- 3
- 4
- 5

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri Contains NatureScot information licensed under the Open Government Licence v3.0



Scale at A3: 1:125,000

0 2.5 5 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
CHAL	JGIL	AMIT
Date: 11/10/2022	Revision: 02	
REF: UKCAL1_ARP_WNF_ENV_MAP_00015		

Figure 11.3
Geology and Soil Constraints

CALEDONIA Offshore Wind Farm **OW** OCEAN WINDS



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 12

Air Quality

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	12-5
12 AIR QUALITY	12-7
12.1 INTRODUCTION	12-7
12.2 LEGISLATIVE AND POLICY CONTEXT	12-7
12.3 STUDY AREA	12-8
12.4 BASELINE ENVIRONMENT.....	12-8
12.5 SCOPING ASSESSMENT METHODOLOGY	12-8
12.6 EMBEDDED MITIGATION	12-8
12.6.2 Proposed Mitigation for Communications	12-9
12.6.3 Proposed Mitigation for Site Management:.....	12-9
12.6.4 Proposed Mitigation for Preparing and Maintaining the Site	12-9
12.6.5 Proposed Mitigation for Construction Site Operations	12-10
12.6.6 Proposed Mitigation Specific to Earthworks	12-10
12.6.7 Proposed Mitigation Specific to Construction Activities.....	12-10
12.6.8 Proposed Mitigation Specific to Track-out.....	12-11
12.6.9 Proposed Mitigation for Monitoring	12-11
12.7 POTENTIAL IMPACTS	12-11
12.7.2 Construction	12-11
12.7.3 Operation	12-14
12.7.4 Decommissioning	12-14
12.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	12-14
12.9 POTENTIAL SECONDARY MITIGATION	12-14
12.10 PROPOSED SCOPE	12-14
12.11 QUESTIONS TO CONSULTEES.....	12-15
12.12 REFERENCES	12-16

List of Figures

FIGURE 12.1: AIR QUALITY SCOPING ASSESSMENT STUDY AREA

List of Tables

TABLE 12.1: PROPOSED SCOPE..... 12-14

Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
APR	Annual Progress Report
AQMA	Air Quality Management Area
AWI	Ancient Woodland Inventory
CEMP	Construction Environment Management Plan
DEFRA	Department for the Environment and Rural Affairs
EIA	Environmental Impact Assessment
EPUK	Environmental Protection United Kingdom
EU	European Union
HDV	Heavy Duty Vehicle
HRA	Habitats Risk Assessment
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
km	Kilometres
m	Metres
MLWS	Mean Low Water Springs
NO ₂	Nitrogen Dioxide
NRMM	Non-Road Mobile Machinery
OnTI	Onshore Transmission Infrastructure
PM ₁₀	Particulate Matter up to 10 microns in diameter
PM _{2.5}	Particulate Matter up to 2.5 microns in diameter

SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WHO	World Health Organisation
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre

12 Air Quality

12.1 Introduction

- 12.1.1.1 This chapter of the Onshore Scoping Report identifies the Air Quality receptors of relevance to the Proposed Development. This chapter also presents an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).
- 12.1.1.2 On the basis that impacts for local air quality during the operational phase can be excluded and that the risk of dust impacts on amenity, human health and ecological sites during the construction phase can be made negligible with the use of embedded mitigation measures, it is proposed that effects on air quality are scoped out of the Environmental Impact Assessment (EIA). The justification for this is included in the scoping assessment in this Onshore Scoping Report Chapter.
- 12.1.1.3 This Chapter is supported by Figure 12.1: Air Quality Scoping Assessment Study Area.

12.2 Legislative and Policy Context

- 12.2.1.1 The UK's legislation and regulatory regime, along with national, regional and local planning policy play a key role in the prevention, control and minimisation of atmospheric emissions that are potentially harmful to human health and the environment. Air Quality Standards (AQS) are used as assessment criteria for determining the significance of any potential changes in local air quality resulting from development proposals.
- 12.2.1.2 The scoping assessment has been undertaken in accordance with the following national and Scottish legislation, policy documents and guidance:
- The Air Quality Standards Regulations¹;
 - Air Quality (Scotland) Amendment Regulations 2016²
 - The National Planning Framework 3 for Scotland (NPF3)³;
 - The Air Quality Strategy for England, Scotland, Wales and Northern Ireland⁴;
 - The Environment Act 1995⁵;
 - Local Air Quality Management Technical Guidance LAQM.TG (16)⁶
 - The Scottish Government Cleaner Air for Scotland Strategy 2⁷ (CAFS);
 - The Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction⁸;
 - The IAQM & Environmental Protection UK (EPUK) Land-Use Planning & Development Control: Planning for Air Quality Guidance⁹;
 - Policy P4 of the Local Development Plan 2017¹⁰ – “Any proposed development which could have a significant detrimental impact on air quality, including the exacerbation of existing air quality issues, must provide appropriate mitigation measures.”
 - Aberdeenshire (Proposed) LDP 2022¹¹;

- Air Quality Annual Progress Report (APR)¹², (Aberdeenshire Council, 2021).

12.3 Study Area

12.3.1.1 The air quality study area is defined by the Onshore Scoping Area as shown on Figure 12.1.

12.3.1.2 In accordance with the IAQM guidance (Holman *et al*, 2014), the sensitive receptors that need to be considered are human receptors and ecological receptors within 350m and 50m respectively, of the boundary of the construction activities. Since the Landfall Site, Onshore Substation and Onshore Cable Corridor are not yet finalised, the scoping assessment has considered the potential for exposure to dust emissions at human and ecological receptors within the Onshore Scoping Area.

12.4 Baseline Environment

12.4.1.1 A desk-based study has been undertaken to collect data on the baseline environment using the following sources of information:

- Aberdeenshire Council, Air Quality Management Areas (AQMA) map¹³;
- Aberdeenshire Council, Annual Progress Report (APR) (Aberdeenshire Council, 2021); and Scottish Government¹⁴; and
- Department for Environment Food and Rural Affairs (DEFRA) background concentrations maps¹⁵ for nitrogen dioxide (NO₂) and particulate matter (PM₁₀) and (PM_{2.5}).

12.4.1.2 There are no designated AQMAs located within the Aberdeenshire Council administrative area.

12.4.1.3 As part of its LAQM obligations, Aberdeenshire Council undertakes monitoring of air quality at a number of locations across the Local Authority area. There are no monitoring sites near to the study area.

12.4.1.4 The baseline concentrations for the study area have therefore been taken from the Scottish Government and DEFRA background concentration maps for the 1km x 1km grid squares that cover the study area.

12.5 Scoping Assessment Methodology

12.5.1.1 The potential effects for local air quality have been screened against criteria in the guidance notes detailed in Section 12.2.

12.6 Embedded Mitigation

12.6.1.1 This Section details the embedded construction phase mitigation to reduce the potential impacts of dust and emissions from construction activities on air quality.

12.6.1.2 An Outline Construction Environmental Management Plan (CEMP) will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further on submission of the detailed full planning application at a later date. The Outline CEMP will include a specific Dust and Air Quality Management Plan (or plans for individual activities/areas) to minimise the generation and potential impacts of dust emissions on receptors relevant for human health, amenity and ecology.

12.6.1.3 The Dust and Air Quality Management Plan within the Outline CEMP will include best practice measures in accordance with the IAQM recommended guidance (Holman *et al*, 2014) proportionate to the likely impacts. The main measures for dust management to be included are summarised in Section 12.6.2 to Section 12.6.8.

12.6.2 Proposed Mitigation for Communications

12.6.2.1 As Part of a wider Proposed Development communication plan the contractor will be required to:

- Undertake targeted community engagement before work commences on the Proposed Development.
- During construction activities, display the name and contact details of person(s) accountable for air quality and dust issues on the Proposed Development.
- Display the head or regional office contact information.

12.6.3 Proposed Mitigation for Site Management:

12.6.3.1 In relation to management of the Proposed Development, the contractor will be required to:

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to Aberdeenshire Council when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.
- Hold regular liaison meetings with any other high-risk construction sites within 500m of the Proposed Development boundary to ensure plans are co-ordinated and dust and particulate emissions are minimised with particular attention to off-site transport/deliveries which may use the same strategic road network routes.

12.6.4 Proposed Mitigation for Preparing and Maintaining the Site

12.6.4.1 In relation to preparing and maintaining the site the contractor will be required to:

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period, e.g., fine screen fencing or temporary construction tent;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as

possible, unless being re-used on the Proposed Development; and

- Cover, seed or fence stockpiles to prevent wind whipping.

12.6.5 Proposed Mitigation for Construction Site Operations

12.6.5.1 In relation to construction site operations the contractor will be required to:

- Ensure all Non-Road Mobile Machinery (NRMM) is compliant with the engine emission regulations in place at the time of use on site;
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event, using wet cleaning methods; and
- Prohibit bonfires and burning of waste materials.

12.6.6 Proposed Mitigation Specific to Earthworks

12.6.6.1 In relation to earthworks the contractor will be required to:

- Re-vegetate earthworks and exposed areas/soils stockpiles to stabilise surfaces as soon as practicable;
- Use hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and
- Only remove the cover in small areas during work and not all at once.

12.6.7 Proposed Mitigation Specific to Construction Activities

12.6.7.1 In relation to construction activities the contractor will be required to:

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate control measures are in place;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

12.6.8 Proposed Mitigation Specific to Track-out

12.6.8.1 In relation to track-out the contractor will be required to:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require a sweeper being continuously in use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Record all inspections of haul routes and any subsequent action in a site logbook; and
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

12.6.9 Proposed Mitigation for Monitoring

12.6.9.1 In relation to monitoring the contractor will be required to:

- Carry out regular site inspections to monitor compliance with the Dust and Air Quality Management Plan, record inspection results, and make an inspection log available to Aberdeenshire Council when asked;
- Increase frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; and
- Where possible commence baseline monitoring at least three months before work.

12.7 Potential Impacts

12.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.

12.7.2 Construction

12.7.2.1 The potential impacts associated with the construction phase of the Proposed Development are the effects of:

- The generation of dust and particulates (e.g., from earth moving, open cut trenching or trenchless techniques, transport and storage of dry materials) potentially having an adverse (smothering) impact on dust sensitive ecological receptors, effects on human health and nuisance caused by dust soiling of surfaces at residential properties; and
- Exhaust emissions from construction traffic and NRMM (plant and equipment) having the potential to increase local ambient concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) and impact human health and ecological receptors.

12.7.2.2 The IAQM guidance (Holman *et al*, 2014) states that a dust risk assessment will be required when there is a human receptor within 350m, or an ecological receptor within 50m, of the boundary of the construction activities. Since the Landfall Site, Onshore Substation and Onshore Cable Corridor are not yet finalised, the scoping assessment has considered the potential for exposure to dust emissions at human and ecological receptors within the Onshore Scoping Area.

Dust Impacts at Ecological Receptors

- 12.7.2.3 There are potential Landfall Sites adjacent to Sites of Special Scientific Interest (SSSI) along the coastline. There is therefore potential for construction activity related to the Landfall Site and Onshore Cable Corridor within 50m of an SSSI.
- 12.7.2.4 The Cullen to Stake Ness Coast SSSI is designated for geological features and biological features such as saltmarsh and heathland. The Whitehills to Melrose Coast SSSI is designated for its geological features. None of these features are sensitive to dust deposition, which in any case will be of short-term duration with completely reversible effects.
- 12.7.2.5 These SSSIs are therefore classed as low sensitivity ecological receptors in accordance with the IAQM guidance (Holman *et al*, 2014).
- 12.7.2.6 There is the potential for the Landfall Sites to be within or adjacent to the boundary of the Moray Firth Special Protection Area (SPA) designated for 11 species of birds (non-breeding). The SPA is not considered to be sensitive to habitats smothering due to short-term dust deposition, however this will be assessed as part of the Habitats Risk Assessment (HRA) Stage 1 screening assessment.
- 12.7.2.7 There are 113 Ancient Woodland Inventory (AWI) designations within the Onshore Scoping Area. In accordance with the IAQM guidance (Holman *et al*, 2014), AWIs are low sensitivity receptors to dust deposition impacts. The overall sensitivity of the area to dust soiling impacts is considered to be low when there are low sensitivity ecological receptors within 50m of an active area of construction. It will be the aim to ensure there are no AWIs within 50m of the Onshore Cable Corridor construction activities such that there is no risk of dust soiling impacts. Where this is not possible, it is considered that the best-practice measures included in the Dust and Air Quality Management Plan within the Outline CEMP, as outlined in Section 12.6, will provide the necessary prevention and mitigation such that the dust emission magnitude will be low and therefore the effects of dust soiling at AWIs will be negligible.
- 12.7.2.8 There are no other ecological designations within the Onshore Scoping Area.
- 12.7.2.9 Onshore Substation construction is a potential dust generating activity. There are no ecological designations within 50m of the substation Onshore Scoping Area.
- 12.7.2.10 Overall, the potential effects of construction dust on ecological receptors are considered to be negligible with the implementation of the mitigation measures outlined in Section 12.6.
- 12.7.2.11 It is proposed that assessment of dust soiling impacts at ecological receptors is scoped out of the EIA.

Dust Soiling Impacts at Residential Properties

- 12.7.2.12 All residential properties are considered to have a high sensitivity to dust deposition. The exact number of residential properties within the Onshore Scoping Area is not known and will be refined through identification of the Landfall Site, Onshore Cable Corridor and Onshore Substation Site. The construction area associated with the Proposed Development will be progressively moving location in phases. In accordance with the IAQM guidance (Holman *et al*, 2014) the sensitivity of the area to dust soiling impacts is medium when there are <10 high sensitivity receptors within 20m of an active area of construction, and low when there are <10 high sensitivity receptors between 20m-50m of active construction activities. It will be the aim to ensure there are no residential properties within 50m of the Proposed Development construction activities such that there is no risk of dust soiling impacts. Where this is not possible, it is considered that the best-practice measures included in the Dust and Air Quality Management Plan within the Outline CEMP, as outlined in Section 12.6, will provide the necessary prevention and mitigation such that the dust emission magnitude will be low and therefore the effects of dust soiling at residential properties during the construction phase will be negligible.
- 12.7.2.13 It is therefore proposed that the assessment of dust soiling impacts at residential receptors is scoped out of the EIA.

Human Health Impacts at Residential Properties

- 12.7.2.14 The exact number of properties within the study area is not yet known and will be refined through identification of the Landfall Site, Onshore Cable Corridor and Onshore Substation. In accordance with the IAQM guidance (Holman *et al*, 2014) the sensitivity of the area to human health impacts is low when there are <100 properties within 350m of active construction activities and the baseline PM₁₀ concentration is less than 14µg/m³. The average baseline PM₁₀ concentration across the Onshore Scoping Area is 10.1µg/m³. It will be the aim to ensure there are no residential properties within 50m of the Proposed Development construction activities such that there is no risk of dust soiling or human health impacts. Where this is not possible, it is considered that the best-practice measures included in the Dust and Air Quality Management Plan within the Outline CEMP, as outlined in Section 12.6, will provide the necessary prevention and mitigation such that the dust emission magnitude will be low and therefore the effects of dust on human health will be negligible.
- 12.7.2.15 The construction phase traffic will not exceed the IAQM guidance (EPUK & IAQM, 2017) of an increase of 500 light duty vehicles (LDVs) and/or 100 heavy duty vehicles (HDVs) as an Annual Average Daily Traffic (AADT) count on the local road network within 50m of any high sensitivity residential receptor.
- 12.7.2.16 It is considered that the best-practice measures included in the Dust and Air Quality Management Plan within the Outline CEMP, as outlined in Section 12.6, will provide the necessary prevention and mitigation of dust emissions such that the effects of construction dust on human health will be negligible.
- 12.7.2.17 It is therefore proposed that further assessment of human health impacts at residential receptors during the construction phase is scoped out of the EIA.

12.7.3 Operation

12.7.3.1 It is considered unlikely that the operational phase of the Proposed Development will have any impacts on local air quality due to a very low number of vehicle trips associated with operation and maintenance of the Proposed Development. It is not expected that any dust will be generated following completion of the construction works. Therefore, it is proposed that the assessment of operational impacts of the Proposed Development on air quality is scoped out of the EIA.

12.7.4 Decommissioning

12.7.4.1 It is recognised that industry best practice and legislation change over time, and it is therefore not possible to confirm a decommissioning strategy at this time.

12.7.4.2 Although individual pieces of equipment will be replaced as and when required, no major refurbishment works are currently envisaged during the design life. In the event of decommissioning, it is likely that all underground equipment and the Onshore Substation foundations will remain in-situ. Above ground equipment at the Onshore Substation Site will be cleared and the site reinstated. It is considered that the environmental effects of this approach to decommissioning will be less than those arising from the breakup and removal of infrastructure. A decommissioning plan will be submitted and agreed with the relevant authorities close to the Onshore Transmission Infrastructure (OnTI) end of life. Any applicable new legislation or guidelines published prior to decommissioning will be considered and taken into account in relation to any design of mitigation prior to decommissioning taking place

12.7.4.3 It is anticipated that the potential decommissioning impacts would be smaller in scale and nature to those of the construction phase, therefore, it is proposed that assessment of decommissioning impacts of the Proposed Development on air quality is scoped out of the EIA.

12.8 Potential Cumulative and In-Combination Impacts

12.8.1.1 There is no anticipated air quality impact at onshore receptors as a result of offshore construction or operation and therefore no in-combination impacts are identified.

12.8.1.2 Early review of the consented developments within the Aberdeenshire Council online planning portal indicates that the majority of developments are greater than 500m from the Proposed Development site boundary and will be complete prior to commencement of the Proposed Development.

12.8.1.3 Therefore, cumulative impacts on air quality are scoped out of further assessment in the EIA.

12.9 Potential Secondary Mitigation

12.9.1.1 No secondary mitigation is proposed.

12.10 Proposed Scope

12.10.1.1 A summary of the potential impacts and whether they are scoped in or out of EIA is summarised in Table 12.1.

Table 12.1: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Dust impacts at ecological receptors	x	x	x
Dust soiling impacts on residential receptors	x	x	x
Dust Impacts on human health at residential receptors	x	x	x
Impacts from Construction Phase Traffic emissions on human health and ecological receptors	x	x	x
Cumulative effects	x	x	x
Decommissioning	x	x	x

12.11 Questions to Consultees

12.11.1.1 Do consultees agree that subject to the implementation of the mitigation outlined in Section 12.6 that further assessment of air quality impacts can be scoped out of the EIA?

12.12 References

¹HM Government (2010). The Air Quality Regulations 2010. Statutory Instruments 2010 No. 1001

²HM Government (2016). The Air Quality (Scotland) Amendment Regulations 2016. Scottish Statutory Instruments 2016 No. 162

³ Scottish Government, (2014) The National Planning Framework 3 for Scotland (NPF3) Available at:
<https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2014/06/national-planning-framework-3/documents/00453683-pdf/00453683-pdf/govscot%3Adocument/00453683.pdf>

⁴ Defra *et al*, (2007); The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

⁵ UK Government. (1995). The Environment Act 1995

⁶ Department for Environment Food and Rural Affairs. (2021). *Local Air Quality Management - Technical Guidance (TG16)*.

⁷ Scottish Government (2021), Cleaner Air for Scotland 2 – Towards a Better Place for Everyone, Scottish Government. Available at: <https://www.gov.scot/publications/cleaner-air-scotland-2-towards-better-place-everyone/>

⁸ Holman *et al* (2014). IAQM Guidance on the assessment of dust from demolition and construction V1.1. Available at: <http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

⁹ EPUK & IAQM (2017). Land-Use Planning & Development Control: Planning for Air Quality. Available at: <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

¹⁰ Aberdeenshire Council (2017). Local Development Plan 2017

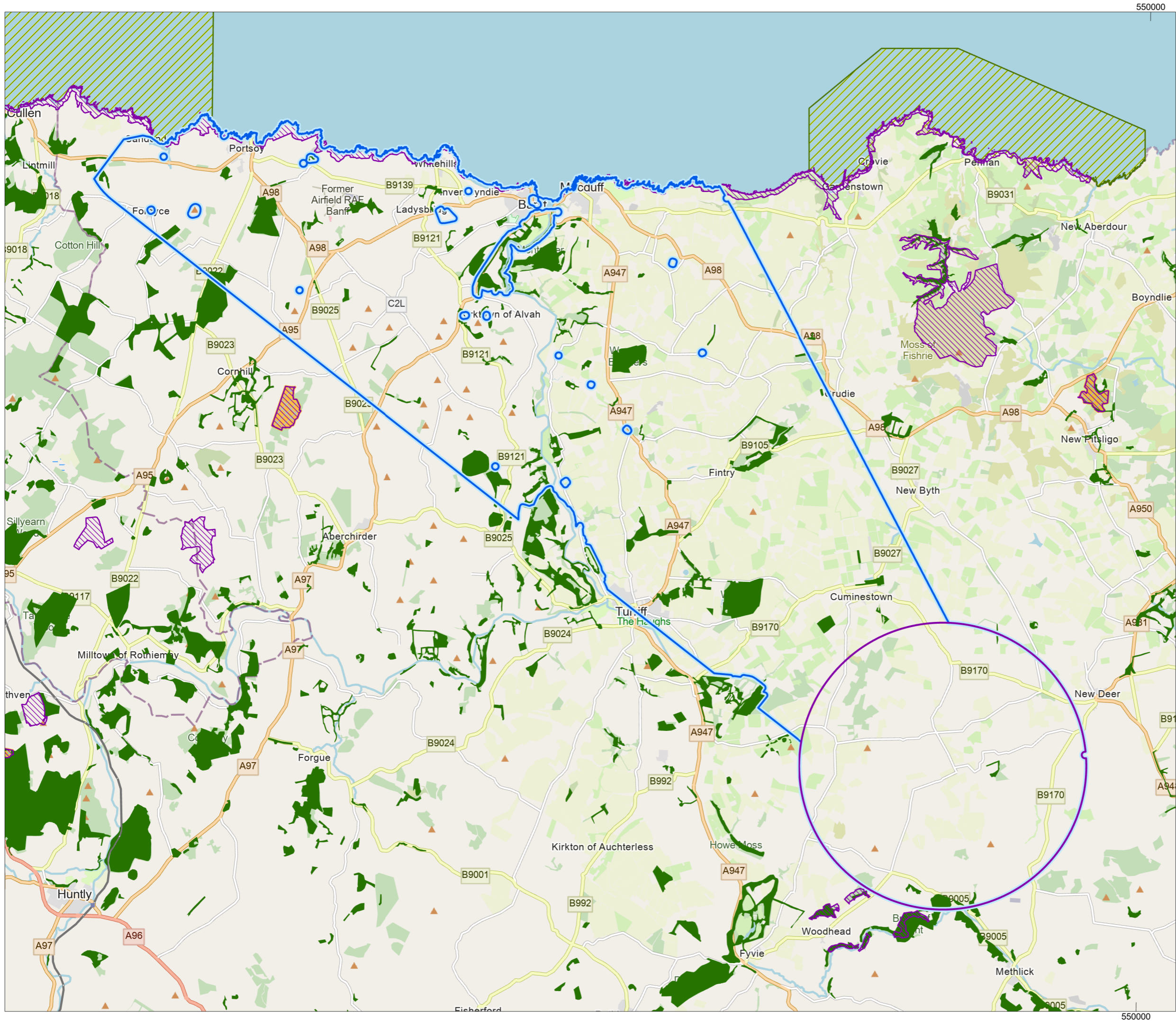
¹¹ Aberdeenshire proposed LDP

¹² Aberdeenshire Council (2021). Annual Progress Report (APR) for Aberdeenshire Council, In fulfilment of Part IV of the Environment Act 1995, Local Air Quality Management, June 2021. Available at: https://www.scottishairquality.scot/sites/default/files/publications/2021-10/Aberdeenshire_APR2021v1.pdf

¹³ Air Quality in Scotland (2022a). Air Quality Management Areas. Available at: <http://www.scottishairquality.scot/iaqm/aqma?id=368>

¹⁴ Air Quality in Scotland (2022b). Data for Local Authority Review and Assessment Purposes. Available at: <http://www.scottishairquality.scot/data/mapping?view=data>

¹⁵ DEFRA (2022). DEFRA background concentration maps for PM2.5 for Aberdeenshire Council 2022. Available at: <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>



- Onshore Scoping Area
- Substation Scoping Area
- Sites of Special Scientific Interest
- Ancient Woodland
- Special Protection Areas
- Special Areas of Conservation

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri (Copyright Scottish Natural Heritage) Contains Ordnance Survey data © Crown copyright and database right (2022)



Scale at A3: 1:125,000
 0 3 6 km

CRS: British National Grid (EPSG:27700)

Produced:	Reviewed:	Approved:
EROS	ADAN	ADAN
Date: 11/10/2022	Revision: 02	
REF: UKCAL1_ITPE_ONW_ENV_MAP_00001		

Figure 12.1
 Air Quality Scoping Assessment
 Study Area





Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 13

Airborne Noise and Vibration

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	13-4
13 AIRBORNE NOISE AND VIBRATION	13-5
13.1 INTRODUCTION	13-5
13.2 LEGISLATIVE AND POLICY CONTEXT	13-5
13.3 STUDY AREA	13-5
13.4 BASELINE ENVIRONMENT	13-6
13.5 ASSESSMENT METHODOLOGY	13-6
13.5.2 Baseline	13-6
13.5.3 Construction Phase Assessment	13-6
13.5.4 Construction Vibration	13-7
13.5.5 Operational Phase Assessment	13-7
13.6 EMBEDDED MITIGATION	13-8
13.6.2 Construction Mitigation	13-8
13.6.3 Operational Mitigation	13-8
13.7 POTENTIAL IMPACTS	13-9
13.7.2 Construction	13-9
13.7.3 Operation	13-10
13.7.4 Decommissioning	13-10
13.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	13-10
13.9 POTENTIAL SECONDARY MITIGATION	13-11
13.9.1 Construction	13-11
13.9.2 Operation	13-11
13.9.3 Decommissioning	13-11
13.10 PROPOSED SCOPE	13-11
13.11 CONSULTATION	13-12
13.12 QUESTIONS TO CONSULTEES	13-12
13.13 REFERENCES	13-13

List of Tables

TABLE 13.1: PROPOSED SCOPE.....13-11

Acronyms and Abbreviations

AAWT	Annual Average Weekday Traffic
BNL	Baseline Noise Level
BS	British Standard
BSI	British Standards Institution
CEMP	Construction Environmental Management Plan
dB	Decibel
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EU	European Union
HGV	Heavy Goods Vehicle
Hz	Hertz
km	Kilometres
m	Metres
MLWS	Mean Low Water Springs
NSR	Noise Sensitive Receptor
OnTI	Onshore Transmission Infrastructure
PAN	Planning Advice Note
TAN	Technical Advice Note
TRRL	Transport and Road Research Laboratory
UK	United Kingdom

13 Airborne Noise and Vibration

13.1 Introduction

13.1.1.1 This Chapter of the Onshore Scoping Report identifies the airborne noise and vibration receptors of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

13.2 Legislative and Policy Context

13.2.1.1 The scoping assessment has been undertaken in accordance with the following legislation and guidance:

- The Environmental Noise (Scotland) Regulations 2006, Provides a framework for the assessment and management of noise from transportation and other sources.
- Planning Advice Note (PAN) 1/2011: Planning and Noise (2011). PAN 1/2011¹ provides general guidance and advice on the role of the planning system in helping to prevent and limit the adverse effects of noise.
- Technical Advice Note (TAN): Assessment of Noise (2011)². TAN provides guidance for the assessment of significance in relation to noise effects.

13.3 Study Area

13.3.1.1 The study area for the purposes of this Onshore Scoping Report, is considered as the Onshore Scoping Area and is shown on Figure 1.2. The study area will be reviewed and amended in the Environmental Impact Assessment Report (EIAR) as the Landfall Site, Onshore Cable Corridor and Onshore Substation is defined.

13.3.1.2 The study area for the EIAR will be refined to include, for construction and decommissioning, a 300m buffer from any construction activity. Significant noise and vibration effects are not expected beyond this distance due to the likely construction activities. British Standard (BS) 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites³ ⁴recommends caution when making predictions of construction noise beyond 300m.

13.3.1.3 For construction vibration the study area for the EIAR will be a buffer of up to 100m from any construction activity. Vibration from even the most vibration generating construction activities (e.g. driven piles) does not generally produce significant levels of vibration at distances greater than 100m.

13.3.1.4 For construction road traffic the study area within the EIAR will include a 50m width from the kerb of traffic routes and routes subject to significant changes in traffic flows (and/or percentage of Heavy Goods Vehicle (HGV)) associated with the construction of the Proposed Development.

13.3.1.5 Within the EIAR, for operation the study area will encompass a 1km area around the Onshore Substation and associated permanent surface infrastructure of the Proposed Development.

13.3.1.6 The study areas proposed have been developed to reflect people’s increased sensitivity to noise at night, where night-time noise effects from construction and operation are possible.

13.4 Baseline Environment

13.4.1.1 For this Onshore Scoping Report Chapter, a high-level desk-based study has been undertaken to provide an initial understanding of the baseline environment within the Onshore Scoping Area, using online data sources, such as Ordnance Survey mapping and Google Earth and Google Maps imagery (Google, 2022).

13.4.1.2 The baseline environment within the study area is mainly rural with occasional residential properties and farms and some larger towns and villages. Noise in this area is likely to comprise road traffic from the local road network, including the A947, A97 and A98. Within the larger towns and villages, such as Banff, Macduff, Turriff and Cuminestown, commercial and industrial noise will also contribute to the baseline environment.

13.5 Assessment Methodology

13.5.1.1 The methodology detailed below is specific to Noise and Vibration and follows the specific guidance documents for the assessment of construction noise and vibration and operational noise. The assessment methodology will be agreed and confirmed with the local authority Environmental Health Officer during the consultation process.

13.5.2 Baseline

13.5.2.1 Following refinement of the Landfall Site, Onshore Cable Corridor and Onshore Substation, a desk-based review and consultation will be undertaken to identify potentially sensitive receptors. Background noise monitoring will be undertaken at residential properties where the potential for significant noise effects from the operational Onshore Substation is identified, and where needed to inform the construction assessment. Any surveys will be agreed in consultation with Aberdeenshire Council throughout the Environmental Impact Assessment (EIA) process and will be carried out for a sufficient period to allow typical sound levels to be established, taking account of different types of noise sources and weather conditions that occur.

13.5.2.2 Noise surveys will be accompanied by the acquisition of supplementary non-acoustic data (rainfall and wind records), as required.

13.5.3 Construction Phase Assessment

Construction Activities

13.5.3.1 Noise and vibration associated with the construction of the Proposed Development will be assessed using the guidance contained in BS 5228:2009+A1:2014 which defines the accepted prediction methods and source data for various construction plant and activities.

13.5.3.2 Construction and decommissioning noise impacts would be based on the likely construction programme and associated activities, including Onshore Substation works, cable laying using open trench and trenchless techniques, construction traffic and access routes.

- 13.5.3.3 The type of vehicles and plant required for construction/decommissioning will be detailed and the main sources of noise from the Proposed Development will be identified. The assessment will consider 'worst case' receptors i.e. where within the study area the vehicles and plant are located at the closest possible point to a receptor.
- 13.5.3.4 BS5228:2009+A1:2014 details the "ABC method", which specifies a construction noise limit based on the existing ambient noise level and for different periods of the day. The EIAR will assess the predicted construction noise levels against noise limits derived from advice within Annex E of BS5228:2009+A1:2014.

Construction Road Traffic Noise

- 13.5.3.5 Road traffic noise during the construction phase will be assessed following the methodology contained in Design Manual for Roads and Bridges (DMRB, 2020), Volume 11, Section 3, Chapter 7 (LA 111)⁵.
- 13.5.3.6 For the evaluation of noise from traffic, DMRB provides the following scoping criteria:

"A construction traffic study area shall be defined to include a 50m width from the kerb line of public roads with the potential for an increase in baseline noise level (BNL) of 1dB(A) or more as a result of the addition of construction traffic to existing traffic levels."
- 13.5.3.7 Details of the road network study area for the construction phase traffic assessment will be provided by the traffic and transport lead as Annual Average Weekday Traffic (AAWT) 18hr flows, % Heavy Goods Vehicles (HGV) and speed data to gain an understanding of the noise climate both with and without the Proposed Development to determine any impacts from increased traffic.
- 13.5.3.8 For links where the thresholds are exceeded, the significance of any predicted change in noise level will then assessed in accordance with the criteria contained in the DMRB (2020).

13.5.4 Construction Vibration

- 13.5.4.1 Consideration will be given to all potential sources of vibration associated with the construction phase particularly those in proximity to residential and other sensitive receptors.
- 13.5.4.2 Guidance on the human response to vibration in buildings is found in BS 6472:2008 Guide to evaluation of human exposure to vibration in buildings, Part 1, Vibration sources other than blasting⁶. For construction vibration from sources other than blasting, the vibration level and effects will be adopted based on Table B-1 of BS 5228-2. These levels and effects are based on human perception of vibration in residential environments.

13.5.5 Operational Phase Assessment

- 13.5.5.1 Operational impacts would be limited to noise associated with the Onshore Substation. The guidance and methodology contained in British Standard (BS) 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound⁷ would be used to assess noise impacts arising from the Onshore Substation.

- 13.5.5.2 Whilst there will be a small number of operational vehicles accessing the OnTI, these are likely to be very low and infrequent. It is therefore proposed that noise impacts from operational traffic are scoped out of the EIA.

13.6 Embedded Mitigation

- 13.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment. The following section details the embedded mitigation measures that will be implemented for the Proposed Development. Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

13.6.2 Construction Mitigation

- 13.6.2.1 Core working hours for the construction of the Proposed Development will be agreed with the relevant stakeholders.
- 13.6.2.2 An Outline Construction Environmental Management Plan (CEMP) will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further with submission of a detailed full planning application and supporting CEMP at a later date.
- 13.6.2.3 The CEMP will be implemented to avoid, minimise or mitigate effects on the environment during the construction and decommissioning phases of the Proposed Development.
- 13.6.2.4 The Outline CEMP will include mitigation/monitoring measures and commitments and detail standard construction industry practice to reduce noise emissions during construction.
- 13.6.2.5 Measures will be adopted to ensure that the potential for noise and vibration disturbance from construction activities is minimised. The mitigation measures may include the provision of localised noise barriers to specific items of construction plant where necessary.
- 13.6.2.6 Activities carried out during mobilisation and maintenance will not generate significant noise levels.
- 13.6.2.7 In certain circumstances, specific works may have to be undertaken outside the normal working hours and would be agreed in advance with Aberdeenshire Council. Specific mitigation for such works would be detailed within the Outline CEMP.

13.6.3 Operational Mitigation

- 13.6.3.1 Operational mitigation measures to be considered as part of the Proposed Development may include:

- Transformers and other electrical equipment vibrate at twice the power frequency i.e. 100Hz and associated harmonic frequencies e.g. 200Hz, 300Hz, however the effects are negligible and are countered by the use of industry standard mitigation techniques such as the use of vibration isolation pads to prevent transmission of ground borne vibration. Embedded mitigation in the form of anti-vibration mounts would be used at the Onshore Substation, which is likely to result in a negligible source of ground borne vibration.
- Selection of quieter equipment where reasonably practicable; and
- Monitoring of noise related complaints.

13.7 Potential Impacts

13.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.

13.7.2 Construction

13.7.2.1 Potential temporary construction noise impacts of may arise from:

- Activities carried out on the surface along the Onshore Cable Corridor (mainly earth moving and excavation);
- Construction activities at the Onshore Substation including any potential landscaping;
- Trenchless techniques and/or pipe thrusting activities;
- Cable laying and pulling activities along the Onshore Cable Corridor and at the Landfall Site (including noise from cable laying vessels working close to the shore and construction of the landfall); and
- Heavy goods vehicles servicing the Onshore Cable Corridor and Onshore Substation, delivering or removing materials (including spoil and fill) and plant.

13.7.2.2 These activities could temporarily increase the noise levels experienced at identified receptors throughout the study area.

13.7.2.3 There is potential for road traffic associated with the construction phase to impact noise sensitive receptors.

13.7.2.4 Vibration will be considered as an issue where significant piling works are required or where trenchless techniques are carried out in proximity to receptors, such as at Landfall Site and at road and river crossings along the Onshore Cable Corridor.

13.7.2.5 Ground-borne vibration can result from construction works and may lead to perceptible levels of vibration at nearby receptors, which at higher levels can cause annoyance to residents. In extreme cases, cosmetic or structural building damage can occur, however vibration levels have to be very high for this effect to be manifested and such cases are rare. High vibration levels generally arise from 'heavy' construction works such as piling, deep excavation (from a borrow pit for example), or dynamic ground compaction. The use of piling during the construction of the Proposed Development may be required and therefore will be assessed.

13.7.2.6 Noise and vibration during construction activities may cause disturbance to wildlife, including protected species and designated sites. Predictions of noise and vibration at identified ecological receptors will be undertaken and provided to ecology and biodiversity lead to inform an assessment of noise and vibration impacts on such receptors.

13.7.3 Operation

13.7.3.1 There are unlikely to be any noise and vibration impacts during operation as vehicular traffic movements from maintenance activities will be limited in number. It is therefore proposed that noise operation traffic impacts are scoped out from further consideration within the EIA.

13.7.3.2 There would be no operational noise and /or vibration impacts from the Landfall Site or Onshore Cable Corridor.

13.7.3.3 Noise impacts during the operational phase are most likely to arise from the operation of equipment within the Onshore Substation (e.g. reactors and transformers). Therefore, an assessment will be undertaken to determine the potential operational noise impact on identified sensitive receptors.

13.7.3.4 Operational transformer and shunt reactor noise is typically constant, with a 'low frequency hum' occurring at harmonics of the supply frequency; usually 100Hz and 200Hz components are dominant. Transformers generally run continuously except for occasional maintenance and fault outages.

13.7.3.5 The tonality element will be considered as part of the operational assessment in accordance with relevant guidance.

13.7.3.6 There are considered to be no other significant sources of vibration associated with the operation of the Proposed Development. It is therefore proposed that this impact is scoped out from further consideration within the EIA.

13.7.4 Decommissioning

13.7.4.1 Although individual pieces of equipment will be replaced as and when required, no major refurbishment works are currently envisaged during the design life. In the event of decommissioning, it is likely that all underground equipment and the Onshore Substation foundations will remain in-situ. Above ground equipment at the Onshore Substation Site will be cleared and the site reinstated. It is considered that the environmental effects of this approach to decommissioning will be less than those arising from the break up and removal of infrastructure. A decommissioning plan will be submitted and agreed with the relevant authorities close to the OnTI's end of life. Any applicable new legislation or guidelines published prior to decommissioning will be considered and taken into account in relation to any design of mitigation prior to decommissioning taking place.

13.7.4.2 The detail and scope of the decommissioning works would be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator.

13.7.4.3 It is anticipated that the decommissioning impacts would be similar in nature to those of construction but would be more limited in geographical extent and timescale.

13.8 Potential Cumulative and In-Combination Impacts

13.8.1.1 Cumulative impacts may arise through the introduction of the Proposed

Development to a context that is already or may be in the future affected by other development within the study area.

- 13.8.1.2 Where information is available, a construction noise and vibration assessment would be undertaken, in accordance with BS 5228:2009+A1:2014.
- 13.8.1.3 Operational noise impacts, specifically of the Onshore Substation, will be considered in conjunction with other potential proposed developments, subject to the location of the Onshore Substation.
- 13.8.1.4 The assessment presented within the Airborne Noise and Vibration Chapter of the EIAR will consider the potential for significant cumulative and in-combination impacts (where relevant) to arise as a result of the construction, operation and decommissioning of the Proposed Development.

13.9 Potential Secondary Mitigation

13.9.1 Construction

- 13.9.1.1 Mitigation measures may include the provision of localised noise barriers to specific items of construction plant where necessary.
- 13.9.1.2 Based on noise modelling results, where noise has the potential to cause disturbance the use of mufflers, acoustic barriers and screening will be considered.

13.9.2 Operation

- 13.9.2.1 Following assessment, the measures detailed below may be considered:
 - Installation of acoustic enclosures;
 - Installation of acoustic barriers;
 - Screening the Onshore Substation further by the construction of a landform/embankment around the site may also provide up to 10dB attenuation;
 - Silencing of exhausts/outlets for air handling/cooling units; and
 - Locating equipment to take advantage of screening inherent in the design, i.e. from the substation hall(s) or control room buildings where reasonably practicable.

13.9.3 Decommissioning

- 13.9.3.1 Secondary Mitigation during the decommissioning phase will be considered when the decommissioning strategy has been developed and will likely include similar measures to those during construction.

13.10 Proposed Scope

- 13.10.1.1 Potential impacts which may occur during the construction, operation and decommissioning phases of the Proposed Development are outlined in Table 13.1.

Table 13.1: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Traffic noise and vibration	✓	×	×

Landfall Site noise and vibration	✓	×	×
Onshore Cable Corridor noise and vibration	✓	×	×
Onshore Substation noise and vibration	✓	✓	×
Cumulative impacts	✓	✓	×

13.11 Consultation

13.11.1.1 Aberdeenshire Council is the key consultee relevant to noise and vibration, as well as sensitive receptors that may be affected by the Proposed Development.

13.11.1.2 Consultation on the key areas (construction noise and vibration including construction traffic, and operational noise due to Onshore Substation/converter station equipment affecting human receptors) will be undertaken in order to agree those aspects which can be resolved using commitments to mitigation, the key parameters for assessment and to resolve issues pre-application.

13.11.1.3 Consultation will be undertaken following the submission of this Onshore Scoping Report and will continue throughout the EIA process.

13.11.1.4 Meetings and discussions with Aberdeenshire Council will be used to present the proposed methodology and obtain agreement on the key topics.

13.12 Questions to Consultees

13.12.1.1 The following questions are posed to consultees to frame and focus responses to the airborne noise and vibration scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree with the receptors and potential impacts identified for the noise and vibration assessment?
- Do you agree with the impacts scoped out of the noise and vibration assessment?
- Do consultees agree that appropriate standards and methods of assessment are proposed?

13.13 References

¹ Scottish Government (2011). Planning Advice Note (PAN) 1:2011 Planning and Noise, available at <https://www.gov.scot/publications/planning-advice-note-1-2011-planning-noise/documents/>

² Scottish Government (2011). Technical Advice Note Assessment of Noise, available at <https://www.gov.scot/publications/technical-advice-note-assessment-noise/pages/1/>

³ BSI, (2014). British Standards Institution [BS] 5228-1:2009+A1:2014 "Code of practice for noise and vibration control on construction and open sites – Part 1: Noise". BSI, London

⁴ BSI, (2014). British Standards Institution [BS] 5228-2: 2009+A1:2014 "Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration". BSI London

⁵ Highways England (now National Highways) (2020). Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7: Noise and Vibration. London (DfT)

⁶ BSI (2008). BS 6472:2008 Guide to evaluation of human exposure to vibration in buildings, Part 1, Vibration sources other than blasting,

⁷ BSI, (2019). British Standards Institution BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. BSI, London.



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 14

Traffic and Transport

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	14-5
14 TRAFFIC AND TRANSPORT.....	14-6
14.1 INTRODUCTION	14-6
14.2 LEGISLATIVE AND POLICY CONTEXT	14-6
14.3 STUDY AREA	14-6
14.4 BASELINE ENVIRONMENT.....	14-7
14.4.2 Local Road Network	14-7
14.4.3 Local Road Network	14-7
14.4.4 Walking and Cycling	14-8
14.4.5 Public Transport.....	14-8
14.5 ASSESSMENT METHODOLOGY	14-9
14.5.2 Sensitivity of Receptors	14-11
14.5.3 Evaluation of Significance	14-11
14.6 EMBEDDED MITIGATION	14-12
14.7 POTENTIAL IMPACTS	14-12
14.7.2 Construction	14-12
14.7.3 Operation	14-13
14.7.4 Decommissioning	14-13
14.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	14-14
14.9 POTENTIAL SECONDARY MITIGATION	14-14
14.10 PROPOSED SCOPE	14-14
14.11 CONSULTATION	14-15
14.12 QUESTIONS TO CONSULTEES.....	14-15
14.13 REFERENCES	14-16

List of Figures

FIGURE 14.1: LOCAL ROAD NETWORK

FIGURE 14.2: CORE PATHS AND CYCLE ROUTES

List of Tables

TABLE 14.1: BUS TIMETABLE	14-9
TABLE 14.2: MAGNITUDE OF CHANGE - TRAFFIC FLOWS	14-10
TABLE 14.3: MAGNITUDE OF CHANGE.....	14-11
TABLE 14.4: EVALUATION OF SIGNIFICANCE	14-12
TABLE 14.5: PROPOSED SCOPE.....	14-14

Acronyms and Abbreviations

AADF	Annual Average Daily Flow
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
HGV	Heavy Goods Vehicle
IEMA	Institute of Environmental Management and Assessment
km	Kilometre
MLWS	Mean Low Water Spring
mph	Miles per Hour
NCR	National Cycle Route
OnTI	Onshore Transmission Infrastructure
SPP	Scottish Planning Policy

14 Traffic and Transport

14.1 Introduction

14.1.1.1 This Chapter of the Onshore Scoping Report identifies traffic and transport receptors of relevance to the Proposed Development. This Chapter also presents the proposed assessment methodology, an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).

14.1.1.2 This Chapter is supported by the following figures:

- Figure 14.1: Local Road Network; and
- Figure 14.2: Core Paths and Cycle Routes.

14.2 Legislative and Policy Context

14.2.1.1 The traffic and transport effects of the Proposed Development will be considered and assessed with reference to the policies, legislation and planning guidance listed below:

- National Planning Framework 3¹ and Scottish Planning Policy (SPP)² outline strategies and a long-term vision for development and investment across Scotland including transport matters;
- Draft National Planning Framework 4 (Scottish Government, 2021) sets out the emerging vision for planning and development to support a net zero sustainable place by 2045. It is expected to be adopted in 2022 superseding NPF 3.
- Transport Scotland's National Transport Strategy 2³, defines the vision for Scotland's transport system to 2040;
- Planning Advice Note 75: Planning for Transport⁴, sets out guidance for planning authorities, developers and others to carry out in their policy development, proposal assessment and project delivery;
- Aberdeen City Shire Local Transport Strategy⁵ which sets out the road authority's aspirations for transport;
- The Institute of Environmental Management and Assessment (IEMA) GN 1 Guidelines for the Environmental Assessment of Road Traffic⁶; and
- The Design Manual for Roads and Bridges (DMRB) (The Highways Agency *et al.*, various dates).

14.3 Study Area

14.3.1.1 The Traffic and Transport study area will be refined for the Environmental Impact Assessment Report (EIAR) following refinement of the Onshore Transmission Infrastructure (OnTI) and the identification of the Onshore Cable Corridor, Onshore Substation site and Landfall Site.

14.3.1.2 For the purposes of this Onshore Scoping Report Chapter, the study area reflects the Onshore Scoping Area as described in Section 3.2 of Chapter 3: Description of Proposed Development. The extent of the Onshore Scoping Area is illustrated in Figure 1.2. The Traffic and Transport study area includes elements of the local

road, walking and cycling, and public transport networks within the Onshore Scoping Area that are likely to be used by the traffic generated by the Proposed Development.

- 14.3.1.3 The networks and the extent of study area covered are discussed in turn within Section 14.4 as part of defining the baseline environment. The potential receptors are those people making journeys within the relevant study area for each
- 14.3.1.4 There are various coastal settlements, including Portsoy, Banff and Macduff, with associated recreational facilities, such as golf courses and caravan sites. There are numerous isolated dwellings, hamlets and small villages located inland, with the main commercial centre inland being Turriff located in the south of the Onshore Scoping Area.

14.4 Baseline Environment

14.4.1.1 The principal sources of data which have informed this Section, and will be drawn upon for the Environmental Impact Assessment (EIA) are:

- Stagecoach⁷ and Deveron Coaches⁸ bus timetables;
- Aberdeenshire Core Paths plan maps⁹;
- The National Cycle Network map¹⁰;and
- Department for Transport Road Traffic Statistics¹¹ at the following locations; north of Cornhill manual count point 10865, west of Alvah manual count point 80323, west of Banff manual count point 10787, south of Portsoy manual count point 40788, north of Turriff manual count point 91202, south of Macduff manual count point 40993.

14.4.2 Local Road Network

- The National Cycle Network map¹²;and
- Department for Transport Road Traffic Statistics¹³ at the following locations; north of Cornhill manual count point 10865, west of Alvah manual count point 80323, west of Banff manual count point 10787, south of Portsoy manual count point 40788, north of Turriff manual count point 91202, south of Macduff manual count point 40993.

14.4.3 Local Road Network

14.4.3.1 The A roads within the Onshore Scoping Area are illustrated in Figure 14.1 and include:

- **A95:** The A95 is a two-way single carriageway road running between Keith and the A98 south-west of Boyndie. The A95 does not pass through any residential areas and is subject to the national speed limit (in this case 60mph) within the study area. No sections of this road have streetlights and footways within the study area. A Road Traffic Count site near Cornhill, shows an estimated Annual Average Daily Flow (AADF) of 1,076 vehicles in 2019;
- **A97:** The A97 is a two-way single carriageway road running between Banff to Dinnit. The sections of road within residential areas are provided with streetlights, have footways and are subject to a 30mph speed limit. The rest of the A97 is subject to the national speed limit (in this case 60mph) and does

not have streetlights or footways. A Road Traffic Count site west of Alvah, shows an estimated AADF of 1,553 vehicles in 2019;

- **A98:** The A98 is a two-way single carriageway road running from Fochabers to Fraserburgh providing an east / west coastal link route. The sections of road within residential areas are provided with streetlights, have footways and are subject to either a 30mph or a 40mph speed limit. The rest of the A98 is subject to the national speed limit (in this case 60mph) and does not have streetlights or footways. To the west of Banff, the A98 had an estimated AADF of 7,579 vehicles in 2019 according to road traffic counts. To the south of Port of Portsoy, it had an estimated AADF of 4,309 vehicles in 2019 according to road traffic counts; and
- **A947:** The A947 is a two-way single carriageway road that links Aberdeen to Banff. The A947 has a poor safety record with over 30 fatal collisions occurring between 2005-2018. The sections of road within residential areas are provided with streetlights, have footways and are subject to either a 30mph or a 40mph speed limit. The rest of the A98 is subject to the national speed limit (in this case 60mph) and does not have streetlights or footways. To the north of Turriff, the A947 had an estimated AADF of 3,546 vehicles in 2019 according to road traffic counts. To the south of Macduff, it had an estimated AADF of 4,400 vehicles in 2019 according to road traffic counts.

14.4.3.2 There are also many B roads, C roads and unclassified roads within Onshore Scoping Area, some of which may be required to be used by the Proposed Development traffic.

14.4.4 Walking and Cycling

14.4.4.1 There are several Core Paths within the Onshore Scoping Area, some of which may be affected by the Proposed Development depending upon its final location. However, most paths are concentrated in and around settlements.

14.4.4.2 In addition to these core paths, the National Cycle Route 1 (NCR 1) from Dover to the north of Scotland passes through the Onshore Scoping Area. NCR 1 is also part of a longer route named EuroVelo 12 the North Sea Cycle route which connects to Norway and Holland.

14.4.4.3 Between Turriff and Banff the NCR 1 runs on-road along an unnamed road. Between Banff and Portsoy the NCR 1 is a mix of on-road and off-road cycleways largely running along the B9139. There are some off-road cycleways within Portsoy that the NCR 1 uses before largely using an unnamed road towards Fordyce with on-road cycleways towards Cullen.

14.4.4.4 The Core Paths and National Cycle Routes identified within the Onshore Scoping Area are shown in Figure 14.2.

14.4.5 Public Transport

14.4.5.1 The regular scheduled bus services passing through the Onshore Scoping Area is shown in Table 14.1.

Table 14.1: Bus Timetable

Route No.	Route	Daytime frequency	
		Monday – Saturday	Sunday
35	Aberdeen – Banff – Elgin	Every 30 mins	Every Hour
272	Banff – Fraserburgh	Three times a day	None
300	Banff Town Service	Every Hour	None
301	Huntly - Macduff	Three times a day	None

- 14.4.5.2 There are additional bus services operating in the Onshore Scoping Area that include school buses on various routes and bus services with frequencies of once a week.
- 14.4.5.3 All the key corridors (A95, A97, A98 and the A947) within the Onshore Scoping Area are used by the buses noted in Table 14.1. Other key corridors outside of the Onshore Scoping Area used by buses within Table 14.1 include A92, A93, A96, A942, A944, A950, A956, A981 and the A9011.
- 14.4.5.4 There are no railway stations or sections of the railway within the Onshore Scoping Area.

14.5 Assessment Methodology

- 14.5.1.1 The scope for Traffic and transport impacts and resultant effects has been considered under three scenarios:
 - **Construction:** impacts and effects associated with the construction of the Proposed Development;
 - **Operation:** impacts and effects associated with the day-to-day activity of the Proposed Development; and
 - **Decommissioning:** impacts and effects associated with the deactivation of the Proposed Development.
- 14.5.1.2 The 'Guidelines for the Environmental Assessment of Road Traffic, IEMA, 1993' set out a number of potential environmental effects which may require assessment. Those which relate to the Traffic and Transport chapter are:
 - Severance;
 - Delay;
 - Amenity;
 - Fear and Intimidation;
 - Accidents and Safety; and
 - Hazardous Loads.
- 14.5.1.3 Amenity and Fear and Intimidation can be considered together as they are strongly interrelated.
- 14.5.1.4 For each effect to be assessed, magnitude of change will be identified. Broadly, the magnitude of change for transport effects will be defined as follows:
 - **Negligible:** changes which are unlikely to be perceptible;

- **Small:** changes which are likely to be perceptible but not the extent that it would materially change conditions which would otherwise prevail;
- **Medium:** changes which are likely to be perceptible and which would materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to a measurable degree; and
- **Large:** changes which are likely to be perceptible and which would significantly change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour.

14.5.1.5 'IEMA, 1993' guidance sets out the following criteria for defining non-negligible impacts. This will be used in identify the significance of an effect.

- **“Rule 1:** Include highway links where traffic flows will increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) will increase by more than 30%); and
- **Rule 2:** Include any other specifically sensitive areas where traffic flows have increased by 10% or more”.

14.5.1.6 Vehicles associated with construction, operation and decommissioning are expected to arrive by the strategic network. The strategic network is designed to carry greater traffic flows than local roads and as such, it is less sensitive to changes in traffic flow than local roads as there is already significant flow on it.

14.5.1.7 The magnitude of change for effects associated with changes in traffic flow is therefore considered in context of both absolute and percentage flow as shown in Table 14.2.

14.5.1.8 Table 14.3 summarises the method of assessment for magnitude of change for each potential effect.

Table 14.2: Magnitude of Change - Traffic flows

		Percentage Change in Flow (or HGV)			
		<30%	<60%	<90%	>90%
Absolute Change in AADF Flow (or HGV)	<300 vehicles	Negligible	Negligible	Negligible	Negligible
	<600 vehicles	Negligible	Small	Small	Small
	<900 vehicles	Negligible	Small	Medium	Medium
	>900 vehicles	Negligible	Small	Medium	Large

Table 14.3: Magnitude of Change

Potential Effect	Large	Medium	Small	Negligible
Severance	Change in total traffic or HGV flows as defined in Table 14.2			
Driver and Bus delay	Change in total traffic or HGV flows as defined in Table 14.2			
Pedestrian and Cyclist Delay	Informed by review of potential diversions required and alternative routes available.			
Amenity, Fear and Intimidation	Change in total traffic or HGV flows as defined in Table 14.2			
Accidents and Safety	Existing collision patterns reviewed and considered in context of changes to the network linked to the Proposed Development.			
Hazardous Loads	Informed by a review of potential for hazardous loads to be generated or attracted.			

14.5.2 Sensitivity of Receptors

14.5.2.1 The sensitivity of receptors for transport effects will be defined as follows:

- **Negligible:** receptors which are very lightly used (by all users or particularly by vulnerable road users) relative to other receptors within the study area or those which have a very high capacity to accommodate change without significant effects arising;
- **Low:** receptors which are lightly used (by all users or particularly by vulnerable road users) relative to other receptors within the study area or those which have a high capacity to accommodate change without significant effects arising;
- **Medium:** receptors which are used (by all users or particularly by vulnerable road users) to an average level relative to other receptors within the study area or those which have a moderate capacity to accommodate change without significant effects arising; and
- **High:** receptors which are heavily used (by all users or particularly by vulnerable road users) relative to other receptors within the study area or those which have a low capacity to accommodate change without significant effects arising.

14.5.3 Evaluation of Significance

14.5.3.1 The evaluation of significance is determined through the combination of receptor sensitivity and magnitude of change. Table 14.4 sets out how these categorisations will be combined. Significant effects are defined as 'moderate' and 'major' categories.

Table 14.4: Evaluation of Significance

		Magnitude of Change			
		Negligible	Small	Medium	Large
Receptor Sensitivity	Low	Negligible	Minor	Minor	Moderate
	Medium	Negligible	Minor	Moderate	Moderate
	High	Negligible	Moderate	Moderate	Major

14.6 Embedded Mitigation

- 14.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment.
- 14.6.1.2 An Outline Construction Environmental Management Plan (CEMP) will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further with submission of a detailed full planning application and supporting CEMP at a later date. The CEMP will be implemented to avoid, minimise or mitigate effects on the environment during the construction and decommissioning phases of the Proposed Development.
- 14.6.1.3 A Construction Logistics Plan is expected to form embedded mitigation for the Proposed Development.
- 14.6.1.4 No embedded mitigation is proposed for operational stage as the change in traffic and transport activity is expected to be negligible.
- 14.6.1.5 The measures embedded via the CEMP will be applied similarly during decommissioning also. No additional embedded mitigation is proposed.
- 14.6.1.6 Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

14.7 Potential Impacts

- 14.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.
- 14.7.2 Construction
 - 14.7.2.1 Equipment, materials, and workforce will be transported to and from the site during construction. The construction traffic generation and the exact routing of it is not known at this time. The construction phase may however attract significant daily traffic flow, a proportion of which is expected to be HGV movements. Movement of abnormal loads may also be necessary.
 - 14.7.2.2 Depending on the size and type of vehicle required to move the materials and equipment, as well as the construction method for installation, temporary road closures may be required. Swept path of abnormal loads may also require temporary removal of street furniture or overrun within verges.
 - 14.7.2.3 The impact on each potential effect is discussed in turn below:
 - **Severance:** Construction activity will be temporary and expected to route via the strategic network for the majority of the journey. Construction activity could potentially cause minor severance in places on the network. This will be managed via the Construction Logistics Plan. A quantitative assessment of

severance will be undertaken within the EIA based on traffic flow information and forecast construction vehicle activity and routing to understand the scale of temporary impact;

- **Driver and Bus Delay:** Construction vehicle activity has potential to increase congestion or delay on the network. This impact will be managed via the Construction Logistics Plan. A qualitative assessment of driver and bus delay will be provided with in the EIA based on forecast construction vehicle activity and routing;
- **Pedestrian and Cyclists Delay:** Closure or diversion of pedestrian or cyclist routes would cause increased journey times and delay for users of the routes. It is expected that diversions will be made available for any core routes affected and therefore the impact on pedestrian and cyclist delay would be minimised. A qualitative assessment of pedestrian and cyclist delay will be provided within the EIA based on routing and potential diversions required;
- **Amenity, Fear and Intimidation:** Construction vehicle activity will include a proportion of large HGVs which can have an adverse impact on the experience of other users in the area. Construction vehicle activity will be managed via the Construction Logistics Plan. A qualitative assessment of amenity, fear and intimidation will be provided with in the EIA based on forecast construction vehicle activity and routing;
- **Accidents and Safety:** Construction activity can involve a higher proportion of vans and HGVs and temporary changes may be required to the road network as part of the construction process. Construction vehicle activity will be managed via the Construction Logistics Plan. A qualitative assessment of accidents and safety will be provided with in the EIA based on forecast construction vehicle activity and routing; and
- **Hazardous Loads:** Transfer of any hazardous material has to be managed carefully to ensure loads are moved safely and securely. The Proposed Development is not expected to generate or attract a significant volume or number of hazardous loads during construction. The effect is therefore scoped out of the EIA.

14.7.3 Operation

14.7.3.1 Traffic and transport activity associated with the operation of the Onshore Cable Corridor, Onshore Substation, and Landfall Site will be limited to routine maintenance checks and repairs only. This activity will be occasional and involve a small number of staff, none of which will be permanently based on-site. Assessment of all potential effects during operation is therefore scoped out of the EIA.

14.7.4 Decommissioning

14.7.4.1 It is expected that all underground equipment and foundations will remain in-situ and therefore potential effects during decommissioning will be less than during the construction stage. Mitigation measures employed during the construction stage will be similarly applied for decommissioning activity also. Assessment of all potential effects during decommissioning is therefore scoped out of the EIA.

14.8 Potential Cumulative and In-Combination Impacts

- 14.8.1.1 Consultation with local authorities will identify any potential Proposed Developments within the study area that may result in cumulative impacts.
- 14.8.1.2 Where the information is available, the potential traffic flows forecast for cumulative schemes will be extracted from their associated planning application documentation. This information will be used to inform assessment of cumulative impacts on the potential effects and reported in the Traffic and Transport Chapter of the EIAR.
- 14.8.1.3 In-combination effects of the Proposed Development between Traffic and Transport and other EIA topics, and where relevant offshore works, will be identified where applicable and reported in the EIAR.

14.9 Potential Secondary Mitigation

- 14.9.1.1 The EIA will determine if any Secondary Mitigation is required further to the embedded mitigation identified.
- 14.9.1.2 The measures will be tailored to address the specific significant unmitigated impacts if found. This could include measures such as the following:
- A shuttle bus strategy for staff and/or consolidation of materials from locations close to the strategic network to minimise the impact on the local road network;
 - Use of temporary haul routes; and
 - Management of activity or revisions to the construction methodology to minimise disruption to Core Paths.

14.10 Proposed Scope

- 14.10.1.1 Table 14.5 summarises the potential impacts proposed to be scoped in or out of the EIA.

Table 14.5: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Severance	✓	×	×
Driver and Bus Delay	✓	×	×
Pedestrian and Cycle Delay	✓	×	×
Amenity, Fear and Intimidation	✓	×	×
Accidents and Safety	✓	×	×
Hazardous Loads	×	×	×

14.11 Consultation

14.11.1.1 Consultation will be held with Aberdeenshire Council as Local Roads Authority and Transport Scotland as Strategic Roads Authority.

14.12 Questions to Consultees

14.12.1.1 The following questions are posed to consultees to frame and focus responses to the Traffic and Transport scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree that receptors and potential impacts have been identified for Traffic and Transport?
- Do you agree with the impacts which have been scoped out of the EIA for Traffic and Transport?
- Do you agree with the proposed approach to assessment?

14.13 References

¹ The Scottish Government, 2014. *Scotland's Third National Planning Framework*. Available at: [Scotland's Third National Planning Framework \(www.gov.scot\)](http://www.gov.scot)

² The Scottish Government, 2014. *Scottish Planning Policy*. Available at: [scottish-planning-policy.pdf](#)

³ Transport Scotland, 2020. *National Transport Strategy 2*. Available at: <https://www.transport.gov.scot/publication/national-transport-strategy-2/>

⁴ The Scottish Government, 2005. *Planning Advice Note: PAN 75 – Planning for Transport*. Available at: <https://www.gov.scot/publications/planning-advice-note-pan-75-planning-transport/>

⁵ Aberdeen City Council, 2012. *Aberdeen City and Shire Local Transport Strategy*. Available at: <https://www.aberdeenshire.gov.uk/media/2374/2012finalts.pdf>

⁶ The Institute of Environmental Management and Assessment (IEMA) (1993). *GN 1 Guidelines for the Environmental Assessment of Road Traffic*

⁷ Available at: www.stagecoachbus.com

⁸ Available at: www.deveroncoaches.com

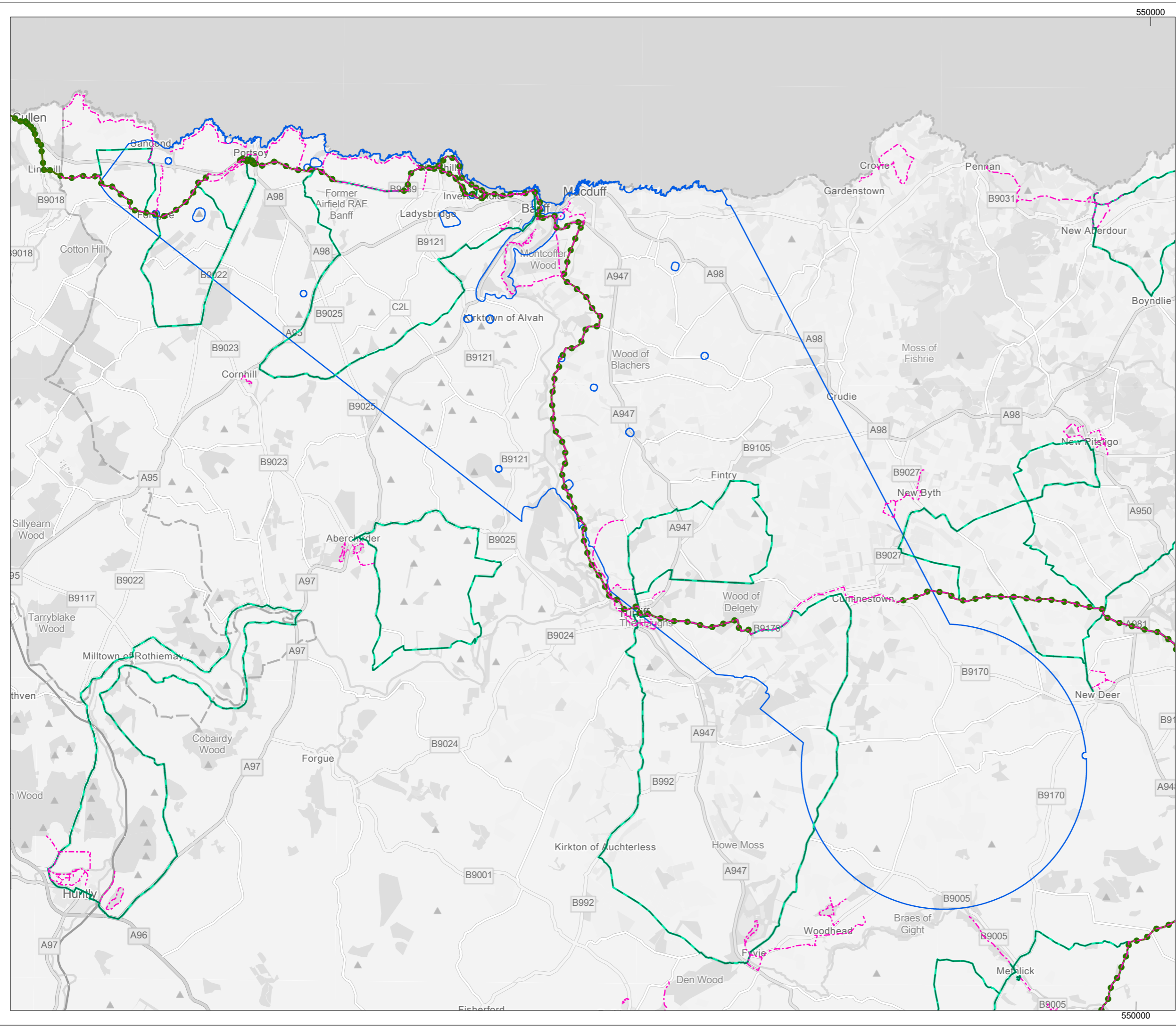
⁹ Available at: <https://www.aberdeenshire.gov.uk/media/7509/aberdeenshirenorthcorepathplan.pdf>

¹⁰ Available at: <http://www.sustrans.org.uk/ncn/map>

¹¹ Available at: <https://roadtraffic.dft.gov.uk/#8/57.335/-2.343/basemap-localauthorities-countpoints>

¹² Available at: <http://www.sustrans.org.uk/ncn/map>

¹³ Available at: <https://roadtraffic.dft.gov.uk/#8/57.335/-2.343/basemap-localauthorities-countpoints>



- Onshore Scoping Area
- Aberdeenshire Adopted Core Paths
- Aberdeenshire Cycle Routes
- National Cycle Network - Route 1

© OpenStreetMap (and) contributors, CC-BY-SA, Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri Contains Aberdeenshire public sector information licensed under the Open Government Licence v3.0. Contains Sustran Open Data.



Scale at A3: 1:125,000
 0 2.5 5 km

CRS: British National Grid (EPSG:27700)		
Produced:	Reviewed:	Approved:
CHAL	OWIC	AMIT
Date: 11/14/2022	Revision: 02	
REF: UKCAL1_ARP_WNF_ENV_MAP_00020		

Figure 14.2
Core Paths and Cycle Routes



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 15

Climate

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	15-4
15 CLIMATE	15-6
15.1 INTRODUCTION	15-6
15.2 LEGISLATIVE AND POLICY CONTEXT	15-6
15.3 STUDY AREA	15-9
15.3.1 GHG Assessment	15-9
15.3.2 CCR Assessment.....	15-10
15.3.3 ICCI Assessment.....	15-11
15.4 BASELINE ENVIRONMENT.....	15-11
15.4.1 GHG Assessment	15-11
15.4.2 CCR Assessment.....	15-11
15.4.3 ICCI Assessment	15-12
15.5 ASSESSMENT METHODOLOGY	15-12
15.5.1 GHG Assessment	15-12
15.5.2 CCR Assessment.....	15-13
15.5.3 ICCI Assessment.....	15-15
15.6 EMBEDDED MITIGATION	15-15
15.7 POTENTIAL IMPACTS	15-16
15.7.2 GHG Assessment	15-16
15.7.3 CCR Assessment.....	15-17
15.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	15-18
15.9 POTENTIAL SECONDARY MITIGATION	15-18
15.10 PROPOSED SCOPE	15-18
15.11 CONSULTATION	15-19
15.12 QUESTIONS TO CONSULTEES.....	15-19
15.13 REFERENCES	15-20

List of Tables

TABLE 15.1: SUMMARY OF GHG STUDY AREA COMPONENTS WITHIN THE CLIMATE ASSESSMENT	15-9
TABLE 15.2: HIGH LEVEL CLIMATE OBSERVATIONS FOR THE NORTHERN AND EASTERN SCOTLAND CLIMATE REGIONS (1981-2010) (SOURCE: MET OFFICE, 2016)	15-11
TABLE 15.3:QUALITATIVE LIKELIHOOD OF IMPACTS	15-14
TABLE 15.4:MEASURE OF CONSEQUENCE.....	15-14
TABLE 15.5:CCR SIGNIFICANCE MATRIX	15-15
TABLE 15.6: POTENTIAL SOURCES OF GHG EMISSIONS DURING PROJECT LIFECYCLE	15-16
TABLE 15.7: SUMMARY OF WEATHER EVENTS AND THE POTENTIAL IMPACTS ON THE PROPOSED DEVELOPMENT ACROSS THE FULL PROJECT LIFECYCLE.....	15-17
TABLE 15.8: PROPOSED SCOPE.....	15-18

Acronyms and Abbreviations

BSI	British Standards Institution
CCC	Climate Change Committee
CCR	Climate Change Resilience
CEMP	Construction Environmental Management Plan
CH ₄	Methane
CO ₂	Carbon Dioxide
COP26	Conference of the Parties (26), hosted in Glasgow 2021
DM	Do-Minimum
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EU	European Union
GHG	Greenhouse Gases
HFC	Hydrofluorocarbons
HM	Her Majesty
ICCI	In-combination Climate Change Impact
ICE	Inventory of Carbon & Energy
IEMA	Institute of Environmental Management and Assessment
LETI	London Energy Transformation Initiative
MLWS	Mean Low Water Springs
mm	Millimetres
N ₂ O	Nitrous Oxide
NF ₃	Nitrogen Trifluoride

OnTI	Onshore Transmission Infrastructure
PEMP	Project Environmental Monitoring Programme
PFC	Perfluorocarbons
RICS	Royal Institution of Chartered Surveyors
SCCAP	Scottish Climate Change Adaptation Programme
SF ₆	Sulphur Hexafluoride
tCO ₂ e	Tonnes of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
UKCP18	United Kingdom Climate Projections

15 Climate

15.1 Introduction

15.1.1.1 This Chapter of the Onshore Scoping Report identifies the climate receptors of relevance to the Proposed Development. This Chapter also presents the proposed methodology, and an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS) and the methodology adopted to assess potential impacts and likelihood for significant effects.

15.1.1.2 Three individual climate change related assessments will be undertaken:

- **Greenhouse Gas (GHG) Emissions¹ assessment (i.e. carbon assessment)** – this will identify the estimated GHG emissions associated with construction, operation, and decommissioning of the Proposed Development, comparing current and future baseline GHG emissions. It will also identify mitigation measures to reduce GHG emissions through the lifecycle of the Proposed Development. The term ‘carbon’ is used interchangeably throughout the chapter to refer to GHG emissions;
- **Climate Change Resilience (CCR) assessment** – this will identify what climate changes are expected to occur in the future, and the vulnerability of the Proposed Development to those identified changes in climate; and
- **In-combination Climate Change Impact (ICCI) assessment** – this will identify where a changing climate will combine with environmental impacts arising from the Proposed Development, resulting in significant effects on environmental receptors within the scope of the Environmental Impact Assessment (EIA) which are not present under current climate conditions.

15.2 Legislative and Policy Context

15.2.1.1 The following key international and national legislation and policy requirements are relevant to this assessment:

- The Kyoto Protocol¹: an international treaty which extends the United Nations Framework Convention on Climate Change (UNFCCC) and commits state parties to reduce GHG emissions;
- The Paris Agreement²: a legally binding treaty that pledges to limit the increase in global average temperature to well below 2°C, and to aim for 1.5°C, above pre-industrial levels;
- EIA Directive (2014/52/EU)³: provides an update to the EIA directive to include climate change (both mitigation of GHGs and adaptation/vulnerability of

¹ The ‘basket’ of GHGs defined under the Kyoto Protocol (which will form the basis of this assessment) comprises carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

projects) within assessment and decision-making processes;

- The Climate Change Act 2008⁴: the UK legislative basis to address climate change. In relation to climate change mitigation, it commits the UK to GHG emissions reductions and reporting. On climate change adaptation it sets the requirement for a national adaptation programme and associated publication of a climate change risk assessment every five years;
- The Climate Change (Scotland) Act 2009⁵: the Scottish legislative basis to address climate change. The act commits Scotland to GHG emissions reduction and reporting, creation of and update to a climate adaptation programme, and regular updates to both GHG and adaptation reporting;
- The Climate Change Act 2008 (2050 Target Amendment) Order 2019⁶: an update to the Climate Change Act 2008 above, stating the UK's net zero target by 2050;
- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019⁷: the update to the Scottish Climate Change Act, in line with the objectives and targets of the Paris Agreement. It commits Scotland to a net zero target of 2045 in line with the recommendations of the Climate Change Committee (CCC);
- Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017⁸: provides the requirement of including a climate change assessment within an EIA, in line with EIA Directive (2014/52/EU); and
- Planning (Scotland) Act 2019⁹: provides the requirement to assess a proposed development's GHG emissions to achieve the targets as set out in the Climate Change (Scotland) Act 2009 and have taken account of the programme for adaptation to climate change.

15.2.1.2 Other national and local level policies will be considered as part of the Climate assessment, including:

- National Planning Framework 3¹⁰: aims to make Scotland "a low carbon" and "resilient place", providing requirements for GHG emissions reduction and climate change adaptation;
- Draft National Planning Framework 4¹¹: the draft framework addresses climate change throughout the document as an integral part of future planning requirements;
- Scotland's Climate Change Plan¹²: builds on the commitments of the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 to provide the vision for 2045, a road map for climate priorities to 2032 and requirements for monitoring and reporting progress;
- Scottish Climate Change Adaptation Programme (SCCAP)¹³: a requirement of the Climate Change (Scotland) Act 2009, this addresses the UK climate

resilience risks published in the Climate Change Risk Assessment¹⁴ (Climate Change Committee, 2017) to ensure Scotland is adaptable to future changes in climate;

- Aberdeen City and Shire Strategic Development Plan¹⁵: the plan includes the aim to be sustainable, mitigating and adapting to the effects of climate change and changing weather patterns;
- Aberdeenshire (Proposed) Local Development Plan 2022¹⁶: Aligning with the National Planning Framework and Aberdeen City and Shire Strategic Development Plan 2020, the draft plan (likely to be published in Autumn 2022) has a main aim of taking on the challenges of sustainable development and climate change;
- Aberdeenshire Council's Environmental and Climate Change Policy¹⁷: This policy commits the council to reduce GHG emissions in line with their published carbon budgets and improve resilience to future climate changes by identifying the risks and producing subsequent actions to limit the negative impacts; and
- Aberdeenshire Council's annual carbon budgets¹⁸: Aberdeenshire are the first local authority to publish annual carbon budgets to keep the council on track for their net zero commitment by 2045, and to reduce emissions by 75% by 2030.

15.2.1.3 The following best practice guidance will inform the assessment:

- **Institute of Environmental Management and Assessment (IEMA) (2022) Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance¹⁹** provides an approach to undertaking assessments of a project's GHG emissions within the EIA process in the UK; and
- **IEMA (2020) Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation²⁰**, provides an approach to undertaking assessments of climate change resilience within the EIA process in the UK.

15.2.1.4 Other relevant documents include:

- London Energy Transformation Initiative (LETI) Embodied Carbon Primer²¹;
- PAS 2080:2016 Carbon Management in Infrastructure²²;
- Royal Institution of Chartered Surveyors (RICS) (2017) Whole Life Carbon Assessment for the built environment (1st edition)²³;
- UK Clean Growth Strategy²⁴; and
- UK Government Construction Industry Strategy²⁵.

15.3 Study Area

15.3.1 GHG Assessment

15.3.1.1 For both scoping and Environmental Impact Assessment Report (EIAR) assessments, the spatial study area for the GHG emissions assessment includes sources and removals of GHG emissions arising from construction and operation of the Proposed Development, as set out below:

- For the assessment of GHG emissions associated with construction, the study area is defined by the emissions sources identified. This includes emissions associated with the extraction, manufacture, and transportation of materials to the Onshore Transmission Infrastructure (OnTI) (which may be sourced at a notable distance depending on availability) as well as emissions associated with construction processes on site (such as fuel/energy use, and construction waste management); and
- For the assessment of operational GHG emissions associated with the Proposed Development over the 45-year appraisal period, emissions arising from maintenance and replacement of development will be estimated. In addition, GHG emissions associated with operational energy consumption will be considered.

15.3.1.2 Aligning with PAS 2080: Carbon Management in Infrastructure, IEMA (2022) guidance and best practice, a summary of GHG emission sources included within the lifecycle assessment informing this assessment can be found below with Table 15.1.

Table 15.1: Summary of GHG Study Area Components within the Climate Assessment

Project Work Stage	PAS 2080 Lifecycle Stage	Description	Justification for exclusion from the assessment
Pre-construction	A0	Preliminary studies, consultation	Excluded – work predominantly office-based and assumed to be negligible
Construction	A1-3	Raw material supply	Included
	A4	Transport to works site	Included
	A5	Construction/ installation processes	Included
	D	Land use change	Included
Operation	B1	Use	Excluded – GHG emissions associated with fabric of products and materials once they have been installed is assumed to be negligible

Project Work Stage	PAS 2080 Lifecycle Stage	Description	Justification for exclusion from the assessment
	B2, B3 & B4	Maintenance, Repair & Replacement	Included
	B5	Refurbishment	Excluded – the Proposed Development is not expected to undergo refurbishment during its lifetime
	B6	Operational energy use	Excluded – GHG emissions associated with energy consumption (i.e. lighting) are likely to be negligible. Any assessment of low carbon electricity generation benefits will be included in this lifecycle stage
	B7	Operational water use	Excluded – GHG emissions associated with water use on site are likely to be negligible
	B8	Other operational processes	Excluded – other GHG emissions associated with the Proposed Development (such as management of operational waste) are likely to be negligible
	B9	User utilisation of infrastructure	Excluded – not applicable to the Proposed Development
	D	Ongoing land use emissions and sequestration	Included
End of life	C1	Deconstruction	Included
	C2	Transport	Included
	C3	Waste processing for recovery	Included
	C4	Disposal	Included

15.3.1.3 The temporal scope for GHG emissions assessment (2027-2073) constitutes the construction phase (assumed to commence in 2027 for a duration of approximately two and a half years) and operational phase (assumed to be 40 years) and decommissioning phase (assumed to be 3 years).

15.3.2 CCR Assessment

15.3.2.1 For both scoping and EIAR assessments, the study area for the CCR assessment is based on the Onshore Scoping Area as described in Section 3.2 of Chapter 3: Description of the Proposed Development. The study area includes temporary and permanent works associated with the Proposed Development. The assessment

includes all potential climate hazards for infrastructure and assets associated with the Proposed Development and the assessment of climate effects are assessed over the assumed 45-year appraisal period for the Proposed Development (2027-2073).

15.3.2.2 The spatial boundary for the Proposed Development includes the Onshore Cable Corridor, Onshore Substation and Landfall Site. The primary source of information to identify future changes in climate for the assessment locations will be the Met Office (2022) UKCP18 climate projections²⁶. These projections are developed to reflect likely climate change for land and coastal areas.

15.3.3 ICCI Assessment

15.3.3.1 The study area for the ICCI Assessment reflects the study area for each environmental discipline as described in the individual topic chapters.

15.4 Baseline Environment

15.4.1 GHG Assessment

15.4.1.1 Aligning with IEMA (2022) guidance, the baseline (Do-Minimum (DM) scenario) is the reference against which the impact of the Proposed Development will be compared and assessed. Assumptions are made on the projected cumulative GHG emissions over the temporal scope under this DM scenario. The DM scenario comprises the cumulative GHG emissions within the study area without implementation of the Proposed Development.

15.4.1.2 The GHG baseline has been taken as a continuation of the current situation in which the Proposed Development is not delivered. Therefore, as there are currently no activities ongoing, the baseline emissions associated with the Proposed Development (both current and future) are assumed to be zero.

15.4.2 CCR Assessment

15.4.2.1 The Met Office (2016) generates climatologies for different areas of the UK, known as climate regions, including historical regional climate information. The Proposed Development is located within the Northern²⁷ and Eastern²⁸ Scotland climate regions. High-level climate observations for the climate regions over a 30-year averaging period between 1981-2010 are presented in Table 15.2.

Table 15.2: High Level Climate Observations for the Northern and Eastern Scotland Climate Regions (1981-2010) (Source: Met Office, 2016)

Climatic Conditions	Climate observations 1981-2010
Temperature	Mean annual temperatures over the region varied from less than 6°C to 9°C. January (winter) mean daily temperatures ranged from less than -2°C to 2°C, whilst July (summer) mean daily maximum temperatures ranged from 17°C to 20°C.
Sunshine	Average annual sunshine totals ranged from less than 1100 hours to approximately 1500 hours, with average hours lowest over the Grampian mountains.
Rainfall	Annual average rainfall ranged from less than 700mm to over 1500mm, with wettest area being in the southern Grampians. In the area, rainfall tends to be generally evenly distributed throughout the year.

Climatic Conditions	Climate observations 1981-2010
Snowfall	Snow usually occurs between November and April, and rarely lies at lower levels outwith this time. It is more common at higher altitudes than in coastal areas.
Wind	Eastern Scotland is one of the windier parts of the UK and Northern Scotland is the windiest part of the UK, with the windiest season in winter months, especially from December to February. This is due to Atlantic depressions moving across the UK, starting with winds from south/south-west and later comes from the west or north-west as the depression moves away. Spring has the maximum frequency of winds from the north-east.
Air Frost	Air frost occurs when the temperature at 1.25m above the ground falls below 0°C. The average number of days with air frost varies from 40 to over 90 days per year.
Ground Frost	Ground frost occurs when a temperature below 0°C is measured on a grass surface. The average number of days with ground frost varies from 90 to 150 days per year.

15.4.3 ICCI Assessment

15.4.3.1 The baseline for the ICCI Assessment reflects the baseline as described in each environmental discipline chapters.

15.5 Assessment Methodology

15.5.1 GHG Assessment

15.5.1.1 The GHG assessment will be consistent with the best practice approach set out in the IEMA guidance on assessing GHG emissions and evaluating their significance.

15.5.1.2 The GHG assessment will quantify and report the GHG emissions anticipated to be generated or avoided by the Proposed Development. This will be reported in tonnes of carbon dioxide equivalent (tCO_{2e}), a single metric of the global warming potential of the main GHGs.

15.5.1.3 The methodology focuses on assessing the impact of the Proposed Development on GHG emissions by quantifying the net emissions arising from each lifecycle stage. Emissions associated with the Proposed Development will be compared with the baseline DM scenario (as described under 'Baseline Conditions' above) to quantify the net impact of the Proposed Development.

15.5.1.4 The information to inform this GHG assessment will be from a combination of project specific information available at the current design stage alongside publicly available industry benchmarks that can be used to provide a preliminary estimate of embodied carbon emissions and operational energy.

15.5.1.5 The GHG emissions for the Proposed Development will be calculated by converting 'activity' data into GHG emissions through the application of referenced typical emissions conversion factors widely used within the industry.

15.5.1.6 The main emissions factors used in the assessment will be from the following sources:

- Greenhouse Gas Reporting: Conversion Factors (published annually)²⁹; and

- Inventory of Carbon and Energy (ICE) database V3³⁰; and
- Valuation of energy use and greenhouse gas emissions for appraisal: supplementary guidance to the HM Treasury Green Book³¹.

15.5.1.7 The assessment team will work with the wider project team to identify opportunities to reduce the whole-life carbon of the Proposed Development across both construction and operational phases.

15.5.1.8 The IEMA (2022) guidance to assessing the significance of GHG emissions publishes the over-arching principle:

"The GHG emissions from all projects will contribute to climate change;...as such any GHG emissions or reductions from a project might be considered to be significant..."

15.5.1.9 In accordance with this guidance, any GHG emissions associated with the Proposed Development may be deemed significant. However, the guidance continues:

"The crux of significance...is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 20[45]²"

15.5.1.10 The Proposed Development is expected to result in increased GHG emissions through the construction stage. It will act as transmission infrastructure for renewable electricity throughout the operational stage. These assumptions will be confirmed within the EIAR and net emissions will be contextualised against wider sectoral and geographic GHG emissions targets and the trajectory towards net zero to determine levels of significance.

15.5.2 CCR Assessment

15.5.2.1 The CCR assessment relates to the resilience of the Proposed Development to climate change impacts. This will be reported in the form of potential hazards to development assets. The study period for assessment of climate risks will be 45 years (2027-2073).

15.5.2.2 The CCR assessment will be qualitative. It will identify likely future climate hazards and will consider potential impacts and risks arising from these for the Proposed Development. A qualitative appraisal of the significance of impacts will be carried out based on consideration of the likelihood and consequence of each impact in line with the approach set out in the IEMA (2020) guidance on Climate Change Resilience and Adaptation.

15.5.2.3 Key issues related to climate change include extreme weather events, sea level rise and storm surges. These will need to be taken into consideration during construction and operation of the Proposed Development.

15.5.2.4 The assessment will consider the potential likelihood and magnitude of impacts to the Proposed Development using a qualitative scoring scale as set out in Tables 15.3 and 15.4 below.

² Net zero emissions target date in Scotland

Table 15.3: Qualitative Likelihood of Impacts

Likelihood Category	Description
Very high	The event occurs multiple times during the lifetime of the project (45 years), e.g. approximately annually, typically 45 events.
High	The event occurs several times during the lifetime of the project (45 years), e.g. approximately once every five years, typically 9 events.
Medium	The event occurs limited times during the lifetime of the project (45 years), e.g. approximately once every 15 years, typically 3 events.
Low	The event occurs during the lifetime of the project (45 years), e.g. once in 45 years.
Negligible	The event may occur once during the lifetime of the project (45 years).

Table 15.4: Measure of Consequence

Likelihood Category	Description
Very large	National-level (or greater) disruption lasting more than 1 week.
Large	National-level disruption lasting more than 1 day but less than 1 week OR Regional level disruption lasting more than 1 week.
Moderate	Regional level disruption lasting more than 1 day but less than 1 week.
Minor	Regional level disruption lasting less than 1 day.
Negligible	Disruption as an isolated incident lasting less than 1 day.

15.5.2.5 Risks will be scored as either: very high, high, medium, low, or very low. The risk assessment will identify the need for any additional resilience measures to protect against the impacts of climate change, based on those risks assessed as 'high' or 'very high'. High level resilience measures will be designed as part of a workshop with key engineering and design experts.

15.5.2.6 The significance of the risks identified in the CCR assessment is based on the likelihood of a hazard having an impact on the Proposed Development and the consequence of the impact. As per IEMA (2020) guidance, the potential likelihood and consequence of impacts on the Proposed Development will be scored using a qualitative five-point scale, as set out in Table 15.5, with the assessment concluding "significant" or "not significant".

Table 15.5: CCR Significance Matrix

		Measure of Likelihood				
		Very low	Low	Medium	High	Very High
Measure of Consequence	Negligible	NS ³	NS	NS	NS	NS
	Minor	NS	NS	NS	S	S
	Moderate	NS	NS	S	S	S
	Large	NS	S	S	S	S
	Very Large	NS	S	S	S	S

15.5.2.7 It is considered unlikely that significant climate resilience effects will be identified, or where the potential for these are identified it is expected that adequate mitigation will be included within wider environmental and engineering design approaches. This will be confirmed within the EIAR.

15.5.3 ICCI Assessment

15.5.3.1 Following consideration of potential climate change impacts, professional judgement will be used by environmental discipline experts to produce high-level, qualitative statements about potential topic-specific impacts resulting from projected climate change (i.e. changes and trends in climate averages and extreme weather events) for receptors and resources in the area surrounding the OnTI. These will include recommendations for any required mitigation measures as well as allowances for future monitoring to ensure the identification of unexpected impacts on environmental receptors and resources. In-combination climate change impacts for each EIA topic will be presented in the relevant EIAR Chapter.

15.5.3.2 The potential significance of in-combination climate change impacts will be assessed qualitatively, based upon the professional judgement of relevant environment and climate change specialists.

15.5.3.3 All environmental topics within the EIAR may be affected by changes in climatic conditions. The Proposed Development will be designed to be resilient to forecasted changes in climate and the in-combination impacts will be assessed for all topics. In-combination climate change impacts for each EIA topic will be presented in the relevant EIAR Chapter.

15.6 Embedded Mitigation

15.6.1.1 Certain measures have been adopted by the Proposed Development in order to reduce the potential for impacts to the environment. Relating to climate, this

³ NS = Not significant, S = Significant

includes:

- Development of an Outline Construction Environmental Management Plan (CEMP) which will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further with submission of a detailed full planning application and supporting CEMP at a later date. The CEMP will be implemented to avoid, minimise or mitigate effects on the environment during the construction and decommissioning phases of the Proposed Development. The CEMP will confirm construction methods and the roles and responsibilities of parties engaged in construction. It will also detail any construction-related mitigation measures and procedures relevant to environmental management, including but not limited to the following topics: Chemical usage, invasive non-native marine species, dropped objects, pollution prevention and contingency planning, and waste management.
- If required, development of and adherence to a Project Environmental Monitoring Programme (PEMP), which will set out commitments to environmental monitoring in pre-, during and post-construction phases.

15.6.1.2 Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

15.7 Potential Impacts

15.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.

15.7.2 GHG Assessment

15.7.2.1 The Proposed Development will lead to the generation of GHG emissions during construction. However, the Proposed Development will support the generation and transmission of low carbon electricity during operation which will (assuming it reduces or avoids fossil fuel use) provide a net benefit against a future baseline in the absence of the Proposed Development.

15.7.2.2 The potential sources of GHG emissions during the Proposed Development lifecycle are outlined in Table 15.6.

Table 15.6: Potential Sources of GHG Emissions During Project Lifecycle

Sub-stage of PAS2080 Lifecycle	Potential Source of GHG emissions
Construction	
Product stage; including raw material supply, transport and manufacture (A1-3)	Embodied GHG emissions associated with the required raw materials. Vehicle emissions for transportation prior to factory gate. Energy use for fabrication of onshore project elements (e.g. substation equipment). Industrial and energy emissions in the manufacture of materials.

Sub-stage of PAS2080 Lifecycle	Potential Source of GHG emissions
Construction process stage: including transport to and from works site as well as construction and installation processes (A4-A5)	Vehicle and shipping emissions for transportation of materials to site. Energy and fuel use in construction processes.
Operation	
Operation and maintenance (including repair and replacement) (B2-B4)	Energy consumption for infrastructure operation and activities of organisations conducting routine maintenance including extraction, manufacture, transportation and installation energy use. Embodied carbon associated with materials used for repair and replacement activities.
End-of-Life	
Decommissioning (C1-C4)	Energy consumption in deconstruction processes. Vehicle and shipping emissions for transportation of materials away from site. Waste management of decommissioning materials.

15.7.3 CCR Assessment

- 15.7.3.1 During the construction phase (currently assumed 2027-2030) of the Proposed Development, there is potential for the anticipated changes to the climate (such as extreme weather events) to negatively impact the Proposed Development.
- 15.7.3.2 During the operational phase of the Proposed Development, there is potential for the anticipated changes to the climate and extreme weather events to impact on the Proposed Development.
- 15.7.3.3 The potential weather events during the Proposed Development lifecycle are outlined in Table 15.7.

Table 15.7: Summary of Weather Events and the Potential Impacts on the Proposed Development across the Full Project Lifecycle

Climatic Conditions	Potential Impacts
Heavy rain	Delay to construction programme.
High winds and gales	Delay to construction programme.
Increased temperatures and prolonged periods of hot weather	Health impacts of workers from breathing problems and sunstroke. Heat stress on electronic equipment. Increased frequency of maintenance and repair/replacement.
Increased frequency of extreme weather events	Increased requirement for maintenance and repair. Increased costs (e.g. associated with increased frequency of maintenance and repair).
Lightning	Structural damage to infrastructure. Power surges and tripping electricity breakers.

	Fires. Health impacts from direct strikes.
Snow and ice	Health impacts from slipping on ice and chest illnesses.
Fog	Danger to workers due to reduced visibility.

15.8 Potential Cumulative and In-Combination Impacts

- 15.8.1.1 IEMA GHG guidance (2022) states “effects of GHG emissions from specific cumulative projects...should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other”. Therefore, cumulative impacts will be scoped out of the GHG Assessment.
- 15.8.1.2 For the CCR assessment, a cumulative impact would be where other development may increase climate risks to the Proposed Development. It is expected these cases are likely to be minimal but risks of CCR cumulative impacts will remain scoped in and will be reported, where relevant, in the Climate and Carbon Chapter of the EIAR. It is considered unlikely that significant cumulative CCR effects will be identified, or where the potential for these are identified it is expected that adequate mitigation will be included within wider environmental and engineering design approaches.
- 15.8.1.3 For the ICCI assessment (described within Section 15.5.3), cumulative ICCI impacts would occur where climate change impacted upon other environmental receptors which were themselves at risk from cumulative impacts. It is expected these cases are likely to be minimal but risks of ICCI cumulative impacts will remain scoped in as part of the main review of ICCI risks and reported (where applicable) in each EIA topic chapter.

15.9 Potential Secondary Mitigation

- 15.9.1.1 Any potential Secondary Mitigation measures (over and above the embedded mitigation outlined above) will be identified as part of the Climate assessment.

15.10 Proposed Scope

- 15.10.1.1 Table 15.8 outlines the potential impacts proposed to be included within the climate and carbon assessment.

Table 15.8: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Greenhouse Gases	✓	✓	✓
CCR	✓	✓	✓
ICCI	✓	✓	✓

15.11 Consultation

15.11.1.1 Consultation will be undertaken with local authorities post scoping submission to confirm the assessment approach and any required mitigation.

15.12 Questions to Consultees

15.12.1.1 The following questions are posed to consultees to frame and focus responses to the Climate and Carbon scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree that receptors and potential impacts have been identified for Climate?
- Do you agree with the project impacts which have been scoped out of the EIA for Climate?
- Do you agree with the proposed approach to assessment?

15.13 References

¹UNFCCC (1997) Kyoto Protocol. Available at: https://unfccc.int/kyoto_protocol (Last accessed 22 August 2022)

² UNFCCC (2015) Paris Agreement. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (Last accessed 22 August 2022)

³EIA Directive (2014/52/EU). Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052> (Last accessed 22 August 2022)

⁴ The Climate Change Act 2008 (2050 Target Amendment) Order 2019. Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111187654> (Last accessed 22 August 2022)

⁵ The Climate Change (Scotland) Act 2009. Available at: <https://www.legislation.gov.uk/asp/2009/12/contents> (Last accessed 22 August 2022)

⁶ The Climate Change Act 2008. Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents> (Last accessed 22 August 2022)

⁷ The Climate Change (Emission Reduction Targets) (Scotland) Act 2019. Available at: <https://www.legislation.gov.uk/asp/2019/15/enacted> (Last accessed 22 August 2022)

⁸The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/asp/2019/15/enacted> (Last accessed 22 August 2022)

⁹Planning (Scotland) Act 2019. Available at: <https://www.legislation.gov.uk/asp/2019/15/enacted> (Last accessed 22 August 2022)

¹⁰ Scottish Government (2014) National Planning Framework 3. Available at: <https://www.gov.scot/publications/national-planning-framework-3/> (Last accessed 22 August 2022)

¹¹Scottish Government (2022) Draft National Planning Framework 4. Available at: [National Planning Framework 4: Revised Draft \(www.gov.scot\)](https://www.gov.scot/publications/national-planning-framework-4/) (Last accessed 11 November 2022)

¹² Scottish Government (2020) Securing a green recovery on a path to net zero: climate change plan 2018-2032 – update. Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/> (Last accessed 22 August 2022)

¹³ Scottish Government (2019) Climate Ready Scotland: climate change adaptation programme 2019-2024. Available at: <https://www.gov.scot/publications/climate-ready-scotland-second-scottish-climate-change-adaptation-programme-2019-2024/> (Last accessed 22 August 2022)

¹⁴ Climate Change Committee (2017) UK Climate Change Risk Assessment 2017. Available at: <https://www.theccc.org.uk/publication/uk-climate-change-risk-assessment-2017/> (Last accessed 22 August 2022)

¹⁵Aberdeen City and Shire (2020) Aberdeen City and Shire Strategic Development Plan. Available at: <http://publications.aberdeenshire.gov.uk/dataset/b5991364-41ff-4827-b5d4->

06aa48c0616a/resource/27bcc9ff-8b5f-4dc3-b322-519f9800ac2c/download/abdnandshirestrategicdevplanfinal2020.pdf (Last accessed 22 August 2022)

¹⁶ Aberdeenshire Council (2022) (Proposed) Local Development Plan. Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/> [Accessed 22/08/2022]

¹⁷ Aberdeenshire Council (2017) Aberdeenshire Council Environmental and Climate Change Policy. Available at: <http://publications.aberdeenshire.gov.uk/dataset/e98d7dcf-d485-48b8-8077-ef0a6908e055/resource/31e7fd29-804f-4113-93e9-3f7aa835c33d/download/iss-061-env--environmental-and-climate-change-policy.pdf> (Last accessed 22 August 2022)

¹⁸ Aberdeenshire Council (n.d.) Carbon budget. Available at: <https://www.aberdeenshire.gov.uk/environment/green-living/environmental-policy/> (Last accessed 22 August 2022)

¹⁹ IEMA (2022) Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: https://s3.eu-west-2.amazonaws.com/iema.net/documents/knowledge/policy/impact-assessment/J35958_IEMA_Greenhouse_Gas_Guidance-1.pdf (Last accessed 22 August 2022)

²⁰ IEMA (2020) Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation. Available at: <https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020> (Last accessed 22 August 2022)

²¹ LETI (2020), Embodied Carbon Primer. Available at: <https://www.leti.london/ecp> (Last accessed 22 August 2022)

²² BSI (2016) PAS 2080: Carbon Management in Infrastructure. Available at: <https://knowledge.bsigroup.com/products/carbon-management-in-infrastructure/standard> (Last accessed 22 August 2022)

²³ RICS (2017), Whole life carbon assessment for the built environment. Available at: <https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the--built-environment-november-2017.pdf> (Last accessed 22 August 2022)

²⁴ UK Government (2018), Clean Growth Strategy. Available at: <https://www.gov.uk/government/publications/clean-growth-strategy> (Last accessed 22 August 2022).

²⁵ UK Government (2013), Construction 2025: strategy. Available at: <https://www.gov.uk/government/publications/construction-2025-strategy> (Last accessed 22 August 2022)

²⁶ Met Office (2022) UKCP 18. Available at: <https://ukclimateprojections-ui.metoffice.gov.uk/ui/home> (Accessed 22 August 2022)

²⁷ Met Office (2016) Northern Scotland: Climate. Available at: [OW Climate](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-</p></div><div data-bbox=)

about/uk-past-events/regional-climates/northern-scotland_-climate---met-office.pdf (Last accessed 22 August 2022)

²⁸ Met Office (2016) Eastern Scotland: Climate. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/eastern-scotland_-climate---met-office.pdf (Last accessed 11 October 2022)

²⁹ Department for Business, Energy and Industrial Strategy (2013) Government conversion factors for company reporting of greenhouse gas emissions. Available at: <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting> (Last accessed 22 August 2022)

³⁰ Circular Ecology (2019) Inventory of Carbon and Energy V3. Available at: <https://circularecology.com/embodied-carbon-footprint-database.html>. (Last accessed 22 August 2022)

³¹ Department for Business, Energy and Industrial Strategy (2021) Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal. Available at: <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal> (Last accessed 22 August 2022)



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 16

Socio-economics, Tourism and Recreation

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	16-5
16 SOCIO-ECONOMICS, TOURISM AND RECREATION	16-6
16.1 INTRODUCTION	16-6
16.2 LEGISLATIVE AND POLICY CONTEXT	16-6
16.2.1 Policy	16-6
16.2.2 Guidance	16-8
16.3 STUDY AREA	16-9
16.4 BASELINE ENVIRONMENT.....	16-10
16.4.1 Data Sources.....	16-10
16.4.2 Socio-Economics Baseline	16-11
16.4.3 Population.....	16-11
16.4.4 Population Projections	16-11
16.4.5 Economic Activity.....	16-12
16.4.6 Industrial Structure	16-12
16.4.7 Tourism and Recreation Baseline	16-13
16.4.8 Visits and Spend of Tourists.....	16-13
16.4.9 Local Tourism Attractions	16-14
16.4.10 Other Tourism and Recreation Assets	16-15
16.5 ASSESSMENT METHODOLOGY	16-15
16.5.1 Socio-economic Impacts	16-15
16.5.2 Tourism and Recreation	16-17
16.6 EMBEDDED MITIGATION	16-17
16.7 POTENTIAL IMPACTS	16-17
16.7.2 Construction	16-17
16.7.3 Operation	16-18
16.7.4 Decommissioning	16-18
16.8 POTENTIAL CUMULATIVE AND IN-COMBINATION IMPACTS	16-18
16.9 POTENTIAL SECONDARY MITIGATION	16-19
16.9.1 Construction	16-19
16.10 PROPOSED SCOPE	16-19
16.11 CONSULTATION	16-19
16.12 QUESTIONS TO CONSULTEES.....	16-19
16.13 REFERENCES	16-20

List of Figures

FIGURE 16.1: TOURISM AND RECREATION STUDY AREA (TRSA)

List of Tables

TABLE 16.1: POPULATION, 2020	16-11
TABLE 16.2: POPULATION PROJECTIONS BY AGE (2018-2043).....	16-12
TABLE 16.3: ECONOMIC ACTIVITY, 2021	16-12
TABLE 16.4: INDUSTRIAL STRUCTURE, 2020.....	16-13
TABLE 16.5: VISITS AND VISITOR SPENDING, 2019	16-14
TABLE 16.6: TOURISM AND RECREATION STUDY AREA ATTRACTIONS	16-14
TABLE 16.7: PROPOSED SCOPE.....	16-19

Acronyms and Abbreviations

BRES	Business Register and Employment Survey
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GB	Great Britain
GVA	Gross Value Added
GW	Gigawatt
NPF	National Planning Framework
NPF3	Third National Planning Framework
OnTI	Onshore Transmission Infrastructure
ORE	Offshore Renewable Energy
OWF	Offshore Wind Farm
SCDS	Supply Chain Development Statement
TRSA	Tourism and Recreation Study Area
UK	United Kingdom

16 Socio-economics, Tourism and Recreation

16.1 Introduction

16.1.1.1 This Chapter of the Onshore Scoping Report identifies Socio-economics, Tourism and Recreation receptors of relevance to the Proposed Development and considers the potential impacts from the construction, operation and decommissioning of the Proposed Development and the methodology to be adopted in the Environmental Impact Assessment (EIA). The analysis will build on the publicly available Supply Chain Development Statement (SCDS) Outlook (Ocean Winds, 2021), which sets out the supply chain commitments of the Caledonia Offshore Wind Farm. The impacts associated with offshore elements, such as the turbines and subsea cabling, are considered as part of a separate Offshore Scoping Report.

16.1.1.2 This Chapter is supported by the following figure:

- Figure 16.1: Tourism and Recreation Study Area (TRSA).

16.2 Legislative and Policy Context

16.2.1 Policy

National Performance Framework

16.2.1.1 Scotland's National Performance Framework¹ sets out the ambitions of the Scottish Government across a range of economic, social and environmental factors. The framework includes 'increased wellbeing' as part of its purpose and combined measurement of how well Scotland is doing in economic terms with a broader range of wellbeing measures. The NPF is designed to give a more rounded view of economic performance and progress towards achieving sustainable and inclusive economic growth and wellbeing across Scotland.

16.2.1.2 The aims for Scotland set out in the National Performance Framework are to:

- Create a more successful country;
- Give opportunities to all people living in Scotland;
- Increase the wellbeing of people living in Scotland;
- Create sustainable and inclusive growth; and
- Reduce inequalities and give equal importance to economic, environmental and social progress.

National Planning Framework 4

16.2.1.3 In 2022, the Scottish Government published a revised draft consultation for the National Planning Framework 4², which will set out Scotland's spatial strategy to 2045. It affirms the importance of Scotland's transition to a net zero economy through green investment and green jobs, with offshore wind energy playing a part in developing the coastal economy and supporting regeneration in the north east. It also states that renewable energy developments must take account of net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities..

National Strategy for Economic Transformation

16.2.1.4 In March 2022, the Scottish Government released the National Strategy for

Economic Transformation³, which set out its ambition for Scotland's economy over the next 10 years. The Scottish Government's vision is to create a wellbeing economy where society thrives across economic, social and environment dimensions, which delivers prosperity for all Scotland's people and places. Of particular importance is the ambition to be greener, with a just transition to net zero, a nature-positive economy and a rebuilding of natural capital.

16.2.1.5 A key longer-term challenge identified in the strategy is to address deep-seated regional inequality, which includes in rural and island areas that face problems such as a falling labour supply, poorer access to infrastructure and housing. The transition to net zero presents a further challenge of delivering positive employment, revenue and community benefits.

16.2.1.6 To deliver its vision and address the economy's challenges, five programmes of action have been identified (with a sixth priority of creating a culture of delivery), including:

- Establishing Scotland as a world-class entrepreneurial nation;
- Strengthening Scotland's position in new markets and industries, generating new, well-paid jobs from a just transition to net zero;
- Making Scotland's businesses, industries, regions, communities and public services more productive and innovative;
- Ensuring that people have the skills they need to meet the demands of the economy, and that employers invest in their skilled employees; and
- Reorienting the economy towards wellbeing and fair work.

16.2.1.7 The strategy notes that Scotland has substantial energy potential, with a quarter of Europe's wind potential, and that it has developed a growing green industrial base. This provides a strong foundation for securing new market opportunities arising from the transition to net zero, for example in the hydrogen economy and in the decarbonisation of heating systems, where Scotland may be able to secure first-mover advantage and will need continuing investment and support. Renewable energy also has a role to play in supporting productive businesses and regions across Scotland.

Offshore Wind Policy Statement

16.2.1.8 The Scottish Government's 2020 Offshore Wind Policy Statement⁴ highlights the substantial potential of Scotland's waters for offshore wind and the importance of the sector in the transition to net zero.

16.2.1.9 When the policy statement was published in October 2020 the ScotWind leasing round was expected to lead to an additional 11 gigawatts (GW) of offshore wind capacity by 2030, generating substantial economic impacts in Scotland's offshore wind supply chain. In contrast, the ScotWind leasing round is now expected to lead to an additional 25GW of offshore wind capacity (CES, 2022), with particular economic opportunities related to floating offshore.

Regional Economic Strategy: Securing the Future of the North-East Economy

16.2.1.10 In 2015, Opportunity North-East, in collaboration with Aberdeen City Council and Aberdeenshire Council, published a regional economic strategy for the North East,

which aimed to present a 20-year vision for the wellbeing of the region and its people (Opportunity North East, 2015).

- 16.2.1.11 Building on the Scottish Government’s economic strategy (2015) and the recent decline in the price of oil, the strategy envisions a stronger, more diverse economy and centres the four principles of investment in infrastructure, innovation, inclusive economic growth and internationalisation. Key sectors that were identified include the energy sector (including renewables and hydrogen), tourism, food and drink and fisheries and agriculture.
- 16.2.1.12 Offshore wind has gained increasing prominence more recently, including in the Aberdeen City Region Deal (Aberdeen City Region, 2022). Investments of over £350 million have been made in the Net Zero Technology Centre, which focuses on reducing emissions (including in the oil and gas sector), the deployment of offshore wind and integration of the new energy system. A further £350 million has been invested in the Aberdeen South Harbour, which is intended to play a significant role in offshore wind and maximising the benefits of ScotWind.

16.2.2 Guidance

Socio-economics

16.2.2.1 The Scottish Government is in the process of developing guidance on the assessment of the socio-economic impacts of offshore wind energy projects. It is expected that this shall be published in 2022, thus prior to the completion of the EIA. This guidance shall be adhered to within the Environmental Impact Assessment Report (EIAR), and it is assumed that it shall build on current best practice, including guidance and principle contained within:

- Glasson *et al.* (2018), Guidance on assessing the socio-economic impacts of Offshore Wind Farms⁵;
- Scottish Government (2022), Defining ‘local area’ for assessing impact of offshore renewables and other marine developments: guidance principles⁶;
- Scottish Government (2016), Draft advice on Net Economic Benefit and Planning⁷; and
- HM Treasury (2022), The Green Book: Appraisal and Evaluation in Central Government⁸.

Tourism and Recreation

16.2.2.2 For recreational assets, the assessment will follow guidance that has been provided by NatureScot (previously Scottish Natural Heritage)⁹ on how to assess effects on recreational amenity. This takes into consideration a number of potential effects, including direct effect on facilities, such as limitation or restrictions on access, and effects on the intrinsic quality of the resources enjoyed by people. In general, this guidance would consider recreational and access effects to potentially be significant if:

- Permanent or long-term effects on the resources on which enjoyment of the natural heritage depends, in particular where facilities have been provided by NatureScot or others under statutory powers;
- Permanent or long-term change that would affect the integrity and long-term

sustainable management of facilities which were provided by NatureScot or others under statutory powers;

- Where there are recreational resources for open air recreation pursuits affected by the proposal which have more than local use or importance, especially if that importance is national in significance;
- Major constraints on or improvements for access or accessibility to designated natural heritage sites; and
- Where mitigation and/or compensatory or alternative recreational provision is considered to be inadequate.

16.3 Study Area

16.3.1.1 The Socio-economics, Tourism and Recreation onshore study area used within this Onshore Scoping Report Chapter and for the assessment of effects on employment and economy onshore within the EIAR has been defined in line with the guidance on identification of 'local areas' for the offshore developments published by the Scottish Government (Scottish Government, 2022).

16.3.1.2 This guidance identified six principles for identifying study areas for offshore renewables and other marine developments. The principles consider the main locations of where socio-economic impacts will occur and have been applied to the Onshore Transmission Infrastructure (OnTI). The principles are:

- Principle 1 (Dual Geographies) - The local area for the supply chain and investment impacts should be separate from the local area(s) for wider socio-economic impacts, including tourism and recreation;
- Principle 2 (Appropriate Impacts) - The appropriate impacts to be considered for assessments should be identified before defining the local areas;
- Principle 3 (Epicentres) - The local areas should include all the epicentres of the appropriate impacts;
- Principle 4 (Accountability) - The local areas used in the assessment should comprise of pre-existing economic or political geographies (community councils, local authorities, development agencies) to enhance accountability;
- Principle 5 (Understandable) - The local areas should be defined in such a way that they are understandable to the communities they describe; and
- Principle 6 (Connected Geography) - The local area for the supply chain and investment impacts should consist of connected (including coastal) pre-existing economic or political geographies.

16.3.1.3 In line with this guidance, the study areas for the socio-economic impacts are different from those used for the assessment of tourism and recreation impacts.

16.3.1.4 The socio-economic study area is the smallest connected geography area that will include all likely epicentres of impact, such as sites for OnTI construction (Onshore Cable Corridor, Onshore Substation and Landfall Site) and the likely location of the key port locations in the UK.

16.3.1.5 Therefore, socio-economic impacts will be assessed at the following areas:

- Aberdeenshire;
- Scotland; and
- the UK.

16.3.1.6 For tourism and recreation, the onshore study area focusses on the local administrative areas that contain the OnTi. The OnTi is located in the Aberdeenshire Council area. This local authority covers a large geography and, therefore, the tourism and recreation study area focusses on electoral wards. Within this Onshore Scoping Report Chapter the study area considers those electoral wards that are included within the Onshore Scoping Area. The electoral wards are:

- Banff and District;
- Central Buchan;
- Troup; and
- Turriff and District.

16.3.1.7 These four areas constitute the Tourism and Recreation Study Area (TRSA), which is shown in Figure 16.1.

16.3.1.8 The TRSA will be refined for the EIAR following refinement of the OnTI and the identification of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site .

16.4 Baseline Environment

16.4.1 Data Sources

16.4.1.1 The data sources that have been used to inform this socio-economic, tourism and recreation Chapter of the Onshore Scoping Report are presented within Section 16.4.7.

16.4.1.2 In addition to data provided by Caledonia Offshore Wind Farm (OWF) and previous experience of Economics specialists in supporting the Proposed Development, the sources that shall be used in this assessment will include:

- (National Records of Scotland, 2021), Mid-2020 Electoral Ward Population Estimates¹⁰;
- (National Records of Scotland, 2019), 2018-based principal population projections for council areas¹¹;
- (ONS, 2021), Business Register and Employment Survey¹²;
- (ONS, 2022), Annual Business Survey¹³;
- (ONS, 2022), Annual Survey of Hours and Earnings 2021¹⁴;
- (ONS, 2022), Population Estimates - local authority based by five-year age band¹⁵;
- (ONS, 2019), Principal Population Projections 2018-based¹⁶;
- (ONS, 2020), International Passenger Survey 2019¹⁷;

- (Kantar TNS, 2020), GB Day Visitor Survey 2019¹⁸;
- (Kantar TNS, 2020), The GB Tourism Survey 2019¹⁹;
- (Offshore Wind Industry Council, 2021), People Skills Survey 2021 – 2026²⁰;
- (Offshore Wind Industry Council, 2020), Collaborating for Growth: Strategies for Expanding the UK Offshore Wind Supply Chain²¹;
- (Oxford Brookes University, 2020), Guidance on assessing the socio-economic impacts of OWFs²²;
- (Offshore Renewable Energy (ORE) Catapult, 2020); Offshore Wind O&M a £9 billion per year opportunity by 2030 for the UK to seize²³; and
- (BVG Associates, 2019), Guide to an OWF²⁴.

16.4.1.3 In addition, the Scottish Census is expected to be published in advance of the EIAR chapter being drafted and where relevant this will be consulted as a data source. Published data from public bodies, including local authorities, will also be used for non-centralised data including recreational routes.

16.4.2 Socio-Economics Baseline

16.4.2.1 This Section presents baseline statistics for each of the study areas, including the TRSA, Aberdeenshire, Scotland and the UK.

16.4.3 Population

16.4.3.1 As shown in Table 16.1 (ONS, 2021; National Records of Scotland, 2021), the TRSA had a population of 47,624 in 2020, accounting for 18.3% of people in Aberdeenshire, which had a population of 260,800 the same year. As a whole, the population of Aberdeenshire was equivalent to 4.8% of Scotland’s population.

16.4.3.2 The share of the TRSA population accounted for by people aged 65 and over was higher than average, accounting for 22.1% compared to 20.0% in Aberdeenshire, 19.3% in Scotland and 18.6% across the UK as a whole. The share of people of working age in the TRSA was also lower than average (60.5%) compared to Aberdeenshire (61.3%), Scotland (63.9%) and the UK (62.4%).

Table 16.1: Population, 2020

Group	TRSA	Aberdeenshire	Scotland	UK
Total	47,600	260,800	5,466,000	67,081,200
0-15	17.5%	18.7%	16.8%	19.0%
16-64	60.5%	61.3%	63.9%	62.4%
65+	22.1%	20.0%	19.3%	18.6%

16.4.4 Population Projections

16.4.4.1 Population projections are not available at the electoral ward level in Scotland but are available for Scotland and at the local authority level (National Records of Scotland, 2019), as well as for the UK as a whole (ONS, 2019).

16.4.4.2 As shown in Table 16.2, between 2018 and 2043, Aberdeenshire’s population is expected to increase by 2.4%, from 261,470 in 2018 to 267,796 in 2043. This is a similar increase to Scotland as a whole, for which the population is projected to increase by 2.5%. Across the UK, the population is expected to increase by 9.0% over the same period.

16.4.4.3 In Aberdeenshire, it is expected that the share of the population accounted for by people of working age will decrease from 62.2% in 2018 to 57.2% in 2043, lower than across Scotland (59.4%) and the UK as a whole (59.0%). The share of the Aberdeenshire population accounted for by people aged 65 and over is also expected to increase between 2018 and 2043, from 19.0% to 26.6%. This is higher than across Scotland as a whole (25.9%) and the UK (24.0%).

Table 16.2: Population Projections by age (2018-2043)

Group	Aberdeenshire		Scotland		UK	
	2018	2043	2018	2043	2018	2043
Total	261,470	267,796	5,438,100	5,574,819	66,437,568	72,419,993
0-15	18.8%	16.2%	17.0%	14.6%	19.0%	17.0%
16-64	62.2%	57.2%	63.8%	59.4%	62.7%	59.0%
65+	19.0%	26.6%	19.2%	25.9%	18.3%	24.0%

16.4.5 Economic Activity

16.4.5.1 Table 16.3 shows the economic activity of Aberdeenshire, Scotland and the UK in 2021. The economic activity rate of Aberdeenshire (79.2%) is higher than in Scotland (76.1%) and the UK as a whole (78.3%). The unemployment rate in Aberdeenshire (4.1%) was lower than across Scotland as a whole (4.3%) and the UK (4.8%). In Aberdeenshire, the median annual gross wage was £32,605, higher than across Scotland (£31,659) and the UK as a whole (£30,257) (ONS, 2022; ONS, 2022).

Table 16.3: Economic Activity, 2021

Economic Indicator	Aberdeenshire	Scotland	UK
Economic Activity Rate (%)	79.2%	76.1%	78.3%
Unemployment Rate (%)	4.1%	4.3%	4.8%
Median Annual Gross Wage (resident)	£32,605	£31,659	£30,257

16.4.6 Industrial Structure

16.4.6.1 As shown in Table 16.4, the Business Register and Employment Survey (BRES) there are 14,595 people employed across the TRSA and 108,925 across Aberdeenshire (ONS, 2022). The highest share of employment in the TRSA is accounted for by manufacturing (16.1%), which is higher than average compared to Aberdeenshire (11.9%), Scotland (7.0%) and the UK (7.7%).

- 16.4.6.2 The area may benefit from contracts in the construction sector. Employment in this sector within the TRSA is significantly higher than average, accounting for 12.1% of employment in the area compared to 7.3% across Aberdeenshire, 5.1% in Scotland as a whole and 4.9% in the UK.
- 16.4.6.3 Employment in accommodation and food services, which is typically associated with tourism sector, is higher in the TRSA (6.6%) than in Aberdeenshire (6.0%), but lower than Scotland and the UK as a whole (7.1%)
- 16.4.6.4 Across Aberdeenshire, employment in the professional, scientific and technical activities and mining and quarrying sectors are higher than average as a result of the offshore oil and gas sector.

Table 16.4: Industrial Structure, 2020

Industry	TRSA	Aberdeenshire	Scotland	UK
Manufacturing	16.1%	11.9%	7.0%	7.7%
Human health and social work activities	15.2%	9.2%	16.1%	13.2%
Wholesale and retail trade; repair of motor vehicles and motorcycles	13.6%	13.3%	13.7%	14.7%
Construction	12.1%	7.3%	5.1%	4.9%
Education	9.1%	7.3%	8.0%	8.6%
Accommodation and food service activities	6.6%	6.0%	7.1%	7.1%
Professional, scientific and technical activities	6.5%	10.1%	7.0%	8.8%
Transportation and storage	4.5%	3.9%	4.3%	5.0%
Administrative and support service activities	4.0%	4.6%	7.7%	8.6%
Public administration and defence	2.7%	3.4%	6.2%	4.4%
Electricity, gas, steam and air conditioning supply	2.2%	0.7%	0.8%	0.4%
Agriculture, forestry and fishing*	1.7%	9.6%	3.1%	1.6%
Other service activities	1.5%	1.4%	1.7%	2.0%
Arts, entertainment and recreation	1.3%	1.7%	2.2%	2.3%
Mining and quarrying	0.8%	5.5%	1.1%	0.2%
Information and communication	0.8%	1.5%	3.5%	4.3%
Water supply; sewerage, waste management and remediation	0.5%	0.7%	0.7%	0.7%
Real estate activities	0.4%	1.0%	1.5%	1.9%
Financial and insurance activities	0.3%	0.7%	3.1%	3.4%
Total	14,595	108,925	2,544,000	30,545,750

* Employment in farm agriculture is not captured in the BRES for geographies smaller than local authority level .

16.4.7 Tourism and Recreation Baseline

- 16.4.7.1 The tourism and recreation baseline outlines the scale of the tourism economy and identifies key attractions in the area. This includes an overview of visitor numbers and their spend and key attractions within the TRSA.

16.4.8 Visits and Spend of Tourists

- 16.4.8.1 Data on tourists and tourism spending is available from various sources, including the GB Day Visitor Survey (Kantar TNS, 2020), the GB Tourism Survey (Kantar TNS, 2020), and the International Passenger Survey (ONS, 2020), for which data is averaged over a three-year period (2017-2019). Data was not available at the level of electoral wards, so visitor numbers and spending for Aberdeenshire were included.
- 16.4.8.2 Table 16.5 shows that, in 2019, there were 7 million visits to Aberdeenshire, accounting for around 4% of all visits to Scotland as a whole. Total spending in Aberdeenshire was £245 million, equivalent to 2% of spending across Scotland as a whole.
- 16.4.8.3 Day visitors made the most significant contribution within Aberdeenshire, representing 93% of all visits to Aberdeenshire. Day visitor spending in Aberdeenshire accounted for 66% of the total spend in the area.
- 16.4.8.4 Domestic overnight visitors represented 6% of all visitors to Aberdeenshire and 21% of total spending in the area. International overnight visits accounted for 1% of visits and 13% of spending in Aberdeenshire.

Table 16.5: Visits and Visitor Spending, 2019

Visits/Spend	Aberdeenshire	Scotland	UK
<i>Visits (million)</i>			
Day Visitors	6	145	1,795
Domestic Overnight	<1	12	1212
International Overnight	<1	4	40
Total Visits	7	161	1,957
<i>Spend (£ million)</i>			
Day Visitors	161	5,186	58,623
Domestic Overnight	52	2,989	24,099
International Overnight	32	1,538	27,413
Total Spend	245	10,714	110,135

16.4.9 Local Tourism Attractions

- 16.4.9.1 To identify attractions within the TRSA, various online sources which list popular attractions were used, including VisitScotland²⁵, Historic Environment Scotland²⁶ and Visit Aberdeenshire²⁷. Major attractions located within the TRSA are shown in Table 16.6.

Table 16.6: Tourism and Recreation Study Area Attractions

Attraction	Description
Banff Castle	A ruined 12th century former royal castle
Banff Harbour Marina	A recreational harbour which hosts small fishing boats and pleasure craft
Deer Abbey	A ruined Cistercian Monastery
Delgatie Castle	Castle originally constructed in 1030
Duff House	Country house containing collections of furniture and art

Duff House Royal Golf Club	Golf course which looks out on to the Moray Firth
Eden Castle	A ruined tower house built in 1577
Fyvie Castle and Estate	A 13 th century castle with extensive grounds, managed by the National Trust for Scotland
George Watt Surf School	Water sports centre offering surfing classes
Glendronach Distillery	Whisky distillery with a visitor centre offering tours
Inchdrewer Castle	A 16th century tower house which looks across to Banff Bay
Macduff Marine Aquarium	Aquarium showcasing Scotland's sea creatures and underwater habitats
Museum of Banff	Museum founded in 1828 featuring displays of Banff silver
Rhuallan Raptors	Falconry centre featuring educational talks, flying displays and hunting trips
River Deveron	Popular river for salmon and trout fishing
RSPB Scotland Loch of Strathbeg Nature Reserve	Nature reserve providing habitat to a variety of wildlife
Sandend Beach	Broad sandy beach located in the small fishing village of Sandend
St Mary's Parish Church	Large church built in 1790 located in the South of Banff
Suds Surf School	Water sports centre providing classes in surfing, bodyboarding and stand-up paddleboarding
Troup Head Nature Reserve	Coastal cliff top nature reserve which provides habitat to Scotland's only mainland gannet colony
Turriff Golf Club	Eighteen-hole golf course which hosts events and competitions

16.4.10 Other Tourism and Recreation Assets

16.4.10.1 In addition to visitor attractions, other tourism and recreation assets, such as recreational paths and accommodation providers, will be identified within the EIAR, following refinement of the OnTI and the identification of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site. These will be assessed in line with guidance published by NatureScot (Scottish Natural Heritage, 2018).

16.5 Assessment Methodology

16.5.1 Socio-economic Impacts

16.5.1.1 Socio-economic impacts will be assessed for each of the socio-economic study areas, and the sensitivity will be considered based on the relative size of the economy, with smaller study areas considered more sensitive to change than larger study areas.

16.5.1.2 The impacts will be reported in terms of:

- Gross Value Added (GVA) - this is a measure of economic value added by an organisation or industry and is typically estimated by subtracting the non-staff operational costs from the revenues of an organisation;
- Years of Employment - this is a measure of employment which is equivalent to one person being employed for an entire year and is typically used when

considering short term employment impacts, such as those associated with the development and construction phase of the Proposed Development; and

- Jobs - this is a measure of employment which considers the headcount employment in an organisation or industry. This measure is used when considering long term impacts such as the jobs supported during the operational phase of the Proposed Development.

- 16.5.1.3 The economic impacts associated with the supply chain shall be assessed in line with the approach considered in the UK Offshore Wind Sector Deal (UK Government, 2020), the focus of the assessments will be the direct and indirect (supply chain) impacts. In addition to this, the Proposed Development shall also consider the impacts of staff spending and the economic impact that this subsequent increase in demand stimulates (the induced impact).
- 16.5.1.4 It is acknowledged that at the time of writing, the exact levels of expenditure are unknown. This expenditure is what shall drive the positive economic impacts. The socio-economic assessment shall therefore consider the reasonable 'worst case scenario' of the lowest, realistic levels of expenditure associated with the Proposed Development, in line with the Applicant's commitment in the SCDS: Outlook (Ocean Winds, 2021), though these may be subject to change as the Applicant refines the Proposed Development. This will also affect the assumptions for the reasonable 'worst case scenario' for the Proposed Development.
- 16.5.1.5 The socio-economic assessment for the Proposed Development will cover:
- Construction;
 - Operation; and
 - Decommissioning
- 16.5.1.6 The impacts during the construction phases will be based on the actual expenditure that has occurred to date as well as the planned expenditure associated with these phases. In addition to the total impact over the period, the assessment will also consider the timings of impacts during this stage to understand the peaks and troughs of this activity.
- 16.5.1.7 The impacts during the operation of the Proposed Development will be based on projected operational expenditure.
- 16.5.1.8 Where impacts are expected to occur over a number of years, such as operation, a discount rate will be applied. This allows impacts that occur sooner to be valued more highly than impacts that occur in the future, a concept known as time preference. In this instance a discount rate of 3.5% will be chosen, which is in line with the UK Government's Green Book (UK Government, 2022).
- 16.5.1.9 Once the economic impact of the Proposed Development has been assessed in terms of GVA and employment, an assessment will be made about the relative magnitude of the impact. Using the methodology outlined in Chapter 4, the significance of the effect will then be assessed.
- 16.5.1.10 A Methodological Appendix will be produced that will outline the approach and data sources in more detail.

16.5.2 Tourism and Recreation

- 16.5.2.1 Visitor attractions and recreational assets have been identified within the study area. The sensitivity of each asset will be determined by the contribution that it makes to the overall tourism economy or recreational amenity of the area. This shall be completed in line with the guidance on assessing impacts on recreational assets provided by NatureScot ((Scottish Natural Heritage, 2018).
- 16.5.2.2 The key features associated with a visitor attraction or recreational asset will also be considered and whether the Proposed Development has an impact on these key features, leading to a change in visitor behaviour or a reduction in recreational amenity. This will consider the magnitude of impacts considered in other chapters, such as visual, traffic or noise, and the sensitivity of each asset to such effects.
- 16.5.2.3 The effect on each tourism and recreational assets will then be determined based on their sensitivity and magnitude of each impact, using the methodology outlined in Chapter 4.

16.6 Embedded Mitigation

- 16.6.1.1 Certain measures have been adopted by the Proposed Development in order to reduce the potential for negative Socio-economics, Tourism and Recreation effects and to maximise any positive effects that are identified. As part of the SCDS (Ocean Winds, 2021), the Applicant has committed to support the development of the Scottish supply chain and maximise the potential economic benefits to Scotland, though this is contingent on the activities of a range of stakeholders and developers.
- 16.6.1.2 An Outline Construction Environmental Management Plan (CEMP) will be produced and included alongside the EIAR to support the planning application in principle. The Outline CEMP will then be developed further on submission of the detailed full planning application at a later date. The Outline CEMP will include measures to minimise disruption and to employ a Supply Chain Manager and a Community Engagement Officer who will work together to support benefits to the local area, while minimising disruption.
- 16.6.1.3 Effects that are considered to be significant after the implementation of embedded mitigation and best practice will be identified in the EIAR. Where the impact assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects to acceptable (non-significant) levels.

16.7 Potential Impacts

- 16.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.
- 16.7.2 Construction
 - 16.7.2.1 The potential impacts arising from construction of the Proposed Development are expected to include:

- Construction expenditure associated with the OnTI, supporting economic activity in the study area;
- Changes to visitor behaviour in the TRSA as a result of the construction of the OnTI;
- Demographic and service demand impacts, including short term accommodation demand; and
- Potential impacts on recreational access and amenity.

16.7.3 Operation

16.7.3.1 The potential impacts arising from the operation of the Proposed Development are expected to include:

- Expenditure associated with OnTI, supporting economic activity in the study area; and
- Changes to visitor behaviour in the TRSA as a result of operation of the OnTI.

16.7.4 Decommissioning

16.7.4.1 The OnTI will be decommissioned after the operational life of the Proposed Development. This activity will therefore occur decades into the future. At the time of the assessment, it will therefore be not possible to assess either the potential magnitude of the effects of this activity or the sensitivity of the receptors. In addition future impacts will be discounted in line with the Green Book (HM Treasury, 2022) guidance which will decrease the magnitude of any estimated effects. It will therefore be unlikely that any significant effects could be identified with any confidence Therefore, decommissioning effects have been scoped out.

16.8 Potential Cumulative and In-Combination Impacts

16.8.1.1 There is the potential for the Socio-economics, Tourism and Recreation impacts estimated from the Proposed Development to interact with other projects, such as the development of other ScotWind OWFs. Cumulatively, the development of the ScotWind proposals will represent a nationally significant increase in demand for the industries that shall be involved in the construction of these projects. These could be either positive or negative, as the cumulative ScotWind developments will make a stronger case for inward investment and the creation of new manufacturing and fabrication facilities in Scotland. However, it could also result in capacity issues of those providers.

16.8.1.2 In-combination effects of the Proposed Development between Socio-Economics, Tourism and Recreation and other EIA topics, as well as the potential of in-combination effects from onshore and offshore works, will be identified where applicable.

16.8.1.3 The assessment presented within the Chapter of the EIAR will consider the potential for significant cumulative and in-combination impacts (where relevant) to arise as a result of the construction, operation and decommissioning of the Proposed Development.

16.9 Potential Secondary Mitigation

16.9.1 Construction

16.9.1.1 It is anticipated that in addition to the mitigation outlined in Section 16.6, there will be an Access Management Plan in place to reduce disruption to visitors and recreational users during the construction phase of the Proposed Development.

16.10 Proposed Scope

16.10.1.1 The proposed scope of the assessment is outlined in Table 16.7 below based on the potential impacts identified in Table 16.7.

Table 16.7: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Economic Activity Impacts from the direct and wider spending associated with the OnTI	✓	✓	×
Demographic and service demand impacts	✓	×	×
Change in visitor behaviour and impact on the tourism sector	✓	✓	×
Potential Impacts on Recreation and Amenity	✓	×	×

16.11 Consultation

16.11.1.1 The Scoping Opinion will be considered and where necessary the approach will be amended to reflect comments raised by consultees and stakeholders. The key consultee for the assessment is anticipated to be Aberdeenshire Council. Consultation is expected to be undertaken after the Scoping Opinion is published.

16.12 Questions to Consultees

16.12.1.1 The questions below are posed to consultees to frame and focus responses to the Socio-economics, Tourism and Recreation scoping exercise, which will in turn inform the Scoping Opinion. These include:

- Do you agree with the characterisation of the existing environment?
- Do you agree that the pathways, receptors and potential impacts have been identified for the Socio-economics, Tourism and Recreation assessment?
- Do you agree with the impacts which have been scoped out of the EIA for Socio-economics, Tourism and Recreation?
- Do you agree with the proposed approach to the Socio-economics, Tourism and Recreation assessment?

16.13 References

-
- ¹ Scottish Government (2018), National Performance Framework
 - ² Scottish Government (2021), National Planning Framework 4: Draft
 - ³ Scottish Government (2022), Scotland's National Strategy for Economic Transformation
 - ⁴ Scottish Government (2020) Offshore Wind Policy Statement
 - ⁵ Glasson *et al.* (2018), Guidance on assessing the socio-economic impacts of OWFs
 - ⁶ Scottish Government (2022), Defining 'local area' for assessing impact of offshore renewables and other marine developments: guidance principles
 - ⁷ Scottish Government (2016), Draft advice on Net Economic Benefit and Planning
 - ⁸ HM Treasury (2022), The Green Book: Appraisal and Evaluation in Central Government
 - ⁹ Scottish Natural Heritage (2018), A Handbook on Environmental Impact Assessment
 - ¹⁰ National Records of Scotland (2021), Mid-2020 Electoral Ward Population Estimates
 - ¹¹ National Records of Scotland (2019), 2018-based principal population projections for council areas
 - ¹² ONS (2021), Business Register and Employment Survey
 - ¹³ ONS (2022), Annual Business Survey
 - ¹⁴ ONS (2022), Annual Survey of Hours and Earnings 2021
 - ¹⁵ ONS (2022), Population Estimates - local authority based by five-year age band
 - ¹⁶ ONS (2019), Principal Population Projections 2018-based
 - ¹⁷ ONS (2020), International Passenger Survey 2019
 - ¹⁸ Kantar TNS (2020), GB Day Visitor Survey 2019
 - ¹⁹ Kantar TNS (2020), The GB Tourism Survey 2019
 - ²⁰ Offshore Wind Industry Council (2021), People Skills Survey 2021 – 2026
 - ²¹ Offshore Wind Industry Council (2020), Collaborating for Growth: Strategies for Expanding the UK Offshore Wind Supply Chain
 - ²² Oxford Brookes University (2020), Guidance on assessing the socio-economic impacts of OWFs

²³ ORE Catapult (2020), Offshore Wind O&M a £9 billion per year opportunity by 2030 for the UK to seize

²⁴ BVG Associates (2019), Guide to an OWF

²⁵ VisitScotland (2022), Things to Do – Aberdeenshire.

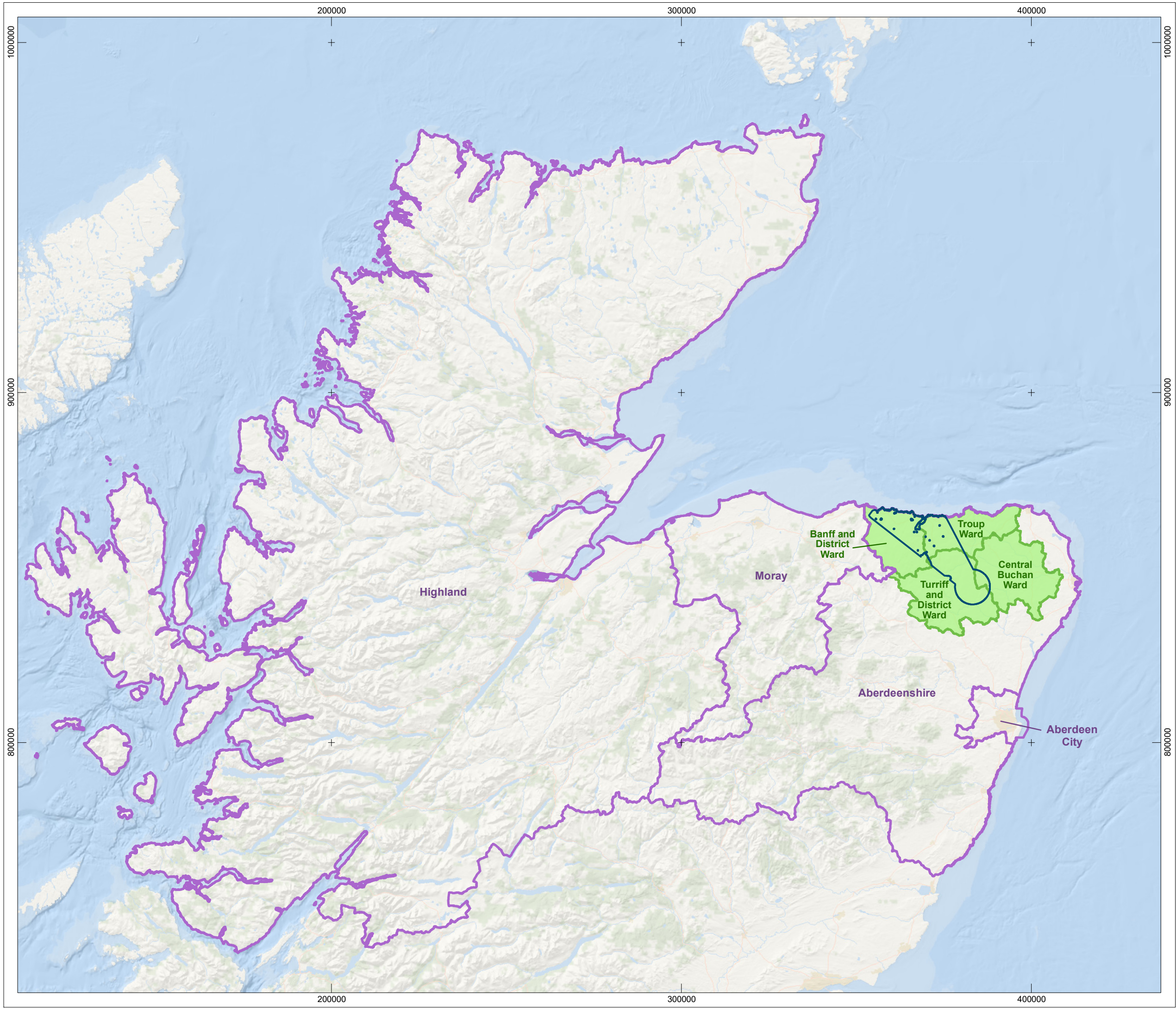
<https://www.visitscotland.com/destinations-maps/aberdeen-city-shire/>

²⁶ Historic Environment Scotland (2022), North and Grampian.

<https://www.historicenvironment.scot/visit-a-place/search-results?r=1024>

²⁷ Visit Aberdeenshire (2022), Aberdeen and Aberdeenshire Visitor Guide.

<https://www.visitabdn.com>



- Onshore Scoping Area
- North Scotland
- Tourism and Recreation Study Area (TRSA)

Local Unitary Authority and District Borough Unitary Wards sourced from Ordnance Survey data © Crown copyright and database rights (2022). OS OpenData.
 © OpenStreetMap (and) contributors, CC-BY-SA
 Esri, Garmin, GEBCO, NOAA NGDC, and other contributors
 OpenStreetMap data: © OpenStreetMap contributors



Scale at A3: 1:1,000,000
 0 25 50 km

CRS: British National Grid (EPSG:32630)

Produced:	Reviewed:	Approved:
BPHB	DHON	SCLE
Date: 10/10/2022	Revision: 02	
REF: UKCAL1_GO_WNF_SEC_MAP_00044		

Figure 16.1
 Tourism and Recreation
 Study Area (TRSA)





Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 17

Human Health

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS 17-4

17 HUMAN HEALTH..... 17-5

17.1 INTRODUCTION 17-5

17.2 LEGISLATIVE AND POLICY CONTEXT 17-5

17.3 STUDY AREA 17-5

17.4 BASELINE ENVIRONMENT..... 17-6

17.4.2 Ground Conditions 17-6

17.4.3 Noise and Vibration..... 17-6

17.4.4 Landscape and Visual..... 17-6

17.4.5 Air Quality 17-6

17.4.6 Electromagnetic Fields 17-7

17.5 SCOPING ASSESSMENT METHODOLOGY 17-7

17.6 EMBEDDED MITIGATION 17-7

17.6.2 Ground Conditions 17-7

17.6.3 Noise and Vibration..... 17-8

17.6.4 Landscape and Visual..... 17-8

17.6.5 Air Quality 17-8

17.6.6 Electromagnetic Fields 17-8

17.7 POTENTIAL IMPACTS 17-9

17.7.1 Ground Conditions 17-9

17.7.2 Noise and Vibration..... 17-9

17.7.3 Landscape and Visual..... 17-9

17.7.4 Air Quality 17-10

17.7.5 Electromagnetic Fields 17-10

17.8 POTENTIAL ADDITIONAL MITIGATION 17-11

17.9 PROPOSED SCOPE 17-11

17.10 QUESTIONS TO CONSULTEES..... 17-11

17.11 REFERENCES 17-13

List of Tables

TABLE 17.1: PROPOSED SCOPE..... 17-11

Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
CEMP	Construction Environment Management Plan
Defra	Department for Environment, Food and Rural Affairs
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electro Magnetic Fields
EOC	Explosive Ordnance Clearance
HDV	Heavy Duty Vehicles
Hz	Hertz
IAQM	Institute of Air Quality Management
ICNIRP	International Commission on Non-Ionizing Radiation Protection
LDV	Light Duty Vehicles
MLWS	Mean Low Water Spring
NO ₂	Nitrogen Dioxide
OHL	Overhead Lines
OnTI	Onshore Transmission Infrastructure
PM	Particulate Matter
UXO	Unexploded Ordnance

17 Human Health

17.1 Introduction

17.1.1.1 This Chapter of the Onshore Scoping Report identifies human health receptors of relevance to the Proposed Development. This Chapter also presents an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS) and the methodology adopted to assess potential impacts and likelihood for significant effects. The focus of the chapter is on community health and wellbeing and not on occupational health and safety.

17.1.1.2 It is anticipated that the main interactions with human health will likely be through:

- Hazards encountered through ground conditions such as contaminated land or unexploded ordnance;
- Nuisance related to noise and vibration;
- Impacts to visual amenity impacting health and wellbeing;
- Air quality pollutants of key concern including Nitrogen Dioxide (NO₂), Particulate Matter (PM) and dust; and
- Health effects as a result of electromagnetic fields (EMF).

17.1.1.3 Human health effects as a result of ground conditions, contaminated land, noise and vibration and impacts to visual amenity will be assessed within appropriate environmental topic sections in the EIAR. It is anticipated effects on human health from air quality impacts and EMFs can be made negligible through appropriate embedded mitigation. On this basis it is proposed a standalone Human Health chapter is scoped out of the EIAR.

17.1.1.4 With the exception of EMF, the potential impacts from the Onshore Transmission Infrastructure (OnTI) upon human health are discussed within the relevant chapter of this Onshore Scoping Report.

17.1.1.5 This chapter therefore summarises those potential impacts and includes further consideration of potential health effects of EMF.

17.2 Legislative and Policy Context

17.2.1.1 The following key legislation and policy is applicable to the assessment of Human Health:

- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 transcribed the EU Directive 2014/52/EU (EIA Directive) introducing the requirement to assess effects on population and human health
- Relevant legislation as set out in the individual EIA topic Chapters of Chapter 8: Landscape and Visual; Chapter 11: Geology, Soils and Contaminated Land; Chapter 13: Airborne Noise and Vibration

17.3 Study Area

17.3.1.1 The Human Health study area is defined by the Onshore Scoping Area for the purposes of identifying potential sources and receptors for potential human health impacts. The study area considers the sources, sites and receptors of potential human health impacts as outlined in corresponding chapters of Chapter 8: Landscape and Visual; Chapter 11: Geology, Soils and Contaminated Land; Chapter 13: Airborne Noise and Vibration

17.4 Baseline Environment

17.4.1.1 The baseline environment relevant to human health includes baseline conditions identified in the relevant chapters of this Onshore Scoping Report (ground conditions, noise and vibration, landscape and visual and air quality) in addition to EMF and is summarised below.

17.4.2 Ground Conditions

17.4.2.1 The Onshore Scoping Area for the Proposed Development does not lie within a coal mining reporting area or Development High Risk Area. There are no mining records (e.g. coal outcrops, probable or past shallow coal mine workings or mine entries).

17.4.2.2 Zetica Unexploded Ordnance (UXO) risk maps¹ indicate that the village of Portsoy lies within a high-risk area for unexploded ordnance (UXO) (defined as having a bombing density of 50 bombs per 1000 acres). Boyndie Bay and western portions of the village of Banff lie within a medium-risk area for UXO (defined as 15 to 49 bombs per 1000 acres).

17.4.2.3 Anthropogenic soils and potentially contaminated land may be encountered where in proximity to urban areas, roads and railways, energy infrastructure, and other developments. Contamination may also be present in relation to agricultural activities across the Onshore Scoping Area.

17.4.3 Noise and Vibration

17.4.3.1 The Onshore Scoping Area contains a number of residential properties and farms, as well as some larger towns and villages such as Portsoy, Whitehills, Banff, Macduff, Turriff and Cuminestown. Noise in this area is likely to comprise road traffic from the local road network. Within the larger towns and villages commercial and industrial noise will also contribute to the baseline environment.

17.4.4 Landscape and Visual

17.4.4.1 The Onshore Scoping Area contains a number of visual receptors (i.e., people that may gain views of the Proposed Development) which could be subject to visual amenity impacts. Visual receptors are likely to be found using routes through the landscape, within settlements, homes and at visitor attractions – potential receptors and pathways are discussed in full in Section 8.4.5 of Chapter 8: Landscape and Visual.

17.4.5 Air Quality

17.4.5.1 There are no designated Air Quality Management Areas (AQMAs) located within the Aberdeenshire Council administrative area.

17.4.5.2 The exact number of residential properties within the Onshore Scoping Area is not

known and will be defined following refinement of the OnTI and the identification of the Onshore Cable Corridor, Onshore Substation site and Landfall Site. The average baseline PM₁₀ concentration across the Onshore Scoping Area is 10.1µg/m³ (Department for Rural Affairs and Agriculture²).

17.4.5.3 As concluded in Chapter 12: Air Quality, it is proposed Air Quality is scoped out of further assessment and it is therefore proposed human health effects relating to air quality impacts are similarly scoped out of the Environmental Impact Assessment (EIA).

17.4.6 Electromagnetic Fields

17.4.6.1 EMFs are low frequency electric and magnetic fields in the range of 100kHz to 300GHz and are produced as a result of electricity being used. Electric fields are created through voltage generation and magnetic fields by electric currents. EMFs are produced wherever electricity is generated, transmitted or used.

17.4.6.2 EMFs come from a range of existing sources including local electricity distribution systems, overhead electricity transmission lines and household wiring and appliances. EMFs within the Onshore Study Area will be generated by the existing Moray East Offshore Wind Farm Project onshore cable circuits, which make landfall at Boyndie Bay, and the existing Onshore Substation at New Deer.

17.5 Scoping Assessment Methodology

17.5.1.1 The objective of the human health assessment is to predict the potential impacts on human health. As noted above the potential impacts from the Onshore Transmission Infrastructure (OnTI) upon human health as a result of hazards encountered through ground conditions, nuisance related to noise and vibration, air quality and visual amenity impacts are discussed within the relevant chapter of this Onshore Scoping Report and the methodology for these assessments is therefore not repeated within this chapter. The potential effects for human health have been screened against criteria in the guidance notes detailed in Section 17.2.

17.5.1.2 The following Sections detail how embedded mitigation will be implemented for the Proposed Development.

17.6 Embedded Mitigation

17.6.1.1 Mitigation measures will be considered throughout the design process of the Proposed Development. These measures will be included with the objective to reduce the potential for impacts upon the environment. Embedded mitigation measures to be implemented are outlined below. Effects that are considered to be significant after the implementation of embedded mitigation and best practice will be identified in the EIAR. Where the assessment identifies that an aspect of the Proposed Development is likely to give rise to significant environmental effects, secondary mitigation measures, above and beyond any embedded mitigation or design changes, will be incorporated into the assessment process to avoid or reduce significant effects.

17.6.2 Ground Conditions

17.6.2.1 Where contaminated land and ground conditions are encountered which present a potential risk to human health they shall be assessed and managed in line with the

relevant guidance as listed in Chapter 11, Section 11.2. A phased approach to the evaluation of contaminated land will be applied, with remediation and verification applied if required.

17.6.2.2 Where construction activities fall within areas of medium to high risk for UXO, it is proposed a detailed UXO desk study be undertaken prior to construction to identify where additional mitigation such as non-intrusive geophysical clearance or supervision by an explosive ordnance clearance (EOC) operative is required.

17.6.3 Noise and Vibration

17.6.3.1 The Outline Construction Environment Management Plan (CEMP) will include Proposed Development mitigation and monitoring measures and will detail standard construction industry practice to reduce noise effects on human receptors during construction.

17.6.3.2 Measures will be adopted to ensure that the potential for noise and vibration disturbance from construction activities is minimised. The mitigation measures may include the provision of localised noise barriers to specific items of construction plant where necessary.

17.6.3.3 Embedded operational mitigation measures to avoid and minimise noise effects on human receptors as part of the Proposed Development may include:

- Embedded mitigation in the form of anti-vibration mounts would be used at the operational substations, which is likely to result in a negligible source of ground borne vibration;
- Selection of quieter equipment where reasonably practicable; and
- Monitoring of noise related complaints.

17.6.4 Landscape and Visual

17.6.4.1 Embedded mitigation for visual amenity will be achieved through the consideration of landscape and visual elements following the refinement of the OnTi and the identification of the Onshore Cable Corridor, Onshore Substation Site and Landfall Site . In this way, human health implications as a result of visual amenity impacts will be avoided and reduced wherever practicable.

17.6.4.2 Where it is not possible to avoid the removal of landscape elements compensatory measures will be considered as appropriate. Additionally, the Onshore Substation proposals are likely to include screening in the form of earthworks and screen planting.

17.6.5 Air Quality

17.6.5.1 Embedded construction phase mitigation to reduce the potential impacts of dust and emissions of pollutants from construction activities on human health include an Outline CEMP which will incorporate a Dust and Air Quality Management Plan to minimise the generation and potential impacts of dust emissions on receptors relevant for human health.

17.6.6 Electromagnetic Fields

17.6.6.1 A metal perimeter fence will be erected around the Onshore Substation and will

ensure that almost no electric fields emerge from the Onshore Substation itself. Similarly, magnetic fields generated by the Onshore Substation equipment fall with distance quite rapidly, to the extent that at the perimeter fence, or a few meters outside it, magnetic fields will be negligible³.

- 17.6.6.2 The largest EMFs in the vicinity of the Onshore Substation will come from overhead lines (OHL) or underground cables entering it. EMFs from the cable circuits will be screened by the way the cables are manufactured, being insulated and installed within sheaths, and being primarily buried underground.
- 17.6.6.3 Construction and operation of the Proposed Development would be in compliance with The Control of Electronic Fields at Work Regulations (2016)⁴ which ensures that levels of EMF are within safe limits.

17.7 Potential Impacts

17.7.1 Ground Conditions

- 17.7.1.1 Potential impacts to human health of site workers and those adjacent to site may arise as a result of a major accident from encountering UXO during construction of the Proposed Development.
- 17.7.1.2 Human health of site users and adjacent site occupiers may also be impacted as a result of works during construction, operation and decommissioning activities in potentially contaminated land.

17.7.2 Noise and Vibration

- 17.7.2.1 Potential temporary construction noise could increase the noise levels experienced at identified sensitive human receptors, such as residential properties, farms and commercial businesses throughout the study area.
- 17.7.2.2 Road traffic noise associated with construction phases may also negatively impact sensitive human receptors, in particular heavy goods vehicles delivering and/or removing materials and movement of plant.
- 17.7.2.3 Where significant piling works or trenchless techniques in proximity to human receptors are required, ground-borne vibration may cause nuisance to residents if experienced at higher levels.
- 17.7.2.4 Residents in proximity to the Onshore Substation may experience noise nuisance during the operational phase as a result of operation of Onshore Substation equipment, including reactors and transformers. An assessment of potential operational noise impacts on sensitive human receptors will be undertaken for the Environmental Impact Assessment Report (EIAR).
- 17.7.2.5 It is anticipated that the potential decommissioning noise and vibration impacts would be similar in nature to those of construction but would be more limited in geographical extent and timescale and is therefore proposed to be scoped out.

17.7.3 Landscape and Visual

- 17.7.3.1 Potential impacts on visual amenity which may impact human health include:
 - Construction of the OnTI resulting in the alteration of landscape elements through disruption of soil surface and landform; the temporary storage of

materials; fencing along the Onshore Cable Route; presence of cable laying plant; and temporary construction compounds resulting in temporary stress or anxiety to sensitive receptors with a view of these activities for the duration of construction; and

- Visibility of a large area of electrical infrastructure and buildings associated with the operational Onshore Substation resulting in stress or anxiety to sensitive receptors with a view of this infrastructure once operational.

17.7.3.2 It is assumed land at the Onshore Substation Site would be reinstated to its former use in the event of decommissioning.

17.7.4 Air Quality

17.7.4.1 It will be the aim to ensure there are no residential properties within 50m of the Onshore Cable Route construction activities such that there is no risk of dust soiling or human health impacts. Where this is not possible, it is considered that the best-practice measures included in the Dust and Air Quality Management Plan within the Outline CEMP, will provide the necessary prevention and mitigation such that the dust emission magnitude will be low and therefore the effects of dust on human health will be negligible.

17.7.4.2 The construction phase traffic will not exceed the Institute of Air Quality Management (IAQM) guidance⁵ of an increase of 500 light duty vehicles (LDVs) and/or 100 heavy duty vehicles (HDVs) as an Annual Average Daily Traffic (AADT) count on the local road network within 50m of any high sensitivity residential receptor.

17.7.4.3 It is considered that best-practice measures included in the Dust and Air Quality Management Plan within the Outline CEMP will provide the necessary prevention and mitigation of dust emissions such that the effects of construction dust on human health will be negligible.

17.7.4.4 The operational phase of the Proposed Development is unlikely to impact local air quality due to a very low number of vehicle trips associated with operation and maintenance of the Proposed Development.

17.7.4.5 It is therefore proposed that further assessment of human health impacts relating to air quality at residential receptors during construction, operation and decommissioning is scoped out of the EIA.

17.7.5 Electromagnetic Fields

17.7.5.1 No EMF impacts are anticipated during construction. EMFs will be generated by the Proposed Development from both onshore cable circuits and from Onshore Substation equipment during operation.

17.7.5.2 As potential human health receptors will be located outside the perimeter fence of the Onshore Substation the greatest exposure to EMFs is likely to be from the onshore cable circuits. However, due to the manufacturing design of cables it is anticipated that levels of EMF exposure would be significantly lower than the guideline for public exposure limits recommended by the International Commission on Non-Ionizing Radiation Protection⁶ (ICNIRP).

17.7.5.3 In the event of decommissioning, it is likely that all underground equipment and the Onshore Substation foundations would remain in-situ. Above ground equipment at the Onshore Substation Site would be cleared and the site reinstated.

17.7.5.4 As a result of the above, and on the basis that human health effects from EMFs can be made negligible through application of appropriate embedded mitigation, no significant adverse effects to human health from EMFs are anticipated during construction, operation or decommissioning as a result of the Proposed Development.

17.7.5.5 It is therefore proposed that further assessment of human health impacts relating to EMFs during construction, operation and decommissioning is scoped out of the EIA.

17.8 Potential Additional Mitigation

17.8.1.1 Any potential additional mitigation required by relevant environmental topics for human health is detailed in the appropriate chapters of this Onshore Scoping Report, including Chapter 8: Landscape and Visual, Chapter 11: Geology, Soils and Contaminated Land and Chapter 13: Airborne Noise and Vibration.

17.9 Proposed Scope

17.9.1.1 Potential impacts have been identified which may occur during the construction, operation and decommissioning phases of the Proposed Development. These impacts and the proposed EIAR scope are outlined in **Error! Reference source not found.**

Table 17.1: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Electromagnetic Fields	x	x	x
Air quality key pollutants	x	x	x
Noise and vibration nuisance	✓	✓	x
Visual amenity impacts (Onshore Cable Corridor, Onshore Substation and Landfall Site)	✓	✓	✓
Ground condition hazards (UXO, contaminated land)	✓	✓	✓

17.9.1.2 It is proposed that potential effects upon human health will be assessed within appropriate environmental topic sections in the EIAR and a standalone Human Health chapter will not be included within the EIAR.

17.10 Questions to Consultees

17.10.1.1 The following questions are posed to consultees to frame and focus responses to the Human Health scoping exercise, which will in turn inform the Scoping Opinion:

- Do you agree with the proposed approach to assess potential effects upon human health within appropriate environmental topic sections and therefore scope out a standalone human health chapter in the EIAR?
- Is the proposed approach to scope out EMFs from further assessment and from the EIAR acceptable?

17.11 References

¹ ZeticaUXO (2022) Risk Maps. Available at: <https://zeticauxo.com/>

² DEFRA (2022). DEFRA background concentration maps for PM2.5 for Aberdeenshire Council 2022. Available at: <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>

³ EMFs.info (2022) Sources of EMF, National Grid substations. Available at: <https://www.emfs.info/sources/substations/substations-ng/>

⁴ UK Government (2016). The Control of Electromagnetic Fields at Work Regulations. Available Accessed at: <http://www.legislation.gov.uk/ukxi/2016/588/contents/made>

⁵ Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) (2017) Land-Use Planning & Development Control: Planning For Air Quality. Available at: <https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

⁶ ICNIRP (1998). ICNIRP Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields. Available at: <http://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 18

Major Accidents and Disasters

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS 18-4

18 MAJOR ACCIDENTS AND DISASTERS 18-5

18.1 INTRODUCTION 18-5

18.2 LEGISLATIVE AND POLICY CONTEXT 18-5

18.2.2 The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 18-5

18.2.3 Health and Safety at Work etc. Act 1974 (HSWA) and regulations made thereunder 18-5

18.2.4 Construction Design and Management (CDM) 2015 Regulations .. 18-5

18.2.5 Institute of Environmental Management and Assessment Guidance..... 18-6

18.3 STUDY AREA 18-6

18.4 BASELINE ENVIRONMENT..... 18-6

18.5 SCOPING ASSESSMENT METHODOLOGY 18-7

18.6 EMBEDDED MITIGATION 18-7

18.7 POTENTIAL IMPACTS 18-8

18.8 POTENTIAL ADDITIONAL MITIGATION 18-9

18.9 PROPOSED SCOPE 18-9

18.10 QUESTIONS TO CONSULTEES..... 18-9

18.11 REFERENCES 18-10

List of Tables

TABLE 18.1 KEY RECEPTORS THAT COULD BE AFFECTED BY MAJOR ACCIDENTS AND DISASTERS	18-7
TABLE 18.2 PROPOSED SCOPE	18-9

Acronyms and Abbreviations

AWI	Ancient Woodland Inventory
CIRIA	Construction Industry Research and Information Association
COMAH	Control of Major Accident Hazards
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EOC	Explosive Ordnance Clearance
HSE	Health Safety Executive
ICCCI	In-Combination Climate Change Impacts
IEMA	Institute of Environmental Management and Assessment
MLWS	Mean Low Water Spring
UK	United Kingdom
UXO	Unexploded Ordnance

18 Major Accidents and Disasters

18.1 Introduction

- 18.1.1.1 This Chapter of the Onshore Scoping Report identifies major accidents and disasters receptors of relevance to the Proposed Development. This Chapter also presents an overview of the potential impacts and likelihood for significant effects to arise from the construction, operation and decommissioning of the Proposed Development landward of Mean Low Water Spring (MLWS).
- 18.1.1.2 The vulnerability of the Proposed Development to major accidents and disasters has been considered in terms of the likelihood of the Proposed Development itself to cause a major man-made accident, and in terms of the Proposed Development being affected by an external man-made accident or by a natural disaster. It has also been considered whether the design, construction or operation of the Proposed Development could increase impacts on nearby receptors.
- 18.1.1.3 On the basis that impacts can be made negligible with the use of embedded mitigation measures, it is proposed that a major accidents and disasters assessment is scoped out of the Environmental Impact Assessment (EIA). The justification for this is included in the scoping assessment in this Onshore Scoping Report Chapter.

18.2 Legislative and Policy Context

- 18.2.1.1 The key legislation, policy and guidance used to inform the assessment is summarised below:
- 18.2.2 The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017
 - 18.2.2.1 Regulation 4 (2) outlines receptors that “The environmental impact assessment must identify, describe and assess in an appropriate manner, in light of the circumstances relating to the proposed development, the direct and indirect significant effects of the proposed development” and this includes major accidents and disasters. Regulation 5 (2) outlines the requirement to “include, where relevant, the expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters that are relevant to that development.”
 - 18.2.2.2 This chapter contains a high-level description of the types of potential major accident and disaster which could occur and the processes which ensure there are no significant effects arising from major accidents and disasters.
- 18.2.3 Health and Safety at Work etc. Act 1974 (HSWA) and regulations made thereunder
 - 18.2.3.1 Several regulations made under the Act place general duties on employers to assess risks and to implement controls. The fundamental aim of the regulations is that foreseeable risks to persons shall be reduced so far as is reasonably practicable and that suitable evidence shall be produced to demonstrate that this has been done.
- 18.2.4 Construction Design and Management (CDM) 2015 Regulations

- 18.2.4.1 The CDM Regulations¹ expand upon the requirements of the HSWA to apply specific requirements for construction projects.
- 18.2.4.2 The Proposed Development will achieve the requirements and intention of the CDM Regulations through application of safe systems of work and appropriate risk management protocols
- 18.2.5 Institute of Environmental Management and Assessment Guidance
 - 18.2.5.1 The Institute of Environmental Management and Assessment (IEMA) guidance on the consideration of Major Accidents and Disasters in Environmental Impact Assessment² has been followed and for the purposes of this Chapter the following definitions have been applied:
 - A Major Accident is defined as an event “*that threatens immediate or delayed serious environmental effects to human health, welfare and/or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e. contractors) to manage*”; and
 - A Disaster is defined as a “*man-made/external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident*”.

18.3 Study Area

- 18.3.1.1 The Major Accidents and Disasters study area is defined by the Onshore Scoping Area for the purposes of identifying potential sources, pathways and receptors for major accidents and disasters.
- 18.3.1.2 This chapter considers external sites holding hazardous materials such as sites with Hazards Substance Consent (including Control of Major Accidents Hazards (COMAH) sites and Major Accident Control Regulations (MACR) sites which could potentially influence the Proposed Development.

18.4 Baseline Environment

- 18.4.1.1 The Proposed Development is located in rural Aberdeenshire, extending from the MLWS at the Aberdeenshire coastline to the Onshore Substation in proximity to New Deer, Turriff. The area is not likely to be subject to natural hazards and land use in the surrounding area includes occasional residential properties, farms and agricultural land and smaller areas of amenity forestry and Ancient Woodland Inventory (AWI).
- 18.4.1.2 Baseline major accident and disaster risks have also been established through the UK Government’s National Risk Register³.
- 18.4.1.3 There are no sites regulated under the Control of Major Accident Hazards (COMAH) Regulations 2015⁴ within the Onshore Scoping Area (Health and Safety Executive, 2015), and no existing features of the site that are likely to pose a significant major accidents and disasters risk to or as a result of the Proposed Development.
- 18.4.1.4 A number of Hazardous Development Consultation Zones and HSE: Pipeline Consultation Zones, as designated under The Aberdeenshire Local Development Plan⁵ (2017) Policy P4 *Hazardous and potentially polluting developments and contaminated land* are present throughout the Onshore Scoping Area.
- 18.4.1.5 The St Fergus to Aberdeen Gas Pipeline comes in proximity to the substation Scoping Area. However, it is not anticipated that the Proposed Development would

involve direct interfaces or interact with the gas pipeline. It is therefore considered unlikely that the gas pipeline would result in a significant major accident and disasters risk to or from the Proposed Development.

- 18.4.1.6 The Onshore Scoping Area does not encroach into any Coal Mining Reporting Area or Development High Risk Area. There are no mining records (e.g. coal outcrops, probable or past shallow coal mine workings or mine entries) present within the study area.
- 18.4.1.7 Zetica Unexploded Ordnance (UXO) maps⁶ indicate that the village of Portsoy lies within a high-risk area for UXO (defined as having a bombing density of 50 bombs per 1000 acres). Boyndie Bay and western portions of the village of Banff lie within a medium-risk area for UXO (defined as 15 to 49 bombs per 1000 acres).
- 18.4.1.8 The key receptors that could be affected by major accidents and disasters is described in the other chapters of this Onshore Scoping Report, in particular those outlined Table 18.1

Table 18.1: Key Receptors That Could be Affected by Major Accidents and Disasters

Topic	Receptor
Chapter 7 Terrestrial Ecology and Biodiversity	Designated Sites (International, National and Other); particular species including protected and priority species
Chapter 8 Landscape and Visual	Residential settlements; protected viewpoints
Chapter 9 Terrestrial Archaeology and Cultural Heritage	Designated buildings / sites (listed buildings, Scheduled Monuments, Conservation Areas); buried archaeology
Chapter 10 Hydrology and Hydrogeology	Surface waterbodies, groundwater bodies and groundwater source (drinking water bodies); private water supplies
Chapter 14 Traffic and Transport	Core paths and recreational routes, local road network
Chapter 17 Human Health	Population and human health receptors (workers, operations and maintenance workers, settlements, vulnerable receptors such as schools).

18.5 Scoping Assessment Methodology

- 18.5.1.1 The potential effects for major accidents and disasters have been screened against criteria in the guidance notes detailed in Section 18.2 and in line with IEMA definitions outlined in 18.2.5.

18.6 Embedded Mitigation

- 18.6.1.1 Embedded mitigation will primarily be in the form of good design of the Proposed Development in accordance with industry best practice and taking account of the

anticipated environmental conditions and receptors to minimise potential for harm. In particular, design of the Proposed Development to avoid the St Fergus to Aberdeen Gas Pipeline in the vicinity of New Deer. Additionally, good design of electrical systems to the relevant safety standards, and adhering to safe systems of work will ensure the avoidance of major accidents and disasters risk as a result of the Proposed Development.

- 18.6.1.2 Works will be planned and delivered in accordance with construction, operation and decommissioning risk management protocols which comply with the Construction (Design and Management) Regulations 2015. Occupational health and safety risks will be covered by compliance with the Management of Health and Safety at Work Regulations 1999⁷.
- 18.6.1.3 Potential impacts to environmental receptors would also be mitigated through adherence to construction best practices (e.g. adherence to Construction Industry Research and Information Association (CIRIA) guidance and Guidelines for Pollution Prevention).
- 18.6.1.4 Site inductions and appropriate training on the risks from UXO will also be undertaken as part of the construction approach. Where construction is required in areas with a moderate to high UXO hazard level, a detailed UXO desk study will be undertaken prior to construction to identify where additional mitigation such as geophysical clearance or supervision by an Explosive Ordnance Clearance (EOC) operative is required.
- 18.6.1.5 Where appropriate, relevant environmental aspects, as part of the EIA, will assess the likely risks to the Proposed Development in relation to potential areas of vulnerability. For example, any flood risk concerns are considered within the Hydrology and Hydrogeology assessment and will be addressed as part of a subsequent Flood Risk Assessment.

18.7 Potential Impacts

- 18.7.1.1 This Section identifies the potential impacts in relation to the construction, operation and decommissioning of the Proposed Development.
- 18.7.1.2 Potential major accidents may occur because of physical accidents during construction and decommissioning, spills of fuels and chemicals, electrical accidents associated with commissioning and decommissioning and fires/explosions involving diesel or combustible materials stored in the construction compounds.
- 18.7.1.3 It is anticipated that major accidents risks as a direct result of the Proposed Development would be avoided as elements will be designed in accordance with industry good practice, and the anticipated environmental conditions. Good design of electrical systems to the relevant safety standards, implementation of safe systems of work and pollution prevention measures will further ensure no significant major accidents risk to or from the Proposed Development.
- 18.7.1.4 There is potential for external major accidents risk associated with ground conditions on any onshore construction work, including the potential for UXO and historic ground contamination. Chapter 11: Geology, Soils and Contaminated Land provides further details on these hazards. Where appropriate, risks to the Proposed Development from potential areas of vulnerability from ground conditions will be assessed in the Geology, Soils and Contaminated Land chapter of the Environmental Impact Assessment Report (EIAR).
- 18.7.1.5 The risk of disasters as a result of adverse weather conditions or other natural

hazards which have the potential to affect the construction of the Proposed Development is low. Potential flood risks and procedures for working in areas of flooding will be established and considered as part of Hydrology and Hydrogeology Chapter of the EIAR.

- 18.7.1.6 Climate hazards, such as future extreme weather events, which have the potential to result in disaster during operational or decommissioning phases will be considered in the Climate chapter of the EIAR. This will include an assessment of in-combination climate change impacts (ICCI).
- 18.7.1.7 During the operation and maintenance phase of the Proposed Development, major accidents may arise if there were to be a failure at the Onshore Substation, resulting in potential electrocution, fire or explosion. However, it is anticipated the Onshore Substation will not normally be occupied during operation and maintenance. Good design of electrical systems and fuel storage, and compliance with relevant safety standards will ensure negligible risk of major accidents and disasters during the operational phase of the Proposed Development.
- 18.7.1.8 The likelihood of any other external hazard resulting in a major accident or disasters risk as a result of the Proposed Development is considered to be low.

18.8 Potential Additional Mitigation

- 18.8.1.1 Any potential additional mitigation as required by relevant environmental aspects is detailed in the appropriate chapters of this Onshore Scoping Report.

18.9 Proposed Scope

- 18.9.1.1 Potential impacts have been identified which may occur during the construction, operation and decommissioning phases of the Proposed Development. No likely significant major accidents and disasters effects are anticipated and as a result, it is proposed major accidents and disasters is scoped out of the EIAR. These impacts and the proposed EIAR scope is outlined in Table 18.2.

Table 18.2: Proposed Scope

Potential Impacts	Construction	Operation	Decommissioning
Major accidents	x	x	x
Disasters	x	x	x

18.10 Questions to Consultees

- 18.10.1.1 The following questions are posed to consultees to frame and focus responses to the Major Accidents and Disasters scoping exercise, which will in turn inform the Scoping Opinion:
 - Do you agree with the proposed approach to scope out further assessment of Major Accidents and Disasters?

18.11 References

¹ Construction (Design and Management) Regulations 2015. Available at:

<https://www.legislation.gov.uk/ukxi/2015/51/contents/made>

² IEMA (2020) Major Accidents and Disasters in EIA: A Primer. Available at:

<https://www.iema.net/resources/blog/2020/09/23/iema-major-accidents-and-disasters-in-eia-primer> [Accessed 02 August 2022]

³ UK Government (2020) National Risk Register 2020. Available at:

<https://www.gov.uk/government/publications/national-risk-register-2020> [Accessed 15/09/2022]

⁴ The Control of Major Accident Hazards Regulations 2015. Available at:

<https://www.legislation.gov.uk/ukxi/2015/483/contents/made> [Accessed 15/09/2022]

⁵ Aberdeenshire Council (2017) Local Development Plan. Available at:

<https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/>

⁶ ZeticaUXO (2022) Risk Maps. Available at: <https://zeticauxo.com/>

⁷ Management of Health and Safety at Work Regulations 1999. Available at:

<https://www.legislation.gov.uk/ukxi/1999/3242/contents/made>



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 19

Summary of Onshore Scoping

Caledonia Offshore Wind Farm Limited

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS	19-4
19 SUMMARY OF ONSHORE SCOPING REPORT	19-5
19.1 TOPICS SCOPED IN TO THE ENVIRONMENTAL IMPACT ASSESSMENT.....	19-5
19.2 TOPICS SCOPED OUT OF ENVIRONMENTAL IMPACT ASSESSMENT	19-5

List of Tables

TABLE 19.1: SUMMARY OF IMPACTS /RECEPTORS SCOPED IN (✓) AND SCOPED OUT (X)19-5

Acronyms and Abbreviations

CCR	Climate Change Resilience
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GCR	Geological Conservation Review
ICCI	In-Combination Climate Change Impacts
INNS	Invasive and Non-Native Species
OnTI	Onshore Transmission Infrastructure
SSSI	Sites of Special Scientific Interest
UXO	Unexploded Ordnance

19 Summary of Onshore Scoping Report

19.1 Topics Scoped In to the Environmental Impact Assessment

19.1.1.1 The topics that the Applicant proposes to scope into the Environmental Impact Assessment (EIA) include:

- Land Use and Agriculture;
- Terrestrial Ecology and Biodiversity;
- Landscape and Visual;
- Terrestrial Archaeology and Cultural Heritage;
- Hydrology and Hydrogeology;
- Geology, Soils and Contaminated Land;
- Airborne Noise and Vibration;
- Traffic and Transport;
- Climate and Carbon; and
- Socioeconomics, Tourism and Recreation.

19.2 Topics Scoped Out of Environmental Impact Assessment

19.2.1.1 The topics the Applicant proposes to scope out of EIA include:

- Air Quality;
- Human Health;
- Major Accidents and Disasters; and
- Materials and Waste.

19.2.1.2 Whilst it is proposed standalone human health and major accidents and disasters chapters are scoped out of further assessment, aspects of human health and major accidents and disasters, where applicable, will be covered in the relevant topic chapters.

19.2.1.3 Table 19.1 below summarises the onshore impacts and receptors which the Applicant proposes to scope in and out of the Environmental Impact Assessment Report (EIAR) for the Proposed Development. Potential effects have been scoped in or out based on analysis of potential significant effects.

Table 19.1: Summary of Impacts /Receptors Scoped In (✓) and Scoped Out (x)

Topic	Potential Impacts and receptors	Construction	Operation	Decommissioning
Land Use and Agriculture	Land Use Impacts	✓	x	x
Terrestrial Ecology and Biodiversity	Designated sites	✓	✓	✓
	Habitats	✓	✓	✓

Topic	Potential Impacts and receptors	Construction	Operation	Decommissioning
	European protected species	✓	✓	✓
	Other protected and notable species	✓	✓	✓
	Invasive Non-Native Species (INNS)	✓	✓	✓
Landscape and Visual	Landscape elements within the Onshore Cable Corridor and Landfall Site	✓	×	×
	Landscape character within 1km of the Onshore Cable Corridor and Landfall Site	×	×	×
	Visual amenity within 1km of the Onshore Cable Corridor and Landfall Site	✓	×	×
	Landscape elements within the Onshore Substation site	✓	×	×
	Landscape character within 3km of the Onshore Substation site	✓	✓	✓
	Visual amenity within 3km of the Onshore Substation site	✓	✓	✓
	Landscape, visual and cumulative impacts beyond the agreed study area boundary (TBC)	×	×	×
Terrestrial Archaeology and Cultural Heritage	Buried archaeology (both known and as yet unknown) within 500m of the Onshore Cable Corridor, Onshore Substation and Landfall Site	✓	×	×
	Harm to significance based on change in setting to designated heritage assets from	✓	✓	×

Topic	Potential Impacts and receptors	Construction	Operation	Decommissioning
	onshore infrastructure within 500m of the Onshore Cable Corridor and Landfall Site and 5km from the Onshore Substation site			
Hydrology and Hydrogeology	Water environment	✓	✓	✓
	Water Framework Directive	✓	✓	✓
	Private water supplies	✓	✓	✓
	Hydrogeology	✓	✓	✓
	Groundwater dependent terrestrial ecosystems	✓	✓	✓
Geology, Soils and Contaminated Land	Geological sites (Sites of Special Scientific Interest (SSSI)s and Geological Conservation Review (GCR)s)	✓	x	x
	Peat and Carbon-rich soils	✓	x	x
	Mineral Resources	✓	x	x
	Impact on human-health from Contaminated Land	✓	✓	✓
	Pollution/contamination of soils as a result of proposed development	✓	✓	✓
Air Quality	Dust impacts at ecological receptors	x	x	x
	Dust soiling impacts on residential receptors	x	x	x
	Dust Impacts on human health at residential receptors	x	x	x
	Impacts from Construction Phase Traffic emissions on	x	x	x

Topic	Potential Impacts and receptors	Construction	Operation	Decommissioning
	human health and ecological receptors			
	Cumulative effects	x	x	x
	Decommissioning	x	x	x
Airborne Noise and Vibration	Traffic noise and vibration	✓	x	x
	Landfall Site noise and vibration	✓	x	x
	Onshore Cable Corridor noise and vibration	✓	x	x
	Onshore Substation noise and vibration	✓	✓	x
	Cumulative impacts	✓	✓	x
Traffic and Transport	Severance	✓	x	x
	Driver and Bus Delay	✓	x	x
	Pedestrian and Cycle Delay	✓	x	x
	Amenity, Fear and Intimidation	✓	x	x
	Accidents and Safety	✓	x	x
	Hazardous Loads	x	x	x
Climate and Carbon	Greenhouse Gases	✓	✓	✓
	Climate Change Resilience (CCR)	✓	✓	✓
	In-combination climate change impacts (ICCI)	✓	✓	✓
Socioeconomics, Tourism and Recreation	Economic Activity Impacts from the direct and wider spending associated with the OnTI	✓	✓	x

Topic	Potential Impacts and receptors	Construction	Operation	Decommissioning
	Demographic and service demand impacts	✓	x	x
	Change in visitor behaviour and impact on the tourism sector	✓	✓	x
	Potential Impacts on Recreation and Amenity	✓	x	x
Human Health	Electromagnetic Fields	x	x	x
	Air quality key pollutants	x	x	x
	Noise and vibration nuisance	✓	✓	x
	Visual amenity impacts (Onshore Cable Corridor, Landfall Site and Onshore Substation)	✓	✓	✓
	Ground condition hazards (Unexploded Ordnance (UXO), contaminated land)	✓	✓	✓
Major Accidents and Disasters	Major accidents	x	x	x
	Disasters	x	x	x



Code UKCAL1-ARP-GEN-ENV-RPT-00004

Chapter 20

Proposed Structure of EIAR

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

Table of Contents

ACRONYMS AND ABBREVIATIONS20-4

20 PROPOSED STRUCTURE OF THE EIAR20-5

20.1 INTRODUCTION20-5

20.2 EIAR STRUCTURE20-5

List of Tables

TABLE 20.1: PROPOSED STRUCTURE FOR THE EIAR COVERING BOTH OFFSHORE AND ONSHORE ELEMENTS OF THE PROPOSED DEVELOPMENT20-6

Acronyms and Abbreviations

EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs

20 Proposed Structure of the EIAR

20.1 Introduction

20.1.1.1 The following Chapter sets out the proposed approach to the completion of, and the information presented within, any future Environmental Impact Assessment Report (EIAR) that is completed for the Proposed Development. The EIAR will be produced to meet with the legislative requirements in relation to Scotland, and in particular, to comply with the Environmental Impact Assessment (EIA) Regulations and other relevant good practice guidance. In producing the EIAR, it is recognised that individual topics will have their own specific guidance and standards which will be applied in addition to the generic EIA wide standards.

20.2 EIAR Structure

20.2.1.1 It is proposed that the EIAR will be set out in accordance with (or similar to) the proposed volumes and content outlined in Table 20.1. The proposed contents of the offshore EIAR (Volume 2) are outlined as part of the separate Offshore Scoping Report.

20.2.1.2 The EIAR will be prepared by competent experts, will make use of the latest and most appropriate scientific methodology and assessment procedures, and support the correct interpretation of data. Information on the competent experts for respective topics will be provided within the EIAR.

20.2.1.3 The technical chapters will include the following layout:

- Introduction;
- Policy and guidance;
- Consultation;
- Design basis for assessment;
- Impact assessment for methodology;
- Baseline environment;
- Potential effects;
- Mitigation measures and monitoring;
- Cumulative and In-Combination effects; and
- Residual effects.

Table 20.1: Proposed Structure for the EIAR Covering Both Offshore and Onshore Elements of the Proposed Development

Volume	Contents	Chapters	Outline						
Volume 1	Overview	<ol style="list-style-type: none"> 1. Introduction 2. Legislation and Policy Context 3. Proposed Development Description 4. Site Selection, Alternatives and Design Evolution 5. Consultation 6. EIA Methodology 7. Cumulative and In-Combination Effects 	<p>The introductory chapters of the EIAR will introduce the Proposed Development, providing the relevant project context; including an introduction, the planning and policy context, the EIA methodology being used, any alternative design options that have been considered, as well as a description of the Proposed Development and construction strategy. This should summarise the findings of the EIAR in a clear, accessible format that uses non-technical language and supporting graphics.</p>						
Volume 2	Offshore EIAR	<table border="0"> <tr> <td style="vertical-align: top;">Physical</td> <td> <ol style="list-style-type: none"> 8. Marine and Coastal Processes 9. Marine Water and Sediment Quality 10. Underwater Noise </td> </tr> <tr> <td style="vertical-align: top;">Biological</td> <td> <ol style="list-style-type: none"> 11. Nature Conservation and Designated Sites 12. Benthic Subtidal and Intertidal Ecology 13. Fish and Shellfish Ecology 14. Offshore Ornithology 15. Marine Mammals and Other Megafauna </td> </tr> <tr> <td style="vertical-align: top;">Human</td> <td> <ol style="list-style-type: none"> 16. Commercial Fisheries 17. Shipping and Navigation 18. Military and Civil Aviation 19. Marine Archaeology and Cultural Heritage 20. Seascape and Visual 21. Other Human Activities 22. Climate and Carbon 23. Socio-economics, Tourism and Recreation </td> </tr> </table>	Physical	<ol style="list-style-type: none"> 8. Marine and Coastal Processes 9. Marine Water and Sediment Quality 10. Underwater Noise 	Biological	<ol style="list-style-type: none"> 11. Nature Conservation and Designated Sites 12. Benthic Subtidal and Intertidal Ecology 13. Fish and Shellfish Ecology 14. Offshore Ornithology 15. Marine Mammals and Other Megafauna 	Human	<ol style="list-style-type: none"> 16. Commercial Fisheries 17. Shipping and Navigation 18. Military and Civil Aviation 19. Marine Archaeology and Cultural Heritage 20. Seascape and Visual 21. Other Human Activities 22. Climate and Carbon 23. Socio-economics, Tourism and Recreation 	<p>Assessment chapters for each offshore environmental aspect will be provided in accordance with Article IV of the EIA Directive for the Offshore infrastructure seawards of MHWS. These chapters will provide a description of the relevant environmental receptors, a description of the existing baseline characterisation within the appropriate study area, relevant project committed embedded mitigation, identification of potential impacts and the anticipated significant effects. Any mitigation measures will be identified, and residual effects summarised. The assessment of cumulative effects will be considered within each technical chapter, rather than as a separate chapter.</p>
Physical	<ol style="list-style-type: none"> 8. Marine and Coastal Processes 9. Marine Water and Sediment Quality 10. Underwater Noise 								
Biological	<ol style="list-style-type: none"> 11. Nature Conservation and Designated Sites 12. Benthic Subtidal and Intertidal Ecology 13. Fish and Shellfish Ecology 14. Offshore Ornithology 15. Marine Mammals and Other Megafauna 								
Human	<ol style="list-style-type: none"> 16. Commercial Fisheries 17. Shipping and Navigation 18. Military and Civil Aviation 19. Marine Archaeology and Cultural Heritage 20. Seascape and Visual 21. Other Human Activities 22. Climate and Carbon 23. Socio-economics, Tourism and Recreation 								

Volume	Contents	Chapters	Outline
Volume 3	Onshore EIAR	24. Land Use and Agriculture 25. Terrestrial Ecology and Biodiversity 26. Landscape and Visual 27. Terrestrial Archaeology and Cultural Heritage 28. Hydrology and Hydrogeology 29. Geology, Soils and Contaminated Land 30. Airborne Noise and Vibration 31. Traffic and Transport 32. Climate 33. Socio-economics, Tourism and Recreation	Assessment chapters for each onshore environmental aspect will be provided in accordance with the EIA Regulations landwards of MLWS. These chapters will provide a description of the relevant environmental receptors, a description of the existing baseline characterisation within the appropriate study area, relevant project committed embedded mitigation, identification of potential impacts and the anticipated significant effects. Any mitigation measures will be identified, and residual effects summarised. The assessment of cumulative effects will be considered within each technical chapter, rather than as a separate chapter.
Volume 4	Summary	34. Schedule of Mitigation (Offshore) 35. Schedule of Mitigation (Onshore) 36. Summary and Conclusions	Summary chapters will provide a concise presentation of the key findings and mitigation commitments.
Volume 5	Technical Appendices	To be determined.	Technical appendices for the onshore and offshore assessment chapters that support and are cross-referenced with Volume 2 will be included. These may include modelling outputs, background reports and/or supporting documents.
Volume 6	Figures	N/A	Presentation of visualisations and photomontages.

Caledonia Offshore Wind Farm
5th Floor, Atria One
144 Morrison Street
Edinburgh
EH3 8EX

www.caledoniaoffshorewind.com

