Pentland Floating Offshore Wind Farm

Section 36C Consent and Marine Licence Variation Screening Report

Document No.	GBPNTD-PGM-PEN-RP-00002
Project:	Pentland Floating Offshore Wind Farm
Originator Company	HWL
Revision	01
Classification	
Author	HWL
Date	04.08.2023

Revision History:

Revision	Date	Status	Author	Reviewed	Approved
01	04.08.2023	Approved	TWA	RJM	PEM

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Glossary of Project Terms

Key Terms	Definition
Consent Documents	The original application and supporting documents submitted for consent of the PFOWF, as amended or supplemented by documents submitted to discharge or satisfy conditions
Highland Wind Limited	The Developer of the Project (defined below) and the Applicant for the associated consents and licences.
Offshore Wind Farm Marine Licence	The Marine Licence granted by Scottish Ministers under the Marine (Scotland) Act 2010 on 28 June 2023 in respect of the PFOWF Array, as defined.
Offshore Transmission Infrastructure Marine Licence	The Marine Licence granted by Scottish Ministers under the Marine (Scotland) Act 2010 on 28 June 2023 in respect of the Offshore Transmission Infrastructure, as defined.
Offshore Consents	The consents granted for the offshore components of the PFOWF, including the Section 36 Consent, the Offshore Wind Farm Marine Licence and the Offshore Transmission Infrastructure Marine Licence.
Offshore Export Cable(s)	The cable(s) that transmits electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OECC)	The area within which the Offshore Export Cable(s) will be located.
Original EIAR	The original Environmental Impact Assessment Report submitted in August 2022 in support of the PFOWF consent application
Pentland Floating Offshore Wind Farm (PFOWF) Array and Offshore Export Cable(s) (the 'Offshore Development')	All offshore components of the Project (WTGs, inter-array and Offshore Export Cable(s), floating substructures, and all other associated offshore infrastructure (i.e. those below mean high water springs) required during operation of the Project, for which HWL has obtained consent.
PFOWF Array	All WTGs, inter-array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the PFOWF Array Area, as defined, excluding the Offshore Export Cable(s).
PFOWF Array Area	The area where the WTGs will be located within the Offshore Site, as defined.
PFOWF (the 'Project')	The combined Offshore Development and Onshore Development, as defined.
Project Marine Licences	The Offshore Wind Farm Marine Licence and the Offshore Transmission Infrastructure Marine Licences, as defined.
Section 36 Consent	Consent under section 36 of the Electricity Act 1989 granted by the Scottish Ministers on 28 June 2023 in respect of the PFOWF.
Section 36C Variation	Variation made to an existing Section 36 Consent under the Electricity Act 1989, under Regulation 42 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) ('the EIA Regulations')
Wind Turbine Generator Footprint Area	The Wind Turbine Generator (WTG) footprint area comprises the area of sea surface occupied by the infrastructure at or above sea level (i.e. the WTGs and associated floating substructure).

Acronyms and Abbreviations

AA	Appropriate Assessment
AEOSI	Adverse Effect on Site Integrity
COP	Copenhagen Offshore Partners
CRM	Collision Risk Modelling
DSRL	Dounreay Site Restoration Limited
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electric Magnetic Field
GW	Gigawatt
GVA	Gross Value Added
HAT	Highest Astronomical Tide
HWL	Highland Wind Limited
HVAC	High Voltage Alternating Current
IFP	Instrument Flight Procedure
INNS	Invasive Non Native Species
INTOG	Innovation and Targeted Oil and Gas
km	Kilometre
LAT	Lowest Astronomical Tide
m	Metre
MW	Megawatt
ML	Marine Licence
MoC	Magnitude of Change
MD-LOT	Marine Directorate Licensing and Operations Team
NCC	North Caithness Cliffs
NM	Nautical Mile
NS	NatureScot
OECC	Offshore Export Cable Corridor
OTI	Offshore Transmission Infrastructure
OWF	Offshore Wind Farm
PFOWF	Pentland Floating Offshore Wind Farm
PPP	Planning Permission in Principle

PVA	Population Viability Analysis
RIAA	Report to Inform Appropriate Assessment
REZ	Renewable Energy Zone
RSPB	Royal Society for the Protection of Birds
S36	Section 36
SAR	Search and Rescue
SLVIA	Seascape Landscape and Visual Impact Assessment
SPA	Special Protection Area
THC	The Highland Council
WTG	Wind Turbine Generator
UK	United Kingdom

1 Introduction

1.1 Background

Highland Wind Limited (HWL) was awarded Section 36 Consent (the 'S36 Consent') under the Electricity Act 1989 by the Scottish Ministers on 28 June 2023 for the offshore components of the Pentland Floating Offshore Wind Farm (PFOWF) (the 'Project'). Marine Licences for the Offshore Wind Farm (OWF) and the Offshore Transmission Infrastructure (OTI) (together the 'Project Marine Licences') were also awarded by the Scottish Ministers on 28 June 2023 under the Marine (Scotland) Act 2010.

The onshore components of the Project (above mean low water springs (MLWS)) were the subject of a separate application to the Highland Council (THC) under the Town and Country Planning (Scotland) Act 1997. Planning Permission in Principle (PPP) for the onshore components was granted on 30 January 2023.

HWL intends to request a variation to the S36 Consent under Section 36C of the Electricity Act 1989 and, should this be granted, the associated Project Marine Licences (MS-00009991 and MS-00009992) under section 30 of the Marine (Scotland) Act. These variations will incorporate refinements to the design parameters of the Project in response to further detailed design activities, and to extend the operational life of the Project consent from 10 years to 25 years, noting that the original EIA and application assessed an operational life of 30 years.

This report has been prepared to request a Screening Opinion from Marine Directorate Licensing and Operations Team (MD-LOT) with respect to the S36C variations proposed and as set out within this document.

The proposed refinements to the design parameters remain within the design envelope assessed in the Environmental Impact Assessment Report (EIAR) submitted in August 2022 (the 'Original EIAR'). Following review of the Original EIAR and consideration of the potential environmental effects arising from the proposed variation, this Screening Report demonstrates that no further significant effects are identified and therefore the proposed variation does not constitute an EIA development and an EIA is not required.

It is acknowledged by HWL that concerns were raised by NatureScot (NS), MD-LOT and RSPB regarding the Report to Inform Appropriate Assessment (RIAA) and potential in-combination adverse effect on site integrity (AEOSI) for puffin and kittiwake features of the North Caithness Cliffs (NCC) SPA. The HRA process falls outside of the requirements of this Screening Report. However, to address such concerns HWL intends to submit an addendum to the RIAA within the S36C Application report which will address the proposed design refinements and the potential implications of these for ornithological features. This addendum will provide updated ornithological modelling for both puffin and kittiwake features of the NCC SPA, to include updated collision risk modelling (CRM), displacement assessments and population viability analysis (PVA) and discussions with NS and MD-LOT are ongoing to agree modelling approaches.

1.2 Document Structure

This document sets out the proposed variations to the S36 Consent alongside justification as to why the proposed variations are required. This document also reviews the Original EIAR and considers whether the proposed design refinements could result in any significant effects which are new or materially different to

those of the consented PFOWF. This is based on MD-LOT's Guidance Note: Application for Variation of Section 36 Consents[1].

The remaining document structure is set out as follows:

- Proposed variations and legislative context;
- EIA Comparison;
- Recommendations;
- SLVIA Comparison;
- Conclusions and Recommendations
- Appendices

2 Proposed Variation

2.1 Overview

HWL is seeking consent from the Scottish Ministers to vary the current S36 Consent under the Electricity Act 1989 for the Project by refining the following project parameters:

- Reducing the number of Wind Turbine Generators (WTGs) from seven to six;
- Reducing the WTG footprint area from 10 km^2 to 5.85 km^2. This comprises the area of sea surface occupied by the WTGs and associated floating substructure, excluding the mooring lines;
- Reducing the rotor swept area from 316,673 m^3 to 283,448 km^3. This comprises the installation of up to 1 x WTG with rotor diameter up to 220 m and 5 x WTGs with rotor diameter up to 250 m;
- Reducing the number of floating substructures from seven to six;
- Reducing the number of mooring lines from 63 to 54;
- Reducing the number of anchors or piles from 63 to 54; and
- Extending the operational life of the Project from 10 to 25 years.

HWL is also requesting that the associated marine licences (licence numbers ML-00009991 and ML-00009992) are varied by the Scottish Ministers under section 30 of the Marine (Scotland) Act, to reflect amendments to the S36 Consent.

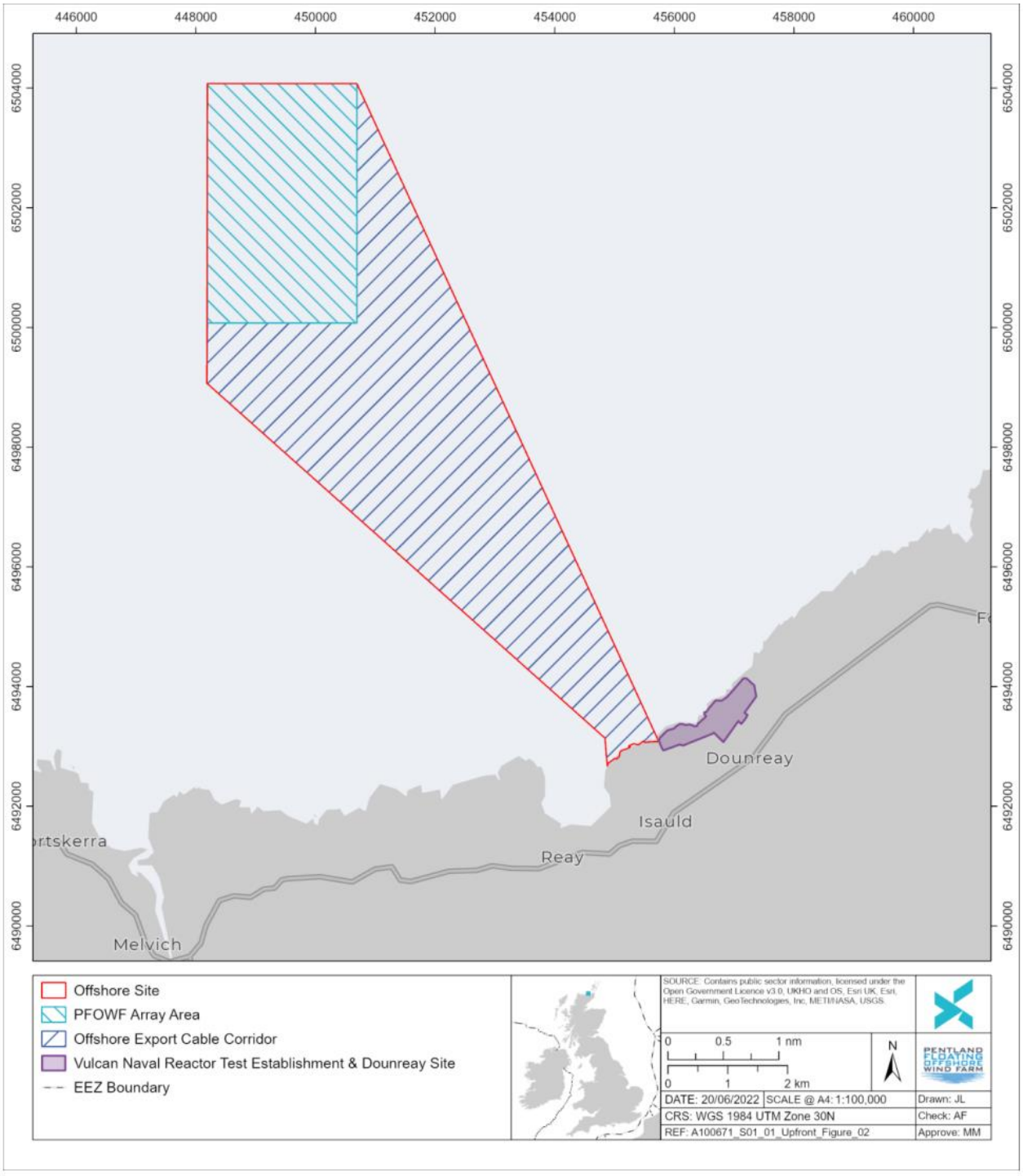
[1] MS-LOT (2019). Energy consents: applications for variation of section 36 consents guidance. Available at https://www.gov.scot/publications/applications-variation-section-36-consents/documents

2.2 Consented Development

The current S36 Consent permits the development of a demonstration Offshore Wind Farm (OWF) in the Pentland Firth, located as shown on Figure 2 1. The S36 Consent includes the following key parameters:

- The construction and operation of an offshore energy generating station with a generating capacity of around 100 MW. The offshore generating station shall be comprised of up to:
    - Seven floating offshore WTGs with:
        - A maximum hub height of 190 m above HAT;
        - A maximum height to blade tip of 300 m above HAT;
        - A maximum rotor diameter of 260 m;
        - A minimum blade tip clearance from mean sea level (MSL) of 35 m;
    - Seven associated floating substructures;
    - Nine mooring lines for each floating substructure, 63 in total;
    - Nine anchors or piles for each floating substructure, 63 in total;
    - Seven inter-array cables (dynamic and static); and
    - Associated scour and cable protections.

The consented development is also detailed in Annex 1 (Description of the Development) of the S36 Consent. For reference, the current S36 Consent documents and the Original EIAR for Project can be accessed at: https://marine.gov.scot/ml/pentland-floating-offshore-wind-farm



Insert Figure 2.1 Consented Project Boundaries

2.3 Need for the Variations

Following the submission of the application for the offshore consents, HWL has worked with its engineering teams to further refine and reduce the offshore parameters for the Project where possible within the consented design envelope. At the same time, and taking these design refinements into consideration, HWL is seeking to extend the operational life of the Project from 10 to 25 years. Such refinements will require variation of

previously consented project parameters listed in Annex 1 of the S36 Consent and associated marine licences (ML-00009991 and ML-00009992).
To ensure that the benefits of the Project are realised, both in terms of facilitating the development of floating offshore wind and the contribution of the Project to UK and Scottish climate targets, the operational period must be extended from 10 to 25 years. As a test and demonstrator project the PFOWF will enable the development of floating offshore wind farms in Scotland, the UK and worldwide. The design refinements proposed within this document will ensure that the environmental effects of the Project are minimised, while enabling the Project to remain cost effective and deliver the lowest cost of energy to consumers. The innovations and technology trialled in the delivery of the Project will also be key to advancing the deployment of large-scale floating offshore wind in the UK, including the successful realisation of nearly 15 GW of floating capacity allocated under the ScotWind leasing round and up to 5 GW of additional floating capacity under the Innovation and Targeted Oil and Gas (INTOG) leasing round.

2.4 Legislative Context

Section 36 of the Electricity Act, 1989 applies to proposals for any offshore generating station whose capacity exceeds 1 MW within Scottish territorial waters or the Scottish Renewable Energy Zone (REZ). Offshore generating stations also require a marine licence under the Marine (Scotland) Act, 2010 (between 0 and 12 NM) or under the Marine and Coastal Access Act, 2009 (between 12 and 200 NM).

Section 20 of the Growth and Infrastructure Act, 2013 inserted a new Section 36C into the 1989 Act to provide for the making of variations to Section 36 consents. Prior to 2013, the 1989 Act did not provide for Section 36 consents to be varied.

The Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 ('the 2013 Regulations') came into force in December 2013. The 2013 Regulations were later amended by Regulation 42 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) ('the EIA Regulations'). The regulations make provision for the content of a variation application and the consultation process to be followed with respect to Section 36C applications.

Following discussions with MD-LOT and receipt of written confirmation received on 8 June 2023, MD-LOT has confirmed that the variation process under Section 36C of the Electricity Act is the appropriate mechanism by which to address the proposed design refinements, and to extend the operational life of the consented Project.

Under paragraph 3 of Schedule 2 of the EIA Regulations, and paragraph 13 of Schedule 2 of the Marine Works (EIA) (Scotland) Regulations 2017 ('the Marine Works EIA Regulations'), any change to works already authorised which were subject to an EIA must be considered to determine whether that change may have significant adverse effects on the environment and, as such, an EIA is required. Where a proposed variation is unlikely to have significant environmental effects, no EIA Report or process would be required in respect of the variation application.

The proposed design refinement variations fall under Schedules 2(3) and 2(13) of the EIA Regulations and Marine Works EIA Regulations, respectively, and, as such, MD-LOT will provide a Screening Opinion as to whether the variations are, or are not, an EIA project. This report has been prepared to request a Screening Opinion from MD-LOT with respect to the S36C variations proposed and as set out within this document.

In considering the proposed variations as an EIA Project, it is highlighted that the Original EIAR submitted to support the S36 consent and Marine Licences assessed the impacts of the Project for a period of 30 years. Extending the operational life of the project to 25 years would not give rise to any additional effects that have not already been assessed within the Original EIAR and, therefore, the changes to the operational life do not constitute an EIA project. In addition, the Project has made reductions to the project design envelope which,

whilst in each case remaining within the overall design envelope assessed within the Original EIAR, reduce the impacts assessed in the Original EIAR. These are detailed in the EIAR comparison below.

HWL is also requesting that, should the variation of the Section 36 Consent be granted, the associated marine licences (Licence Number: ML-00009991 and ML-00009992) are also varied by the Scottish Ministers under section 30 of the Marine (Scotland) Act to reflect amendments to the S36 Consent.

3 EIAR Comparison

This section of the report considers the potential implications of the proposed variations and design refinements on the receptor topics assessed within the Original EIAR for the Project. In each case it is concluded whether receptor topics require additional consideration within the proposed S36C Variation Application.

3.1.1 Revised Project Parameters

The Original EIAR made use of a design envelope approach. Table 3-1 details the proposed variations to the Project and highlights where the proposed changes to the parameters would require the S36 Consent and/or the marine licences to be varied.

Table 3.1. Proposed Parameter Variations to the PFOWF

Parameter	Consented Parameter	Proposed Variation	S36 Amendment	ML Amendment
Number of WTGs	7	6	Text to be amended within S36 Consent	Text to be amended within OWF ML 00009991
Number of floating substructures	7	6	Text to be amended within S36 Consent	Text to be amended within OWF ML 00009991
Number of mooring lines	63	54	Text to be amended within S36 Consent	Text to be amended within OWF ML 00009991
Number of anchors or piles	63	54	Text to be amended within S36 Consent	Text to be amended within OWF ML 00009991
Rotor Swept Area	316,673 m^3	283,448 m^3	Text to be amended within S36 Consent	Text to be amended within OWF ML 00009991
WTG footprint Area	10 km^2	5.85 km^2	Text to be amended within S36 Consent	Text to be amended within OWF ML 00009991
Operational life (years)	10	30	Text to be amended within S36 Consent	Text to be amended within OWF and OTI ML 00009991 and ML 00009992

3.2 Environmental Receptor Comparison

The following section considers the implications of the proposed reduction in Project design parameters on each environmental receptor topic assessed within the original EIAR. This includes a reduction in WTG number and rotor swept area, reduction in WTG footprint area and proposed extension of the operational life of the Project from 10 to 25 years.

In considering the proposed design refinements, the following points should be noted.

- In each case the variations proposed to the Project design parameters represent a reduction in the consented project parameters (whilst remaining within the original design envelope) and therefore a reduction in environmental effects would be realised, as compared to the Original EIAR and supporting information.

- The Original EIAR assessed the effects of the Project for an operational life of up to 30 years. Therefore, the potential environmental effects of the proposed extended operational life would be no greater than already assessed within the Original EIAR supporting information.

Error! Reference source not found. summarises the environmental receptor topics and associated significance of effect previously assessed within the Original EIAR and considers whether this has the potential to change as a result of the proposed variations and, if so, whether further information is required to understand the implications of such changes.

Table 3.2. Proposed Design Refinements to Project Parameters and Implications for Receptors previously assessed within the Original EIAR

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
Marine Physical Processes	<u>Construction/Decommissioning</u> - Increase in suspended sediment concentration - Loss/alteration of seabed characteristics <u>Operation and maintenance</u> - Changes to wave and tide regime - Changes to sediment transport regime - Introduction of scour - Impacts on fronts and stratification	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on marine physical processes within the original EIA. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column and in the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed on or within the seabed. As a result, the potential impacts on marine physical processes will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements, and therefore the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on marine physical processes and therefore, the findings of the Original EIAR remain valid.	No
Water and Sediment Quality	<u>Construction/Decommissioning</u> - Disturbance and release of contaminated sediments or radioactive particles in - Changes in water and sediment quality and status due to accidental release of contaminants or radioactive particles - Changes in water and sediment quality and status due to risk of INNS settlement and redistribution <u>Operation and maintenance</u> - Changes in water quality due to operational cleaning and painting	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on water quality within the Original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column and the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed on or within the seabed. As a result, the potential impacts on water and sediment quality will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements, and therefore the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on water and	No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
			sediment quality and therefore, the findings of the Original EIAR remain valid.	
Benthic Ecology	<u>Construction/Decommissioning</u> - Damage from placement of infrastructure (cables, moorings, anchors on the seabed) - Suspension of sediments from the installation of marine infrastructure - Disturbance of contaminated sediments - Introduction of marine invasive non-native species (INNS) - Deposition of drill cuttings <u>Operation and maintenance</u> - Hydrodynamic changes leading to scour and abrasion around subsea infrastructure - Introduction of marine INNS - Colonisation of subsea infrastructure - Impact to benthic communities from any EMF and thermal load from cables	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on benthic ecology within the Original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed on or within the seabed. As a result, the potential impacts on benthic ecology will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements, and therefore the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on benthic ecology and therefore, the findings of the Original EIAR remain valid.	No
Fish and Shellfish Ecology	<u>Construction</u> - Disturbance or damage to sensitive species due to underwater noise from construction activities - Direct habitat loss due to disturbance of spawning and nursery grounds from construction activities - Effects of increased sedimentation / smothering on fish and shellfish - Temporary burial of seabed from drill cuttings - Potential accidental release of pollutants <u>Operation and maintenance</u>	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on fish and shellfish ecology within the Original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column and a reduction in the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed on or within the seabed. As a result, the potential impacts on fish and shellfish species will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements, and therefore the findings of the Original EIAR remain valid.	No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
	- Habitat loss of spawning and nursery grounds due to presence of anchors and cables on seabed - Effects of EMF from cables on sensitive species - Fish aggregation around the floating structure and associated infrastructure - Ghost fishing (lost fishing gear) becoming entangled in installed infrastructure -		<u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on fish and shellfish ecology and therefore, the findings of the Original EIAR remain valid.	
Marine Mammals and Other Megafauna	<u>Construction/Decommissioning</u> - Noise related impacts to marine mammals from construction activities - Noise related impacts to basking sharks from low-frequency construction noise <u>Operation and maintenance</u> - Noise related impacts to marine mammals during operation and maintenance - Entanglement risk to marine mammals and basking sharks - Collision risk to marine mammals and basking sharks - Displacement or barrier effects - Long term habitat change -	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on marine mammals and megafauna within the original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column and a reduction in the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed. As a result, the potential impacts on marine mammals and megafauna species will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements and the findings of the Original EIAR remain valid.	No
			<u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on marine mammals and megafauna and therefore, the findings of the original assessment remain valid.	
Marine Ornithology	<u>Construction/decommissioning</u> - Disturbance/displacement/exclusion due to construction/decommissioning noise or physical presence of vessels	Negligible to Minor Effects	<u>Design Refinements</u> No significant adverse effects were identified on ornithological species within the Original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six which reduces the WTG footprint	No Note: HWL intends to

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
	- Barrier effects due to physical presence of vessels and construction/decommissioning equipment - Change in habitat/prey availability during construction/decommissioning - Increase in suspended sediment affecting visibility during construction/decommissioning <u>Operation and maintenance</u> - Collision risk with operational WTGs - Displacement impacts due to physical presence of WTGs - Barrier effects due to physical presence of WTGs - Entanglement with debris caught on mooring lines - Disturbance/exclusion due to marine noise and maintenance works - Change in habitat/prey availability due to physical presence of WTGs, scour and cable protection - Increase in suspended sediment from operations and maintenance work affecting visibility - Creation of roosting habitat or foraging opportunities	No risk of significant additional collision impacts arising from the Offshore Development Residual Effects Not Significant	area. WTGs to be installed will comprise 1 x WTG with rotor diameter 220 m and 5 x WTGs with rotor diameter 250 m, which provides an overall reduction in rotor swept area. As a result, the potential impacts on marine ornithology species will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements and the conclusions of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on marine ornithology species and therefore, the findings of the original assessment remain valid.	submit an addendum to the RIAA within the S36C Application report which will consider concerns raised regarding potential in-combination AEOSI with respect to Puffin and Kittiwake features of the NCC SPA. This will include updated ornithological modelling assessment. A cut-off date of 2 June 2023 for in-combination assessments has been agreed with NatureScot and MD-LOT
Commercial Fisheries	<u>Construction/decommissioning</u> - Loss of access to fishing grounds due to the presence of vessels and safety zones - Displacement of fishing activity into other areas	Negligible to Tolerable with Mitigation	<u>Design Refinements</u> No significant adverse effects were identified on commercial fisheries within the original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column	No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
	- Fishing gear entanglement with subsea structures, resulting in damage, loss of fishing gear or ghost fishing <u>Operation and maintenance</u> - Loss of access to fishing grounds due to floating platforms, associated moorings and safety zones - Displacement to other fishing grounds resulting in increased pressure on resources or conflict with other sea users due to floating platforms, associated moorings and safety zones - Fishing gear entanglement with floating subsea structures resulting in damage loss of fishing gear or ghost fishing	Residual Effect Not Significant	and a reduction in the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed. As a result, the potential impacts on commercial fisheries will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements and therefore, the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on commercial fisheries and therefore, the findings of the Original EIAR remain valid.	
Shipping and Navigation	<u>Construction/decommissioning</u> - Vessel displacement due to construction / decommissioning activities leading to increased risk for third-party vessels and/or reduction in port access - Vessel to vessel collision risk between a third-party vessel and Project vessel - Vessel to structure allision risk due to the presence of new structures associated with the Project - Fishing gear interaction with subsea infrastructure - Reduction in under keel clearance due to subsea cables / cable protection leading to increased grounding risk <u>Operation and maintenance</u>	Broadly Acceptable to Tolerable with Mitigation Residual Effect Not Significant	<u>Design refinements</u> No significant adverse effects were identified on shipping and navigation receptors within the original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column and a reduction in the total number of anchors, inter array cables, mooring lines, and scour/cable protection to be installed. As a result, the potential impacts on shipping and navigation will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements and therefore, the findings of the Original EIAR remain valid. <u>Extended Operation life</u>	No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
	- Vessel to vessel displacement due to presence of new structures leading to increased collision risk for third-party vessels and/or reduction in port access - Vessel to vessel collision risk between a third-party vessel and Project vessel - Vessel to structure allision risk due to the presence of new structures associated with the Project - Anchor interaction with subsea infrastructure - Fishing gear interaction with subsea infrastructure - Transiting vessel interaction with subsea infrastructure - Reduction in under keel clearance due to subsea cables / cable protection leading to increased grounding risk - Reduction in emergency response capabilities due to increased incident rate and/or reduced access for SAR responders		The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on shipping and navigation and therefore, the findings of the Original EIAR remain valid.	
Aviation and Radar	<u>Construction/decommissioning</u> - Potential impact on Wick airport IFPs - Potential impact on military low flying and UK SAR helicopter operations <u>Operation and maintenance</u> - Potential impact on Wick airport IFPs - Potential impact on military low flying and UK SAR helicopter operations	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on aviation and radar within the original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. As a result, the potential obstacles to aviation and radar receptors will be reduced compared to those assessed within the original EIAR. No new impacts are identified as a result of the design refinements and therefore, the findings of the original EIAR remain valid. <u>Extended Operation life</u>	No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
			The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on aviation and radar and therefore, the findings of the Original EIAR remain valid.	
Seascape Landscape and Visual Amenity	<u>Construction/decommissioning</u> - Effect on seascape/landscape character and visual amenity due to the presence and activity of construction/decommissioning vessels - Effect on seascape/landscape character and visual amenity due to the installation of the offshore WTGs and floating substructures - Effect on visual amenity due to the use of artificial lighting to enable construction/decommissioning works during the hours of darkness <u>Operation and maintenance</u> - Effect on seascape/landscape character and visual amenity due to the presence of offshore WTGs and the movement of blades and presence of floating substructures - Effect on seascape/landscape character and visual amenity due to the use of aviation lighting on offshore WTGs during the hours of darkness over the 30-year life - Effect on seascape/landscape character and visual amenity due to the use of helicopters and maintenance vessels to service the Project over the 30-year life	Minor to Major/Moderate Residual Effect Significant The effects are found to be localised within the SLVIA Study Area, affecting an area of coast and landscape that currently has energy and onshore wind development. Localised nature of the effects means that the majority of landscape and visual receptors across the wider Study Area will either undergo Not Significant Effects or will be unaffected	<u>Design Refinements</u> The Original EIA resulted in the identification of significant adverse effects on landscape and coastal character, landscape designations and some viewpoint locations. However, such effects were found to be localised and in no instances were these effects considered to be unacceptable. The proposed design refinements will result in a reduction in WTGs from seven to six and HWL has committed to reducing the area within which the WTGs will be deployed. This provides a reduction in extent of the array across the horizon. WTGs to be installed will comprise 1 x WTG with rotor diameter 220 m and 5 x WTGs with rotor diameter 250 m, which provides a reduction in WTG design parameters (tip height, hub height). As a result, the potential impacts on seascape, landscape and visual amenity will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements and therefore, the findings of the Original EIAR remain valid. To understand the nature of the design refinements proposed on Seascape and Landscape receptors, a comparison of the proposed design refinements is provided within this Screening Report. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in the identification of significant adverse effects on some viewpoint locations, however, in no instances were these effects considered to be unacceptable. Therefore, the findings of the Original EIAR remain valid.	Yes – see Section 5, SLVIA Comparison

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
			To understand the nature of the design refinements proposed on Seascape and Landscape receptors, a comparative assessment of the proposed design refinements is provided within this Screening Report.	
Marine Archaeology and Cultural Heritage	<u>Construction/decommissioning</u> - Loss of or damage to known marine and intertidal historic environment assets - Loss of or damage to unknown marine and intertidal historic environment assets - Loss of or damage to known submerged prehistoric landscapes <u>Operation and maintenance</u> - Loss of or damage to known marine historic environment assets - Loss of or damage to unknown marine historic environment assets - Loss of or damage to known submerged prehistoric landscapes - Long term changes to the setting of onshore historic environment assets that reduces their value	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Changes</u> No significant adverse effects were identified on marine archaeology and cultural heritage within the original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the total number of anchors, inter array cables and scour/cable protection to be installed on or within the seabed. As a result, the potential impacts on marine archaeology will be reduced compared to those assessed within the Original EIAR. No new impacts are identified as a result of the design refinements and therefore, the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on marine archaeology and cultural heritage and therefore, the findings of the Original EIAR remain valid.	No
Other Users of the Marine Environment	<u>Construction-decommissioning</u> - Disturbance of subsea cables - Disruption to DSRL remedial monitoring activities - Interference to the operations of Space Hub Sutherland <u>Operation and maintenance</u> - Disturbance of subsea cables	Negligible to Minor Effects Residual Effect Not Significant	<u>Design Refinements</u> No significant adverse effects were identified on other users of the marine environment within the Original EIAR. The proposed design refinements will result in a reduction in WTGs from seven to six. This provides a corresponding reduction in the number of substructures required within the water column and a reduction in the total number of anchors, inter array cables and scour/cable protection to be installed on or within the seabed. As a result, the potential impacts on other marine users will be reduced compared to those assessed within the Original EIAR. No new impacts are	No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
	- Obstruction of DSRL remedial monitoring activities - Adverse impacts on telecommunications systems - Interference to the operations of Space Hub Sutherland		identified as a result of the design refinements and therefore, the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on other marine users and therefore, the findings of the Original EIAR remain valid.	
Socioeconomics, Recreation and Tourism	<u>Construction/operation and maintenance and decommissioning</u> - Project activities leading to an effect on employment - Project activities leading to an effect on economic output (GVA) - Project activities leading to an effect on demand for housing, recreation resources and other local services - Project activities leading to an effect on the volume and/or value of tourism	Negligible to Major Effects (beneficial) Residual Effect Significant (beneficial) Negligible to Moderate Effects (adverse) Residual Effect Not Significant (adverse)	<u>Design Refinements</u> The Original EIAR resulted in the identification of significant beneficial impacts as a result of the Project in terms of employment within Caithness and the Highland area. No significant adverse effects were identified. The proposed design refinements will not change construction employment requirements or the construction programme. No new impacts are identified as a result of the design refinements proposed and, therefore, the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on socioeconomics, recreation and tourism and a number of beneficial effects were identified which would be realised with the proposed extended operational life. Therefore, the findings of the Original EIAR remain valid.	No

Climate Change and Carbon	<u>Climate resilience review</u>
	- Direct impacts of climate change during the operation and maintenance phase on the Project
	  ○ Impacts of extreme weather events
	  ○ Impacts from changes in weather patterns or sea conditions
		<u>Climate Resilience Review:</u>
		
		No Significant Effects identified
			<u>Design Refinements</u>
			The proposed design refinements will result in a reduction in WTGs from seven to six, with a reduction in associated project infrastructure.
			The climate resilience of the Project to external factors will remain as assessed within the Original EIAR. Potential in-combination effects on relevant receptors will be reduced, due to the reduction in project infrastructure requirements, compared to the assessment within the Original EIAR. Potential effects on blue carbon habitats will also be
				No

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
	○ Impacts from sea level rise and coastal erosion <u>In-combination Climate Impact Assessment</u> - Inter-related impacts of climate change and the Project on relevant receptors during the operation and maintenance phase ○ Inter-related impacts of extreme weather events ○ Inter-related impacts from changes in weather patterns or sea conditions ○ Inter-related impacts of sea level rise and coastal erosion <u>Blue Carbon Assessment</u> - Direct blue carbon habitat loss/disturbance from the place of the Project subsea infrastructure during the lifecycle of the Project - Cumulative effects from the Project and other projects resulting in blue carbon habitat loss/disturbance from the placement of subsea infrastructure <u>Carbon Assessment</u> - Impact of the Project on the global climate receptor utilising ○ Calculated carbon life cycle emissions resulting from the Project ○ The UK Carbon budgets as a proxy for the global climate	<u>In-combination Climate Impact Assessment:</u> No Significant Effects Identified <u>Blue Carbon Assessment:</u> No Significant Effects Identified <u>Carbon Assessment:</u> No Significant Effects Identified	reduced. The Project will continue to make a positive contribution to the UK carbon budget avoiding emissions that would have been associated with more carbon-intensive forms of electricity. The overall generating capacity of the Project is not changing and therefore estimates of generation and offset remain valid. No new impacts are identified as a result of the design refinements and therefore, the findings of the Original EIAR remain valid. <u>Extended Operation life</u> The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects on climate change and carbon, and a number of positive effects were identified which would be realised with the proposed extended operational life. Therefore, the findings of the Original EIAR remain valid.	

Receptor Topic	Impacts Assessed in Original EIAR	Residual Effect Predicted in Original EIAR	Implication of Proposed Design Refinements	Further information required
Risk of Major Accidents and Disasters	Internal Project Risks - Lightning strikes - Major industrial accidents Internal Project Risks - Electrical systems failure - Marine Hazards - Subsea operations	Broadly Acceptable to Tolerable with Embedded Mitigation Residual Effect Not Significant	Design Refinements There were no risks identified for the Project that could results in a major accident or disaster and no significant effects on receptors were identified, due to the embedded mitigation and management plans in place. The proposed design refinements will not result in any changes to these embedded mitigations or to the risk of a major accident or disaster occurring. Therefore, the findings of the Original EIAR remain valid. Extended Operation life The proposed operational life of the Project has been reduced from 30 years (assessed within the Original EIAR) to 25 years. Operating the Project for 30 years resulted in no significant adverse effects and therefore, the findings of the Original EIAR remain valid.	No

4 Recommendations

4.1 EIAR Recommendations

The EIAR comparison presented in Section 3, considers the potential effects of the proposed variations to project design and extension to the operational life of the Project on the environmental topics assessed within the Original EIAR.

The proposed design refinements result in a reduction in the number of WTGs and associated infrastructure to be installed and a reduction in the overall WTG footprint area. As set out in Table 3.2, the potential impacts on each environmental receptor will be reduced compared to the Original EIAR. No new impacts are identified as a result of the design refinements proposed, and therefore the findings of the Original EIAR remain valid.

The Original EIAR assessed the impacts of the Project for an operational life of 30 years. As set out in Table 3.2, extending the operational life of the Project from 10 to 25 years does not give rise to any increase in impact significance for environmental receptors and no new impacts are identified, therefore, the findings of the Original EIAR remain valid.

The Original EIAR concluded significant adverse effects on landscape and coastal character, landscape designations and some viewpoint locations. In each case, effects were found to be localised and in no instances were these effects considered to be unacceptable. As a result of the proposed design refinements HWL has committed to reducing the area within which the WTGs will be deployed which provides a reduction in visual extent of the array across the horizon. WTGs to be installed will comprise 1 x WTG with rotor diameter 220 m and 5 x WTGs with rotor diameter 250 m, which provides a reduction in WTG design parameters (tip height, hub height). As a result, the potential impacts on seascape, landscape and visual amenity will be reduced.

To understand the nature of the design refinements proposed and potential implications for Seascape and Landscape receptors, a comparison of the proposed design refinements proposed and the conclusion of the Original EIAR is provided in Section 5 of this Screening Report.

4.2 Appropriate Assessment

The RIAA for the Project concluded no AEOSI on conservation objectives for designated sites or qualifying features, either alone or in combination with other plans and projects. However, the Appropriate Assessment (AA) undertaken for the Project raised concerns with regards to collision risk and displacement effects and potential AEOSI for kittiwake and puffin features of the North Caithness Cliffs SPA. In each case concerns raised by NS and MD-LOT on AEOSI for both kittiwake and puffin relate to cumulative impacts arising in combination with other offshore wind farm developments which have already been consented. No AEOSI were identified resulting from the Project alone.

The HRA process falls outside of the requirements of this Screening Report. However, to address such concerns HWL intends to submit an addendum to the RIAA within the S36C Application report which will address the proposed design refinements and the potential implications of these for ornithological features. This addendum will provide updated ornithological modelling for both puffin and kittiwake features of the NCC SPA, to include updated collision risk modelling (CRM), displacement assessments and population viability analysis (PVA) and discussions with NS and MD-LOT are ongoing to agree modelling approaches. In terms of projects to be included within the in-combination assessments, 2 June 2023 has been agreed with NatureScot and MD-LOT as the cut-off date in terms of which consented, scoping etc projects to be included.

5 SLVIA Comparison

5.1.1 Overview

This section describes the key sensitivities and potential environmental effects upon seascape, landscape and visual receptors arising from the proposed variations to the Project. The proposed refinements to the S36 Consent and marine licences, which may present a reduction in the significance of environmental effects on SLVIA receptors in comparison to the Original EIAR are:

- Reducing the number of Wind Turbine Generators (WTGs) from seven to six; and
- Reducing the rotor swept area from 316,673 m^3 to 283,448 km^3, which comprises the installation of 1 x WTG with rotor diameter 220 m and 5 x WTGs with rotor diameter 250 m;

5.1.2 Revised Approach

In order to consider the effects of the proposed design refinements, Optimised Environments (OPEN) have completed a comparison of the submitted and revised project design. Comparative wirelines have also been developed to illustrate the differences in appearance between the submitted and revised scheme in respect of ten of the 14 viewpoints used within the SLVIA assessment.

The full comparison is included in Appendix 1, with the key findings summarised below.

5.1.3 Conclusions

The comparative wirelines show the apparent reduction in horizontal extents and number of WTGs, and importantly they also show the limited difference that the more incremental height reduction of the WTGs would have. Despite the improvements that the revised scheme demonstrates, it is unlikely that the assessment presented in the SLVIA included in the EIAR would change notably as they would not be sufficient to change significant effects into not significant effects, other than potentially in threshold areas where incremental improvements would tip the balance. The revised scheme does, however, present positive improvements in the appearance of the Project.

The most notable difference in respect of all the viewpoints is that the horizontal extent of the WTGs is visibly reduced between the project design presented in the Original EIAR and the proposed revised project design. This is because the WTGs are contained within a smaller site, and this contains their horizontal extents in the seascape. The proposed reduction in the number of WTGs from seven to six is also readily apparent and contributes to the reduction in horizontal extents, as well as the reduction in the incidences of overlap in some of the viewpoints.

The proposed reduction in height of the WTGs is not so readily apparent, although this relates to the more incremental reduction between the WTGs used in the submitted project design and the revised project design, whereby reductions in rotor diameter and hub height are 10 m and reductions in blade tip are 15 m for the five WTGs with rotor diameter of 250 m. While there is a greater reduction in height for the one WTG with rotor diameter up to 220 m, with a 45 m reduction in blade tip height, this difference is also not readily apparent owing to the different ranges of the WTGs masking potential variations in height.

The height variance with the one smaller 14MW WTG would also not be readily visible. This is because the 14MW WTG is only 30 m smaller which is proportionally a seventh of the height of the 17MW WTGs and is located along with WTG 2 in the row of the array closest to the shore thus, owing to perspective, making it appear the same or, from some viewpoints, even slightly larger than the 17MW WTGs. A similar effect occurs

in respect of the submitted project design whereby the closer turbines appear slightly larger. In both the submitted and revised project designs, these differences appear incremental and overall, the turbines appear consistent in scale. This means that the height difference in the revised project design will not alter the findings of the assessment in the Original EIAR.

A comparison of the assessment of the submitted project design and the revised project design is presented in Table 4.1 below. This highlights that, although there is a readily apparent improvement in the visual appearance of the revised project design compared to the submitted project design, these differences would not be sufficient to change a significant effect into a not significant effect.

Table 5.1: Comparison between assessment of submitted scheme and revised scheme

Viewpoint	Submitted Scheme	Revised Scheme
1 Beinn Ratha	Sensitivity - medium-high Magnitude of change (MoC) – medium-high Significant at a major / moderate level	Reduction in horizontal extent readily apparent. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears slightly larger than the five larger 17MW WTGs owing to the location of WTG1 closest to shore and the limited difference in blade tip height of 30 m.
2 Strathy Point Car Park	Sensitivity - medium-high Magnitude of change – medium-high Significant at a major / moderate level	Reduction in horizontal extent readily apparent, especially with reference to Hoy in background. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears similar in size to the five larger 17MW WTGs owing to the location of WTG1 in the row of the array closest to shore and the limited difference in blade tip height of 30 m.
3 Portskerra /Melvich	Sensitivity - medium-high Magnitude of change – medium-high Significant at a major / moderate level	Reduction in horizontal extent readily apparent and WTGs appear very evenly spaced. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in height of 30 m and the location of WTG1 in the row of the array closest to shore.
4 Drum Holliston Car Park	Sensitivity - medium-high Magnitude of change – medium-high Significant at a major / moderate level	Reduction in horizontal extent readily apparent although grouping of WTGs with gap between arises. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears slightly larger than the five larger 17MW WTGs owing to the location of WTG1 closest to shore and the limited difference in blade tip height of 30 m.
5 Sandside Headland	Sensitivity - medium	Reduction in horizontal extent readily apparent although overlap between central WTGs arises.

	Magnitude of change – medium-high Significant at a moderate level	Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears slightly larger than the five larger 17MW WTGs owing to the limited difference in blade tip height of 30 m and the location of WTG1 closest to shore.
6 St Mary's Chapel, Forss	Sensitivity - medium-high Magnitude of change – medium-low Not significant at a moderate level	Reduction in horizontal extent readily apparent and WTGs appear very evenly spaced. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of close range operational Forss WTGs. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in blade tip height of 30 m and the location of WTG1 in the row of the array closest to shore.
7 Dunnet Head	Sensitivity - medium-high Magnitude of change – medium-low Significant at a moderate level	Reduction in horizontal extent apparent, albeit less so from more distant range and with grouping of WTGs remaining. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of separation distance and other distant wind farm influences. Any differences in blade tip height between the WTGs will not be discernible from this viewpoint owing to the separation distance of 28 km.
10 A836 East of Forss	Sensitivity - medium-high or medium Magnitude of change – medium-low Not significant at a moderate level	Reduction in horizontal extent readily apparent and WTGs appear very evenly spaced. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of operational wind farms and other developments. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in height of 30 m and the location of WTG1 in the row of the array closest to shore.
13 A' Mhoine	Sensitivity - high Magnitude of change – low Not significant at a moderate / minor level	Reduction in horizontal extent apparent, albeit less so from more distant range and with WTGs visible to only very limited extents. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of separation distance and limited extents of visibility. Any differences in height between the WTGs would not be discernible from this viewpoint owing to the separation distance of 34 km and the screening effect of the intervening landform.
14 Ben Dorrery	Sensitivity - medium Magnitude of change – medium-low	Reduction in horizontal extent readily apparent and spacing of WTGs improved. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental

	Not significant at a moderate / minor level	nature of reductions and moderating effect of separation distance and other distant wind farm influences. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in blade tip height of 30 m and the location of WTG1 in the row of the array closest to shore.

6 Conclusions and Recommendations

HWL is seeking to vary the existing S36 Consent and associated marine licences for the Project to:

- Reduce the number of WTGs from seven to six;
- Reduce the WTG footprint area, which comprises the area of sea surface occupied by the WTGs and associated floating substructure, excluding the mooring lines, from 10 km^2 to 5.85 km^2;
- Reduce the rotor swept area, which comprises the installation of up to 1 x WTG with rotor diameter up to 220 m and 5 x 1WTGs with rotor diameter up to 250 m, from 316,673 m^3 to 283,448 km^3;
- Reduce the number of floating substructures from seven to six;
- Reduce the number of mooring lines from 63 to 54;
- Reduce the number of anchors or piles from 63 to 54; and
- Extend the operational life of the Project from 10 to 25 years.

This Variation Screening Report has been submitted in support of the application to vary the S36 Consent under Section 36C of the Electricity Act 1989. It has provided an overview of the potential environmental effects of the updated project design by comparison with the consented project design as presented in the Original EIAR.

Following review of the Original EIAR and further consideration of environmental effects arising from the proposed variation, this Screening Report demonstrates that no further significant impacts are identified to arise from the changes proposed and the variations would result in a reduction of environmental effects for all receptors previously assessed within the Original EIAR. Therefore, the proposed variation does not constitute an EIA development and an EIA is not required.

References

HWL (2022). Pentland Floating Offshore Wind Farm, Offshore Environmental Impact Assessment Report

MD-LOT (2023) Marine Directorate Licensing Operations Team's Assessment of the Project's Implications for Designated Special Areas of Conservation and Special Protection Areas In View of the Site's Conservation Objectives

MS-LOT (2019). Energy consents: applications for variation of section 36 consents guidance. Available at https://www.gov.scot/publications/applications-variation-section-36-consents/documents

Scottish Ministers (2023) Decision Notice for the Section 36 Consent for the Construction and Operation of the Pentland Floating Offshore Wind Farm

Scottish Ministers (2023) Marine Licence MS-00009991

Scottish Ministers (2023) Marine Licence and MS-00009992

The Electricity Act 1989

The Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 ('the 2013 Regulations') December 2013

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) ('the EIA Regulations')

The Marine and Coastal Access Act, 2009

The Marine Scotland Act 2010

The Marine Works (EIA) (Scotland) Regulations 2017 ('the Marine Works EIA Regulations'),

The Town and Country Planning (Scotland) Act 1997

https://marine.gov.scot/ml/pentland-floating-offshore-wind-farm (last accessed 21/07/23)

Appendix 1 – SLVIA Comparison

Section 36C Variation - Pentland Floating Offshore Wind Farm

Landscape and Visual Impact Assessment Review

04/08/2023

1 Background

1 Highland Wind Limited (HWL) was awarded Section 36 Consent (the 'S36 Consent') under the Electricity Act 1989 by the Scottish Ministers on 28 June 2023 for the offshore components of the Pentland Floating Offshore Wind Farm (PFOWF) (the 'Project'). HWL is requesting a variation to the S36 Consent which will incorporate refinements to the design parameters of the Project, albeit remaining within the design envelope assessed in the Environmental Impact Assessment Report (EIAR) submitted in August 2022 (the 'Original EIAR').

2 The key changes to the Project include the reduction in the number of Wind Turbine Generators (WTGs) and floating substructures from seven to six, the reduction in WTG footprint area from 10km^2 to 5.85km^2 and to extend the operational life of the Project consent from 10 years to 25 years, noting that the Original EIAR and application assessed an operational life of 30 years. The six proposed WTGS would comprise up to one WTG with rotor diameter up to 220m and 5 WTGs with rotor diameter up to 250m.

2 Introduction

1 This report has been prepared by Optimised Environments in support of the S36C Variation. It sets out a comparison between the **submitted scheme** and the **S36C scheme** for the Project. This report should be read in conjunction with the comparative wirelines presented in Figure S32C-1 to Figure S32C-10.

2 The number and dimensions of the Wind Turbine Generators (WTGs) for the submitted scheme and S36C scheme are set out in the Table 1 below.

Table 1: Comparison between submitted scheme and S36C scheme WTG dimensions

Layout	Number of WTGs	Rotor Diameter	Hub Height	Blade Tip Height
Submitted Scheme	7 in total	260m	170m	300m
S36C Scheme	6 in total	5 WTG @ 250m 1 WTG @ 220m	5 WTG @ 160m 1 WTG @ 145m	5 WTG @ 285m 1 WTG @ 255m

3 The table illustrates a change in the number of WTGs from seven to six, as well as a reduction in all dimensions for the six WTGs in the S36C scheme, with rotor diameter, hub height and blade tip height reduced for the five 17MW WTGs and reduced more notably for the one 14MW WTG.

4 This report considers how these changes to the WTGs have altered the appearance of the Project and how

they may affect the potential landscape and visual effects that were assessed in the LVIA for the submitted scheme. The effect of the one smaller 14MW WTG compared to the five larger 17MW WTGs is also considered in the assessment.

3 Comparative Wirelines

1 Comparative wirelines have been prepared which illustrate the changes in appearance between the submitted scheme and the S36C scheme. These are presented in Figure S32C-1 to Figure S32C-10. The 'a' figures present the wireline of the submitted scheme while the 'b' figures present the wireline of the S36C scheme. Ten of the key viewpoints from the Original EIAR have been selected to represent the proposed changes.

2 The most notable difference in respect of all the viewpoints is that the horizontal extent of the WTGs is visibly reduced between the submitted scheme and the S36C scheme. This is because the WTGs are contained within a smaller site, and this contains their horizontal extents in the seascape. The reduction in the number of WTGs from seven to six is also readily apparent and contributes to the reduction in horizontal extents, as well as the reduction in the incidences of overlap in some of the viewpoints.

3 The reduction in height of the WTGs is not so readily apparent, although this relates to the more incremental reduction between the WTGs used in the submitted scheme and S36C scheme, whereby reductions in rotor diameter and hub height are 10m and reductions in blade tip are 15m for the five 17MW WTGs. While the reduction in height for the one 14MW WTG is more marked with a 45m reduction in blade tip height, this difference is also not readily apparent, owing to the different ranges of the WTGs masking potential variations in height.

4 A comparison of the assessment of the submitted scheme and the S36C scheme is presented in Table 2 below. This highlights that although there is a readily apparent improvement in the visual appearance of the S36C scheme compared to the submitted scheme, these differences would not be sufficient to change a significant effect into a not significant effect.

Table 2: Comparison between assessment of submitted scheme and S36C scheme

Viewpoint	Submitted Scheme	S36C Scheme
1 Beinn Ratha	**Figure S32C-1a** Sensitivity - medium-high Magnitude of change (MoC) – medium-high Significant at a major / moderate level	**Figure S32C-1b** Reduction in horizontal extent readily apparent. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape.

		WTG1 appears slightly larger than the five larger 17MW WTGs owing to the location of WTG1 closest to shore and the limited difference in blade tip height of 30 m.
2 Strathy Point Car Park	**Figure S32C-2a** Sensitivity - medium-high Magnitude of change – medium-high Significant at a major / moderate level	**Figure S32C-2b** Reduction in horizontal extent readily apparent, especially with reference to Hoy in background. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears similar in size to the five larger 17MW WTGs owing to the location of WTG1 in the row of the array closest to shore and the limited difference in blade tip height of 30 m.
3 Portskerra /Melvich	**Figure S32C-3a** Sensitivity - medium-high Magnitude of change – medium-high Significant at a major / moderate level	**Figure S32C-3b** Reduction in horizontal extent readily apparent and WTGs appear very evenly spaced. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in height of 30 m and the location of WTG1 in the row of the array closest to shore.
4 Drum Holliston Car Park	**Figure S32C-4a** Sensitivity - medium-high Magnitude of change – medium-high Significant at a major / moderate level	**Figure S32C-4b** Reduction in horizontal extent readily apparent although grouping of WTGs with gap between arises. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears slightly larger than the five larger 17MW WTGs owing to the location of WTG1 closest to shore and the limited difference in blade tip height of 30 m.
5 Sandside Headland	**Figure S32C-5a** Sensitivity - medium	**Figure S32C-5b** Reduction in horizontal extent readily apparent although overlap between central WTGs arises.

	Magnitude of change – medium-high Significant at a moderate level	Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and overall effect of introducing WTGs into undeveloped seascape. WTG1 appears slightly larger than the five larger 17MW WTGs owing to the limited difference in blade tip height of 30 m and the location of WTG1 closest to shore.
6 St Mary's Chapel, Forss	**Figure S32C-6a** Sensitivity - medium-high Magnitude of change – medium-low Not significant at a moderate level	**Figure S32C-6b** Reduction in horizontal extent readily apparent and WTGs appear very evenly spaced. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of close range operational Forss WTGs. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in blade tip height of 30 m and the location of WTG1 in the row of the array closest to shore.
7 Dunnet Head	**Figure S32C-7a** Sensitivity - medium-high Magnitude of change – medium-low Significant at a moderate level	**Figure S32C-7b** Reduction in horizontal extent apparent, albeit less so from more distant range and with grouping of WTGs remaining. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of separation distance and other distant wind farm influences. Any differences in blade tip height between the WTGs will not be discernible from this viewpoint owing to the separation distance of 28 km.
10 A836 East of Forss	**Figure S32C-8a** Sensitivity - medium-high or medium Magnitude of change – medium-low Not significant at a moderate level	**Figure S32C-8b** Reduction in horizontal extent readily apparent and WTGs appear very evenly spaced. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of operational wind farms and other developments.

		WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in height of 30 m and the location of WTG1 in the row of the array closest to shore.
13 A' Mhoine	**Figure S32C-9a** Sensitivity - high Magnitude of change – low Not significant at a moderate / minor level	**Figure S32C-9b** Reduction in horizontal extent apparent, albeit less so from more distant range and with WTGs visible to only very limited extents. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of separation distance and limited extents of visibility. Any differences in height between the WTGs would not be discernible from this viewpoint owing to the separation distance of 34 km and the screening effect of the intervening landform.
14 Ben Dorrery	**Figure S32C-10a** Sensitivity - medium Magnitude of change – medium-low Not significant at a moderate / minor level	**Figure S32C-10b** Reduction in horizontal extent readily apparent and spacing of WTGs improved. Although there would be a slight reduction in MoC, overall assessment would remain unaltered owing to incremental nature of reductions and moderating effect of separation distance and other distant wind farm influences. WTG1 appears similar in size to the five larger 17MW WTGs owing to the limited difference in blade tip height of 30 m and the location of WTG1 in the row of the array closest to shore.

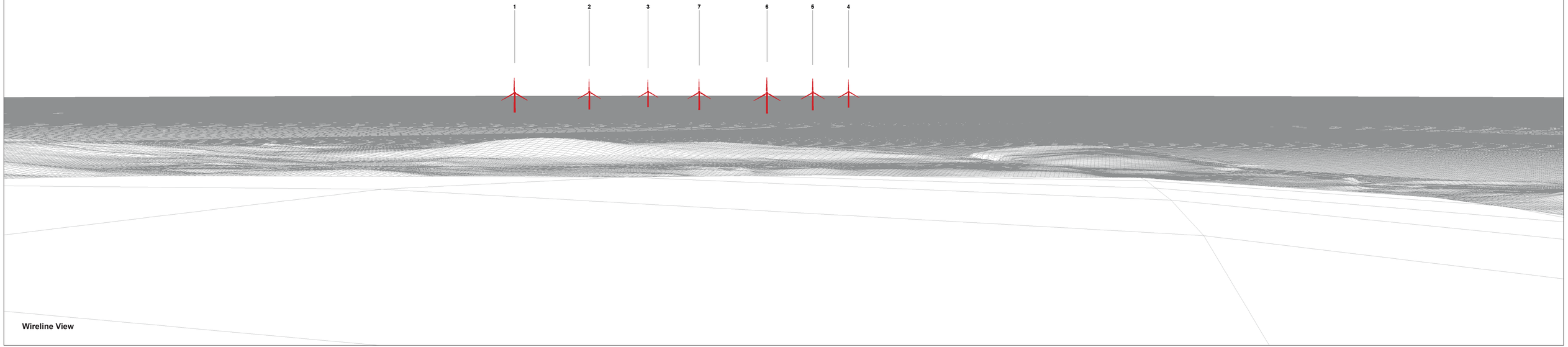
4 Summary

1 A comparative study has been conducted between the submitted scheme and the S36C scheme, where the changes include a reduction in the number of WTGs from seven to six, a reduction in the height of the WTGs and a revised layout within a more contained site. These changes have led to readily apparent reduced horizontal extents but not readily apparent reduced vertical extents. The height variance with the one smaller 14MW WTG would also not be readily visible. This is because the 14MW WTG is only 30 m smaller which is proportionally a seventh of the height of the 17MW WTGs and is located along with WTG 2 in the row of the array closest to the shore, thus owing to perspective, making it appear the same, or from some viewpoints,

slightly larger than the 17MW WTGs.

2 Comparative wirelines have been used to illustrate the differences in appearance between the submitted and S36C scheme in respect of ten of the 14 viewpoints used in the LVIA. While these show the apparent difference in horizontal extents and reduced number of WTGs, they also show the limited difference that the more incremental height reduction of the WTGs would have. Despite the improvements that the S36C scheme demonstrates, it is unlikely that the assessment presented in the LVIA would change notably as they would not be sufficient to change significant effects into not significant effects, other than potentially in threshold areas where incremental improvements would tip the balance. The S36C scheme does, however, present positive improvements in the appearance of PFOWF and these should be considered favourably by statutory consultees.

View flat at a comfortable arm's length



Wireline View

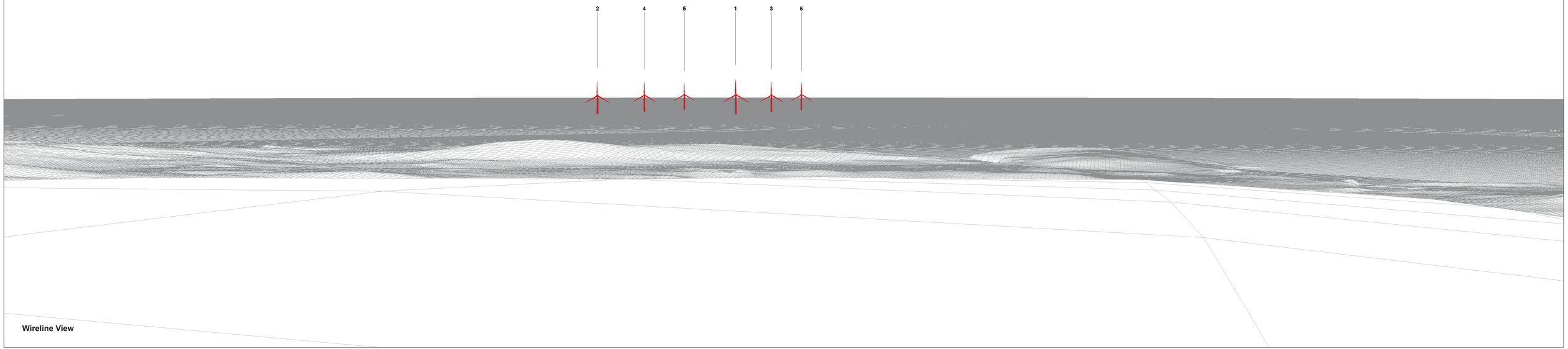
OS reference	**295429 E 961312 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**240.2 m AOD**	Principal distance	**912.5 mm**
Direction of view	**348°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**12,875 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-1a

Viewpoint 1: Beinn Ratha Wireline

View flat at a comfortable arm's length



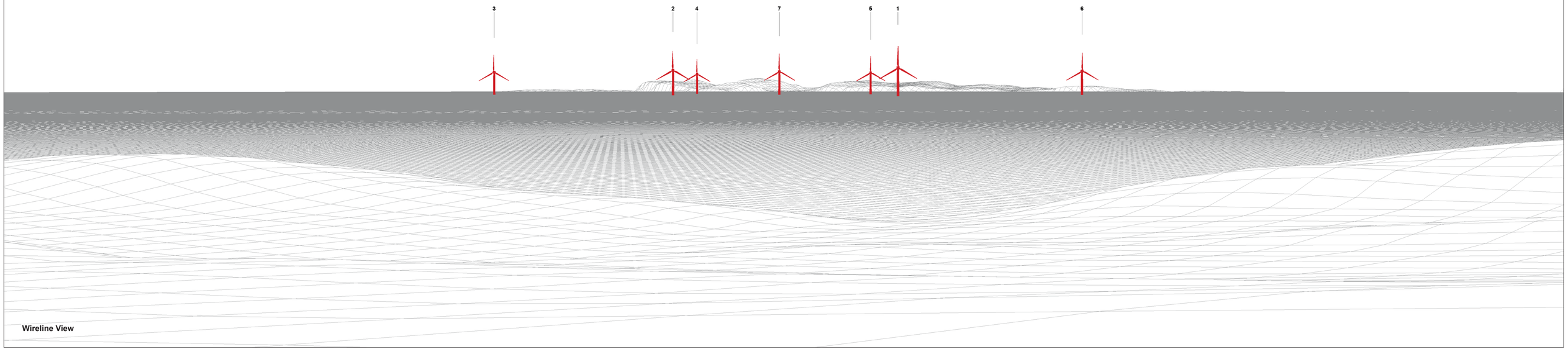
Wireline View

OS reference	**295429 E 961312 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**240.2 m AOD**	Principal distance	**912.5 mm**
Direction of view	**348°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**12,875 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-1b
Viewpoint 1: Beinn Ratha Wireline

View flat at a comfortable arm's length



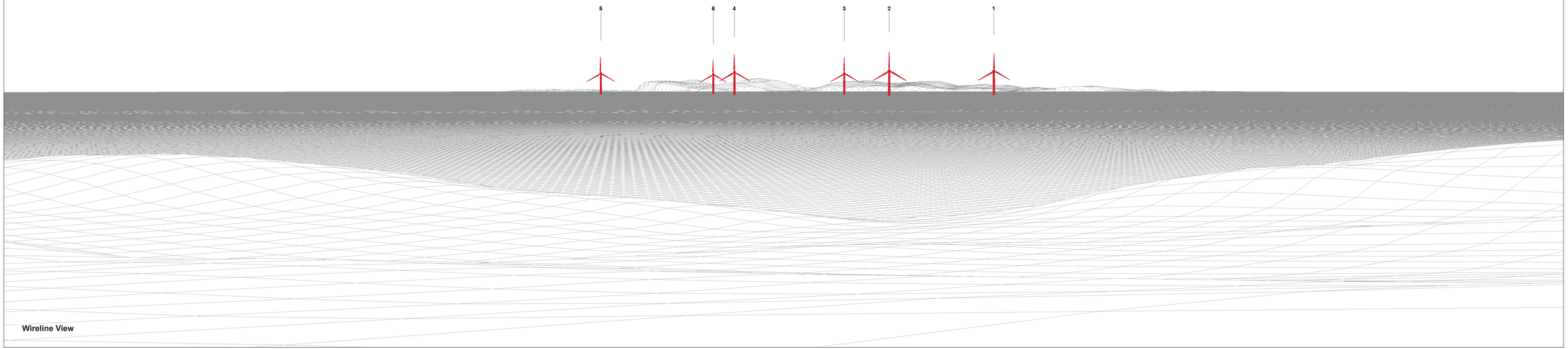
Wireline View

OS reference	**282725 E 968587 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**60.8 m AOD**	Principal distance	**812.5 mm**
Direction of view	**51°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**9,312 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-2a
Viewpoint 2: Strathy Point Car Park Wireline

View flat at a comfortable arm's length



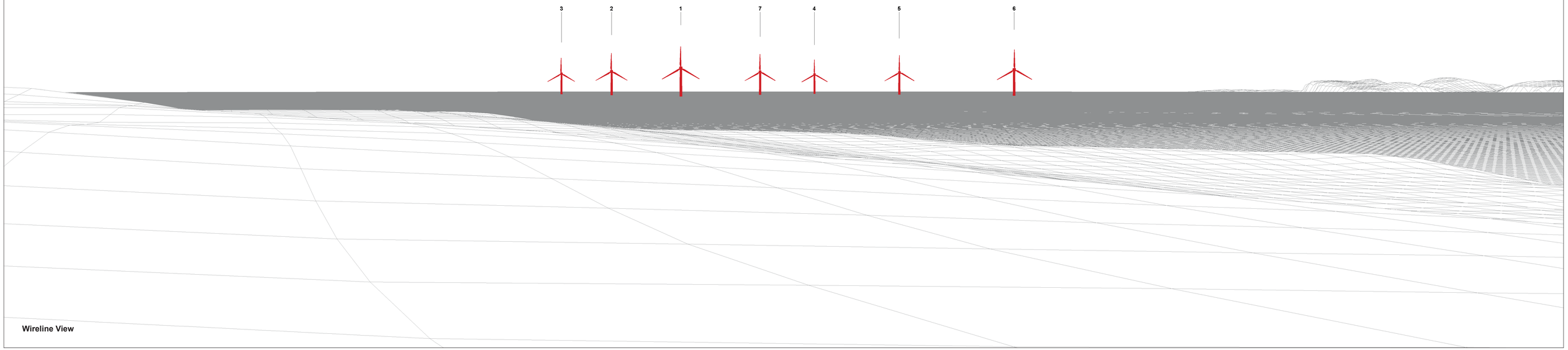
Wireline View

OS reference	**282725 E 968587 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**60.8 m AOD**	Principal distance	**812.5 mm**
Direction of view	**51°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**9,312 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-2b
Viewpoint 2: Strathy Point Car Park Wireline

View flat at a comfortable arm's length



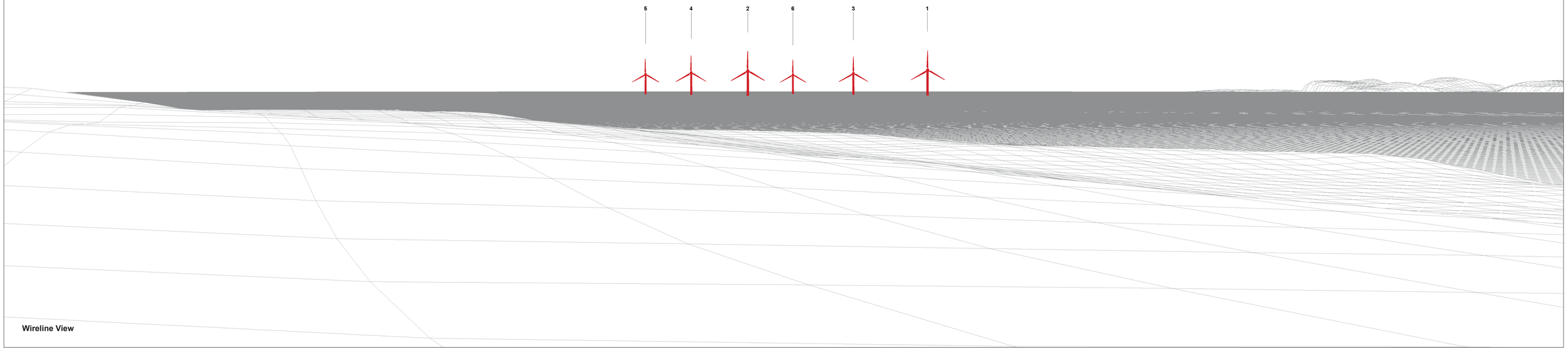
Wireline View

OS reference	**287767 E 964926 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**61.2 m AOD**	Principal distance	**812.5 mm**
Direction of view	**20°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**9,344 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-3a
Viewpoint 3: Portskerra/Melvich Wireline

View flat at a comfortable arm's length



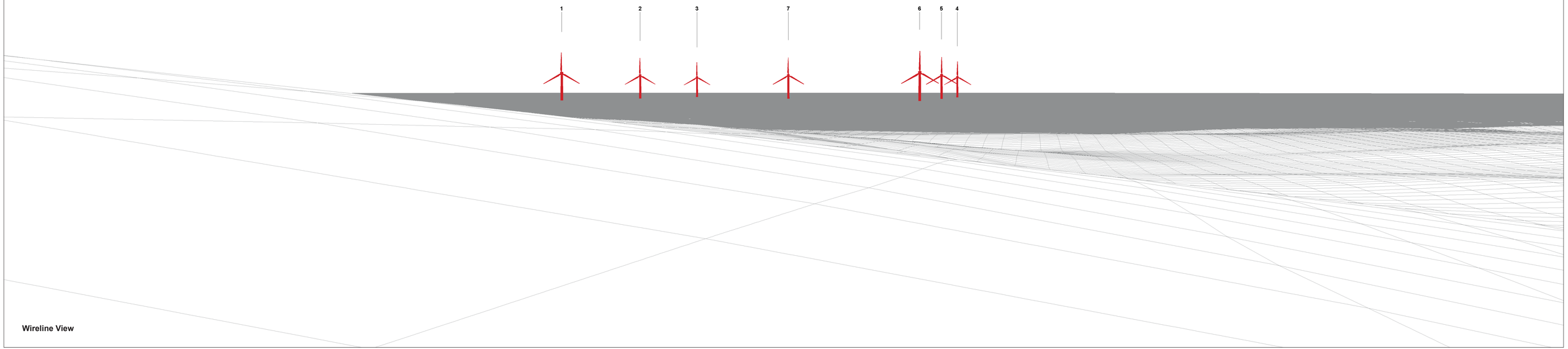
Wireline View

OS reference	**287767 E 964926 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**61.2 m AOD**	Principal distance	**812.5 mm**
Direction of view	**20°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**9,344 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-3b
Viewpoint 3: Portskerra/Melvich Wireline

View flat at a comfortable arm's length



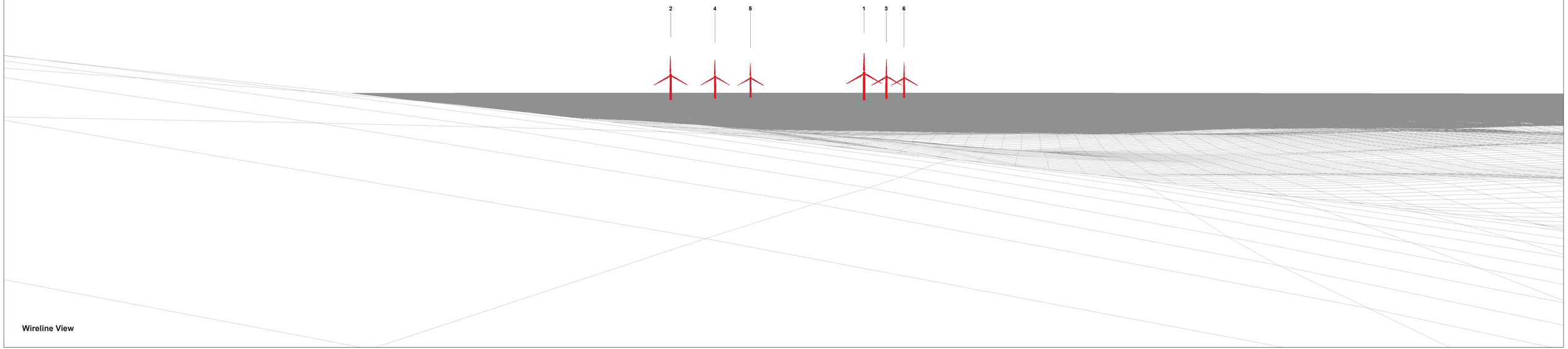
Wireline View

OS reference	**293264 E 964541 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**88.9 m AOD**	Principal distance	**912.5 mm**
Direction of view	**351°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**9,347 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-4a
Viewpoint 4: Drum Holliston Car Park Wireline

View flat at a comfortable arm's length



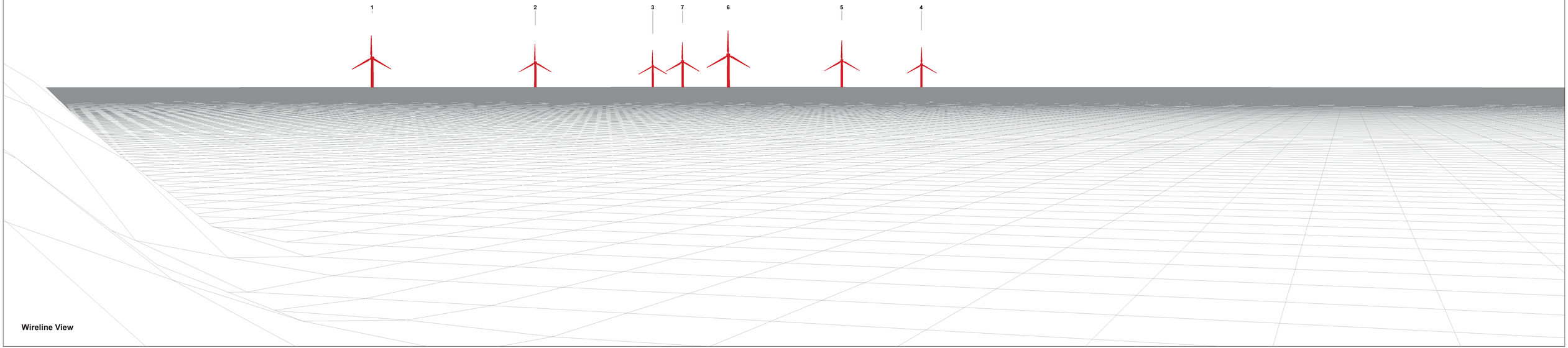
Wireline View

OS reference	**293264 E 964541 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**88.9 m AOD**	Principal distance	**912.5 mm**
Direction of view	**351°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**9,347 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-4b
Viewpoint 4: Drum Holliston Car Park Wireline

View flat at a comfortable arm's length



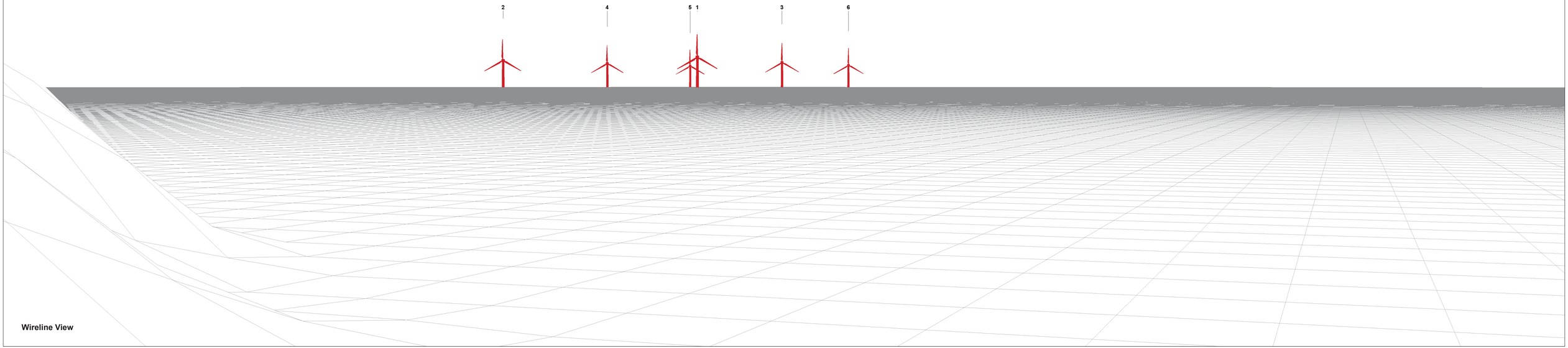
Wireline View

OS reference	**295694 E 966269 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**13 m AOD**	Principal distance	**812.5 mm**
Direction of view	**340°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**8,197 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-5a
Viewpoint 5: Sandside Head Wireline

View flat at a comfortable arm's length



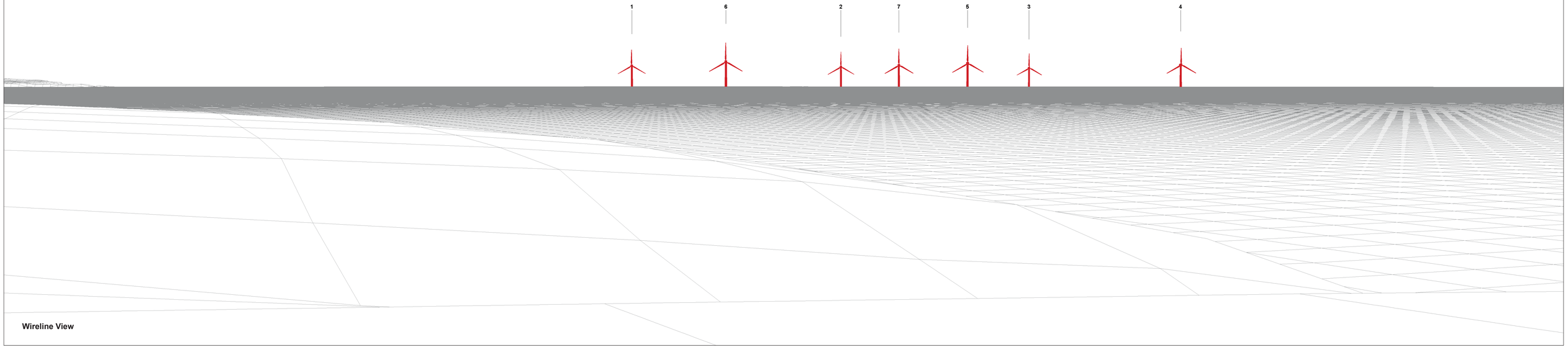
Wireline View

OS reference	**295694 E 966269 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**13 m AOD**	Principal distance	**812.5 mm**
Direction of view	**340°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**8,197 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-5b
Viewpoint 5: Sandside Head Wireline

View flat at a comfortable arm's length



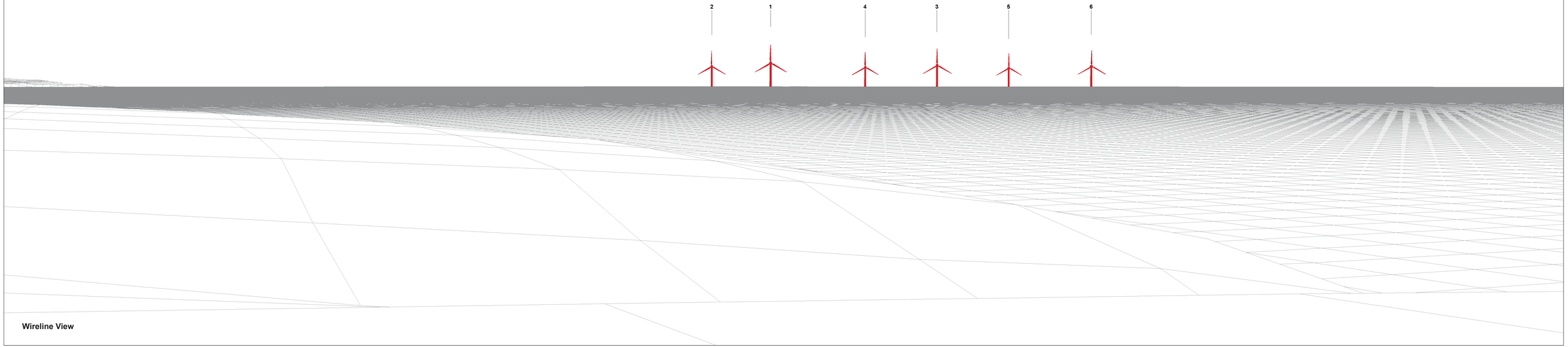
Wireline View

OS reference	**302487 E 970105 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**15.2 m AOD**	Principal distance	**812.5 mm**
Direction of view	**293°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**10,564 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-6a
Viewpoint 6: St Mary's Chapel, Forss Wireline

View flat at a comfortable arm's length



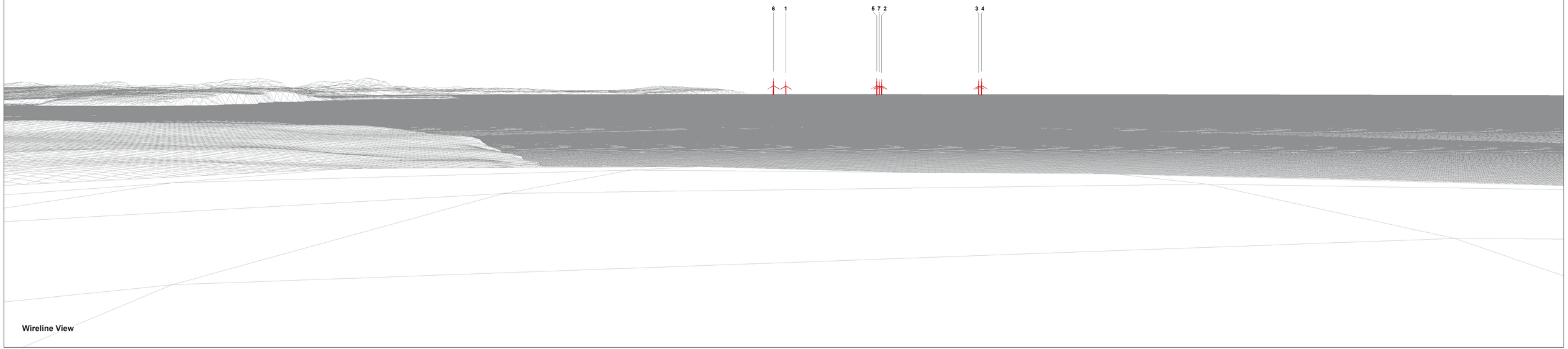
Wireline View

OS reference	**302487 E 970105 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**15.2 m AOD**	Principal distance	**812.5 mm**
Direction of view	**293°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**10,564 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-6b
Viewpoint 6: St Mary's Chapel, Forss Wireline

View flat at a comfortable arm's length



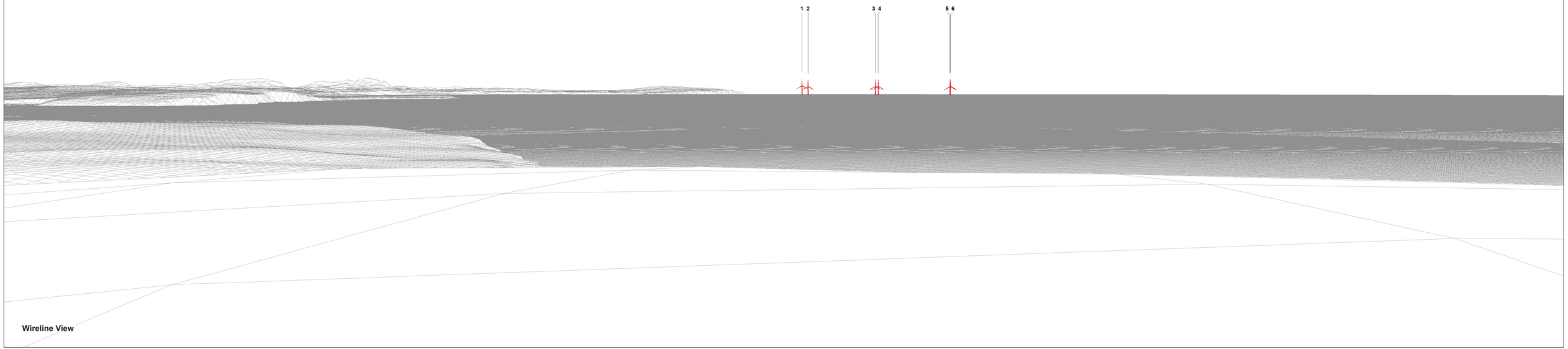
Wireline View

OS reference	**320532 E 976496 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**125.9 m AOD**	Principal distance	**812.5 mm**
Direction of view	**265°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**27,884 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-7a
Viewpoint 7: Dunnet Head Wireline

View flat at a comfortable arm's length



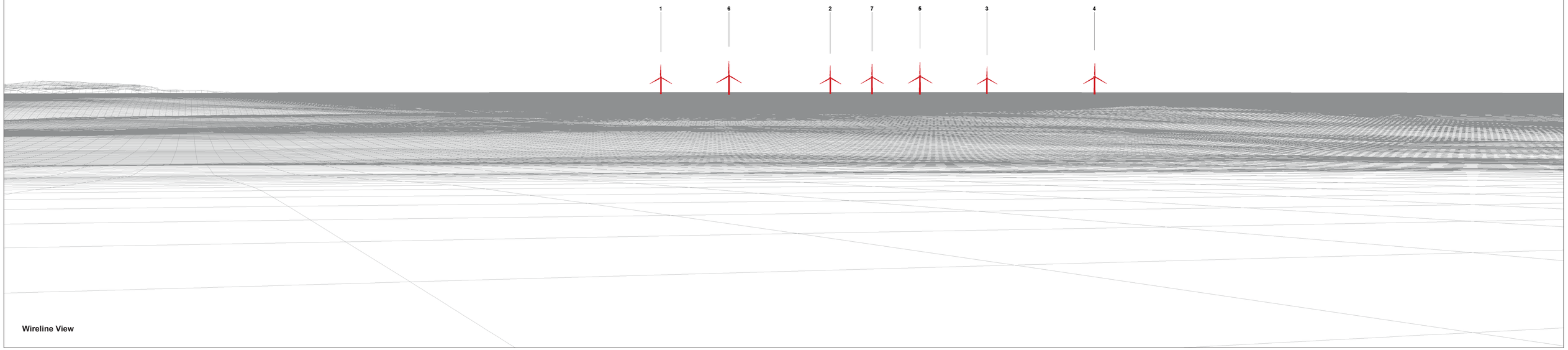
Wireline View

OS reference	**320532 E 976496 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**125.9 m AOD**	Principal distance	**812.5 mm**
Direction of view	**265°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**27,884 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-7b
Viewpoint 7: Dunnet Head Wireline

View flat at a comfortable arm's length



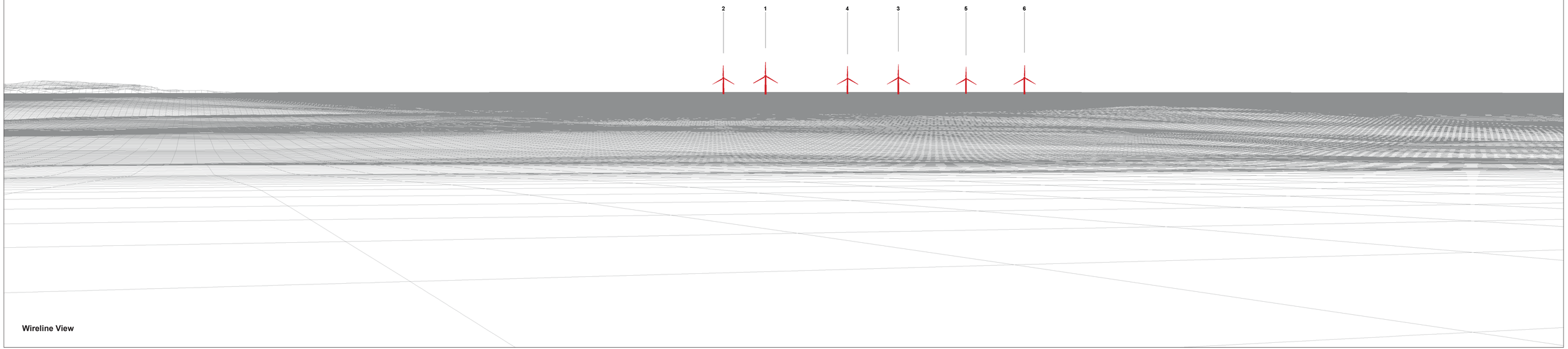
Wireline View

OS reference	**305643 E 969387 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**71.1 m AOD**	Principal distance	**812.5 mm**
Direction of view	**291°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**13,776 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-8a
Viewpoint 10: A836 East of Forss Wireline

View flat at a comfortable arm's length



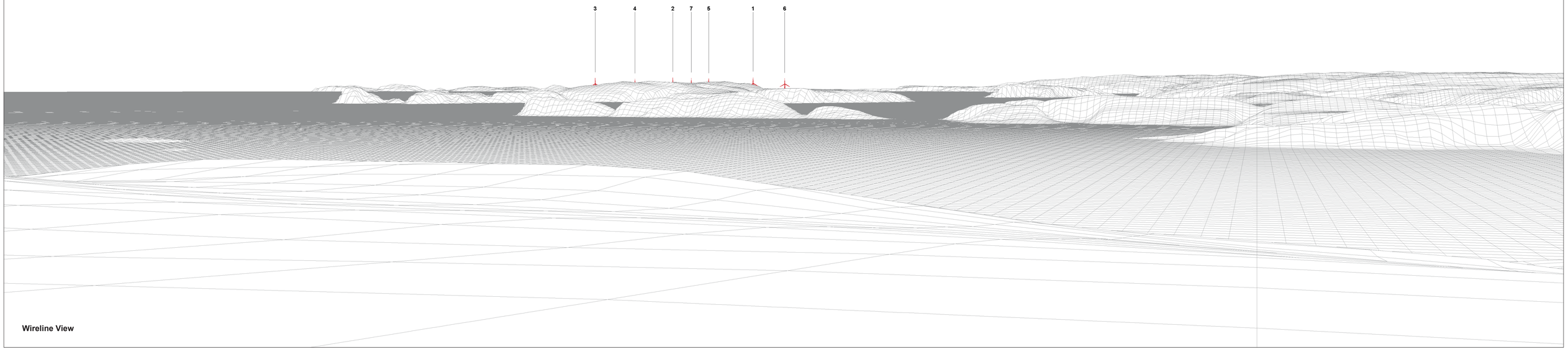
Wireline View

OS reference	**305643 E 969387 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**71.1 m AOD**	Principal distance	**812.5 mm**
Direction of view	**291°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**13,776 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-8b
Viewpoint 10: A836 East of Forss Wireline

View flat at a comfortable arm's length



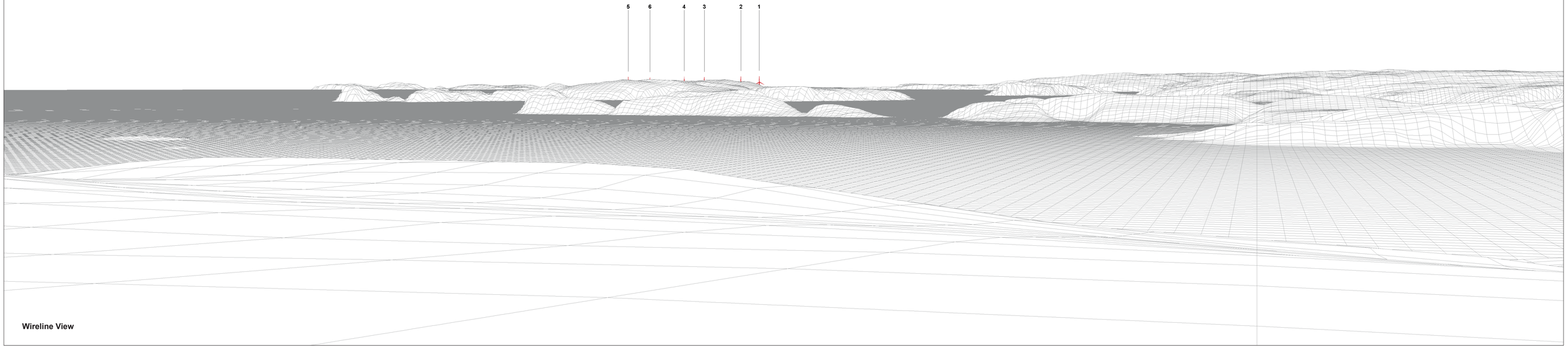
Wireline View

OS reference	**258497 E 963460 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**53.5 m AOD**	Principal distance	**812.5 mm**
Direction of view	**73°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**33,542 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-9a
Viewpoint 13: A Mhoine Wireline

View flat at a comfortable arm's length



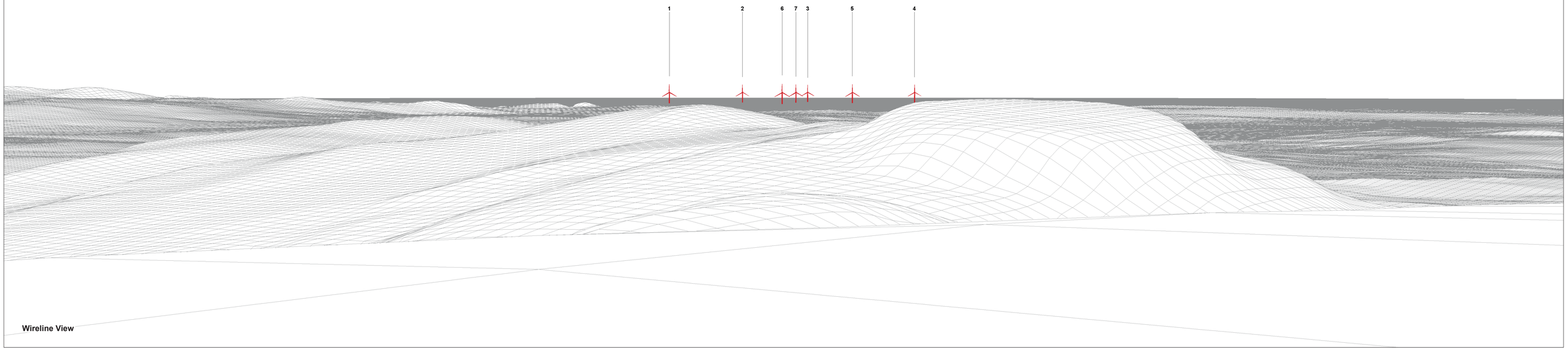
Wireline View

OS reference	**258497 E 963460 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**53.5 m AOD**	Principal distance	**812.5 mm**
Direction of view	**73°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**33,542 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-9b
Viewpoint 13: A Mhoine Wireline

View flat at a comfortable arm's length



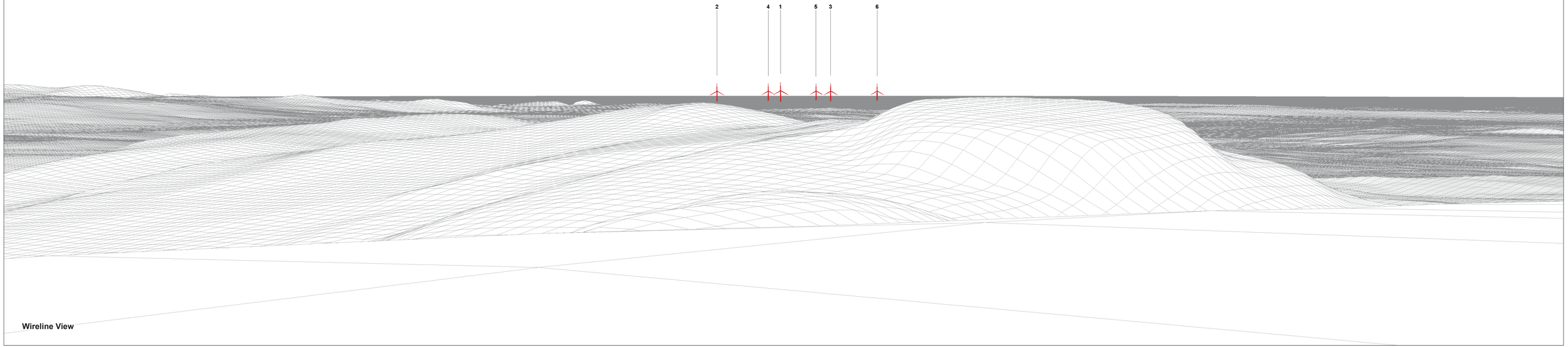
Wireline View

OS reference	**306302 E 955068 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**242.6 m AOD**	Principal distance	**812.5 mm**
Direction of view	**324°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**23,252 m**	Correct printed image size	**820 x 260 mm**

T1-7: 170m hub height, 300m tip height, 260m rotor

Figure S32C-10a
Viewpoint 14: Ben Dorrery Wireline

View flat at a comfortable arm's length



Wireline View

OS reference	**306302 E 955068 N**	Horizontal field of view	**53.5° (planar projection)**
Elevation	**242.6 m AOD**	Principal distance	**812.5 mm**
Direction of view	**324°**	Paper size	**841 x 297 mm (half A1)**
Nearest turbine	**23,252 m**	Correct printed image size	**820 x 260 mm**

T1: 14MW turbine (145m hub height, 255m tip height 220m rotor)
T2-6: 17MW turbines (160m hub height, 285m tip height, 250m rotor)

Figure S32C-10b
Viewpoint 14: Ben Dorrery Wireline