

Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendices

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ITS TIME  FOR TIDAL



Mersey Tidal Power

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Document History

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APPENDIX 1.1 ACRONYMS, ABBREVIATIONS AND GLOSSARY

ACRONYMS

Term	Definition
ABPmer	ABP Marine Environmental Research Ltd Renewables Atlas
ACM	Asbestos Containing Materials
ADMS	Atmospheric Dispersion Modelling
AIMS	Asset Information Management System
AIP	Aeronautical Information Publication
AIS	Automatic Identification System
ALARP	As Low As is Reasonably Practicable
ALC	Agricultural Land Classification
AOD	Ordnance Datum 2020
AoO	Advice on Operations
APEP	Avian Population Estimate Panel
APIS	Air Pollution Information System
AQMA	Air Quality Management Area
ARG	Amphibian and Reptile Groups
ARP	Adaptation Reporting Power
ASCOBANS	The Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
ASSI	Areas of Special Scientific Interest
ATC	Air Traffic Control
AtoN	Aid to Navigation
ATS	Air Traffic Service
AW	Ancient Woodland
B&B	Bed and breakfast

Term	Definition
BAP	Biodiversity Action Plan
BAT	Best Available Technology
BDMPS	Biologically Defined Minimum Population Scales
BEIS	Business, Energy and Industrial Strategy
BGS	British Geological Survey
BMV	Best and most versatile agricultural land
BNG	Biodiversity Net Gain
BoCC5	Birds of Conservation Concern 5
BPM	Best Practicable Means
BS	British Standard
BSI	British Standards Institute
BTO	British Trust for Ornithology
BWM	International Convention for the Control and Management of Ships' Ballast Water and Sediments
CA	Coal Authority
CAA	Civil Aviation Authority
CAR	Control Of Asbestos
CBRN	Chemical, Biological, Radiological and Nuclear
CCC	Climate Change Committee
CCD	Check Clean Dry
CCR	Centre for Climate Resilience
CCRA	Climate Change Risk Assessment
CCTV	Closed-circuit television
CD	Chart Datum
CD	Consultation Distance

Term	Definition
CDM	Construction (Design & Management)
CEA	Cumulative Effects Assessment
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CFMP	Catchment Flood Management Plan
CGNS	Celtic and Greater North Seas
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CIS	Celtic and Irish Seas
CITES	the Convention on International Trade in Endangered Species of Wild Fauna and Flora
CITiZAN	Coastal and Intertidal Zone Archaeological Network
CL:AIRE	Contaminated Land: Applications in Real Environments
CLP	Construction Logistics Plan
CM	Construction (Mitigation) Measure
CME	Coronal Mass Ejection
CO ₂	Carbon dioxide
COLREGS	International Regulations for Preventing Collisions at Sea
COMAH	Control of Major Accident Hazards
COWRIE	Collaborative Offshore Wind Research into the Environment
CRI	Climate Risk Indicators
CRoW	Countryside and Rights of Way
CRTN	Calculation of Road Traffic Noise
CS	Carbon Dioxide Appraisal and Storage.
cSAC	candidate Special Area of Conservation

Term	Definition
CSM	Conceptual Site Model
CTMP	Construction Traffic Management Plan
CWC	Cheshire West and Chester
CZ	Consultation Zone
DASSH	Data Archive for Seabed Species and Habitats
DBEIS	Department for Business, Energy & Industrial Strategy
DBS	Desk-based Study
DCO	Development Consent Order
dDCO	Draft Development Consent Order
DEFRA	Department for Environment, Food & Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DfT	Department for Transport
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
DTM	Digital Terrain Model
EA	Environment Agency
EC	European Commission
EclA	Ecological Impact Assessment
eDNA	Environmental DNA
EEC	European Economic Community
EEZ	Exclusive Economic Zone
EHV	Extra High Voltage.
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ELC	European Landscape Convention

Term	Definition
EMF	Electromagnetic Fields
EMODnet	European Marine Observation and Data Network
EMS	European Marine Site
EN-1	Overarching National Policy Statement for Energy
END	Environmental Noise Directive
EPR	Environmental Permitting Regulations
EPS	European Protected Species
EPUK	Environmental Protection UK
EQS	Environmental Quality Standard
ERCoP	Emergency Response and Cooperation Plan
ES	Environmental Statement
EU	European Union
EUNIS	European Nature Information System
EVMP	Environmental Vessel Management Plan
FCERM	Flood and Coastal Erosion Risk Management Strategy
FEED	Front-End Engineering Design
FHG	Functional Hearing Groups
FIR	Flight Information Region
FLOWW	Fisheries Liaison with Offshore Wind and Wet Renewables group
FRA	Flood Risk Assessment
FSA	Formal Safety Assessment
FTE	Full Time Equivalent
GB	Great Britain
GCN	Great Crested Newt
GCR	Geological Conservation Review

Term	Definition
GES	Good Environmental Status
GHG	Greenhouse gas
GI	Ground Investigation
GIS	Geographic Information System
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GPS	Global Positioning System
GWDTE	Groundwater Dependent Terrestrial Ecosystem
H&S	Health and Safety
HAT	Highest Astronomical Tide
HCA	Homes and Communities Agency
HDD	Horizontal Directional Drilling
HDV	Heavy Duty Vehicle
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HIA	Heritage Impact Assessment
HMCG	His Majesty's Coastguard
HMMP	Habitat Management and Monitoring Plan
HMPPS	His Majesty's Prison and Probation Service
HMR	Helicopter Main Routes
HPI	Habitats of Principal Importance
HRA	Habitats Regulations Assessment
HSE	Health and Safety Executive
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IAMMWG	Inter-agency Marine Mammal Working Group

Term	Definition
IAQM	Institute of Air Quality Management
ICCI	In-Combination Climate Impacts
ICES	International Council for the Exploration of the Sea
IEMA	Institute of Environmental Management and Assessment
IFCA	Inshore Fisheries and Conservation Authorities
IFR	Instrument Flight Rules
IMD	Indices of Multiple Deprivation
IMO	International Maritime Organization
INNS	Invasive Non-Native Species
IoM	Isle of Man
IoMSPC	IoM Steam Packet Company
IPBE	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IS	Irish Sea
ISO	International Standards Organisation
IUCN	International Union for Conservation of Nature
JAQU	Joint Air Quality Unit
JNCC	Joint Nature Conservation Committee
KC	Knowsley Council
KIS-ORCA	Kingfisher Information Service Cable Awareness.
L2	Liverpool 2
LAQM	Local Air Quality Management
LAT	Lowest Astronomical Tide
LCA	Landscape Character Assessment

Term	Definition
LCC	Liverpool City Council
LCR	Liverpool City Region
LCRCA	Liverpool City Region Combined Authority
LCRM	Land Contamination Risk Management
LEMP	Landscape and Ecology Management Plan
LERC	Local Environmental Record Centre
LGS	Local Geological Site
LI	Landscape Institute
LLFA	Lead Local Flood Authority
LLP	Liverpool Local Plan
LNR	Local Nature Reserve
LNRS	Local Nature Recovery Strategy
LPA	Local Planning Authority
LRC	Local Records Centre
LSE	Likely Significant Effect
LTP	Local Transport Plan
LWS	Local Wildlife Site
MA&D	Major Accidents and Disasters
MAGIC	Multi-Agency Geographic Information for the Countryside
MAH	Major Accident Hazard
MAIB	Marine Accident Investigation Branch
mAOD	metres Above Ordnance Datum
MarESA	Marine Evidence based Sensitivity Assessment
MarLIN	Marine Life Information Network
MARPOL	International Convention for the Prevention of Pollution from Ships

Term	Definition
MBA	Marine Biological Association
MBC	Metropolitan Borough Council
MBES	Multi-beam echo sounder
mBGL	metres Below Ground Level
MCA	Maritime and Coastguard Agency
MCA	Marine Character Area
MCAA	Marine and Coastal Access Act 2009
mCD	Metres above chart datum
MCZ	Marine Conservation Zone
MEAS	Merseyside Environmental Advisory Service
MET Office	Meteorological Office
MGBP	Mersey Gateway Bridge Project
MGN	Marine Guidance Note
MHER	Merseyside Historic Environment Record
MHWN	Mean High Water Neap
MHWS	Mean High Water Springs
ML	Marine License
MLWN	Mean Low Water Neaps
MLWS	Mean Low Water Springs
MMG	Mercia Mudstone Group
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MMP	Materials Management Plan
MNR	Marine Nature Reserve
MoD	Ministry of Defence

Term	Definition
MPA	Marine Protection Area
MPA	Mineral Products Association
MPCP	Marine Pollution Contingency Plan
MPS	Marine Policy Statement
MRCC	Marine Rescue Coordination Centre
MSA	Mineral Safeguarding Area
MSFD	Marine Strategy Framework Directive
MSL	Mean Sea Level
MTA	Military Training Area
MTP	Mersey Tidal Project
MTPP	Mersey Tidal Power Project
MU	Management Unit
NATS	National Air Traffic Services
NBN	National Biodiversity Network
NBN Atlas	National Biodiversity Network Atlas
NCA	National Character Assessment
NCN	National Cycle Networks
NDC	Nationally Determined Contribution
NE	Natural England
NERC	Natural Environment and Rural Communities
NERL	NATS (En Route) plc
NETS	National Electricity Transmission System
NFFO	Non-Fossil Fuel Obligations.
NFPD	National Fish Populations Database
NH	National Highways

Term	Definition
NH ₃	Ammonia
NHBC	National House Building Council
NHLE	National Heritage List of England
NHSC	National Historic Seascape Characterisation
NIA	Noise Important Areas
NMFS	National Marine Fisheries Service
NNR	National Nature Reserve
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen (= NO + NO ₂)
NPF4	National Planning Framework 4
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NRA	Navigation Risk Assessment
NRHE	National Record of the Historic Environment
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
NSTA	North Sea Transition Authority.
NVC	National Vegetation Council
NVQ	National Vocational Qualifications
NW	North West
NW-IFCA	North Western Inshore Fisheries and Conservation Authority
O&M	Operation and Maintenance
OCEMP	Outline Construction Environmental Management Plan
OD	Ordnance Datum

Term	Definition
OGA	Oil and Gas Authority
OHL	Overhead Line
OHMP	Outline Habitat Management Plan
OLS	Obstacle Limitation Surface
OMP	Odour Management Plan
ONS	Office of National Statistics
OSPAR	Convention for the Protection of the Marine Environment in the North Atlantic
OWF	Offshore Windfarm
P&O	The Peninsular and Oriental Steam Navigation Company
PAD	Protocol for Archaeological Discoveries
PAH	Polycyclic Aromatic Hydrocarbons
PCM	Pollution Climate Mapping
PCB	Polychlorinated biphenyls
PD	Published Document
PBDE	Polybrominated diphenyl ethers
PEA	Preliminary Ecological Appraisals
PEI	Preliminary Environmental Information
PEIR	Preliminary Environmental Information Report
PFAS	Polyfluoroalkyl substances
PFRA	Preliminary Flood Risk Assessment
PI	Planning Inspectorate
PIANC	World Association for Waterborne Transport Infrastructure
PM ₁₀	Particulate matter 10 microns or less
PM _{2.5}	Particulate matter 2.5 microns or less

Term	Definition
PMSC	Port Marine Safety Code
PPE	Personal Protective Equipment
PPG	Planning Practice Guidance
PPS	Planning Policy Statements
PRoW	Public Right of Way
pSAC	provisional Special Area of Conservation
PSA	Particle Size Analysis
pSPA	provisional Special Protection Area
PSZ	Public Safety Zone
PTS	Permanent Threshold Shift
RAMS	Risk Assessments and Method Statements
RBMP	River Basin Management Plan
RCP	Representative Concentration Pathway
RICS	Royal Institution of Chartered Surveyors
RMZ	Radio Mandatory Zone
RNLI	Royal National Lifeboat Institution
RQF	Regulated Qualifications Framework
RSCT	Royal Seaforth Container Terminal
RYA	Royal Yachting Association
SAC	Special Areas of Conservation
SAR	Search and Rescue
SBP	Sub-bottom profiling
SC	Sefton Council
SCA	Special Conservation Area
SCANS	Small Cetacean Abundance in the North Sea

Term	Definition
SDS	Spatial Development Strategy
SEP	Strategic Economic Plan
SFRA	Strategic Flood Risk Assessment
SHA	Statutory Harbour Authority
SIF	Single Investment Fund
SLVIA	Seascape, Landscape and Visual Impact Assessment
SMP	Shoreline Management Plan
SMS	Safety Management System
SMU	Seal Management Unit
SNCB	Statutory Nature Conservation Body
SNCI	Sites of Nature Conservation Importance
SoBRA	Society of Brownfield Risk Assessment
SoCC	Statement of Community Consultation
SOP	Standard Operating Procedures
SoS	Secretary of State
SPA	Special Protection Areas
SPI	Species of Principal Importance
SPL	Sound Pressure Level
SPM	SP Manweb PLC
SPMT	Self-propelled Modular Transporters
SPZ	Source Protection Zone
SRN	Strategic Road Network
SSG	Sherwood Sandstone Group
SSR	Secondary Surveillance Radar
SSS	Site Scan Sonar

Term	Definition
SSSI	Sites of Special Scientific Interest
SUDS	Sustainable Drainage Systems
SVOCs	Semi-Volatile Organic Compounds
SWMP	Site Waste Management Plan
TACs	Total Allowable Catches
TAG	Transport Analysis Guidance
TCPA	Town and Country Planning Act 1990
TMZ	Transponder Mandatory Zone
TraC	Transitional and Coastal Waters
TTS	Temporary Threshold Shift
UAS	Unmanned Aircraft Systems
UDP	Unitary Development Plan
UHF	Ultra-high frequency
UK	United Kingdom
UK TAG	UK WFD Technical Advisory Group
UKCP18	United Kingdom Climate Projections 2018
UKCS	United Kingdom Continental Shelf
UKFEN	UK Fisheries Economic Network
UKHO	United Kingdom Hydrographic Office
UKHSA	United Kingdom Health Security Agency
UKLFS	UK Low Flying System
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UU	United Utilities

Term	Definition
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
VFR	Visual Flight Rules
VMP	Vessel Management Plan
VMS	Vessel Monitoring System
VOCs	Volatile Organic Compounds
VOR	Valued Ornithological Receptor
VP	Vantage Point
VTS	Vessel Traffic Services
WC	Wirral Council
WCA	Wildlife and Countryside Act (1981)
WCH	Walkers, cyclists and horse-riders
WeBS	Wetland Bird Survey
WeITAG	Welsh Transport Analysis Guidance
WFD	Water Framework Directive
WFD UKTAG	Water Framework Directive UK Technical Advisory Group
WiSe	Wildlife Safe
WMP	Waste Management Plan
WRZ	Water Resources Zone
WSI	Written Scheme of Investigation
WWI	First World War
WWII	Second World War
WwTW	Waste Water Treatment Works.
ZoI	Zone of Influence
ZTV	Zones of Theoretical Visibility

UNITS

Abbreviated	Extended
%	Percent
$\mu\text{g}/\text{m}^3$	Microgrammes per cubic metre
agl	Above ground level
aMSL	Above mean sea level
AOD	Above Ordnance Datum
dB	Decibels
ft	Feet
GW	Gigawatt
Ha	Hectare
Hr	Hour
KgN/ha/yr	Kilogram of nitrogen per hectare per year
Km	Kilometre
Km ²	Square kilometre
kV	Kilo vault
m	Metre
m/s	Metres per second
m ³	Cubic metre
m ³ /s	Cubic meter per second
mm	Millimetres
Mm ²	Million square metres
Mm ³	Million cubic metres

Abbreviated	Extended
mph	Miles per hour
mt	Million tonnes
MtCO _{2e}	Million tonnes of carbon dioxide equivalent
MW	Megawatt
MWe	Megawatts electric
NM	Nautical Mile
°C	Degrees Celsius
OD	Ordnance Datum
pH	Potential of hydrogen
Rpm	Revolutions per minute

GLOSSARY

Term	Definition
Above Ordnance Datum (AOD)	Height in metres relative to the average sea level.
Air Quality Management Area	An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives.
Applicant	Term used to describe Mersey Tidal Power.
Aquifer	A water bearing bed of strata, either by virtue of its porosity or because it is pervious.
Assessment	A general term for description, analysis and evaluation.
Baseline	The existing environmental conditions against which any future changes can be measured or predicted and assessed.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of a project, together with any known or foreseeable future changes that will take place before its completion.
Benthic	Area of the water column that concerns the sea bed or adjacent to the sea bed.
Benthic ecology	The study of the organisms living in and on the sea floor, the interactions between them and their impacts on the surrounding environment.
Bulb turbine	A type of hydro turbine in which the entire generator is mounted inside the water passageway as an integral unit with the turbine. These installations can offer significant reductions in the size of the powerhouse.
Caisson	A large watertight chamber, open at the bottom, from which the water is kept out by air pressure and in which construction work may be carried out under water.
Centre for Environment, Fisheries and	An agency of DEFRA and an international aquatic science research and consultancy centre.

Term	Definition
Aquaculture Science (CEFAS)	
Chart Datum	Approximately the level of the lowest astronomical tide excluding meteorological effects.
Climate change	A long-term trend in the variation of the climate resulting from changes in the global atmospheric and ocean temperatures and affecting mean sea level, wave height, period and direction, wind speed and storm occurrence.
Coastal squeeze	Term used to describe a situation where the coastal margin is squeezed between the fixed landward boundary (artificial or otherwise) and the rising sea level.
Cofferdam	A temporary structure built around a site to allow the removal of water and to permit free access to the area within. It may take various forms such as an earth embankment, a single row of steel or timber sheet piling, or a double row of sheet piling with the space between filled with impermeable material.
Commissioning	The process of assuring that all systems and components of a building or industrial plant are designed, installed, tested, operated, and maintained according to the operational requirements of the owner or final client.
Conservation Area	An area of built development having statutory protection under the relevant sections of the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.
Construction Environmental Management Plan (CEMP)	A plan that sets out the standards and procedures to which developers and contractors must adhere when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors.
Consultee	Any body specified in the relevant EIA regulations which the competent authority must consult in respect of the EIA, and which also has a duty to provide a scoping opinion and information.
Control Room	The remote control room will mechanically lower and raise the sluice gates depending on the operational requirements.

Term	Definition
Cumulative Effects	The effect of the Project taken together with similar effects from a number of different projects, on the same single receptor/resource.
Cumulative Effects Assessment	Assessment of effects as a result of the incremental changes caused by other present and reasonably foreseeable human activities and natural processes together with the Project.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Designated site	An area listed under a Convention, Law, European Directive, or UK Statutory Instrument specifically for the protection of the resource, for instance for nature conservation purposes.
Development Areas	Applicants promoting nationally significant infrastructure Projects in the fields of energy, transport, water and waste will apply for a DCO rather than for planning permission. A DCO, when issued, combines the grant of planning permission with a range of other consents that in other circumstances have to be applied separately, such as listed building consent.
Dewatering	Construction dewatering, unwatering, or water control are common terms used to describe removal or draining groundwater or surface water from a riverbed, construction site, caisson, or mine shaft, by pumping or evaporation.
Dredged Channel	An artificially maintained sea lane extending from an inland water body into the marginal sea to accommodate vessel traffic through coastal shallows.
Ebb Tide	The period between high tide and the next low tide in which the sea is falling.
Ebb tide generation	The Lagoon is filled through the sluices until high tide. Then the sluice gates are closed. The turbine gates are kept close until the sea level falls to create sufficient head across the barrage, and then opened so that the turbines generate until the head is again low.
Effect	The changes resulting from an action.

Term	Definition
Effluent	Effluent is a liquid waste product (whether treated or untreated) discharged from an industrial process or human activity into the environment.
Embedded mitigation	Mitigation measures that are an inherent part of the Project design (primary mitigation) or implemented in accordance with industry standard practice that would occur with or without the input from the environmental assessment feeding into the process (tertiary mitigation).
Environmental Impact	A change, brought about in the existing environment, which results in an effect, adverse, beneficial, or both.
Environmental Impact Assessment	In this context, the process by which information about the environmental effects of a project is evaluated and mitigation measures are identified.
Environmental Impact Assessment Report (EIA Report)	The outcome of the Environmental Impact Assessment (EIA) process is reported within a document called an EIA Report.
Feature	Ecological feature is the term used to refer to biodiversity/ecological receptors. This term is taken directly from Ecological Impact Assessment guidance from the Chartered Institute of Ecology and Environmental Management.
Flood Risk Assessment (FRA)	A technical assessment required.
Flood Tide	The period between low tide and the next high tide in which the sea is rising.
Flood tide	The period of time when tidal water levels are rising.
Foreshore	The land along the edge of a body of water.
Future baseline	Refers to the baseline situation in future years without the implementation of the Project.
Generator	An arrangement of magnets spinning inside a coil of wire to produce electricity.

Term	Definition
Geographical Information System (GIS)	A system which captures, stores, analyses, manages, and displays spatially referenced data for solving complex planning and management problems.
Greenhouse gases	Greenhouse gases are gases in Earth's atmosphere that trap heat, contributing to the greenhouse effect and global warming. They include carbon dioxide, methane, nitrous oxide, and other gases that absorb and emit infrared radiation.
Grid	A nationwide network of high voltage transmission lines.
Grid Connection Development Area	The tidal barrage will connect in to one of four existing substations contained within the Grid Connection Development Area and are; Birkenhead (275kV), Capenhurst (400kV), Lister Drive (275kV) and Breck Road Substation (132kV).
Groundwater	Water occupying openings, cavities and spaces in rock
Head	The vertical change in elevation between two bodies of liquid.
Heritage	The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions.
Historic Environment	The physical evidence of past human activity.
Horizontal Directional Drill (HDD)	An engineering technique for laying cables that avoids open trenches by drilling between two locations beneath the ground's surface.
Hydraulic Modelling	The use of mathematical or physical techniques to simulate water systems and make Projections relating to water levels, flows and velocity.
Hydrogeology	The study of the geological factors relating to the Earth's water.
Hydrology	The study of water on the surface of the earth, including rainfall, rivers, streams and embraces the concept of the hydrological cycle
Hydromorphology	The physical characteristics of the shape, boundaries and content of a water body.
Impact	The changes resulting from an action.

Term	Definition
Intertidal Area	The area of the shore that lies between the average high tide mark and the average low tide mark.
Joint Nature Conservation Committee (JNCC)	A statutory advisor to UK government on international nature conservation.
Listed Building	A building which has been identified by the Secretary of State for the Environment as being of special architectural or historic interest and is entered on the list of such buildings.
Lock	Locks will be sized based on vessel requirements (such as large leisure, commercial and military vessels). The size and number of locks are subject to further studies and discussions with port operators. The locks will be operated from a remote control room and be operational for 24 hours, all year round.
Marine licence	Licence required for certain activities in the marine environment and granted under either the Marine and Coastal Access Act 2009
Marine Management Organisation (MMO)	A non-departmental public body established and given powers under the Marine and Coastal Access Act 2009 to make a significant contribution to sustainable development in the marine area and to promote the UK government's vision for clean, healthy, safe, productive and biologically diverse ocean and seas
Marine Policy Statement (MPS)	The framework for preparing Marine Plans and taking decisions affecting the marine environment in the UK.
Mean High Water Neap (MHWN)	The height of mean high water neaps is the average throughout a year of the heights of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is least.
Mean High Water Spring (MHWS)	The height of mean high water springs is the average throughout a year of the height of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest.
Mean Low Water Spring (MLWS)	The height of mean low water springs is the average throughout a year of the heights of two successive low waters during those

Term	Definition
	periods of 24 hours (approximately once a fortnight) when the range of the tide is greatest.
Megawatts (MW)	Unit of electrical power equal to one million Watts.
Mitigation	Measures, including any process, activity or design to avoid, reduce, remedy or compensate for adverse effects.
Multi Agency Geographic information for the Countryside (MAGIC)	An online, map-based library of data sources maintained by the UK government's Department for Environment, Food and Rural Affairs (Defra).
National Policy Statement (NPS)	National Policy Statements are statutory documents published in accordance with the Planning Act 2008. They set out the UK government's policy on, and the national need for specific types of nationally significant infrastructure projects.
Nautical mile	1 nautical mile equivalent to 1,852 metres or 1.15077945 miles
Offshore	Refers to works seaward of Mean High Water Springs (MHWS).
Offshore Wind Farm	An offshore wind farm is a group of wind turbine generators in the same location (offshore) in the sea, which are used to produce electricity.
One-Way / Two-way generation	Electricity would be produced as either one way or two-way generation using the incoming (flood) and outgoing (ebb) tides or a combination of both.
Onshore	Pertaining to the landward side of Mean Low Water Spring.
Port and Marine Facilities	Several existing port facilities have been identified within the Scoping Boundary given their location and ability to support the Project.
Project	Term that should be used to describe Mersey Tidal Power.
Protected Species	Species with special protection under the terms of the Wildlife and Countryside Act 1981 and the Wildlife and Countryside (Amendments) Act 1985.
Public Right of Way	A route where the public has a right to walk, and in some cases ride horses, bicycles, motorcycles or drive motor vehicles, which

Term	Definition
	will be designated either as a footpath, a bridleway, a road used as a public path (RUPP) or a byway.
Ramsar Site	Wetlands of international importance, designated under the Ramsar Convention. Wetlands are defined as areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six metres. Ramsar sites may also incorporate riparian (banks of a stream, river, pond or watercourse) and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands.
Receptor	A component of the natural or man-made environment that is affected by an impact, including people.
Rochdale Envelope	Is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact parameters are not yet known but a bounded range of parameters are known for each key project aspect.
Scoping	The process of identifying the likely significant effects of a development in the environment.
Scoping Opinion	An opinion adopted by the Secretary of State as to the scope and level of detail of information to be provided in the EIA Report for a proposed project.
Scoping Report	A report that presents the findings of an initial stage in the Environmental Impact Assessment process and outlines the information proposed to be included within the EIA Report.
Seascape Character / Coastal Character	An area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and / or human factors.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor .
Significant Effects	It is a requirement of the EIA Regulations 2017 to determine the likely significant effects of the development on the environment,

Term	Definition
	which should relate to the level of an effect and the type of effect. Where possible significant effects should be mitigated.
Site of Special Scientific Interest (SSSI)	An area of land or water notified by the Nature Conservancy Council or its successor agencies under the Wildlife and Countryside Act 1981 as being special in nature (can include geological) conservation importance.
Special Area of Conservation	Land protected under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. Data supplied has a status of 'Candidate'.
Special Protection Area	Land classified under Directive 79/409 on the Conservation of Wild Birds. Data supplied has a status of 'Classified'.
Spring tide	The tides of increased range occurring near the times of full moon and new moon. The gravitational forces of the moon and the sun act to reinforce each other. Since the combined tidal force is increased the high tides are higher and the low tides are lower than average.
Stakeholder	Person or organisation with a specific interest (commercial, professional or personal) in a particular issue.
Storm overflow	A weir, orifice or other device for permitting the discharge from a combined sewer of the flow in excess of that which the sewer is designed to carry.
Study area	Area where potential impacts from the Project could occur, as defined for each aspect.
Tidal Barrage Development Area	The area within which the tidal barrage will be located within. This area currently encompasses approximately 24 km ² .
Tidal flushing	The systematic replacement of water in a bay or estuary as a result of tidal flow.
Townscape	Areas where the built environment is dominant.
Transboundary / transboundary effects	When the impacts from developments in one country significantly affect the interest or environment of another country.

Term	Definition
Transformer	An electromagnetic device for reducing or increasing the voltage of an alternating current.
Turbidity	Can be defined as the weight of particulate matter per unit volume of sea water and is a measure of water clarity.
Turbine	A rotary engine that converts the energy of a moving stream of water, steam or gas into mechanical energy.
United Kingdom (UK)	The United Kingdom of Great Britain and Northern Ireland, comprising England, Scotland, Wales and Northern Ireland.
Visual effect	Effects on specific views and on the general visual amenity experienced by people.
Visual Receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visual sensitivity	The sensitivity of visual receptors such as residents, relative to their location and context, to visual change proposed by development.
Vulnerability	The propensity or predisposition of a system or receptor to be adversely affected. This encompasses the sensitivity of the system or receptor and its capacity to cope and adapt.
Zone of Theoretical Visibility	Area within which a proposed development may be seen and have an influence or effect on visual amenity.

APPENDIX 3.1 COMMITMENTS REGISTER

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.1 Commitments Register

September 2024

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Mersey Tidal Power

Appendix 3.1 Commitments Register

Document History

Version	Author	Reviewer	Approver	Date	Comments
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1 APPENDIX 3.1 COMMITMENTS REGISTER

1.1 INTRODUCTION

- 1.1.1 A commitments register is presented in Table AP3.1.1 below and details the mitigation measures which Mersey Tidal Power have committed to at this stage. These measures will implement the mitigation hierarchy, seeking to avoid in the first instance, then minimise and reduce potential adverse effects as a last resort. These measures will be applicable during design, construction, operation and maintenance and decommissioning phases of the Project.
- 1.1.2 This document is intended to be updated as the EIA process progresses and will be informed by further design refinement, baseline surveys and stakeholder engagement. Further versions of the Commitments Register will be provided within the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES).

1.2 COMMITMENTS REGISTER

- 1.2.1 Table AP3.1.1 outlines the current embedded measures in two aspects:
- Those which are overarching and apply to multiple topics, demonstrating the interactions and interdependencies between topics. These are denoted by the prefix OM for Overarching Measure; and
 - Those which are topic specific and are prefixed by the relevant chapter number. These may still have links to overarching measures such as the CEMP and may relate to specific inclusion, measures or topic specific management plans under the remit of that OM.

Table AP3.1.1: Summary of commitments identified for all chapters

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
OM1	<p>A Construction Environmental Management Plan (CEMP) will be implemented by the Principal Contractor. The contractor will ensure that the relevant environmental measures and health and safety procedures within the CEMP are implemented in accordance with legislation and government and industry standards, to minimise impacts wherever possible. The CEMP will identify the project management structure roles and responsibilities with regard to managing and reporting on the environmental impacts of the construction phase.</p>	Chapters 5 – 30	Construction	DCO Requirement
OM2	<p>A Marine Pollution Contingency Plan (MPCP) will be developed and implemented. This MPCP will outline procedures to protect personnel and to safeguard the marine environment, as well as mitigation measures in the event of an accidental pollution event arising from the construction phase on marine receptors. It will also include:</p> <ul style="list-style-type: none"> ▪ Relevant key emergency contact details. ▪ Any objects dropped on the seabed during works associated with the Project will be reported and objects will be recovered where they pose a hazard to other marine users and where recovery is possible. 	Chapter 5 Coastal Processes Chapter 6 Benthic Ecology and Plankton Chapter 7 Invasive Non Native Species Chapter 8 Marine Mammals Chapter 9 Marine and Intertidal Ornithology Chapter 10 Fish and Shellfish Chapter 11 Commercial Fisheries Chapter 26 Infrastructure and Other Marine Users	Construction	DCO Requirement
OM3	<p>A Project Environmental Monitoring Programme (PEMP) will be developed and implemented. This will set out commitments to environmental monitoring (including reporting) in pre-, during and post-construction phases of the Project.</p>	Chapters 5 – 30	Construction Operation	DCO Requirement
OM4	<p>A Scour Protection Management Plan (SPMP) will be developed and implemented. It will include details of the need, type, quantity, location(s) and installation methods for scour protection.</p>	Chapter 5 Coastal Processes Chapter 19 Water Resources and Flood Risk	Operation	DCO Requirement
OM5	<p>Implementation of the mitigation hierarchy to avoid designated sites (taking account of type and level of protection) and sensitive receptors as far as reasonably practicable through the sensitive siting of temporary and permanent works associated with the construction, operation and decommissioning of the Project components. This includes, for example and this is not exhaustive:</p> <ul style="list-style-type: none"> ▪ Sensitive / irreplaceable habitat of ecological importance, such as ancient woodland and sites of international and national importance. 	Chapters 5 – 30	Construction Operation Decommissioning	Evidence led design

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
	<ul style="list-style-type: none"> ■ Safety zones will be defined during construction around specific features such as sensitive features, hazardous or industrial facilities, existing navigational aspects, recreational features, etc. ■ Loss or disturbance of possible marine and terrestrial historic landscape elements arising from altered seabed conditions (for example, scour) and loss of historic hedgerows from haul routes ■ Flood risk will be minimised as much as possible during the construction phase of the Project. Wherever possible, storage of materials or site compounds will not be located within the active fluvial and tidal floodplains. Construction materials will be controlled near watercourses. ■ Aim to avoid permanent development on prime agricultural land (ALC grades 1-3a) with the aim of preserving the best quality agricultural land. ■ Minimising land take for construction and insightful optioneering for compound / lay down areas to reduce impacts on trees and other vegetation. ■ Protection of existing established vegetation where appropriate. 			
OM6	<p>Production of an Invasive Non-Indigenous Species Management Plan (INNSMP) which will outline measures to ensure:</p> <ul style="list-style-type: none"> ■ Vessels comply with the International Maritime Organisation (IMO) ballast water management guidelines, considering the origin of vessels and contain standard housekeeping measures for such vessels as well as measures to be adopted in the event that a high alert species is recorded. ■ A biosecurity plan will be developed presenting actions that will need to be implemented to reduce the risk of INNS introduction and spread during the construction phase of the project. ■ Measures to be undertaken in the terrestrial environment to identify INNS in the terrestrial environment and to avoid / minimise interaction and spread. 	<p>Chapter 6 Benthic Ecology and Plankton</p> <p>Chapter 7 Invasive Non Native Species</p> <p>Chapter 10 Fish and Shellfish</p> <p>Chapter 13 Terrestrial Ecology</p>	Construction	DCO Requirement
OM7	<p>Production of a Vessel Management Plan (VMP) including a Code of Conduct to all project vessel operators to advise on:</p> <ul style="list-style-type: none"> ■ How to avoid impacts on benthic habitats and species and plankton, including minimising risk of accidental pollution. ■ The origin of vessels and contain standard housekeeping measures for such vessels as well as measures to be adopted in the event that a high alert species is recorded. ■ Vessel coordination including indicative transit route planning. ■ How to avoid impacts upon fish and shellfish, including reducing risk of INNS introduction. 	<p>Chapter 6 Benthic Ecology and Plankton</p> <p>Chapter 7 Invasive Non Native Species</p> <p>Chapter 8 Marine Mammals</p> <p>Chapter 9 Marine and Intertidal Ornithology</p> <p>Chapter 10 Fish and Shellfish</p> <p>Chapter 11 Commercial Fisheries</p>	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
	<ul style="list-style-type: none"> How to minimise impacts on other operators and ensure compliance with appropriate standards and equipment carriage requirements. 	Chapter 16 Shipping and Navigation		
OM8	<p>Production of a Construction Noise Management Plan (CNMP) which will as a minimum contain:</p> <ul style="list-style-type: none"> Monitor the noise during piling including wind speed and direction as well as implementing use of slow and soft starts during piling activities. Measures to minimise airborne noise in proximity to sensitive features. 	Chapter 12 Underwater Noise Chapter 22 Onshore Noise and Vibration	Construction	DCO Requirement
OM9	<p>A Marine Mammal Mitigation Plan (MMMP) will be developed and adhered to during the construction phase of the Project. This will mitigate potential impacts such as underwater noise on marine mammals and fish through good or standard practice actions, including soft-start and ramp-up measures for pile driving, to meet legislative requirements including details of soft starts to be used during piling operations, with lower hammer energies used at the beginning of the piling sequence before increasing energies to higher levels. There is potential for further measures to be considered if necessary for barrier effects and collision risk. The MMMP will evolve during the development phase and as the EIA progresses and in response to consultation.</p>	Chapter 8 Marine Mammals Chapter 12 Underwater Noise	Construction	DCO Requirement
OM10	<p>A Decommissioning Plan (DP) will be developed for the Project in line with industry good practice, guidance and legislation, and will be prepared at the appropriate time to consider the potential risks of decommissioning the relevant elements of the Project.</p>	Chapters 5 – 30	Decommissioning	DCO Requirement
OM11	<p>Development of Emergency Response and Cooperation Plan (ERCOP) to outline the measures the Project has put in place to support an emergency response, the resources available to support that response and provide emergency contact details.</p>	Chapter 15 Major Accidents and Disasters Chapter 16 Shipping and Navigation Chapter 26 Infrastructure and Other Marine Users Chapter 27 Military and Civil Aviation	Construction	DCO Requirement
OM12	<p>The Applicant intends to use predominantly marine based logistics for the delivery of materials and equipment, thereby minimising the requirement for terrestrial logistics as far as possible.</p>	Chapter 28 Greenhouse Gases Chapter 30 Waste and Materials	Construction	Project Commitment
OM13	<p>Arrangement of Notice to Mariners, to include Schedule of construction activities in addition to implementation of Kingfisher notifications and other navigational warnings to warn of the nature of the works associated with the Project. Accurate warnings provided in a timely manner to detail the construction, maintenance and decommissioning operations to marine users given via Kingfisher Bulletins.</p>	Chapter 11 Commercial Fisheries Chapter 16 Shipping and Navigation Chapter 26 Infrastructure and Other Marine Users	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
OM14	A Fisheries Liaison Officer will be appointed to the project and will engage with commercial fishermen and recreational fisheries bodies throughout the duration of the construction phase of the tidal barrage.	Chapter 11 Commercial Fisheries Chapter 26 Infrastructure and Other Marine Users	Construction	DCO Requirement (via CEMP)
5-1	Materials placed in the estuary as part of the barrage construction will be subject to approval by MMO to ensure that any material to be deposited in the sea (metal components, concrete, armouring) does not contain toxic materials that could leach into the estuary water and result in toxic effects.	Chapter 5 Coastal Processes	Design / Construction Operation	Marine licence conditions DCO Requirement
5-2	Coatings on submerged elements of the barrage will be subject to approval by MMO to ensure that they do not contain toxic materials that could leach into the estuary water and result in toxic effects.	Chapter 5 Coastal Processes	Design	Marine licence conditions. DCO Requirement
5-3	The CEMP will include measures to avoid and manage turbidity in the water column caused by sediment mobilisation during construction. These are likely to be minimised by selection of best practice construction methods.	Chapter 5 Coastal Processes	Construction	Agreed Construction Method Statement DCO Requirement
13-1	Minimising land take for construction and insightful optioneering for compound / lay down areas to reduce habitat loss / avoid impacts on habitats of biodiversity value. Protection of existing established vegetation where appropriate. Mitigation measures seeks to reduce the impacts of the project on habitats of high biodiversity value which are likely to support protected and notable species.	Chapter 13 Terrestrial Ecology	Design	Design
13-2	Avoid use of open cut cable line techniques across sensitive habitat such as rivers and streams. Use of Horizontal directional drilling (HDD) techniques to be employed to avoid significant impacts on sensitive ecological receptors.	Chapter 13 Terrestrial Ecology	Construction	DCO Requirement
13-3	The CEMP will include, but will not be limited to: identification of potentially damaging construction activities, biodiversity protection zones, practical measures to reduce and or avoid impacts during construction (e.g. ecological method statements, consents, European Protected Species (EPS) licencing and mitigation); location and timing of sensitive works to avoid harm to ecological receptors, protective fencing / exclusion barrier during construction, invasive non-native species plan, roles and responsibilities, ecological clerk of work and or competent person, on-going monitoring and compliance checks post-completion, submission of a verification report by the EcOW or competent person to the LPA at the end of construction. CEMP seeks to prevent damage to protected and notable habitats and species.	Chapter 13 Terrestrial Ecology	Construction	DCO Requirement
13-4	An Outline Habitat Management Plan (OHMP) will be prepared to record mitigation measures proposed to minimise potential effects to receptors (terrestrial ecology). The document will set out the applicant's proposals for habitat management for the Project which have been agreed 'in	Chapter 13 Terrestrial Ecology	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
	principle' with the landowners, and which would intend to implement if planning permission is granted.			
13-5	Provision and implementation of a Landscape and Ecology Management Plan (LEMP) to ensure all ecological mitigation and enhancement measures are detailed and secured in the short, medium and long term; along with necessary management and monitoring measures. This would be undertaken for protected and notable habitats and species.	Chapter 13 Terrestrial Ecology	Construction / Operation	DCO Requirement
13-6	Provision and implementation of a Lighting Strategy to demonstrate that lighting will minimise disturbance, not cause excessive light pollution or disturb or prevent bats accessing roost sites; and bats and or other species from using key habitats as foraging and commuting corridors.	Chapter 13 Terrestrial Ecology	Construction	DCO Requirement
13-7	Provision of mandatory Biodiversity Net Gain Strategy and Habitat Management and Monitoring Plan (HMMP) which will outline measures set out for a period of 30 years (as per current Natural England guidance). The HMMP will be submitted separately to a CEMP and LEMP and will form part of the Biodiversity Net Gain (BNG) Process. The implementation of suitable mitigation and compensation measures relating to habitat loss will be outlined in order to achieve Biodiversity Net Gain.	Chapter 13 Terrestrial Ecology	Construction Operation	DCO Requirement
14-1	The Applicant will work proactively to provide local employment opportunities and to enable access to training and up-skilling where possible. This will include recruiting locally wherever practicable to enable access to training, and career development for local and regional residents.	Chapter 14 Socio-economics	Construction	S106
14-2	The processes used to recruit and manage staff working at the Project will be demonstrably fair and offer equal opportunities to all.	Chapter 14 Socio-economics	Construction	Project Commitment
14-3	A Skills and Employment Plan will be prepared prior to the construction of the Project, by the appointed contractor, as part of the CEMP.	Chapter 14 Socio-economics	Construction	DCO Requirement (via CEMP)
15-1	The Applicant will implement an Environmental, Health & Safety Management system during the construction phase ensuring supplier management environmental, health and safety standards (for example, Construction Skills Certification Scheme) and demonstrating the adoption of good engineering practice.	Chapter 15 Major Accidents and Disasters	Construction	Project Commitment
15-2	A Construction Design Management (CDM) Risk Register will be prepared for the Project to ensure that all appropriate mitigation measures are embedded into the design.	Chapter 15 Major Accidents and Disasters	Construction	Project Commitment
15-3	Notification of the proposed use of cranes will be undertaken in accordance with Civil Aviation Authority guidance. In addition, aviation lighting will be provided as necessary.	Chapter 15 Major Accidents and Disasters	Construction	DCO Requirement (via CEMP)
16-1	Schedule deconfliction of construction activities with vessel operations (e.g. ferry timetables) will be considered as far as reasonably practicable.	Chapter 16 Shipping and Navigation	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
16-2	Marking and charting on Admiralty charts will be undertaken including an appropriate chart note for any changes required.	Chapter 16 Shipping and Navigation	Construction Operation	DCO Requirement
16-3	Development and adherence to an Aid to Navigation (AtoN) Management Plan determining suitable marking and lighting arrangements.	Chapter 16 Shipping and Navigation	Construction	DCO Requirement
16-4	Update and input of Liverpool Port's Safety Management System (SMS) and input into review of pilotage and VTS procedures for Port of Liverpool.	Chapter 16 Shipping and Navigation	Construction Operation	DCO Requirement
16-5	Development of safe limits of operation of locks (e.g. wind limits) in addition to inspection and maintenance programme of relevant navigational infrastructure	Chapter 16 Shipping and Navigation	Design Operation	DCO Requirement
16-6	Appropriate temporary / permanent fendering / impact protection installed on tidal barrage.	Chapter 16 Shipping and Navigation	Design	DCO Requirement
16-7	Maintenance dredging and routine monitoring of areas impacted by the Project to maintain vessel access.	Chapter 16 Shipping and Navigation	Design	DCO Requirement / Legal Agreement
17-1	Loss or disturbance of possible submerged historic landscape elements arising from works will be mitigated, as far as possible, through the selection of appropriate working methods. The working methods would include but would not be limited to the avoidance of identified marine heritage assets and anthropogenic geophysical anomalies by a minimum of 30 m during riverbed preparation and installation activities.	Chapter 17 Marine Archaeology and Cultural Heritage	Construction	DCO Requirement (via CEMP)
17-2	The barrage and O&M buildings will be subject of careful design, regarding form, massing, materiality, colour, etc., to create an appearance that minimises harmful intrusion into the settings of heritage assets.	Chapter 17 Marine Archaeology and Cultural Heritage	Design	DCO Requirement
18-1	Hazards to known heritage assets, e.g. designated or undesignated significant historic buildings and areas of archaeological remains, will be eliminated where possible through safe systems of work, physical avoidance, physical barriers, etc., as appropriate to the risk.	Chapter 18 Terrestrial archaeology and cultural heritage	Construction	DCO Requirement (via CEMP)
18-2	The barrage and O&M buildings will be subject of careful design, regarding form, massing, materiality, colour, etc., to create an appearance that minimises harmful intrusion into the settings of heritage assets.	Chapter 18 Terrestrial archaeology and cultural heritage	Design	DCO Requirement
19-1	Flood risk will be minimised as much as possible during the construction phase of the Project. Wherever possible, storage of materials or site compounds will not be located within the active fluvial and tidal floodplains. Construction materials will be controlled near watercourses.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-2	Where applicable, temporary drainage solutions will be utilised to control runoff and pollution pathways from the Project and protect surface water drainage patterns from any temporary hardstanding areas to prevent pollution risk and any possible increase in flood risk elsewhere.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
19-3	The design of the Project will make all efforts to avoid any loss of floodplain storage capacity in active fluvial floodplains where applicable.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-4	Potential groundwater flooding in excavations will be controlled.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-5	Should it be deemed necessary (i.e. if dewatering is required), a Groundwater Management Plan (GMP) will be developed as part of the CEMP to ensure all groundwater abstracted during the construction stage (if required) is appropriately managed. Given the potential shallow depths to groundwater from the installation of the grid connection cable, groundwater interceptions are considered likely.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-6	In areas of shallow groundwater, sheet or secant piles will be used in the trenchless crossing entry / exit pits. This will provide hydraulic control measures to limit the ingress of water into excavations and prevent collapse.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-7	Where appropriate, trench breakers (clay plugs) will be placed within the open trench sections which intercept groundwater to avoid preferential groundwater (and therefore pollutant transport) pathways being created.	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-8	A sediment management plan, the provision of adequate buffer zones (where possible) and silt fencing between construction activities and the watercourses will control sediments and pollutants reaching watercourses. This applies more to the Grid Connection	Chapter 19 Water Resources and Flood Risk	Construction	DCO Requirement (via CEMP)
19-9	The barrage will be designed to account for climate change and include flood resilience measures. During the O&M phase, the barrage will be able to manage flood events and surges within the Mersey Estuary, both upstream and downstream by active pumping or sluicing either with or without generation through the turbines.	Chapter 19 Water Resources and Flood Risk	Design	DCO Requirement
19-10	Major surface water crossings for the grid connection will be designed to minimise disruption to hydrological processes and riparian and aquatic habitats.	Chapter 19 Water Resources and Flood Risk	Design	DCO Requirement
19-11	Direct grid connection works within 10m of a watercourse will be avoided where possible, and the grid design will attempt to avoid unnecessary works within close proximity of watercourses.	Chapter 19 Water Resources and Flood Risk	Design	DCO Requirement
19-12	Where works are within 10m of a watercourse for the grid connection, clearance of vegetation on channel banks, valley side and riparian zone will be limited. A minimum of 8m vegetated buffer strip between the construction zone and the watercourse will be retained. In addition, sediment barriers will be provided between earthworks, construction zone and the watercourse to prevent entrainment of sediment and materials into the river.	Chapter 19 Water Resources and Flood Risk	Design	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
20-1	The design will ensure that routes used by walkers and cyclists, including Public Rights of Way (PRoW) , long distance walking routes and National Cycle Network (NCN) routes will remain open where practicable and accessible to users during construction. Where this is not practicable, suitable diversions will be identified. Where appropriate diversions are not available and temporary closures required, these would be for as short a duration as possible.	Chapter 20 Land Use	Construction	DCO Requirement (via CEMP)
20-1	A Communication Strategy will be prepared to ensure that local residents and other stakeholders are made aware of the commencement of construction works. Any permanent diversion of PRoW routes and other recreational routes should be clearly signposted and local groups should be notified and engaged. The design of routes would consider vulnerable user groups and ensure accessibility is maintained for users with limited mobility wherever possible i.e. resting places.	Chapter 20 Land Use	Construction	DCO Requirement (via CEMP)
20-3	Accesses to residential properties, community facilities, and local businesses would be maintained throughout the construction period.	Chapter 20 Land Use	Construction	DCO Requirement (via CEMP)
20-4	Timings and locations of works will be considered so that organised events such as the Liverpool Half Marathon and other such events is not directly disrupted during construction (as far as reasonably practicable – for example if on critical path activities).	Chapter 20 Land Use	Construction	DCO Requirement (via CEMP)
20-5	An Agricultural Reinstatement Plan may be required should routing of the Grid Connection through prime agricultural land occurs	Chapter 20 Land Use	Construction	DCO Requirement (via CEMP)
21-1	Construction phase dust and particulate matter will be controlled through the application of best practice mitigation measures as outlined in current IAQM guidance.	Chapter 21 Air Quality	Construction	DCO Requirement (via CEMP)
21-2	Exhaust emissions from plant and construction equipment on site will be mitigated through the application of suitable controls and Site management measures.	Chapter 21 Air Quality	Construction	DCO Requirement (via CEMP)
21-3	Exhaust emissions from marine vessels will be mitigated through the application of suitable controls and Site management measures.	Chapter 21 Air Quality	Construction	DCO Requirement (via CEMP)
21-4	Vehicle engine exhaust emissions from construction traffic will be mitigated through the application of suitable controls and Site management measures. For example, deliveries will be consolidated, where possible, to limit the number of vehicle movements and timed to avoid peak hours. Vehicle routing will be planned to minimise disruption on the local road network and to avoid local pollution ‘hotspots’ including AQMAs and areas covered by Clean Air Plans.	Chapter 21 Air Quality	Construction	DCO Requirement (via CEMP)
21-5	A Construction Logistics Plan (CLP) will be prepared to manage emissions from temporary traffic management measures will be mitigated through the application of suitable controls and Site management measures. For example, temporary traffic management measures will be	Chapter 21 Air Quality	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
	implemented, where possible, to avoid peak hours or undertaken as part of planned overnight works.			
21-6	Odour emissions from dredging activities will be mitigated through the application of best practice mitigation measures as outlined in current IAQM and Environment Agency guidance.	Chapter 21 Air Quality	Construction	DCO Requirement (via CEMP)
22-1	Best practicable means and best practice to be employed during construction.	Chapter 22 Onshore Noise and Vibration	Construction	DCO Requirement (via CEMP)
22-2	Target design criteria for operational fixed plant and equipment.	Chapter 22 Onshore Noise and Vibration	Construction	DCO Requirement (via CEMP)
23-1	The design of the project will be completed in accordance with standard design codes relevant to a project of this nature. Of relevance specifically to Geology and Ground Conditions is Eurocode 7 - BS EN 1997 Geotechnical design & UK National Annex. The preparation of geotechnical risk register at the earliest stages of the Project is fundamental to ensuring that potential effects such as ground instability are considered and appropriate mitigation measures are included within the Project design.	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement (via CEMP)
23-2	The siting and design of the Project will be completed in consideration of the relevant legislation and local policies. Of relevance specifically to Geology and Ground Conditions are the policies relating to development on brownfield sites, requirement for biodiversity and geological conservation, requirement to minimise impact on agricultural land and the safeguarding of mineral reserves.	Chapter 23 Geology and Ground Conditions	Design	Project Commitment
23-3	Detailed ground investigation will be completed if and where required. Ground investigation will be required to inform both geotechnical design parameters and geo-environmental assessment. Geo-environmental risk assessment will assess potential risks to both human health and controlled waters and will be completed in accordance with relevant guidance documents to include but not be limited to EA guidance LCRM. Geo-environmental assessment will also include consideration of the suitability of materials for reuse as part of the Project (if site won materials can be accommodated) and also provisional waste classification for offsite disposal of surplus materials.	Chapter 23 Geology and Ground Conditions	Design	Project Commitment
23-4	Should geo-environmental assessment identify plausible contaminant linkages and the requirement for remediation a remediation strategy will be designed and implemented in accordance with standard environmental best practices.	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement
23-5	Standard environmental practices will be implemented during construction to limit the potential for release of potential contaminants. This will include the potential requirements for further assessment such as a piling risk assessment, ahead of construction to ensure that the most appropriate construction methods are implemented.	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
23-6	Material reuse will be carried out in accordance with CL:AIRE The Definition of Waste: Development Industry Code of Practice (or other suitable regulations or exemptions).	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement (via CEMP)
23-7	Should routing of the Grid Connection be through prime agricultural land, ALC surveys may be completed as required along the grid connection route – to provide an ALC assessment and ensure that the soils are managed appropriately during construction.	Chapter 23 Geology and Ground Conditions	Design Construction	DCO Requirement (via CEMP)
23-8	Soils management will be completed in accordance with best practice as outlined in the guidance document 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009).	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement (via CEMP)
23-9	Construction works will be completed in accordance with standard construction practices and relevant Risk Assessments and Method Statements (RAMS) . RAMS will take into consideration the potential risks highlighted with respect to the topic of Geology and Ground Conditions to include the potential for encountering Unexploded Bombs (UXB) .	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement (via CEMP)
23-10	Construction phase RAMS will include potential risks associated with potential unstable ground as a result of excavation and appropriate control measures will be designed and implemented.	Chapter 23 Geology and Ground Conditions	Construction	DCO Requirement (via CEMP)
23-11	Management measures will be inherent in the design of the future facility and the future operations will be undertaken in line with the appropriate environmental permitting requirements with particular reference to the Environmental Permitting (England and Wales) Regulations 2016 as appropriate.	Chapter 23 Geology and Ground Conditions	Construction Operation	Environmental Permitting (England and Wales) Regulations 2016
24-1	Transportation of the majority of components and materials associated with the tidal barrage to the marine working area by marine methods.	Chapter 24 Terrestrial Traffic and Transport	Construction	Project Commitment
24-2	Implementation of a Construction Traffic Management Plan (CTMP) to minimise the impact of construction traffic associated with the tidal barrage and grid connection on sensitive receptors as far as possible, with movements scheduled to avoid peak periods of port activity where possible.	Chapter 24 Terrestrial Traffic and Transport	Construction	DCO Requirement
24-3	Avoid the use of heavy haul roads through the residential areas on the left bank.	Chapter 24 Terrestrial Traffic and Transport	Construction	Project Commitment
24-4	Provision of limited parking for workers within the construction sites to encourage the use of public transport, with this approach supported through the promotion of a comprehensive Travel Plan identifying the services available when accessing the construction sites.	Chapter 24 Terrestrial Traffic and Transport	Construction	DCO Requirement
24-5	Consideration of the provision of park and ride facilities with associated shuttle bus services, to support workers accessing the area from further afield to do so sustainably.	Chapter 24 Terrestrial Traffic and Transport	Construction	DCO Requirement

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
24-6	Consideration of the provision of water-based shuttle services to support worker access from key collection areas to the marine working areas.	Chapter 24 Terrestrial Traffic and Transport	Construction	DCO Requirement
25-1	National Infrastructure Commission Design Principles should be referred to in developing the design for the barrage and supporting infrastructure.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement Project Commitment
25-2	The principles of 'good design' to be incorporated into buildings (operation and maintenance / power hub and visitor buildings) and public realm.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement Project Commitment
25-3	Public realm design and access to the barrage.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement Project Commitment
25-6	Avoid use of open cut cable line techniques across sensitive habitat such as rivers and streams. Use of Horizontal directional drilling (HDD) techniques to be employed to avoid significant impacts on sensitive landscape receptors.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement
25-7	The CEMP will include, but will not be limited to: identification of potentially damaging construction activities, root protection areas, practical measures to reduces and or avoid impacts during construction; location and timing of sensitive works to avoid harm to landscape and visual receptors, fencing / hoarding during construction.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement (via CEMP)
25-8	Provision and implementation of a Landscape and Ecology Management Plan (LEMP) to ensure all landscape (and ecological) reinstatement, mitigation and enhancement measures are detailed and secured in the short, medium and long term, along with necessary management and monitoring measures.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement
25-9	Provision and implementation of a Lighting Strategy to demonstrate that lighting will not cause excessive light pollution / visual impact.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement
25-10	Temporary screening for construction activity adjacent to sensitive visual receptors.	Chapter 25 Seascape, Landscape and Visual	Construction	DCO Requirement (via CEMP)
27-1	A suitable lighting scheme for the lighting of structures (cranes) will be agreed with the relevant authorities in order to comply with CAP 1096 Guidance.	Chapter 27 Military and Civil Aviation	Construction	DCO Requirement
27-2	The aviation community will be notified of crane activity through the means of a Notice to Airmen.	Chapter 27 Military and Civil Aviation	Construction	DCO Requirement
27-3	The CEMP will identify the project management structure roles and responsibilities with regard to managing and reporting on the environmental impact of the construction phase. This will include any notifications required regarding cranes and taller structures to be utilised during construction.	Chapter 27 Military and Civil Aviation	Construction	DCO Requirement (via CEMP)

ID	Commitment Wording	Chapter Number and Title	Applicable Phase	How is the Commitment Secured?
28-1	The Applicant is reviewing sustainability proposals during the construction phase, including consideration of design options for material types and quantities, and will confirm a target as part of the Preliminary Environmental Impact Report (PEIR) .	Chapter 28 Greenhouse Gases	Construction	Project Commitment
28-2	Where appropriate, construction materials will be sourced by marine activities such as re-use of construction phase dredging materials.	Chapter 28 Greenhouse Gases	Construction	DCO Requirement
29-1	The CEMP will include measures to manage and mitigate weather related hazards during the construction phase. It is already noted that the construction durations take into account weather and marine conditions and restrictions around pilotage of certain vessels when wave heights exceed 1m	Chapter 29 Climate Resilience	Construction	DCO Requirement (via CEMP)
29-3	Rainwater falling on the barrage structure will be directed into surface water drainage and discharged to the Mersey	Chapter 29 Climate Resilience	Design	DCO Requirement
29-4	The design of the Project has been informed by various design codes. Whilst many of the design codes do not specifically consider climate change, it is noted that climate change effects have been estimated, based on UKCP18 Guidance RCP8.5.	Chapter 29 Climate Resilience	Design	DCO Requirement
29-5	The basis of the design is for the Grid Connection cable to be buried and therefore removes exposure of these assets to climate change hazards such as wind and storms.	Chapter 29 Climate Resilience	Design	DCO Requirement
30-1	The Applicant is reviewing sustainability proposals during the construction phase, including consideration of design options for material types and quantities, and will confirm a target as part of the PEIR or ES.	Chapter 30 Waste and Materials	Design Construction	Project Commitment
30-3	Where appropriate, construction materials will be sourced by marine activities such as existing port dredging activities or the reuse of construction phase dredging materials.	Chapter 30 Waste and Materials	Design Construction	Project Commitment
30-4	A Waste Management Plan (WMP) will be prepared and included with the ES, which will also include the outline of a Materials Management Plan (MMP) .	Chapter 30 Waste and Materials	Construction	DCO Requirement
30-5	Disposal of operational dredging materials will be within a marine disposal facility or may contribute to a marine enhancement project within the locality.	Chapter 30 Waste and Materials	Construction	DCO Requirement

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APPENDIX 3.2 OCEMP

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.2
Outline Construction Environmental
Management Plan (OCEMP)

September 2024

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.2 Outline Construction Environmental Management Plan (OCEMP)

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ACRONYMS AND ABBREVIATIONS

Term	Definition
DCO	Development Consent Order
dML	deemed Marine Licence
EIA	Environmental Impact Assessment
OCEMP	Outline Construction Environmental Management Plan

1 INTRODUCTION

1.1 OVERVIEW

1.1.1 This Outline Construction Environmental Management Plan (OCEMP) forms part of the management framework for ensuring control of construction activities to mitigate environmental effects through prevention and minimisation of potential construction impacts on all components which make up the Project.

1.1.2 This OCEMP has been provided within the Scoping Report to provide the outline structure and likely contents of the OCEMP, relative to the specific component which makes up the Project. This is due to the environmental and social sensitivities change between each individual component and therefore the CEMP should recognise this appropriately.

1.1.3 The Project consists of the following main components:

- A tidal range barrage located within the channel of the Mersey Estuary which:
 - Has an operational lifespan of up to 120 years or more;
 - Contains a Power Generation System with control equipment and a sub-structure housing bi-directional turbines with a maximum electrical output of up to 1 GW;
 - Hydro Control System;
 - Marine Navigation System;
 - Power Export System;
 - Onshore operational facilities including maintenance, stores and office buildings;
 - Associated erosion control, flood protection, rock armour and breakwaters; and
 - Active travel along the barrage structure connecting to local access and open public realm areas;
- An onward grid connection to a National Grid substation; and
- Utilisation of the surrounding port facilities during the construction phase in addition to other potential associated developments which may support the construction phase

1.2 PURPOSE OF THE OUTLINE CEMP

- 1.2.1 This OCEMP has been provided within the Scoping Report to provide the outline structure and likely contents of the OCEMP, relative to the specific component which makes up the Project.
- 1.2.2 This proposed structure recognises the environmental and social sensitivities associated between each individual component, the likely duration and extent of construction phase activities. Therefore the Applicant considers that the CEMP should recognise this appropriately.

1.3 CONTENT AND STRUCTURE OF THIS OUTLINE CEMP

- 1.3.1 This OCEMP comprises of:
- **Section 2** (OCEMP Structure) – sets out the likely structure of the OCEMP.
 - **Section 3** (OCEMP Contents) – sets out the likely contents of the Master OCEMP and Site Specific OCEMPs.
 - **Section 4** (Topic Specific Management Plans) – sets out the likely topic specific management plans relative to each site specific OCEMP known at this point.
 - **Section 5** (Next Steps) – sets out how the OCEMP will continue to develop and be informed.

2 STRUCTURE

2.1 PURPOSE OF THE OCEMP

- 2.1.1 The OCEMP will be a key document which will be developed within the EIA process and will set out the overarching principles for environmental management that shall be applied by the Applicant, its nominated undertaker and contractors during the construction works associated with the Project if granted consent.
- 2.1.2 The measures identified within all iterations of the OCEMP will be derived from legislative requirements, industry best practice and the environmental measures and commitments developed as part of the EIA process. These include measures and procedures for managing construction works to ensure impacts to the environment are limited and in line with the proposed environmental measures and commitments as the output of the EIA process.
- 2.1.3 Further iterations of the OCEMP will set out a framework of controls to manage and minimise construction impacts. It will capture the works proposed in the construction phase, highlight clear and enforceable controls as well as mitigation commitments and the required monitoring of environmental impacts.

2.2 OCEMP STRUCTURE

- 2.2.1 It is proposed to have a master OCEMP which covers the overarching legislative and project wide requirements, with site specific OCEMPs for each of the respective components; the tidal barrage, port and marine facilities and grid connection.
- 2.2.2 This is in recognition of the site specific environments which are relative to these components, but also the duration and spatial extent of the construction phase activities in addition to topic specific environmental management requirements.
- 2.2.3 This structure is shown in **Plate 2.1**.

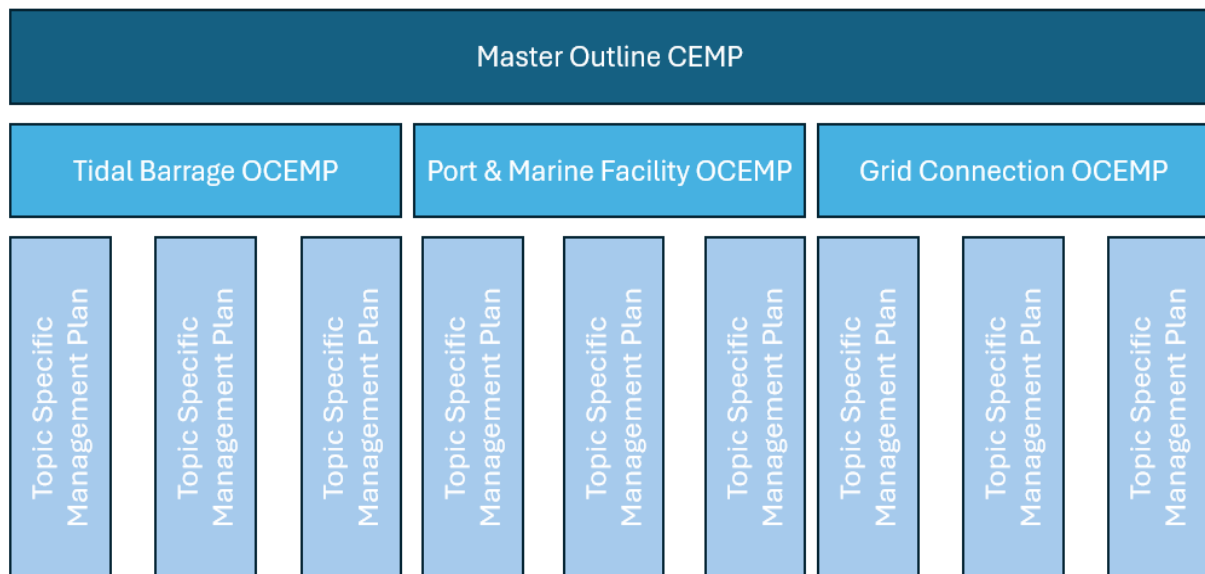


Plate 2.1: Indicative Structure of OCEMP

2.2.4 Following receipt of the Scoping Opinion (and associated stakeholder responses), the next iteration of the OCEMP will follow in the Preliminary Environmental Information Report (PEIR) and be updated again for the submission of the Environmental Statement (ES) within the Development Consent Order (DCO) application.

2.3 COMMITMENTS

2.3.1 The Commitments Register has been prepared to accompany the Scoping Report (**Appendix 3.1**). This identifies the measures that will be implemented as part of the Project and which designed to avoid, prevent, and reduce impacts and / or have been embedded into the design. These are referred to as 'embedded environmental measures' and/or 'primary mitigation'.

2.3.2 These commitments will be informed by the ongoing design evolution process, stakeholder engagement and consultation, good practice and/or are considered industry best practice and procedures for Nationally Significant Infrastructure Projects (NSIPs).

2.3.3 The Commitments Register identifies how each environmental measure will be secured such as through requirements of the DCO, the deemed Marine Licence (dML) (for the marine part of the Project) and associated documents including this OCEMP and supporting management plans.

2.3.4 Each commitment has been assigned a reference number, for example X-1, for ease of cross-reference. Commitments are referred to in this document by their commitment ID, which is a unique numerical identifier.

3 STRUCTURE OF THE MASTER OCEMP

3.1 PURPOSE AND AIM OF THE MASTER OCEMP

3.1.1 The Master OCEMP aims to:

- Provide an overview of the methodology to be adopted during construction of all components of the Project; and
- Ensure that the legislative requirements, industry best practice and embedded environmental measures developed as part of the EIA process are implemented during construction.

3.1.2 It is assumed that measures in the OCEMP will be in place before undertaking the assessment. This will enable the assessment to be proportionate and focussed on the likely significant effects that would be material to the decision. This is in accordance with The Institute of Environmental Management and Assessment's guidance document, Delivering Quality Development (Institute of Environmental Management and Assessment, 2016).

3.2 CONTENTS

3.2.1 The Master OCEMP will contain the following contents as a minimum which can be reasonably envisaged at this stage.

Table 3.1: Master OCEMP Contents

Title		Likely Contents	Description
1	Introduction	<ul style="list-style-type: none"> ▪ Introduction ▪ Purpose of Master OCEMP ▪ Structure of Master OCEMP 	Overarching introduction to the OCEMP structure and approach.
2	Legislative Compliance & Project Commitments	<ul style="list-style-type: none"> ▪ Legislation, Standards & Guidance ▪ Environmental Management System ▪ Sustainability Objectives ▪ Commitments & Objectives 	Legally required legislative compliance in addition to Project wide commitments for the management of environmental and social protection.

Title		Likely Contents	Description
3	Approach & Implementation	<ul style="list-style-type: none"> ■ Implementation of the Master OCEMP ■ Roles & Responsibilities ■ Competence & Training ■ Health & Safety ■ Audits & Inspections 	Overarching approach and implementation of all OCEMPs (top-down approach).
4	Construction Environmental Principles	<ul style="list-style-type: none"> ■ Working hours ■ Construction lighting ■ Security ■ Emergency procedures ■ Storage of fuels, materials & waste ■ Housekeeping ■ Biodiversity ■ Waste management ■ Noise ■ Vibration ■ Air quality management ■ Emissions ■ Safety 	Overarching principles which will inform all OCEMPs (top-down approach).
5	Communication	<ul style="list-style-type: none"> ■ Project Liaison Group ■ Complaints ■ Incident management ■ Emergencies 	Overarching communication protocols which will inform all OCEMPs (top-down approach).

3.2.2 The above is just indicative at this stage and will be informed via further stakeholder engagement.

4 STRUCTURE OF SITE SPECIFIC OCEMPS

4.1 PURPOSE

4.1.1 Site specific OCEMPS will be developed for each of the Project components; tidal barrage, port and marine facilities and grid connection. These Site Specific OCEMPS aim to outline the environmental management measures around and within the respective working areas and surrounding environments of the individual components and the respective potential impacts.

4.2 LIKELY CONTENTS

- 4.2.1 The structure of the site specific OCEMPS will largely follow the same structure as the Master OCEMP but in a more site specific manner, focusing on the site specific sensitivity and mitigation required to manage environmental and social effects. Therefore the topic specific management plans which are required will also be bespoke to those environmental and social areas of management or mitigation.
- 4.2.2 For example, the site specific OCEMP for the tidal barrage and port and marine facilities will have a distinct marine component whereas the grid connection is more terrestrial. This is also reflected in the topic specific management plans which fall under each site specific OCEMP.
- 4.2.3 As outlined in **Plate 2.1**, topic specific management plans will be developed as appropriate for a specific component of the Project (for example, noise management plan, dust management, water quality, pollution prevention etc).
- 4.2.4 There may be some commonality in the type of topic specific management plans but it will be clearly outlined which part of the project they relate to and how these will be secured.
- 4.2.5 The list of likely topic specific management plans is outlined as followed and also as contained with the Commitments Register.
- 4.2.6 The likely contents of the site specific OCEMPS and their associated topic specific management plans will be confirmed in the PEIR and ES, and will be informed by the EIA process and further stakeholder engagement.

5 REFERENCES

Institute of Environmental Management and Assessment, (2016). Environmental Impact Assessment Guide to Delivering Quality Development. Available online at: <https://www.iema.net/download-document/7014> (Accessed: July 2024).

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APPENDIX 3.3 HRA SCREENING REPORT

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.3 Habitats Regulations Assessment

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GLOSSARY

Term	Definition
Design Envelope	This comprises a description of the range of possible elements that make up the Project design options under consideration, as set out in detail in the project description when the exact and final engineering parameters are not yet known. This is often referred to as a “Rochdale Envelope” approach.
Habitats Regulations	The Conservation (Natural Habitats, &c.) Regulations 1994, and the Conservation of Habitats and Species Regulations 2017.
Zone of Influence	The area of influence for all the impacts affecting a specific receptor group.

ACRONYMS

Acronym	Term
AA	Appropriate Assessment
AEoI	Adverse Effect on Integrity
AOD	Above Ordinance Datum
AoO	Advice on Operations
CD	Chart Datum
CIS	Celtic and Irish Seas
CO	Conservation Objective
cSAC	Potential Special Areas of Conservation
EA	Environment Agency
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
GW	Gigawatt

Acronym	Term
HRA	Habitats Regulations Appraisal / Assessment
IROPO	Imperative Reasons of Overriding Public Interest
IS	Irish Sea
JNCC	Joint Nature Conservation Committee
km	Kilometre
LSE	Likely significant effects
MHWS	Mean High Water Springs
MLWS	Mean Low Water Spring
MU	Management Unit
NA	Not Applicable
NE	Natural England
NPS	UK National Policy Statements
NRW	Natural Resources Wales
ODPM	Office of the Deputy Prime Minister
pSPA	Potential Special Protection Area
QI	Qualifying Interest
SAC	Special Areas of Conservation
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area
SoS	Secretary of State
SSSI	Site of Special Scientific Interest
ZoI	Zone of Influence

1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1 Proposed plans or projects that have the potential to affect European and Ramsar designated nature conservation sites (International Sites) are required to be considered through the Habitats Regulations Assessment (HRA) process.
- 1.1.2 The staged process of determining impacts to the sites to which the Habitats Regulations apply is known as Habitats Regulations Assessment (HRA). These stages are: Applying criteria to identify which International Sites should be considered for the test of Likely Significant Effect (LSE); Test for LSE (i.e. Screening (Stage 1)); and Appropriate Assessment (AA) (Stage 2), with subsequent stages required depending on the outcome of the AA. This report (hereafter referred to as the HRA Screening Report) considers Stage 1 only which is the ‘Screening’ stage of the HRA process for the proposed Mersey Tidal Power project (hereafter referred to as ‘the Project’).
- 1.1.3 This report provides information on the Project (and associated activities) and the HRA Screening and Appropriate Assessment process. This HRA Screening Report provides information to allow the Secretary of State (as the competent authority) to determine whether there is potential for a Likely Significant Effect (LSE) on the integrity of any European Designated Site(s) in view of their Conservation Objectives (COs) as a result of the Project. If it is considered that a plan or project is likely to have LSE on the integrity of a designated site, the requirements of Stage 2 are triggered and any affected site(s) are screened in for further assessment. This stage will be in the subsequent Report to Inform Appropriate Assessment document, which will consider the impacts of the Proposed Development on the integrity of a designated site, alone or in combination with other plans or projects. This HRA Screening Report has been submitted together with an EIA Scoping Report which includes chapters on benthic ecology, fish ecology, marine mammals, ornithology and onshore ecology.

1.2 BACKGROUND TO THE PROJECT

- 1.2.1 The Project will consist primarily of a tidal range barrage located within the channel of the Mersey Estuary containing a powerhouse and bi-directional turbines with a maximum electrical output of up to 1 GW and an operational lifespan of up to 120 years. The Project will be located towards the mouth of the River Mersey, between the Wirral on the west and Liverpool to the north-east, with the grid connection traversing land from the tidal barrage to either Lister Drive, Breck Road, Birkenhead or Capenhurst (**Figure 1.1**).

1.3 HABITAT REGULATIONS ASSESSMENT

- 1.3.1 HRA provides the process for the consideration of potential impacts of plans and projects on a particular type of designated conservation site. The requirement follows from the European Union (EU) Habitats Directive (European Commission, 1992) and, by virtue of Article 8 of that Directive, also the Wild Birds Directive (the Nature Directives) (European Commission, 2009).
- 1.3.2 The Europe-wide network of nature conservation areas that are the subject of the HRA process was established under the Nature Directives. These areas are known as “European Sites” and collectively, as the “Natura 2000” network. The wording of Article 6(3) and 6(4) of the Habitats Directive underlies the sequential decision-making tests applied under the HRA process to projects likely to affect these Sites (referred to in this report as International Sites).
- 1.3.3 HRA is generally understood to be a progressive, staged process which determines Likely Significant Effect (LSE) and, where required, assesses potential adverse impacts on the integrity of an International Site. Where an adverse effect on a site’s integrity cannot be ruled out the process then continues to examine alternative solutions and, where required, consider Imperative Reasons of Overriding Public Interest (IROPI) (Planning Inspectorate 2022). Further detail on the process followed and the definition of particular terms, is provided in the Methodology Section (Section 3).
- 1.3.4 Following submission of this HRA Screening report, the Applicant commits to maintaining engagement on the HRA process pertinent to the Project prior to the submission of the application for Development Consent. This will include the formation of a Technical Working Group to discuss key aspects such as Evidence Plan development and approach to the Appropriate Assessment. Ad hoc technical discussions will also be undertaken on aspects which interface and have interdependencies with HRA, such as hydro-dynamic modelling and ongoing baseline surveys. Regular updates via the existing Stakeholder Engagement Group will also continue.

1.4 LEGISLATIVE POLICY AND CONTEXT

- 1.4.1 This section provides background and context in terms of the legislative requirements and processes that are applicable for HRA within the UK and to the Project. It sets out an overview of the legislative framework and then provides explanation of the current legal requirements for development proposals.

INTERNATIONAL LEGALISATION COMMITMENTS

- 1.4.2 The requirement to consider the potential effects of the Project on International Sites is outlined as part of the international commitments of the following pieces of European Union (EU) legislation:
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in the Habitats Regulations) (applicable out to the 12 nautical mile (NM) limit);
 - The Conservation of Offshore Marine Habitats and Species Regulations 2017 (applicable between 12 nm and 200 nm);
 - The Conservation of Habitats and Species Regulations 2017 (as amended);
 - The Conservation on Wetlands of International Importance especially as Waterfowl Habitat (the 'Ramsar Convention') (as implemented through the Habitats Regulations);
 - European Directive 92/43/EEC on the 'Conservation of Natural Habitats and Wild Fauna and Flora' (referred to as the 'Habitats Directive'); and
 - Council Directive 2009/147/EC (Birds Directive) and the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC on the conservation of wild birds) (referred to as the 'Wild Birds Directive').
- 1.4.3 When considering this list it is important to note that the Habitats Directive and the Birds Directive have been transposed into English Law through The Conservation (Natural habitats, &c.) Regulations 1994 (as amended) and The Conservation of Habitats and Species Regulations 2017 respectively. The Conservation of Offshore Marine Habitats and Species Regulations 2017 transpose the Habitats Directive into English Law for offshore waters. These regulations are collectively referred to as the 'Habitats Regulations'
- 1.4.4 Sites designated under these directives and regulations are comprised of habitats and species of regional, national and European importance and include the following types of site:
- Special Area of Conservation (SAC);
 - candidate SAC (cSAC);
 - Special Protection Area (SPA);
 - Site of Community Importance (SCI);
 - Possible / candidate SAC (pSAC/cSAC) and potential SPA (pSPA) .
- 1.4.5 All Ramsar Sites are also Natura 2000 Sites (here they are referred to collectively with those listed above as International Sites).

POST-EU EXIT AMENDMENTS

- 1.4.6 Following the United Kingdom's (UK) departure from the EU on 31 December 2020 (EU Exit), the UK is no longer an EU Member State. Notwithstanding, the Habitats Regulations (2017) (as amended) continue to provide the legislative backdrop for HRA in the UK through the Conservation of Habitats and species Amendment (EU Exit) Regulations 2019 ("EU Exit Regulations"). The HRA process implemented under the Habitats Regulations (2017) continues to apply (subject to minor changes) and the UK is bound by HRA judgments handed down by The Court of Justice of the European Union (CJEU) prior to 31 December 2020. Decisions of the CJEU on any HRA undertaken after 31 December 2020 will no longer be binding on any UK courts, and it will no longer be possible for UK courts to refer cases to the CJEU. However, the UK may choose to follow CJEU judgements after this time.
- 1.4.7 Accordingly, the EU Exit Regulations are considered to have no material bearing on the requirement or process for the HRA of the Project. The HRA will not refer to any obligations under the Nature Directives but may have regard to European Commission (EC) guidance, so far as it is relevant.

UK (DOMESTIC) HRA POLICY AND LEGISLATION

- 1.4.8 Guidance from the Department of Environment, Food and Rural Affairs (Defra) has been provided on the application of the relevant legislation in the post-Brexit period in their policy paper published on 1st January 2021 available at <https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017>.
- 1.4.9 Following the UK's exit from the EU in January 2020, the UK was no longer part of the Natura 2000 Network, and the equivalent UK Sites are referred (domestically) as the UK's 'National Site Network'. The National Site Network encompasses all International Sites within the UK that were designated pre-EU Exit (those sites which were already designated under the Habitats and Birds Directives) or proposed to the European Commission pre-EU Exit and any new protected sites designated under the Habitats and Birds Regulations under an amended designation process.

RAMSAR CONVENTION

- 1.4.10 The UK is a contracting party to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, Iran, 1971 (the 'Ramsar Convention'), which seeks to protect wetlands of international importance, in particular, those wetlands utilised as waterfowl habitat.

1.4.11 It is UK Government policy that all competent authorities should treat Ramsar Sites in their decision-making processes as if they are SACs or SPAs and hence Ramsar Sites are considered within the requirements for HRA of the Habitats Regulations. In the UK this is identified in paragraph 176 of the National Planning Policy Framework (MHCLG 2019). As a consequence, in this report, Ramsar Sites are referred to alongside International Sites collectively as International Sites. UK Government policy (ODPM Circular 06/2005) states that internationally important wetlands designated under the Convention on Wetlands 1971, called the Ramsar Convention (Ramsar Sites) are afforded the same protection as SPAs and SACs for the purpose of considering development proposals that may affect them.

STATUTORY REQUIREMENTS FOR ASSESSMENT

1.4.12 The Habitats Regulations require for an assessment of the implications of a project (or plan) on a European and Ramsar Site's conservation objectives to be undertaken by the Competent Authority prior to giving consent (e.g. via the following Regulations under each piece of legislation):

- Regulation 63 of The Conservation of Habitats and Species Regulations 2017; and
- Regulation 28 of The Conservation of Offshore Marine Habitats and Species regulations 2017.

1.4.13 The wording of these Regulations are very similar and outline the requirements for HRA assessment, stating that (e.g. Regulation 28 of the Conservation of Offshore Marine Habitats and Species regulations 2017):

'(1) Before decision to undertake, or give any consent, permission or other authorisation for, a relevant plan or project, a competent authority must make an appropriate assessment of the implications for the plan or project for the site in view of that site's conservation objectives[...] (5)...the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European offshore marine site or European Site (as the case may be).'

1.4.14 The Habitat Regulations also require that (e.g. Regulation 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017):

'(3) A person applying to a competent authority for any consent, permission or other authorisation for a plan or project in the offshore marine area must provide such information as the competent authority may reasonably require (a) to

enable it to determine whether an assessment under paragraph (1) is required; or (b) for the purposes of the assessment under paragraph (1)'

LAND THAT IS FUNCTIONALLY LINKED TO INTERNATIONAL SITES

1.4.15 Species that are qualifying features of International Sites may be mobile and not confined to the boundary of the designated site. For example, wintering waterbirds may forage or roost on agricultural land outside of the designated site. Although such agricultural land is not part of the European or Ramsar Site, it is 'functionally linked' because it serves a function for waterbirds that are qualifying features of the designated site. Account has to be taken of such functionally linked land in the HRA process for the Project, since, for instance, the loss of such land to development could potentially adversely affect the survival of those wintering waterbirds and lead to a reduction in the population within the designated site.

1.4.16 Functionally linked land has been defined as follows (Chapman & Tyldesley 2016):

"The term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a International Site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the International Site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status."

NATIONAL POLICY STATEMENT

1.4.17 The National Policy Statement (NPS) for Energy (EN-1) sets out the requirements for nationally significant projects in the energy sector, including policy on the requirements for an HRA. This includes paragraph 5.4.5 of EN-1 which states:

"As a matter of policy, the following should be given the same protection as sites covered by the Habitats Regulations and an HRA will also be required:

- pSPAs and pSACs;
- listed or proposed Ramsar Sites; and
- Sites identified, or required, as compensatory measures for adverse effects on any of the other sites covered by this paragraph".

1.4.18 The government's "Nature Recovery Green Paper: Protected Sites and Species" (Defra 2022), consulted on changes to the HRA process. If changes are made,

relevant plans and projects would have to comply with such relevant regulations. Until a new process is implemented, current legislation continues to apply.

1.4.19 There are six Energy NPSs in total, however, the three of relevance to the Project are:

- NPS for Overarching Energy (EN-1)(DECC, 2011a);
- NPS for Renewable Energy (EN-3) (DECC, 2011b); and
- NPS for Electricity Networks (EN-5) (DECC, 2011c).

1.4.20 These NPSs have been reviewed by the UK government and draft versions of the updated documents are available at the time of writing. These are:

- Draft Overarching NPS for Energy (EN-1) (DESNZ, 2023a);
- Draft NPS for Renewable Energy Infrastructure (EN-3) (DESNZ, 2023b); and
- Draft NPS Electricity Networks Infrastructure (EN-5) (DESNZ, 2023c).

GUIDANCE

1.4.21 In preparing this report, consideration has been given to the relevant guidance issued by a number of Governmental, statutory and industry bodies.

1.4.22 Guidance from Government bodies includes:

- Natural England (and partner organisations) guidance 'Natural England Standard: HRA Habitats Regulations Assessment (HRA) (NESTND026)' available on publications.naturalengland.org.uk. (Natural England, 2019a);
- European Commission: Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites (European Commission, 2022);
- Department of Communities and Local Government: Guidance on Planning for the Protection of European Sites: Appropriate Assessment (DCLG, 2006); and
- The Planning Inspectorate Advice Note Ten: Habitat Regulations Assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate, 2022).

1.4.23 Guidance from the Statutory Nature Conservation Bodies includes:

- English Nature: Habitats Regulations Guidance Note (HRGN 1): The Appropriate Assessment (Regulation 48) The Conservation (Natural Habitats &c) Regulations, 1994; English Nature: Habitats Regulations Guidance Note

(HRGN 3): The Determination of Likely Significant Effect under the Conservation (Natural Habitats &c) Regulations, 1994; and

- English Nature: Habitats Regulations Guidance Note (HRGN 4): Alone or in-combination.

1.4.24 There is also relevant case law that requires consideration:

1.4.25 A decision by the Court of Justice of the European Union (CJEU) 'People Over Wind and Sweetman v Coillte Teoranta' (C-323/17) (CJEU 2018) dictates that measures intended to avoid or reduce the harmful effects of a proposed project on a European site may no longer be taken into account by competent authorities at the HRA screening stage when judging whether a proposed plan or project is likely to have a significant effect on the integrity of a European designated site. Consistent with C- 323/17, the potential for interest features to be adversely impacted by the Project is initially assessed in the absence of design mitigation i.e. in the absence of those measures which are accepted or known impact reducing measures. Examples of design measures include those elements associated with an agreed surface water management strategy. By assessing LSE initially in this manner, a transparent assessment is ensured.

2 THE PROJECT

2.1 SUMMARY OF THE PROPOSED PROJECT

- 2.1.1 The Project will have a generating capacity of up to 1GW, connecting the banks of the Mersey, in Liverpool with an above ground structure, and creating the potential for active travel, flood protection and climate mitigation responses. The tidal barrage would generate electricity utilising the energy available from the tidal range (up to 10.37m in height) within the Mersey Estuary.
- 2.1.2 The Project consists of the following main components:
- A tidal range barrage located within the channel of the Mersey Estuary which contains:
 - A Power Generation System with control equipment and a sub-structure housing turbines with an expected electrical output of up to 1 GW;
 - A Hydro Control System (including sluice gates);
 - Marine Navigation System (including locks);
 - A Power Export System;
 - Onshore operational facilities including control centre, maintenance, stores and office buildings;
 - Associated rock armour and breakwaters.
 - An onward grid connection to a National Grid substation or other substations; and
 - Utilisation of the surrounding port facilities during the construction phase in addition to other potential associated developments which may support the construction phase.
- 2.1.3 A range of other ancillary developments and facilities may also be required as part of the Project including access, utility connections, boundary treatments, security infrastructure, temporary and permanent laydown areas, hard and soft landscaping, drainage, cables, plant, and equipment. Once operational, the tidal barrage will include all relevant security fencing, lighting, CCTV. Maintenance equipment such as an internal gantry crane will be present on the external structure, and be able to mobilise along the full length of the tidal barrage structure.
- 2.1.4 A breakwater will connect the tidal barrage to its adjacent bank. The breakwaters will be a watertight structure and likely consist of a concrete or rock filled core, faced with rock or suitable material, with a height commensurate with climate

change predictions. The extent of the breakwaters will depend on the chosen location of the tidal barrage.

- 2.1.5 Up to 1 km upstream and downstream from the Project has been defined as the marine working area for construction. Dredging/excavation will be required to facilitate the installation of the main structures and will vary depending on the final location, configuration and construction method; it is anticipated that between 7,000,000 to 20,000,000 m³ of material could be removed (dependent on confirmed location of the tidal barrage) to a maximum depth of -30 m AOD within the marine working area.

2.2 SCOPING BOUNDARY

- 2.2.1 The Scoping Boundary for the Project currently encompasses the main components as outlined in **Section 2.1** and covers an area of approximately 16.6ha (**Figure 2.1**). This Scoping Boundary includes the likely areas where the Project will require permanent structures (such as the tidal barrage and potentially grid connection) and also temporary areas which facilitate the construction phase.
- 2.2.2 Two Development Areas have been proposed (shown in **Figure 1.1**) and these are defined as follows:
- Tidal Barrage Development Area: The area within which the tidal barrage will be located and covers an approximate area of 2.4 km².
 - Grid Connection Development Area: The area within which the grid connection and its associated route may also be installed and currently covers an appropriate area of 14.2 km².
- 2.2.3 The Scoping Boundary also contains potential port and marine facilities which overlap the two Development Areas.
- 2.2.4 The Applicant is progressing ecology studies, engineering design, ground investigation and stakeholder engagement to determine the final location and alignment of the tidal barrage within the Tidal Barrage Development Area. The final location will be refined following receipt of the Scoping Opinion and responses from the non-statutory consultation.
- 2.2.5 The potential route corridors for Grid Connection will be further defined, based on final alignment of the tidal barrage and the confirmed National Grid / SP Energy Networks Connection point(s).

2.3 MAXIMUM DESIGN SCENARIO

- 2.3.1 At this stage of the planning process the project description should be considered indicative to allow the appropriate design development to progress. In accordance with industry standard practices and PINS Advice Note Nine “the Rochdale Envelope”, a parameter-based “design envelope” approach has been adopted in respect of the Proposed Scheme. This is a precautionary approach that will assume the maximum parameters for each design element used and so even if certain design elements are changed upon further refinement, the assessment of LSE should not be affected as the maximum possible design scenario will have been assessed. The current status of the design is described within **Table 2-1**.
- 2.3.2 The indicative design envelope is intended to identify key parameters that are suitable to enable initial environmental assessments to be carried out in a robust and proportionate manner. This information will enable the subsequent HRA Screening to be based on a description of the location, design and size of the Project that is suitable to allow a comprehensive assessment of any potential LSEs, whilst retaining sufficient flexibility to accommodate further refinement during detailed design.

Table 2-1: Indicative design envelope of the Project

Description	Design Parameter
Tidal barrage	<p>The tidal barrage will be a permanent structure across the channel of the Mersey Estuary, extending between the right and left banks. The tidal barrage will be constructed using a temporary coffer dam, modular caissons and in-situ caissons (all will require construction within the marine and terrestrial environments). The tidal barrage would contain the following components:</p> <ul style="list-style-type: none"> ▪ A Power Generation System with control equipment and a sub-structure housing turbines; ▪ Hydro Control System; ▪ Marine Navigational System; ▪ Power Export System; and ▪ Onshore operational facilities.
Tidal barrage parameters	<ul style="list-style-type: none"> ▪ Maximum width = Up to 2km (dependent on development area location) ▪ Maximum height = 7.2 Above Ordinance Datum (AOD), +8.5m AOD parapet on either side, Gantry crane up to 40m ▪ Maximum depth (to CD) = -30m AOD
Breakwater parameters	<ul style="list-style-type: none"> ▪ Total length (from up to 2 areas to left and right banks) = Up to 600m ▪ Crest level (currently estimated) = 8.5m AOD seaside for wave overtopping
Maximum capacity	Up to 1 GW
Power Generation System	<p>Partially submerged structure made of reinforced concrete, housing up to 50 no. bi-directional turbines to generate electricity as two-way generation using the incoming (flood) and outgoing (ebb) tides . A protective debris screen may be installed to shield the turbine from any damage during any tidal cycle. A cooling water system will also be required for the turbines.</p>
Proposed turbine capacity	<ul style="list-style-type: none"> ▪ Up to 50 no. turbines ▪ Up to 30MWe per turbine. ▪ 95 rpm maximum speed per turbine (speed dependent upon manufacturer)
Indicative operational flow	<ul style="list-style-type: none"> ▪ Minimum flow 150m³/s ▪ Maximum flow 500m³/s
Hydro-control System	<p>Sluice or radial gates (up to 50 in no.) located adjacent to the Powerhouse. The Project will incorporate a Hydro Control System structure in the form of vertical or radial sluice gates. The Hydro</p>

Description	Design Parameter
	<p>Control System consists of stationary foundation units and movable gates to allow water to pass when required. The foundation units are partially submerged.</p> <ul style="list-style-type: none"> ▪ Maximum width (of structure) = Up to 70m
Marine Navigation System	<p>Locks in the tidal barrage structure will allow for continuous marine navigation, located together on one side of the tidal barrage or on both sides. Locks will be sized based on vessel requirements (such as large leisure, commercial and military vessels). Navigational measures will be required within the channel as vessels approach the marine navigational systems such as dolphin piles, visual barriers and safety zones. These will be confirmed when the location of the Tidal Barrage is confirmed.</p>
Onshore Operational Buildings	<p>The tidal barrage will also require a range of Onshore Operational Buildings which will include operational, maintenance, stores, offices buildings, control room and car parks. As part of the Power Export System, there will be the need for a control equipment, switch house and substation. The Onshore Operational Buildings may be distributed across the barrage structure and the reclaimed land areas.</p>
Erosion control, rock armour and scour protection measures	<p>Required across the tidal barrage to protect against damage from wave action. The exact nature and location will be confirmed following technical assessments as part of the EIA process.</p>
Navigation protection measures	<ul style="list-style-type: none"> ▪ Safety zones; ▪ Display of correct lighting, shapes/sounds and signals in accordance with International Regulations for Preventing Collisions at Sea / COLREG; and ▪ Dolphin piles and visual barriers.
Power Export System and Onward Grid Connection	<p>The grid connection is required to transmit the electricity generation by the tidal barrage to the National Grid Transmission System or SP Energy Networks distribution system.</p>
Associated development	<p>Several existing port facilities have been identified within the Scoping Boundary given their location and ability to support the Project in addition to being nominated within the Spatial Development Strategy (SDS) (Liverpool City Region Combined Authority, No Date). The Applicant is exploring options to utilise these existing and established areas for temporary construction laydown and compounds, and as such, no construction phase is anticipated for these facilities.</p>

2.4 CONSTRUCTION

2.4.1 The Applicant intends for the construction phase to be predominantly contained within the marine environment, including delivery of large equipment and materials to the working area. However, terrestrial works such as construction routes, compounds and access will be required in the immediate vicinity of the tidal barrage landfalls. The following sections provide a description of the construction phase.

CONSTRUCTION SCHEDULE – TIDAL BARRAGE DEVELOPMENT

2.4.2 The construction schedule is dependent upon the final construction method, however it is envisaged that construction would be expected to be 7-10 years but will reflect the construction method and contracting model.

2.4.3 The Applicant intends for the construction phase to be predominantly contained within the marine environment, including delivery of large equipment and materials to the working area. However terrestrial works such as construction routes, compounds and access will be required in the immediate vicinity of the tidal barrage landfalls.

Preparation and Enabling

2.4.4 The construction phase may be preceded with some site preparation works such as exclusion of public areas for safety purposes, road and public access diversions in addition to removal of street furniture and utilities. Specific details will be confirmed once a location is confirmed.

Marine Working Area

2.4.5 A 1km marine working area will be required upstream and downstream of the confirmed tidal barrage location. This is to allow for temporary facilities, dredging, engineering works, potential areas to sink pre-fabricated structures if required and installation of marine protection and safety measures (for example, navigational aids for the locks).

2.4.6 Any existing marine safeguarded areas will be avoided where possible to limit interference with existing operations and where this is unavoidable appropriate management plans will be put in place to limit the impacts.

Dredging

- 2.4.7 Dredging/excavation will be required to facilitate the installation of the main structures and will vary depending on the final location, configuration and construction method.
- 2.4.8 It is anticipated that between 7,000,000 to 20,000,000 m³ of material could be removed (dependent on confirmed location of the tidal barrage) within the marine working area. This would occur throughout the construction phase and whilst it is proposed to reuse as much dredged material as possible, should disposal be required, this would be in the following methods:
- Within a marine disposal facility either under control by the Applicant or a third party marine disposal area under agreement; or
 - Contribute to a marine enhancement project within the locality (subject to testing and volumes).

Construction Logistics

Marine Logistics for Materials and Equipment

- 2.4.9 The Applicant intends for the Project to be predominantly marine based logistics for the delivery of materials and equipment, thereby minimising the requirement for terrestrial logistics as far as possible. The following marine vessels are anticipated to be required during the construction phase:
- Tugs;
 - Supply and hopper barges;
 - Excavators and dredgers;
 - Mobile cranes; and
 - Jack up rigs.

- 2.4.10 The tidal barrage is likely to use a wide range of marine plant and vessels including self-propelled modular transporters (SPMTs).

Terrestrial Logistics & Routes for Materials and Equipment

- 2.4.11 Construction vehicles will be required onsite and these are likely to include excavators, transportation vehicles such as Moxy earth moving equipment, piling rigs and cranes.

- 2.4.12 Most vehicles will be delivered to the Site at the start of the construction phase. Specialist equipment, such as piling rigs and cranes, will arrive at times of key activities taking place within the construction phase.

Temporary Construction Laydown & Compounds

- 2.4.13 The reclaimed areas on the left and right banks will serve as the primary areas of construction compounds, containing welfare, offices and administration in addition to construction storage and laydown areas.
- 2.4.14 Secondary laydown and compounds may be established in port facilities in order to facilitate the Applicant's commitment to maintaining marine based logistics.
- 2.4.15 Other ancillary structures may also include temporary wharf or jetties to facilitate water taxi style logistics for workers
- 2.4.16 Any localised ancillary structures which are required to support the construction phase will be decommissioned and removed when the construction phase is complete. However, those structures which may not pose a navigational risk could remain or be repurposed if a suitable responsibility for their maintenance can be established and secured. The Applicant is exploring these opportunities and will identify any such opportunities through ongoing engagement.

Working Hours

- 2.4.17 It is envisaged that standard daytime working hours of 06:00 – 20:00 Hours on Monday – Friday and 06:00 – 18:00 Hours on weekends will be implemented during the construction phase, although these are subject to confirmation. Longer durations may be required at peak and for critical path activities, working over weekends, at night and for 24 hours (such as for concrete pours) may be required. In these cases, it is anticipated that such hours would accord with the local authority's standard weekend / bank holiday requirements. For the purposes of this Screening report it is assumed that all workers and traffic will travel and operate directly to/on the Project or utilise public transport.
- 2.4.18 The only exception to this would be the delivery of pre-fabricated structures to the marine working areas which will be reliant on the tides. The required navigational safety messages and notifications will be made in addition to any other public announcements as required in such instances.

2.5 COMMISSIONING OF THE TIDAL BARRAGE

- 2.5.1 Commissioning is expected to last approximately up to 2 years and will vary depending on the final number of turbines and constructability phasing. This

includes all aspects of the tidal barrage with the turbines specifically undertaking dry and wet tests (this includes load testing and no load testing).

- 2.5.2 Generation (for the purposes of testing and early production) will take place in advance of final completion date subject to the ability to allow vessels to navigate through the Marine Navigation System during this time.

2.6 OPERATION OF THE TIDAL BARRAGE

OPERATIONAL LIFESPAN

- 2.6.1 For the purposes of assessment, it is anticipated that the Project will have a design life of up to 120 years. It is likely that operation can continue beyond this period but this would be subject to the applicable consents required at the time of application.
- 2.6.2 Active travel will remain throughout the operational lifespan of the tidal barrage and be linked to onwards active travel routes, with public realm and open space also available once operational.

GENERATION AND OPERATIONAL MODES

- 2.6.3 The tidal barrage has the ability to operate 24 hours a day, dependent on the tide movements, operational mode and requirement to generate. The tidal barrage can generate electricity by utilising either the incoming and outgoing (two way) or just outgoing (ebb) tidal movements with the Mersey Estuary channel without the need to utilise pumping. Depending on the operational mode, up to four generation periods is possible in a 24 hour period. Sluice gates within the Hydro Control System will facilitate the filling and emptying of the impoundment basin alongside the turbines within the Power Generation System.
- 2.6.4 Variable speed turbines offer improved efficiency and allow slower speeds to improve fish passage. They also have the ability to be used more efficiently in a pumping mode. Pumping mode can be used once the generation cycle has finished (in other words when the head difference is low) and is used to increase the volume of storage available for generation. It works on the principle of pumping at low heads and generating energy from the pumped water at a higher head thereby increasing net energy generation.
- 2.6.5 The mode of operation (combination of modes) for the tidal barrage will be developed based on final configuration and machine selection, with regard to future requirements such as generation demand and management of water levels.

WATER LEVELS DURING OPERATION

- 2.6.6 The Applicant recognises that one of the key considerations for tidal barrage schemes proposed within estuarine environments is the potential reduction in tidal range which could result in changes to water levels upstream of the tidal barrage.
- 2.6.7 Acknowledging that the Mersey contains a significant area of designated intertidal mudflat, sandflat and saltmarsh areas in addition to its supporting qualifying features, extensive modelling has been undertaken to determine the likely effects of exposure and inundation of these habitats as a result of the operation of the tidal barrage during tidal cycles.
- 2.6.8 During any operational mode of the barrage, if low water levels are raised, lower intertidal areas which are currently exposed to the natural tidal range will become permanently inundated. Conversely, if high water levels are lowered, upper intertidal and salt marsh areas may be permanently exposed.
- 2.6.9 In addition, as the tidal barrage has the ability to control the amount of water going in and out of the estuary and so can provide protection from sea level rise and tidal flooding to areas upstream of the structure. Using a representative location south of the Mersey Tunnels (an area known as the Narrows), initial modelling has highlighted the potential alleviation benefits.
- 2.6.10 Reference and nominal locations within the Tidal Barrage Development Area have also been utilised for hydrodynamic modelling, demonstrating that effects depending on the operation mode can be anticipated, noting that the water levels within the Mersey estuary vary considerably from spring to neap tides.

EMERGENCY SCENARIOS

- 2.6.11 In the event of an emergency scenario, the tidal barrage will be able to allow the natural tidal flows in and out of the estuary through the sluice gates, or conversely restrict flows coming in or out by partial closure. These emergency scenarios could be triggered by flood conditions from a tidal surge, or upstream rainfall.

MAINTENANCE

- 2.6.12 Maintenance activities will range from daily observations of the structures to the required frequency of inspections and replacement of equipment and machinery throughout the operational lifespan of the Project.
- 2.6.13 Internal cranes within the tidal barrages structures and workshops will aid the movement of heavy machinery. Externally It is anticipated that this will require

vehicles such as vans and heavy goods vehicles (HGVs) for day to day maintenance.

Table 2-2: Indicative Design Life and Major Maintenance Periods

Element	Design Life (minimum)	Major Maintenance
Main civils structures (locks, Powerhouse, sluice gate structures).	120 years	40 years
Breakwaters	120 years	N/A
Turbines	40 years	12-20 years
All control equipment.	15 years	N/A
Sluice gates and lock gates.	50 years	15-20
Stop Logs	30 years	15 years

Maintenance Dredge

2.6.14 In order to maintain continuous operation and navigation of the tidal barrage, dredging is likely to be required. The frequency will be confirmed subject to the chosen location of the tidal barrage. It is anticipated that water injection methods will be used around the operational tidal barrage, allowing the sediment to remain within the channel and settle accordingly. Whilst unlikely, should any significant dredging be required, therefore generating larger volumes, offsite disposal may be considered if necessary.

Utilities

Power Generation

2.6.15 The tidal barrage will generate electricity which will be exported via the Power Export Systems. However, the tidal barrage may require import power from pumping operations and for Onshore Operational Buildings and facilities such as external lighting. The former will be sourced from the Grid Connection and the latter from the distribution network connection.

Potable and Wastewater

2.6.16 It is assumed that connections to local networks will be possible.

Surface Water

- 2.6.17 Rainwater falling on the barrage structure (namely from the access road across the top of the barrage) will collate into dedicated surface water drains and discharge to the Mersey.

Workforce

- 2.6.18 Once operational, the tidal barrage will employ approximately 70-100 direct full time equivalents (FTEs) in order to undertake operational engineering activities, manage the control room and within the administrative buildings.
- 2.6.19 An additional temporary workforce would be required during the maintenance activities.
- 2.6.20 There is the potential for further employment within other ancillary buildings such as public realm or the visitors centre. This will be confirmed as part of the DCO process.

Safety

- 2.6.21 Safety zones will be implemented for both navigational and human safety to avoid any potential damage to property or persons from vessel allision or human interference with any part of the tidal barrage structure.
- 2.6.22 Lighting will be required during the hours of darkness on the tidal barrage structure. This will include navigational lighting, security and amenity.

2.7 DECOMMISSIONING

- 2.7.1 It is the assumption for the HRA that the Project will be decommissioned at the end of the operational lifespan, either prior to or at 120 years. It is recognised that wholesale decommissioning is not appropriate for this Project given the proposed length of operational life and the environmental equilibrium which will have established during this time.
- 2.7.2 All terrestrial ground structures will be demolished and removed at ground level or just below. Any concrete materials will be crushed, with other materials such as metal, sorted and recycled where possible. Some removal of materials off-site is likely by road and possibly via marine vessels. It is anticipated that the turbines will be removed and sold or recycled. Any below ground structures will be left in-situ, including piles, pipework, and cables. It is anticipated that the breakwaters will remain in situ and erode over time as per natural processes.
- 2.7.3 It is anticipated that any removal works will take approximately 12 months depending on level of decommissioning agreed with stakeholders.

- 2.7.4 A Decommissioning Plan (including environmental management) will be prepared at the appropriate time to consider the potential risks of decommissioning the relevant elements of the Proposed Scheme. It will include details of marine infrastructure available and appropriate at the time, other routes for offsite removal of materials and likely phasing of activities.

2.8 GRID CONNECTION

- 2.8.1 Depending on the confirmed location of the tidal barrage and subject to discussions with National Grid, the tidal barrage has the potential to connect to four existing substations. These are contained within the Grid Connection Development Area and are; Birkenhead (275kV), Capenhurst (400kV), Lister Drive (275kV) and Breck Road Substation (132kV).
- 2.8.2 The Applicant has been in discussions with National Grid regarding a suitable connection with capacity of up to 1GW assumed to be in place by 2035 to enable the current commissioning date of 2035, and operation by 2038 of the Tidal Barrage.
- 2.8.3 The Applicant is liaising with National Grid over the capacity available in each of the connection points in addition to the responsibility for the consenting and implementation of the grid connection. Therefore, this may not remain within the remit of this Project but at present is included.

Routeing

- 2.8.4 Significant upgrade plans have been published in the Electricity System Operator (ESO) Beyond 2030 report (2024) which outlines upgrade plans for the northern element of the Mersey ring network from 275kV to 400kV within the timeframe for the Tidal Barrage. This would create new capacity and higher voltage connection in the northern part of the Mersey Ring at Lister Drive, and new capacity in the Southern part of the Mersey Ring, at Birkenhead.
- 2.8.5 If the Mersey Ring re-enforcement is realised, then there is potential for a shorter connection point(s) for the Project. If the Mersey Ring re-enforcement is not realised then a connection to Capenhurst will possibly be required.
- 2.8.6 The grid connection to Birkenhead, Capenhurst or Breck Road could be a 275kV buried underground cable for the entirety of the terrestrial route from the Power Export System to the point of connection at the existing substation(s). Alternatively, it may involve the restringing and reinforcement of the existing overhead lines. This will be confirmed at Preliminary Environmental Impact Report stage and assessed accordingly.

- 2.8.7 For connection to Lister Drive substation there is the option to utilise the existing underground route via Queensway tunnel and existing disused railway tunnels.
- 2.8.8 Depending on the final location of the tidal barrage, there may be the requirement to have a section of the grid connection cable within the marine environment before it transitions to the terrestrial route.

Installation, Operation and Decommissioning

- 2.8.9 The construction of the grid connection is likely to take up to 3 years (depending on the installation method), but could be less depending on the point of connection and length of route.
- 2.8.10 If the cable is buried, both open cut and trenchless techniques will be considered. Trenchless techniques may be utilised on sensitive areas or for crossing existing utilities, roads and watercourses and also in urban environments unless open cut is also possible.
- 2.8.11 Construction compounds will be required along the route, and near crossing locations where trenchless techniques are employed so that entry and exit pits can be installed.
- 2.8.12 Localised improvements to the existing substation are anticipated.
- 2.8.13 Once the operational life has ceased, it is assumed that all above ground structures associated with the grid connection (for example jointing bays and substation) will be removed to 1m below ground level and the area reinstated. The cable is likely to remain insitu if buried.

2.9 ENVIRONMENTAL MANAGEMENT & SAFETY MEASURES

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- 2.9.1 An Outline Construction Environmental Management Plan (OCEMP) will be prepared and submitted as part of the ES to record mitigation measures proposed to minimise potential effects such as noise, vibration, dust and disturbance to terrestrial and marine receptors. The OCEMP will be the mechanism that ensures the successful management of the likely environmental effects resulting from the construction activities. A full CEMP will need to be prepared by the Applicant's appointed contractor ahead of works commencing.
- 2.9.2 The OCEMP will provide the overarching framework for other topic specific management plans which will be prepared as part of the EIA process.

Lighting

- 2.9.3 Construction lighting will be required for both critical path activities which require working at night and also for security. The location, type and also lux levels will be designed accordingly to avoid likely significant effects to nearby users, residential dwellings and also ecological features such as bats. Further detail on the proposed lighting strategy will be available in the ES for assessment.

3 METHODS

3.1 THE HABITATS REGULATIONS ASSESSMENT PROCESS

OVERVIEW

- 3.1.1 As established, the Habitats Regulations require that wherever a project that is not directly connected to, or necessary for, the management of an International Site and is likely to have a significant effect on the conservation objectives of the site (directly, indirectly, alone or in-combination with other plans or projects) then an ‘Appropriate Assessment’ (AA) must be undertaken by the Competent Authority. The AA must be carried out before consent or authorisation can be given for the project. The AA will determine if there could be an adverse effect on the integrity (AEol) of an International Site.
- 3.1.2 The integrity of a site is defined by guidance as the coherence of the site’s ecological structure and function, across the whole of its area, which enables it to sustain the habitat, complex of habitats and/or populations of species for which the site has been designated (EC, 2001). An AEol is likely to be one which prevents the site from making the same contribution to favourable conservation status as it did at the time of designation.
- 3.1.3 HRA is a staged process as indicated in **Table 3-1**. Consideration of AEol is undertaken at Stage 2 of the HRA process, however, this report only covers the identification of International Sites to be considered for the test of LSE and Stage 1: Screening for LSE.

Assessment stages

- 3.1.4 The assessment of a plan or project for HRA goes through a number of stages, with published guidance available to aid competent authorities to fulfil their responsibilities. The stages are summarised in **Table 3-1**.

Table 3-1: The HRA process including relevant legislative context and assessment stages

HRA Process	Description	Legislative Context
Purpose	Determines if the purpose of the plan or project is directly connected with, or necessary, to the management of a European or Ramsar Site. If it is, then	Regulation 63(1)(b)

HRA Process	Description	Legislative Context
	no further assessment is necessary	
Identification of International Sites to be considered for test of LSE	The identification of any European or Ramsar Site (i.e. International Site) that might be within scope of an HRA i.e. those sites that should be taken forward to the screening stage based on a wide consideration of spatial and ecological factors. Such a site may be located within the plan or project area but may also include sites located in neighbouring authority areas.	Regulation 63(2)(5)
<p>Screening</p> <p>Assessment Stage 1</p>	<p>Assessment of whether a plan or project, either alone or in combination with other plans or projects, is likely to have a significant effect on any qualifying feature (habitats and species) and the achievement of the conservation objectives of a European or Ramsar Site.</p> <p>This is also known as the ‘test of likely significant effect’ (test of LSE).</p> <p>The deliverable is the Screening Report.</p>	Regulation 63(1)(a)
<p>Appropriate Assessment</p> <p>Assessment Stage 2</p>	Consideration of the effects of the proposals to determine whether or not it is possible to conclude with certainty that the development will not result in any adverse effect on the	Regulation 63(5)

HRA Process	Description	Legislative Context
	<p>integrity of European or Ramsar Site, either alone or in combination with other plans or projects and with reference to the conservation objectives of the European or Ramsar Site.</p> <p>This is also known as the test of ‘adverse effect on integrity’ (AEol).</p> <p>At this stage consent may be granted for the plan or project if it is possible to conclude with certainty that the proposal will not result in any adverse effect on the integrity of any European or Ramsar Site, either alone or in combination with other plans or projects. This stage of the assessment may also include consideration of mitigation measures to; avoid, cancel or reduce AEol’s.</p> <p>The deliverable is the Report to Inform an Appropriate Assessment.</p>	
<p>If it cannot be concluded with certainty that the proposal will not result in any adverse effect on the integrity of any European or Ramsar Site including with consideration of the mitigation hierarchy, then there will be a requirement to proceed to the next assessment stage:</p>		
<p>Assessment of Alternative Solutions</p> <p>Assessment Stage 3</p>	<p>Assess whether there is an alternative solution to the plan or project i.e. one that better protects the European or Ramsar Sites. If no such alternative solution exists,</p>	<p>Regulation 64(1)</p>

HRA Process	Description	Legislative Context
	the process continues to Assessment of IROPI.	
Assessment of IROPI Assessment Stage 4	Assess whether a plan or project can be justified as being needed for ‘imperative reasons of overriding public interest’ (IROPI).	Regulation 64(1)
Compensatory Measures	Identify and secure any necessary compensatory measures to ensure that the overall coherence of the ‘national site network’ is protected.	Regulation 68

IN-COMBINATION ASSESSMENT

3.1.5 The Habitats Regulations, taken with Government policy, require the consideration of the potential effects of a project on International Sites both alone and in-combination with other plans or projects.

3.1.6 The identification of plans and projects to include in the in-combination assessment will need to be based on the following:

- Approved plans;
- Approved, but as yet unconstructed projects; and
- Projects for which an application has been made, are currently under consideration and will be consented before the Project begins.

3.2 GUIDANCE ON THE HRA PROCESS

3.2.1 The EC guidance listed in this section has been referenced. However, The Planning Inspectorate’s Advice Note Ten (The Planning Inspectorate, 2022), which deals explicitly with HRA for NSIP (and Projects of National Significance) under the PA 2008 process, is a principal resource. That document states:

“Applicants should provide the following HRA information with their application:

- *A summary table of all International Sites and qualifying features; each impact pathway resulting in a potential effect on site features; effects considered at each HRA Stage (screening, AA/IROPI, and the derogations, as applicable),*

and for each phase of the Project (construction, operation, decommissioning, as relevant) (e.g. Section 4.2);

- *A copy of the citation/Natura 2000 data sheet for each International Site (this will be provided as part of the Report to Inform Appropriate Assessment (RIAA));*
- *A copy of the conservation objectives for all International Sites for which LSE have not been excluded and have been carried forward to AA (Stage 2) (this will be provided as part of the RIAA);*
- *A plan of the International Site(s) potentially affected in relation to the Project (as required to be submitted with the DCO application in accordance with Regulation 5(2)(l)(i) of the APFP Regulations) (Figures 4.1 to 4.5);*
- *A statement which identifies (with reasons) whether significant effects are considered to be likely in respect of International Sites in devolved administrations or within EEA States;*
- *Evidence (such as Evidence Plans, copies of correspondence, agreement logs, or Statement of Common Ground (SoCG)) of agreement between the Applicant and relevant Appropriate Nature Conservation Body (ANCBs) (including those in devolved administrations and/or relevant bodies in EEA States, where applicable) on the scope, methodologies, interpretation, and conclusions of the screening assessment (this will be provided as part of the RIAA); and*
- *Cross references to relevant draft DCO requirements, development consent obligations and any other mechanisms proposed to secure measures relied upon in the AA and derogation cases (as applicable), including the identification of any factors that might affect the certainty or efficacy of their implementation (this will be provided where relevant within the RIAA, noting that HRA and EIA processes are being progressed in parallel)."*

3.2.2 In preparing this report, consideration has been given to the relevant guidance issued by a number of Governmental, statutory and industry bodies.

3.2.3 Guidance from Government bodies includes:

- Defra. 1 January 2021. Policy paper - Changes to the Habitats Regulations 2017 (Defra, 2021);
- 'Assessment of plans and projects significantly affecting Natura 2000 Sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (European Commission, 2018);
- Managing Natura 2000 Sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018);

- Regulations and the Habitats Regulations Assessment Handbook (Tyldesley and Chapman, 2013); and
- Ministry of Housing, Communities and Local Government Online Guidance on the use of Habitats Regulations Assessment (2019)
<https://www.gov.uk/guidance/appropriate-assessment>

3.2.4 Guidance from the Statutory Bodies includes:

- MMO online guidance on Marine Licensing: impact assessments
<https://www.gov.uk/guidance/marine-licensing-impact-assessments>.
- NRW online guidance on HRA in the marine licensing process
<https://naturalresources.wales/permits-and-permissions/marine-licensing/marine-licence-habitats-regulations-assessment/?lang=en>
- NRW's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features
<https://cdn.cyfoethnaturiol.cymru/media/695250/ps006-mmmus-in-hra-position-statement-may22.pdf>.

4 IDENTIFICATION OF INTERNATIONAL SITES AND FEATURES POTENTIALLY AFFECTED BY THE WORKS

4.1 POTENTIAL EFFECTS ON INTERNATIONAL SITES AND FEATURES

- 4.1.1 International Sites in the vicinity of the activities for the Project which could potentially be influenced by the Project were identified and then taken forward to determine potential for LSE. The different qualifying features within these sites were then considered individually.
- 4.1.2 It only requires one site qualifying feature to be considered to be potentially affected by the work activities for the International Site to be considered in the test for LSE.
- 4.1.3 This screening used the conceptual ‘source-impact pathway-receptor’ model. The model was used to identify potential environmental effects resulting from the works activities. This process provides an easy-to-follow assessment route between impact sources and potentially sensitive features ensuring a transparent impact assessment. The parameters of the model are defined as follows:
- Source – the origin of a potential effect (noting that one source may have several pathways and receptors);
 - Impact pathway – the means by which the effect of the activity could impact a receptor; and
 - Receptor – the element of the receiving environment that is impacted.
- 4.1.4 A worked example of this model would be:
- Source: Construction activity;
 - Impact pathway: Visual disturbance;
 - Receptor: Intertidal birds; and
 - Potential effect: Movement of birds away from the visual disturbance.
- 4.1.5 Where there is no impact pathway, or the impact pathway is so long that the effect from the source has dissipated to a negligible level before reaching the receptor, there is justification for the screening out of that particular receptor.
- 4.1.6 Where the receptor (site qualifying feature) only occurs in the area on a seasonal basis and/or that receptor is not present in the period in which particular activities

of the Project are a source of a potential effect, there is justification for the screening out of that particular receptor.

4.1.7 Potential adverse effects of the Project on International Sites were identified using a combination of the following:

- Advice on Operations (AoO) from Natural England was considered for the Mersey Estuary SPA (in terms of birds and supporting habitat) with regards to 'electricity from renewable energy sources' which includes tidal lagoon/impoundment during decommissioning, construction and operation and maintenance;
- No AoO are currently available for the Dee Estuary SAC or Sefton Coast SAC and as such the Reg 33 advice was reviewed, however, this is dated 2010 and does not specifically consider specific operations in the same way as more recent AoO for other sites;
- Conservation Advice for European Marine Sites under regulation 37(3) of the Habitats Regulations (2017)¹; and
- Professional judgement based on experience of conducting numerous assessments of similar projects in the vicinity of International Sites. Professional judgement here is undertaken by technical specialists who have previously carried out HRA Screening for NSIP projects, have insight into the ecological impacts of developments and are appropriately experienced, knowledgeable and with relevant qualifications. This is further informed by consultee responses to approaches undertaken for previous NSIP projects.

4.2 IDENTIFYING INTERNATIONAL SITES FOR TEST OF LIKELY SIGNIFICANT EFFECTS

SITES DESIGNATED FOR INTERTIDAL/SUBTIDAL BENTHIC ECOLOGY FEATURES

4.2.1 The following text details the distance criteria used for intertidal and subtidal benthic features to identify International Sites to be taken through to the test of LSE stage (i.e. screening stage).

4.2.2 The intertidal and subtidal ecology Zol is consistent with the study area outlined in the Benthic Ecology and Plankton and Coastal Processes EIA scoping chapters, and is based on spring tidal excursion distances (considering tidal

¹ Accessed via <https://naturalresources.wales/guidance-and-advice/environmentaltopics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/conservation-advice-foreuropean-marine-sites/?lang=en>

current speeds and directions). The Zol also aligns with the modelling boundary used by HR Wallingford in their hydrodynamics and morphology assessments for the Project to date (HR Wallingford, 2023). It is anticipated that the Zol will allow for the robust characterisation of intertidal and subtidal benthic habitats and species within International Sites in the Mersey Estuary and in nearby areas outside of the estuary, as well as encompassing the Zol for all impacts from the Project. The intertidal and subtidal benthic ecology Zol is presented in **Figure 4.1**.

- 4.2.3 The Zol for intertidal and subtidal benthic ecology features overlaps with the Dee Estuary/Aber Dyfrdwy SAC (See **Figure 4.1**). The features of the Dee Estuary SAC, along with the distance of the SAC to the Project scoping boundary, are indicated in **Table 4-1**.
- 4.2.4 The Sefton Coast SAC is located within the Zol of the project site for dune features. However, none of the designated features of this site are considered to be intertidal or subtidal. Therefore, the Sefton Coast SAC is not considered within this section and is instead considered within sites designated for onshore Ecology (see **Section 4.2**).
- 4.2.5 It should be noted that consideration of benthic habitats providing supporting habitats for bird features (e.g. for the Mersey Estuary SPA) is covered within the ornithology section of this HRA Screening Report (**Section 4.2**).

Table 4-1: Sites designated for intertidal and subtidal benthic features within the Zol and considered for HRA

Site	Distance (km)	Qualifying features
The Dee Estuary /Aber Dyfrdwy SAC [UK0030131]	0	<p>[1140] Mudflats and sandflats not covered by seawater at low tide (*Priority)</p> <p>[1310] <i>Salicornia</i> and other annuals colonizing mud and sand (*Priority)</p> <p>[1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) (*Priority)</p> <p>[1210] Annual vegetation of drift lines</p> <p>[1130] Estuaries</p>

SITES DESIGNATED FOR FISH

- 4.2.6 The following text details the distance criteria used for fish features to identify International Sites to be taken through to the test of LSE stage.
- 4.2.7 There is no guidance or literature to support a specific distance for the consideration of sites with mobile fish features. Consequently, a distance of 40km has been provisionally used for mobile marine fish as a precautionary approach based on professional judgement and consideration primarily of migratory fish features. It is anticipated that this will encompass the Zol for both underwater noise and vibration and suspended sediment impact pathways. Migratory fish could pass through the Zol during migration and therefore any designated sites linked to the Mersey (i.e. tributaries which flow into the Mersey) have also been considered.
- 4.2.8 Designated sites that meet these criteria are outlined in Table 4-2, along with the distance from the scoping boundary and qualifying features.

Table 4-2: Sites designated for Migratory Fish features within the Zol and considered for HRA

Site	Distance (km)	Qualifying features
The Dee Estuary / Aber Dyfrdwy SAC [UK0030131]	0	[S1095] Sea lamprey (<i>Petromyzon marinus</i>) [S1099] River lamprey (<i>Lampetra fluviatilis</i>)
The River Dee and Bala lake / Afon Dyfrdwy a Llyn Tegid SAC [UK0030252]	10.8	[S1095] Sea lamprey (<i>Petromyzon marinus</i>) [S1099] River lamprey (<i>Lampetra fluviatilis</i>) [S1163] Bullhead (<i>Cottus gobio</i>) [S1096] Brook lamprey (<i>Lampetra planeri</i>) [S1106] Atlantic salmon (<i>Salmo salar</i>)

SITES DESIGNATED FOR MARINE MAMMALS

- 4.2.9 The following text details the distance criteria used for marine mammal features to identify International Sites to be taken through to the test of LSE stage.
- 4.2.10 Marine mammals are highly mobile species and therefore numerous effect-pathways can exist. The pathways are complex and are distributed over a vast spatial scale. Since marine mammals using International Sites further afield may travel into the Zol, the Zol of an effect cannot be used alone as a distance to screen in relevant conservation sites. Therefore, search areas for each receptor group have been applied taking into consideration other information, such as foraging ranges and management units (MUs), for the initial screening of sites.
- 4.2.11 For cetaceans, the HRA screening primarily focuses on the potential for connectivity between individual species from designated populations within the relevant MU (IAMMWG, 2023) (**Figure 4.3**) and the Project Scoping boundary (clear source-pathway-receptor relationship). The boundaries of an MU are based on the best understanding of the structure of biological populations and ecological differentiation within such populations, also taking into account

political boundaries and the management of human activities. Therefore, a MU may be smaller than what is considered to be a 'population', to reflect spatial differences in human activities and their management (IAMMWG, 2023).

- 4.2.12 The Inter-Agency Marine Mammal Working Group (IAMMWG, 2023) has identified MUs for harbour porpoise and bottlenose dolphin and these have been used to inform the identification of International Sites for these qualifying features.
- 4.2.13 Typical foraging ranges from Carter et al. (2022) have been used to inform the potential for connectivity with International Sites for harbour and grey seals. The Zol for harbour and grey seals are 50km and 100km, respectively, which is based on the average foraging distance of the respective species, obtained from a meta-analysis of data from telemetry tagged individuals (**Figure 4.4**).

Cetaceans

- 4.2.14 The harbour porpoise is the most abundant cetacean species in UK waters and is the most regularly observed cetacean within the Scoping Boundary and surrounding environs (SWF, 2023).
- 4.2.15 The IAMMWG identified MUs for harbour porpoise and provided recommended abundance estimates for each MU (IAMMWG 2023). The Project is located within the Celtic and Irish Seas (CIS) MU, where the abundance estimates for the harbour porpoise are 16,777 (CV=0.2) for the UK portion of the CIS MU (defined by the Exclusive Economic Zone (EEZ)) (IAMMWG, 2023; Hammond *et al.*, 2021; Rogan *et al.*, 2018). The Project Scoping boundary overlaps with the SCANS-III survey block F (Hammond *et al.*, 2021) which has an estimated density of 0.086 animals/km² (CV=0.38; Hammond *et al.*, 2021; IAMMWG, 2023). The estimated harbour porpoise density for the SCANS IV CS-E block is 0.5153 animals/km² (CV=0.250) (Gilles *et al.*, 2023). The closest SAC where harbour porpoises are a designated feature is North Anglesey SAC which is 77km from the Scoping Boundary.
- 4.2.16 Bottlenose dolphins occur in relatively small numbers throughout the Irish Sea, with a coastal population along north and west Wales with higher densities recorded in southern Cardigan Bay, and with moderately high densities also extending to Anglesey (Baines and Evans, 2012). The abundance of bottlenose dolphins in the Cardigan Bay area in 2016 was estimated to be 289 individuals (CI = 44-160, CV = 0.33) (Lohrengel *et al.*, 2018). Abundance estimates of bottlenose dolphins are 186 (CV=0.52) for the UK portion of the Irish Sea (IS) MU (IAMMWG, 2023; Hammond *et al.*, 2021; Rogan *et al.*, 2018), which is lower than that of the abundance estimate for Cardigan Bay (Lohrengel *et al.*, 2018);

therefore, it is likely that the abundance estimates for bottlenose dolphins in the IS MU is an underestimate. This supposition is supported by the most recent SCANS surveys, which estimates a density of 0.0104 animals/km² (CV=0.700) (Gilles et al., 2023).

- 4.2.17 Bottlenose dolphins are sighted occasionally within the Scoping Boundary and surrounding environs, with one record occurring within the Scoping Boundary in 2000 (SWF, 2023; NBN, 2023). The closest SACs where bottlenose dolphins are a designated feature are Pen Llŷn a'r Sarnau Peninsula SAC and Cardigan Bay SAC, which are located 80km and 140km from the Scoping Boundary, respectively (**Table 4-4** and **Figure 4.5**).
- 4.2.18 Harbour porpoises and bottlenose dolphins were added as Qualifying Interest (QIs) in March 2024 to existing sites within Irish waters; these sites have been captured within this HRA Screening Report (**Table 4-4** and **Figure 4.5**).

Pinnipeds

- 4.2.19 Grey seals occur throughout UK waters, and those in the UK are considered to be part of a meta-population that also inhabits adjacent jurisdictions (JNCC, 2019). Telemetry data for grey seals tagged in UK waters have shown connectivity between the east coast of Ireland, Northern Ireland, Wales, south-west England and the south-west coast of Scotland. Grey seals are present off all UK coasts and were reported at low relative abundances throughout the Irish sea, with these individuals being predominantly sighted in inshore waters. Grey seals typically forage up to 100km off the coast and telemetry studies indicate individual movement between haul-out sites (Carter et al., 2022). Grey seals are particularly vulnerable to disturbance during the breeding season (August to December) and moulting season (December to April) (SCOS, 2021; SCOS, 2022). The latest population estimate for grey seals in the UK, taken at the start of the 2022 breeding season, is 162,000 individuals (approximately 95% CI 146,7000-178,5000) (SCOS, 2022). Effort-based surveys by Sea Watch Foundation recorded a high concentration of seal sightings near Dee Estuary, in the south of the Scoping Boundary (SWF, 2023). The Scoping Boundary falls within 0.1% of the at sea-population (Carter et al., 2020). Pen Llŷn a'r Sarnau Peninsula SAC, located 80km from the Scoping Boundary, is the only SAC which falls within the Zol for which grey seals are a designated feature.
- 4.2.20 The latest population estimate for harbour seals in the UK, based on surveys between 2016 and 2021, is 42,900 (approximately 95% CI, 35,100-57,000) individuals (SCOS, 2022). Harbour seals are not frequently sighted within Wales or north-west England; the most recent estimated counts in 2021 for harbour seals within the North West England MU is 7 individuals (CV = 5-9) and within

the Wales MU is 13 individuals (CV = 11-18) (SCOS, 2022). There are limited effort-based data available for the harbour seal within the Scoping Boundary; the effort-based surveys by Sea Watch Foundation near Dee Estuary did not report any harbour seals (only grey seals). The Scoping Boundary falls within 0.005% of the at sea-population (Carter et al., 2020). Only one sighting of a harbour seal within the Scoping Boundary and surrounding environs was reported by SWF (2023). No SACs designated for harbour seal fall within the Zol.

Table 4-3: The Zols used for each of the Annex II marine mammal species

Receptor species	Zol	Source/Reference
Harbour porpoise	Celtic and Irish Sea (CIS) MU	IAMMWG (2023)
Bottlenose dolphin	Irish Sea (IS) MU	IAMMWG (2023)
Grey seal	100km	Carter <i>et al.</i> (2022)
Harbour seal	50km	Carter <i>et al.</i> (2022)

4.2.21 The following International Sites have been identified within the Zol for marine mammal features (**Figure 4.1**).

Table 4-4: Sites designated for marine mammals within the Zol and considered for HRA

Site	Distance (km)	Qualifying features
North Anglesey Marine SAC [UK0030398]	77	Harbour porpoise
Pen Llŷn a'r Sarnau Peninsula SAC [UK0013117]	80	Bottlenose dolphin Grey seal
West Wales Marine SAC [UK0030397]	112	Harbour porpoise
Cardigan Bay SAC [UK0012712]	140	Bottlenose dolphin

Site	Distance (km)	Qualifying features
North Channel SAC [UK0030399]	158	Harbour porpoise
Codling Fault SAC [IE003015]	169	Harbour porpoise
Rockabil to Dalkey Island SAC [IE003000]	193	Harbour porpoise
Lambay Island SAC [IE000204]	195	Harbour porpoise
The Bristol Channel Approaches SAC [UK0030396]	204	Harbour porpoise
Blackwater Bank SAC [IE0002953]	230	Harbour porpoise
Carnsore Point SAC [IE0002269]	250	Harbour porpoise
Hook Head SAC [IE0000764]	285	Bottlenose dolphin Harbour porpoise
Bunduff, Lough and Machair/ Trawalua/ Mullaghmore SAC [IE0000625]	367	Harbour porpoise
Nord Bretagne DH SAC [FR2502022]	400	Harbour porpoise
Récifs de la Hague SAC [FR2500084]	405	Harbour porpoise
Anse de Vauville SAC [FR2502019].	414	Harbour porpoise
Kilkieran Bay and Islands SAC [IE0002111]	431	Harbour porpoise

Site	Distance (km)	Qualifying features
Banc et récifs de Surtainville SAC [FR2502018]	434	Harbour porpoise
Inishmore Island SAC [IE0000213]	436	Harbour porpoise
West Connacht Coast SAC [IE002998]	446	Harbour porpoise
Kenmare River SAC [IE0002158]	475	Harbour porpoise
Tregor Goëlo SAC [FR5300010]	477	Harbour porpoise
Roaringwater Bay and Islands SAC [IE000101]	478	Harbour porpoise
Chausey SAC [FR3102003]	486	Harbour porpoise
Cap d'Erquy-Cap Fréhel SAC [FR5300011]	503	Harbour porpoise
Baie de Morlaix SAC [FR5300015]	506	Harbour porpoise
Baie du Mont Saint-Michel SAC [FR2500077]	511	Harbour porpoise
Mers Celtiques-Talus du golfe de Gascogne SAC [FR5302015]	516	Harbour porpoise
Baie de Saint-Brieuc – Est SAC [FR5310050]	517	Harbour porpoise
Blasket Islands SAC [IE002172]	520	Harbour porpoise
Baie de Lancieux, Baie de l'Arguenon, Archipel de	522	Harbour porpoise

Site	Distance (km)	Qualifying features
Saint Malo et Dinard SAC [FR5300012]		
Abers – Côte des Légendes SAC [FR5300017]	526	Harbour porpoise
Ouessant-Molène SAC [FR5300018]	551	Harbour porpoise
Côtes de Crozon SAC [FR5302006]	574	Harbour porpoise
Chaussée de Sein SAC [FR5302007]	597	Harbour porpoise
Belgica Mound Province SAC [IE0002327]	623	Harbour porpoise

SITES DESIGNATED FOR OFFSHORE AND INTERTIDAL ORNITHOLOGICAL FEATURES

4.2.22 The following text details the criteria used for offshore and intertidal bird features to identify International Sites to be taken through to the test of LSE stage. All bird species mentioned are presented within Appendix 3

4.2.23 For marine and intertidal ornithological features of International Sites which overlap in geographic extent or have the potential for connectivity there is potential for impact from project infrastructure and proposed works located within the onshore, intertidal and offshore environments. The separation of the three environments is as follows:

- The onshore environment considers birds occurring landward above Mean High Water Springs (MHWS).
- The intertidal environment considers birds occurring on land that is exposed between the Mean Low Water Springs (MLWS) mark and MHWS.
- The offshore environment considers birds using the water (both on and below the surface) and the air above that water seaward of the MLWS.

4.2.24 The terms onshore, intertidal and offshore therefore refer to environments for which both the Project infrastructure and ornithological features which may reside within such environment, rather than a specific set of features. As a result,

some species (such as gulls and terns) may occur in multiple environments, though the impact pathways within the environments may differ.

- 4.2.25 The approach adopted for this LSE screening report focuses on the ornithological qualifying features for which there is considered to be a potential for impact as a result of the Project. Whilst pathways to individual features are identified, the consideration for the HRA is acknowledged to be for the integrity of the International Site as a whole.
- 4.2.26 Due to the nature of the Project, there is potential for impacts to qualifying features beyond the Scoping Boundary, and there could be alterations to the exposure and inundation of mudflat and saltmarsh habitat in Liverpool Bay arising from the Project, as discussed in **Section 2.6**. Alterations to the extent of habitat which is available to birds for foraging and roosting could result in impacts on qualifying features, hence impacts beyond the Scoping Boundary have been considered.
- 4.2.27 The Offshore and Intertidal Ornithology Zol is consistent with the study area outlined in the Benthic Ecology and Plankton and Coastal Processes EIA scoping chapters, and is based on spring tidal excursion distances (considering tidal current speeds and directions). It is anticipated that the Zol will allow for the robust characterisation of bird species within International Sites in the Mersey Estuary and in nearby areas outside of the estuary, as well as encompassing the Zol for all impacts from the Project and is hereafter referred to as the Study Area. The Study Area is presented in **Figure 4.6**.
- 4.2.28 Identification of possible connectivity between the Study Area and relevant designated sites has been identified using the following criteria:
- The designated site boundary has direct overlap with the Study Area;
 - The designated site is ‘functionally linked’, where the qualifying feature’s range may interact with the Study Area;
- 4.2.29 Species that are qualifying features of International Sites may be mobile and not confined to the boundary of the designated site. For example, wintering waterbirds may forage or migrate in marine or intertidal areas outside of the designated site. Although these marine or intertidal areas are not part of the International Site, it is ‘functionally linked’ because it serves a function for the qualifying features of the designated site. Account has to be taken of such functionally linked land since, for instance, the loss of such areas to development could potentially adversely affect the survival of those wintering waterbirds and lead to a reduction in the population of birds within the designated site.

4.2.30 As noted above, avian species are highly mobile and there is the potential for impacts on qualifying features of International Sites which are not within the Study Area, if there is functional linkage, and hence will be screened in. The potential for the Study Area to be functionally linked varies between species and is based on guidance relating to species' foraging ranges. Due to differences in species ecology, the foraging ranges of qualifying features varies, and therefore the potential for connectivity will be dependent on the species in question. Specific connectivity distances differ for bird species and assemblages, and those for the marine and intertidal search areas are described below. European Sites that are within connectivity distance for their designated features will then be screened in, whilst European Sites outside of connectivity distance for their designated features will be screened out.

Offshore Ornithology

- 4.2.31 There is no guidance or literature to support a specific connectivity distance for the consideration of sites with seabird features, however, using professional judgement, it is considered that breeding colonies up to 236km (the mean max foraging range plus one standard deviation for lesser black-backed gull *Larus fuscus*) (Woodward *et al.*, 2019) from the Study Area may have connectivity. Lesser black-backed gull is the seabird species with the largest foraging range which is likely to exhibit connectivity to the Zol.
- 4.2.32 As seabirds generally avoid overland flights, sites on the east coast have been excluded from consideration, as the distance required for birds associated with these sites to fly to the Study Area are in effect, much greater than they would be if measured in a straight line.
- 4.2.33 This 236km buffer of the Study Area is defined as the Marine Ornithology HRA Connectivity Area. It is considered that breeding colonies within this area may have connectivity to the Study Area, where it falls within a qualifying feature's mean-max foraging range. The Marine Ornithology HRA Connectivity Area is presented in **Figure 4.6**.
- 4.2.34 For the consideration of sites with non-breeding seabird features, a 15km distance has been used (NatureScot, 2023), with the exception of wintering gulls, where it is recommended that connectivity is determined using breeding foraging ranges (NatureScot, 2023; Woodward *et al.*, 2019). It is considered that non-breeding populations within this distance may have connectivity, where the Study Area has the potential to support non-breeding, foraging birds at these sites.
- 4.2.35 More distant sites have the potential for functional linkage to the Study Area, should they be designated for wide-ranging seabirds, such as Manx shearwater

(*Puffinus puffinus*), storm petrel (*Hydrobates pelagicus*), fulmar (*Fulmarus glacialis*) and gannet (*Morus bassanus*). However, no sites over 236km from the ZoI have been included within the Marine Ornithology HRA Connectivity Area as the Study Area would constitute a negligible proportion of the overall foraging range of the respective species. Additionally, it is not anticipated that birds from these colonies will reach the Study Area in sufficient numbers to warrant consideration for the test of LSE. Mean-max foraging ranges (+/- 1 standard deviation where available) from Woodward et al. 2019 are presented in Table 4-5 Table 4-5.

Table 4-5: Mean max foraging ranges plus one standard deviation (SD) for breeding marine seabird species, from Woodward et al., (2019)

Species	Mean Max Foraging Range Plus One Standard Deviation (km)
Eider	21.5
Storm petrel	400.6
Leach’s storm petrel	N/A
Fulmar	1,200.2
Manx shearwater	2,365.5
Gannet	509.4
Shag	23.7
Cormorant	33.9
Kittiwake	300.6
Black-headed gull	18.5
Mediterranean gull	20.0
Common gull	50.0
Great black-backed gull	73.0
Herring gull	85.6
Lesser black-backed gull	236.0
Sandwich tern	57.5
Little tern	5.0

Species	Mean Max Foraging Range Plus One Standard Deviation (km)
Roseate tern	23.2
Common tern	26.9
Arctic tern	40.5
Great skua	931.2
Arctic skua	N/A
Guillemot	153.7
Razorbill	164.6
Black guillemot	9.1
Puffin	265.4

- 4.2.36 As is best practice, the mean max foraging range plus one SD has been chosen as this is most representative of the species behaviour at a population level. The inclusion of one SD (also known as standard error) acknowledges uncertainty in the data.
- 4.2.37 The wide-ranging nature of seabird features is such that alternative marine habitat is available for foraging and for other functions (e.g. loafing/bathing) where any temporary effects during construction and deconstruction occur. During operation and maintenance phases, effects may become permanent or long-term as the tidal barrage and associated infrastructure will remain in-situ for the lifetime of the Project. The actual footprint of habitat loss (defined as the area in which structures are in direct contact with the seabed or surface) however, would be negligible in the context of the foraging ranges of breeding colony seabird populations beyond the Marine Ornithology HRA Connectivity Area.
- 4.2.38 Analysis of spatial variation of seabird species by Waggitt et al., (2019) also shows that these large-ranging, mobile seabird species demonstrate a very low predicted density within the Study Area. On this basis, it is considered that the potential for LSE on breeding seabird populations outside the Marine Ornithology HRA Connectivity Area can be excluded as these effects would be negligible, during all phases.

Intertidal Ornithology

- 4.2.39 There is no guidance specific to England regarding connectivity distance for the consideration of sites with intertidal bird species. NatureScot guidance (which is considered applicable) states a maximum core foraging range of 20km for pink-footed geese (NatureScot, 2016; Mitchell, 2012), and for waterfowl species or waders during the non-breeding season, it is considered that there is unlikely to be functional linkage to sites further than 15km from the Study Area (NatureScot, 2023). As a precaution, an Intertidal Ornithology HRA Connectivity Area of 20km has been used for consideration of sites with intertidal bird species. The Intertidal Ornithology HRA Connectivity Area is presented in **Figure 4.7**.

Table 4-6: International Sites within the specified Marine and Intertidal Ornithology Study Areas which have been considered for HRA screening

Site Name	Distance (km)	Designation	Qualifying Features
Mersey Estuary SPA/Ramsar	0	SPA/Ramsar	Shelduck (non-breeding) Teal (non-breeding) Pintail (non-breeding) Golden plover (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Redshank (non-breeding) Waterbird assemblage
Ribble and Alt Estuaries SPA/Ramsar	0	SPA/Ramsar	Bewick's swan (non-breeding) Whooper swan (non-breeding) Pink-footed goose (non-breeding) Shelduck (non-breeding) Wigeon (non-breeding) Teal (non-breeding) Pintail (non-breeding) Oystercatcher (non-breeding) Ringed plover (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Ruff (breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Redshank (non-breeding)

Site Name	Distance (km)	Designation	Qualifying Features
			Lesser black-backed gull (breeding) Common tern (breeding) Waterbird assemblage Seabird assemblage
The Dee Estuary SPA/Ramsar	0	SPA/Ramsar	Shelduck (non-breeding) Teal (non-breeding) Pintail (non-breeding) Oystercatcher (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Sandwich tern (non-breeding) Common tern (breeding) Little tern (breeding) Waterbird assemblage
Liverpool Bay SPA	0	SPA	Red-throated diver (non-breeding) Common scoter (non-breeding) Little gull (non-breeding) Common tern (breeding) Little tern (breeding) Waterbird assemblage

Site Name	Distance (km)	Designation	Qualifying Features
Mersey Narrows and North Wirral Foreshore SPA/Ramsar	0	SPA/Ramsar	Bar-tailed godwit (non-breeding) Little gull (non-breeding) Knot (non-breeding) Common tern (breeding and non-breeding) Waterbird assemblage
Martin Mere SPA/Ramsar	8.72	SPA/Ramsar	Bewick's swan (non-breeding) Whooper swan (non-breeding) Pink-footed goose (non-breeding) Teal (non-breeding) Pintail (non-breeding) Waterbird assemblage
Midland Meres & Mosses Ramsar	7.10	Ramsar	Cormorant (non-breeding) Gadwall (non-breeding) Pochard (non-breeding) Shoveler (non-breeding)

Site Name	Distance (km)	Designation	Qualifying Features
Morecambe Bay and Duddon Estuary SPA/Ramsar	12.85	SPA/Ramsar	Whooper swan (non-breeding) Little egret (non-breeding) Golden plover (non-breeding) Bar-tailed godwit (non-breeding) Ruff (non-breeding) Mediterranean gull (non-breeding) Little tern (breeding) Sandwich tern (breeding) Common tern (breeding) Pink-footed goose (non-breeding) Shelduck (non-breeding) Pintail (non-breeding) Oystercatcher (non-breeding) Grey plover (non-breeding) Ringed plover (non-breeding) Curlew (non-breeding) Black-tailed godwit (non-breeding) Turnstone (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Redshank (non-breeding) Lesser black-backed gull (breeding and non-breeding) Herring gull (breeding) Waterbird assemblage Seabird assemblage
Bowland Fells SPA/Ramsar	26.34	SPA/Ramsar	Lesser black-backed gull (breeding)

Site Name	Distance (km)	Designation	Qualifying Features
Anglesey Terns / Morwenoliaid Ynys Mon SPA/Ramsar	31.17	SPA/Ramsar	Arctic tern (breeding) Common tern (breeding) Roseate tern (breeding) Sandwich tern (breeding)
Ynys Seiriol / Puffin Island SPA/Ramsar	31.88	SPA/Ramsar	Cormorant (breeding)
Irish Sea Front SPA	93.40	SPA	Manx shearwater (breeding)
Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA	94.47	SPA	Manx shearwater (breeding) Cormorant (breeding and non-breeding)
Outer Ards SPA/Ramsar	155.19	SPA/Ramsar	Arctic tern (breeding) Golden plover (non-breeding) Light-bellied brent goose (non-breeding) Ringed plover (non-breeding) Turnstone (non-breeding) Manx shearwater (breeding)
Strangford Lough SPA/Ramsar	155.9	SPA/Ramsar	Sandwich tern (breeding) Common tern (breeding) Arctic tern (breeding) Light-bellied brent goose (non-breeding) Redshank (non-breeding) Knot (non-breeding) Shelduck (non-breeding) Bar-tailed godwit (non-breeding) Golden plover (non-breeding) Waterbird assemblage

Site Name	Distance (km)	Designation	Qualifying Features
Rockabill SPA	159.54	SPA	Purple sandpiper (non-breeding) Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding)
Lambay Island SPA	161.73	SPA	Fulmar (breeding) Cormorant (breeding) Shag (breeding) Greylag goose (non-breeding) Lesser black-backed gull (breeding) Herring gull (breeding) Kittiwake (breeding) Guillemot (breeding) Razorbill (breeding) Puffin (breeding)
Copeland Islands SPA	178.79	SPA	Arctic tern (breeding) Manx shearwater (breeding)
Howth Head Coast SPA	165.21	SPA	Kittiwake (breeding)
Ireland's Eye SPA	166.00	SPA	Cormorant (breeding) Herring gull (breeding) Kittiwake (breeding) Guillemot (breeding) Razorbill (breeding)

Site Name	Distance (km)	Designation	Qualifying Features
Skerries Islands SPA	167.36	SPA	Cormorant (breeding) Shag (breeding) Light-bellied brent goose (non-breeding) Purple sandpiper (non-breeding) Turnstone (non-breeding) Herring gull (breeding and non-breeding)
The Murrough SPA	168.84	SPA	Red-throated diver (non-breeding) Greylag goose (non-breeding) Light-bellied brent goose (non-breeding) Wigeon (non-breeding) Teal (non-breeding) Black-headed gull (non-breeding) Herring gull (non-breeding) Little tern (breeding)
Wicklow Head SPA	169.42	SPA	Kittiwake (breeding)
Dalkey Islands SPA	168.82	SPA	Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding)
Carlingford Lough SPA/Ramsar	177.20	SPA/Ramsar	Sandwich tern (breeding) Light-bellied brent goose (non-breeding)

Site Name	Distance (km)	Designation	Qualifying Features
South Dublin Bay and River Tolka Estuary SPA	171.98	SPA	Light-bellied brent goose (non-breeding) Oystercatcher (non-breeding) Ringed plover (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Bar-tailed godwit (non-breeding) Redshank (non-breeding) Black-headed gull (non-breeding) Roseate tern (non-breeding) Common tern (breeding) Arctic tern (non-breeding)
North-west Irish Sea SPA	182.2	SPA	Fulmar (breeding and non-breeding) Cormorant (breeding) Shag (breeding) Lesser black-backed gull (breeding) Herring gull (breeding and non-breeding) Kittiwake (breeding and non-breeding) Roseate Tern (breeding) Common tern (breeding) Arctic tern (breeding) Little tern (breeding) Guillemot (breeding and non-breeding) Razorbill (breeding and non-breeding) Puffin (breeding) Red-throated diver (non-breeding) Little gull (non-breeding) Black-headed gull (non-breeding) Common gull (non-breeding) Great black-backed gull (non-breeding)

Site Name	Distance (km)	Designation	Qualifying Features
			Manx shearwater (breeding) Great northern diver (non-breeding) Common scoter (non-breeding)
Belfast Lough SPA/Ramsar	190.23	SPA/Ramsar	Bar-tailed godwit (non-breeding) Black-tailed godwit (non-breeding) Common tern (breeding) Arctic tern (breeding) Redshank (non-breeding)
Boyne Estuary SPA	180.02	SPA	Shelduck (non-breeding) Oystercatcher (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Lapwing (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Black-tailed godwit (non-breeding) Redshank (non-breeding) Turnstone (non-breeding) Little tern (breeding)
Larne Lough SPA/Ramsar	195.95	SPA/Ramsar	Light-bellied brent goose (non-breeding) Mediterranean gull (breeding) Roseate tern (breeding) Common tern (breeding) Sandwich tern (breeding)
Ailsa Craig SPA	205.45	SPA	Gannet (breeding) Lesser black-backed gull (breeding) Guillemot (breeding) Kittiwake (breeding) Herring gull (breeding)

Site Name	Distance (km)	Designation	Qualifying Features
			Seabird assemblage
Poulaphouca Reservoir SPA	196.84	SPA	Greylag goose (non-breeding) Lesser black-backed gull (non-breeding)
Lough Neagh and Lough Beg SPA/Ramsar	211.67	SPA/Ramsar	Bewick's swan (non-breeding) Goldeneye (non-breeding) Pochard (non-breeding) Scaup (non-breeding) Tufted duck (non-breeding) Whooper swan (non-breeding) Common tern (breeding) Great-crested grebe (breeding and non-breeding) Waterbird assemblage
Skomer, Skokholm and the Seas off Pembrokeshire SPA	207.08	SPA	Storm petrel (breeding) Short-eared owl (breeding) Manx shearwater (breeding) Puffin (breeding) Lesser black-backed gull (breeding) Seabird assemblage
Grassholm SPA	218.26	SPA	Gannet (breeding)
Wexford Harbour and Slobs SPA	218.06	SPA	Little grebe (non-breeding) Great crested grebe (non-breeding)

Site Name	Distance (km)	Designation	Qualifying Features
			<p> Cormorant (non-breeding) Grey heron (non-breeding) Bewick's swan (non-breeding) Whooper swan (non-breeding) Light-bellied brent goose (non-breeding) Shelduck (non-breeding) Wigeon (non-breeding) Teal (non-breeding) Mallard (non-breeding) Pintail (non-breeding) Scaup (non-breeding) Goldeneye (non-breeding) Red-breasted merganser (non-breeding) Coot (non-breeding) Oystercatcher (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Lapwing (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Black-headed gull (non-breeding) Lesser black-backed gull (non-breeding) Little tern (breeding) Greenland white-fronted goose (non-breeding) </p>

Site Name	Distance (km)	Designation	Qualifying Features
North Bull Island SPA	167.91	SPA	Light-bellied brent goose (non-breeding) Shelduck (non-breeding) Teal (non-breeding) Pintail (non-breeding) Shoveler (non-breeding) Oystercatcher (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Turnstone (non-breeding) Black-headed gull (non-breeding) Wetland and Waterbirds
Lady's Island Lake SPA	227.88	SPA	Gadwall (non-breeding) Black-headed gull (breeding) Sandwich tern (breeding) Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding) Wetland and Waterbirds
Dundalk Bay SPA	182.71	SPA	Great-crested grebe (non-breeding) Greylag goose (non-breeding) Light-bellied brent goose (non-breeding) Shelduck (non-breeding) Teal (non-breeding)

Site Name	Distance (km)	Designation	Qualifying Features
			<p> Mallard (non-breeding) Pintail (non-breeding) Common scoter (non-breeding) Red-breasted merganser (non-breeding) Oystercatcher (non-breeding) Ringed plover (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Lapwing (non-breeding) Knot (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Black-headed gull (non-breeding) Common gull (non-breeding) Herring gull (non-breeding) </p> <p>Wetland and Waterbirds</p>
River Nanny Estuary and Shore SPA	177.85	SPA	<p> Oystercatcher (non-breeding) Ringed plover (non-breeding) Golden plover (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Herring gull (non-breeding) </p> <p>Wetland and Waterbirds</p>
Seas of Wexford SPA	179.99	SPA	<p> Red-throated diver (non-breeding) Fulmar (breeding) Manx shearwater (breeding) </p>

Site Name	Distance (km)	Designation	Qualifying Features
			Gannet (breeding) Cormorant (breeding and non-breeding) Shag (breeding) Common scoter (non-breeding) Mediterranean gull (breeding) Black-headed gull (breeding) Lesser black-backed gull (breeding) Herring gull (breeding) Kittiwake (breeding) Sandwich tern (breeding) Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding) Little tern (breeding) Guillemot (breeding) Razorbill (breeding) Puffin (breeding)

*Terrestrial species that are a qualifying feature of any International Site have been omitted from this table as they are considered elsewhere.

SITES DESIGNATED FOR ONSHORE ECOLOGY FEATURES

- 4.2.40 The following text details the criteria used for onshore terrestrial ecology features to identify International Sites to be taken through to the test of LSE stage.
- 4.2.41 This section considers only the onshore ecology aspects of the Project, namely the Grid Connection Development Area and associated enabling works, along with the port and marine facilities (alongside the River Mersey).
- 4.2.42 The tidal barrage (as Tidal Barrage Development Area) is considered as entirely marine, and this is considered and described in the relevant marine Sections above (**Sections 4.2.1 – 4.2.4**) of the HRA Screening. In addition, the port and marine facilities have marine ecology considerations (along with onshore ecology) are these are also considered within the marine sections above (**Sections 4.2.1 – 4.2.4**). It should be noted that there are linkages between the Barrage Development Area, port and marine facilities and Grid Connection Development Area such as the operational landfall for the grid connection, connections to active travel and recreational areas. However, for this section these will be assessed on the basis of the port and marine facilities and then associated connectivity to the wider Grid Connection Development Area, as the onshore ecology elements start at these locations.
- 4.2.43 The Zol for the onshore ecology assessment is dependent on the specific ecological features under assessment. In establishing the extent of the Zol for terrestrial ecology, consideration has been paid to the nature of the activities associated with the Project both at the construction, operational and decommissioning stages.
- 4.2.44 The onshore ecology 'Scoping Boundary' (Scoping Boundary') was determined to encompass an overall Grid Connection development Area, which encompasses the port and marine facilities buffer (and the river itself) (see **Figures 4.6 and 4.7**). The wider area considered in terms Zol beyond the Scoping Boundary is defined as follows.
- 4.2.45 For International Sites, the Zol comprised the onshore ecology Scoping Boundary plus an additional:
- 10km radius for Special Areas of Conservation (SAC) and Ramsars with only qualifying habitat features; and
 - 20km for Special Protection Areas (SPA) and Ramsar Sites with qualifying bird features.
- 4.2.46 This was considered to be proportionate to the nature of the Project, and sufficient for consideration of onshore ecology features that could be affected by

construction and operational activities (these being precautionary distances for which it is considered that such activities could result in LSE on qualifying habitats and species). **Figure 4.6** shows the relevant SACs within the 10km Zol and **Figure 4.7** shows SPA and Ramsar Sites within the 20km Zol.

- 4.2.47 Functionally linked land is land not within the boundary of the International Sites identified but serves a function for the qualifying features of the given designated site), as described in **section 1.4.15** (see above). Account must be taken of such functionally linked land since, for instance, the loss of such areas to development could potentially adversely affect the survival of the qualifying species. In terms of functionally linked land, this is considered here to be any land between the Project and the specific European Site, within the Scoping Boundary and Zol, that may be impacted by the works, and therefore potential impact pathways identified could cause LSE associated with the Project.
- 4.2.48 There were four SACs identified within 10km of the onshore ecology Scoping Boundary.
- 4.2.49 Two SPA and/or Ramsar Sites are of consideration for onshore ecology within 20km of the Scoping Boundary.
- 4.2.50 It should be noted that the Midlands Meres Ramsar Sites (approximately 18km at the nearest point (within 20km)) are designated based on wetland habitats (rather than bird assemblages) and the likely Zol for these sites would be based on a 10km search area from the Scoping Boundary and therefore these sites have been scoped out from further assessment.
- 4.2.51 In addition, the several of the SPAs and Ramsar Sites that come within 20km Zol of the Scoping Boundary shown in **Figure 4.7** (e.g. Mersey Estuary Ramsar and SPA, Mersey Narrows and North Wirral Foreshore Ramsar and SPA, Liverpool Bay SPA and the Dee Estuary SPA) are only relevant to the Marine Ecology element of the HRA (**Sections 4.2.9 – 4.2.21**) and are not relevant to the onshore ecology features. Therefore, these are not considered further in the onshore ecology Screening Sections.
- 4.2.52 In addition, functionally linked land considerations for the above SPAs, which may be relevant to the Grid Connection, are considered in the marine ornithology sections and are not repeated here.
- 4.2.53 A list of the relevant sites and their reason for designation is presented within **Table 4-7**.

Table 4-7: International Sites within the Zol for ornithology, 10k (SACs) and 20km (SPAs and Ramsar), and considered for HRA screening

Site Name	Distance (km)	Designation	Qualifying Features
Sefton Coast	Adjacent	SAC	<p>Annex 1 Habitats: 2110 Embryonic shifting dunes; 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes)"; 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes)" * Priority feature; 2170 Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) and 2190 Humid dune slacks.</p> <p>Annex 2 Species: 1395 Petalwort <i>Petalophyllum ralfsii</i> (as a primary reason for site selection); and 1166 Great crested newts <i>Triturus cristatus</i> (not a primary reason for site selection).</p>
Dee Estuary	Adjacent	SAC	<p>Annex 1 Habitats: 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts; 2110 Embryonic shifting dunes; 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes)", 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes)" * Priority feature; 2190 Humid dune slacks.</p> <p>Annex 2 Species: 1395 Petalwort,</p>
River Dee and Bala Lake	7km to the south	SAC	<p>Annex 1 Habitats: 3260 Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation.</p> <p>Annex 2 Species: 1831 Floating water-plantain <i>Luronium natans</i>; 1355 Otter <i>Lutra lutra</i>; 1096 Brook lamprey <i>Lampetra planeri</i>; and 1163 Bullhead <i>Cottus gobio</i></p>

Site Name	Distance (km)	Designation	Qualifying Features
Deeside and Buckley Newt Sites	8.3km to the south-west	SAC	Annex 1 Habitats: 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles. Annex 2 Species: 1166 Great crested newt
Martin Mere	17.8km to the north-east	SPA	Qualifying species: <i>Cygnus columbianus bewickii</i> Bewick's swan (non-breeding); <i>Cygnus cygnus</i> Whooper swan (non-breeding); <i>Anser brachyrhynchus</i> Pink-footed goose (non-breeding); <i>Anas crecca</i> Eurasian teal (non-breeding); and <i>Anas acuta</i> Northern pintail (non-breeding). Waterbird Assemblage is noted as a qualifying feature.
Martin Mere	17.8km to the north-east	Ramsar	A low-lying complex of open water, marsh and grassland habitats overlying deep peat and occupying part of the former site of a large freshwater lake. Numbers of wintering waterbirds regularly exceed 20,000 individuals and include internationally important numbers of swans, ducks and geese. Wintering and passage ruff <i>Philomachus pugnax</i> (passage flock of 50), and scarce or rare plant and invertebrate species, are also features of national importance.

5 SCREENING: TEST OF LIKELY SIGNIFICANT EFFECTS

- 5.1.1 This test of LSE section is split into benthic ecology, fish, marine mammals, offshore and intertidal ornithology, and onshore ecology. Each section includes details of the site, distance to the project, qualifying features or species, the impact pathways, whether there is a LSE and the justification and the conclusion of whether the site has been screened in or out of further assessment (i.e. Stage 2 of the HRA process).
- 5.1.2 The HRA Stage 1 Screening assessment has been made in the absence of mitigation measures. A decision by the Court of Justice of the European Union (CJEU) 'People Over Wind and Sweetman v Coillte Teoranta' (C-323/17) (CJEU 2018) dictates that measures intended to avoid or reduce the harmful effects of a proposed project on a European site may no longer be taken into account by competent authorities at the HRA screening stage when judging whether a proposed plan or project is likely to have a significant effect on the integrity of a European designated site. Consistent with C- 323/17, the potential for interest features to be adversely impacted by the Project is initially assessed in the absence of design mitigation i.e. in the absence of those measures which are accepted or known impact reducing measures. By assessing LSE initially in this manner, a transparent assessment is ensured.
- 5.1.3 Stage 2 Appropriate Assessment will determine whether adverse effects on International Sites are likely, and whether they can be avoided by mitigation measures. The Stage 2 assessment will be provided in the RIAA.

5.2 BENTHIC AND INTERTIDAL ECOLOGY

PATHWAYS FOR LSE: POTENTIAL IMPACTS ON INTERTIDAL AND SUBTIDAL BENTHIC ECOLOGY

- 5.2.1 The potential activities and resulting effects considered for intertidal and subtidal benthic ecology site features are presented in **Table 5-1**. The Dee Estuary / Aber Dyfrdwy SAC was the only designated site identified for the test of LSE, based on the potential effects described in **Table 5-1**. The test of LSE for the Dee Estuary / Aber Dyfrdwy SAC is presented within **Table 5-2**, along with the conclusions of the HRA Stage 1 Screening process.

Table 5-1: Benthic ecology features – Project activities and potential impact pathways

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O&M)	Decommissioning (D)
Physical habitat loss	<ul style="list-style-type: none"> Installation of structures (e.g. cofferdam, tidal barrage structure etc); Seabed preparation; Dredging; Installation of scour protection; Vessel movements/anchoring; Rock armour placement. 	<ul style="list-style-type: none"> Presence of barrage and rock armour; Vessel movements/anchoring; Maintenance activities (e.g. dredging). 	<ul style="list-style-type: none"> Removal of introduced structures; Vessel movements/anchoring;
Physical change to another seabed/sediment type	<ul style="list-style-type: none"> Placement of man-made infrastructure (e.g. tidal barrage and rock armour). 	<ul style="list-style-type: none"> Presence of man-made infrastructure (e.g. tidal barrage and rock armour). 	<ul style="list-style-type: none"> Removal of man-made infrastructure (e.g. tidal barrage and rock armour).
Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion	<ul style="list-style-type: none"> Piling; Dredging; Cofferdam installation and removal; Introduction of man-made infrastructure (i.e. tidal barrage infrastructure). 	<ul style="list-style-type: none"> Maintenance activities (e.g. dredging). 	<ul style="list-style-type: none"> Piling; Dredging; Removal of man-made infrastructure (i.e. tidal barrage infrastructure).
Abrasion / disturbance of the substrate on the surface of the seabed (i.e. scour)	<ul style="list-style-type: none"> Piling; Dredging; Rock armour placement. 	<ul style="list-style-type: none"> Maintenance activities (e.g. dredging); Rock armour presence; Tidal barrage presence. 	<ul style="list-style-type: none"> Removal of man-made infrastructure (i.e. tidal barrage infrastructure).
Changes in suspended solids, smothering and siltation rate (water clarity)	<ul style="list-style-type: none"> Dredging; Piling; Removal of cofferdams; Placement of man-made infrastructure (i.e. tidal barrage infrastructure). 	<ul style="list-style-type: none"> Maintenance activities (e.g. Dredging). 	<ul style="list-style-type: none"> Piling; Dredging; Removal of man-made infrastructure (i.e. tidal barrage infrastructure).
Emergence regime changes	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none"> Removal of physical barrier / man-made infrastructure (i.e. tidal barrage, turbines).

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O&M)	Decommissioning (D)
Change to flushing regime	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none"> Removal of physical barrier / man-made infrastructure (i.e. tidal barrage, turbines).
Long term water flow (tidal current) changes	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none"> Removal of physical barrier / man-made infrastructure (i.e. tidal barrage, turbines).
Mobilisation of contaminants (sediment and water quality)	<ul style="list-style-type: none"> Dredging and removal of cofferdam. 	<ul style="list-style-type: none"> Maintenance activities (e.g. dredging). Change in water flow (tidal current). 	<ul style="list-style-type: none"> Dredging and removal of infrastructure (i.e. tidal barrage).
Pollution from vessels and equipment including Hydrocarbon & Polycyclic Aromatic Hydrocarbon (PAH) contamination;	<ul style="list-style-type: none"> Presence and movements of vessels and equipment. 	<ul style="list-style-type: none"> Presence and movements of vessels and equipment. 	<ul style="list-style-type: none"> Presence and movements of vessels and equipment.
Release of litter	<ul style="list-style-type: none"> Presence of personnel on vessels 	<ul style="list-style-type: none"> Presence of personnel on vessels 	<ul style="list-style-type: none"> Presence of personnel on vessels
Introduction or spread of invasive non-native species (INNS);	<ul style="list-style-type: none"> Presence and movements of vessels and equipment. 	<ul style="list-style-type: none"> Presence and movements of vessels and equipment. 	<ul style="list-style-type: none"> Presence and movements of vessels and equipment.
Electromagnetic fields (EMF)	EMFs generated from the operation of cables has been scoped out of further assessment, resulting from conclusion of no LSE.		

Table 5-2: Potential for LSE for benthic and intertidal features

Designated Site	Distance to Project (Km)	Feature(s) to consider for assessment of LSE	Impact Pathways			LSE? (Y/N)	Screening assessment
			C	O&M	D		
Dee Estuary / Aber Dyfrdwy SAC	0	Mudflats and sandflats not covered by seawater at low tide (*Priority) Estuaries	<p>Abrasion / disturbance (of the substrate on the surface of the seabed i.e. scour);</p> <p>Changes in suspended solids, smothering and siltation rate (water clarity);</p> <p>Mobilisation of contaminants (sediment and water quality)</p> <p>Introduction or spread of invasive non-native species (INNS);</p> <p>Pollution (from vessels and equipment including Hydrocarbon & PAH contamination).</p>	<p>Abrasion / disturbance (of the substrate on the surface of the seabed i.e. scour);</p> <p>Changes in suspended solids, smothering and siltation rate (water clarity);</p> <p>Mobilisation of contaminants (sediment and water quality);</p> <p>Introduction or spread of invasive non-native species (INNS);</p> <p>Pollution (from vessels and equipment including Hydrocarbon & PAH contamination);</p> <p>Changing to hydrodynamic regime.</p>	<p>Abrasion / disturbance (of the substrate on the surface of the seabed i.e. scour);</p> <p>Changes in suspended solids, smothering and siltation rate (water clarity);</p> <p>Mobilisation of contaminants (sediment and water quality)</p> <p>Introduction or spread of invasive non-native species (INNS);</p> <p>Pollution (from vessels and equipment including Hydrocarbon & PAH contamination);</p> <p>Changing to hydrodynamic regime.</p>	Y	<p>Screened in</p> <p>Screened in for Mudflats and sandflats not covered by seawater at low tide and Estuaries.</p> <p>Abrasion / disturbance (C, O&M, D): Location of the Project relative to protected features indicates potential habitat and supporting species disturbance / displacement, behavioural disturbance, and changes to species fitness / mortality within the feature.</p> <p>Changes in suspended solids (C, O&M, D): Potential for smothering / siltation rate change of mudflat and sandflat habitats on the North Wirral foreshore. This may cause habitat and supporting species disturbance / displacement, behavioural disturbance, and changes to species fitness / mortality within the feature.</p> <p>Mobilisation of contaminants (C, O&M, D): Dredging and the installation and removal of infrastructure (i.e. cofferdams and tidal barrage) could result in the mobilisation of contaminants within the sediment. This may cause changes to sediment quality, water quality and species fitness / mortality.</p> <p>Introduction of INNS (C, O&M, D): The presence and movement of vessels may cause the introduction or spread of INNS to habitat features in the SAC resulting in the out competition of native local species within nearby designated benthic intertidal features.</p> <p>Pollution (C, O&M, D): The presence of vessels during construction, operation and maintenance and decommissioning activities may result in the accidental release of contaminants (Hydrocarbon and PAH) and changes to sediment quality. This may cause habitat (and supporting species) disturbance / displacement, behavioural disturbance, and changes to species fitness / mortality.</p> <p>Changes to Hydrodynamic regime (O&M, D): The presence and operation of the tidal barrage during</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for assessment of LSE	Impact Pathways			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							<p>the operation and maintenance phase may result in changes to the sediment transport regime, emergence regime, and flushing regime leading to nearby benthic and intertidal features resulting in habitat loss/gain, changes in habitat connectivity and wider ecosystem functioning and habitat and species disturbance / displacement.</p> <p>The above potential effects cannot be screened out at this stage and therefore there is potential for LSE.</p>
			Physical habitat loss; Physical change to another seabed/ sediment type; Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion; Release of litter.	Physical habitat loss; Physical change to another seabed/ sediment type; Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion; Release of litter.	Physical habitat loss; Physical change to another seabed/ sediment type; Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion; Release of litter.	N	<p>Screened out</p> <p>The potential placement and presence of infrastructure (i.e. tidal barrage and rock armour) will be located further up the Mersey Estuary, away from the estuary mouth and will not directly overlap with the designated features. Therefore, the potential effects of physical habitat loss/disturbance, physical change (to another seabed type, and penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion, have been screened out and there is no LSE.</p> <p>Increased litter into the marine environment as a result of increased vessels within the Zol has been screened out of further assessment, resulting from conclusion of no LSE. This conclusion has been based on relevant embedded environmental measures such as the development and issue of an Environmental Vessel Management Plan (EVMP) to all project vessel operators.</p>
		Salicornia and other annuals colonizing mud and sand (*Priority) Atlantic salt meadows (Glauco-Puccinellietalia maritimae) (*Priority)	No impact pathway	No impact pathway	No impacts pathway	N	<p>Screened out</p> <p>All impacts on Atlantic salt meadows, areas of Salicornia and other annuals colonizing mud and sand, or Annual vegetation of drift are screened out. The project Zol does not overlap with any of these features within the Dee Estuary SAC (See Appendix 1). Saltmarsh communities have only been identified within the sheltered areas of the Dee estuary and the distance from the Project site (>15km) would be too great to cause any potential effects on these features, therefore, there is no LSE.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for assessment of LSE	Impact Pathways			LSE? (Y/N)	Screening assessment	
			C	O&M	D			
		Annual vegetation of drift lines						
		Other features considered through screening under relevant receptor groups (specifically migratory fish Table 5-4)						

DETERMINATION OF LSE FOR BENTHIC AND INTERTIDAL ECOLOGY

5.2.2 Following the test for LSE on the International Sites for benthic and intertidal ecology, the following sites and associated features have been screened in to Stage 2 AA which will be provided in the RIAA.

- The Dee Estuary SAC:
- Mudflats and sandflats not covered by seawater at low tide; and
- Estuaries.

5.3 MIGRATORY FISH

PATHWAYS FOR LSE: POTENTIAL IMPACTS ON FISH

5.3.1 The potential activities and resulting effects considered for the migratory fish features are presented in **Table 5-3**. There are several designated sites which have been identified for the LSE, based on the potential effects described in. The test of LSE for each designated site is presented within **Table 5-4**, along with the conclusions of the HRA Stage 1 Screening process.

Table 5-3: Migratory fish features – Project activities and potential impact pathways

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction	O & M	Decommissioning
Changes in suspended solids (water quality)	<ul style="list-style-type: none"> ■ Installation of structures; ■ Seabed preparation; ■ Dredging; ■ Sediment disposal; ■ Installation of scour or cable protection; ■ Vessel movements / anchoring; 	<ul style="list-style-type: none"> ■ Maintenance dredging ■ Presence of tidal barrage 	<ul style="list-style-type: none"> ■ Removal of structures
Entrainment and injury (from draghead)	<ul style="list-style-type: none"> ■ Dredging 	<ul style="list-style-type: none"> ■ Maintenance dredging 	<ul style="list-style-type: none"> ■ Dredging
Increased underwater noise and vibration levels	<ul style="list-style-type: none"> ■ Pilling; ■ Dredging; ■ Armour placement. 	<ul style="list-style-type: none"> ■ Maintenance dredging 	<ul style="list-style-type: none"> ■ Removal of structures
Increased artificial light emissions	<ul style="list-style-type: none"> ■ Temporary construction lighting 	<ul style="list-style-type: none"> ■ Long term operational lighting 	<ul style="list-style-type: none"> ■ Temporary decommissioning lighting
Barrier to species movement	<ul style="list-style-type: none"> ■ N/A 	<ul style="list-style-type: none"> ■ Presence of tidal barrage 	<ul style="list-style-type: none"> ■ N/A
Entrainment and injury (from turbine and sluice structures)	<ul style="list-style-type: none"> ■ N/A 	<ul style="list-style-type: none"> ■ Operation of tidal barrage 	<ul style="list-style-type: none"> ■ N/A
Introduction of Invasive Non-Native Species (INNS)	<ul style="list-style-type: none"> ■ Vessel activities 	<ul style="list-style-type: none"> ■ Vessel activities 	<ul style="list-style-type: none"> ■ Vessel activities
Pollution (from vessels and equipment including hydrocarbon & PAH contamination)	<ul style="list-style-type: none"> ■ Vessel activities and equipment / machinery use 	<ul style="list-style-type: none"> ■ Vessel activities and equipment / machinery use 	<ul style="list-style-type: none"> ■ Vessel activities and equipment / machinery use
Pollution from mobilisation of contaminants in sediment (water quality)	<ul style="list-style-type: none"> ■ Installation of structures; ■ Seabed preparation; ■ Dredging; ■ Sediment disposal; ■ Installation of scour or cable protection; ■ Vessel movements / anchoring. 	<ul style="list-style-type: none"> ■ Maintenance dredging ■ Presence of the tidal barrage 	<ul style="list-style-type: none"> ■ Removal of tidal barrage

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction	O & M	Decommissioning
Physical habitat loss/disturbance	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Presence of tidal barrage 	<ul style="list-style-type: none"> N/A
Emergence regime changes	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Presence of tidal barrage 	<ul style="list-style-type: none"> N/A
Change to flushing regime	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none"> Removal of physical barrier / man-made infrastructure (i.e. tidal barrage, turbines).
Long term water flow (tidal current) changes	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none"> Removal of physical barrier / man-made infrastructure (i.e. tidal barrage, turbines).
Creation of Electromagnetic Field (EMF) effects	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Operation of seabed cables 	<ul style="list-style-type: none"> N/A

Table 5-4: Potential for LSE for migratory fish features

Designated Site	Distance to the Project (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
The Dee Estuary / Aber Dyfrdwy SAC	0.0	Sea lamprey (<i>Petromyzon marinus</i>) River lamprey (<i>Lampetra fluviatilis</i>)	Changes in suspended solids (water quality) Entrainment and injury (from draghead) Increased underwater noise and vibration Increased artificial light emissions Introduction of INNS Change in water quality due to accidental pollution Change in water quality due to mobilisation of contaminated sediments Physical habitat loss/disturbance (Temporary)	Changes in suspended solids (water quality) Entrainment and injury (from draghead) Increased underwater noise and vibration Increased artificial light emissions Barrier to migration Entrainment and injury from turbine and sluice structures Introduction of INNS Change in water quality due to accidental pollution Change in water quality due to mobilisation of contaminated sediments Physical habitat loss/disturbance (Temporary and permanent) Change in hydrodynamic regime Creation of Electromagnetic Field (EMF) effects	Changes in suspended solids (water quality) Entrainment and injury (from draghead) Increased underwater noise and vibration Increased artificial light emissions Introduction of INNS Change in water quality due to accidental pollution Change in water quality due to mobilisation of contaminated sediments Physical habitat loss/disturbance (Temporary)	Y	Screened in All impacts on sea lamprey and river lamprey. As diadromous species, sea and river lamprey may experience effects of those impacts that are not restricted to a small spatial scale (i.e. suspended sediments, underwater noise) during their migration out of the Dee Estuary. Furthermore, considering the proximity of the Dee Estuary to the Mersey Estuary and the lack of evidence base to disprove the Mersey as acting as functionally linked land, all impacts (regardless of spatial extent) have been screened in.
The River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC	10.8	Sea lamprey (<i>Petromyzon marinus</i>) River lamprey (<i>Lampetra fluviatilis</i>) Atlantic salmon (<i>Salmo salar</i>)	Increased levels of suspended sediments Entrainment from draghead Increased underwater noise and vibration	Increased levels of suspended sediments Entrainment from draghead Increased underwater noise and vibration	Increased levels of suspended sediments Entrainment from draghead Increased underwater noise and vibration	Y	Screened in All impacts on sea lamprey, river lamprey and Atlantic salmon. As diadromous species, sea lamprey, river lamprey and Atlantic salmon may experience effects of

Designated Site	Distance to the Project (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			<p>Increased artificial light emissions</p> <p>Introduction of INNS</p> <p>Change in water quality due to accidental pollution</p> <p>Change in water quality due to mobilisation of contaminated sediments</p> <p>Temporary habitat loss</p>	<p>Increased artificial light emissions</p> <p>Barrier to migration</p> <p>Entrainment and injury from turbine and sluice structures</p> <p>Introduction of INNS</p> <p>Change in water quality due to accidental pollution</p> <p>Change in water quality due to mobilisation of contaminated sediments</p> <p>Permanent habitat loss/alteration</p> <p>Temporary habitat loss</p> <p>Change in hydrodynamic regime</p> <p>Creation of Electromagnetic Field (EMF) effects</p>	<p>Increased artificial light emissions</p> <p>Introduction of INNS</p> <p>Change in water quality due to accidental pollution</p> <p>Change in water quality due to mobilisation of contaminated sediments</p> <p>Temporary habitat loss</p>		<p>those impacts that are not restricted to a small spatial scale (i.e. suspended sediments, underwater noise) during their migration out of the Dee Estuary. Furthermore, considering the proximity of the Dee Estuary to the Mersey Estuary and the lack of evidence base to disprove the Mersey as acting as functionally linked land, all impacts (regardless of spatial extent) have been screened in.</p>
		<p>Bullhead (<i>Cottus gobio</i>)</p> <p>Brook lamprey (<i>Lampetra planeri</i>)</p>	No impact pathway	No impact pathway	No impact pathway	N	<p>Screened out</p> <p>All impacts on bullhead and brook lamprey were screened out. As freshwater species, there is no impact pathway from the Project on bullhead or brook lamprey, and therefore no potential LSE.</p>

Determination of LSE for Fish

5.3.2 Following the test for LSE on the International Sites, the following sites have been screened in to Stage 2 Appropriate Assessment which will be provided in the RIAA.

- The Dee Estuary / Aber Dyfrdwy SAC:
 - Sea lamprey; and
 - River lamprey.
- The River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC:
 - Sea lamprey;
 - River lamprey; and
 - Atlantic salmon.

5.4 MARINE MAMMALS

Pathways for LSE: Potential impacts on Marine Mammals

5.4.1 The potential activities and resulting potential effects considered for marine mammal features are presented in **Table 5-5**. These designated sites have been identified for the test of LSE, based on the potential effects described in **Table 5-6**. The test of LSE for each designated site is presented within **Table 5-6**, along with the conclusions of the HRA Stage 1 process.

Table 5-5: Marine mammal ecology features – Project activities and potential impact pathways

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & maintenance (O&M)	Decommissioning (D)
Physical habitat loss/disturbance	<ul style="list-style-type: none"> ▪ Installation of structures; ▪ Seabed preparation; ▪ Seabed dredging; Sediment disposal; Installation of scour or cable protection; ▪ Construction of coffer dam and caisson. 	<ul style="list-style-type: none"> ▪ Presence of tidal barrage; ▪ Maintenance dredging; ▪ Cable reburial/replacement. 	<ul style="list-style-type: none"> ▪ Removal of structures.
Increased noise and vibration	<ul style="list-style-type: none"> ▪ Vessel movements; ▪ Piling; ▪ Dredging; ▪ Installation of structures; ▪ Vessel movements. 	<ul style="list-style-type: none"> ▪ Vessel movements; ▪ Turbine operations; ▪ Maintenance dredging. 	<ul style="list-style-type: none"> ▪ Vessel movements; ▪ Removal of structures.
Effects on prey species	<ul style="list-style-type: none"> ▪ Generation of underwater noise from construction activities; ▪ Habitat loss and disturbance; ▪ Vessel movements. 	<ul style="list-style-type: none"> ▪ Generation of underwater noise from operation and maintenance activities; ▪ Physical collision; ▪ Habitat loss; ▪ Vessel movements. 	<ul style="list-style-type: none"> ▪ Generation of underwater noise from decommissioning activities; ▪ Habitat loss and disturbance; ▪ Vessel movements.
Accidental pollution	<ul style="list-style-type: none"> ▪ Release of pollutants/contaminants; ▪ Release of sediment. 	<ul style="list-style-type: none"> ▪ Release of pollutants/contaminants; ▪ Release of sediment. 	<ul style="list-style-type: none"> ▪ Release of pollutants/contaminants; ▪ Release of sediment.

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & maintenance (O&M)	Decommissioning (D)
Emergence regime changes	<ul style="list-style-type: none"> Construction of cofferdam and caisson; Installation of structures; Dredging; Piling; Installation of structure; Installation of scour or cable protection; Seabed preparation; Sediment disposal. 	<ul style="list-style-type: none"> Cable reburial/replacement; Maintenance dredging; Presence of tidal barrage. 	<ul style="list-style-type: none"> Removal of structures.
Change to flushing regime	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none">
Long term water flow (tidal current) changes	<ul style="list-style-type: none"> Presence of infrastructure during construction e.g cofferdam. 	<ul style="list-style-type: none"> Presence of physical barrier / man-made infrastructure (i.e. tidal barrage, rock armour placement, turbines). 	<ul style="list-style-type: none">
Increased collision risk (turbines)	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Operational turbines. 	<ul style="list-style-type: none"> N/A
Increased collision risk (vessels)	<ul style="list-style-type: none"> Vessel movements. 	<ul style="list-style-type: none"> Vessel movements. 	<ul style="list-style-type: none"> Vessel movements.
Vessel disturbance	<ul style="list-style-type: none"> Vessel movements; All in-combination effects. 	<ul style="list-style-type: none"> Vessel movements. 	<ul style="list-style-type: none"> Vessel movements.
Barrier to movement	<ul style="list-style-type: none"> Construction of coffer dam and caisson; Installation of turbines. 	<ul style="list-style-type: none"> Presence of tidal barrage. 	<ul style="list-style-type: none"> N/A

Table 5-6: Potential for LSE for marine mammals features

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
North Anglesey Marine SAC	77	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines))	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	Screened out The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact. The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC. Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Pen Llŷn a'r Sarnau Peninsula SAC	80	Bottlenose dolphin	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Increased collision risk (vessels)	Increased collision risk (vessels and turbines)	Increased collision risk (vessels)		receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>Bottlenose dolphins are adapted to forage in areas with high tidal flows (Ingram and Rogan, 2002). Low light levels, turbid waters and suspended sediments are therefore not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no interaction or pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of bottlenose dolphin, the Project is unlikely to pose any LSE from barrier to movement</p>
		Grey seal	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels) Barrier to movement	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines) Barrier to movement	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels) Barrier to movement	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity)	Change in hydrodynamic regimes (increased suspended sediment and turbidity)	Change in hydrodynamic regimes (increased suspended sediment and turbidity)	N	<p>Screened out</p> <p>Grey seals have been known to forage in tidally energetic areas (Thompson, 2012). Low light levels, turbid waters and suspended sediments are therefore not likely to negatively impact its</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Physical habitat loss/disturbance	Physical habitat loss/disturbance	Physical habitat loss/disturbance		<p>foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no interaction or pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p>
West Wales Marine SAC	112	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Cardigan Bay SAC	140	Bottlenose dolphin	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	Screened out Bottlenose dolphins are adapted to forage in areas with high tidal flows (Ingram and Rogan, 2002). Low light levels, turbid waters and suspended sediments are therefore not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no interaction or pathway for significant impact. The Project does not overlap with the site and therefore there will be no barrier to movement for bottlenose dolphin.
North Channel SAC	158	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Codling Fault SAC	169	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised,</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							<p>temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Rockabil to Dalkey Island SAC	193	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Lambay Island SAC	195	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	Screened out The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact. The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC. Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Blackwater Bank SAC	230	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance	Increased noise and vibration Effects on prey Accidental pollution	Increased noise and vibration Effects on prey Accidental pollution	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Increased collision risk (vessels)	Vessel disturbance Increased collision risk (vessels and turbines)	Vessel disturbance Increased collision risk (vessels)		receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
The Bristol Channel Approaches SAC	240	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity)	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Physical habitat loss/disturbance	Physical habitat loss/disturbance	Barrier to movement Physical habitat loss/disturbance		<p>negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Carnsore Point SAC	250	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Hook Head SAC	285	Bottlenose dolphin	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	N	Screened out Bottlenose dolphins are adapted to forage in areas with high tidal flows (Ingram and Rogan, 2002). Low light levels, turbid waters and suspended sediments are therefore not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no interaction or pathway for significant impact. The Project does not overlap with the site and therefore there will be no barrier to movement for bottlenose dolphin.
		Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Increased collision risk (vessels)	Increased collision risk (vessels and turbines)	Increased collision risk (vessels)		
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Bunduff, Lough and Machair/ Trawalua/ Mullaghmore SAC	367	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement	Change in hydrodynamic regimes (increased suspended sediment and turbidity)	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Physical habitat loss/disturbance	Physical habitat loss/disturbance	Barrier to movement Physical habitat loss/disturbance		<p>suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Kilkieran Bay and Islands SAC	431	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Inishmore Island SAC	436	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	Screened out The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact. The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC. Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
West Connacht Coast SAC	446	Harbour porpoise	Underwater noise Changes to prey Accidental pollution	Increased noise and vibration Effects on prey Accidental pollution	Increased noise and vibration Effects on prey Accidental pollution	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Vessel disturbance Increased collision risk (vessels)	Vessel disturbance Increased collision risk (vessels and turbines)	Vessel disturbance Increased collision risk (vessels)		receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Kenmare River SAC	475	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Roaringwater Bay and Islands SAC	478	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised,</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							<p>temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>
Blasket Islands SAC	520	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	<p>Screened in</p> <p>Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.</p>
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
							Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Belgica Mound Province SAC	623	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Y	Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	Screened out The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact. The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC. Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.
Transboundary French Sites	Various (+400km)	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance	Increased noise and vibration Effects on prey Accidental pollution	Increased noise and vibration Effects on prey Accidental pollution		Screened in Effects at this stage cannot be screened out given the distance to the site within the MU; uncertainty with the scale, duration and magnitude of impact; and sensitivity of the

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
<p>Abers – Côtes des légendes SAC (FR5300017);</p> <p>Anse de Vauville SAC (FR2502019);</p> <p>Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SAC (FR5300012); Baie de Morlaix SAC (FR5300015);</p> <p>Baie de Saint-Brieuc – Est SAC (FR5300066);</p> <p>Baie du Mont Saint-Michel SAC (FR2500077);</p> <p>Banc et récifs de Surtainville SAC (FR2502018);</p> <p>Cap d'Erquy-Cap Fréhel SAC (FR5300011)</p> <p>Chausey SAC (FR2500079);</p> <p>Chaussée de Sein SAC (FR5302007);</p> <p>Côtes de Crozon SAC (FR5302006);</p> <p>Côte de Granit Rose-Sept Iles SAC [FR5310011];</p> <p>Estuaire de la Rance SAC [FR5300061] ;</p>			Increased collision risk (vessels)	Vessel disturbance Increased collision risk (vessels and turbines)	Vessel disturbance Increased collision risk (vessels)		receptor to the impacts. Therefore, there is a potential for LSE.
			Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	Change in hydrodynamic regimes (increased suspended sediment and turbidity) Barrier to movement Physical habitat loss/disturbance	N	<p>Screened out</p> <p>The harbour porpoise is adapted to forage in areas with high tidal flows (e.g. Pierpoint, 2008, Marubini et al., 2009, Hastie et al., 2016). Therefore, low light levels, turbid waters and suspended sediments are not likely to negatively impact its foraging success. Any disturbance to the seabed will be localised, temporary and of negligible level. There will be no pathway for significant impact.</p> <p>The Project does not overlap with the site therefore there will be no pathway for effect on habitats or qualifying features within the SAC.</p> <p>Given the mobile nature and extensive range of harbour porpoise, the Project is unlikely to pose any LSE from barrier to movement.</p>

Designated Site	Distance (km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O&M	D		
Mers Celtiques – Talus du golfe de Gascogne SAC (FR5302015); Nord Bretagne DH SAC (FR2502022); Ouessant-Molène SAC (FR5300018); Récifs et landes de la Hague SAC (FR2500084); and Tregor Goëlo SAC (FR5300010).							

DETERMINATION OF LSE FOR MARINE MAMMALS

5.4.2 **Section 4.2** assesses the potential for LSE on sites with marine mammal designated features. There were 36 Sites taken forward for consideration of LSE, including 16 French transboundary sites. The Screening assessment identified that there was potential for LSE for all 36 sites and they have all been screened in to Stage 2 Appropriate Assessment which will be provided in the RIAA.

- Sites screened in for harbour porpoise:
 - North Anglesey Marine SAC;
 - West Wales Marine SAC;
 - North Channel SAC;
 - Codling Fault SAC;
 - Rockabil to Dalkey Island SAC;
 - Lambay Island SAC;
 - Blackwater Bank SAC;
 - The Bristol Channel Approaches SAC;
 - Carnsore Point SAC;
 - Hook Head SAC;
 - Bunduff, Lough and Machair/ Trawalua/ Mullaghmore SAC;
 - Kilkieran Bay and Islands SAC;
 - Inishmore Island SAC;
 - West Connacht Coast SAC;
 - Kenmare River SAC;
 - Roaringwater Bay and Islands SAC;
 - Blasket Islands SAC;
 - Belgica Mound Province SAC;
 - Abers – Côtes des légendes SAC;
 - Anse de Vauville SAC;
 - Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SAC;
 - Baie de Morlaix SAC;

- Baie de Saint-Brieuc – Est SAC;
- Baie du Mont Saint-Michel SAC;
- Banc et récifs de Surtainville SAC;
- Cap d'Erquy-Cap Fréhel SAC;
- Chausey SAC;
- Chaussée de Sein SAC;
- Côtes de Crozon SAC;
- Côte de Granit Rose-Sept Iles SAC;
- Estuaire de la Rance SAC;
- Mers Celtiques – Talus du golfe de Gascogne SAC;
- Nord Bretagne DH SAC;
- Ouessant-Molène SAC;
- Récifs et landes de la Hague SAC;
- Tregor Goëlo SAC;
- Sites screened in for grey seal;
 - Pen Llŷn a'r Sarnau Peninsula SAC;
- Sites screened in for bottlenose dolphin;
 - Pen Llŷn a'r Sarnau Peninsula SAC;
 - Cardigan Bay SAC; and
 - Hook Head SAC.

5.5 OFFSHORE AND INTERTIDAL ORNITHOLOGY

PATHWAYS FOR LSE: POTENTIAL IMPACTS ON ONSHORE AND INTERTIDAL ORNITHOLOGY

5.5.1 The potential activities and resulting effects considered for the marine and intertidal ornithology features are presented in **Table 5-7**. There are several designated sites which have been identified for the ToLSE, based on the potential effects described in **Table 5-7**. The LSE for each designated site is presented within **Table 5-8**, along with the conclusions of the HRA Stage 1 process.

Table 5-7: Marine and Intertidal Ornithology features – Project activities and potential impact pathways

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O & M)	Decommissioning (D)
Permanent habitat loss	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Presence of tidal barrage and other infrastructure present for the lifetime of the Project 	<ul style="list-style-type: none"> NA
Temporary habitat loss	<ul style="list-style-type: none"> Construction of supporting infrastructure 	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Construction of supporting infrastructure
Collision above and below the water	<ul style="list-style-type: none"> Installation of infrastructure 	<ul style="list-style-type: none"> Presence of infrastructure 	<ul style="list-style-type: none"> Removal of infrastructure
Increased above water noise	<ul style="list-style-type: none"> Installation of infrastructure and presence of construction vehicles, vessels and plant 	<ul style="list-style-type: none"> Maintenance activities of structures and presence of maintenance vehicles/vessels 	<ul style="list-style-type: none"> Removal of infrastructure and presence of decommissioning vehicles/vessels
Increased artificial light	<ul style="list-style-type: none"> Presence of construction vehicles, vessels and plant 	<ul style="list-style-type: none"> Presence of maintenance vehicles/vessels 	<ul style="list-style-type: none"> Presence of decommissioning vehicles, vessels and plant
Increased underwater noise and vibration	<ul style="list-style-type: none"> Piling, dredging and armour placement. 	<ul style="list-style-type: none"> Maintenance activities of structures and presence of maintenance vehicles/vessels 	<ul style="list-style-type: none"> Removal of tidal barrage and supporting infrastructure.

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O & M)	Decommissioning (D)
	<ul style="list-style-type: none"> Installation of infrastructure and presence of construction vehicles, vessels and plant 		<ul style="list-style-type: none"> Presence of maintenance vehicles/vessels
Visual disturbance	<ul style="list-style-type: none"> Presence of vehicles, vessels and plant 	<ul style="list-style-type: none"> Presence of vehicles, vessels and plant 	<ul style="list-style-type: none"> Presence of vehicles, vessels and plant
Barrier to species movement	<ul style="list-style-type: none"> Presence of supporting infrastructure 	<ul style="list-style-type: none"> Presence of the tidal barrage 	<ul style="list-style-type: none"> Presence of supporting infrastructure
Change in water clarity	<ul style="list-style-type: none"> Installation of structures; Seabed preparation; Seabed dredging; Sediment disposal; Installation of scour or cable protection Vessel movements/anchoring 	<ul style="list-style-type: none"> Maintenance Dredging 	<ul style="list-style-type: none"> Removal of tidal barrage
Tidal level change	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Presence and operation of the tidal barrage 	<ul style="list-style-type: none"> NA
Accidental pollution	<ul style="list-style-type: none"> Presence of vessels 	<ul style="list-style-type: none"> Presence of vessels 	<ul style="list-style-type: none"> Presence of vessels

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O & M)	Decommissioning (D)
Indirect effects on birds resulting from impacts on prey	<ul style="list-style-type: none"> ■ Construction/installation of supporting infrastructure ■ Construction of tidal barrage ■ Presence of construction vehicles, vessels and plant. ■ Seabed preparation; Seabed dredging; Sediment disposal; Installation of scour or cable protection. ■ Pilling, dredging and armour placement 	<ul style="list-style-type: none"> ■ Presence of supporting infrastructure. ■ Presence of tidal barrage ■ Presence of maintenances vehicles, vessels and plant; maintenance dredging ■ Maintenance dredging. ■ Presence and operation of the tidal barrage 	<ul style="list-style-type: none"> ■ Removal of supporting infrastructure. ■ Removal of tidal barrage ■ Presence of decommissioning vehicles, vessels and plant;

Table 5-8: Potential for LSE for offshore and Intertidal ornithology features

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
Mersey Estuary SPA and Ramsar	0	Golden plover (non-breeding) Redshank (non-breeding) Shelduck (non-breeding) Teal (non-breeding) Pintail (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Waterbird assemblage	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Y	Screened in All impacts on all features considered. Given the direct overlap of the Mersey Estuary SPA and Ramsar with the Scoping Boundary all impacts have been screened in.
Liverpool Bay SPA	0	Red-throated diver (non-breeding) Common scoter (non-breeding) Little gull (non-breeding) Common tern (breeding) Little tern (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light	Y	Screened in All impacts on all features considered. Given the direct overlap of the Liverpool Bay SPA and Ramsar with the Scoping Boundary all impacts have been screened in.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Waterbird assemblage	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>		
The Dee Estuary SPA and Ramsar	0	<p>Shelduck (non-breeding)</p> <p>Teal (non-breeding)</p> <p>Pintail (non-breeding)</p> <p>Oystercatcher (non-breeding)</p> <p>Grey plover (non-breeding)</p> <p>Knot (non-breeding)</p> <p>Dunlin (non-breeding)</p> <p>Black-tailed godwit (non-breeding)</p> <p>Curlew (non-breeding)</p> <p>Redshank (non-breeding)</p> <p>Sandwich tern (non-breeding)</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting</p>	Y	<p>Screened in</p> <p>All impacts on all features considered. Given the direct overlap of The Dee Estuary SPA and Ramsar with the Zol all impacts have been screened in.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Common tern (breeding) Little tern (breeding) Bar-tailed godwit (non-breeding) Waterbird assemblage	from impacts on prey	Indirect effects on birds resulting from impacts on prey	from impacts on prey		
Ribble and Alt Estuaries SPA and Ramsar	0	Bewick's swan (non-breeding) Whooper swan (non-breeding) Pink-footed goose (non-breeding) Shelduck (non-breeding) Wigeon (non-breeding) Teal (non-breeding) Pintail (non-breeding) Oystercatcher (non-breeding) Ringed plover (non-breeding) European golden plover (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Ruff (breeding) Common tern (breeding) Bar-tailed godwit (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Y	Screened in All impacts on all features considered. Given the direct overlap of Ribble and Alt Estuaries SPA and Ramsar with the Zol all impacts have been screened in.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Lesser black-backed gull (breeding) Sanderling (breeding and non-breeding) Redshank (non-breeding) Dunlin (breeding and non-breeding) Black-tailed godwit (breeding and non-breeding) Waterbird assemblage Seabird assemblage					
Mersey Narrows and North Wirral Foreshore SPA and Ramsar	0	Bar-tailed godwit (non-breeding) Little gull (non-breeding) Knot (non-breeding) Common tern (breeding and non-breeding) Waterbird assemblage	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting	Y	Screened in All impacts on all features considered. Given the direct overlap of Mersey Narrows and North Wirral Foreshore SPA and Ramsar with the ZoI all impacts have been screened in.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			from impacts on prey	from impacts on prey	from impacts on prey		
Martin Mere SPA and Ramsar	8.72	Bewick's swan (non-breeding) Whooper swan (non-breeding) Pink-footed goose (non-breeding) Teal (non-breeding) Pintail (non-breeding) Waterbird assemblage	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Y	Screened in All impacts on all features considered. Given Martin Mere SPA and Ramsar is within the connectivity distance for all features, and so has the potential to be functionally linked to the ZoI, and the lack of evidence base to disprove the functional linkage, all impacts have been screened in.
Midland Meres & Mosses Ramsar	7.1	Cormorant (non-breeding) Gadwall (non-breeding) Pochard (non-breeding) Shoveler (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise	Permanent habitat loss Collision above and below the water Increased above water noise	Temporary habitat loss Collision above and below the water Increased above water noise	Y	Screened in All impacts on all features considered. Given Midland Meres & Mosses Ramsar is within the connectivity distance for all features, and so has the potential to be functionally linked to the ZoI, and the lack of evidence base to disprove the functional linkage, all impacts have been screened in.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		
Morecambe Bay and Duddon Estuary SPA and Ramsar	12.9	Whooper swan (non-breeding) Little egret (non-breeding) Golden plover (non-breeding) Bar-tailed godwit (non-breeding) Ruff (non-breeding) Mediterranean gull (non-breeding) Little tern (breeding) Sandwich tern (breeding) Common tern (breeding) Pink-footed goose (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Y	<p>Screened in</p> <p>All impacts on features excluding little tern considered. Given Morecambe Bay and Duddon Estuary SPA and Ramsar is within the connectivity distance for all features, and so has the potential to be functionally linked to the Zol, and the lack of evidence base to disprove the functional linkage, all impacts have been screened in.</p> <p>Screened out</p> <p>Morecambe Bay and Duddon Estuary SPA and Ramsar is outside of the mean max foraging range for breeding little tern and therefore there is no potential for functional linkage or pathway for effect. All impacts have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Shelduck (non-breeding) Pintail (non-breeding) Oystercatcher (non-breeding) Grey plover (non-breeding) Ringed plover (non-breeding) Curlew (non-breeding) Black-tailed godwit (non-breeding) Turnstone (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Redshank (non-breeding) Lesser black-backed gull (breeding and non-breeding) Herring gull (breeding) Waterbird assemblage Seabird assemblage	Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey	Indirect effects on birds resulting from impacts on prey		
Bowland Fells SPA and Ramsar	26.3	Lesser black-backed gull (breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	Y	Screened in All impacts on lesser black-backed gull considered. The distance between the Bowland Fells SPA and Ramsar and the Project is within the mean max foraging range for breeding lesser black-backed gull, and so there is the potential for functional linkage

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			<p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>		<p>ZoI, and the lack of evidence base to disprove the functional linkage, all impacts have been screened in.</p>
<p>Anglesey Terns / Morwenoliaid Ynys Môn SPA and Ramsar</p>	32.2	<p>Arctic tern (breeding)</p> <p>Common tern (breeding)</p> <p>Roseate tern (breeding)</p> <p>Sandwich tern (breeding)</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p>	N	<p>Screened out</p> <p>Tracking data for Arctic tern and Sandwich tern within this International Site demonstrates that individuals do not commute as far as the ZoI (Wilson <i>et al.</i>, 2014). Further to this, individual tracking data, from Woodward <i>et al.</i>, (2019), for Anglesey Terns / Morwenoliaid Ynys Môn SPA and Ramsar shows a mean max foraging range of 24.8km, for sandwich tern, and 2.6km for Arctic tern. Therefore, there is no pathway for effect on these species and all impacts are screened out</p> <p>Anglesey Terns / Morwenoliaid Ynys Môn SPA and Ramsar is outside of the mean max foraging range for breeding common tern and roseate tern and therefore there is no potential for functional linkage or pathway for effect. All impacts for these species have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Accidental pollution Indirect effects on birds resulting from impacts on prey	Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey		
Ynys Seiriol / Puffin Island SPA and Ramsar	31.8	Cormorant (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Ynys Seiriol / Puffin Island SPA and Ramsar is outside of the mean max foraging range for breeding cormorant and therefore there is no potential for functional linkage or pathway for effect. All impacts have been screened out.
Irish Sea Front SPA	93.4	Manx shearwater (breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	N	Screened out Due to the large foraging range of breeding Manx shearwater, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing), and the ZoI makes up a very small proportion

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			<p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>		<p>of this species foraging range. Therefore, all impacts have been screened out.</p>
<p>Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA</p>	94.5	<p>Manx shearwater (breeding)</p> <p>Cormorant (breeding and non-breeding)</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p>	N	<p>Screened out</p> <p>Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA is outside of the foraging range for breeding cormorant, and therefore there is no potential for functional linkage or pathway of effect. All impacts have been screened out for this species.</p> <p>Due to the large foraging range of breeding Manx shearwater, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing), and the ZoI makes up a very small proportion of this species foraging range. Therefore, all impacts for this species have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Accidental pollution Indirect effects on birds resulting from impacts on prey	Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey		
Ailsa Craig SPA	205.5	Gannet (breeding) Lesser black-backed gull (breeding) Guillemot (breeding) Kittiwake (breeding) Herring gull (breeding) Seabird assemblage (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	N	Screened out Ailsa Craig SPA is outside of the mean max foraging range for breeding guillemot and herring gull and therefore there is no functional linkage or pathway for effect. All impacts for these species have been screened out. Due to the large foraging range of gannet, lesser black-backed gull and kittiwake, all effects are considered to be negligible. Alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing), in much closer proximity than the ZoI. Therefore, all impacts for these species have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey	Indirect effects on birds resulting from impacts on prey		
Skomer, Skokholm and the Seas off Pembrokeshire SPA	207.1	Storm petrel (breeding) Manx shearwater (breeding) Puffin (breeding) Lesser black-backed gull (breeding) Seabird assemblage (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Skomer, Skokholm and the Seas off Pembrokeshire SPA is located beyond the mean max foraging range for breeding puffin and, as part of the breeding seabird assemblage, razorbill and guillemot. Therefore, there is no potential functional linkage or pathway for effect. All impacts for these species have been screened out. Due to the large foraging range of storm petrel, Manx shearwater, lesser black-backed gull and, as part of the breeding seabird assemblage, kittiwake, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts for these species have been screened out.
Grassholm SPA	218.3	Gannet (breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	N	Screened out Due to the large foraging range of gannet, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		
Belfast Lough SPA and Ramsar	190.2	Bar-tailed godwit (non-breeding) Black-tailed godwit (non-breeding) Common tern (breeding) Arctic tern (breeding) Redshank (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	N	Screened out Belfast Lough SPA and Ramsar is outside of the mean max foraging range for Arctic tern and common tern, and therefore there is no potential for functional linkage or pathway for effect. All impacts for these species have been screened out. Belfast Lough SPA and Ramsar is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Accidental pollution Indirect effects on birds resulting from impacts on prey	Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey		
Larne Lough SPA and Ramsar	196.0	Light-bellied brent goose (non-breeding) Mediterranean gull (breeding) Roseate tern (breeding) Common tern (breeding) Sandwich tern (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Larne Lough SPA and Ramsar is outside of the mean max foraging range for breeding Mediterranean gull, common tern, roseate tern and Sandwich tern, and therefore there is no potential for functional linkage or pathway for effect. All impacts for these species have been screened out. Larne Lough SPA and Ramsar is beyond the 20km connectivity distance for swans and geese, and therefore there is no potential for functional linkage or pathway for effect for light-bellied brent goose. All further impacts have been screened out.
Lough Neagh and Lough Beg SPA and Ramsar	211.7	Bewick's swan (non-breeding) Goldeneye (non-breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	N	Screened out Lough Neagh and Lough Beg SPA and Ramsar is located beyond the mean max foraging range of breeding common tern and therefore there is no potential for functional linkage or

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Pochard (non-breeding) Scaup (non-breeding) Tufted duck (non-breeding) Whooper swan (non-breeding) Common tern (breeding) Great crested grebe (breeding and non-breeding) Waterbird assemblage	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		<p>pathway for effect. All impacts for common tern have been screened out.</p> <p>Lough Neagh and Lough Beg SPA and Ramsar is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for non-breeding waterbirds and waders, and therefore there is no potential functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.</p>
Strangford Lough SPA and Ramsar	155.9	Sandwich tern (breeding) Common tern (breeding) Arctic tern (breeding) Light-bellied brent goose (non-breeding) Redshank (non-breeding) Knot (non-breeding) Shelduck (non-breeding) Bar-tailed godwit (non-breeding) Golden plover (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	N	<p>Screened out</p> <p>Strangford Lough SPA and Ramsar is outside of the mean max foraging range for breeding Sandwich tern, common tern, and Arctic tern and therefore there is no potential for functional linkage or pathway for effect. All impacts to these species have been screened out.</p> <p>Strangford Lough SPA and Ramsar is outside of the 20km connectivity distance for swans and geese, and the 10km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All impacts for these species have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Waterbird assemblage	Accidental pollution Indirect effects on birds resulting from impacts on prey	Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey		
Carlingford Lough SPA and Ramsar	176.9	Sandwich tern (breeding) Light-bellied brent goose (non-breeding) Waterbird assemblage	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Carlingford Lough SPA and Ramsar is outside of the mean max foraging range for breeding Sandwich tern and therefore there is no potential for functional linkage or pathway for effect. All impacts for these species have been screened out. Carlingford Lough SPA and Ramsar is beyond the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.
Outer Ards SPA and Ramsar	155.2	Arctic tern (breeding) Golden plover (non-breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	N	Screened out Outer Ards SPA and Ramsar is beyond the mean max foraging range for breeding Arctic tern and therefore there is no potential for functional linkage or pathway for effect. All impacts to this species have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Light-bellied brent goose (non-breeding) Ringed plover (non-breeding) Turnstone (non-breeding) Manx shearwater (breeding)	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		<p>Due to the large foraging range of Manx shearwater, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts for this species have been screened out.</p> <p>Outer Ards SPA and Ramsar is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.</p>
Copeland Islands SPA	178.79	Arctic tern (breeding) Manx shearwater (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	N	<p>Screened out</p> <p>Copeland Islands SPA is beyond the mean max foraging range for Arctic tern and therefore there is no potential for functional linkage or pathway for effect. All impacts to this species have been screened out.</p> <p>Due to the large foraging range of Manx shearwater, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore for Manx shearwater, all impacts have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Accidental pollution Indirect effects on birds resulting from impacts on prey	Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey		
Rockabill SPA	159.54	Purple sandpiper (non-breeding) Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Rockabill SPA is outside of mean max foraging range for breeding roseate tern, common tern, and Arctic tern, and therefore there is no potential for functional linkage or pathway for effect. All impacts to these species have been screened out. Rockabill SPA is outside of the 10km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for purple sandpiper. All impacts to this species have been screened out
South Dublin Bay and River Tolka Estuary SPA and Ramsar	171.98	Light-bellied brent goose (non-breeding) Oystercatcher (non-breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	N	Screened out South Dublin Bay and River Tolka Estuary SPA and Ramsar is outside of the mean max foraging range for breeding roseate tern, common tern and Arctic tern, and therefore there is no

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Ringed plover (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Bar-tailed godwit (non-breeding) Redshank (non-breeding) Black-headed gull (non-breeding) Roseate tern (non-breeding) Common tern (breeding) Arctic tern (breeding)	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		<p>potential for functional linkage or pathway of effect. All impacts to these species have been screened out.</p> <p>South Dublin Bay and River Tolka Estuary SPA and Ramsar is beyond the 20km connectivity distance for swans and geese, and the 15km connectivity distance for non-breeding seabirds, waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.</p>
Lambay Island SPA	161.7	Fulmar (breeding) Cormorant (breeding) Shag (breeding) Greylag goose (non-breeding) Lesser black-backed gull (breeding) Herring gull (breeding) Kittiwake (breeding) Guillemot (breeding) Razorbill (breeding) Puffin (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement	Y	<p>Screened in</p> <p>Lambay Island SPA is within the mean max foraging range for breeding razorbill and therefore there is potential for functional link or pathway of effect. All impacts for these species have been screened in.</p> <p>Screened out</p> <p>Lambay Island SPA is outside of the mean max foraging range for breeding cormorant, shag, herring gull, guillemot, and razorbill, and therefore there is no potential for functional link or pathway effect. All impacts for these species have been screened out.</p> <p>Due to the large foraging range of fulmar, lesser black-backed gull, kittiwake, and puffin, all effects are considered to be negligible as alternative marine habitat is available for foraging</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		and for other functions (e.g. roosting/loafing). Therefore all impacts for these species have been screened out. Lambay Island SPA is outside of the 20km connectivity distance for swans and geese, and therefore there is no potential for functional linkage or pathway for effect for greylag goose. All further impacts have been screened out.
Wexford Harbour and Slobs SPA	218.1	Little grebe (non-breeding) Great crested grebe (non-breeding) Cormorant (non-breeding) Grey heron (non-breeding) Bewick's swan (non-breeding) Whooper swan (non-breeding) Light-bellied brent goose (non-breeding) Shelduck (non-breeding) Wigeon (non-breeding) Teal (non-breeding) Mallard (non-breeding) Pintail (non-breeding) Scaup (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Wexford Harbour and Slobs SPA is outside of the mean max foraging range for breeding little tern, and therefore there is no potential for functional link or pathway effect. All impacts to little tern have been screened out. Wexford Harbour and Slobs SPA is beyond the 20km connectivity distance for swans and geese, and the 15km connectivity distance for non-breeding seabirds, waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out. Due to the large foraging range of lesser black-backed gull all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore all impacts for these species have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Goldeneye (non-breeding) Red-breasted merganser (non-breeding) Coot (non-breeding) Oystercatcher (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Lapwing (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Black-headed gull (non-breeding) Lesser black-backed gull (non-breeding) Little tern (breeding) Greenland white-fronted goose (non-breeding)					

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Waterbird assemblage (non-breeding)					
Boyne Estuary SPA	180.09	Shelduck (non-breeding) Oystercatcher (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Lapwing (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Black-tailed godwit (non-breeding) Redshank (non-breeding) Turnstone (non-breeding) Little tern (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Boyne Estuary SPA is outside of the mean max foraging range for breeding little tern, and therefore there is no potential for functional linkage or pathway of effect. All impacts for little tern have been screened out. Boyne Estuary SPA is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.
Howth Head Coast SPA	165.2	Kittiwake (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise	Permanent habitat loss Collision above and below the water Increased above water noise	Temporary habitat loss Collision above and below the water Increased above water noise	N	Screened out Due to the large foraging range of kittiwake, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts have been screened out for kittiwake.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			<p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>		
Ireland's Eye SPA	166.0	<p>Cormorant (breeding)</p> <p>Herring gull (breeding)</p> <p>Kittiwake (breeding)</p> <p>Guillemot (breeding)</p> <p>Razorbill (breeding)</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	N	<p>Screened out</p> <p>Ireland's Eye SPA is outside of the mean max foraging range for breeding cormorant, herring gull, guillemot, and razorbill, and therefore there is no potential for functional linkage or pathway of effect. All impacts for these species have been screened out.</p> <p>Due to the large foraging range of kittiwake, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts have been screened out for kittiwake</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey	Indirect effects on birds resulting from impacts on prey		
Skerries Islands SPA	167.4	Cormorant (breeding) Shag (breeding) Light-bellied brent goose (non-breeding) Purple sandpiper (non-breeding) Turnstone (non-breeding) Herring gull (breeding and non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Skerries Islands SPA is outside of the mean max foraging range for breeding cormorant, shag, and herring gull (both breeding and non-breeding), and therefore there is no potential for functional linkage or pathway of effect. All impacts for these species have been screened out. Skerries Islands SPA is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.
Wicklow Head SPA	169.4	Kittiwake (breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	N	Screened out Due to the large foraging range of kittiwake, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). All impacts for kittiwake have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		
Dalkey Islands SPA	168.8	Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity	N	Screened out Dalkey Islands SPA is outside of the mean max foraging range for breeding roseate tern, common tern, and Arctic tern, and therefore there is no functional link or pathway effect. All impacts have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
			Accidental pollution Indirect effects on birds resulting from impacts on prey	Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Accidental pollution Indirect effects on birds resulting from impacts on prey		
The Murrough SPA	168.8	Red-throated diver (non-breeding) Greylag goose (non-breeding) Light-bellied brent goose (non-breeding) Wigeon (non-breeding) Teal (non-breeding) Black-headed gull (non-breeding) Herring gull (non-breeding) Little tern (breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out The Murrough SPA is outside of the mean max foraging range for breeding little tern and wintering black-headed gull and herring gull, and therefore there is no potential for functional linkage or pathway of effect. All impacts for little tern have been screened out. The Murrough SPA is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for non-breeding seabirds, waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.
North-west Irish Sea SPA	131.4	Fulmar (breeding and non-breeding) Cormorant (breeding)	Temporary habitat loss Collision above and below the water	Permanent habitat loss Collision above and below the water	Temporary habitat loss Collision above and below the water	Y	Screened in North-west Irish Sea SPA is within the breeding season foraging range for guillemot, and razorbill (breeding season only) and therefore there is potential for functional link or pathway effect. All impacts for these species have been screened in.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Shag (breeding) Lesser black-backed gull (breeding) Herring gull (breeding and non-breeding) Kittiwake (breeding and non-breeding) Roseate Tern (breeding) Common tern (breeding) Arctic tern (breeding) Little tern (breeding) Guillemot (breeding and non-breeding) Razorbill (breeding and non-breeding) Puffin (breeding) Red-throated diver (non-breeding) Little gull (non-breeding) Black-headed gull (non-breeding) Common gull (non-breeding) Great black-backed gull (non-breeding) Manx shearwater (breeding) Great northern diver (non-breeding) Common scoter (non-breeding)	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		<p>Screened out</p> <p>North-west Irish Sea SPA is outside of the breeding season foraging range for cormorant, shag, lesser black-backed gull, herring gull, roseate tern, common tern, Arctic tern, little tern, and the non-breeding foraging range for herring gull, little gull, black-headed gull, common gull and great black-backed gull and therefore there is no functional link or pathway effect. All impacts for these species have been screened out.</p> <p>Due to the large foraging range of fulmar, lesser black-backed gull, kittiwake, puffin, and Manx shearwater, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts for these species have been screened out.</p> <p>North-west Irish Sea SPA is outside of the 15km connectivity buffer, for non-breeding seabirds and waterbirds, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
North Bull Island SPA	167.9	Light-bellied brent goose (non-breeding) Shelduck (non-breeding) Teal (non-breeding) Pintail (non-breeding) Shoveler (non-breeding) Oystercatcher (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Knot (non-breeding) Sanderling (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Turnstone (non-breeding) Black-headed gull (non-breeding) Wetland and Waterbirds	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out North Bull Island SPA is outside of the non-breeding season foraging range for black-headed gull and therefore there is no functional link or pathway effect. All impacts for these species have been screened out. North Bull Island SPA is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
Lady's Island Lake SPA	227.9	Gadwall (non-breeding) Black-headed gull (breeding) Sandwich tern (breeding) Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding) Wetland and Waterbirds	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	N	Screened out Lady's Island Lake SPA is outside of the non-breeding season foraging range for black-headed gull and therefore there is no functional link or pathway effect. All impacts for these species have been screened out. Lady's Island Lake SPA is outside of the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.
Dundalk Bay SPA	182.7	Great-crested grebe (non-breeding) Greylag goose (non-breeding) Light-bellied brent goose (non-breeding) Shelduck (non-breeding) Teal (non-breeding) Mallard (non-breeding)	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration	N	Screened out Dundalk Bay SPA is outside of the non-breeding season foraging range for black-headed gull, common gull and herring gull and therefore there is no functional link or pathway effect. All impacts for these species have been screened out. Dundalk Bay SPA is outside of the 20km connectivity distance for swans and geese, and the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Pintail (non-breeding) Common scoter (non-breeding) Red-breasted merganser (non-breeding) Oystercatcher (non-breeding) Ringed plover (non-breeding) Golden plover (non-breeding) Grey plover (non-breeding) Lapwing (non-breeding) Knot (non-breeding) Dunlin (non-breeding) Black-tailed godwit (non-breeding) Bar-tailed godwit (non-breeding) Curlew (non-breeding) Redshank (non-breeding) Black-headed gull (non-breeding) Common gull (non-breeding) Herring gull (non-breeding) Wetland and Waterbirds	Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
River Nanny Estuary and Shore SPA	177.9	<p>Oystercatcher (non-breeding)</p> <p>Ringed plover (non-breeding)</p> <p>Golden plover (non-breeding)</p> <p>Knot (non-breeding)</p> <p>Sanderling (non-breeding)</p> <p>Herring gull (non-breeding)</p> <p>Wetland and Waterbirds</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p> <p>Indirect effects on birds resulting from impacts on prey</p>	N	<p>Screened out</p> <p>River Nanny Estuary and Shore SPA is outside of the non-breeding season foraging range for herring gull and therefore there is no functional link or pathway effect. All impacts for these species have been screened out.</p> <p>River Nanny Estuary and Shore SPA is outside of the 15km connectivity distance for waterbirds and waders, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.</p>
Seas off Wexford SPA	180.0	<p>Red-throated diver (non-breeding)</p> <p>Fulmar (breeding)</p> <p>Manx shearwater (breeding)</p> <p>Gannet (breeding)</p> <p>Cormorant (breeding and non-breeding)</p> <p>Shag (breeding)</p> <p>Common scoter (non-breeding)</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p>		<p>Screened out</p> <p>Seas off Wexford SPA is outside of the breeding season foraging range for cormorant, shag, mediterranean gull, black-headed gull, herring gull, sandwich tern, roseate tern, common tern, arctic tern, little tern, guillemot and razorbill and therefore there is no functional link or pathway effect. All impacts for these species have been screened out.</p> <p>Due to the large foraging range of fulmar, lesser black-backed gull, kittiwake, puffin, and Manx shearwater, all effects are considered to be negligible as alternative marine habitat is available for foraging and for other functions (e.g. roosting/loafing). Therefore, all impacts for these species have been screened out.</p>

Designated Site	Distance to Project (Km)	Feature(s) to consider for Assessment of LSE	Impact Pathway			LSE? (Y/N)	Screening assessment
			C	O & M	D		
		Mediterranean gull (breeding) Black-headed gull (breeding) Lesser black-backed gull (breeding) Herring gull (breeding) Kittiwake (breeding) Sandwich tern (breeding) Roseate tern (breeding) Common tern (breeding) Arctic tern (breeding) Little tern (breeding) Guillemot (breeding) Razorbill (breeding) Puffin (breeding)	Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey	Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution Indirect effects on birds resulting from impacts on prey	Visual disturbance Barrier to species movement Change in water clarity Accidental pollution Indirect effects on birds resulting from impacts on prey		Seas off Wexford SPA is outside of the 15km connectivity distance for non-breeding seabirds and waterbirds, and therefore there is no potential for functional linkage or pathway for effect for all other qualifying features. All further impacts have been screened out.

Determination of LSE for Onshore and Intertidal Ornithology

5.5.2 Following the test for LSE on the International Sites, the following sites have been screened in to Stage 2 Appropriate Assessment which will be provided in the RIAA:

- Mersey Estuary SPA and Ramsar:
 - All qualifying features
- Liverpool Bay SPA:
 - All qualifying features
- The Dee Estuary SPA and Ramsar:
 - All qualifying features
- Ribble and Alt Estuaries SPA and Ramsar:
 - All qualifying features
- Mersey Narrows and North Wirral Foreshore SPA and Ramsar:
 - All qualifying features
- Martin Mere SPA and Ramsar:
 - All qualifying features
- Midland Meres and Mosses:
 - All qualifying features
- Morecambe Bay and Duddon Estuary SPA and Ramsar:
 - Whooper swan (non-breeding)
 - Little egret (non-breeding)
 - Golden plover (non-breeding)
 - Bar-tailed godwit (non-breeding)
 - Ruff (non-breeding)
 - Mediterranean gull (non-breeding)
 - Sandwich tern (breeding)
 - Common tern (breeding)
 - Pink-footed goose (non-breeding)
 - Shelduck (non-breeding)
 - Pintail (non-breeding)
 - Oystercatcher (non-breeding)

- Grey plover (non-breeding)
- Ringed plover (non-breeding)
- Curlew (non-breeding)
- Black-tailed godwit (non-breeding)
- Turnstone (non-breeding)
- Knot (non-breeding)
- Sanderling (non-breeding)
- Dunlin (non-breeding)
- Redshank (non-breeding)
- Lesser black-backed gull (breeding and non-breeding)
- Herring gull (breeding)
- Waterbird assemblage
- Seabird assemblage
- Bowland Fells SPA and Ramsar:
 - Lesser black-backed gull (breeding) only
- Lambay Island SPA:
 - Razorbill (breeding) only
- North West Irish Sea SPA:
 - Guillemot (breeding)
 - Razorbill (breeding) only

5.6 ONSHORE ECOLOGY

PATHWAYS FOR LSE: POTENTIAL IMPACTS ON ONSHORE ECOLOGY

- 5.6.1 The potential activities and resulting effects considered for the onshore ecology features are presented in **Table 5-9**. There are several designated sites which have been identified for the ToLSE as described in **Table 5-9**. The ToLSE for each designated site is presented within **Table 5-10** along with the conclusions of the HRA Stage 1 process.
- 5.6.2 The Scoping Boundary for the Project is located entirely outside the boundary of the International Sites considered for onshore ecology. The Project will therefore not involve:

- Direct land-take from identified International Sites;
- Resource requirements from or local to identified International Sites; or
- Direct fragmentation of the habitat, or to the qualifying species of the identified International Sites.

5.6.3 The only impact pathways identified that could potentially cause LSE to the International Sites themselves will be via indirect impact pathways such as hydrological and airborne linkages from the source to the International Sites features during construction, maintenance and decommissioning. There may be impact pathways that cause LSE directly to functionally linked land (see **section 1.4.15** for explanation of functionally linked status).

5.6.4 The operation of the scheme may impact on habitat and species status due to hydrological effects. Initial hydrodynamic modelling indicates that changes to the extent of the intertidal zone would primarily be upstream of the Project with minimal changes in extent seaward of the barrage. The local SACs to the operation of the barrage considered here are all seaward of the barrage (Sefton Coast and Dee Estuary), so it is considered unlikely these International Sites would be affected by its operation. However, the 10km ZoI will encompass this consideration with the screening and the precautionary principal will be applied.

Table 5-9: Onshore ecology features – Project activities and potential impact pathways

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O&M)	Decommissioning (M)
Temporary loss/disturbance of functionally linked habitat	<ul style="list-style-type: none"> ■ Site clearance (vegetation, soil stripping); ■ Excavations; ■ Installation of cables and infrastructure; ■ Construction of supporting infrastructure. 	<ul style="list-style-type: none"> ■ Maintenance of cables and infrastructure; ■ Excavations. 	<ul style="list-style-type: none"> ■ Site clearance; ■ Removal of cables and infrastructure. ■ Excavations; ■ Increased traffic movement due to decommissioning vehicles.
Noise and Vibration (qualifying species (otter))	<ul style="list-style-type: none"> ■ Increased traffic movement due to construction vehicles; ■ Construction of supporting infrastructure; ■ Installation of cables and infrastructure. 	<ul style="list-style-type: none"> ■ Maintenance of cables and infrastructure; ■ Increased traffic movement due to maintenance vehicles. 	<ul style="list-style-type: none"> ■ Site clearance; ■ Removal of cables and infrastructure; ■ Increased traffic movement due to decommissioning vehicles.
Air Quality (qualifying habitat degradation/quality)	<ul style="list-style-type: none"> ■ Site clearance (vegetation, soil stripping); ■ Increased traffic movement due to construction vehicles; ■ Construction of supporting infrastructure; ■ Installation of cables and infrastructure. 	<ul style="list-style-type: none"> ■ Maintenance of cables and infrastructure; ■ Excavations; ■ Increased traffic movement due to maintenance vehicles. 	<ul style="list-style-type: none"> ■ Site clearance; ■ Removal of cables and infrastructure; ■ Increased traffic movement due to decommissioning vehicles.
Increased artificial light (qualifying species)	<ul style="list-style-type: none"> ■ Installation of infrastructure and presence of construction vehicles and plant. ■ Construction of supporting infrastructure. ■ Installation of cables and infrastructure. 	<ul style="list-style-type: none"> ■ Maintenance activities of cable and structures and presence of maintenance vehicles. 	<ul style="list-style-type: none"> ■ Removal of infrastructure and presence of decommissioning vehicles.
Hydrology / water quality (pollution events and disruption to flows) (qualifying habitat degradation/quality)	<ul style="list-style-type: none"> ■ Site clearance (vegetation, soil stripping, siltation); ■ Excavations (chemical pollution and siltation); ■ Construction of supporting infrastructure (chemical pollution and siltation); ■ Installation of cables and infrastructure (chemical pollution). 	<ul style="list-style-type: none"> ■ Maintenance of cables and infrastructure; ■ Excavations. 	<ul style="list-style-type: none"> ■ Site clearance; ■ Removal of cables and infrastructure; ■ Excavations.
Visual disturbance (qualifying species (otter))	<ul style="list-style-type: none"> ■ Site clearance (vegetation, soil stripping); ■ Excavations; 	<ul style="list-style-type: none"> ■ Maintenance activities of cable and structures and presence of maintenance vehicles. 	<ul style="list-style-type: none"> ■ Site clearance; ■ Removal of cables and infrastructure; ■ Excavations.

Potential Impact Pathway	Activities Potentially Resulting in Effect		
	Construction (C)	Operation & Maintenance (O&M)	Decommissioning (M)
	<ul style="list-style-type: none"> ■ Construction of supporting infrastructure; ■ Installation of cables and infrastructure. 		
Barrier to species movement (qualifying species if functionally linked habitat is present)	<ul style="list-style-type: none"> ■ Site clearance (vegetation, soil stripping); ■ Excavations; ■ Construction of supporting infrastructure; ■ Installation of cables and infrastructure. 	<ul style="list-style-type: none"> ■ Maintenance of cables and infrastructure; ■ Excavations. 	<ul style="list-style-type: none"> ■ Site clearance; ■ Removal of cables and infrastructure; ■ Excavations.
Tidal level change (habitat quality/loss)	<ul style="list-style-type: none"> ■ NA 	<ul style="list-style-type: none"> ■ Presence and operation of the tidal barrage 	<ul style="list-style-type: none"> ■ NA

Table 5-10: Potential for LSE for onshore features

Designated Site	Distance to the Project	Feature(s) to consider for Assessment of LSE	Impact Pathways Potentially Resulting in Effects			LSE? (Y/N)	Screening assessment
			Construction	O&M	Decommissioning		
Sefton Coast SAC	Adjacent	<p>Annex 1 Habitats:</p> <p>2110 Embryonic shifting dunes;</p> <p>2120 “Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (“white dunes”)”;</p> <p>2130 “Fixed coastal dunes with herbaceous vegetation (“grey dunes”)” * Priority feature;</p> <p>2170 Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) and</p> <p>2190 Humid dune slacks.</p> <p>Annex 2 Qualifying Species:</p> <p>1395 Petalwort <i>Petalophyllum ralfsii</i> (as a primary reason for site selection); and</p> <p>1166 Great crested newt <i>Triturus cristatus</i> (not a primary reason for site selection).</p>	<p>Temporary loss/disturbance of functionally linked habitat</p> <p>Air quality</p> <p>Increased artificial light</p> <p>Hydrology / water quality</p> <p>Barrier to species movement</p>	<p>Air quality</p> <p>Increased artificial light</p> <p>Hydrology / water quality</p> <p>Tidal level change</p> <p>Sediment/sand supply change</p>	<p>Air quality</p> <p>Increased artificial light</p> <p>Hydrology / water quality</p> <p>Barrier to species movement</p>	Y	<p>Screened In</p> <p>Whilst no works are foreseen within the SAC itself, the grid connection and port facilities may require works that could indirectly cause LSE to qualifying features. This will depend to a certain extent on the location of those works and so once the detail is known then the HRA can be reviewed. Potential uncertainty associated with the scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts.</p> <p>Operational impacts of the barrage may affect dune systems, which are dependent on the physical process of sand transport.</p>

Designated Site	Distance to the Project	Feature(s) to consider for Assessment of LSE	Impact Pathways Potentially Resulting in Effects			LSE? (Y/N)	Screening assessment
			Construction	O&M	Decommissioning		
Dee Estuary SAC	Adjacent	<p>Annex 1 Habitats: Qualifying, but not primary reason for site selection: 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts 2110 Embryonic shifting dunes 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")" 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature 2190 Humid dune slacks</p> <p>Annex 2 Qualifying Species: Petalwort,</p>	Air quality Hydrology / water quality	Air quality Hydrology / water quality Tidal level change Sediment/sand supply change	Air quality Hydrology / water quality	Y	<p>Screened In Habitats qualifying as primary reason for site selection are marine based (see Table 4-1 above). Whilst no works are foreseen within the SAC itself, the grid connection and port facilities may require works that could indirectly cause LSE to qualifying features. This will depend to a certain extent on the location of those works and so once the detail is known then the HRA can be reviewed. Qualifying fish species are considered under marine sections (see Table 5-4). Potential uncertainty associated with the design, locations, scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts. Operational impacts of the barrage may affect dune systems, which are dependent on the physical process of sand transport.</p>
River Dee and Bala Lake SAC	7km to the south	<p>Annex 1 Habitats: 3260 Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation.</p> <p>Annex 2 Qualifying Species: 1831 Floating water-plantain <i>Luronium natans</i>; and 1355 Otter <i>Lutra lutra</i>; 1096 Brook lamprey <i>Lampetra planeri</i> 1163 Bullhead <i>Cottus gobio</i></p>	Air quality Hydrology / water quality	Air quality Hydrology / water quality	Air quality Hydrology / water quality	Y	<p>Screened In Whilst no works are foreseen within the SAC itself, the grid connection and port facilities may require works that could indirectly cause LSE to qualifying features. This will depend to a certain extent on the location of those works and so once the detail is known then the HRA can be reviewed. Freshwater fish are screened in here, other qualifying fish species are considered under marine sections (see Table 5-4). Potential uncertainty associated with the design, locations, scale, duration and</p>

Designated Site	Distance to the Project	Feature(s) to consider for Assessment of LSE	Impact Pathways Potentially Resulting in Effects			LSE? (Y/N)	Screening assessment
			Construction	O&M	Decommissioning		
							magnitude of impact; and sensitivity of the receptor to the impacts.
Deeside and Buckley Newt Sites SAC	8.3km to the south-west	<p>Annex 1 Habitats: 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles.</p> <p>Annex 2 Qualifying Species: Great crested newt</p>	Air quality Hydrology / water quality	Air quality Hydrology / water quality	Air quality Hydrology / water quality	N	<p>Screened Out</p> <p>Given the distance and lack of connectivity (hydrological or otherwise) of the SAC to the Scoping boundary it is considered that there is no prospect of the works causing LSE to the qualifying features of the SAC.</p> <p>Potential uncertainty associated with the design, locations, scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts.</p>
Martin Mere SPA	17.8km to the north-east	<p>Qualifying species: <i>Cygnus columbianus bewickii</i> Bewick's swan (non-breeding); <i>Cygnus cygnus</i> Whooper swan (non-breeding); <i>Anser brachyrhynchus</i> Pink-footed goose (non-breeding); <i>Anas crecca</i> Eurasian teal (non-breeding); and <i>Anas acuta</i> Northern pintail (non-breeding). Waterbird Assemblage is noted as a qualifying feature.</p>	Temporary loss/disturbance of functionally linked habitat Air quality	Air quality	Temporary loss/disturbance of functionally linked habitat Air quality	N	<p>Screened Out</p> <p>It should be noted that the 20km ZoI only links up to the eastern edge of the river Mersey and the potential grid connection area to the east (the west of the river is outside the 20km range).</p> <p>Given the distance to the eastern side of the river (for port facilities and the grid connection, and lack of connectivity (hydrological or otherwise) of the SPA to the Scoping boundary it is considered that there is no prospect of the works causing the LSE to the qualifying features of the SPA. In addition, due to the temporary nature of works in terms of the grid connection, the lack of suitable habitat in relation to the port facilities and the abundance of suitable habitat between the works and the SPA, no LSE on any potentially functionally linked land is foreseen.</p> <p>Potential uncertainty associated with the design, locations, scale, duration and</p>

Designated Site	Distance to the Project	Feature(s) to consider for Assessment of LSE	Impact Pathways Potentially Resulting in Effects			LSE? (Y/N)	Screening assessment
			Construction	O&M	Decommissioning		
							magnitude of impact; and sensitivity of the receptor to the impacts.
Martin Mere Ramsar		A low-lying complex of open water, marsh and grassland habitats overlying deep peat and occupying part of the former site of a large freshwater lake. Numbers of wintering waterbirds regularly exceed 20,000 individuals and include internationally important numbers of swans, ducks and geese. Wintering and passage <i>Philomachus pugnax</i> (passage flock of 50), and scarce or rare plant and invertebrate species, are also features of national importance	Temporary loss/disturbance of functionally linked habitat Air quality	Temporary loss/disturbance of functionally linked habitat Air quality	Temporary loss/disturbance of functionally linked habitat Air quality	N	<p>Screened Out</p> <p>It should be noted that the 20km ZoI only links up to the eastern edge of the river Mersey and the potential grid connection area to the east (the west of the river is outside the 20km range).</p> <p>Given the distance to the eastern side of the river (for port facilities and the grid connection, and lack of connectivity (hydrological or otherwise) of the Ramsar to the Scoping boundary it is considered unlikely that the works would cause LSE to the qualifying features of the Ramsar. In addition, due to the temporary nature of works in terms of the grid connection, the lack of suitable habitat in relation to the port facilities and the abundance of suitable habitat between the works and the Ramsar, no LSE on any potentially functionally linked land is foreseen.</p> <p>Potential uncertainty associated with the design, locations, scale, duration and magnitude of impact; and sensitivity of the receptor to the impacts.</p>

DETERMINATION OF LSE FOR ONSHORE ECOLOGY

- 5.6.5 This section will set out whether LSE can be ruled out for any sites. It will also provide details of which sites and which features or species have been screened in to Stage 2 AA.
- 5.6.6 There were six sites screened into the assessment. The Screening assessment identified all three sites as having potential for LSE and they have been screened in to Stage 2 Appropriate Assessment which will be provided in the RIAA.
- 5.6.7 Sites screened in for onshore ecology:
- Sefton Coast SAC:
 - 2110 Embryonic shifting dunes;
 - 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")";
 - 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature;
 - 2170 Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*);
 - 2190 Humid dune slacks;
 - 1395 Petalwort *Petalophyllum ralfsii* (as a primary reason for site selection); and
 - 1166 Great crested newt *Triturus cristatus* (not a primary reason for site selection).
 - Dee Estuary SAC:
 - 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts;
 - 2110 Embryonic shifting dunes;
 - 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")";
 - 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature;
 - 2190 Humid dune slacks; and
 - Petalwort.
 - The Dee Estuary SPA and Ramsar:
 - 3260 Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation;

- 1831 Floating water-plantain *Luronium natans*;
- 1355 Otter *Lutra lutra*;
- 1096 Brook lamprey *Lampetra planeri gobio*; and
- 1163 Bullhead *Cottus gobio*.

6 IN-COMBINATION ASSESSMENT

6.1 PROJECTS CONSIDERED

6.1.1 This section will set out the impact pathways of effect for the project that may act in-combination with other plans or projects.

6.1.2 The identification of plans and projects to include in the in-combination assessment is based on:

- Approved plans or projects with relevant ongoing activities;
- Approved but as yet unconstructed projects; and
- Projects for which an application has been made, are currently under consideration and will be consented before the proposed works begin.

MARINE ECOLOGY

6.1.3 Projects that were constructed and operational at the time the site was designated have been classified as part of the baseline conditions. To identify relevant projects or plans, a combination of the MMO Public Register, the Natural England Public Register, MAGIC maps and local knowledge were used. Twenty projects were identified that are within the Zol (30km) of the works and have the potential to have an in-combination effect with the work activities. Distances to the proposed works are provided within brackets:

- Spatial Plans:
 - Liverpool Local Plan 2013 – 2033
 - Liverpool City Region Spatial Development Strategy 2023 – 2040
 - Wirral Local Plan 2021 – 2037
 - Birkenhead Framework 2040 – Up to 2040

6.1.4 The Liverpool Local Plan has been developed over a number of years and provides a policy framework to guide the use and development of land within the city up to 2033. This replaces the 2002 Unitary Development Plan and not only guides development but also provides a range of protections to the city's natural and historic environment as well as measures to promote and expand low carbon infrastructure and sustainable and active transport. The Local Plan is built around the principle of sustainable development and the three overarching objectives of economic, social and environmental benefits to the city. One of the policies within this plan is to support the vision of Liverpool Waters, an ambitious

scheme extending over 2 km along the banks of the River Mersey that has outlined planning permission over 60 ha of land bordering the Mersey. It aims to transform the city's Northern Docks and create a world-class, high-quality, mixed-use waterfront.

- 6.1.5 The Liverpool City Region Spatial Development Strategy sets out a framework for building and redevelopment of the Liverpool City Region and looks ahead across at least the next 15 years. It aims to identify strategic areas for growth and infrastructure provision and will form part of an overall development plan in conjunction with the Local Plan and Neighbourhood Plans. Policy LCR SP8 relates to the River Mersey and the coast. In recognition of the economic, environmental and social importance of the River Mersey and the coast, this policy outlines a range of key strategic planning measures and approaches in the interests of ensuring the long-term sustainability of these key assets.
- 6.1.6 The Wirral's Local Plan, in accordance with Government guidance, seeks to meet all of the Borough's housing and employment development needs over the next 15 years within existing built-up areas, largely through the redevelopment of brownfield sites and by putting the heart back into the older urban areas. By far the largest focus is on delivering regeneration within the 'Left Bank' of the River Mersey – or the eastern part of the Borough – from New Brighton in the north to Eastham in the south.
- 6.1.7 The Birkenhead Framework 2040 aims to re-connect a revitalised town centre with the many opportunities along the Mersey waterfront and will make the most of the town's iconic heritage and buildings. The changes already underway at Wirral Waters, Wirral Growth Company's new office quarter and market in the town centre, and the opening of Eureka! Mersey in 2022.
- Marine Aggregate Licence Areas:
 - Area 392/393 Hilbre Swash (23km); and
 - Area 1808 Liverpool Bay (27km).
- 6.1.8 The marine aggregate extraction area 392/393 (Hilbre Swash) is located north of the Flintshire coast in Liverpool Bay and is currently licensed by Lafarge Tarmac Marine Ltd (LTM) and Norwest Sand & Ballast (NSB) Company Ltd. LTM and LSB have undertaken aggregate dredging in this licence area and an area immediately to the south for over 50 years, however a new licence was submitted in 2013 to Government regulators for further permission to extract 12 million tonnes of aggregate (mainly sand) over 15 years (until 2027).

- 6.1.9 The marine aggregate extraction area 1808 (Liverpool Bay) is located off the north coast of Wales, near Prestatyn. The area has been leased by Hanson Aggregates Marine Ltd. to extract sand and gravel using dredging techniques. The marine licence was granted in 2012 and will end in 2025.
- 6.1.10 The Hilbre Swash and Liverpool areas are currently active for the extraction of marine aggregates, however, given the distances of licenced areas in relation to the Project (>20km) and that this Liverpool Bay area has been continually dredged for aggregates for longer than any nearby International Sites have been established, it is concluded that the activities fall under 'baseline conditions' and there is no potential for the extraction activities at Hilbre Swash, Liverpool Bay and the Project works to have any in-combination effects on any nearby International Site and, therefore, there would be no LSE beyond those identified for the project alone in Section 5.
- Renewable energy projects:
 - Burbo Bank Offshore Windfarm O&M activities (8.9km);
 - North Hoyle Offshore Windfarm Ltd O&M activities (24.2km);
 - Gwynt y Môr Offshore Windfarm Ltd O&M activities (26.7km);
 - Hydropower energy generation (Archimedean Screw Generator) (0km);
and
 - HyNet North West Hydrogen Pipeline (9.4km).
- 6.1.11 Burbo Bank offshore wind farm is located on the Burbo Flats sand bank in Liverpool Bay near the entrance of the Mersey Estuary, approximately 8.9km from the Project. The wind farm has been fully operational since 2007, and an Operational and Maintenance (O&M) Marine Licence has been granted for O&M activities to be carried out where required over the lifespan of the wind farm (2016-2032). These activities will likely involve the use of maintenance vessels / equipment and potential maintenance dredging.
- 6.1.12 The North Hoyle Offshore Windfarm is located off the north coast of Wales near Prestatyn, located approximately 24.2km from the Project. The windfarm became operational in 2004, and an O&M Marine Licence has been granted which will sustain O&M activities to be carried out where required over the lifespan of the wind farm (2004 – 2034). These activities will likely involve the use of maintenance vessels / equipment and potential maintenance dredging.
- 6.1.13 The Gwynt y Môr Offshore Windfarm is positioned 2.6km north of the North Hoyle Offshore Windfarm, located approximately 24.2km from the Project. The

windfarm became operational in 2015, and an O&M Marine Licence has been granted which will sustain O&M activities to be carried out where required over the lifespan of the wind farm (2015 – 2040). These activities will likely involve the use of maintenance vessels / equipment and potential maintenance dredging.

- 6.1.14 The exact timings for the maintenance activities are unknown for the above Marine Licensed activities, which may lead to temporal overlap with the Project construction, O&M and decommissioning phases. However, given the typical short-term duration and small-scale of maintenance works, as well as the distance from the Project, and that the above OWF developments are classified as part of the baseline conditions, it is concluded that there is no potential for the O&M activities at Burbo Bank, North Hoyle windfarm, Gwynt y Mor Windfarm, and the Project works to have any in-combination effects on nearby International Sites. Therefore, there would be no LSE beyond those identified for the project alone in Section 5.
- 6.1.15 Hallidays Hydropower Ltd propose to install two Archimedes screw turbines within a disused lock at Eastham Locks on the Manchester Ship Canal, Birkenhead. The turbines will operate between the average tide and low tide period to generate power from water flow in and out of the lock. The total installed capacity of the development will be 499kW, producing 2,500MWh per year with an anticipated lifespan of 60 years. The project description or timescales have not been published therefore it is difficult to determine the potential for temporal overlap with the Project construction, O&M and decommissioning phases. However, due to the small scale and location of the hydropower facility being within the sheltered dock area that is already subject to considerable levels of anthropogenic disturbance, it is unlikely they there will be any in-combination effects on nearby International Sites. Therefore, there would be no LSE beyond those identified for the project alone in Section 5.
- 6.1.16 The HyNet North West development was announced in 2021 with the proposal to produce clean hydrogen power to industry and homes across the North West region. The development will involve the capture of carbon dioxide produced by land-based industrial activities and store it in depleted gas fields in the Irish Sea. The captured carbon will then be transported via a 125 km new pipeline across the North West to various Low carbon hydrogen production sites, underground hydrogen storage sites and eventually to customers for use. The pipeline will be installed underground and ten hydrogen above ground installations will be constructed along the route. The construction phase is anticipated to commence in 2024 and last approximately 16 months. The HyNet pipeline is not expected to overlap spatially or temporally. As such, the HyNet development will be considered as part of the baseline environment because the Project is expected

to commence construction after the completion of HyNet. therefore, there would be no LSE beyond those identified for the project alone in Section 5.

- Port and Harbour developments:
 - Liverpool2 Phase 3 port expansion.

6.1.17 The contract for the next phase of development at the Liverpool2 deep-water container terminal was secured by McLaughlin & Harvey in 2019. Liverpool2 is the UK's largest transatlantic port and can accommodate the world's largest container vessels. Phase 2 of development was completed in 2019 and in 2021 the third phase of the development was commissioned to expand the terminal by an additional 15 acres of yard capacity. The project description or works schedule have not been published therefore it is difficult to determine the potential for temporal or spatial overlap with the Project construction, O&M and decommissioning phases.

- Cables / pipelines:
 - Burbo Bank Export cable (3.4km);
 - Douglas to Lennox methanol (Liverpool Bay) (20.1km); and
 - Douglas to Lennox gas production (20.1km).

6.1.18 The Burbo Bank offshore windfarm site is connected to the shore via three export cables which make landfall at Wallasey, 3.4km from the proposed Project. The cable route requires maintenance works to be undertaken should any export cables fail or become exposed. A marine license has been granted as a pre-emptive application designed to limit downtime if any such event occurs. These activities will likely involve the use of maintenance vessels / equipment and potential maintenance dredging.

6.1.19 The exact timings for the maintenance activities are unknown for the above Marine Licensed activities, which may lead to temporal overlap with the Project construction, O&M and decommissioning phases. The export cable overlaps with the Dee Estuary SAC within designated sandflat and mudflat habitat, which is considered alone in for multiple potential impacts in Section 5.

6.1.20 However, given the typical short-term duration and small-scale of maintenance works, as well as the distance from the Project, it is concluded that there is no potential for the O&M activities at Burbo Bank export cable and the Project works to have any in-combination effects on International Site and, therefore, there would be no LSE beyond those identified for the project alone in Section 5.

- Navigational / Maintenance dredging sites:
 - Canada Dock Navigation dredging (0km);
 - Seaforth Navigational dredging (2.6km);
 - Langton Dock navigational dredging (0km);
 - Huskisson Dock navigational dredging (0km);
 - Gladstone Dock navigational dredging (0.2km);
 - Stalbridge Dock navigational dredging (2.5km); and
 - Channel navigational dredging (1.4km).

6.1.21 The Mersey Docks and Harbour Company Ltd is the harbour authority for the Port of Liverpool with the obligation to maintain navigation into the Mersey Estuary for all river users. The Mersey approaches has been continually dredged from the late 1800s to present and the most recent Marine License was granted in 2021 to permit the dredging of the approaches to the Mersey Estuary which includes the navigational dredging of the channel, Canada Dock, Seaforth, Langton Dock, Huskisson Dock, Gladstone Dock and Stalbridge Dock. The dredging activities take place on an ad-hoc basis, reacting to seasonal variations in the rates and locations of sedimentation. Activities would include the use of either a Trailer suction hopper dredger, Grab hopper dredger, Agitation dredger / plough, and Water injection dredger (Peel Ports 2018).

6.1.22 The exact timings for the dredging activities are unknown for the above Marine Licensed activities, which may lead to temporal overlap with the Project construction, O&M and decommissioning phases. The dredging activities will predominantly affect habitats and species below the water's surface and is located within the Liverpool Bay / Bae Lerpwl SPA as well as <5km from the Dee Estuary SAC. The HRA for the dredging activities concluded that there would be no likely significant effect or adverse effects on integrity on the nearby European protected sites.

6.1.23 Given the typical short-term duration and small-scale of dredging works, as well as that the Mersey has been continually dredged for over 100 years, it is concluded that there is no potential for the dredging activities within the Mersey Estuary and the Project works to have any in-combination effects on International Site and, therefore, there would be no LSE beyond those identified for the project alone in Section 5.

- Marine disposal sites:
 - IS120 Mersey (Mid River site) (0km);

- IS128 Off Bromborough 2 (1km);
- IS140 Site Z (20.6km); and
- IS150 Site Y (28.2km).

6.1.24 The dredged material extracted from the approaches of the Mersey Estuary is disposed of at four locations: Mersey (Mid River Site), Off Bromborough 2, Site Z and Site Y. A Marine Licence was granted in 2021 with a 10-year duration for all the dredged material, composed of sand (62.5um – 2mm) and silt (31.25 – 62.5um) to be disposed of at these sites. Disposal would take place on two campaigns a year.

6.1.25 Given the typical short-term duration (less than one 14 day tidal cycle) and small-scale of disposal works, as well as that the Mersey has been continually dredged and sediment disposed of throughout the estuary for over 100 years, it is concluded that there is no potential for the disposal activities within the Mersey Estuary and the Project works to have any in-combination effects on International Site and, therefore, there would be no LSE beyond those identified for the project alone in Section 5.

■ Other developments:

- The People's Project: Bramley-Moore Dock (0km)

6.1.26 Everton Stadium Development Ltd. have been granted a marine licence for full planning permission for the development of a new stadium with associated facilities and infrastructure on the site of Bramley-Moore Dock, Liverpool. Construction of the proposed stadium on Bramley-Moore Dock would require the isolation and infill of the existing dock waterbody. The marine licensable activities include; protection of listed structures and repairs to dock walls, creation of a pedestrian access opening, dock isolation and filling, piling platform and installation of permanent isolation structure. The licence is valid from 2020 to 2026 and the stadium is currently nearing to the end of the construction phase.

6.1.27 Given that the development at Bromley-Dock is almost complete and the most invasive construction activities have finished (e.g. dock isolation and infilling), it is expected that there will be minimal temporal and spatial overlap with the proposed Project. It is concluded that there is no potential for the construction activities at the Bramley-Moore Dock Peoples Project and the Project works to have any in-combination effects on International Site and, therefore, there would be no LSE beyond those identified for the project alone in Section 5.

Onshore Ecology

- 6.1.28 A full planning search was not carried out at this point for onshore ecology (LPA websites, NSIPs). The sites screened out for the Project alone at the screening stage were Deeside and Buckley Newt Sites SAC and Martin Mere SPA and Ramsar.
- 6.1.29 It is considered that the distance of these sites from the Scoping Boundary and the complete lack of connectivity between the project and these International Site means that the Project will not contribute to any in combination effects with any other plans or projects.
- 6.1.30 In addition, for the SPA and Ramsar, the abundance of functionally linked land between the International Sites and the Scoping Boundary, means that the temporary loss of any land to the east of the river, which might be considered functionally linked is considered to be de minimis and it is not foreseen that the Project will contribute to LSEs in-combination with other schemes.
- 6.1.31 Further, for Deeside and Buckley Newt Sites SAC, being 8km from the Scoping Boundary, no land would be considered to be functionally linked for GCN, given their movement range is unlikely to be more than 1km. Therefore, the Project will not contribute to any LSEs in-combination with other schemes.

6.2 IN-COMBINATION ASSESSMENT CONCLUSION

- 6.2.1 Following consideration of potential effects arising from identified projects, in-combination with the proposed works, it was concluded that the projects identified within 30 km of the proposed works would not act in-combination to give rise to an LSE on any International Sites.

7 SUMMARY OF SCREENING ASSESSMENT FOR LIKELY SIGNIFICANT EFFECT (LSE)

- 7.1.1 The activities required for the construction, operation and maintenance, and decommissioning of the Mersey Tidal Power Project, have the potential to interact with International Sites. This assessment identified protected sites in the vicinity of the proposed Project that could potentially be influenced by effects arising from the Project activities.
- 7.1.2 Consideration was given to the relevant guidance issued by a number of governmental, statutory and industry bodies including, but not limited to, Welsh Government and NRW guidance on Habitat Regulations Assessments, Natural England and NRW online guidance on HRA in the marine licensing process and Natural England's Advice on Operations. Following reference to this guidance, designated sites that were assessed and have been screened in for Stage 2 Appropriate Assessment are summarised in **Table 7-1**.
- 7.1.3 The test for no LSE concluded that there is potential for LSE within 51 International Sites out of the 76 sites assessed in the screening assessment, affecting 82 protected features. As such, the assessment will be progressed to Stage 2 Appropriate Assessment.
- 7.1.4 Following consideration of potential effects arising from identified projects, in-combination with the proposed works, it was concluded that the projects identified within 30 km of the proposed works would not act in-combination to give rise to an LSE on any International Sites.

Table 7-1: Summary of screening assessment for all features

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
Dee Estuary / Aber Dyfrdwy SAC	Mudflats and sandflats not covered by seawater at low tide (*Priority) Estuaries	<p>Abrasion / disturbance (of the substrate on the surface of the seabed i.e. scour);</p> <p>Changes in suspended solids, smothering and siltation rate (water clarity);</p> <p>Mobilisation of contaminants (sediment and water quality)</p> <p>Introduction or spread of invasive non-native species (INNS);</p> <p>Pollution (from vessels and equipment including Hydrocarbon & PAH contamination)</p>	<p>Abrasion / disturbance (of the substrate on the surface of the seabed i.e. scour);</p> <p>Changes in suspended solids, smothering and siltation rate (water clarity);</p> <p>Mobilisation of contaminants (sediment and water quality)</p> <p>Introduction or spread of invasive non-native species (INNS);</p> <p>Pollution (from vessels and equipment including Hydrocarbon & PAH contamination)</p> <p>Changing to hydrodynamic regime</p>	<p>Abrasion / disturbance (of the substrate on the surface of the seabed i.e. scour);</p> <p>Changes in suspended solids, smothering and siltation rate (water clarity);</p> <p>Mobilisation of contaminants (sediment and water quality)</p> <p>Introduction or spread of invasive non-native species (INNS);</p> <p>Pollution (from vessels and equipment including Hydrocarbon & PAH contamination)</p> <p>Changing to hydrodynamic regime</p>
	<p>Sea lamprey (<i>Petromyzon marinus</i>)</p> <p>River lamprey (<i>Lampetra fluviatilis</i>)</p>	<p>Changes in suspended solids (water quality)</p> <p>Entrainment and injury (from draghead)</p> <p>Increased underwater noise and vibration</p> <p>Increased artificial light emissions</p> <p>Introduction of INNS</p> <p>Change in water quality due to accidental pollution</p> <p>Change in water quality due to mobilisation of contaminated sediments</p> <p>Physical habitat loss/disturbance (Temporary)</p>	<p>Changes in suspended solids (water quality)</p> <p>Entrainment and injury (from draghead)</p> <p>Increased underwater noise and vibration</p> <p>Increased artificial light emissions</p> <p>Barrier to migration</p> <p>Entrainment and injury from turbine and sluice structures</p> <p>Introduction of INNS</p> <p>Change in water quality due to accidental pollution</p> <p>Change in water quality due to mobilisation of contaminated sediments</p> <p>Physical habitat loss/disturbance (Temporary and permanent)</p> <p>Change in hydrodynamic regime</p> <p>Creation of Electromagnetic Field (EMF) effects</p>	<p>Changes in suspended solids (water quality)</p> <p>Entrainment and injury (from draghead)</p> <p>Increased underwater noise and vibration</p> <p>Increased artificial light emissions</p> <p>Introduction of INNS</p> <p>Change in water quality due to accidental pollution</p> <p>Change in water quality due to mobilisation of contaminated sediments</p> <p>Physical habitat loss/disturbance (Temporary)</p>
The River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC	Sea lamprey (<i>Petromyzon marinus</i>)	<p>Increased levels of suspended sediments</p> <p>Entrainment from draghead</p> <p>Increased underwater noise and vibration</p>	<p>Increased levels of suspended sediments</p> <p>Entrainment from draghead</p> <p>Increased underwater noise and vibration</p>	<p>Increased levels of suspended sediments</p> <p>Entrainment from draghead</p> <p>Increased underwater noise and vibration</p>

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
	River lamprey (<i>Lampetra fluviatilis</i>) Atlantic salmon (<i>Salmo salar</i>)	Increased artificial light emissions Introduction of INNS Change in water quality due to accidental pollution Change in water quality due to mobilisation of contaminated sediments Temporary habitat loss	Increased artificial light emissions Barrier to migration Entrainment and injury from turbine and sluice structures Introduction of INNS Change in water quality due to accidental pollution Change in water quality due to mobilisation of contaminated sediments Permanent habitat loss/alteration Temporary habitat loss Change in hydrodynamic regime Creation of Electromagnetic Field (EMF) effects	Increased artificial light emissions Introduction of INNS Change in water quality due to accidental pollution Change in water quality due to mobilisation of contaminated sediments Temporary habitat loss
North Anglesey Marine SAC	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Pen Llŷn a'r Sarnau Peninsula SAC	Bottlenose dolphin	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
	Grey seal	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
		Barrier to movements	Barrier to movements	Barrier to movements
West Wales Marine SAC	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Cardigan Bay SAC	Bottlenose dolphin	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
North Channel SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Codling Fault SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Rockabil to Dalkey Island SAC	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
Lambay Island SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Blackwater Bank SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
The Bristol Channel Approaches SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Carnsore Point SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Hook Head SAC	Bottlenose dolphin	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels)

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
	Harbour porpoise	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Physical habitat loss/disturbance Increased collision risk (vessels)
Bunduff, Lough and Machair/ Trawalua/ Mullaghmore SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Kilkieran Bay and Islands SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Inishmore Island SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
West Connacht Coast SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
Kenmare River SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Roaringwater Bay and Islands SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Blasket Islands SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Belgica Mound Province SAC	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)
Transboundary French Sites Abers – Côtes des légendes SAC (FR5300017);	Harbour porpoise	Underwater noise Changes to prey Accidental pollution Vessel disturbance Increased collision risk (vessels)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels and turbines)	Increased noise and vibration Effects on prey Accidental pollution Vessel disturbance Increased collision risk (vessels)

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
Anse de Vauville SAC (FR2502019); Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SAC (FR5300012); Baie de Morlaix SAC (FR5300015); Baie de Saint-Brieuc – Est SAC (FR5300066); Baie du Mont Saint-Michel SAC (FR2500077); Banc et récifs de Surtainville SAC (FR2502018); Cap d'Erquy-Cap Fréhel SAC (FR5300011); Chausey SAC (FR2500079); Chaussée de Sein SAC (FR5302007); Côtes de Crozon SAC (FR5302006); Côte de Granit Rose-Sept Iles SAC[FR5310011];				

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
Estuaire de la Rance SAC [FR5300061] ; Mers Celtiques – Talus du golfe de Gascogne SAC (FR5302015); Nord Bretagne DH SAC (FR2502022); Ouessant-Molène SAC (FR5300018); Récifs et landes de la Hague SAC (FR2500084); and Tregor Goëlo SAC (FR5300010).				
Mersey Estuary SPA and Ramsar	All qualifying features	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution
Liverpool Bay SPA	All qualifying features	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
		Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution	Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution
The Dee Estuary SPA and Ramsar	All qualifying features	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution
Ribble and Alt Estuaries SPA and Ramsar	All qualifying features	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Tidal level change Accidental pollution	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light Increased underwater noise and vibration Visual disturbance Barrier to species movement Change in water clarity Accidental pollution
Mersey Narrows and North Wirral Foreshore SPA and Ramsar	All qualifying features	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light	Permanent habitat loss Collision above and below the water Increased above water noise Increased artificial light	Temporary habitat loss Collision above and below the water Increased above water noise Increased artificial light

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
		<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p>	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>
Martin Mere SPA and Ramsar	All qualifying features	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>
Midland Meres & Mosses Ramsar	All qualifying features	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>
Morecambe Bay and Duddon Estuary SPA and Ramsar	All qualifying features	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p>

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
		<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p>	<p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>
Bowland Fells SPA and Ramsar	Lesser black-backed gull (breeding)	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>	<p>Permanent habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Tidal level change</p> <p>Accidental pollution</p>	<p>Temporary habitat loss</p> <p>Collision above and below the water</p> <p>Increased above water noise</p> <p>Increased artificial light</p> <p>Increased underwater noise and vibration</p> <p>Visual disturbance</p> <p>Barrier to species movement</p> <p>Change in water clarity</p> <p>Accidental pollution</p>
Sefton Coast SAC	<p>Annex 1 Habitats:</p> <p>2110 Embryonic shifting dunes;</p> <p>2120 “Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (“white dunes”)”;</p> <p>2130 “Fixed coastal dunes with herbaceous vegetation (“grey dunes”)” * Priority feature;</p> <p>2170 Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) and</p> <p>2190 Humid dune slacks.</p>	<p>Temporary loss/disturbance of functionally linked habitat</p> <p>Air quality</p> <p>Increased artificial light</p> <p>Hydrology / water quality</p> <p>Barrier to species movement</p>	<p>air quality</p> <p>Increased artificial light</p> <p>hydrology / water quality</p> <p>Tidal level change</p>	<p>air quality</p> <p>Increased artificial light</p> <p>hydrology / water quality</p> <p>Barrier to species movement</p>

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
	<p>Annex 2 Qualifying Species:</p> <p>1395 Petalwort <i>Petalophyllum ralfsii</i> (as a primary reason for site selection); and</p> <p>1166 Great crested newt <i>Triturus cristatus</i> (not a primary reason for site selection).</p>			
Dee Estuary SAC	<p>Annex 1 Habitats: Qualifying, but not primary reason for site selection:</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts</p> <p>2110 Embryonic shifting dunes</p> <p>2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")"</p> <p>2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature</p> <p>2190 Humid dune slacks</p> <p>Annex 2 Qualifying Species: Petalwort,</p>	<p>Air quality</p> <p>Hydrology / water quality</p>	<p>Air quality</p> <p>Hydrology / water quality</p> <p>Tidal level change</p>	<p>Air quality</p> <p>Hydrology / water quality</p>
River Dee and Bala Lake SAC	<p>Annex 1 Habitats: 3260 Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation.</p>	<p>Air quality</p> <p>Hydrology / water quality</p>	<p>Air quality</p> <p>Hydrology / water quality</p>	<p>Air quality</p> <p>Hydrology / water quality</p>

Designated Site	Feature(s) considered for assessment of LSE	Impact pathways screened in for assessment		
		C	O&M	D
	Annex 2 Qualifying Species: 1831 Floating water-plantain <i>Luronium natans</i> ; and 1355 Otter <i>Lutra lutra</i> ; 1096 Brook lamprey <i>Lampetra planeri</i> 1163 Bullhead <i>Cottus gobio</i>			

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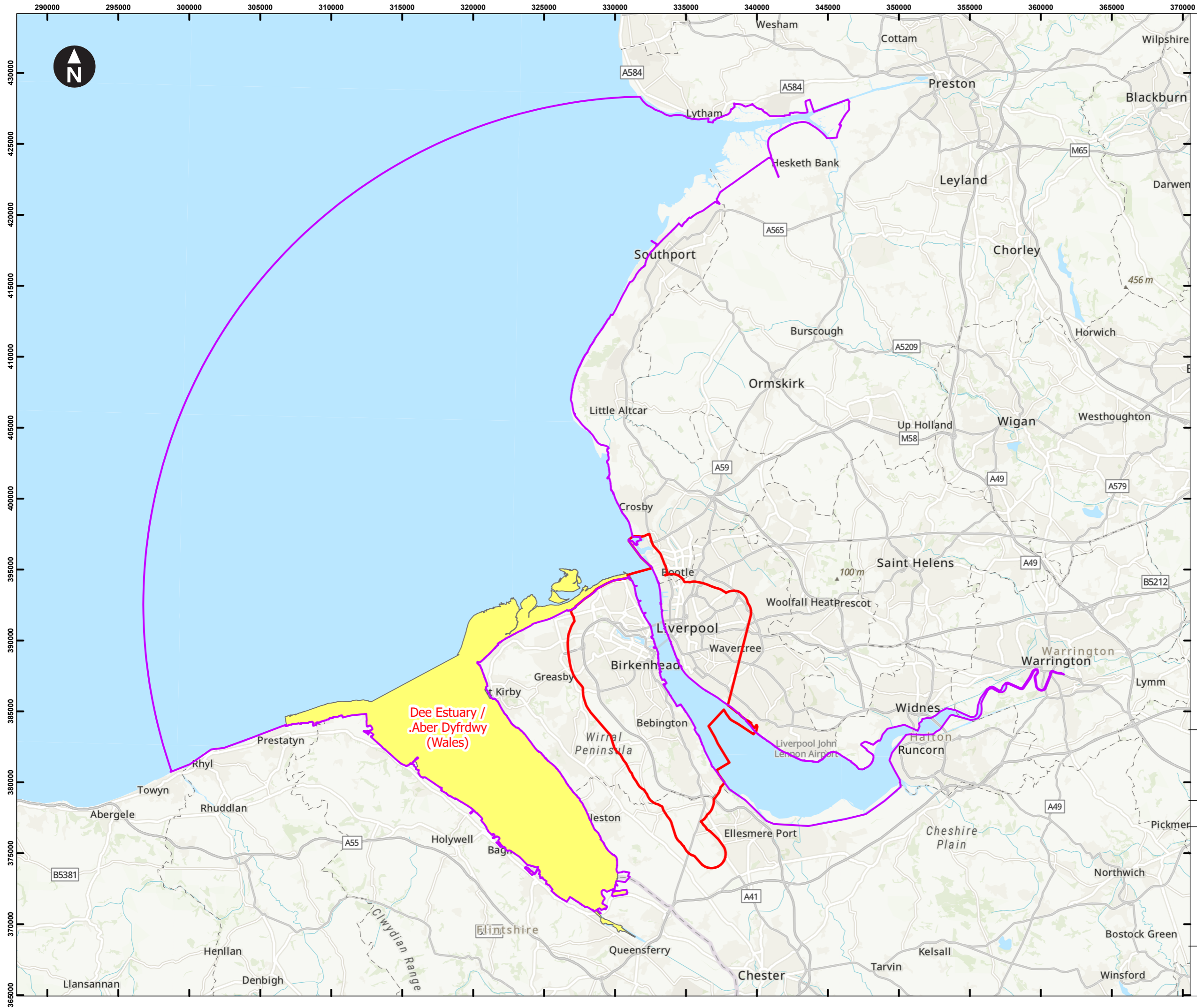
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APPENDIX 1 FIGURES

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- Key
- EIA Scoping Boundary
 - Benthic Ecology and Plankton Zol
 - Special Area of Conservation

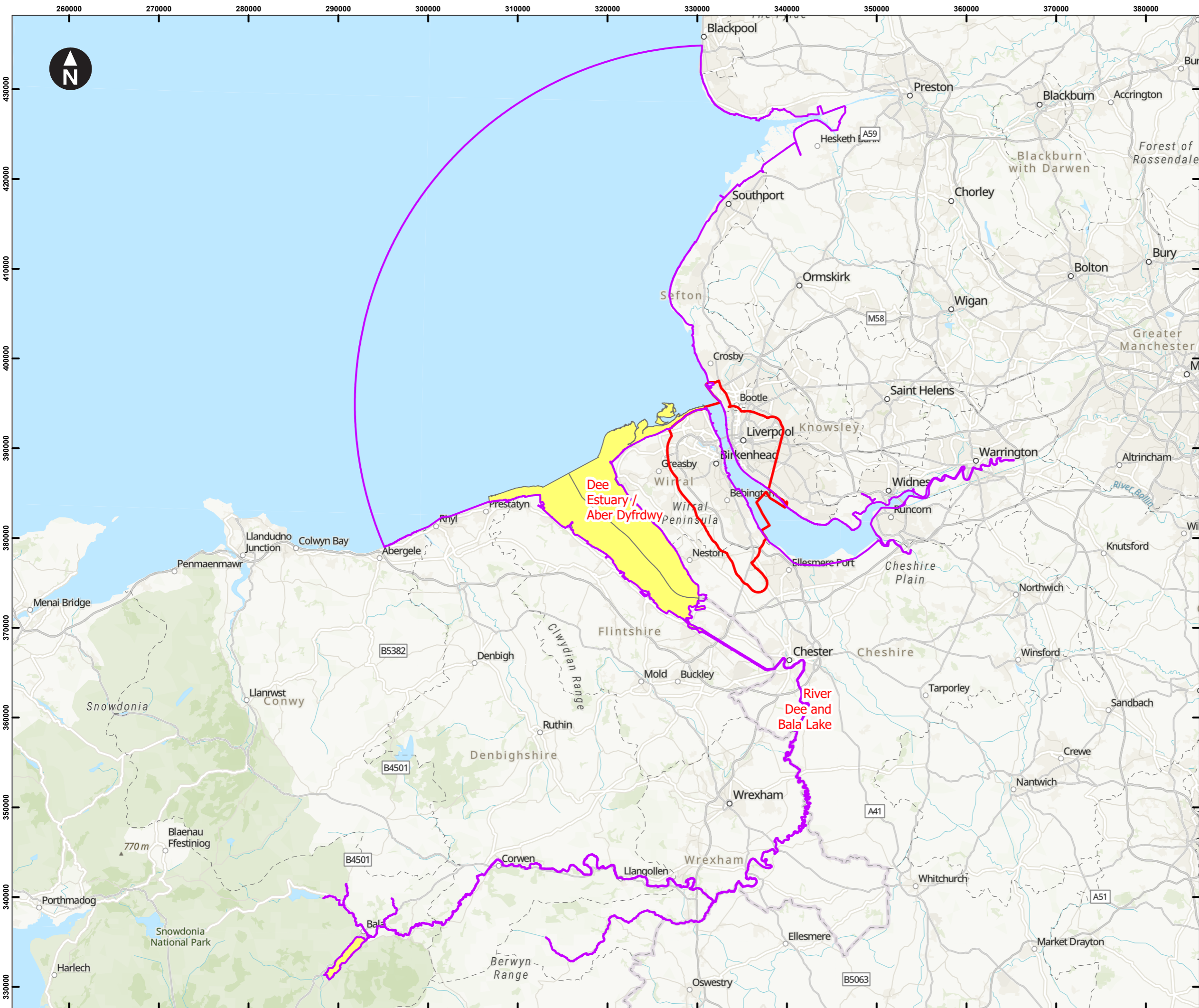
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Drawn: RM Checked: MH Approved: NT

Mersey Tidal Power HRA Screening Report

Figure 4.1 Designated sites within the Intertidal and Subtidal Benthic Ecology Zol



- Key
- EIA Scoping Boundary
 - Fish and Shellfish Zol
 - Special Areas of Conservation

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World Topographic Map: Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS



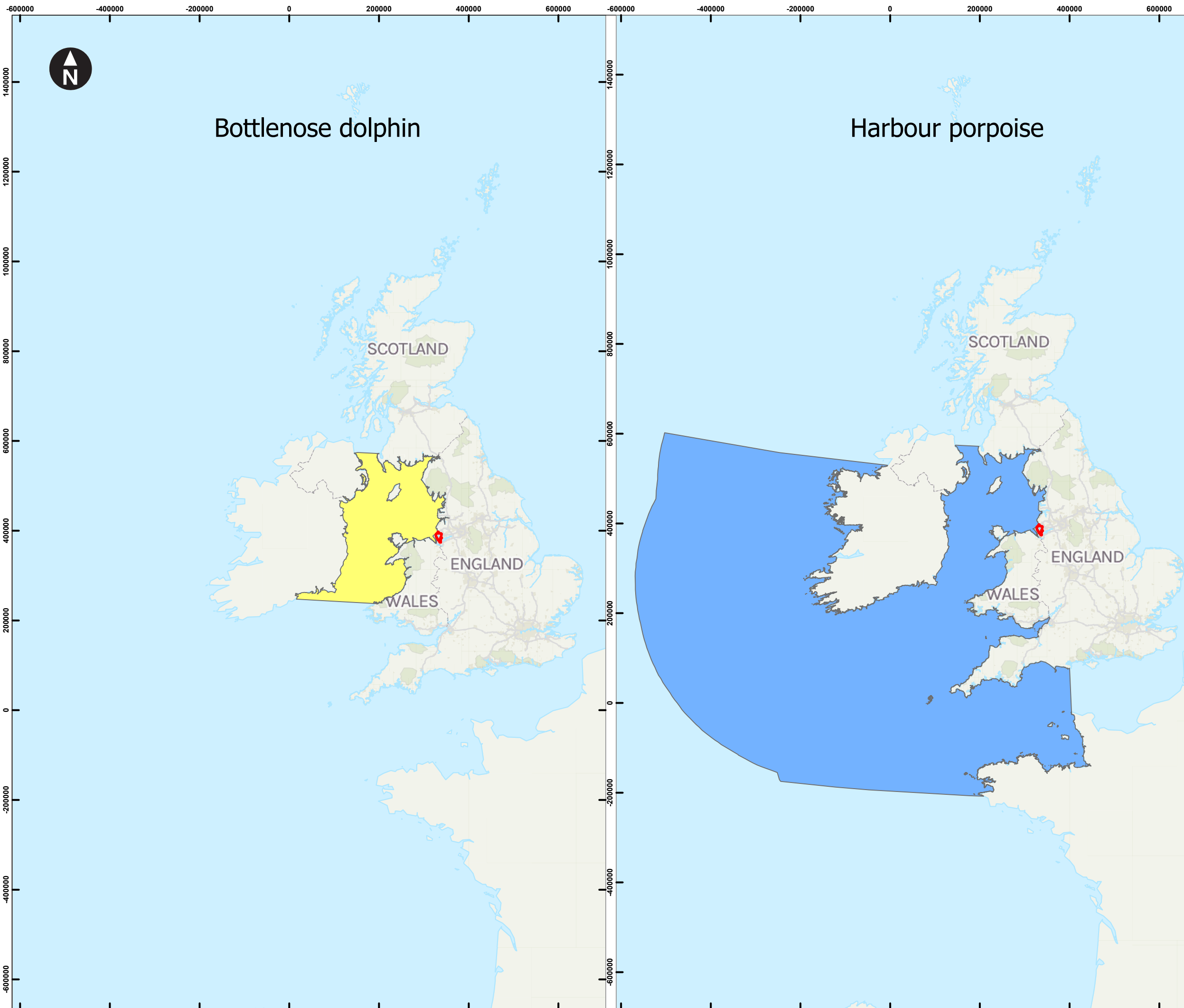
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Mersey Tidal Power HRA Screening Report

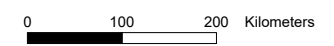
Figure 4.2 Designated Sites within the Fish and Shellfish Zol

Document Number
MTP-WSP-00-ZZ-MP-EN-0068-S8-P03-HRA
Screening-Figure 4.2 Designated Sites within
Fish & Shellfish Zol

13/09/2024



- Key
- EIA Scoping Boundary
 - Harbour porpoise: Celtic and Irish Sea (CIS) MU
 - Bottlenose dolphin:Irish Sea (IS) MU



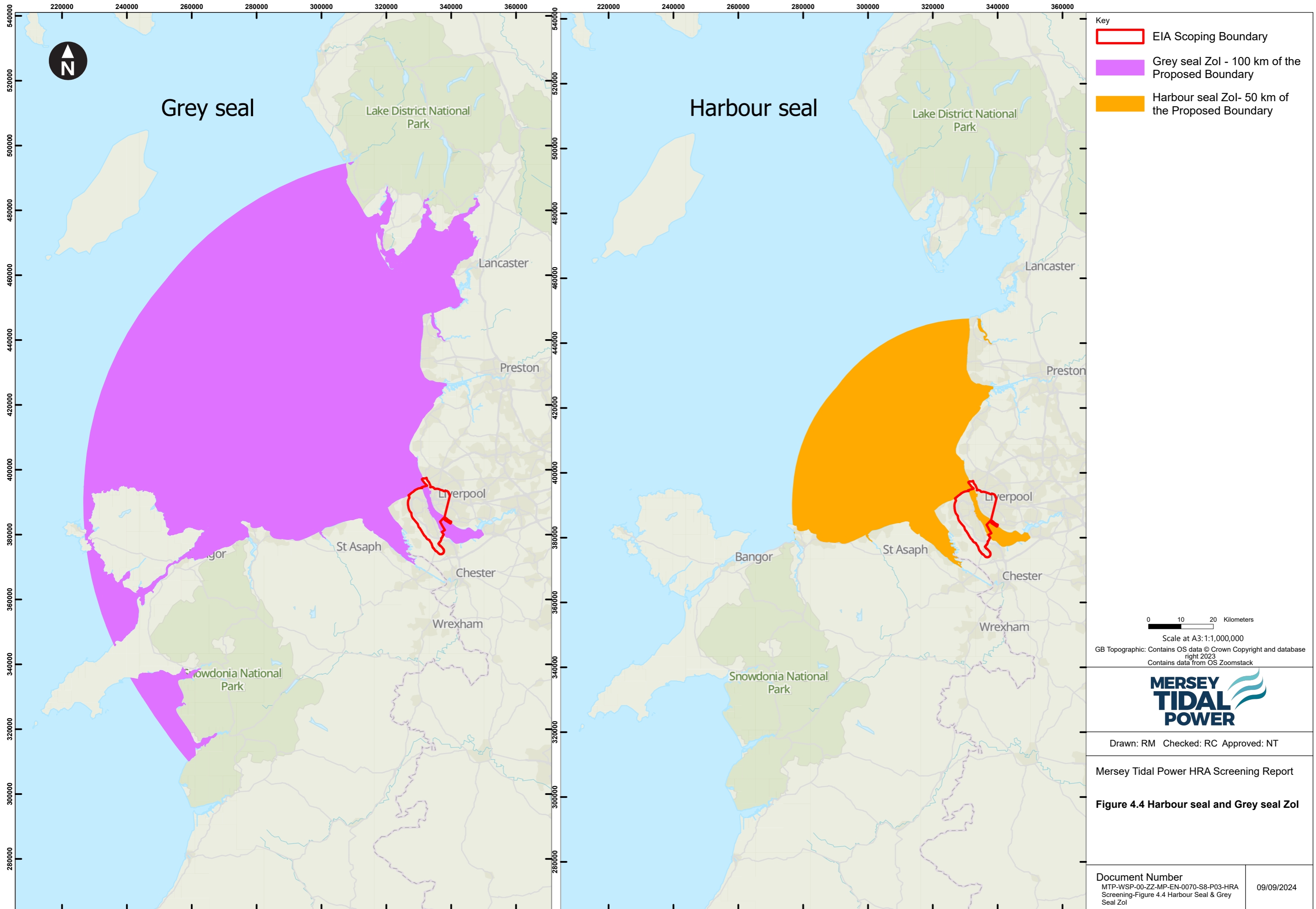
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 Contains data from OS Zoomstack

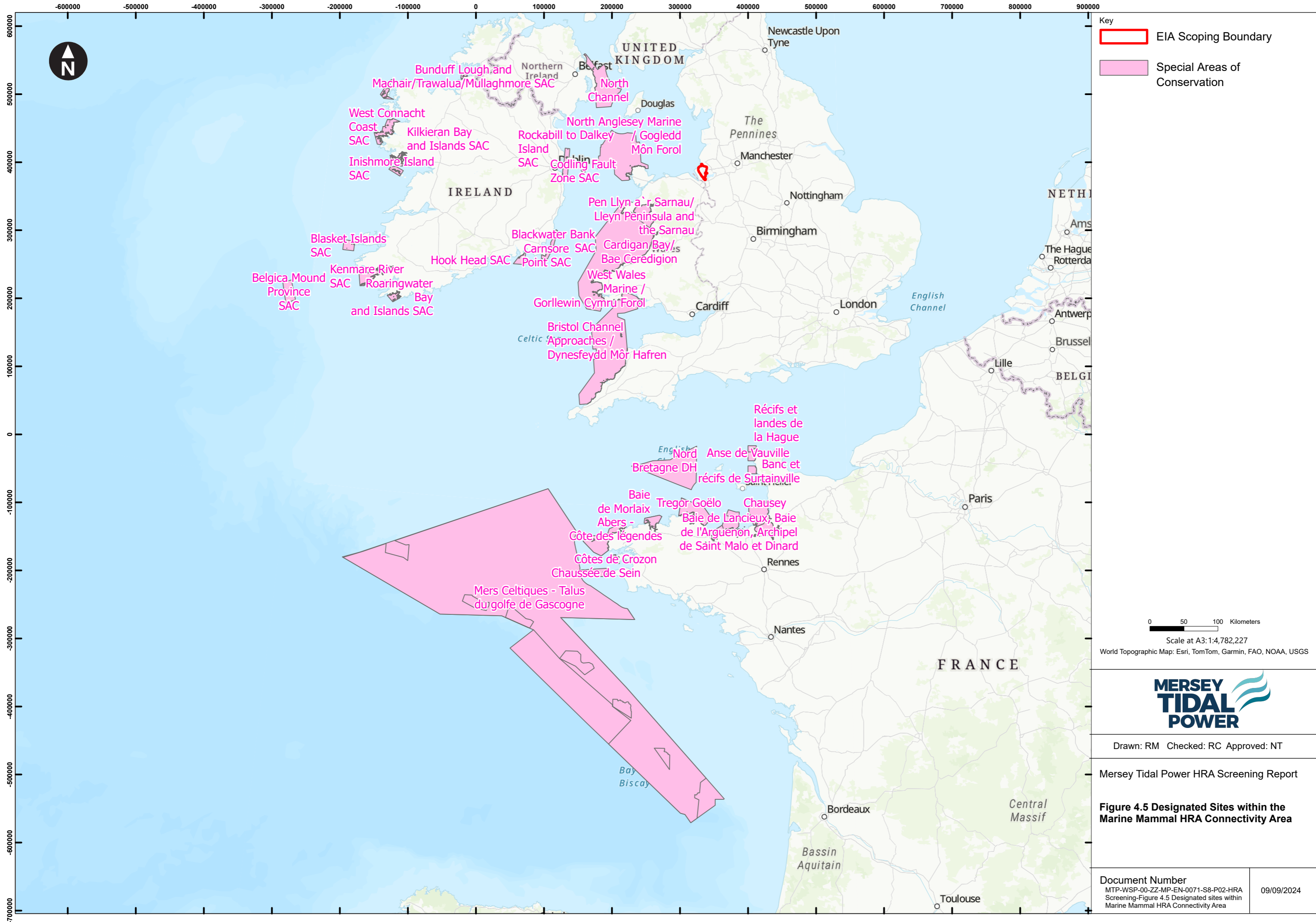


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Mersey Tidal Power HRA Screening Report

Figure 4.3 Harbour porpoise and Bottlenose dolphin Zol





Key

- EIA Scoping Boundary
- Special Areas of Conservation

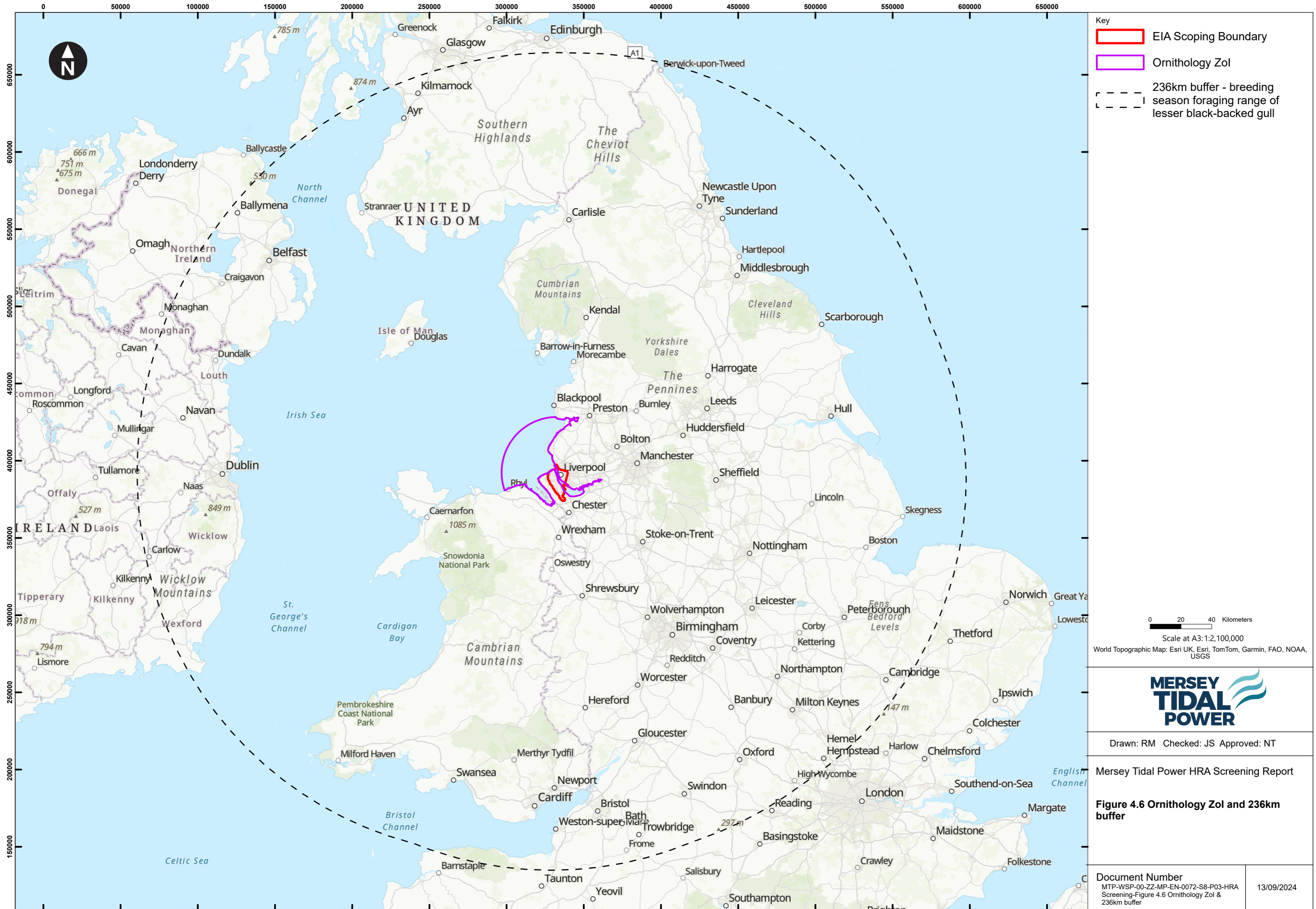
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Drawn: RM Checked: RC Approved: NT

Mersey Tidal Power HRA Screening Report

Figure 4.5 Designated Sites within the Marine Mammal HRA Connectivity Area



- Key
- EIA Scoping Boundary
 - Ornithology Zol
 - 236km buffer - breeding season foraging range of lesser black-backed gull

0 20 40 Kilometers

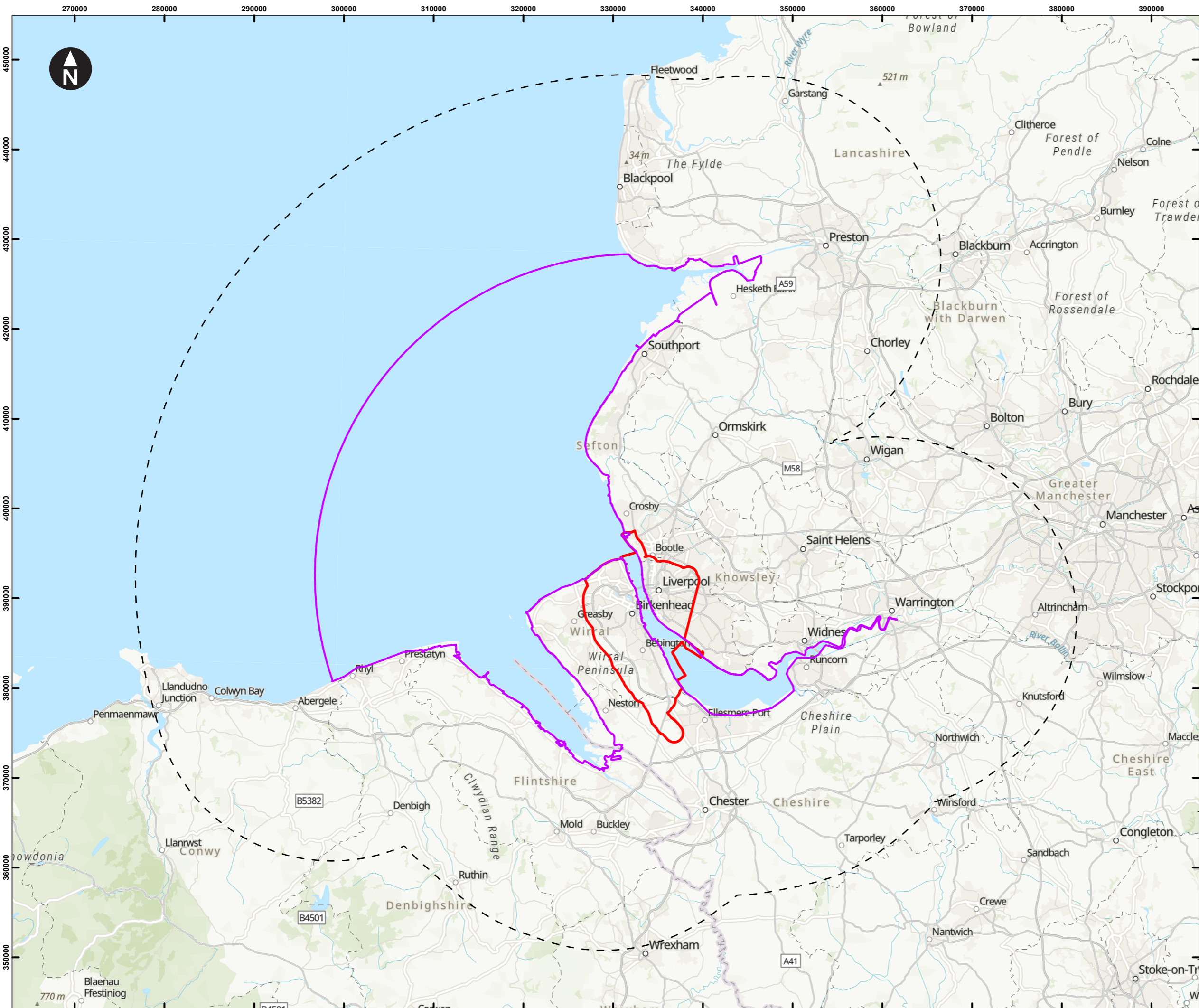
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Drawn: RM Checked: JS Approved: NT

Mersey Tidal Power HRA Screening Report

Figure 4.6 Ornithology Zol and 236km buffer



Key

- EIA Scoping Boundary
- Ornithology Zol
- 20km buffer - intertidal ornithology search area

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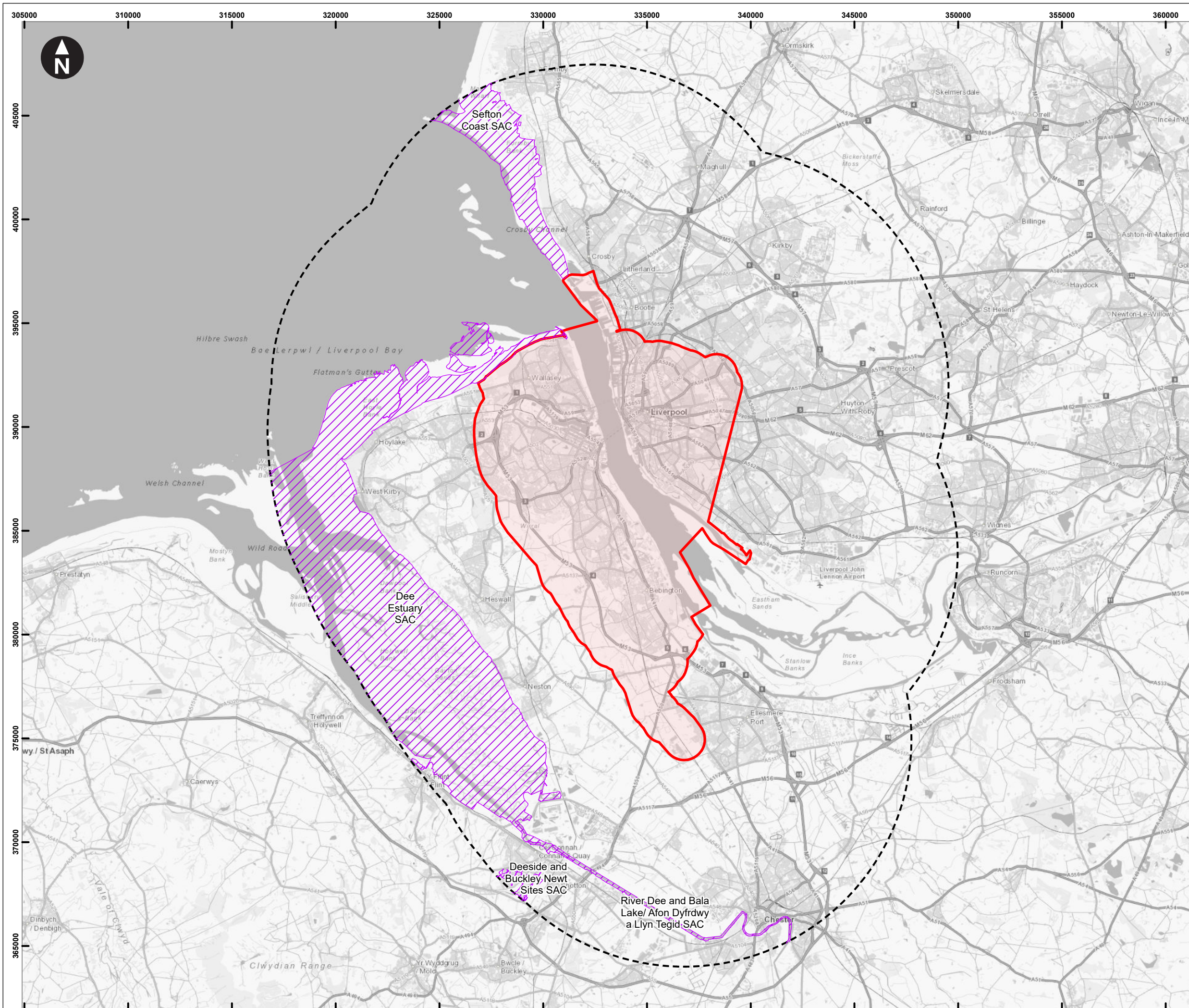


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Mersey Tidal Power HRA Screening Report

Figure 4.7 Ornithology Zol and 20km buffer

Document Number MTP-WSP-00-ZZ-MP-EN-0073-S8-P03-HRA Screening-Figure 4.7 Ornithology Zol & 20km buffer	13/09/2024
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Key

- EIA Scoping Boundary
- Scoping Boundary 10km buffer
- Special Area of Conservation (SAC)

0 1 2 Kilometers

Scale at A3: 1:175,000

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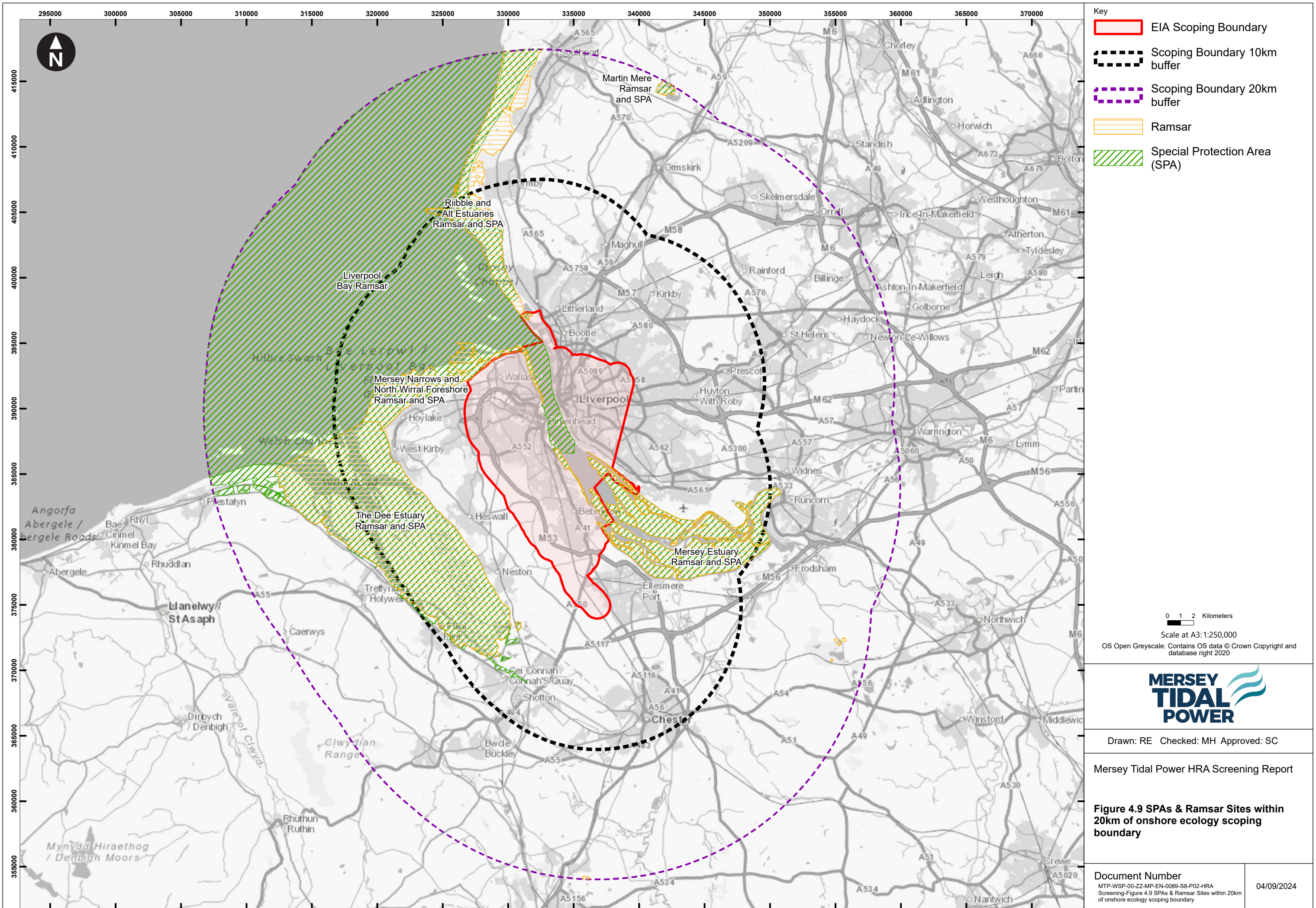


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Mersey Tidal Power HRA Screening Report

Figure 4.8 SACs within 10km of onshore ecology Zol

<p>Document Number MTP-WSP-00-ZZ-MP-EN-0088-S8-P02- HRA Screening-Figure 4.8 SACs within 10km of onshore ecology Zol</p>	<p>04/09/2024</p>
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- Key**
- EIA Scoping Boundary
 - Scoping Boundary 10km buffer
 - Scoping Boundary 20km buffer
 - Ramsar
 - Special Protection Area (SPA)

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Scale at A3: 1:250,000

OS Open Greyscale: Contains OS data © Crown Copyright and database right 2020

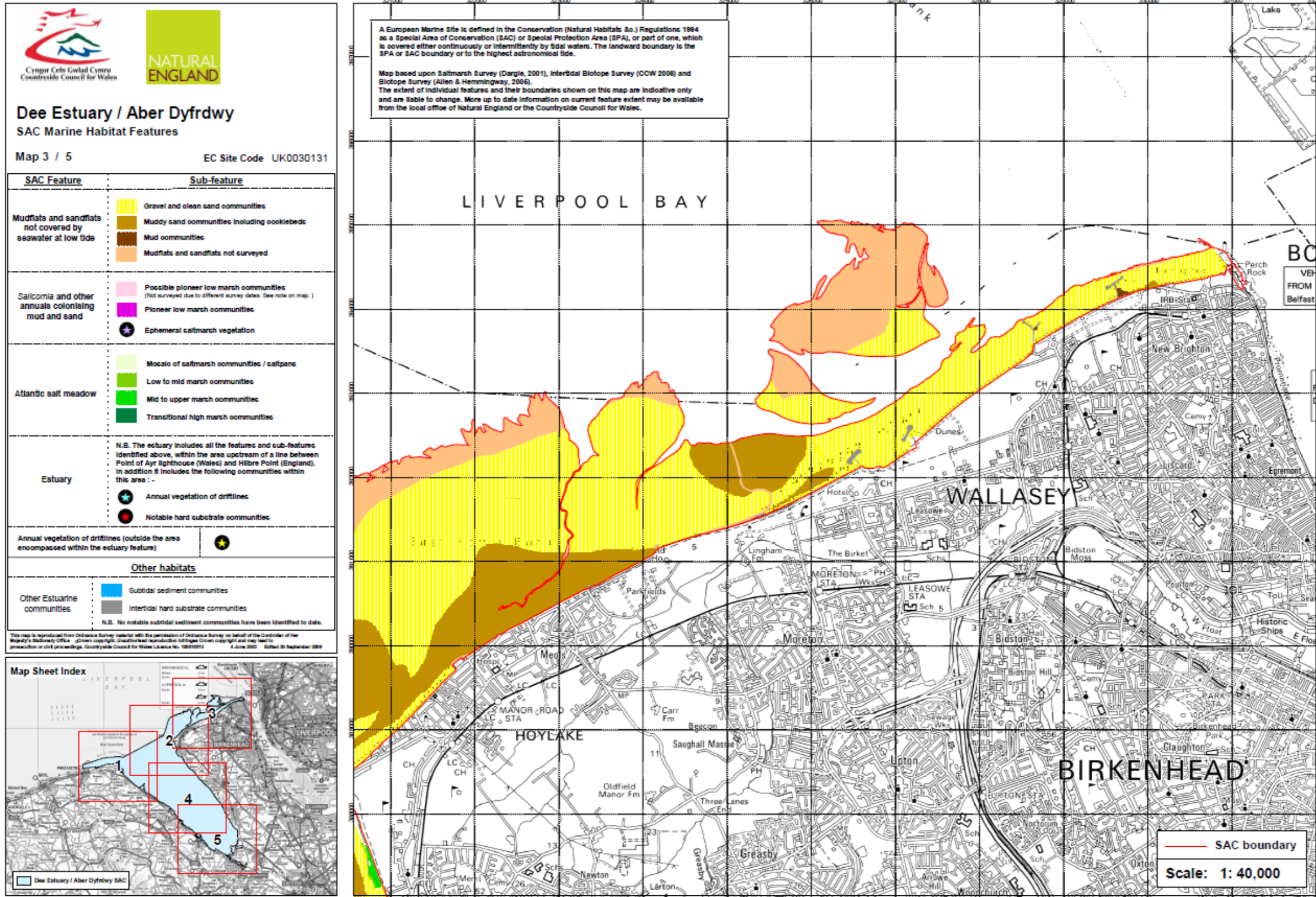




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Mersey Tidal Power HRA Screening Report

Figure 4.9 SPAs & Ramsar Sites within 20km of onshore ecology scoping boundary

APPENDIX 2 THE DEE ESTUARY SAC: MARINE HABITAT FEATURE MAPS



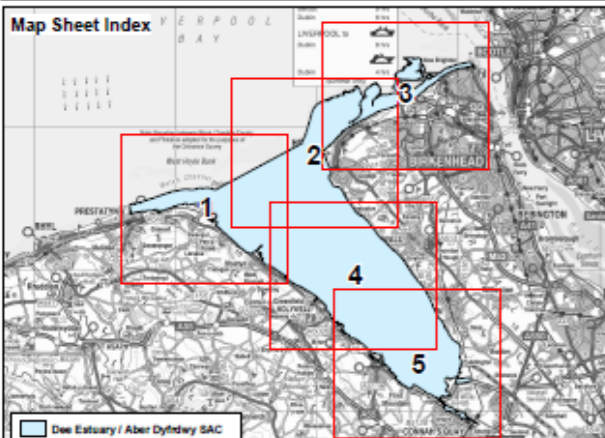
Dee Estuary / Aber Dyfrdwy SAC Marine Habitat Features

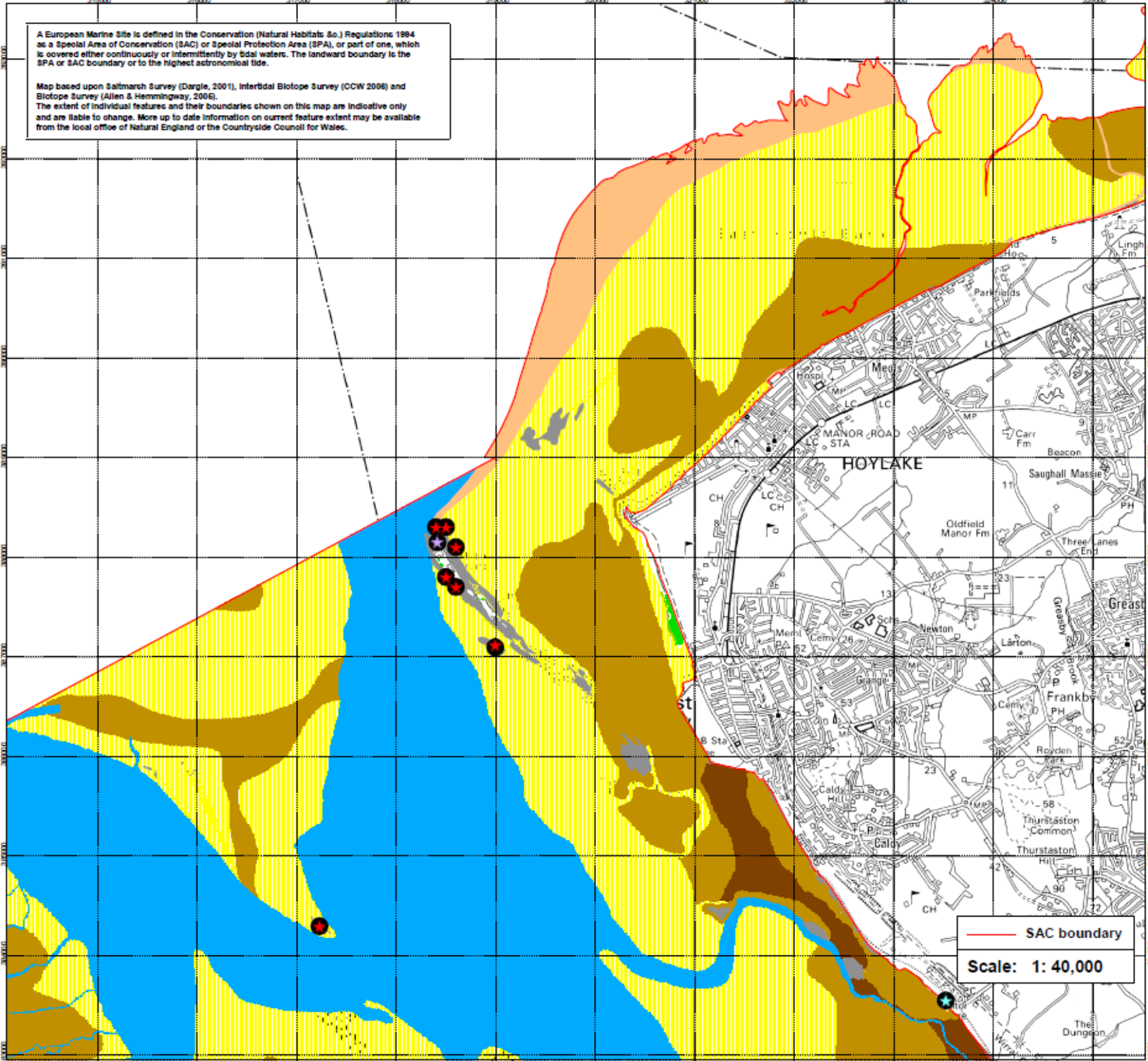
Map 2 / 5 EC Site Code UK0030131

SAC Feature	Sub-feature
Mudflats and sandflats not covered by seawater at low tide	Gravel and clean sand communities
	Muddy sand communities including oolitebeds
	Mud communities
	Mudflats and sandflats not surveyed
Salicornia and other annuals colonising mud and sand	Possible pioneer low marsh communities (Not surveyed due to different survey dates. See note on map.)
	Pioneer low marsh communities
	Ephemeral saltmarsh vegetation
Atlantic salt meadow	Mosaic of saltmarsh communities / saltpans
	Low to mid marsh communities
	Mid to upper marsh communities
	Transitional high marsh communities
Estuary	Annual vegetation of driftlines
	Notable hard substrate communities
Annual vegetation of driftlines (outside the area encompassed within the estuary feature)	
Other habitats	
Other Estuarine communities	Subtidal sediment communities
	Intertidal hard substrate communities
N.B. No notable subtidal sediment communities have been identified to date.	

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Map Sheet Index





SAC boundary
Scale: 1: 40,000

A European Marine Site is defined in the Conservation (Natural Habitats &c.) Regulations 1994 as a Special Area of Conservation (SAC) or Special Protection Area (SPA), or part of one, which is covered either continuously or intermittently by tidal waters. The landward boundary is the SPA or SAC boundary or to the highest astronomical tide.

Map based upon Saltmarsh Survey (Dargie, 2001), Intertidal Biotope Survey (CCW 2008) and Biotope Survey (Allen & Hemmingway, 2006). The extent of individual features and their boundaries shown on this map are indicative only and are liable to change. More up to date information on current feature extent may be available from the local office of Natural England or the Countryside Council for Wales.

EIA Scoping Report: Volume 3 Appendix 3.3 Habitats Regulations Assessment
September 2024

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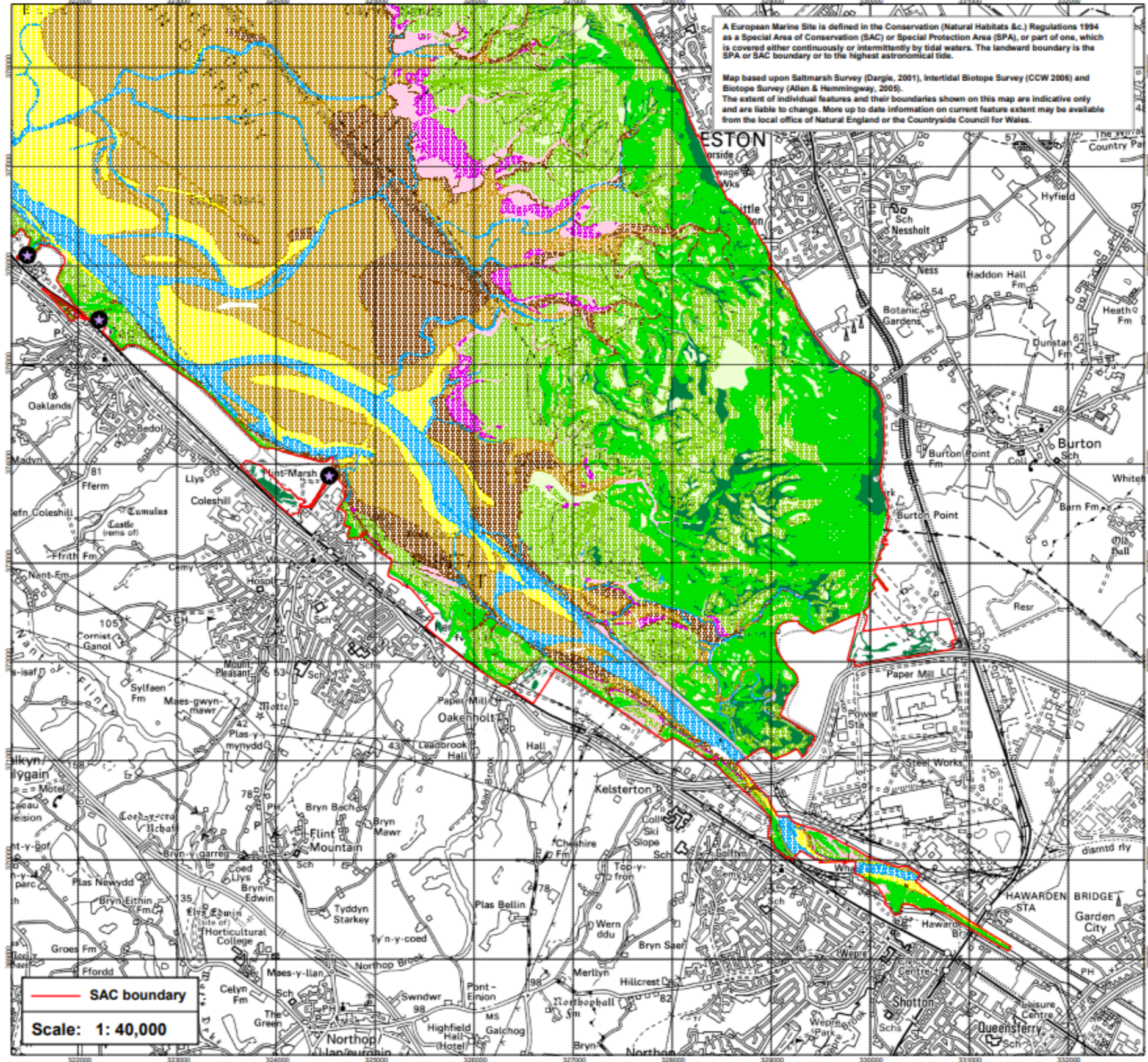
Dee Estuary / Aber Dyfrdwy SAC Marine Habitat Features

Map 5 / 5 EC Site Code UK0030131

SAC Feature	Sub-feature
Mudflats and sandflats not covered by seawater at low tide	Gravel and clean sand communities
	Muddy sand communities including cocklebeds
	Mud communities
	Mudflats and sandflats not surveyed
Salicornia and other annuals colonising mud and sand	Possible pioneer low marsh communities (Not surveyed due to different survey dates. See note on map.)
	Pioneer low marsh communities
	Ephemeral saltmarsh vegetation
Atlantic salt meadow	Mosaic of saltmarsh communities / saltpans
	Low to mid marsh communities
	Mid to upper marsh communities
	Transitional high marsh communities
Estuary	Annual vegetation of driftlines
	Notable hard substrate communities
Annual vegetation of driftlines (outside the area encompassed within the estuary feature)	
Other habitats	
Other Estuarine communities	Subtidal sediment communities
	Intertidal hard substrate communities
N.B. No notable subtidal sediment communities have been identified to date.	

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Map Sheet Index



APPENDIX 3 MENTIONED BIRD SPECIES

Common name	Scientific Name	Conservation Status
'Pale-bellied Brent Goose'	<i>Branta bernicla hrota</i>	Amber
Greylag Goose	<i>Anser anser</i>	Amber
Pink-footed Goose	<i>Anser brachyrhynchus</i>	Amber; RBBP
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>	Red; Ann1
Bewick's Swan	<i>Cygnus columbianus bewicki</i>	Red; Sch1.1; Sec41; Ann1
Whooper Swan	<i>Cygnus cygnus</i>	Amber; Sch1.1; Ann1; RBBP
Ruddy Shelduck	<i>Tadorna ferruginea</i>	Ann1
Shoveler	<i>Spatula clypeata</i>	Amber; RBBP
Gadwall	<i>Mareca strepera</i>	Amber
Wigeon	<i>Mareca penelope</i>	Amber; RBBP
Mallard	<i>Anas platyrhynchos</i>	Amber
Pintail	<i>Anas acuta</i>	Amber; Sch1.2; RBBP
Teal	<i>Anas crecca</i>	Amber
Pochard	<i>Aythya ferina</i>	VU; Red; RBBP
Tufted Duck	<i>Aythya fuligula</i>	Green
Scaup	<i>Aythya marila</i>	Red; Sch1.1; Sec41; RBBP
Eider	<i>Somateria mollissima</i>	NT; Amber
Goldeneye	<i>Bucephala clangula</i>	Red; Sch1.2; RBBP
Red-breasted Merganser	<i>Mergus serrator</i>	Amber; RBBP
Coot	<i>Fulica atra</i>	Green
Great Crested Grebe	<i>Podiceps cristatus</i>	Green
Oystercatcher	<i>Haematopus ostralegus</i>	NT; Amber

Common name	Scientific Name	Conservation Status
Lapwing	<i>Vanellus vanellus</i>	NT; Red; Sec41
Golden Plover	<i>Pluvialis apricaria</i>	Green; Ann1
Grey Plover	<i>Pluvialis squatarola</i>	Amber
Ringed Plover	<i>Charadrius hiaticula</i>	Red
Curlew	<i>Numenius arquata</i>	NT; Red; Sec41
Bar-tailed Godwit	<i>Limosa lapponica</i>	NT; Amber; Ann1; RBBP
Black-tailed Godwit	<i>Limosa limosa</i>	NT; Red; Sch1.1; Sec41; RBBP
Turnstone	<i>Arenaria interpres</i>	Amber; RBBP
Knot	<i>Calidris canutus</i>	NT; Amber
Ruff	<i>Calidris pugnax</i>	Red; Sch1.1; Ann1; RBBP
Sanderling	<i>Calidris alba</i>	Amber
Dunlin	<i>Calidris alpina</i>	Red
Purple Sandpiper	<i>Calidris maritima</i>	Red; Sch1.1; RBBP
Snipe	<i>Gallinago gallinago</i>	Amber
Common Sandpiper	<i>Actitis hypoleucos</i>	Amber
Redshank	<i>Tringa totanus</i>	Amber
Kittiwake	<i>Rissa tridactyla</i>	VU; Red
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Amber
Little Gull	<i>Hydrocoleus minutus</i>	Green; Sch1.1; Ann1; RBBP
Mediterranean Gull	<i>Ichthyaetus melanocephalus</i>	Amber; Sch1.1; Ann1; RBBP
Herring Gull	<i>Larus argentatus</i>	Red; Sec41
Lesser Black-backed Gull	<i>Larus fuscus</i>	Amber
Sandwich Tern	<i>Thalasseus sandvicensis</i>	Amber; Ann1

Common name	Scientific Name	Conservation Status
Little Tern	<i>Sternula albifrons</i>	Amber; Sch1.1; Ann1; RBBP
Roseate Tern	<i>Sterna dougallii</i>	Red; Sch1.1; Sec41; Ann1; RBBP
Common Tern	<i>Sterna hirundo</i>	Amber; Ann1
Arctic Tern	<i>Sterna paradisaea</i>	Amber; Ann1
Common Guillemot	<i>Uria aalge</i>	Amber
Razorbill	<i>Alca torda</i>	NT; Amber
Puffin	<i>Fratercula arctica</i>	VU; Red
Red-throated Diver	<i>Gavia stellata</i>	Green; Sch1.1; Ann1; RBBP
Storm Petrel	<i>Hydrobates pelagicus</i>	Amber; Ann1
Fulmar	<i>Fulmarus glacialis</i>	Amber
Manx Shearwater	<i>Puffinus puffinus</i>	Amber
Gannet	<i>Morus bassanus</i>	Amber
Cormorant	<i>Phalacrocorax carbo</i>	Green
Shag	<i>Gulosus aristotelis</i>	Red
Grey Heron	<i>Ardea cinerea</i>	Green
Little Egret	<i>Egretta garzetta</i>	Green; Ann1; RBBP

ITS TIME  FOR TIDAL

APPENDIX 3.4 WFD SCOPING REPORT

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.4
WFD Screening and Scoping Report

September 2024

ITS TIME  FOR TIDAL



Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.4 WFD Screening and Scoping Report

Document History

Version	Author	Reviewer	QA	Date	Comments
A0	WSP	Mersey Tidal Power	Mersey Tidal Power	16/09/24	Final

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1 INTRODUCTION

- 1.1.1 This Water Framework Directive (WFD) Screening and Scoping report considers the offshore and estuarine elements of the construction, operation and maintenance (O&M) and decommissioning activities of the proposed Mersey Tidal Power Project (the Project), specifically the tidal barrage in relation to requirements under the WFD. This WFD assessment does not consider the grid connection or the use of existing port and marine facilities during the construction phase. Once the port and marine facilities are identified and the grid connection and route confirmed, scoping may need to be reviewed and updated accordingly.
- 1.1.2 This WFD Scoping Report is prepared alongside and to supplement the Environmental Impact Assessment (EIA) Scoping Report. For elements scoped in within this WFD Scoping Report, a WFD impact assessment report will be prepared and submitted with the Project application for a Development Consent Order (DCO).
- 1.1.3 The WFD Assessment is required to determine if the Project is anticipated to have any permanent effects on WFD quality elements for the water bodies identified as part of the scoping of the Project, and if it could prevent the water bodies from meeting their WFD objectives in regard to the relevant River Basin Management Plans (RBMPs).

1.2 WFD OBJECTIVES

- 1.2.1 The objective of this WFD Scoping Report is to consider the available data for WFD supporting elements in relevant water bodies in accordance with the Environment Agency's (EA) 'Clearing the Waters for All' guidance (EA 2023a) and those relevant supporting elements associated with connected freshwater bodies and groundwaters (as applicable). It will then be determined if the Project poses potential risks to receptors based on the quality elements of the water bodies of concern, and, therefore, whether there is a requirement to carry out a WFD impact assessment for those receptors.
- 1.2.2 For any quality elements of the water bodies of concern scoped in within this WFD Scoping Report for further assessment, the subsequent WFD impact assessment (to be submitted at a later stage as part of the DCO application) will seek to demonstrate that the Project will not result in a deterioration in WFD status (or potential) or prevent a relevant water body from meeting Good status (or potential) in the future (2027). Specifically, the EA (as the statutory regulator)

must consider whether proposals for new developments and schemes have the potential to:

- Cause a deterioration of a water body from its current status or potential (No Deterioration Assessment); and/ or
- Prevent future attainment of Good status, or potential where not already achieved (Future Status Objectives).

1.2.3 If the tests above cannot be satisfied, Article 4.7 of the Water Framework Directive (European Parliament and Council, 2000) sets out conditions and specific situations that permit derogations.

2 THE PROJECT

2.1 LOCATION AND CONTEXT

- 2.1.1 As part of Net Zero 2040, the Liverpool City Region Combined Authority (LCRCA) is progressing consideration of a range of energy and infrastructure plans, one of which is a tidal range power project – the Mersey Tidal Power Project.
- 2.1.2 The Project will consist primarily of a tidal range barrage located within the channel of the Mersey Estuary containing a powerhouse and bi-directional turbines with a maximum electrical output of up to 1 GW and an operational lifespan of up to 120 years. The Project will be located towards the mouth of the River Mersey, between the Wirral on the west and Liverpool to the north-east, with the grid connection traversing land from the tidal barrage to either Lister Drive, Breck Road, Birkenhead or Capenhurst.
- 2.1.3 The River Mersey is formed by the confluence in Stockport of the River Goyt, which flows from the Peak District in the North West of England, and the River Tame, which flows from the Pennines to the east of Manchester. A major tributary, the River Irwell, flows from its source in the Pennines through the centre of Manchester and out to sea at Liverpool. The Mersey has a tidal riverine estuary with the second highest tidal range in the UK of up to 10.35m.
- 2.1.4 The study area for identifying WFD waterbodies within this WFD Screening and Scoping report includes waterbodies within and directly adjacent to the Tidal Barrage Development Area, in addition to tributary freshwater water bodies which flow into the Mersey Estuary.
- 2.1.5 The Tidal Barrage area is within 2km of multiple WFD protected areas including:
- **Special Protection Areas (SPA)** - Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA
 - **Special Areas of Conservation (SAC)** – Dee Estuary SAC
 - **Ramsar sites** - Mersey Narrows and North Wirral Foreshore Ramsar, Mersey Estuary Ramsar
 - **Shellfish Waters** - North Wirral (East) Shellfish Waters
 - **Bathing Waters** – Wallasey bathing water.

- 2.1.6 The Project is within the Mersey transitional water body (ID: GB531206908100) and is adjacent to the Mersey Mouth coastal water body (ID: GB641211630001) as seen in Figure 2.1. Transitional water bodies are defined as bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but are substantially influenced by freshwater flows.
- 2.1.7 The Project is located above the Wirral and West Cheshire Permo-Triassic Sandstone Aquifers (GB41101G202600) and Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers (GB41201G101700) groundwater WFD bodies, as seen in **Figure 2.2**.
- 2.1.8 While the Project is located downstream of any surface freshwater water bodies, there are tributary freshwater water bodies which flow into the Mersey Estuary. **Figure 2.3** presents the freshwater WFD water bodies which flow directly into the Mersey within the Ditton, Glaze, Gowy, Sankey, Weaver Lower and Wirral Operational Catchments.

2.2 SUMMARY OF WORKS

- 2.2.1 The Project will have a generating capacity of up to 1GW, connecting the banks of the Mersey, in Liverpool with an above ground structure, and creating the potential for active travel, flood protection and climate mitigation responses. The tidal barrage would generate electricity utilising the energy available from the tidal range (up to 10.37m in height) within the Mersey Estuary.
- 2.2.2 The Project consists of the following main components:
- A tidal range barrage located within the channel of the Mersey Estuary which contains:
 - A Power Generation System with control equipment and a sub-structure housing turbines with an expected electrical output of up to 1 GW;
 - A Hydro Control System (including sluice gates);
 - Marine Navigation System (including locks);
 - A Power Export System;
 - Onshore operational facilities including control centre, maintenance, stores and office buildings; and
 - Associated rock armour and breakwaters.

- An onward grid connection to a National Grid substation or other substations; and
- Utilisation of the surrounding port facilities during the construction phase in addition to other potential associated developments which may support the construction phase.

2.2.3 A range of other ancillary developments and facilities may also be required as part of the Project including access, utility connections, boundary treatments, security infrastructure, temporary and permanent laydown areas, hard and soft landscaping, drainage, cables, plant, and equipment. Once operational, the tidal barrage will include all relevant security fencing, lighting, CCTV. Maintenance equipment such as an internal gantry crane will be present on the external structure, and be able to mobilise along the full length of the tidal barrage structure.

2.2.4 A breakwater will connect the tidal barrage to its adjacent bank . The breakwaters will be a watertight structure and likely consist of a concrete or rock filled core, faced with rock or suitable material, with a height commensurate with climate change predictions. The extent of the breakwaters will depend on the chosen location of the tidal barrage.

2.2.5 Up to 1 km upstream and downstream from the Project has been defined as the marine working area for construction. Dredging/excavation will be required to facilitate the installation of the main structures and will vary depending on the final location, configuration and construction method; it is anticipated that between 7,000,000 to 20,000,000 m³ of material could be removed (dependent on confirmed location of the tidal barrage) to a maximum depth of -30 m AOD within the marine working area.

3 WATER FRAMEWORK DIRECTIVE REQUIREMENTS

3.1 WATER FRAMEWORK DIRECTIVE

OVERVIEW

- 3.1.2 The WFD establishes a framework for the management and protection of Europe's water resources. It is implemented in England and Wales through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the Water Framework Regulations)¹. Central to the WFD is the philosophy to make water bodies better through sustainable development for the joint benefits of aquatic habitats and the human environment.
- 3.1.3 Ecological status is an expression of the quality of the structure and functioning of surface water ecosystems as indicated by the condition of a number of 'quality elements'. These include biological and chemical indicators. Where a water body is defined as a Heavily Modified Water Body (HMWB), ecological status is replaced by ecological potential.
- 3.1.4 The development and implementation of strategic long-term RBMPs is a key requirement of the WFD. They include programmes of measures outlining the on-going monitoring and management actions required for water bodies to achieve future objectives.
- 3.1.5 Proposed developments or activities that have the potential to affect the water environment require a WFD Assessment. In this context, compliance with the WFD means prevention of deterioration (of ecological status, chemical status and supporting element status) and avoiding prevention of ability to achieve future targets. However, WFD Article 4.7 provides a legislative framework for exemption conditions that allow implementation of schemes that cause deterioration in ecological status, for example for reasons of overriding public interest.
- 3.1.6 A subsequent daughter Directive to the WFD (2008/105/EC) sets out Environmental Quality Standards for priority substances and is known as the Environmental Quality Standards (EQS) Directive. There have been subsequent amendments (2013/39/EU) and implementation directions (Defra, 2015). The

¹ Following Brexit, existing EU environmental legislation continue to operate under the policy of "roll-over", however, decisions made by the EU will no longer be binding for courts in the UK.

environmental objectives of the WFD and its associated directives include the following:

- To prevent deterioration of aquatic ecosystems;
- To protect, enhance and restore water bodies to ‘good’ status; based on ecology (with its supporting hydromorphological and physico-chemical factors) and chemical factors for surface waters; and
- To progressively reduce pollution from priority substances and cease or phase out discharges of priority hazardous substances.

3.1.7 The default objective of the WFD is for all rivers, lakes, estuaries, coastal and groundwater water bodies to achieve ‘good’ status by 2027 at the latest. Where it is not possible to achieve this, alternative objectives can be set. The existing status, and measures required to achieve the 2027 status objective, are set out for each water body in the relevant RBMPs. The plans set out the current baseline condition of the water environment at the time of publication and provide details on the measures needed and timescales required to attain their target status.

3.1.8 For the following surface water bodies: rivers, lakes, estuaries and coastal waters, the overall water body status has both an ecological and a chemical component. Good ‘ecological status’ is defined as a ‘slight variation from undisturbed natural conditions, with minimal distortion arising from human activity’. The ecological status of water bodies is determined by examining biological elements (e.g. benthic invertebrates, fish (but not in coastal water bodies)) and a number of supporting elements and conditions, including physico-chemical factors (e.g. metals and organic compounds), and hydromorphological factors (e.g. depth, width, flow, and ‘structure’). These are all WFD quality elements, also referred to as receptors for the purposes of this assessment.

3.1.9 A flow chart illustrating how quality elements are combined (Cycle 3) to provide an overall water body status/potential for surface water bodies is provided in **Plate 3.1**. The classification hierarchy for surface waters is illustrated in **Plate 3.2**. Only biological supporting elements have classification boundaries defined for ‘high’ through to ‘bad’. Chemicals supporting ‘chemical status’ that do not meet EQS concentrations are classified as ‘Failing to achieve Good’.

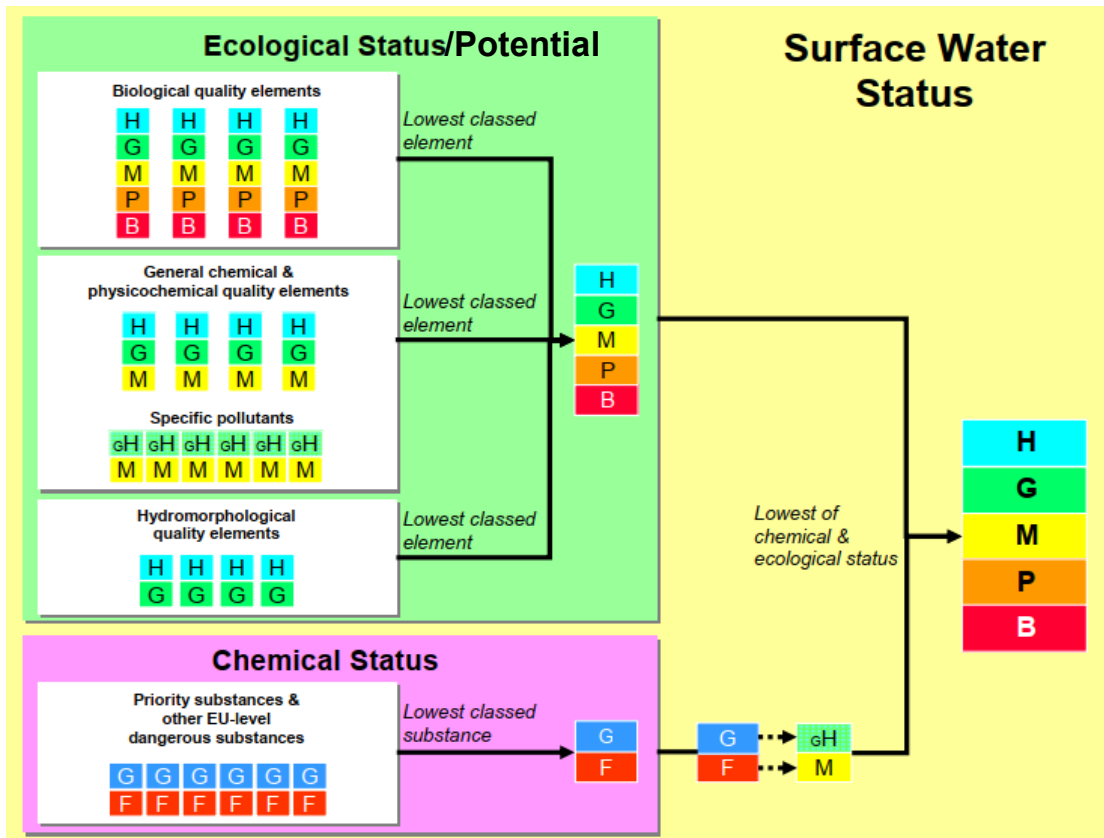


Plate 3.1: WFD quality elements for surface waters – Bringing all the strands of evidence together (Environment Agency 2022)

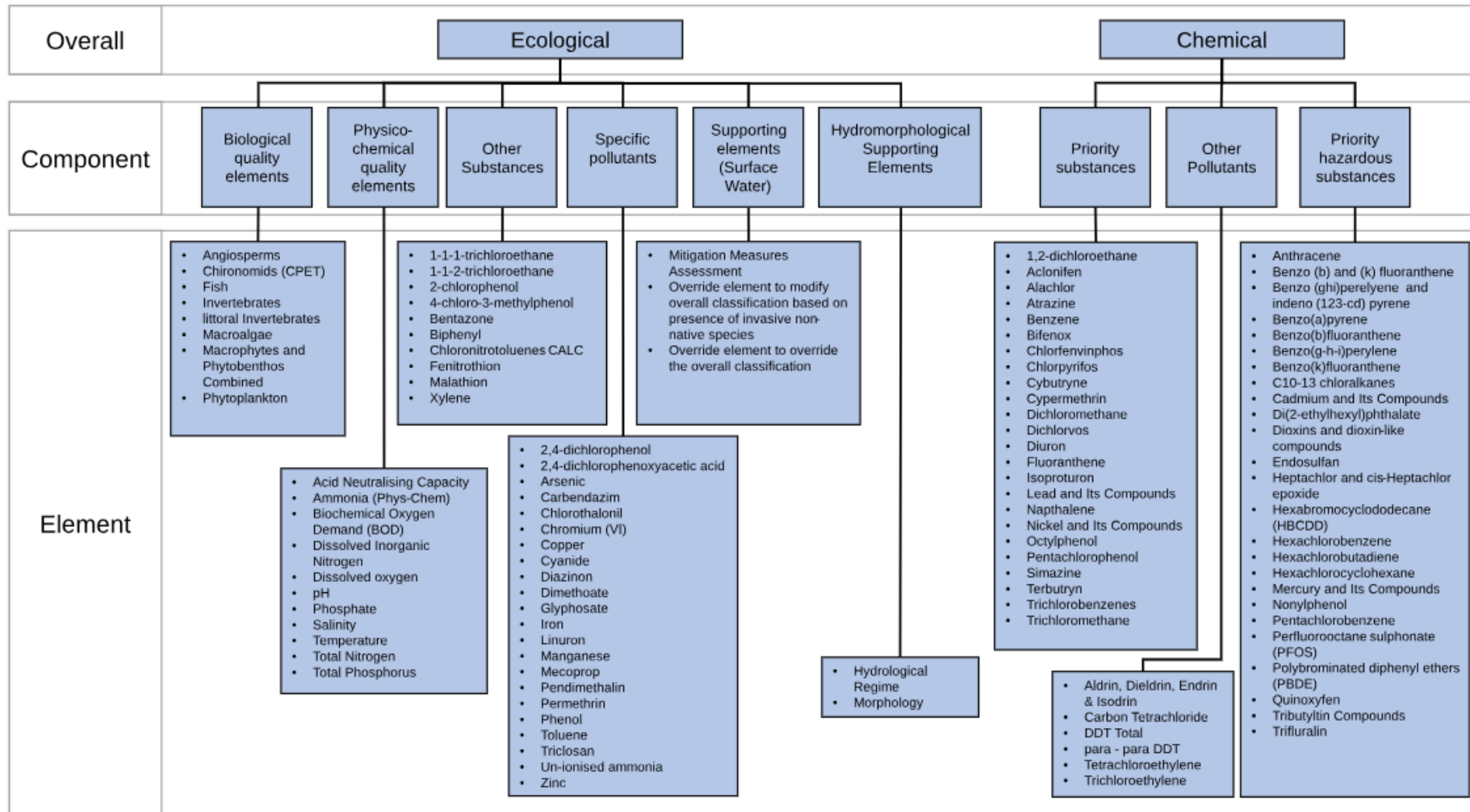


Plate 3.2: Classification hierarchy for surface waters (from Environment Agency 2023b)

3.1.10 The lowest class element approach is also applied in the determination of overall groundwater body status. The potential groundwater supporting component classification types (Cycle 3) are shown in **Plate 3.3**. The classification hierarchy for groundwater components/elements is illustrated in **Plate 3.4**.

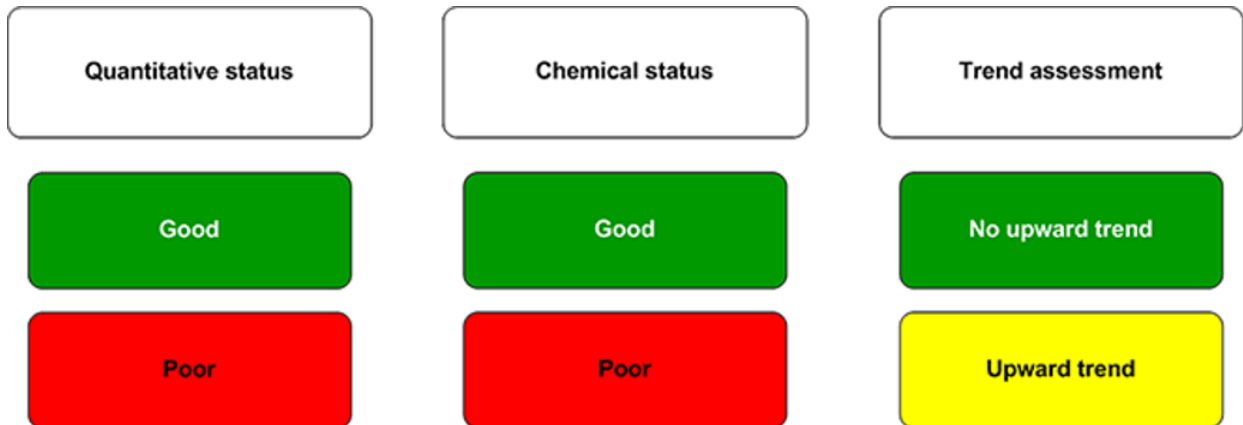


Plate 3.3: WFD quality elements for groundwater (lowest classed element taken forward for overall status) (from Environment Agency 2023b)

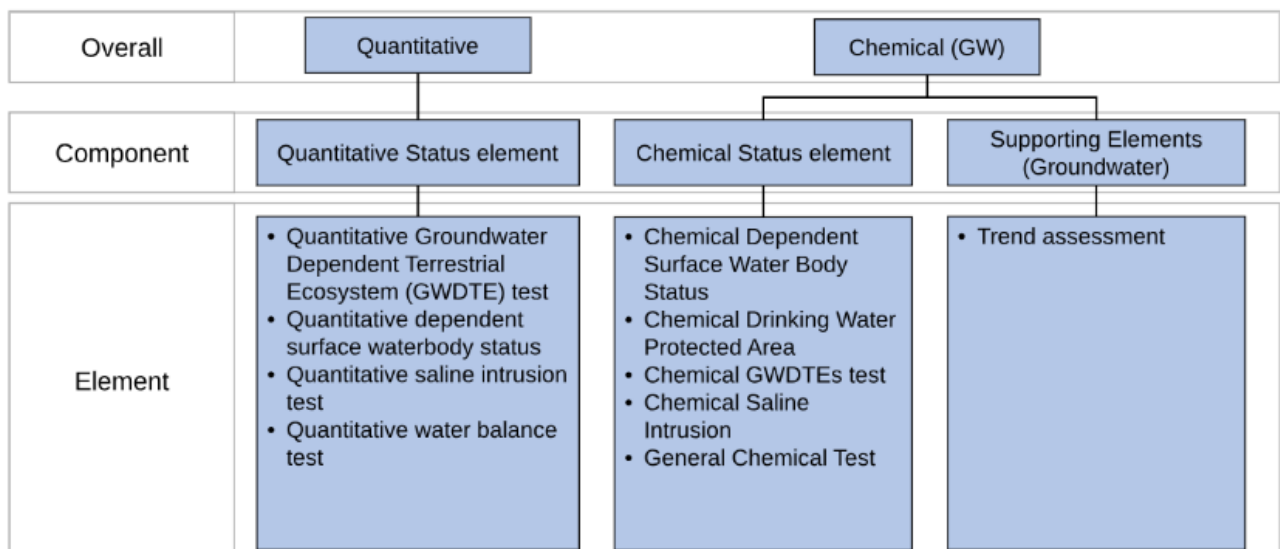


Plate 3.4: Classification hierarchy for groundwater (from Environment Agency 2023b)

WFD NO DETERIORATION ASSESSMENT

- 3.1.11 The main source of guidance on WFD Compliance Assessment in England is from the EA. At present the only publicly available guidance is: Clearing the Waters for All (EA 2017), which relates specifically to activities affecting transitional and coastal (TraC) water bodies up to one nautical mile out to sea (12 nautical miles for chemical status compliance). There is no equivalent guidance for freshwater or groundwater assessments, however PINS Advice Note 18 (Planning Inspectorate, 2017) states that the principles established in the Clearing the Waters for All guidance, particularly the staged approach to assessment, is equally applicable to other water bodies such as rivers, lakes and groundwater. This guidance interprets the ‘no deterioration criterion’ as applying to each supporting WFD element as well as the overall status classification of the water body. An example of this would be a deterioration in the quality of one biological element in a transitional water body from good to moderate status would be classed as deterioration irrespective of whether this caused the overall water body status to be lowered. This approach was reinforced by a ruling in July 2015 from the European Court of Justice against a WFD objective assessment applied for a scheme in Germany (Bund für Umwelt und Naturschutz Deutschland eV v Bundesrepublik Deutschland²). This caselaw has been commonly referred to as the ‘Bund case’, and has been adopted as a general principal for the impact screening presented in this report.
- 3.1.12 Further to this, Cycle 2 RBMPs (applying to both freshwater and TraC waterbodies) indicate that within class deterioration of any constituent element (e.g. a lowering of the quality of a biological element) that does not result in a lowering of the status of that element (e.g. from good to moderate) is permissible but should be limited as far as practicable. There are two exceptions to this: first, where the water body is at the lowest possible class (e.g. bad ecological status) where no within class deterioration is allowed and, second, elements that are at high status (with the exception of morphology), which may be allowed to deteriorate to good status provided a number of additional conditions are met.

² ECJ Case C-461/13: Bund für Umwelt und Naturschutz Deutschland v Bundesrepublik Deutschland
<http://curia.europa.eu/juris/document/document.jsf?docid=178918&mode=req&pageIndex=1&dir=&occ=first&part=1&text=&doclang=EN&cid=175124>

TRANSITIONAL WATER BODIES

- 3.1.13 Transitional water bodies include bodies of surface water in the vicinity of river mouths that typically correspond to estuaries. They are therefore, influenced by tides and are characterised both by saline water due to their proximity to coastal waters and by freshwater due to inputs of river flows.
- 3.1.14 Given that the Project is situated along the tidal reach of the River Mersey, it is partially located within the transitional Mersey WFD water body. The status of the water body is indicated in **Table 3.1**.
- 3.1.15 The WFD quality elements for transitional WFD water bodies are as follows:
- Hydromorphological:
 - Tidal regime:
 - Freshwater flow; and
 - Wave exposure.
 - Morphological conditions:
 - Depth variation;
 - Quantity, structure, and substrate of the bed; and
 - Structure of the intertidal zone.
 - Biological:
 - Phytoplankton;
 - Other aquatic flora;
 - Benthic invertebrates; and
 - Fish.
 - Physico-chemical and chemical:
 - Transparency;
 - Thermal conditions;
 - Dissolved oxygen;
 - Nutrients;
 - Salinity; and

- Pollution by substances being discharged (e.g. chemicals, metals, pesticides)

Table 3.1: Cycle 3 classifications for Mersey transitional water body

Summary		
Water Body ID	GB531206908100	
Water Body Area	8179.061 ha	
Water Body Type	Transitional Water	
Hydromorphological designation	Heavily modified	
Overall Status	Moderate ecological potential	
Parameter	Year	
	2019	2022
Chemical Status	Fail	Does not require assessment (pollutants are not discharged into water body in significant quantities)
Priority Substances	Fail (due to dichlorvos)	Does not require assessment (pollutants are not discharged into water body in significant quantities)
Priority Hazardous Substances	Fail (due to benzo(b)fluoranthene, benzo(g-h-i)perylene, heptachlor and cis-heptachlor epoxide, mercury and PBDE)	Does not require assessment (pollutants are not discharged into water body in significant quantities)
Ecological Status	Moderate	Moderate

Biological Quality Elements	Angiosperms	Not Available	Not Available
	Fish	Not Available	Not Available
	Invertebrates	Moderate	Moderate
	Macroalgae	High	High
	Phytoplankton	Moderate	Moderate
Physico-chemical Quality Elements	Dissolved Inorganic Nitrogen	Moderate	Moderate
	Dissolved	Good	Good
Specific Pollutants	Various	Moderate	Moderate
Hydromorphological supporting elements	Hydrological Regime	Supports good (2015)	Not Available

COASTAL WATER BODIES

- 3.1.16 Coastal water bodies include those that have not been designated as transitional water bodies, extending one nautical mile from a baseline defined by the land points where territorial waters are measured.
- 3.1.17 The Project is adjacent to the Mersey Mouth WFD coastal water body. The status of the water body is indicated in **Table 3.2**.
- 3.1.18 The WFD quality elements for coastal WFD water bodies are as follows:
- Hydromorphological:
 - Tidal regime:
 - Direction of dominant currents; and
 - Wave exposure
 - Morphological conditions:
 - Depth variation;
 - Quantity, structure, and substrate of the bed;
 - Dominant currents;
 - Wave exposure; and
 - Structure of the intertidal zone.
 - Biological:
 - Phytoplankton;

- Other aquatic flora; and
- Benthic invertebrates (including assessment of imposex in dog whelks).
- Physico-chemical and chemical:
 - Transparency;
 - Thermal conditions;
 - Dissolved oxygen;
 - Nutrients;
 - Salinity; and
 - Pollution by substances being discharged (e.g. Chemicals, metals, pesticides).

Table 3.2: Cycle 3 classifications for Mersey Mouth Coastal water body

Summary		
Water Body ID	GB641211630001	
Water Body Area	42119.627 ha	
Water Body Type	Coastal Water	
Hydromorphological designation	Heavily modified	
Overall Status	Moderate ecological potential	
Parameter	Year	
	2019	2022
Chemical Status	Fail	Does not require assessment (pollutants are not discharged into water body in significant)
Priority Substances	Good	Does not require assessment (pollutants are not discharged)
Priority Hazardous Substances	Fail (due to benzo(g-h-i)perylene, mercury and PBDE)	Does not require assessment (pollutants are not discharged into water body in significant)

Ecological Status		Moderate	Moderate
Biological Quality Elements	Angiosperms	Not Available	Not Available
	Fish	Not Available	Not Available
	Invertebrates	Good	Good
	Macroalgae	Not Available	Not Available
	Phytoplankton	Moderate	Moderate
Physico-chemical Quality Elements	Dissolved Inorganic Nitrogen	Moderate	Moderate
	Dissolved Oxygen	High	High
Specific Pollutants	Various	High	High
Hydromorphological supporting elements	Morphology	Not Available (2015 Not assessed)	Not Available

FRESHWATER SURFACE WATER BODIES

- 3.1.19 Freshwater bodies include surface waters (rivers and lakes) which are solely fresh water in nature. These also include artificial water bodies, such as canals, and heavily modified water bodies.
- 3.1.20 Given that the Project is situated along the tidal reach of the River Mersey i.e. downstream of the freshwater bodies, it is unlikely to have any direct impact pathway to the freshwater WFD waterbodies. There could be indirect impact pathways however, and a summary of all the freshwater water body classifications have been provided below in **Table 3.3**.
- 3.1.21 Groundwater Water Bodies **Table 3.4** presents summary classification information for the groundwater water bodies that underly the Project.

Table 3.3: Summary of the WFD freshwater water bodies which discharge into the Mersey water body (GB531206908100) and their respective Cycle 3 classifications

Operational Catchment	Waterbody name	Waterbody ID	Waterbody type	Chemical status	Ecological status
Ditton	Ditton Brook (Halewood to Mersey Estuary)	GB112069061390	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
Glaze	Mersey (Bollin confluence to Howley Weir) including Padgate Brook	GB112069061012	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
Gowy	Peckmill Brook, Hoolpool Gutter at Ince Marshes	GB112068060330	River	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
	Gowy (Milton Brook to Mersey)	GB112068060250	River (HMWB)	Fail (C3 2019)	Poor (C3 2022. Moderate C3 2019)
Manchester Ship and Bridgewater Canals	Manchester Ship Canal	GB71210004	Canal (Artificial)	Fail (C3 2019)	Moderate (C3 2019)

Operational Catchment	Waterbody name	Waterbody ID	Waterbody type	Chemical status	Ecological status
Sankey	Whittle Brook (Mersey Estuary)	GB112069060990	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
	Sankey Brook (Rainford Brook to Mersey)	GB112069061200	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
Weaver Lower	Keckwick Brook	GB112068060520	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
	Weaver (Dane to Frodsham)	GB112068060500	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
Wirral	Dibbinsdale Brook and Clatter Brook	GB112068060270	River	Fail (C3 2019)	Poor (C3 2019, C3 2022)
	The Birket including Arrowe Brook and Fender	GB112068060530	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)
	Rivacre Brook	GB112068060350	River (HMWB)	Fail (C3 2019)	Moderate (C3 2019, C3 2022)

Notes:

HMWB – designated as a heavily modified water body

Table 3.4: Summary of the WFD groundwater water bodies which underly the Project and their respective Cycle 3 classifications (2019)

Operational Catchment	Waterbody name	Water Body ID	Water Body Type	Overall status	Quantitative status	Chemical status
Wirral and Cheshire West Permo-Triassic Sandstone Aquifers	Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	GB41101G202600	Groundwater	Poor	Good	Poor
Mersey Basin Lower and Merseyside North Permo-Triassic Sandstone Aquifers	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	GB41201G101700	Groundwater	Poor	Poor	Poor

4 METHODS

4.1.1 The assessment follows the EA's 'Clearing the Waters for All' guidance (EA, 2023a), which was developed specifically to assess the effects of activities in transitional and coastal waters in relation to WFD targets. The assessment approach is based on the following three stages:

- Screening;
- Scoping; and
- (Impact) Assessment.

4.1.2 The same stages have been adopted for the consideration of the freshwater bodies and groundwater bodies of relevance to this assessment, as per the recommendations of PINS Advice Note 18 (Planning Inspectorate, 2017).

- This WFD Scoping Report will cover the screening and scoping stages only. For elements scoped in, a separate WFD Impact Assessment Report will be prepared and submitted with the Project's application for a DCO.

4.2 SCREENING

4.2.1 The screening stage is used to determine if the activities for the proposed works are classed as low risk activities that do not require further consideration under WFD (Planning Inspectorate, 2017). The EA guidance (EA, 2023a) indicates that the following activities qualify as low risk activities:

- A self-service marine licence activity or an accelerated marine licence activity that meets specific conditions;
- Maintaining pumps at pumping stations;
- Removing blockages or obstacles like litter or debris within 10 m of an existing structure to maintain flow;
- Replacing or removing existing pipes, cables or services crossing over a water body – but not including any new structure or supports, or new bed or bank reinforcement; and
- 'Over water' replacement or repairs to, for example, bridge, pier and jetty surfaces, if you minimise bank or bed disturbance.

4.2.2 Where the proposed works do not fulfil criteria for a low-risk activity, the assessment continues to the Scoping stage.

4.2.3 As there are no specific criteria included in the guidance for screening groundwater, any groundwater bodies identified in the study area have been taken forward to scoping stage.

4.3 SCOPING

4.3.1 The Scoping stage is used to determine if the proposed activities pose potential risks to the following receptors based on the quality elements of the water body of concern. The EA guidance (EA, 2023a) specifies consideration of the following quality elements for surface water bodies:

- Hydromorphology;
- Biology – habitats;
- Biology – fish (not for coastal water bodies);
- Water quality;
- Protected areas; and
- Invasive non-native species (INNS).

4.3.2 Scoping for coastal and transitional water bodies has been undertaken by using the Scoping template provided in the EA guidance (EA, 2023a). The Scoping template identifies a range of criteria against which proposed activities can be considered to determine whether they pose potential risks to receptors and, therefore, whether there is a requirement to carry out an impact assessment for those receptors.

4.3.3 As there are no specific criteria included in the guidance for scoping groundwater, any groundwater bodies identified in the study area have been scoped in or out of further assessment on the basis of whether there is the potential for an impact pathway to exist from the proposed activities which may alter the Quantitative or Chemical classification elements of the water body.

5 WFD SCREENING AND SCOPING

5.1 SCREENING

5.1.1 The Project was compared to the list of low risk activities identified under the EA guidance (EA, 2017) and in Section 4.2. The Project does not qualify as low risk activities and, accordingly, it was taken forward to the scoping stage.

5.2 SCOPING

5.2.1 For the Mersey transitional water body and Mersey Mouth coastal water body, the proposed activities were scoped for potential risks to hydromorphological, biological (habitats and fish), water quality, protected areas and INNS receptors using the Scoping Templates provided in the EA guidance (EA, 2017). The completed scoping template is presented in this document in Appendix 1 (Mersey transitional) and Appendix 2 (Mersey Mouth coastal).

5.2.2 The proposed activities were also scoped for potential impacts on groundwater bodies and on freshwater bodies. The latter was limited to potential effects on migratory fish interactions i.e. the only identified potential pathway for impact.

TRANSITIONAL WATER BODIES: MERSEY

5.2.3 As indicated in the Scoping template (Appendix 1), the following WFD quality elements were **scoped in** to the requirement for more detailed assessment for the Mersey transitional water body:

- Hydromorphology
 - The tidal barrage associated with the Project has the potential for direct effects on the hydromorphology within the water body during both the construction and operational phases.
- Biology – Fish:
 - A range of activities associated with the Project could impact on normal fish behaviour including; movement, migration or spawning during both the construction and operational phases. This includes underwater noise and vibration, chemical changes, sediment disturbance, changes to water quality, and direct habitat loss.

- Biology – habitats
 - The Project is located within higher sensitivity habitat including saltmarsh, mussel beds and subtidal kelp beds.
 - More than 1% of the water body's lower sensitivity habitat is located within the extent of the Project including cobbles, gravel and shingle; intertidal soft sediment; rocky shore; subtidal rocky reef; and subtidal soft sediments.
- WFD protected areas:
 - The Project is within the Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA and Dee Estuary SAC, and is adjacent to the North Wirral (East) Shellfish Water and the Wallasey Bathing Water.
- Water Quality:
 - Activities associated with the Project may have potential direct effects on the water quality of the Mersey, including an increase in suspended sediment concentration (SSC); albeit temporary. There is also a risk of accidental spillages from vessels of oil and other hazardous substances during construction. Changes in tidal hydrodynamics as a result of activities associated with the Project, and potentially dredging, have the potential to release contaminants locked within the current sediment/strata.
 - The phytoplankton status³ of the water body is moderate, with activities associated with the Project having the potential to worsen this to poor or bad status.
- Invasive non-native species:
 - Construction of the Project will require various vessels. These vessels present the opportunity for the introduction and spread of marine INNS. There is also the potential for INNS to be spread and introduced via the use of equipment/materials introduced to the water column, and INNS could potentially colonise introduced structures during operation.

³ Phytoplankton is included under the water quality element in the EA Clearing the Waters guidance, as Phytoplankton have routinely been used by UK agencies as an indicator of anthropogenic inputs of nutrients, mainly from inorganic nitrogen.

COASTAL WATER BODIES: MERSEY MOUTH

5.2.4 As indicated in the Scoping template (Appendix 2), the following WFD quality elements were **scoped in** to the requirement for more detailed assessment for the Mersey Mouth coastal water body:

- Hydromorphology:
 - The tidal barrage associated with the Project has the potential for direct effects on the hydromorphology within the water body during both construction and operation.
- Biology – fish:
 - A range of activities associated with the Project could impact on normal fish behaviour like movement, migration or spawning during both construction and operation. This includes underwater noise and vibration, chemical changes, sediment disturbance and changes to water quality. Although fish are not usually considered for coastal water bodies there is potential for the Project to affect fish entering the Mersey Estuary which is why they have been included here.
- Water quality:
 - Although the Mersey Mouth water body is not within the footprint of the Project, as it is located adjacent to activities associated with the Project it may have potential direct effects on water quality including an increase in SSC; albeit temporary. There is also a risk of accidental spillages from vessels of oil and other hazardous substances during construction. Changes in tidal hydrodynamics as a result of activities associated with the Project, and potentially dredging, have the potential to release contaminants locked within the current sediment/strata.
 - The phytoplankton status of the water body is moderate, with activities associated with the Project having the potential to worsen this to poor or bad status.
- WFD Protected areas:
 - The Project is within the Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA and Dee Estuary SAC, and is adjacent to the North Wirral (East) Shellfish Water and the Wallasey Bathing Water.

- Invasive non-native species:
 - Although the Mersey Mouth water body is not within the footprint of the Project, as it is located adjacent, construction vessels may present the opportunity for the introduction and spread of marine INNS. There is also the potential for INNS to be spread and introduced via the use of equipment/materials introduced to the water column.

5.2.5 The following risks to receptors were **scoped out** of the requirement for more detailed assessment for the Mersey Mouth coastal water body:

- Biology – habitats
 - Higher sensitivity habitat including mussel bed and polychaete reef within the water body are located more than 500 m from the Project, whilst none of the water body’s lower sensitivity habitat is within the footprint of the Project.

FRESHWATER WATER BODIES

5.2.6 Given that the immediate risk to receptors from the Project will fall outside the boundaries of any WFD freshwater bodies, direct impact pathways to these sites will be limited. For example, impact pathways which could influence the physico-chemical quality elements, hydromorphological supporting elements, specific pollutants and chemical quality elements, will all be restricted to the tidal limit. Thus, it is likely that any changes to these quality elements from the Project will be limited to the Mersey Estuary and Mersey Mouth water bodies. There is therefore, no pathway to affect the associated status or potential of these supporting elements in any of the surrounding freshwater water bodies.

5.2.7 There is an indirect impact pathway which could affect the freshwater supporting element status of fish, via diadromous fish species being potentially impacted by the proposed activities. This is because the diadromous species salmon (*Salmo salar*), brown / sea trout (*Salmo trutta*), European eel (*Anguilla anguilla*), river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*) are all indicator species under the Fisheries Classification Scheme which is used to determine the fish Biological quality element. Any potential impacts in the estuary (be it either migration into or out of freshwater) which could potentially impact their population integrity could, therefore, result in a Deterioration Of Status within the freshwater bodies. Subsequently, for all freshwater sites

the proposed activities were scoped for potential risks to biological (fish) receptors only.

5.2.8 It is recognised that the freshwater water bodies may contain supporting habitats that are biologically linked to the estuarine SACs (e.g. the rivers may support spawning habitats for migratory salmonids). Any indirect effects on terrestrial/freshwater protected sites would be identified via the impact assessment on migratory fish species.

5.2.9 The following risks to receptors were **scoped in** to the requirement for more detailed assessment for freshwater water bodies:

- Biology - Fish:
 - The Project, although in an estuary, could potentially cause delay to, or the prevention of, migrating diadromous fish receptors into freshwater bodies. Specifically, these mechanisms include:
 - The proposed activities could impact on normal fish behaviour including; movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow);
 - Proposed activities could impact fish through turbine passage leading to loss of individuals and potentially population integrity depending on the level of impact.

5.2.10 Given the number of freshwater water bodies which are directly connected to the Mersey Estuary, it is proposed that each that have confirmed records of diadromous fish within them (as per the EA National Fish Populations Database (NFPD)) will be scoped in to the impact assessment. Where no NFPD data is available for water bodies, expert judgement will be used on the propensity of diadromous fish to be present. This will use factors such as the presence of diadromous fish in the neighbouring up- and downstream water bodies, the presence of barriers known to be causing ecological discontinuity, and where this is not available, likely expected prevalence inferred from waterbodies at a similar distance from the tidal limit. An overview of this scoping exercise has been summarised below in **Table 5.1** and those waterbodies which have Reasons for Not Achieving Good (RNAG) and/or Reasons For Deterioration (RFD) in their Fish classifications are summarised in **Table 5.2**.

Table 5.1: Scoping of freshwater bodies to take forward to the WFD impact assessment

Operation Catchment	Water Body	Latest fish classification within the Public domain (Cycle & year)	Diadromous fish identified from the NFPD	Scope In/Out	Rationale
Ditton	Ditton Brook (Halewood to Mersey Estuary)	Bad (C3 2019, C3 2022)	European eel	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This may result in a Deterioration Of Status in the Fish biological element of this water body.
Glaze	Mersey (Bollin confluence to Howley Weir) including Padgate Brook	n/a	Brown / sea trout, European eel, Lampetra spp.	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This may result in a Deterioration Of Status in the Fish biological element of this water body.
Gowy	Peckmill Brook, Hoolpool Gutter at Ince Marshes	Moderate (C3 2022)	Brown / sea trout, European eel	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This may result in a Deterioration Of Status in the Fish biological element of this water body.
	Gowy (Milton Brook to Mersey)	Poor (C3 2019, C3 2022)	European eel	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This

Operation Catchment	Water Body	Latest fish classification within the Public domain (Cycle & year)	Diadromous fish identified from the NFPD	Scope In/Out	Rationale
					may result in a Deterioration Of Status in the Fish biological element of this water body.
Manchester Ship Canal and Bridgewater Canal	Manchester Ship Canal	n/a	No	In	Although no diadromous fish were identified from the NFPD, nor has routine biological monitoring been completed to inform a base, diadromous fish have the propensity to be present owing to being recorded in the immediate upstream water body - Bollin (Ashley Mill to Manchester Ship Canal) (GB112069061382)
Sankey	Whittle Brook (Mersey Estuary)	n/a	No	Out	No diadromous fish were identified from the NFPD, and as such the Project is not considered to have the potential to result in a Deterioration Of Status in the Fish biological element of this water body.
	Sankey Brook (Rainford Brook to Mersey)	Poor (C3 2022, C3 2019)	European eel, Brook lamprey	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This may result in a Deterioration Of Status in the Fish biological element of this water body.

Operation Catchment	Water Body	Latest fish classification within the Public domain (Cycle & year)	Diadromous fish identified from the NFPD	Scope In/Out	Rationale
Weaver Lower	Keckwick Brook	Poor (C3 2022, C3 2019)	European eel	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This may result in a Deterioration Of Status in the Fish biological element of this water body.
	Weaver (Dane to Frodsham)	n/a	Brown / sea trout, European eel, Brook lamprey	In	Given the presence of diadromous fish species within this water body, the proposed activities at the Project could impact on these indicator species. This may result in a Deterioration Of Status in the Fish biological element of this water body.
Wirral	Dibbinsdale Brook and Clatter Brook	Poor (C3 2019, C3 2022)	None	Out	No diadromous fish were identified from the NFPD, and as such the Project is not considered to have the potential to result in a Deterioration Of Status in the Fish biological element of this water body.
	The Birket including Arrowe Brook and Fender	Poor (C3 2019, C3 2022)	None	Out	No diadromous fish were identified from the NFPD, and as such the Project is not considered to have the potential to result in a Deterioration Of Status in the Fish biological element of this water body.
	Rivacre Brook	n/a	None	Out	No diadromous fish were identified from the NFPD, and as such the Project is not considered to have the potential to result in a Deterioration Of Status in the Fish biological element of this water body.

Table 5.2: A summary of the RNAG and RFD attributed to the Fish classification elements in the WFD freshwater water bodies which discharge into the Mersey water body (GB531206908100)

Operation Catchment	Water Body	Reason Type	Significant Water Management Issue (SWMI)	Activity	Category
Ditton	Ditton Brook (Halewood to Mersey Estuary)	RNAG	Diffuse source	Urbanisation - urban development	Urban and transport
		RNAG	Point source	Sewage discharge (continuous)	Water Industry
Gowy	Peckmill Brook, Hoolpool Gutter at Ince Marshes	RNAG	Point source	Sewage discharge (continuous)	Water Industry
		RNAG	Diffuse source	Poor Livestock Management	Agriculture and rural land management
		RNAG	Diffuse source	Urbanisation - urban development	Urban and transport
		RNAG	Diffuse source	Sewage discharge (continuous)	Water Industry
	Gowy (Milton Brook to Mersey)	RNAG	Physical modification	Barriers - ecological discontinuity	Agriculture and rural land management
		RNAG	Diffuse source	Contaminated land	Other
		RNAG	Diffuse source	Poor Livestock Management	Agriculture and rural land management
Sankey	Sankey Brook (Rainford Brook to Mersey)	RNAG	Diffuse source	Urbanisation – urban development	Urban and transport

Operation Catchment	Water Body	Reason Type	Significant Water Management Issue (SWMI)	Activity	Category
Weaver Lower	Keckwick Brook	RNAG	Physical modification	Barriers - ecological discontinuity	Agriculture and rural land management
		RNAG	Diffuse source	Contaminated land	Other
		RNAG	Diffuse source	Poor Livestock Management	Agriculture and rural land management
		RNAG	Other pressures	Ecological recovery time - surface waters	Sector under investigation

Operation Catchment	Water Body	Reason Type	Significant Water Management Issue (SWMI)	Activity	Category
Wirral	Dibbinsdale Brook and Clatter Brook	RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management
		RNAG	Natural	Barriers – ecological discontinuity	No sector responsible
		RNAG	Diffuse source	Poor soil management	Agriculture and rural land management
		RNAG	Point source	Private sewage treatment	Domestic General Public
		RNAG	Diffuse source	Urbanisation - urban development	Urban and transport
	The Birket including Arrowe Brook and Fender	RNAG	Diffuse source	Poor Livestock Management	Agriculture and rural land management
		RNAG	Diffuse source	Urbanisation – urban development	Urban and transport
		RNAG	Other pressures	Ecological recovery time – surface water	No sector responsible
		RNAG	Physical modification	Land drainage - structures	Agriculture and rural land management
		RNAG	Physical modification	Flood protection - structures	Urban and transport
		RNAG	Physical modification	Ports and harbours - structures	Sector under investigation
		RNAG	Diffuse source	Poor soil management	Agriculture and rural land management
		RNAG	Diffuse source	Poor pesticide management	Agriculture and rural land management

Operation Catchment	Water Body	Reason Type	Significant Water Management Issue (SWMI)	Activity	Category
		RNAG	Diffuse source	Poor soil management	Agriculture and rural land management

GROUNDWATER WATER BODIES

- 5.2.11 The proposed project will principally interact with surface waterbodies, however the Wirral and West Cheshire Permo-Triassic Sandstone Aquifer (GB41101G202600) and Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifer (GB41201G101700) water bodies directly underly parts of the project area. Strictly speaking the footprint of the estuary does not have an underlying WFD groundwater body, however the associated waterbody aquifers will extend beneath the Estuary, and thus the WFD compliance assessment will assume (for completeness and to ensure a robust assessment) that the groundwater bodies extend to the lateral midpoint of the Estuary.
- 5.2.12 **Table 5.3** presents the scoping of groundwater bodies (and their associated component elements) to take forward to the WFD impact assessment.

Table 5.3: Scoping of groundwater bodies to take forward to the WFD impact assessment

Water Body	Latest component status	Scope In/Out	Rationale
Wirral and West Cheshire Permo-Triassic Sandstone Aquifers	Quantitative status - Good	In	There is no desk-based information available concerning the local connectivity of the tidal Mersey with the underlying aquifer. Furthermore, the depth of overlying drift is not currently defined. Given the potential for sheet piling, potentially into bedrock, including directly within the bed of the River Mersey, there is the potential for direct connectivity of project activities with the aquifer. The scale of direct interaction with the groundwater body is expected to be modest (relative to the size of the groundwater body), however the introduction of impermeable structures and potential to impede shallow groundwater pathways should be investigated (It is also noted that strictly the groundwater footprint directly beneath the Estuary is not defined within a WFD groundwater body, however the aquifer(s) are assumed to traverse beneath the Estuary.) It is likely that ground investigations, and appropriate working practices combined with construction best practice will inform and mitigate against any significant change, however at this stage the risk of groundwater component status deterioration cannot be ruled out.
	Chemical status - Poor	In	Construction methods may include clearance of bed materials within a coffer dam and exposure of aquifer bedrock, in addition to soil treatment to prepare and stabilise the ground for the installation of the tidal barrage structures (it is noted that strictly the groundwater footprint directly beneath the Estuary is not defined within a WFD groundwater body, however the aquifer(s) are assumed to traverse beneath the Estuary.) This may introduce high risk pathways for pollution risk to the groundwater body e.g. risk of pollution pathways to groundwater from construction activities (including accidental spillages etc). Risks may likely be mitigated by use of construction phase best practice techniques (including pollution control) however the potential for deterioration should be considered at this stage with potential for impact to Chemical status scoped in.

Water Body	Latest component status	Scope In/Out	Rationale
	Groundwater Protected Areas	In	The groundwater body has associated WFD Protected Areas, specifically associated with the Nitrates Directive and Drinking Water Protected Areas. The pathways described above regarding quantitative and chemical status interactions also apply to the potential for impact to groundwater protected areas. Potential to impact on Groundwater Protected Areas should be scoped in.
Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	Quantitative status - Poor	In	There is no desk-based information available concerning the local connectivity of the tidal Mersey with the underlying aquifer. Furthermore, the depth of overlying drift is not currently defined. Given the potential for sheet piling, potentially into bedrock, including directly within the bed of the River Mersey, there is the potential for direct connectivity of project activities with the aquifer. The scale of direct interaction with the groundwater body is expected to be modest (relative to the size of the groundwater body), however the introduction of impermeable structures and potential to impede shallow groundwater pathways should be investigated (It is also noted that strictly the groundwater footprint directly beneath the Estuary is not defined within a WFD groundwater body, however the aquifer(s) are assumed to traverse beneath the Estuary.) It is likely that ground investigations, and appropriate working practices combined with construction best practice will inform and mitigate against any significant change, however at this stage the risk of groundwater component status deterioration cannot be ruled out.
	Chemical status - Poor		Construction methods may include clearance of bed materials within a coffer dam and exposure of aquifer bedrock in addition to soil treatment to prepare and stabilise the ground for the installation of the tidal barrage structures (it is noted that strictly the groundwater

Water Body	Latest component status	Scope In/Out	Rationale
			<p>footprint directly beneath the Estuary is not defined within a WFD groundwater body, however the aquifer(s) are assumed to traverse beneath the Estuary.) This may introduce high risk pathways for pollution risk to the groundwater body e.g. risk of pollution pathways to groundwater from construction activities (including accidental spillages etc). Risks may likely be mitigated by use of construction phase best practice techniques (including pollution control) however the potential for deterioration should be considered at this stage with potential for impact to Chemical status scoped in.</p>
	Groundwater Protected Areas	In	<p>The groundwater body has associated WFD Protected Areas, specifically associated with the Nitrates Directive and Drinking Water Protected Areas. The pathways described above regarding quantitative and chemical status interactions also apply to the potential for impact to groundwater protected areas. Potential to impact on Groundwater Protected Areas should be scoped in.</p>

6 SUMMARY

6.1.1 Following the scoping assessment, it has been established that the following WFD water bodies and quality elements should be scoped in to the requirement for more detailed assessment:

- Mersey transitional water body
 - Hydromorphology
 - Biology – Fish
 - Biology – habitats
 - WFD protected areas
 - Water Quality
 - Invasive non-native species
- Mersey Mouth coastal water body
 - Hydromorphology
 - Biology – Fish
 - WFD protected areas
 - Water Quality
 - Invasive non-native species
- Freshwater water bodies which discharge into the Mersey
 - Biology – Fish
 - Ditton Brook (Halewood to Mersey Estuary)
 - Mersey (Bollin confluence to Howley Weir) including Padgate Brook
 - Peckmill Brook, Hoolpool Gutter at Ince Marshes
 - Gowy (Milton Brook to Mersey)
 - Manchester Ship Canal
 - Sankey Brook (Rainford Brook to Mersey)
 - Keckwick Brook
 - Weaver (Dane to Frodsham)
- Groundwater bodies that underly the project

- Wirral and West Cheshire Permo-Triassic Sandstone Aquifers
 - Quantitative status
 - Chemical status
 - WFD (Groundwater) protected areas
- Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers
 - Quantitative status
 - Chemical status
 - WFD (Groundwater) protected areas

6.1.2 Impacts to the 'habitats' biological quality element for the Mersey Mouth coastal water body have been scoped out of requiring further assessment.

6.1.3 For the above elements scoped in, a separate WFD Impact Assessment Report will be prepared in consultation with the Environment Agency. The final WFD Impact Assessment Report will be submitted with the Project's application for a DCO to determine the potential for the Project to cause a deterioration of these WFD water bodies and whether this deterioration will have a significant non-temporary effect on the status of scoped in WFD quality elements.

7 REFERENCES

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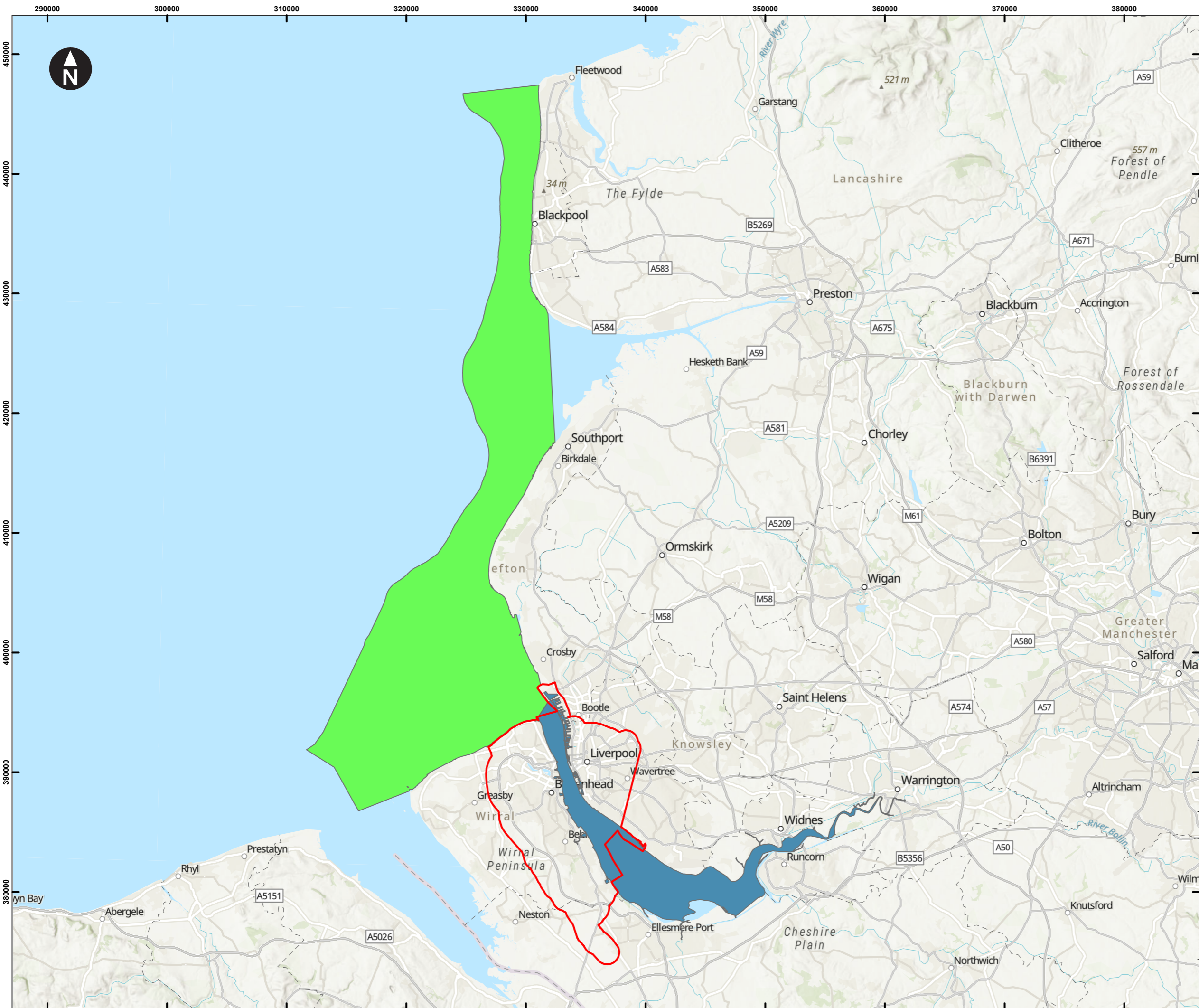
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Environment Agency, 2013. Method statement for the classification of surface water bodies v3.

Planning Inspectorate, 2017. Nationally Significant Infrastructure Projects - Advice Note Eighteen: the Water Framework Directive.

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- Key
- EIA Scoping Boundary
 - Mersey (transitional WFD water body)
 - Mersey Mouth (coastal WFD water body)

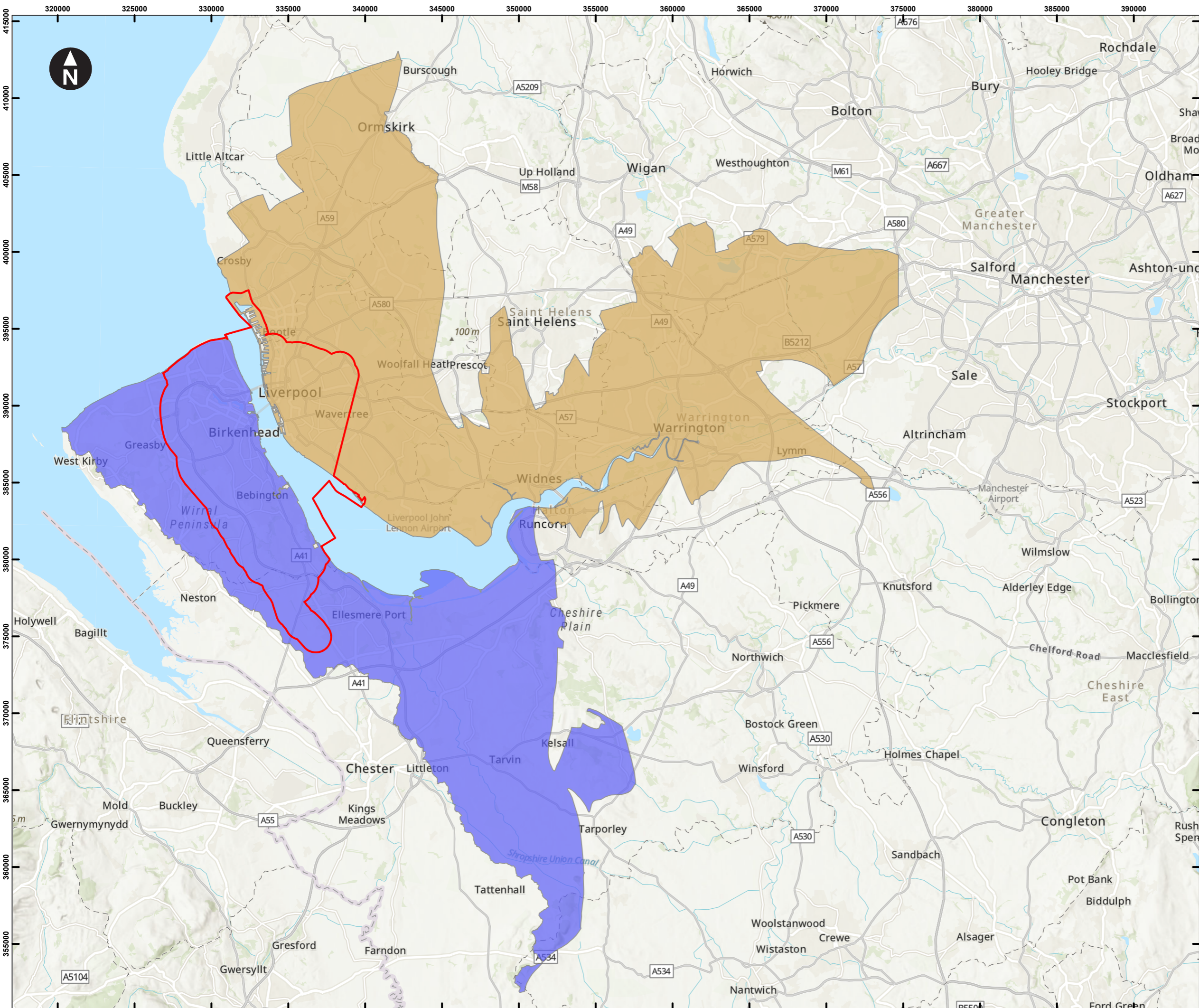
0 1 2 Kilometers
 Scale at A3: 1:300,000
 World Hillshade: Esri, Ordnance Survey, NASA, NGA, USGS
 World Topographic Map: Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS



Drawn: RM Checked: MU Approved: NT

Mersey Tidal Power WFD Scoping Report

Figure 2.1 Transitional and coastal WFD water bodies in proximity to the Project



- Key
- EIA Scoping Boundary
 - Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers
 - Wirral and West Cheshire Permo-Triassic Sandstone Aquifers

0 1 2 Kilometers

Scale at A3: 1:233,500

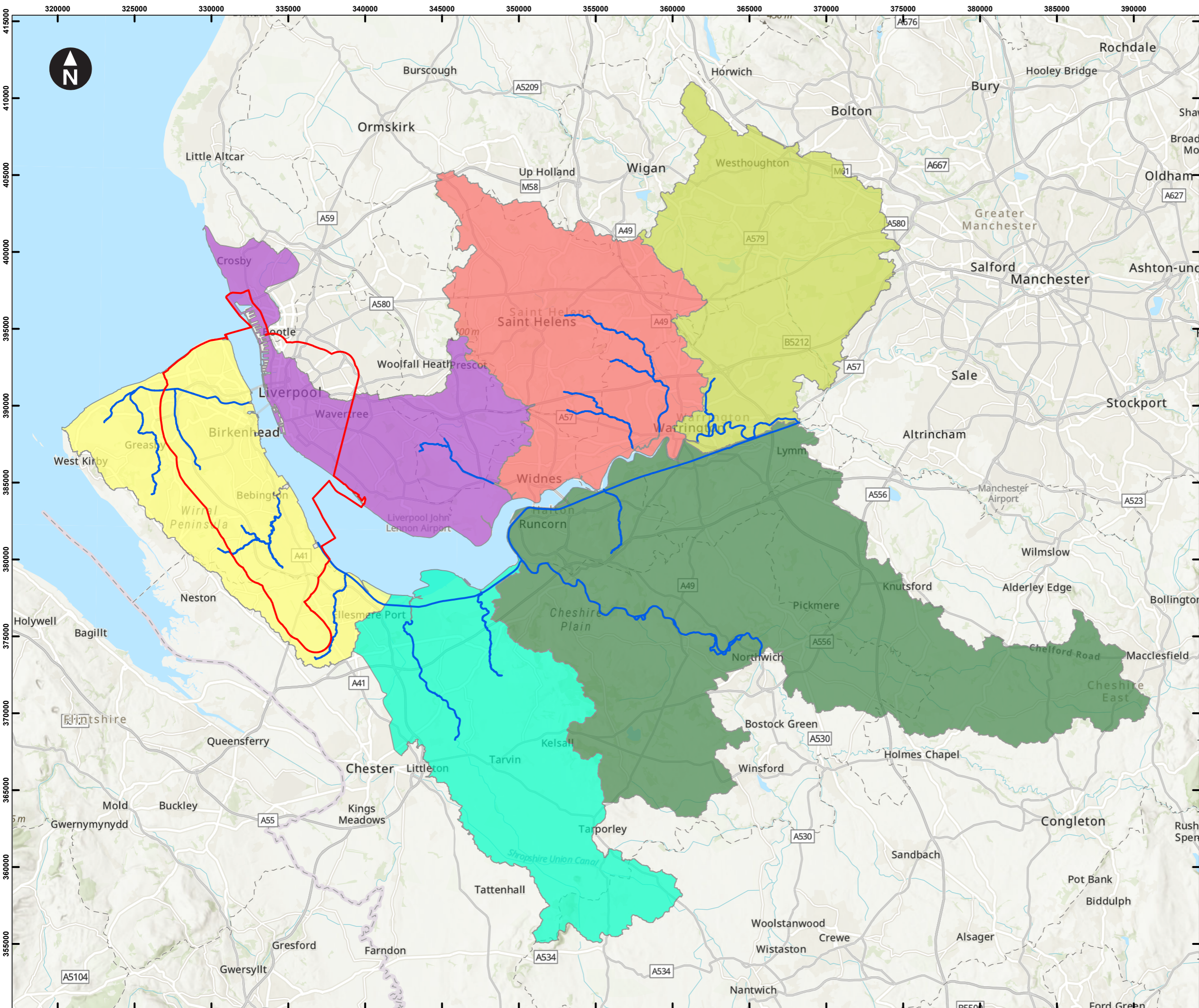
World Hillshade: Esri, Intermap, NASA, NGA, USGS
 World Topographic Map: Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS



Drawn: RM Checked: MU Approved: NT

Mersey Tidal Power WFD Scoping Report

Figure 2.2 Groundwater WFD water bodies in proximity to the Project



- Key
- EIA Scoping Boundary
 - WFD freshwater water bodies
 - Ditton Operational Catchment
 - Glaze Operational Catchment
 - Gowy Operational Catchment
 - Sankey Operational Catchment
 - Weaver Lower Operational Catchment
 - Wirral Operational Catchment

0 1 2 Kilometers
 Scale at A3: 1:233,500
 World Hillshade: Esri, Intermap, NASA, NGA, USGS
 World Topographic Map: Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS



Drawn: RM Checked: MU Approved: NT

Mersey Tidal Power WFD Scoping Report

Figure 2.3 Freshwater WFD water bodies which flow directly into the Mersey Estuary and their Operational Catchments

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APPENDIX 1. SCOPING TEMPLATE – MERSEY WFD TRANSITIONAL WATER BODY

Your activity	Description, notes or more information
Applicant name	Liverpool City Region Combined Authority (LCRCA)
Application reference number (where applicable)	Not applicable
Name of activity	Mersey Tidal Power
Brief description of activity	<p>The Project will have a generating capacity of up to 1GW, connecting the banks of the Mersey, in Liverpool with an above ground structure, and creating the potential for active travel, flood protection and climate mitigation responses. The tidal barrage would generate electricity utilising the energy available from the tidal range (up to 10.37m in height) within the Mersey Estuary. The Project consists of the following main components:</p> <ul style="list-style-type: none"> ■ A tidal range barrage located within the channel of the Mersey Estuary which contains: <ul style="list-style-type: none"> ■ A Power Generation System with control equipment and a sub-structure housing turbines with an expected electrical output of up to 1 GW; ■ A Hydro Control System (including sluice gates); ■ Marine Navigation System (including locks); ■ A Power Export System; ■ Onshore operational facilities including control centre, maintenance, stores and office buildings; and ■ Associated rock armour and breakwaters.

Your activity	Description, notes or more information
	<ul style="list-style-type: none"> ■ An onward grid connection to a National Grid substation or other substations; and ■ Utilisation of the surrounding port facilities during the construction phase in addition to other potential associated developments which may support the construction phase. <p>A range of other ancillary developments and facilities may also be required as part of the Project including access, utility connections, boundary treatments, security infrastructure, temporary and permanent laydown areas, hard and soft landscaping, drainage, cables, plant, and equipment.</p>
Location of activity (central point XY coordinates or national grid reference)	The Project will be located towards the mouth of the River Mersey, between the Wirral on the south and west and Liverpool to the north and east, with the grid connection routed from the tidal barrage over the Wirral to either Birkenhead, Breck Road, Capenhurst or through Liverpool to Lister Drive. The national grid reference of the approximate centre point of the Tidal Barrage Development Area is SJ 33356 89850.
Footprint of activity (km2)	<p>Tidal Barrage Development area – 2.4 km²</p> <p>Grid Connection Development area – 14.2 km²</p> <p>Scoping Boundary - 16.6 km²</p>
Timings of activity (including start and finish dates)	<p>The construction schedule is dependent upon the final construction method, however it is envisaged that construction would be expected to be 7-10 years but will reflect the construction method and contracting model.</p> <p>Commissioning is expected to take up to two years.</p> <p>The tidal barrage is expected to operate for up to 120 years.</p>
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	<p>Indicative Parameters for Tidal Barrage:</p> <ul style="list-style-type: none"> ■ Maximum width in channel = Up to 2 km dependant on location within development area

Your activity	Description, notes or more information
	<ul style="list-style-type: none"> ■ Maximum Height = +7.2 m Ordnance Datum 2020 (AOD) (level with onshore roads and 2040 Highest Astronomical Tide (HAT) at 6.9 m AOD. +8.5m AOD parapet on either side. Gantry crane height up to 40m AOD ■ Maximum Depth = -30 m AOD <p>Indicative Parameters of the Breakwaters:</p> <ul style="list-style-type: none"> ■ Total length (from up to 2 areas to left and right banks) = up to 600 m ■ Crest Level (currently estimated) = 8.5 m AOD seaside for wave overtopping <p>Indicative Parameters for Power Generation System:</p> <ul style="list-style-type: none"> ■ Maximum number of turbines = up to 50 no. ■ Maximum MWe per turbine = up to 30 MWe ■ Maximum speed per turbine = 95 rpm (dependent upon manufacturer) ■ Indicative operational flow = Minimum flow 150 m³/s Maximum flow 500 m³/s ■ Minimum depth (of structure) = -30 m AOD <p>Indicative Parameters of Hydro-Control System:</p> <ul style="list-style-type: none"> ■ Maximum number of sluice gates = up to 50 ■ Indicative sill level = -17.5 m AOD ■ Maximum depth (of structure) = -27.5 m AOD ■ Minimum width (of structure) = up to 70 m <p>Up to 1 km upstream and downstream from the Project has been defined as the marine working area for construction.</p>

Your activity	Description, notes or more information
	Dredging will be required to facilitate the installation of the temporary coffer dams. It is anticipated that between 7,000,000 to 20,000,000 m ³ of material could be removed (dependent on development area) within the marine working area.
Release of chemicals	<p>Operation of the Project is not anticipated to result in the release of any chemicals. During construction, effluent from construction activities and foul water from welfare facilities are expected to connect to existing facilities. Any contaminated construction materials may be exported via marine or terrestrial logistics routes.</p> <p>An Outline Construction Environmental Management Plan (OCEMP) will be prepared and submitted as part of the DCO application to record mitigation measures proposed to minimise potential effects to terrestrial and marine receptors, including the potential for release of chemicals during construction. The OCEMP will be the mechanism that ensures the successful management of the likely environmental effects resulting from the construction activities. A finalised CEMP will be prepared by the Applicant's appointed contractor ahead of works commencing and secured via a DCO Requirement.</p>

Water body	Description, notes or more information
WFD water body name	Mersey
Water body ID	GB531206908100
River basin district name	North West
Water body type (estuarine or coastal)	Estuarine
Water body total area (ha)	7969.87
Overall water body status	Moderate
Ecological status	Moderate

Water body	Description, notes or more information
Chemical status	Fail
Target water body status and deadline	Good by 2027
Hydromorphology status of water body	Supports good
Heavily modified water body and for what use	Yes – navigation, ports and harbours
Higher sensitivity habitats present	Mussel beds, including blue and horse mussel (29.83 ha) Saltmarsh (898.57 ha) Subtidal kelp beds (85.10 ha)
Lower sensitivity habitats present	Cobbles, gravel and shingle (1.69 ha) Intertidal soft sediment (5057.78 ha) Roky shore (11.71 ha) Subtidal rocky reef (198.09 ha) Subtidal soft sediments (380.54 ha)
Phytoplankton status	Moderate
History of harmful algae	Not monitored
WFD protected areas within 2km	Yes

Section 1: Hydromorphology

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	✓		The tidal barrage associated with the Project has the potential for direct effects on the hydromorphology within the water body.

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could significantly impact the hydromorphology of any water body	✓		The tidal barrage associated with the Project has the potential for direct effects on the hydromorphology within the water body.
Is in a water body that is heavily modified for the same use as your activity		✓	The water body is classified as heavily modified for the purposes of navigation, ports and harbours – the Project involves a tidal barrage to generate electricity.

Section 2: Biology

Habitats

Consider if the footprint of your activity is:	Yes	No	Biology habitats risk issue(s)
0.5 km ² or larger	✓		Yes – the tidal barrage area is larger than 0.5 km ²
1% or more of the water body's area	✓		Yes – the tidal barrage area is more than 1% of the water body area.
Within 500 m of any higher sensitivity habitat	✓		Yes – the Project is located within saltmarsh, mussel beds and subtidal kelp beds higher sensitivity habitats
1% or more of any lower sensitivity habitat	✓		Yes – more than 1% of cobbles, gravel and shingle; intertidal soft sediment; rocky shore; subtidal rocky reef; and subtidal soft sediments

Fish

Consider if fish are at risk from your activity, but only if your activity is in an estuary or could affect fish in or entering an estuary.

Consider if your activity:	Yes	No	Biology fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay	✓		The Mersey WFD water body is an estuary, and the Project has the potential to affect fish within the estuary.

Consider if your activity:	Yes	No	Biology fish risk issue(s)
or prevent fish entering it or could affect fish migrating through the estuary			
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	✓		A range of activities associated with the Project could impact on normal fish behaviour like movement, migration or spawning. This includes noise, chemical changes, sediment disturbance, changes to water quality, and habitat loss.
Could cause entrainment or impingement of fish	✓		Passage through the turbines would constitute fish entrainment and could result in fish injury and mortality.

Section 3: Water quality

Consider if water quality is at risk from your activity.

Use the water body summary table to find information on phytoplankton status and harmful algae.

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	✓		Activities associated with the Project may have potential direct effects on the water quality of waterbodies within the vicinity of the Project, including increase in SSC; albeit temporary. There is also a risk of accidental spillages from vessels of oil and other hazardous substances.
Is in a water body with a phytoplankton status of moderate, poor or bad	✓		Yes – status is moderate.
Is in a water body with a history of harmful algae		✓	This has not been monitored

Consider if water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	✓		Yes (potential for sediments to be disturbed). Requires impact assessment
It disturbs sediment with contaminants above Cefas Action Level 1	✓		Yes (potential for sediments to be disturbed). Requires impact assessment
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list		✓	The Project has no active discharges and does not have a mixing zone.

Section 4: WFD protected areas

Consider if WFD protected areas are at risk from your activity. These include:

▪ special areas of conservation (SAC)	▪ bathing waters
▪ special protection areas (SPA)	▪ nutrient sensitive areas
▪ shellfish waters	

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2 km of any WFD protected area	✓		The Project is within the Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA and Dee Estuary SAC, and is within 2km of the North Wirral (East) Shellfish Water and Wallasey Bathing Water.

Section 5: Invasive non-native species (INNS)

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	✓		Construction of the Project will require various vessels. These vessels present the opportunity for the introduction and spread of marine INNS. There is also the potential for INNS to be spread and introduced via the use of equipment/materials introduced to the water column, and INNS could potentially colonise introduced structures.

Summary

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	<i>Activities associated with the Project may have potential direct effects on the hydromorphology within the water body.</i>
Biology: habitats	Yes	<i>The Project has a footprint larger than 0.5 km² in the water body, covers more than 1% of the water body's area, is within 500 m of higher sensitivity habitat, and is in more than 1% of a number of lower sensitivity habitats.</i>
Biology: fish	Yes	<i>A range of activities associated with the Project could impact on normal fish behaviour like movement, migration or spawning. This includes noise, chemical changes, sediment disturbance, changes to water quality, and direct habitat loss.</i>
Water quality	Yes	<i>Activities associated with the Project may have potential direct effects on the water quality of the water body. The phytoplankton status of the water body is also of moderate, poor or bad status (moderate).</i>
Protected areas	Yes	<i>The Project is within the Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA and Dee Estuary SAC, and is adjacent to the North Wirral (East) Shellfish Waters.</i>
Invasive non-native species	Yes	<i>Required vessels, equipment, and colonisation of hard structures introduced to the marine environment could potentially present the opportunity for the introduction and spread of marine INNS.</i>

APPENDIX 2. SCOPING TEMPLATE – MERSEY MOUTH WFD COASTAL WATER BODY

Your activity	Description, notes or more information
Applicant name	Liverpool City Region Combined Authority (LCRCA)
Application reference number (where applicable)	Not applicable
Name of activity	Mersey Tidal Power
Brief description of activity	<p>The Project will have a generating capacity of up to 1GW, connecting the banks of the Mersey, in Liverpool with an above ground structure, and creating the potential for active travel, flood protection and climate mitigation responses. The tidal barrage would generate electricity utilising the energy available from the tidal range (up to 10.37m in height) within the Mersey Estuary. The Project consists of the following main components:</p> <ul style="list-style-type: none"> ■ A tidal range barrage located within the channel of the Mersey Estuary which contains: <ul style="list-style-type: none"> ■ A Power Generation System with control equipment and a sub-structure housing turbines with an expected electrical output of up to 1 GW; ■ A Hydro Control System (including sluice gates); ■ Marine Navigation System (including locks); ■ A Power Export System; ■ Onshore operational facilities including control centre, maintenance, stores and office buildings; and ■ Associated rock armour and breakwaters.

Your activity	Description, notes or more information
	<ul style="list-style-type: none"> ■ An onward grid connection to a National Grid substation or other substations; and ■ Utilisation of the surrounding port facilities during the construction phase in addition to other potential associated developments which may support the construction phase. <p>A range of other ancillary developments and facilities may also be required as part of the Project including access, utility connections, boundary treatments, security infrastructure, temporary and permanent laydown areas, hard and soft landscaping, drainage, cables, plant, and equipment.</p>
Location of activity (central point XY coordinates or national grid reference)	The Project will be located towards the mouth of the River Mersey, between the Wirral on the south and west and Liverpool to the north and east, with the grid connection routed from the tidal barrage over the Wirral to either Birkenhead, Burbo Bank, Capenhurst or through Liverpool to Lister Drive. The national grid reference of the approximate centre point of the Tidal Barrage Development Area is SJ 33356 89850.
Footprint of activity (ha)	<p>Tidal Barrage Development area – 2.4 km²</p> <p>Grid Connection Development area – 14.2 km²</p> <p>Scoping Boundary - 16.6 km²</p>
Timings of activity (including start and finish dates)	<p>The construction schedule is dependent upon the final construction method, however it is envisaged that construction would be expected to be 7-10 years but will reflect the construction method and contracting model.</p> <p>Commissioning is expected to take up to two years.</p> <p>The tidal barrage is expected to operate for up to 120 years.</p>
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	<p>Indicative Parameters for Tidal Barrage:</p> <ul style="list-style-type: none"> ■ Maximum width in channel = Up to 2 km dependant on location within development area

Your activity	Description, notes or more information
	<ul style="list-style-type: none"> ■ Maximum Height = +7.2 m Ordnance Datum 2020 (AOD) (level with onshore roads and 2040 Highest Astronomical Tide (HAT) at 6.9 m AOD. +8.5m AOD parapet on either side. Gantry crane height up to 40m AOD ■ Maximum Depth = -30 m AOD <p>Indicative Parameters of the Breakwaters:</p> <ul style="list-style-type: none"> ■ Total length (from up to 2 areas to left and right banks) = up to 600 m ■ Crest Level (currently estimated) = 8.5 m AOD seaside for wave overtopping <p>Indicative Parameters for Power Generation System:</p> <ul style="list-style-type: none"> ■ Maximum number of turbines = up to 50 no. ■ Maximum MWe per turbine = up to 30 MWe ■ Maximum speed per turbine = 95 rpm (dependent upon manufacturer) ■ Indicative operational flow = Minimum flow 150 m³/s Maximum flow 500 m³/s ■ Minimum depth (of structure) = -30 m AOD <p>Indicative Parameters of Hydro-Control System:</p> <ul style="list-style-type: none"> ■ Maximum number of sluice gates = up to 50 ■ Indicative sill level = -17.5 m AOD ■ Maximum depth (of structure) = -27.5 m AOD ■ Minimum width (of structure) = up to 70 m <p>Up to 1 km upstream and downstream from the Project has been defined as the marine working area for construction.</p>

Your activity	Description, notes or more information
	Dredging will be required to facilitate the installation of the temporary coffer dams. It is anticipated that between 7,000,000 to 20,000,000 m ³ of material could be removed (dependent on development area) within the marine working area.
Release of chemicals	<p>Operation of the Project is not anticipated to result in the release of any chemicals. However, changes in tidal hydrodynamics as a result of activities associated with the Project have the potential to release contaminants locked within the current sediment/strata.</p> <p>During construction, effluent from construction activities and foul water from welfare facilities are expected to connect to existing facilities. Any contaminated construction materials may be exported via marine or terrestrial logistics routes. Dredging has the potential to release contaminants locked within the current sediment/strata.</p> <p>An Outline Code of Construction Environmental Management Plan (CEMP) will be prepared and submitted as part of the DCO application to record mitigation measures proposed to minimise potential effects on terrestrial and marine receptors, including the potential for release of chemicals during construction. The CEMP will be the mechanism that ensures the successful management of the likely environmental effects resulting from the construction activities. A full CEMP will need to be prepared by the Applicant's appointed contractor ahead of works commencing and secured via a DCO Requirement.</p>

Water body	Description, notes or more information
WFD water body name	Mersey Mouth
Water body ID	GB641211630001
River basin district name	North West
Water body type (estuarine or coastal)	Coastal
Water body total area (ha)	42051.56
Overall water body status	Moderate

Water body	Description, notes or more information
Ecological status	Moderate
Chemical status	Fail
Target water body status and deadline	Good by 2027
Hydromorphology status of water body	Not assessed
Heavily modified water body and for what use	Yes – coastal protection, and navigation, ports and harbours
Higher sensitivity habitats present	Mussel beds, including blue and horse mussel (2.28 ha) Polychaete reef (0.25 ha)
Lower sensitivity habitats present	Intertidal soft sediment (37649.26 ha) Rocky shore (163.33 ha) Subtidal rocky reef (2898.44 ha) Subtidal soft sediments (26573.54 ha)
Phytoplankton status	Moderate
History of harmful algae	Not monitored
WFD protected areas within 2km	Yes

Section 1: Hydromorphology

Consider if your activity:	Yes	No	Hydromorphology risk issue(s)
Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status	✓		The tidal barrage associated with the Project has the potential for direct effects on the hydromorphology within the water body.

<p>Could significantly impact the hydromorphology of any water body</p>	<p>✓</p>		<p>The tidal barrage associated with the Project has the potential for direct effects on the hydromorphology within the water body.</p>
<p>Is in a water body that is heavily modified for the same use as your activity</p>		<p>✓</p>	<p>The water body is classified as heavily modified for the purposes of coastal protection, navigation, ports and harbours – the Project involves a tidal barrage to generate electricity.</p>

Section 2: Biology

Habitats

Consider if the footprint of your activity is:	Yes	No	Biology habitats risk issue(s)
0.5 km ² or larger		✓	No – footprint is not within the waterbody
1% or more of the water body's area		✓	No – footprint is not within the waterbody
Within 500 m of any higher sensitivity habitat		✓	No – mussel bed and polychaete reef higher sensitivity habitat within the waterbody are located more than 500 m from the Project.
1% or more of any lower sensitivity habitat		✓	No – less than 1% of the water body's lower sensitivity habitat is within the footprint of the Project.

Fish

Consider if fish are at risk from your activity, but only if your activity is in an estuary or could affect fish in or entering an estuary.

Consider if your activity:	Yes	No	Biology fish risk issue(s)
Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary	✓		Although the Mersey Mouth WFD water body is a coastal water body, there is potential for the Project to affect fish entering Mersey Estuary. Consequently, taking a precautionary approach fish have been considered for the water body.
Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow)	✓		Although the Mersey Mouth WFD water body is a coastal water body, there is potential for the Project to affect fish entering Mersey Estuary. Consequently, taking a precautionary approach fish have been considered for the water body. A range of activities associated with the Project could impact on normal fish behaviour like movement, migration or spawning. This includes noise, chemical changes, sediment disturbance and changes to water quality.
Could cause entrainment or impingement of fish	✓		Passage through the turbines would constitute fish entrainment and could result in fish injury and mortality.

Section 3: Water quality

Consider if water quality is at risk from your activity.

Use the water body summary table to find information on phytoplankton status and harmful algae.

Consider if your activity:	Yes	No	Water quality risk issue(s)
Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days)	✓		Although the Mersey Mouth water body is not within the footprint of the Project, as it is located adjacent activities associated with the Project may have potential direct effects on the water quality including increase in SSC; albeit temporary. There is also a risk of accidental spillages from vessels of oil and other hazardous substances.
Is in a water body with a phytoplankton status of moderate, poor or bad	✓		Yes – status is moderate.
Is in a water body with a history of harmful algae		✓	This has not been monitored

Consider if water quality is at risk from your activity through the use, release or disturbance of chemicals.

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	✓		Although the Mersey Mouth water body is not within the footprint of the Project, as it is located adjacent there is the potential for sediments to be disturbed. Requires impact assessment
It disturbs sediment with contaminants above Cefas Action Level 1	✓		Although the Mersey Mouth water body is not within the footprint of the Project, as it is located adjacent there is the potential for sediments to be disturbed. Requires impact assessment

If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if:	Yes	No	Water quality risk issue(s)
If your activity has a mixing zone (like a discharge pipeline or outfall) consider if:	Yes	No	Water quality risk issue(s)
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list		✓	The Project has no active discharges and does not have a mixing zone.

Section 4: WFD protected areas

Consider if WFD protected areas are at risk from your activity. These include:

- special areas of conservation (SAC)
- special protection areas (SPA)
- shellfish waters
- bathing waters
- nutrient sensitive areas

Consider if your activity is:	Yes	No	Protected areas risk issue(s)
Within 2 km of any WFD protected area	✓		The Project is within the Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA and Dee Estuary SAC, and is within 2km of the North Wirral (East) Shellfish Water and the Wallasey Bathing Water.

Section 5: Invasive non-native species (INNS)

Consider if your activity could:	Yes	No	INNS risk issue(s)
Introduce or spread INNS	✓		Although the Mersey Mouth water body is not within the footprint of the Project, as it is located adjacent construction vessels may present the opportunity for the introduction and spread of marine INNS. There is also the potential for INNS to be spread and introduced via the use of equipment/materials introduced to the water column.

Summary

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Hydromorphology	Yes	<i>Activities associated with the Project may have potential direct effects on the hydromorphology within the water body.</i>
Biology: habitats	No	<i>Not applicable for Mersey Mouth water body as the footprint of the Project is not within or near to relevant higher or lower sensitivity habitats.</i>
Biology: fish	Yes	<i>A range of activities associated with the Project could impact on normal fish behaviour like movement, migration or spawning. This includes noise, chemical changes, sediment disturbance and changes to water quality. Although fish are not usually considered for coastal water bodies there is potential for the Project to affect fish entering Mersey Estuary which is why they have been included here.</i>
Water quality	Yes	<i>Activities associated with the Project may have potential direct effects on the water quality of the water body. The phytoplankton status of the water body is also of moderate, poor or bad status (moderate).</i>

Receptor	Potential risk to receptor?	Note the risk issue(s) for impact assessment
Protected areas	Yes	<i>The Project is within the Mersey Narrows and North Wirral Foreshore SPA, Mersey Estuary SPA and Dee Estuary SAC, and is adjacent to the North Wirral (East) Shellfish Waters.</i>
Invasive non-native species	Yes	<i>Required vessels, equipment, and colonisation of hard structures introduced to the marine environment could potentially present the opportunity for the introduction and spread of marine INNS.</i>

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APPENDIX 3.5 HIA SCOPING REPORT

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.5 Health Impact Assessment

September 2024

ITS TIME  FOR TIDAL



Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 3.5 Health Impact Assessment

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ACRONYMS AND ABBREVIATIONS

Term	Definition
Health Impact Assessment (HIA)	A combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.
Health Impact	A health impact can be positive or negative. A positive health impact is an effect which contributes to good health or to improving health. For example, having a sense of control over one's life and having choices is known to have a beneficial effect on mental health and well-being, making people feel "healthier". A negative health impact has the opposite effect, causing or contributing to ill health. For example, spending a lot of time in an area with poor air quality is likely to have an adverse effect on physical health status.
Health Outcome	The health status of an individual, group or population attributable to a planned intervention (e.g. a project). A physical or mental health outcome, such as mortality or / disability arising from a direct or indirect effect.
LCRCA	Liverpool City Region Combined Authority.
MW	Megawatts
NETS	National Electricity Transmission System.
Social Determinants of Health	The non-medical factors that influence health outcomes; the conditions in which people are born, grow, work, live and age, and the wider set of forces and system that shape an individual's daily life.
Steering Group	A group of people brought together to oversee a piece of work such as a HIA. Typically, a steering group might be made up of up of representatives of relevant professional groups, key statutory agencies and the local community and its terms of reference might include <ul style="list-style-type: none"> ▪ Overseeing development and progress of the work; ▪ Agreeing the methodological framework and timescales; ▪ Providing an input of local knowledge and information;

Term	Definition
	<ul style="list-style-type: none"><li>▪ Acting as a bridge between partners;<li>▪ Facilitating the implementation of the assessment's recommendations; and<li>▪ Helping to assimilate and disseminate the emerging lessons.

1 INTRODUCTION

1.1 INTRODUCTION AND BACKGROUND

- 1.1.1 This Draft Health Impact Assessment (HIA) Scoping Report has been prepared on behalf of Mersey Tidal Power (hereafter ‘the Applicant’), led by Liverpool City Region Combined Authority (LCRCA). The Project involves applications for consents for a proposed tidal barrage renewable energy generation scheme in the Mersey estuary, close to the Liverpool City Region. Once operational, the Project will be the UK’s largest publicly led renewable power project, with a generating capacity of up to 1 gigawatt (GW) for 120 years.
- 1.1.2 The Project will generate electricity using potential kinetic energy captured by turbines from the large tidal range which can be up to 10 metres (33 feet (ft)). The tidal range is the difference between high and low water and is a distinguishing feature of the Mersey Estuary. The electricity will be exported from the Project to the National Electricity Transmission System (NETS) via a National Grid substation. It is anticipated that enough energy could be generated to power up to 1 million homes.
- 1.1.3 The Project supports wider Net Zero ambitions and the Liverpool City Region’s vision to decarbonise the region through clean, renewable energy. Due to the Project’s operational life of 120 years, the Project creates a long-term investment in low-carbon energy, providing clean generation onwards to 2150. The Project also has the potential to provide co-benefits such as research, flood defence, coastal protection, active transport connectivity and tourism.

1.2 INTRODUCTION TO HIA

- 1.2.1 The purpose of a HIA is to identify and assess both the beneficial and adverse effects of a policy, programme or project, and to make recommendations to enhance the potential benefits, while minimising the potential adverse effects, and reduce health inequalities where possible.
- 1.2.2 HIA has been defined as (WHO Europe, 1999);
- “...a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population”.*
- 1.2.3 In this context, ‘health’ is defined by the World Health Organisation as;

“...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.

- 1.2.4 Health determinants are the personal, social, cultural, economic and environmental factors that influence the health of individuals or populations. These include a range of factors such as income, employment, education and social support.
- 1.2.5 Health inequality can be defined as the difference in either health status, or the distribution of health determinants, between different population groups. Some health inequalities are unavoidable, others are not so and may well be unjust and unfair.
- 1.2.6 HIA apply the below model of health and well-being to determine the potential for any health inequality (**Plate 1.1: Socio-Environmental Model of Wellbeing**). The Socio-Environmental Model of Well-Being considers that health and well-being are a result of external influences, where an individual or family experiences a combination of adverse external factors which could result in health inequality.
- 1.2.7 The overall aim of the HIA will be to identify the aspects of the Project which have the potential to affect people’s health, both directly and indirectly. Some effects may be positive, others could be negative. The HIA will be undertaken in parallel with the Environmental Impact Assessment (EIA) and will include recommendations which will remove or mitigate as far as possible any potential negative impacts on people’s health. It will also identify opportunities to maximise the potential benefits to people’s health.
- 1.2.8 The purpose of this scoping step to is to define the area of influence for the HIA, identify the potentially affected communities, the key health issues and to develop the strategy to undertake the required data collection.

Plate 1.1: Socio -Environmental Model of Wellbeing



COMMENT

The responsibility for agreeing and approving the HIA scope for the Project will sit with a Steering Group. The Steering group will be comprised of representatives from key stakeholder groups or organisations, in order to promote participation in, and ownership of, the HIA process. This document represents the initial draft of the Scoping Report which will be presented to the Steering Group for their consideration, input and agreement.

Comments and questions for the Steering Group to consider and provide feedback on have been included throughout the document in blue textboxes such as this one.

2 APPROACH TO THE HEALTH IMPACT ASSESSMENT

2.1 THE HIA PROCESS

2.1.1 Established best practice (Mette *et al.*, 2009) for HIA applied within in the UK sets out several criteria, including the establishment of an HIA steering group. This is considered a requirement for the development of a focussed, relevant and transparent assessment.

2.1.2 The HIA process includes, but is not limited to:

- Screening: deciding whether to undertake a HIA based on potential impacts of a proposal;
- Scoping: identifying potential health issues and the extent of the study including establishing a Steering Group and agreeing the Terms of Reference for the HIA;
- Assessment: rapid or in-depth appraisal of potential health impacts using available evidence, usually from various sources, and, where relevant identifying the option(s) likely to achieve optimal health gain;
- Recommendations: framing, and reporting, of conclusion and recommendations to remove / mitigate negative impacts upon health and enhance positive effects / gains; and
- Management: monitoring and evaluating processes and outcomes of the HIA and providing feedback to influence continuing review of the project.

2.1.3 The overall aim of the HIA will be to identify the aspects of the Project which have the potential to affect people's health, both directly and indirectly. Some effects may be positive, whereas others could be negative. The HIA will be undertaken in parallel with the EIA and will include recommendations which will seek to remove or mitigate any possible negative impacts on people's health. It will also identify opportunities to maximise the potential benefits to people's health.

2.2 AIMS AND OBJECTIVES OF THE HIA

2.2.1 The aims and objectives for the Project HIA are:

- To assess the potential health impacts, both positive and negative, of the Project.
- To generate recommendations that enhance positive health impacts, minimise negative ones and reduce health inequalities where possible.

- To assess the marginal, indirect, unverified and cumulative health inequalities associated with the Project.
- To maximise the health opportunities brought about by the Project.
- Assess health evidence and local population baseline and determine how the Project could be adapted to enhance health outcomes for the local population.

2.3 METHODOLOGY

SCOPING

2.3.1 The purpose of the scoping step is to define the area of influence for the HIA, identify the potentially affected communities, the key health issues and to develop the strategy to undertake the required data collection. Specific tasks to be undertaken at this stage include:

Open a dialogue with the Steering Group to identify which health determinants will be used in the assessment.

Undertake high level desk top studies of existing health information, gap analysis and literature review.

Deliverable: Preparation of this Scoping Report

BASELINE ASSESSMENT

2.3.2 The purpose of the baseline assessment step is to collate the available baseline data and to collect and analyse the stakeholder evidence. Baseline will be collated based on the geographical scope outlined in Section 3.2.

2.3.3 Potential sources of baseline information include:

- Liverpool City Council, including Joint Strategic Needs Assessment;
- Wirral Council, including Joint Strategic Needs Assessment;
- Liverpool City Region Combined Authority;
- National Health Service Cheshire and Merseyside Integrated Care Board;
- Office for Health Improvement and Disparities (OHID);
- Environment Agency;
- Natural Resource Wales;
- Local Community, e.g. church bodies;
- Voluntary Organisations;

- Technical Specialists e.g. Air Quality, Flood Risk Team, Transport Planners, Landscape Architects;
- Sport England;
- Healthwatch Liverpool; and
- Real-time data sources, including air quality monitoring.

2.3.4 Baseline data should be used to establish the demographic, economic, social and health profiles for the population within the geographical scope of the HIA.

KEY HEALTH ISSUES

2.3.5 Key health issues likely to potentially arise as a result of either the construction, operation or decommissioning phases of the Project, once proposed, are to be discussed with and reviewed by the Steering Group to determine validity, as well as to explore the inclusion of any other key health issues considered relevant as critical the HIA.

HEALTH EVIDENCE

2.3.6 Current evidence from literature and other publicly available sources on the health impacts likely to arise as a result of either the construction, operation or decommissioning phases of the Project will be reviewed and presented. The likely health outcomes arising from any likely impacts will be explored and discussed, this will include direct and indirect effects for construction, operational and decommissioning phases of the Project.

DETERMINANTS OF HEALTH

2.3.7 In response to the key health issues associated with the Project, the population health baseline, and health evidence, a series of health determinants will be identified, against which the assessment of health impacts will be undertaken, and health outcomes determined. These will include both direct and indirect health determinants.

VULNERABLE GROUPS

2.3.8 Amongst the population within the study area (identified in **Section 3.2**), specific vulnerable groups will be identified, which are likely to be disproportionately impacted by the Project in relation to other general members of the local population.

CONSULTATION

2.3.9 As part of the scoping stage a consultation exercise on the HIA scope will be undertaken with key stakeholders, this is in addition to the inclusion of the

Steering Group. Outcomes from the consultation will then be included within the key health issues, assessed population, identification of vulnerable groups. This is likely to be undertaken in parallel with the consultation on the EIA Scoping Report.

HEALTH IMPACTS

- 2.3.10 The assessment of health impacts will be based on the health evidence, identification of the effects, magnitude of their impact on health outcomes and their rating as either potentially positive or negative. A methodology to rate the significance of each effect should be developed, taking into account the likelihood of the effect occurring, the likely duration of the effect, the reversibility of the effect, the vulnerability of the population and the magnitude of the effect. The full range of health impacts considered in the assessment should be determined by the stakeholder consultation process and finalised with the wider HIA Steering Group.

RECOMMENDATIONS

- 2.3.11 The objective of the HIA will be to identify appropriate mitigation measures to minimise (add or seek to eliminate where possible) the negative impacts of the Project and to maximise the opportunities for beneficial impacts. Negative impacts identified as being of moderate or high significance will be afforded particular attention.
- 2.3.12 The HIA should be undertaken in parallel with the EIA which will allow the feedback of the findings into the assessment process at the earliest stage.

Deliverable: Draft Health Impact Assessment Report

MANAGEMENT PLANNING AND MONITORING

- 2.3.13 Health mitigation measures identified in the recommendations stage of the assessment should, where appropriate, be incorporated into the EIA for the Project. Recommendations for monitoring the Project related effects on health should also be included in the final HIA. Additionally, an Adaptive Environmental Management Plan (Adaptive EMP) will be produced and submitted as a part of the DCO Application, which will outline the mitigation and management measures to be included as a minimum to reduce worst-case impacts.

Deliverable: Final Health Impact Assessment Report

COMMENT

Steering Group to consider the Aims and Objectives for the HIA and provide feedback on whether they agree with those proposed.

Do the Steering Group agree with the proposed methodology for this HIA Scoping exercise as well and the subsequent HIA? With the understanding that the lead author for the HIA have not been appointed and therefore the methodology could be subject to their acceptance.

3 SCOPING

3.1 INTRODUCTION

3.1.1 Amongst the communities who may be directly or indirectly affected by any changes brought about by the Project, the proportion and profile of potentially affected population groups have been outlined below using publicly available data.

3.1.2 Community profile data has been used to express the status of vulnerable groups with respect to their health status and / or deprivation. In some cases, Health Profile Indicators are implicit rather than explicit, where direct Health Profile Indicators were not available.

3.2 GEOGRAPHICAL SCOPE

3.2.1 The Liverpool City Region comprises the local authorities (LAs) of Liverpool City, Knowsley, St Helens, Sefton, Halton and Wirral. For the purposes of this HIA, Liverpool City, Wirral, and Sefton will be taken forwards for analysis, given their immediate proximity to the Project. Cheshire West and Chester will also be presented in this assessment, given a small inclusion of the council area within the Scoping Boundary (for the Grid Connection Development Area) to the south of Wirral. LA data will be compared with regional and national figures for a greater understanding of trends and variations in health data.

3.2.2 **Figure 1** shows the healthcare and community facilities within the geographical scope outlined above.

3.3 CHARACTERISTIC OF THE STUDY AREA

POPULATION

3.3.1 The Liverpool City Region (LCR) has a total population of approximately 1,551,400 people. Out of the LAs within the LCR, Liverpool City makes up the highest proportion of the region at 31.2% (as shown in **Table 3.1** below). Liverpool City also the highest population density of 4,346 people per square kilometre (km²). Sefton is also highly densely populated at 1,783 people per km². These figures are much higher than the regional and national population density averages of 526 people per km², and 434 people per km², respectively. The population density in Cheshire West and Chester as of 2021 was 388 people per km².

Table 3.1: Local Authority Population 2021 (Office for National Statistics, 2021a)

Local Authority	Population (numbers)	% of LCR*
Liverpool City	485,000	31.2
Sefton	279,700	18.0
Wirral	320,600	20.6
Cheshire and Chester West	357,700	N/A
North West	7,424,100	N/A
UK	65,121,700	N/A

ECONOMY AND EMPLOYMENT

3.3.2 The LA with the highest level of economic inactivity is Liverpool City at 26.1%, which is 5.0% higher than the national average for economic activity. Unemployment is also highest in Liverpool City, at 3.2% higher than the regional average and 3.3% higher than the national average. Unemployment is the lowest of the geographical scope in Cheshire West and Chester at 3.0%.

Table 3.2: Employment and Unemployment 2021 (Office for National Statistics, 2021a)

Employment Status (%)	Liverpool City	Wirral	Sefton	Cheshire West and Chester	North West	UK
Economically Active	73.9	76.0	81.0	79.5	76.7	78.8
Unemployed	7.2	3.3	4.1	3.0	3.8	3.7

3.3.3 **Table 3.3** shows the proportion of total employees working in each industry sector in 2022 within Liverpool City, Wirral, Sefton, and Cheshire West and Chester as compared to the North West and the UK. Broad similarities in

industry concentration can be identified across the city region, with all LA's having a relatively low proportion (2.9%, 2.5%, 2.5%, 2.4%) working in arts, entertainment and recreation compared to a relatively high proportion (12.0%, 13.7%, 16.7%, 15.9%) working in the wholesale and retail trade; repair of motor vehicles and motorcycles sector.

3.3.4 Disparity exists in the information and communication sector, where 4.0% of Liverpool City residents work in this sector compared to only 1.7% in Wirral and Sefton (a difference of 2.3%). Another disparate sector is public administration, at 8.8% in Liverpool City and only 4.1% in Cheshire West and Chester. Wirral does have a higher portion of residents working in the human health and social work sector than Liverpool City, Sefton, and Cheshire West and Chester, with the largest difference being between Wirral and Cheshire West and Chester at 11.7%.

Table 3.3: Overview of jobs by industry sector 2022 (%) (Office for National Statistics, 2021c)

Industry	Liverpool City	Wirral	Sefton	Cheshire West and Chester	North West	UK
B: Mining and Quarrying.	0.0	0.0	0.0	0.4	0.1	0.2
C: Manufacturing	4.0	7.8	5.0	7.6	9.0	7.6
D: Electricity, gas, steam and air conditioning supply.	0.2	0.0	0.1	0.2	0.3	0.4
E: Water supply; sewerage, waste management and remediation activities.	0.5	1.0	0.3	1.0	0.7	0.7
F: Construction	3.6	4.9	5.6	4.7	5.2	4.9
G: Wholesale and retail trade; repair of motor vehicles and motorcycles.	12.0	13.7	16.7	15.9	14.7	14.0

Industry	Liverpool City	Wirral	Sefton	Cheshire West and Chester	North West	UK
H: Transportation and storage.	4.7	3.4	5.0	2.9	4.7	5.0
I: Accommodation and food service activities.	9.5	7.8	8.9	10.0	7.9	8.0
J: Information and communication.	4.0	1.7	1.7	2.6	3.4	4.6
K: Financial and insurance activities.	2.6	1.2	4.4	5.9	2.4	3.3
L: Real estate activities.	2.2	1.5	1.0	1.8	1.6	1.9
M: Professional, scientific and technical activities.	7.3	7.8	5.6	10.6	9.4	9.1
N: Administrative and support service activities.	7.7	4.9	5.6	8.2	8.3	9.0
O: Public administration and defence; compulsory social security.	8.8	4.9	10.0	4.1	5.0	4.7
P: Education	9.6	9.8	10.0	7.6	8.1	8.6
Q: Human health and social work activities.	18.6	23.5	16.7	11.8	15.1	13.5
R: Arts, Entertainment and Recreation.	2.9	2.5	2.5	2.4	2.2	2.4

Industry	Liverpool City	Wirral	Sefton	Cheshire West and Chester	North West	UK
S: Other service activities.	1.8	2.5	2.2	1.8	1.8	2.0

SKILLS AND LEARNING

3.3.5 The educated population of the Wirral is considerably higher than that of Liverpool City, Sefton, and the wider North West Region, and marginally higher than the national average. Those with a Regulated Qualifications Framework 1 (RQF1) and above is 95.4%, as compared to only 87.9% in Liverpool City (a difference of 7.9%), and 89.4% for the North West. Equally, those with an RQF4 and above (equivalent to degree and higher degree level qualifications) is 2.7% higher in the Wirral than Liverpool City. 8.6% of the population in Liverpool City is with no educational attainment, 1.9% higher than the regional average.

Table 3.4: Qualifications 2023 (%) (Office for National Statistics, 2021c)

Qualification	Liverpool City	Wirral	Sefton	Cheshire West and Chester	North West	UK
RQF4 and above.	45.5	48.2	40.3	50.5	44.4	47.3
RQF3 and above.	64.7	71.3	69.0	67.0	65.8	67.8
RQF2 and above.	84.3	91.9	88.2	91.2	86.6	86.5
RQF1 and above.	87.9	95.4	91.1	94.2	89.6	89.0
Other qualifications.	3.5	#	#	#	3.6	4.6
No qualifications.	8.6	#	5.7	#	6.7	6.5

Note: Where sample size is too small to produce reliable estimates, estimates are replaced with a #.

HOUSING AND STANDARDS OF HOUSING

3.3.6 In the year ending 2023, the median house price across the North West region was £200,000. The median house prices in Wirral and Sefton were largely in keeping with this at £200,00 and £210,000 respectively. Liverpool City sat slightly under the regional average at £161,000, and Cheshire West and Chester significantly above it at £247,250. These figures are all significantly lower than the national average at this time of £290,000 (Office for National Statistics, 2021b).

3.3.7 Home ownership is less prevalent in Liverpool City than the regional and national figures at 46.8% as compared to 62.3% and 61.3% respectively. In Cheshire West and Chester and Wirral, home ownership is higher than the surrounding area and national figure at 68.3% and 65.0% respectively. Those living in social and private rented accommodation is high in Liverpool City at 26.4% and 26.1%,

compared to only 14.4% and 18.2% in Sefton (Office for National Statistics, 2021c).

- 3.3.8 As of 2021, fuel poverty in the North West was higher than any other UK region at 18% or above (including the LAs of Liverpool City, Sefton, and Wirral). Areas of the South East with low fuel poverty sit at approximately 8% or less.
- 3.3.9 The 2010 Private Sector House Condition Survey which provides detail on housing stock condition identifies that Liverpool City's private sector stock is older than average, with 35% built pre-1919, compared to only 25% nationally. 8,030 dwellings were estimated to be unfit for living, with 49,143 dwellings deemed non-decent (a third of the total private housing stock) (GL Hearn Limited, 2016).
- 3.3.10 As of December 2023, 38.5% of homes in England and 38.4% of homes in the North West region were threatened with homelessness. Cheshire West and Chester sits on par with these figures at 39.3%. Liverpool City Region LA's Liverpool City, Wirral and Sefton are all recorded as significantly lower than this, at 20.0%, 29.6%, and 15.8% respectively. Of those threatened with homelessness in Liverpool City, 32.4% are aged 25-34. Male homelessness is also more prevalent in the City than female, with 40.3% of the total threatened being male, compared to only 15.9% female (Office for National Statistics, 2021c).

TRANSPORT AND ACCESS

- 3.3.11 As of 2023, 40.1% of households in Liverpool City were without access to a car or van. This is nearly half of the national figure of 23.5%. Access to a car or van is improved in Wirral and Sefton as compared to Liverpool City, with 25.2% and 24.1% of households having 2 cars or vans compared to only 16.1% in Liverpool City. 9.1% of households in England have 3 or more cars or vans, which is marginally lower than 10.5% of households in Cheshire West and Chester (Office for National Statistics, 2021c).
- 3.3.12 In 2022, 69% of residents in the North West held a full driving license, 6% lower than the national average of 75% (Department for Transport, 2022).
- 3.3.13 Whilst the percentage of residents working from home in Liverpool City (26.1%), Wirral (26.7%), and Sefton (27.9%) is in line with the regional trends (27.3%), these figures are lower than the national figure of 31.5% (of which Cheshire West and Chester matches at 31.5%). Of those that do travel to their place of work, the largest proportion drive a car or a van in keeping with regional and national figures. Beyond this, alternative methods of travel including public transport via bus as well as active travel including cycling and walking are more

common in Liverpool City than in Wirral, with 10.9% of residents taking a bus to work as opposed to only 4.4% in Wirral and 4.0% in Sefton. (Office for National Statistics, 2021c).

HEALTH PROFILE

3.3.14 The proportion of residents within Liverpool City living with a long-term illness or health condition is 22.4%, in Wirral is 22.6%, and in Sefton is 22.7%. This is 4.8%, 5.0%, and 5.1% higher respectively than the national average of 17.6%¹. Cheshire West and Chester sits in greater alignment with the national figure at 18.5%. Prevalence of long-term illness varies greatly between wards as demonstrated below in **Table 3.5**. The lowest proportion of long-term illness comes from Central at 8.1%, and the highest prevalence of long-term illness can be found in Everton at 32.6%.

Table 3.5: Prevalence of Long-term Illness in Liverpool City by Ward 2021 (Office for Health, Improvement and Disparities, 2021)

Ward	Long-term Illness (%)
Allerton and Hunts Cross	21.9
Anfield	24.9
Belle Vale	29.3
Central	8.1
Childwall	17.9
Church	16.9
Clubmoor	28.4
County	25.2
Cressington	21.7
Croxeth	22.9
Everton	32.6
Fazakerley	21.8

¹ Long-term illness -

<https://fingertips.phe.org.uk/search/long%20term%20illness#page/1/gid/1/pat/6/ati/401/are/E09000030/iid/93276/age/1/sex/4/cat/-1/ctp/-1/yr/1/cid/4/tbm/1>

Ward	Long-term Illness (%)
Greenbank	14.4
Kensington and Fairfield	24.2
Kirkdale	28.7
Knotty Ash	25.5
Mossley Hill	17.6
Norris Green	26.7
Old Swan	24.3
Picton	20.0
Princes Park	23.9
Riverside	21.0
St Michael's	19.5
Speke-Garston	25.5
Tuebrook and Stoneycroft	23.5
Warbreck	22.1
Wavetree	19.8
West Derby	21.1
Woolton	23.0
Yew Tree	23.8

3.3.15 Under the Equality Act 2010, 21.8% of Liverpool City residents, 22.8% of Wirral residents, and 20.7% of Sefton residents are identified as disabled. These figures are higher than the regional and national averages of 19.4% and 17.3% respectively. In Cheshire West and Chester, disability is at 18.0% of the population, between the regional and national figures. Of those disabled residents, 11.2% in Liverpool City are limited a lot in day to day activity, with a similar value of 11.0% in Wirral. These figures are again, marginally higher than regional and national averages of 8.9% and 7.3% respectively (which align with Sefton at 9.9% and Cheshire West and Chester at 7.4%).

3.3.16 Infant mortality is defined as the rate of infant deaths aged under 1 year of age per 1,000 live births. In Liverpool, this rate is 5.2. This is considerably higher than

Sefton at 4.1 and Wirral and the wider North West region, both at 4.4. The England infant mortality rate is lower again at 3.9. Infant mortality is the lowest of the geographical scope in Cheshire West and Chester at 3.0.

3.3.17 Suicide rates, typically recorded as number per 100,000 population, within areas can provide an indication of the current state of mental health of residents. The suicide rates within Liverpool City (12.3) and Wirral (13.0) are marginally higher than the North West region (11.8) and notably higher than the rest of England (10.3 per 100,000). In keeping with regional and national differences between male and female suicide rates, these were recorded as higher in males than females, with a difference of 11.1 per 100,000 (Liverpool City) and 12.4 per 100,000 (Wirral). Suicide rates in Sefton and Cheshire West and Chester are more in line with the regional and national figures at 11.6% and 11.5% respectively.

DEPRIVATION

3.3.18 The English Indices of Multiple Deprivation (IMD) uses a combination of information relating to seven ‘domains’: income; employment; health deprivation and disability; education, skills and training; barriers to housing and services; crime; and living environment to create an overall score of deprivation. Deprivation is scored between 1 and 317 (representing the 317 LA districts within England), with a score of 1 being most deprived and 317 being least deprived (IMD, 2019).

3.3.19 There are high levels of deprivation in the region. **Table 3-6** shows the IMD overall deprivation rankings for Liverpool City, Wirral, Sefton, and Cheshire West and Chester. where a rank of 1 is the most deprived and a rank of 317 is the least deprived LAs nationally. All LAs excluding Cheshire West and Chester are in the top 30% of most deprived LAs nationally, with Liverpool City in the top ten. Levels of health and overall deprivation are outlined within Figures 2 and 3.

Table 3.6: IMD Overall Rankings (UK Gov, 2019)

Local Authority	Liverpool City	Wirral	Sefton	Cheshire West and Chester
IMD Rank	4	77	89	183

3.3.20 In the LCR area there are 298 Lower Super Output Areas (LSOAs)². Of these LSOA's, in 2019:

² Lower layer Super Output Areas (LSOAs) are made up of groups of Output Areas (OAs), usually four or five. They comprise between 400 and 1,200 households and have a usually resident population between 1,000 and 3,000 persons.

- 216 LSOAs were within the 30% most deprived neighbourhoods;
- 34 LSOA's were within the 40-50% most deprived neighbourhoods;
- 26 LSOA's were within the 40-50% least deprived neighbourhoods;
- 21 LSOA's were within the 30-20% least deprived neighbourhoods; and
- One LSOA was in the top 10% of least deprived neighbourhoods.

3.3.21 The most deprived neighbourhoods are particularly concentrated in East Wirral and North Liverpool. The most deprived LSOA's in the LCR are located centrally in Liverpool City, and consist of the wards Anfield, County and Tuebrook and Stonecroft.

3.3.22 The least deprived LSOA's in the LCR are located in the south of Liverpool City and consist of the wards Childwall, Mossley Hill and Church (IMD, 2019).

COMMUNITY SAFETY

3.3.23 Crime is one of seven deprivation indicators and can have major effects at an individual and community level. Crime is broken down by the IMD into violence, burglary, theft, and criminal damage (IMD, 2019). **Table 3.7** below shows the IMD crime domain rankings, where a rank of 1 is the most deprived and a rank of 317 is the least deprived. This shows that Liverpool City is amongst the top 10% of most deprived LAs nationally. Wirral and Sefton are amongst the top 40% of most deprived LAs nationally, whilst Cheshire West and Chester is amongst the top 40% of least deprived LAs nationally.

Table 3.7: IMD Crime Domain Rankings (UK Gov, 2019)

Local Authority	Liverpool City	Wirral	Sefton	Cheshire West and Chester
IMD Crime Rank	23	135	147	197

3.3.24 In the 2020 / 2021 – 2022 / 2023 period, Liverpool City experienced 78 hospital admissions per 1,000 for violent crime including sexual violence. This is the highest of all Liverpool City Region local authorities, with Wirral registering at only 56.8 and Sefton at 62.9. These figures are significantly higher than the regional and national figures, at 46.8 and 34.3 per 1,000 respectively (Office for National Statistics, 2021c).

3.3.25 In March 2024, the Merseyside Police recorded 343 cases of burglary, 1,087 of drug possession / use, 1,054 of criminal damage, 1,103 of anti-social behaviour,

and 5032 of violence and sexual offences across the city region local authorities of Liverpool City, Knowsley, St Helens, Sefton, and Wirral. Violent crime offences were at 56.5 per 1,000 in Liverpool City as compared to only 34.8 per 1,000 in Cheshire West and Chester.

COMMENT

Steering Group to consider the Baseline data provided and advise on any missing or additional information they feel should be represented to assist in the identification of vulnerable population groups.

Do the Steering Group have suggestions for further sources to information the population profile for the study area?

4 SUMMARY OF HEALTH ISSUES

4.1 HEALTH ISSUES

4.1.1 The baseline studies have highlighted the following current health issues within the Study Area.

COMMENT

The baseline has been provided to initially identify current health issues within the study area for the HIA. After further consultation with the Steering Group, the baseline will be revisited, and focussed to better inform the precise health issues faced by the local population.

4.2 VULNERABLE GROUPS

4.2.1 The examination of the baseline has highlighted the presence of the following vulnerable groups across the Study Area:

- Gender – Specifically maternity and ante-natal;
- Ethnicity and race;
- Age – Specifically infants (0-5), children (6-10) and older people (75+);
- Disability and Long-term health conditions – including both mental and physical impairment;
- Unemployed / worklessness / those in low quality employment; and
- Deprivation / Low-income groups / socio-economically disadvantaged groups.

4.2.2 Vulnerable groups are assumed to be present throughout the Study Area.

COMMENT

This list is an preliminary at this stage, for wider discussion with the Steering Group following feedback from previous comments.

4.3 KEY DETERMINANTS OF HEALTH

4.3.1 The following have been identified as possible key determinants of health likely to be influenced by specific elements of the Project;

- Travel and transport – due to disruption associated with the additional traffic and road closure brought about during the construction phase of the Project;

- Access to services including leisure – due to the potential additional use of sections of the Mersey for water-based leisure, and the additional access to riverside leisure / outdoor space;
- Economy and economic growth – due to the additional employment and investment into the area as a result of the Project;
- Skills and education – due to the additional skilled jobs required locally and potential training opportunities in the area as a result of the Project;
- Community severance and social isolation – due to potential spatial and transport disruption associated with the construction phase of the Project;
- Flood risk and climate resilience – due to potential changes to flood risk brought about by the operation of the Project, and potentially mitigated through its improved flood risk design;
- Air quality - due to additional emissions to air associated with the additional traffic and construction activities brought about during the construction phase of the Project; and
- Noise - due to additional noise associated with the additional traffic and construction activities brought about during the construction phase of the Project.

COMMENT

This list represents an initial analysis of potential health impacts, and will form the basis for wider discussion with the Steering Group following feedback from previous comments.

4.4 POSSIBLE IMPACTS OF MERSEY TIDAL POWER

4.4.1 The following have been identified as possible impacts as a result of the Project for both construction and operation phases:

- Potential adverse impacts on health outcomes as a result of disrupted Transport and Access to health, community facilities;
- Potential beneficial impact on health outcomes as a result of improved economy, employment and skills;
- Potential adverse impacts on health outcomes as a result of increase in community severance and social isolation;
- Potential impact, both adverse and beneficial on health outcomes as a result of flood risk and climate resilience;
- Potential adverse impacts on health outcomes as a result of poor air quality; and

- Potential adverse impact on health outcomes as a result of increased noise.

COMMENT

Potential Impacts of the Project will be decided in consultation with the Steering Group following review of previous comments and the EIA Scoping Report.

4.5 HEALTH ASSESSMENT MATRIX

- 4.5.1 In order to rate the significance of each health effect the magnitude, likely duration of the effect, the reversibility of the effect, the vulnerability of the population and the magnitude of the health effect will be scored and rated as outlined within **Table 4.1**.

Table 4.1 Significance of impact

Significance of impact	Definition	Intensity (+/-)	Duration (SML) (TIP)
Major Adverse	Health effects are categorised as a major negative if they could lead directly to deaths, acute or chronic diseases or mental ill health. They can affect either or both physical and mental health either directly or through the wider determinants of health and wellbeing. These effects can be important local, district, regional and national considerations. Mitigation measures and detailed design work can reduce the level of negative effect though residual effects are likely to remain.	The exposures tend to be of high intensity. Over a large geographical area or affect a large number of people or impact vulnerable groups. (- - - / + + +)	Long term duration (L), Intermittent (I), Temporary (T), or Permanent (P) in nature.
Major Beneficial	Health effects are categorised as a major positive if they prevent deaths / prolong lives, reduce / prevent the occurrence of acute or chronic diseases or significantly enhance mental wellbeing would be a major positive.		
Moderate Adverse	Health effects are categorised as a moderate negative if the effects are long term nuisance impacts, e.g. odours and noise, or may lead to exacerbations of existing illness. The negative impacts may be nuisance / quality of life impacts which may affect physical and mental health either directly or through the wider determinants of health. The cumulative effect of a set of moderate effects can lead to a major effect. These effects can be important local, district and regional considerations. Mitigation measures and detailed design work can reduce and in some / many cases remove the negative and enhance the positive effects though residual effects are likely to remain.	The exposures tend to be of moderate intensity and / or over a relatively localised area and / or likely to affect a moderate-large number of people e.g. between 100- 500 and / or sensitive groups. (- - / + +)	Medium term duration (M), Intermittent (I), Temporary (T), or permanent (P) in nature.

Significance of impact	Definition	Intensity (+/-)	Duration (SML) (TIP)
Moderate Beneficial	Health effects are categorised as a moderate positive if they enhance mental wellbeing significantly and / or reduce exacerbations to existing illness and reduce the occurrence of acute or chronic diseases.		
Minor Adverse	Health effects are categorised as minor positive or negative, if they are generally lower level quality of life or wellbeing impacts. Increases or reductions in noise, odour, visual amenity, etc. are examples of such effects. These effects can be important local considerations. Mitigation measures and detailed design work can reduce the negative and enhance the positive effects such that there are only some residual effects remaining.	The exposures tend to be of low intensity and / or over a small area and / or affect a small number of people e.g. less than 100. (- / +)	Short term duration (S), Intermittent (I), Temporary (T), or Permanent (P) in nature.
Minor Beneficial			
Neutral / No Impact.	No health effect or effects within the bounds of normal / accepted variation.	N/A	N/A

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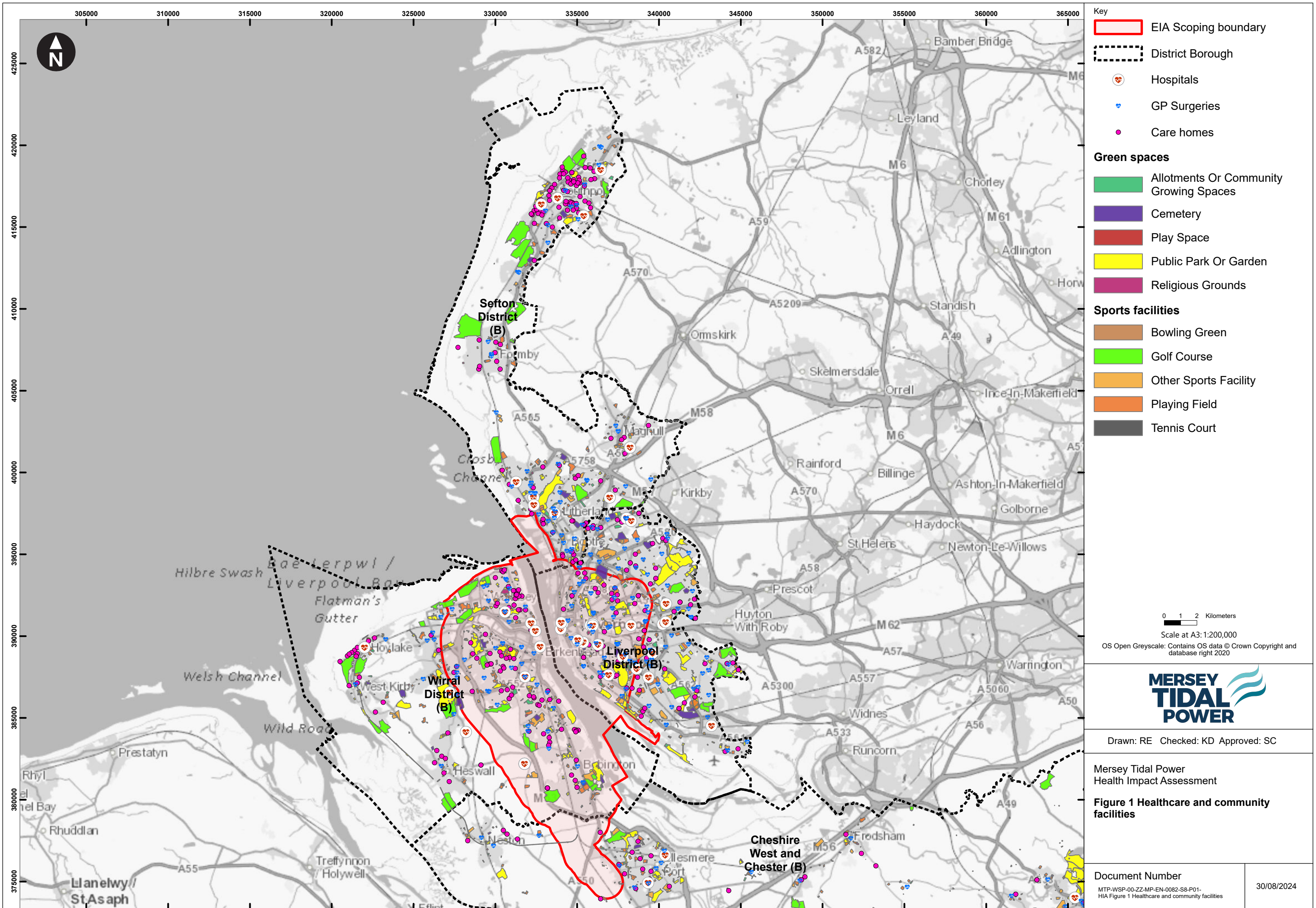
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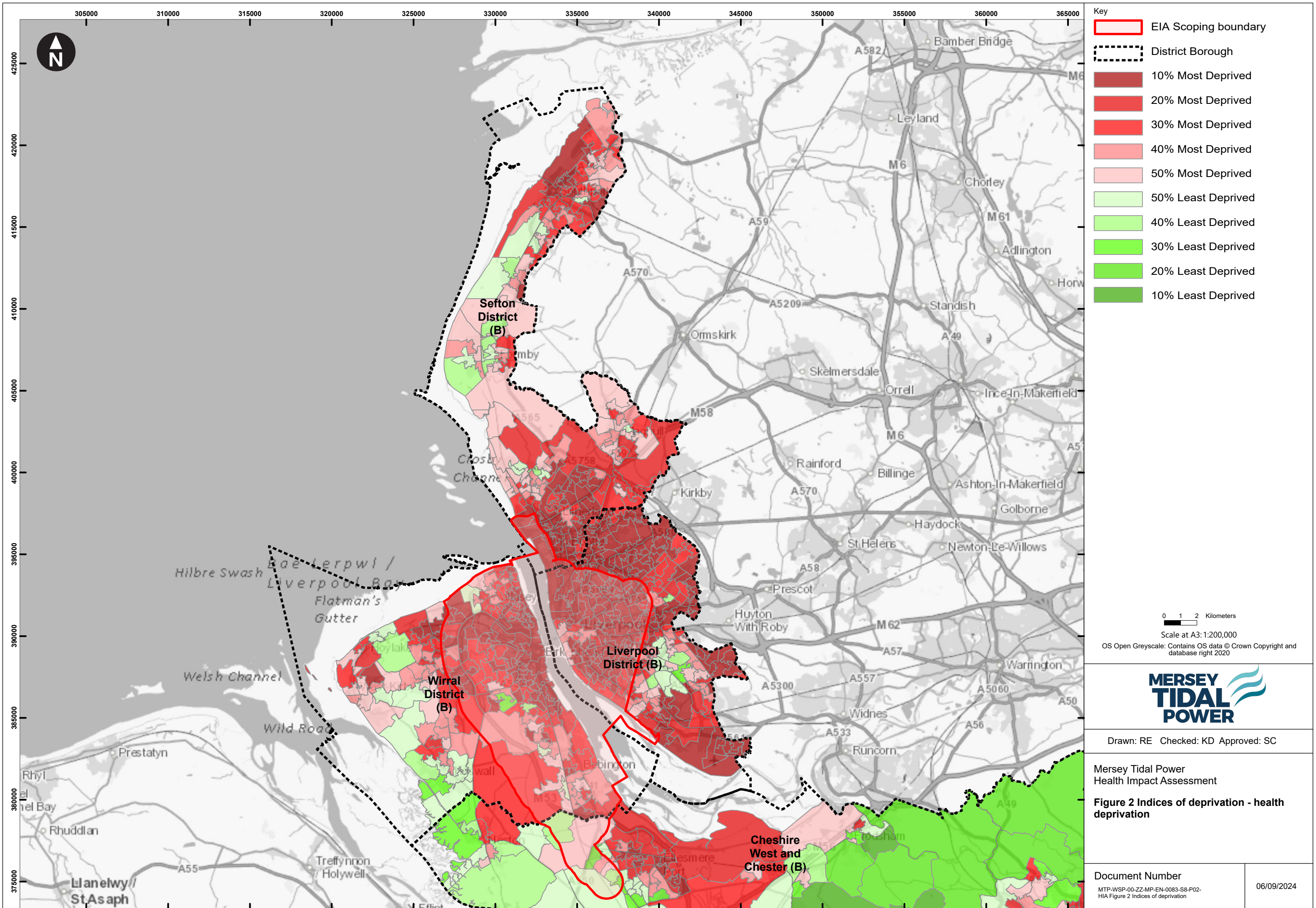
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APPENDIX 1 FIGURES

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Key

- EIA Scoping boundary
- District Borough
- 10% Most Deprived
- 20% Most Deprived
- 30% Most Deprived
- 40% Most Deprived
- 50% Most Deprived
- 50% Least Deprived
- 40% Least Deprived
- 30% Least Deprived
- 20% Least Deprived
- 10% Least Deprived

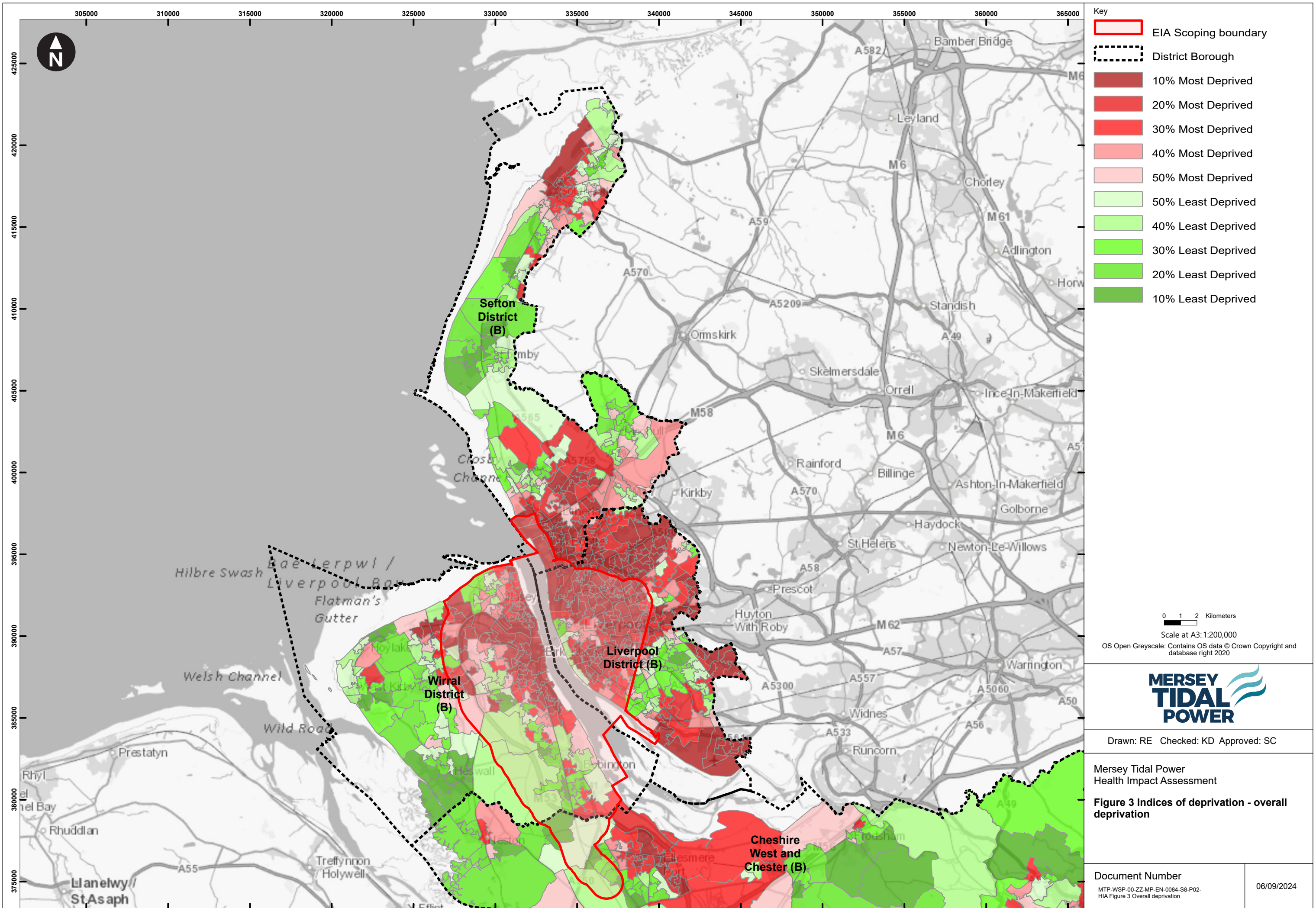
0 1 2 Kilometers
 Scale at A3: 1:200,000
 OS Open Greyscale: Contains OS data © Crown Copyright and database right 2020



Drawn: RE Checked: KD Approved: SC

Mersey Tidal Power
 Health Impact Assessment
Figure 2 Indices of deprivation - health deprivation

Document Number MTP-WSP-00-ZZ-MP-EN-0083-S8-P02-HIA Figure 2 Indices of deprivation	06/09/2024
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APPENDIX 4.1 PLANNING POLICY

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 4.1
Planning and Policy

September 2024

ITS TIME  FOR TIDAL



Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 4.1 Planning and Policy

Document History

Version	Author	Reviewer	Approver	Date	Comments
A0	WSP	Mersey Tidal Power	Mersey Tidal Power	16/09/24	Final

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ACRONYMS AND ABBREVIATIONS

Term	Definition
ACM	Asbestos Containing Materials
AQMA	Air Quality Management Area
ASCOBANS	The Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
BAP	Biodiversity Action Plan
BEIS	Business, Energy and Industrial Strategy
BNG	Biodiversity Net Gain
BMV	Best and Most Versatile
BWM	International Convention for the Control and Management of Ships' Ballast Water and Sediments
CAA	Civil Aviation Authority
CAR	Control of Asbestos Regulations
CCC	Climate Change Committee
CCRA	Climate Change Risk Assessment
CITES	Convention on International Trade in Endangered Species
CDM	Construction (Design & Management)
COMAH	Control of Major Accident Hazards
CRoW	Countryside and Rights of Way Act
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
EA	Environment Agency
EEZ	Exclusive Economic Zone

Term	Definition
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
EPR	Environmental Permitting Regulations
EPS	European Protected Species
ES	Environmental Statement
EQS	Environmental Quality Standards
EU	European Union
FCS	Favourable Conservation Status
GB	Great Britain
GES	Good Environmental Status
GHG	Greenhouse gas
GW	Gigawatt
HRA	Habitat Regulations Assessment
HPI	Habitats of Principal Importance
IFCA	Inshore Fisheries Conservation Authorities
INNS	Invasive Non-Native Species
IPCC	Intergovernmental Panel on Climate Change
LAQM	Local Air Quality Management
LCC	Liverpool City Council
LCR	Liverpool City Region
LCRCA	Liverpool City Combined Region Authority
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserves
LSE	Likely Significant Effect

Term	Definition
LTP4	Liverpool City Region Combined Authority Transport Plan 4
LWS	Local Wildlife Site
MA&D	Major Accident and Disasters
MARPOL	International Convention for the Prevention of Pollution from Ships
MCAA	Marine and Coastal Access Act
MCZ	Marine Conservation Zones
MMO	Marine Management Organisation
MPS	Marine Policy Statement
NAP	National Adaptation Programme
NDC	Nationally Determined Contribution
NE	Natural England
NERC	Natural Environment and Rural Communities
NM	Nautical Mile
NNR	National Nature Reserves
NO ₂	Nitrogen dioxide
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NPSE	Noise Policy Statement for England
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
OSPAR	Convention for the Protection of the Marine Environment in the North Atlantic
PAHs	Polycyclic Aromatic Hydrocarbons
PFRA	Preliminary Flood Risk Assessment

Term	Definition
PM _{2.5}	Particulate matter 2.5 micros or less
PMSC	Port of Liverpool Port Marine Safety Code
PPG	Planning Practice Guidance
PPS	Planning Policy Statements
PRoW	Public Right of Way
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SDS	Spatial Development Strategy
SEA	Strategic Environmental Assessment
SIF	Single Investment Fund
SEP	Strategic Economic Plan
SHA	Statutory Harbour Authority
SoS	Secretary of State's
SPA	Special Protection Area
SPI	Species of Principal Importance
SRN	Strategic Road Network
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Drainage Systems
TAC	Total Allowable Catches
TAG	Transport Analysis Guidance
TCPA	Town and Country Planning Act
UK	United Kingdom
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
UNCLOS	United Nations Convention on the Law of the Sea

Term	Definition
UNFCCC	United Nations Framework Convention on Climate Change
WFD	Water Framework Directive

1 PLANNING AND POLICY

- 1.1.1 A summary of individual legislation, national policy and local planning policy of relevance to this Environmental Impact Assessment (EIA) is set out in **Table 1.1**.

Table 1.1: Relevant Legislation, National Policy and Local Planning Policy to the Project

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Legislation		
Air Navigation Order 2016 (HM Government, 2016).	Chapter 27 Military and Civil Aviation.	The Air Navigation Order 2016 forms the legal foundation for almost all areas of civil aviation that are still regulated at national level.
Ancient Monuments and Archaeological Areas Act 1979 (HM Government, 1979).	<ul style="list-style-type: none"> ■ Chapter 17 Marine Archaeology and Cultural Heritage ■ Chapter 18 Terrestrial Archaeology and Cultural Heritage 	Provides provision for the protection and preservation of designated remains with high archaeological or historical interest. Operations or activities with the potential to disturb or damage the remains within the boundaries of a protected area may be permitted following the granting of Scheduled Monument Consent from the Secretary of State but any unlicensed operations that may disturb a site are illegal.
Annex to the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) Convention on the Protection of the Underwater Cultural Heritage 2001 (UNESCO, 2001).	Chapter 17 Marine Archaeology and Cultural Heritage.	The convention sets out conservation and enhancement of the archaeological heritage, both terrestrial and marine, as a goal of planning policy and sets guidelines for the funding of physical investigation and research, publication of research findings, public access and awareness, and constitutes an institutional framework for pan-European co-operation on the archaeological heritage.
Protection of Badgers Act 1992 (HM Government, 1992).	Chapter 13 Terrestrial Ecology and Biodiversity.	This act provides legal protection for badgers by making it illegal to kill or injure a badger, disturb a badger while occupying a sett, or to damage or obstruct a badger sett.
Civil Aviation Act 1982 (HM Government, 1982).	Chapter 27 Military and Civil Aviation.	The Civil Aviation Act 1982 currently governs air flight in the UK and defines the powers of the UK Civil Aviation Authority (CAA).
Civil Aviation Act 2012 (HM Government, 2012).	Chapter 27 Military and Civil Aviation.	The Act modernises key elements of the regulatory framework for civil aviation in the UK. It provides changes to the responsibilities and powers of the CAA.
Climate Change Act 2008 (2050 Target Amendment) Order 2019 (UK Government, 2019).	Chapter 28 Greenhouse Gases.	The Climate Change Act is the UK's approach to reduce greenhouse gas emissions by at least 100% of 1990 levels by 2050.
Climate Change Act (2008) (HM Government, 2008).	Chapter 29 Climate Resilience.	The Act sets targets for reducing the UK's impacts on climate change and the need to prepare for managing such impacts and " <i>make provision about adaptation to climate change</i> ". The Act requires a Climate Change Risk Assessment (CCRA) to be used to assess the risks from the impact of climate change to the UK. The first UK CCRA was presented to Parliament in an Evidence Report in 2012, the second in 2017 and the third and current report (CCRA3) published in 2022 (UK Climate Risk, 2023). The overall aim of the Evidence Report is to assess the urgency of further action to tackle current and future risks, and realise opportunities, arising for the UK from climate change. The CCRA3 will be used to inform risks and opportunities related to the Project.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Contaminated Land Regulations (England) (2006) (amended 2012) (HM Government, 2012).	Chapter 23 Geology and Ground Conditions.	Regulation 3 provides a definition of what constitutes 'contaminated land' and sets out the responsibilities of the local authority and the Environment Agency (EA) in the identification and management of contaminated land. Contaminated land assessment works associated with Part A are to be conducted in accordance with these regulations.
Control of Asbestos Regulations (CAR) 2012.	Chapter 23 Geology and Ground Conditions.	Legislation to set out the duties to manage risks from asbestos and Asbestos Containing Materials (ACM) in existing non-domestic premises and during any work activity involving asbestos. Duty holders must make sure anyone who carries out any work in non-domestic premises and any occupants of the premises are not exposed to asbestos from ACM that may be present.
Control of Pollution Act, 1974 (HM Government, 1974).	<ul style="list-style-type: none"> ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 22 Onshore Noise and Vibration 	<p>The Control of Pollution Act makes further provision with respect to waste disposal, water pollution, noise, atmospheric pollution and public health.</p> <p>It gives local authorities powers to control noise from construction sites and enable developers to apply for prior consent for construction works. Section 72 of that Act defines "<i>best practicable means</i>" and requires that regard be had to relevant codes of practice, one of which is British Standard BS 5228 (Parts 1 and 2).</p>
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (CITIES, 1973).	Chapter 8 Marine Mammals	All cetacean species are listed on Annex A of EU Council Regulation 338/97 and therefore treated by the EU as if they are on CITES Appendix I thus prohibiting their commercial trade.
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (Council of Europe, 1979).	<ul style="list-style-type: none"> ■ Chapter 8 Marine Mammals ■ Chapter 9 Marine & Intertidal Ornithology 	<p>The Bern Convention aims to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase co-operation between contracting parties, and to regulate the exploitation of migratory species listed in Appendix III. There are 30 species of cetacean listed under Annex II of the Bern Convention (strictly protected fauna), including harbour porpoises, bottlenose dolphins, common dolphins, Risso's dolphins, white-beaked dolphins and minke whales. All other cetacean species as well as both grey and harbour seals are listed under Annex III of the Bern Convention (protected fauna). The obligations of the Convention are transposed into national law by means of the Wildlife and Countryside Act (1981 as amended).</p> <p>The potential for effects on birds and their habitats protected under the Bern Convention will be considered throughout the assessments in the EIA Report.</p>
Countryside and Rights of Way Act (CRoW) 2000 (HM Government, 2000).	<ul style="list-style-type: none"> ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 20 Land Use, Recreation and Tourism 	<p>The CRoW Act 2000, amongst other elements, details further measures for the management and protection of Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation.</p> <p>Making provisions for public access to the countryside and connectivity, the CRoW Act aims to protect public access to the countryside, including to woodlands, the Green Belt, waters and grasslands.</p>
Dee Estuary Cockle Fishery Order (2008) (HM Government, 2008).	Chapter 11 Commercial Fisheries.	This Order will enable the EA to carry into effect and enforce regulations and restrictions relating to the dredging, fishing for and taking of cockles within a designated area of the Dee Estuary.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
EC Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for community action in the field of water policy (European Commission, 2000) (the Water Framework Directive).	Chapter 5 Coastal Processes.	<p>Establishes a framework for the protection of inland surface waters, transitional waters, coastal waters, and groundwater which prevents further deterioration and protects and enhances the status of aquatic ecosystems, promotes sustainable water use, aims at improving the aquatic environment, and contributes to mitigating the effects of floods and droughts.</p> <p>Introduced river basin management planning system to protect and improve the ecological and chemical health of rivers, lakes, estuaries, coastal waters, and groundwater.</p> <p>Transposed into UK law under The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Statutory Instrument 2017 No. 407) (HM Government, 2017)</p>
EC Directive 2008/105/EC on environmental quality standards in the field of water policy (EQS Directive) (European Commission, 2008).	Chapter 5 Coastal Processes.	Sets environmental quality standards (thresholds which must not be exceeded if good chemical status is to be met) for priority substances and other pollutants including metals and PAHs.
EC Directive (2006/7/EC) concerning the management of bathing water quality (European Commission, 2006).	Chapter 5 Coastal Processes.	<p>Sets water quality standards for designated bathing waters and requires the UK Governments to monitor and assess the bathing water for at least two bacterial parameters. In addition, local authorities must inform the public about bathing water quality and any beach management measures in place for the protection of bathers' health.</p> <p>Transposed into UK law through The Bathing Water Regulations 2013 (HM Government, 2013a).</p>
EC Directive 91/271/EC concerning urban waste water treatment (European Commission, 1991).	Chapter 5 Coastal Processes.	<p>Aims to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.</p> <p>Transposed into UK law under The Urban Waste Water Treatment (England and Wales) Regulations 1994 (HM Government, 1994).</p>
EC Directive (2008/56/EC) establishing a framework for Community action in the field of marine environmental policy (the Marine Strategy Framework Directive) (European Commission, 2008b).	<ul style="list-style-type: none"> ■ Chapter 5 Coastal Processes ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 8 Marine Mammals ■ Chapter 10 Fish and Shellfish ■ Chapter 12 Underwater Noise and Vibration 	<p>The Marine Strategy Framework Directive (Directive 2008/56/EC) is a European Union (EU) directive that aims to protect the marine environment across Europe. The directive sets a target of 'Good Environmental Status' which must be achieved in EU marine waters by 2020. It establishes a framework for Community action in the field of marine environmental policy and aims to protect the marine ecosystem and biodiversity upon which human health and marine-related economic and social activities depend.</p> <p>Transposed into UK law by the Marine Strategy Regulations 2010 (HM Government, 2010), which seeks to achieve Good Environmental Status (GES) in Europe's seas and includes specific consideration of underwater noise sources 'that do not adversely affect the marine environment' in the determination process of GES. Requires the development of a GB maritime strategy based on the ecosystem approach with the aim of achieving or maintaining 'good environmental status' in the marine environment.</p> <p>The existence of this legislation will inform recommendations and next steps which come out of the EIA.</p>
Environmental Protection Act, 1990 (HM Government, 1990).	<ul style="list-style-type: none"> ■ Chapter 21 Air Quality ■ Chapter 22 Onshore Noise and Vibration 	<p>The following outlines the relevance of the Act to the Air Quality Chapter:</p> <ul style="list-style-type: none"> ■ Air pollution can constitute a 'statutory nuisance', as set out in the Environmental Protection Act 1990, where fumes, gases, dust, smell or effluvia are "<i>prejudicial to health or a nuisance</i>" (Part III Statutory Nuisances and Clean Air, Section 79). As such, dust, generated by construction and demolition work, and odour, arising from

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 23 Geology and Ground Conditions ■ Chapter 30 Materials and Waste 	<p>dredging activities, could lead to statutory nuisance if it is "<i>interfering materially with the personal comfort of the residents, in the sense that it materially affected their well-being although it might not be prejudicial to their health</i>".</p> <p>The following outlines the relevance of the Act to the Onshore Noise and Vibration Chapter:</p> <ul style="list-style-type: none"> ■ A 'nuisance' is not defined in the Act rather by case law. The Act places a duty on Local Authorities to detect any such nuisances within their area and, where identified, to serve an abatement order notice, requiring abatement of the nuisance or works to be executed to prevent their occurrence. ■ The Environmental Protection Act 1990 deals with noise and vibration as a statutory nuisance (but does not directly apply to construction works) and sets out requirements for certain prescribed industrial processes to be controlled (by environmental permits), primarily to control pollution other than noise and vibration. <p>The following outlines the relevance of the Act to the Geology and Ground Conditions Chapter:</p> <ul style="list-style-type: none"> ■ This is the key regulatory regime relating to historical land contamination. Part 2A of the Environmental Protection Act 1990 describes a regulatory role for local authorities and provides local authorities with the power to inspect land to identify land which is contaminated within the meaning of the Part 2A definition, to establish liability and to ensure its remediation. In England and Wales the Part 2A regime consists of three main legislative / statutory elements, these are Part 2A itself, the statutory guidance, and the Regulations. <p>The following outlines the relevance of the Act to the Materials and Waste Chapter:</p> <ul style="list-style-type: none"> ■ As of 2008, defines within England, Scotland and Wales the fundamental structure and authority for waste management and control of emissions into the environment. The Act outlines the requirement of the manager of a development to ensure that any excess materials or waste resulting from construction activities are recovered or disposed of without any subsequent adverse effects upon the surrounding environment.
<p>Environment Act 1995, as amended in 2021 (HM Government, 2021).</p>	<p>Chapter 30 Materials and Waste.</p>	<p>The Environment Act 1995 makes provision for targets, plans and policies for improving the natural environment. It sets out clear statutory targets for the protection and regeneration of the natural world in four priority areas, one of which is waste. Part 3 specifically refers to waste and resource efficiency, incorporating: producer responsibility obligations; resource efficiency; managing waste; and waste enforcement and regulation.</p>
<p>European Commission (EC) Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) (EC Habitats Directive) (European Commission, 1992).</p>	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 8 Marine Mammals ■ Chapter 9 Marine & Intertidal Ornithology ■ Chapter 10 Fish and Shellfish 	<p>The Habitats Directive (Council Directive 92/43/EEC) was adopted in 1992 and requires all Member States to establish a strict protection regime for species listed in Annex I habitats, Annex II species and in in Annex IV, both inside and outside National Site Network.</p> <p>The Habitats Directive is transposed from EU into UK law by the Conservation of Habitats and Species Regulations 2017 (Regulation 9(1)), as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019).</p> <p>The Habitats Directive ensures the conservation of a wide range of rare, threatened, or endemic animal and plant species within Europe. Among other things, the Directive stipulates the procedures for the protection of Special Protection Areas (SPAs) and sets out the steps which must be taken to assess the impact of any proposed</p>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		development. The potential for effects on birds protected under the Birds Directive will be considered throughout the assessments in the Environmental Impact Assessment Report (EIA Report).
European Eel Regulation No 1100/2007 (European Commission, 2007).	Chapter 10 Fish and Shellfish.	To establish the recovery to the stock of the species considering planning and execution of measures to ensure this. Structural measures to make rivers passable and improve river habitats, together with other environmental measures. Transportation of silver eel from inland waters to waters from which they can escape freely to the Sargasso Sea. Temporary switching-off of hydro-electric power turbines.
European Union (EU) Air Quality Directive, Directive 2008/50/EC on ambient air quality (European Commission 2008).	Chapter 21 Air Quality.	The Ambient Air Quality Directive sets limit values for the concentration of pollutants in air for the protection of human health and the environment as a whole. The Directive is transposed into legislation in the Air Quality Standards Regulations 2010 (as amended 2016) (HM Government, 2010a). Compliance with the limit values for pollutants is mandatory and ultimately the responsibility of the Secretary of State. In the case of human exposure, the limit values apply everywhere in the external environment.
Fisheries Act 2020 (HM Government, 2020).	Chapter 11 Commercial Fisheries.	A legal framework for the UK's management of fisheries as an independent coastal state, responsible for setting Total Allowable Catches (TACs) for commercial fish species in UK waters.
Flood Risk Regulations, 2009 (HM Government, 2009).	Chapter 19 Water Resources and Flood Risk.	The Flood Risk Regulations implement the EU Flood Directive in England, providing a framework for managing flood risk over a 6-year cycle. They require the production of a Preliminary Flood Risk Assessment (PFRA), identification of potential significant risk areas and mapping of flood hazard and risk. The aim of these regulations is to reduce the likelihood and consequence of flooding.
Flood and Water Management Act, 2010 (HM Government, 2010).	Chapter 19 Water Resources and Flood Risk.	<p>The Flood and Water Management Act sets out the Government's proposals to improve flood risk management, water quality and ensure that water supplies are more secure. It also considers the responsibilities for managing flood risk and drainage including the use of Sustainable Drainage Systems (SuDS).</p> <p>The Flood and Water Management Act created the role of the Lead Local Flood Authority (LLFA) to take responsibility for leading the co-ordination of local flood risk management in their areas. In accordance with the Act:</p> <ul style="list-style-type: none"> ■ The EA is responsible for the management of risks associated with main rivers, the sea and reservoirs; and ■ LLFAs are responsible for the management of risks associated with local sources of flooding such as ordinary watercourses, surface water and groundwater. <p>Schedule 3 of the Act, which is due to be implemented in 2024, does not apply to Nationally Significant Infrastructure Projects (NSIPs). However the LLFAs will be consulted on the preparation of the surface water drainage strategy, as it is likely that similar principles will need to apply.</p>
Intergovernmental Panel on Climate Change (IPCC) Special Report – Global Warming of 1.5 °C 2018 (International Panel on Climate Change, 2018).	Chapter 28 Greenhouse Gases.	In its global emission pathways, the IPCC identifies the contribution that electricity generation from renewable technologies has in reducing emissions in the energy sector.
International Convention for the Control and Management of Ships' Ballast Water and	Chapter 6 Benthic Ecology and Plankton.	This Convention was adopted on 13 February 2004 and entered into force on 8 September 2017. The BWM Convention aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. This is supported

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Sediments (BWM) (International Maritime Organisation, 2004).		by Resolution MEPC.279(70) which was adopted on 28 October 2016 and provides Guidelines for Ballast Water Management Systems (G8). A specific chapter considering INNS has been included with this EIA Scoping Report (Chapter 7).
European Commission Directive 2009/147/EC (codified version of 79/409/EC) on the Conservation of Wild Birds (the 'Birds Directive') (European Commission, 2009).	Chapter 9 Marine & Intertidal Ornithology.	The Birds Directive aims to protect all of the 500 wild bird species naturally occurring in the European Union and stipulates that Member States must designate SPAs for the survival of species listed under Annex 1 of the Directive and all migratory bird species. The potential for effects on birds protected under the Birds Directive will be considered throughout the assessments in the Environmental Impact Assessment Report (EIA Report).
Ramsar Convention on Wetlands of International Importance (Ramsar, 1971).	Chapter 9 Marine & Intertidal Ornithology.	The Ramsar Convention commits Contracting Parties to “ <i>wise use of all wetlands through local and national actions and international cooperation</i> ”. Parties agree to work towards wise use of wetlands, designate suitable wetlands for the Wetlands of International Importance and ensure their effective management, and cooperate internationally on transboundary wetlands. The potential for effects on wetland birds and their habitats protected under the Ramsar Convention will be considered throughout the assessments in the EIA Report.
Land Drainage Act, 1991 (HM Government, 1991).	Chapter 19 Water Resources and Flood Risk.	The Land Drainage Act (as amended) provides the EA with powers to prevent the obstruction of any main river through the construction of flow control structures, culverts or any other structure. Where work is carried out on, or near an ordinary watercourse, consent is required from the LLFA.
Localism Act 2011 (HM Government, 2011).	Chapter 20 Land Use, Tourism and Recreation.	Part 5 of the Localism Act gives rights and powers regarding community land which furthers the social wellbeing or social interests of the local community. This includes cultural, recreational and sporting interests. This is relevant in the context of the Project due to its proximity to such features.
Marine and Coastal Access Act (MCAA) 2009 (HM Government, 2009).	<ul style="list-style-type: none"> ■ Chapter 5 Coastal Processes ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 8 Marine Mammals ■ Chapter 10 Fish and Shellfish ■ Chapter 11 Commercial Fisheries ■ Chapter 17 Marine Archaeology and Cultural Heritage 	<p>The MCAA 2009 establishes the Marine Management Organisation (MMO) and regulates marine activities in the UK. It also creates a marine policy statement, marine plans and marine licensing system for the UK marine area. Part V of the MCAA includes provisions for the establishment and protection of Marine Conservation Zones (MCZs).</p> <p>The Act revised the way in which marine fisheries are managed at a national (i.e. by MMO) and a local level (i.e. by the Inshore Fisheries Conservation Authorities (IFCAs)), including how licensing, conservation and fisheries rules are enforced. The act identifies the UK marine area including 6 nautical mile (NM) and 12NM limits, and the Exclusive Economic Zone (EEZ).</p> <p>The Act provides a framework to help balance competing demands on the UK’s seas. It establishes the MMO and introduces a duty to protect and enhance the marine environment.</p>
Marine Strategy Regulations 2010 (HM Government, 2010).	Chapter 11 Commercial Fisheries.	Establishes measures to maintain or achieve ‘good environmental status’ (GES) in the marine environment.
Merchant Shipping Act 1995 (HM Government, 1995).	Chapter 17 Marine Archaeology and Cultural Heritage.	The Receiver of Wreck administers salvage ownership and is responsible for processing incoming reports of wreck and cargo. The Project has the potential to impact items associated with wrecks, which fall within the definition of ‘wreck’.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Natural Environment and Rural Communities (NERC) Act 2006 (England) (HM Government, 2006).	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 10 Fish and Shellfish ■ Chapter 11 Commercial Fisheries ■ Chapter 13 Terrestrial Ecology and Biodiversity 	<ul style="list-style-type: none"> ■ Created by created by Natural England (NE) and the Commission for Rural Communities, Section 41 of the NERC Act 2006 requires the publication of a list species and habitats that are of principal importance for the purpose of conserving biodiversity. This list is based on the priority species and habitats which were identified under the UK Biodiversity Action Plan (BAP). ■ It extended the biodiversity duty set out in the CROW Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. Section 41 of the NERC Act refers to a published list of habitats and species which are of principal importance for the conservation of biodiversity in England. ■ It also requires the relevant Secretary of State to compile a list of habitats and Species of Principal Importance (SPI) for the conservation of biodiversity. ■ Section 40 states “<i>every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.</i>” ■ The NERC Act also places a duty on the Secretary of State to maintain lists of species and habitats which are regarded as being of principal importance for the conservation of biodiversity in England. These Habitats of Principal Importance (HPI) and SPI are used to guide decision makers in implementing their duties to have regard to the conservation of biodiversity in England when carrying out their normal functions.
Planning (Listed Buildings and Conservation Areas) Act 1990 (HM Government, 1990).	Chapter 18 Terrestrial Archaeology and Cultural Heritage.	Provides provision for the protection and preservation of designated buildings and other built heritage with architectural or historical interest, and conservation areas. Operations or activities with the potential to disturb or damage the structure or the environs of the structure may be permitted following the granting of Listed Building Consent from the local planning authority, but any unlicensed operations that may disturb or damage the integrity of the structure or its environs are prohibited.
Protection of Wrecks Act 1973 (HM Government, 1973).	Chapter 17 Marine Archaeology and Cultural Heritage.	Provides protection for designated shipwreck sites within UK waters. Access and operations within the boundaries of a protected area may be permitted under licence from the Secretary of State but any unlicensed operations that may disturb a site are illegal.
Rules of the Air Regulations 2015 (HM Government, 2015).	Chapter 27 Military and Civil Aviation.	The Rules of the Air Regulations 2015 are the provision of the code of regulations governing matters of air traffic such as requirements for collision avoidance and requirements relating to visual flight and instrument flight rules.
Salmon and Freshwater Fisheries Act 1975.	Chapter 10 Fish and Shellfish.	Protect salmon and trout from commercial poaching, to protect migration routes, to prevent wilful vandalism and neglect of fisheries, ensure correct licensing and water authority approval.
Species of Special Concern (retained EU regulation 1143/2014) (European Commission, 2014).	Chapter 7 Invasive Non-native Species.	Restrictions prevent species listed from being brought into the territory of Great Britain, kept, bred, transported, placed on the market, used or exchanged, allowed to reproduce, grown or cultivated, or released into the environment. The existence of this legislation will inform recommendations and next steps which come out of the EIA.
The Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic,	Chapter 8 Marine Mammals.	The agreement was established with the aims to promote close cooperation between countries with a view to achieving and maintaining a favourable conservation status (FCS) for small cetaceans throughout the Baltic, North East Atlantic, Irish and North Seas.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Irish and North Seas (ASCOBANS) (ASCOBANS, 1992).		
The Carbon Budget Order 2021 (HM Government, 2021).	Chapter 28 Greenhouse Gases.	The carbon budgets set legally binding targets in the UK to reduce greenhouse gas emissions over 5-year periods
The Clean Neighbourhoods and Environment Act 2005 (HM Government, 2005).	Chapter 30 Materials and Waste.	Part 5, Chapter 3 of this Act specifically refers to site waste, where there may be a regulatory requirement to prepare Site Waste Management Plans and to ensure compliance with them. Although the SWMP Regulations 2006 were repealed in 2010, it is considered good practice to produce a SWMP, particularly for large-scale infrastructure projects.
The Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017).	<ul style="list-style-type: none"> ■ Chapter 8 Marine Mammals ■ Chapter 9 Marine & Intertidal Ornithology ■ Chapter 11 Commercial Fisheries 	<p>The Habitats Regulations transpose the requirements of the Habitats Directive, Birds Directive and Ramsar Convention into UK law covering all environments out to 12NM. It transfers functions from the European Commission to the appropriate authorities in England and Wales, with all the processes or terms unchanged.</p> <p>Provides a framework for the conservation and management of wild fauna and flora, including protection for specific habitats listed in Annex I and species listed in Annex II of the Directive. Provides for the establishment of a Europe wide network of protected sites, known as Natura 2000 (the definition of which includes Special Areas of Conservation (SAC) and SPAs). It also makes it an offence to capture, kill, or disturb European Protected Species (EPS).</p>
The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (amendment of The Conservation of Habitats and Species Regulations 2017) (HM Government, 2019).	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 9 Marine & Intertidal Ornithology ■ Chapter 10 Fish and Shellfish ■ Chapter 13 Terrestrial Ecology and Biodiversity 	<ul style="list-style-type: none"> ■ The Conservation of Habitats and Species Regulations 2017 (as amended) (the ‘Habitats Regulations’) provide for the designation and protection of SPAs and Special Area of Conservation (SACs) now that the UK has completed its transition period and has left the EU. The principal amendments made to the Habitats Regulations to make them compatible with the post-Brexit legal position were made by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. ■ It is the principal means by which the Habitats Directive (92/43/EEC) and the Wild Birds Directive (2009/147/EC) are transposed in the UK inshore areas. ■ The three-stage process of determining the absence of adverse effects on European sites under the Habitats Directives / Regulations is known as a Habitat Regulations Assessment (HRA). Stage 1 of this process is known as HRA Screening. This will be provided separately to the Scoping Report. ■ The Regulations provide for the designation and protection of “<i>European sites</i>”, the protection of “<i>European protected species</i>”, and the adaptation of planning and other controls for the protection of European Sites. Under the Regulations, competent authorities have a general duty to have regard to the EC Habitats Directive. ■ Provides legal protection of animals listed on schedule two and plants on schedule five of the legislation.
The Conservation of Offshore Marine Habitats and Species Regulations 2017 (HM Government, 2017).	<ul style="list-style-type: none"> ■ Chapter 7 Invasive Non-native Species ■ Chapter 8 Marine Mammals ■ Chapter 10 Fish and Shellfish 	The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) is the principal means by which the Habitats Directive (92/43/EEC) and the Wild Birds Directive (2009/147/EC) are transposed in the UK offshore marine area. The regulation makes it an offence to kill, injure or capture EPS.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 11 Commercial Fisheries 	
The Conservation of Seals Act 1970 (HM Government, 1970).	<ul style="list-style-type: none"> ■ Chapter 8 Marine Mammals 	The Conservation of Seals Act 1970 provides for the protection and conservation of seals in England, Wales and Scotland, and in in the adjacent territorial waters.
The Construction (Design and Management) (CDM) Regulations 2015 (HM Government, 2015).	<ul style="list-style-type: none"> ■ Chapter 15 Major Accidents and Disasters ■ Chapter 23 Geology and Ground Conditions 	<p>These Regulations place legal duties on almost all parties involved in construction work, with specific duties on clients, designers and contractors, so that health and safety is considered throughout the life of a construction project from inception to demolition and removal. The client, designer(s) and contractor(s) must avoid foreseeable risks, so far as is reasonably practicable, by eliminating hazards associated with the design, construction and operation and maintenance of the Project. The CDM Regulations ensure that mechanisms are in place to continually identify, evaluate and manage safety risks throughout the design, construction, and operation and maintenance phases of the Project. Many of the risks identified and managed at the detailed design phase also serve to eliminate or reduce the risk of a major accident (and therefore environmental consequence) occurring during the construction and operation and maintenance phases.</p> <p>CDM regulations apply to all building and construction work, including new build, demolition, refurbishment, extensions, conversions, repair and maintenance.</p>
The Control of Major Accident Hazards (COMAH) Regulations 2015 (HM Government, 2015).	Chapter 15 Major Accidents and Disasters.	These Regulations aim to prevent major accidents involving dangerous substances and limit the consequences to people and the environment of any accidents which do occur. There are at least 13 COMAH sites within a 5km radius of the Project which present a potential source of Major Accident and Disasters (MA&D) hazards.
The Control of Pollution (Amendment) Act 1989 (HM Government, 1989).	Chapter 30 Materials and Waste.	The Control of Pollution (Amendment) Act 1989 makes it a criminal offence for a person who is not a registered carrier to transport controlled waste to or from any place in Great Britain. The Act also provides for the seizure and disposal of vehicles used for illegal waste disposal.
The Controlled Waste (England and Wales) Regulations 2012 (as amended) (HM Government, 2012).	Chapter 30 Materials and Waste.	Classifies waste as household, industrial or commercial waste. It allows local authorities to implement charges for the collection of waste from non-domestic properties.
The Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR Convention) (OSPAR, 1992).	<ul style="list-style-type: none"> ■ Chapter 5 Coastal Processes ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 8 Marine Mammals ■ Chapter 10 Fish and Shellfish 	<ul style="list-style-type: none"> ■ The OSPAR Convention is being implemented through OSPAR's North-East Atlantic Environment Strategy 2030. Contained within the OSPAR Convention is a series of annexes relevant to the marine water and sediment quality. ■ The OSPAR Convention is the legal instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. The OSPAR Convention provides a list of marine mammal species and habitats that are threatened or declining. These species and habitats will be considered within the relevant sections of the Environmental Statement (ES) where the potential for LSE to these receptors as a result of the Project is identified.
The Convention on the Conservation of Migratory Species of Wild Animals 1982 (the	<ul style="list-style-type: none"> ■ Chapter 7 Invasive Non-native Species 	<ul style="list-style-type: none"> ■ There are 44 cetacean species and 6 pinniped species listed under Appendix I of the Bonn Convention. Those species protected in the UK under the Bonn Convention include harbour porpoises, bottlenose dolphins, common dolphins, Risso's dolphins and white-beaked dolphins. The UK ratified the Convention in 1985. The

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Bonn Convention) (European Commission, 1982).	<ul style="list-style-type: none"> ■ Chapter 8 Marine Mammals ■ Chapter 9 Marine & Intertidal Ornithology ■ Chapter 10 Fish and Shellfish 	<p>legal requirement for the strict protection of Appendix I species is provided by the Wildlife and Countryside Act (1981 as amended).</p> <ul style="list-style-type: none"> ■ The Convention stipulates that Contracting Parties collaborate to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international co-operation (listed in Appendix II), and by undertaking co-operative research activities. The potential for effects on migratory bird species protected under the Bonn Convention will be considered throughout the assessments in the EIA Report. ■ Restore or maintain the migratory species concerned, which includes sea trout, Atlantic salmon, sea lamprey, river lamprey, European eel and basking shark.
The Eels (England and Wales) Regulations 2009 (HM Government, 2009).	Chapter 10 Fish and Shellfish.	These regulations are relevant to the European eel and gives powers to the regulators (the EA and Natural Resources Wales (NRW)) to implement recovery measures in all freshwater and estuarine waters in England and Wales.
The Electricity at Work Regulations 1989 (HM Government, 1989).	Chapter 15 Major Accidents and Disasters.	The purpose of these Regulations is to require precautions to be taken against the risk of death or personal injury from electricity in work activities including the construction and operation of new energy infrastructure.
The Environment Act, 1995 (HM Government, 1995).	Chapter 21 Air Quality.	<p>Under the requirements of Part IV of the Act, the UK government published a National Air Quality Strategy setting out standards and objectives for ambient air quality, and measures to help achieve the objectives with the aim to deliver long term improvements in air quality. The objectives are transcribed into the Air Quality (England) Regulations 2000 (as amended 2002).</p> <p>The Act also sets out the principles for Local Air Quality Management (LAQM) under which Local Authorities are required to review current and future air quality within their area against the air quality objectives. Where it is anticipated that an air quality objective will not be met, the Local Authority is required to declare an Air Quality Management Area (AQMA) and to produce an Action Plan to improve air quality.</p>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
<p>The Environment Act 2021 (HM Government, 2021).</p>	<ul style="list-style-type: none"> ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 21 Air Quality 	<ul style="list-style-type: none"> ■ The Environment Act 2021 and emerging secondary legislation, makes it a mandatory requirement for major developments in England to deliver a 10% Biodiversity Net Gain as part of their planning consent. The formal commencement for major developments started on 12th February 2024 (The Environment Act 2021 (Commencement No. 8 and Transitional Provisions) Regulations 2024) and is set to come into force for NSIPs from November 2025. ■ The Environment Act provides a framework for environmental protection. Section 98 specifies that measures outlined in Schedule 14, to make provision for biodiversity gain is to be a condition of planning permission in England. Part 5 of the Act focuses on protection of the water environment and contains several important subsections on this topic relevant to developers. ■ Schedule 11 of the Act includes amendments to Part IV of the Environment Act 1995 concerning the LAQM framework in order to strengthen it and enable greater cooperation at a local level, bringing more organisations into the process of improving air quality. ■ Targets for PM_{2.5} were also brought forward in secondary legislation, including the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020, which includes an amendment to the Air Quality Standards Regulations 2010 limit value for PM_{2.5} to 20µg/m³, and the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, which brings into law the following new long-term targets for PM_{2.5}: <ul style="list-style-type: none"> • An annual mean concentration target for a maximum concentration of 10 µg/m³ to be met across England by 2040; and • Population exposure reduction target for a 35% reduction in population exposure by 2040 (compared to a base year of 2018).
<p>The Environmental Damage (Prevention and Remediation) (England) Regulations, 2015 (HM Government, 2015).</p>	<ul style="list-style-type: none"> ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 23 Geology and Ground Conditions 	<ul style="list-style-type: none"> ■ The Environmental Damage (Prevention and Remediation) (England) Regulations apply in England and in specified marine waters and the seabed. They specify the types of damage to a protected species or natural habitat, a Site of Special Scientific Interest (SSSI), water or land which constitute “<i>environmental damage</i>” for the purposes of the regulations and the types of activity causing environmental damage to which the regulations apply. There are certain exemptions and exclusions from the application of the regulations. ■ The Regulations also specify the authorities whose function it is to enforce the regulations. Environmental damage to groundwater means any damage to a body of groundwater such that its conductivity, level or concentration of pollutants changes sufficiently to lower its status for the purposes of Directive 2000/60/EC and in relation to pollutants, for the purposes of Directive 2006/118/EC of the European Parliament and of the Council on the protection of groundwater against pollution and deterioration, whether or not the body of groundwater is in fact reclassified as being of lower status. ■ These Regulations aim to prevent serious environmental effects or ensure that remediation is carried out. The emphasis is on encouraging operators to put in place appropriate pollution prevention measures and where appropriate agreed voluntary remedial action. They also specifically define three types of environmental damage: biodiversity damage to European Union protected species and habitats and SSSIs; water damage; and land damage.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
<p>The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (HM Government, 2016).</p>	<ul style="list-style-type: none"> ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 23 Geology and Ground Conditions ■ Chapter 30 Materials and Waste 	<ul style="list-style-type: none"> ■ The Act provides a framework for environmental permits and exemptions for waste operations and water discharge activities. Under the Environmental Permitting Regulations (EPR), it is an offence to cause or knowingly permit a water discharge activity, including the discharge of polluting materials to freshwater, coastal waters, relevant territorial waters or groundwater, unless complying with an exemption or an environmental permit (obtained from the EA). The EA sets conditions which may control volumes and concentrations of particular substances or impose broader controls on the nature of the effluent, taking into account any relevant water quality standards from EU Directives. The EPR also manage works that have the potential to affect a watercourse under the jurisdiction of the EA. Any works in, under or near a main river requires permission from the EA to ensure no detrimental impacts on the watercourse. ■ These regulations streamline the legislative system for industrial and waste installations into a single permitting structure for those activities which have the potential to cause harm to human health or the environment. They require every regulated facility (as defined) to be operated under the authority of an environmental permit. They provide, among other things, for: the discharge of functions by the regulator in relation to permits, procedure for environmental permitting, enforcement notices and other enforcement measures and powers of the regulator. ■ Aims to streamline the legislative system for industrial and waste installations into a single permitting structure for those activities which have the potential to cause harm to human health or the environment.
<p>The European Convention on the Protection of the Archaeological Heritage (revised), known as the Valletta Convention (Council of Europe, 1992).</p>	<p>Chapter 17 Marine Archaeology and Cultural Heritage.</p>	<p>The convention sets out conservation and enhancement of the archaeological heritage, both terrestrial and marine, as a goal of planning policy and sets guidelines for the funding of physical investigation and research, publication of research findings, public access and awareness, and constitutes an institutional framework for pan-European co-operation on the archaeological heritage.</p>
<p>The European Landscape Convention (ELC) (Council of Europe, 2000).</p>	<p>Chapter 25 Seascape, Landscape and Visual.</p>	<p>The ELC promotes the protection, management and planning of the landscapes and organises international co-operation on landscape issues. Signed by the UK government in 2006 and established in March 2007. The ELC states that, within the context of the MPS itself, seascapes should be taken as meaning 'landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other'. (clause 2.6.5.1).</p>
<p>The Groundwater (England and Wales) Regulations, 2009 (HM Government, 2009).</p>	<p>Chapter 19 Water Resources and Flood Risk.</p>	<p>The Groundwater Regulations provide community legislation on the pollution of groundwater and rules for permitting. In addition, the regulations create an offence to discharge a hazardous substance or non-hazardous pollutant without a permit, provide for powers of enforcement by the EA and prescribe penalties for offences committed under these regulations.</p>
<p>The Groundwater (Water Framework Directive) (England) Direction, 2016 (HM Government, 2016).</p>	<p>Chapter 19 Water Resources and Flood Risk.</p>	<p>The Groundwater (Water Framework Directive) (England) Direction, instructs the EA on its obligations to protect groundwater (water found below the surface). It revokes and replaces the Groundwater (Water Framework Directive) (England) Direction 2014.</p>
<p>The Hazardous Waste (England and Wales) Regulations 2005 (as amended) (HM Government, 2005).</p>	<p>Chapter 30 Materials and Waste.</p>	<p>Introduces measures to control storage, transport and disposal of hazardous waste. The Regulations provide a means to ensure that hazardous waste and any associated risks are appropriately managed.</p>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
The Health and Safety at Work etc. Act 1974 (HM Government, 1974).	Chapter 15 Major Accidents and Disasters.	This Act provides the framework for the regulation of workplace health and safety in the UK. It provides a legal framework for the provision of safe plant and equipment and prevention of harm to people from occupational hazards present in a workplace, including emergencies, which may affect those offsite or visiting the Project.
The International Convention for the Prevention of Marine Pollution by Ships 73/78 (MARPOL Convention) (International Maritime Organisation, 1973).	Chapter 5 Coastal Processes.	The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.
The Invasive Non-native Species (Amendment etc.) (EU Exit) Regulations 2019 (HM Government, 2019).	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species 	Retained EU Regulation 1143/2014 into UK law. A core provision of the Retained Regulation is a series of strict restrictions preventing Species of Special Concern from being brought into the territory of Great Britain, kept, bred, transported, placed on the market, used or exchanged, allowed to reproduce, grown or cultivated, or released into the environment. A specific chapter considering INNS has been included with this EIA Scoping Report (Chapter 7).
The Marine Works (EIA) Regulations 2007 (amended 2017) (HM Government, 2017).	Chapter 5 Coastal Processes.	Ensures that marine projects, likely to have significant effects on the environment, are subject to environmental assessment prior to their approval or authorisation.
The Occupier's Liability Act 1984 (HM Government, 1984).	Chapter 15 Major Accidents and Disasters.	This Act amends the law of England and Wales as to the liability of persons as occupiers of premises for injury suffered by persons other than their visitors. The Occupier's Liability Act provides a legal framework for the prevention of harm to people from occupational safety and health hazards present on premises under the control of the occupier, including to those visiting the premises. The Project will include premises controlled by the Applicant that will attract visitors who could be impacted by MA&D whilst on / crossing those controlled premises.
The Pipelines Safety Regulations 1996 (HM Government, 1996).	Chapter 15 Major Accidents and Disasters.	These Regulations aim to ensure that pipelines are designed, constructed and operated properly to ensure their integrity and reduce risks. These regulations are applicable as there are a number of major accident hazard pipelines within 1km of the Project.
The Protection of Military Remains Act 1986 (HM Government, 1986).	Chapter 17 Marine Archaeology and Cultural Heritage.	Provides protection for the wreckage of military aircraft and certain military wrecks. Designations can be either as a Controlled Site or Protected Place where access may be permitted but any operations that may disturb a site are illegal unless licenced by the Ministry of Defence. All military aircraft are automatically protected under this legislation; however, vessels must be designated individually.
The Revised EU Waste Framework Directive 2008/98/EC (European Commission, 2008).	Chapter 30 Materials and Waste.	Provides a comprehensive foundation for the management of waste across the European Community and gives a common definition of waste. While the UK is no longer a member of the European Union, many of the concepts underpinning the Directive are relevant to the UK's domestic law. Article 3 of the Waste Framework Directive defines waste as " <i>any substance or object that the holder discards or intends or is required to discard</i> ".
The Supply of Machinery (Safety) Regulations 2008 (HM Government, 2008).	Chapter 15 Major Accidents and Disasters.	These Regulations aim to remove technical barriers to trade, in particular products, by harmonising national health and safety provisions applicable to such products when they are first placed on the market or put into service in the European Economic Area. Many of the risks identified and managed in the design of machinery used in and associated with the Project will serve to eliminate or reduce the risk of a major accident (and therefore

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		environmental consequence) occurring during the construction and operation and maintenance phases of the Project.
The United Nations Convention on the Law of the Sea (UNCLOS) (United Nations, 1982).	Chapter 17 Marine Archaeology and Cultural Heritage.	The convention established rules governing the use of the oceans and outlined both the traditional legal framework and introduced new additions. Provisions on the marine historic environment state how the remains should be treated and that ownership of remains lies with the state of origin.
The Waste (England and Wales) Regulations 2011 (as amended) (HM Government, 2011).	Chapter 30 Materials and Waste.	Stipulates the requirement for industry and businesses to implement the waste hierarchy. The Waste (England and Wales) (Amendment) Regulations 2014 amend the 2011 Regulations to clarify that the transfer of controlled waste can be recorded on alternative documentation, such as invoices, instead of waste transfer notes.
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 (HM Government, 2020).	Chapter 30 Materials and Waste.	Makes provisions and amendments to other statutory instruments relating to waste regulations to ensure that environmental permitting and waste regimes continue to operate effectively, now that the UK has exited the EU.
The Waste Electrical and Electronic Equipment Regulations 2013 (as amended) (HM Government, 2013).	Chapter 30 Materials and Waste.	Aims to reduce the impact of electrical waste on the environment by encouraging reuse or recycling. Ensures electrical and electronic equipment is recycled in a sustainable way when it reaches end of life.
The Waste Minimisation Act 1998 (HM Government, 1998).	Chapter 30 Materials and Waste.	Enables local planning authorities to take the appropriate steps to reduce and minimise the generation of household, commercial or industrial waste within their area.
The Water Act, 2003 (HM Government, 2003).	Chapter 19 Water Resources and Flood Risk.	The Water Act aims to provide a modern, efficient and robust legislative framework to facilitate both sustainable water resources management and economic growth through the new provisions it contains. It is relevant to the Project due to its legislative power in ensuring the protection of controlled waters.
The Water Act, 2014 (HM Government, 2014).	Chapter 19 Water Resources and Flood Risk.	The Water Act 2014 enables greater competition for non-household customers and gives Ofwat new powers to make rules about charges and charging schemes, as well as making provisions for flood insurance and drainage boards. It is relevant to the Project due to its legislative power in ensuring the protection of controlled waters.
The Water Environment (Water Framework Directive (WFD)) (England and Wales) Regulations 2017 (HM Government, 2017).	<ul style="list-style-type: none"> ■ Chapter 5 Coastal processes ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 10 Fish and Shellfish ■ Chapter 11 Commercial Fisheries ■ Chapter 19 Water Resources and Flood Risk 	<ul style="list-style-type: none"> ■ The Water Environment (WFD) (England and Wales) Regulations 2017 (the Water Framework Regulations) include phytoplankton and benthic invertebrates as biological quality elements considered in the determination of ecological status for the Mersey and its coastal water bodies which fall within the Study Area. The EA monitors phytoplankton and benthic invertebrates within the Mersey Estuary as part of the ongoing monitoring of WFD status. ■ The WFD introduced a comprehensive river basin management planning system to protect and improve the ecological and chemical health of our rivers, lakes, estuaries, coastal waters and groundwater. ■ Regulation 9 of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 include the list of Shellfish Water Protected Area designations in England. Nearby sites include North Wirral West and North Wirral East. Significant species include cockle.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 23 Geology and Ground Conditions 	<ul style="list-style-type: none"> ■ The WFD (2000/60/EC) establishes a framework for the management and protection of Europe’s water resources. It was implemented in England and Wales through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (as amended). The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (as amended) have subsequently been revoked and replaced by the Water Framework Regulations. ■ The Water Framework Regulations aim to prevent deterioration of the water environment and improve water quality by managing water in natural river basin districts and through the protection of groundwater against pollution. ■ The Regulations impose duties on the Secretary of State and the EA to ensure compliance with EU Directive 2000/60/EC, in particular, when deciding whether to grant, vary or revoke certain permits and licences which affect water quality. ■ Part 2 of the Regulations requires the identification of river basin districts and a number of other assessments to be carried out by the EA to characterise and classify the status of water bodies in those districts and assess the economic aspects of water use. River Basin Management Plans (RBMP) must also be established for each river basin district. ■ Part 3 of the Regulations makes provision for certain protected areas, requires the identification of bodies of water from which drinking water is abstracted, and measures are specified that must be included to protect the quality of the water. ■ Legislation that seeks to establish an integrated approach to the protection and sustainable use of the water environment. ■ Ensures a ‘good ecological status’ of inland, estuarine and groundwater bodies including coastal surface waters up to one nautical mile offshore.
<p>The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 (HM Government, 1991).</p>	<p>Chapter 19 Water Resources and Flood Risk.</p>	<p>The Water Resources Act aims to regulate water resources, water quality, pollution and flood defence within the UK. Part II of the Act details the management of water resources including the licences required to abstract and impound controlled water, regulated by the EA. Part III of the Act addresses the control of water pollution, including the discharge consent system and water pollution offences, regulated by the EA. Part IV deals with flood defence and Part VII deals with anti-pollution works and works notices. A works notice can be served on anyone or any organisation that causes or knowingly permits a pollutant to enter controlled waters.</p>
<p>The Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981).</p>	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 7 Invasive Non-native Species ■ Chapter 8 Marine Mammals ■ Chapter 9 Marine & Intertidal Ornithology 	<ul style="list-style-type: none"> ■ The Act provides for the designation of Sites of Special Scientific Interest (SSSIs), which are selected as the best national examples of habitat types, sites with notable species and sites of geological importance. It is also the principal UK legislation dealing with non-native species. ■ The Act protects wild birds, wild animals and plants in the UK. ■ Provides the powers to prevent the release of certain plants and animals, i.e., those not ordinarily resident or a regular visitor to Great Britain, or species included in Schedule 9 of the Act, Schedule 9 lists non-native species

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 10 Fish and Shellfish ■ Chapter 13 Terrestrial Ecology and Biodiversity 	<p>that are already established in the wild, which continue to pose a conservation threat to native biodiversity and habitats, so that further releases should be regulated.</p> <ul style="list-style-type: none"> ■ Species control agreements and orders (under the Infrastructure Act 2015) may be established if the authority considers that there is an INNS or a species of animal that is no longer normally present in Great Britain on the premises. ■ The Act protects wild birds, wild animals and plants in the UK. The Wildlife and Countryside Act 1981 (as amended) provides specific protection to whales, dolphins and porpoise. Under the Act it is illegal to intentionally kill or injure, or recklessly disturb a cetacean up to 12 nautical miles off the English and Welsh coast. ■ The Wildlife and Countryside Act 1981 was enacted to implement the Birds Directive and Bern Convention in Britain, among other things, the Wildlife and Countryside Act 1981 provides protection to all birds, with increased protection afforded to those listed under Schedule 1 of the Act. The potential for effects on birds protected under the Act will be considered throughout the assessments in the EIA Report. ■ The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in England and is the mechanism by which the Convention on the Conservation of European Wildlife and Natural Habitats (the “Bern Convention”) is implemented in England. ■ The Act affords various levels of protection to species of plants and animals listed on Schedule’s one, five, six, and eight of the Act, with Schedule nine listing species which it is an offence to allow to spread in the wild.
United Nations Framework Convention on Climate Change 1992 (United Nations, 1992).	Chapter 28 Greenhouse Gases.	The UK is a member of the United Nations Framework Convention on Climate Change (UNFCCC) which drives international action on climate change. The UK has pledged to reduce emissions under the ‘Paris Agreement’ in 2015, as a part of a joint pledge by members of the EU. This provides an overarching commitment by the UK. In December 2020, the UK communicated its Nationally Determined Contribution (NDC) to the UNFCCC in line with Article 4 of the Paris Agreement. In its NDC, the UK commits to reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels.
Water Resources (Environmental Impact Assessment) Regulations (England and Wales), 2003 (HM Government, 2003).	Chapter 19 Water Resources and Flood Risk.	The Water Resources (Environmental Impact Assessment) Regulations (England and Wales) set out the requirement for an assessment of any impacts on the environment including the water environment.
National Policy		
25 Year Environment Plan (Department for Environment, Food & Rural Affairs, 2018).	Chapter 30 Materials and Waste.	The 25 Year Environment Plan sets out government actions to improve, regain and retain the natural world. The Plan sets out high level goals, which includes “ <i>using resources from nature more sustainably and efficiently</i> ” and “ <i>minimising waste</i> ” (Our 25-year goals, page 10).
Carbon Budget Delivery Plan (HM Government, 2023).	Chapter 28 Greenhouse Gases.	The Carbon Budget Delivery Plan details how the UK Government intend to meet Carbon Budgets 4 to 6 (to 2037), through proposals and policies, and their anticipated emissions reductions (where quantified) to 2037.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Circular 01/2022 The Strategic Road Network and the Delivery of Sustainable Development (Department for Transport, 2022).	Chapter 24 Terrestrial Traffic and Transport.	<p>The Circular sets out the policy for National Highways to engage with local highway authorities, communities, and developers in relation to development proposals that will affect the strategic road network (SRN) .</p> <p>Paragraph 55 of the Circular states the following:</p> <p><i>“The company will engage in the relevant screening or scoping process where a potential impact on the SRN is identified. Environmental assessments must be comprehensive enough to establish the likely impacts on air quality, light pollution and noise arising from traffic generated by a development, along with the impacts from any proposed works to the SRN and identify measures to mitigate these impacts. Requirements and advice for undertaking environmental assessments in respect of transport impacts can be found in the DMRB.”</i></p> <p>Reference is made to travel plans in paragraph 47, as follows:</p> <p><i>“Where the company is requested to do so, it will engage with local planning authorities and development promoters at the pre-application stage on the scope of transport assessments/statements and travel plans. This process should determine the inputs and methodology relevant to establishing the potential impacts on the SRN and net zero principles that will inform the design and use of the scheme.”</i></p>
Clean Air Strategy (Department for Environment, Food and Rural Affairs, 2019).	Chapter 21 Air Quality.	This sets out the measures which aim to reduce emissions from all sources of air pollution, making air healthier to breathe, protecting nature and boosting the economy. Targets for action include road traffic to reduce ambient NO ₂ concentrations, and domestic coal and wood burning to improve ambient PM _{2.5} concentrations.
Climate Change Committee (CCC): The Sixth Carbon Budget The UK’s path to Net Zero 2020 (Committee on Climate Change, 2020).	Chapter 28 Greenhouse Gases.	As part of the CCC’s recommendation for the UK’s Sixth Carbon Budget (which will run from 2033 to 2037), the role of renewable technologies in decreasing the carbon intensity of electricity generation is highlighted as a key mechanism to achieve the ‘Balanced Pathway’ to Net Zero for the UK.
Environmental Improvement Plan 2023 (Department for Environment, Food & Rural Affairs, 2023).	<ul style="list-style-type: none"> ■ Chapter 21 Air Quality ■ Chapter 30 Materials and Waste. 	<p>The Plan which sets out the following additional interim targets for PM_{2.5}, to be achieved by the end of January 2028:</p> <ul style="list-style-type: none"> ■ The highest annual mean PM_{2.5} concentration in the most recent full calendar year must not exceed 12µg/m³; and ■ Compared to 2018, the reduction in population exposure to PM_{2.5} in the most recent full calendar year must be 22% or greater. <p>The Environmental Improvement Plan is the first of the 5 yearly progress updates of the 25 Year Environment Plan.</p> <ul style="list-style-type: none"> ■ Goal 5: Maximise our resources, minimise our waste focuses on eliminating avoidable waste by 2050, eliminate avoidable plastic waste by 2042, and halving “‘residual’ waste (excluding major mineral waste) produced per person by 2042”. Residual waste is defined as waste that is sent to landfill, incinerated (with or without energy recovery), or sent overseas. ■ Goal 6: Using resource from nature sustainably includes an objective to prevent soil from being sent to landfill, primarily through reuse in construction. Plans to publish a revised Code of Practice for sustainable use of soil on construction sites is anticipated, and a pilot scheme to develop a Soil Reuse and Storage Depot scheme is expected in 2026.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Infrastructure Carbon Review (HM Treasury, 2023).	Chapter 28 Greenhouse Gases.	In 2013, the UK government published the Infrastructure Carbon Review aiming to “ <i>release the value of lower carbon solutions and to make carbon reduction part of the DNA of infrastructure in the UK</i> ”. Major infrastructure owners, operators and developers across the communication, energy, transport, waste and water sectors were invited to endorse it, become signatories to, and make commitments under the Review. The Infrastructure Carbon Review highlighted the importance of assessing greenhouse gas (GHG) Emissions early in the lifecycle of an infrastructure scheme when there is the greatest carbon reduction potential.
National Planning Policy for Waste (Department for Communities and Local Government, 2014).	Chapter 30 Materials and Waste.	Outlines the Government’s ambition to promote a sustainable approach to resource use and management. It sets out waste planning policies and should be read alongside: the NPPF; the National Waste Management Plan for England and any relevant successor policies, guidance or documents.
National Planning Policy Framework (NPPF) (Department for Levelling Up, Houses and Communities, 2023; Ministry of Housing, Communities and Local Government 2021).	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 10 Fish and Shellfish ■ Chapter 11 Commercial Fisheries ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 14 Socio Economics ■ Chapter 15 Major Accidents and Disasters ■ Chapter 16 Shipping and Navigation ■ Chapter 18 Terrestrial Archaeology and Cultural Heritage ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 20 Land Use, Tourism and Recreation ■ Chapter 21 Air Quality ■ Chapter 22 Onshore Noise and Vibration ■ Chapter 23 Geology and Ground Conditions ■ Chapter 24 Terrestrial Traffic and Transport 	<p>The NPPF sets out the Government’s economic, environmental and social planning policies for England.</p> <p>The following is relevant to the Benthic Ecology Chapter, Fish and Shellfish Chapter and Commercial Fisheries Chapter:</p> <ul style="list-style-type: none"> ■ Impacts on biodiversity should be minimised and net gains in biodiversity provided where possible. Protected or notable habitats and species should be considered in planning, and mitigation measures provided where required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable. <p>The following paragraphs are relevant to the Terrestrial Ecology and Biodiversity Chapter:</p> <ul style="list-style-type: none"> ■ Section 15 requires planning policies and decisions to contribute and enhance the local and natural environment by minimising impacts on these features and providing net gains for biodiversity. ■ Paragraph 185 states that plans should protect and enhance biodiversity through identifying and safeguarding “<i>local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national, and locally designated sites of importance for biodiversity; wildlife corridors, and stepping stones that connect them, as well as areas identified for habitat management, enhancement, restorations or creation.</i>” ■ And promote “<i>The conservation, restoration, and enhancement of priority habitats, ecological networks, and the protection and recovery of priority species</i>” <p>The following paragraphs are relevant to the Socio Economics Chapter:</p> <ul style="list-style-type: none"> ■ Paragraph 85: “<i>Planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development.</i>” ■ Paragraph 86a: “<i>Planning policies should set out a clear economic vision and strategy which positively and proactively encourages sustainable economic growth, having regard to Local Industrial Strategies and other local policies for economic development and regeneration.</i>” ■ Paragraph 87: “<i>Planning policies and decisions should recognise and address the specific locational requirements of different sectors. This includes making provision for clusters or networks of knowledge and data-driven, creative or high technology industries; and for storage and distribution operations at a variety of scales and in suitably accessible locations.</i>”

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 25 Seascape, Landscape and Visual ■ Chapter 28 Greenhouse Gases ■ Chapter 29 Climate Change Resilience ■ Chapter 30 Materials and Waste 	<p>The following paragraphs are relevant to the Major Accidents and Disasters Chapter:</p> <ul style="list-style-type: none"> ■ Paragraph 45 states "<i>Local planning authorities should consult the appropriate bodies when considering applications for the siting of, or changes to, major hazard sites, installations or pipelines, or for development around them</i>". ■ Paragraph 97 states: "<i>Planning policies and decisions should promote public safety and take into account wider security and defence requirements by: anticipating and addressing possible malicious threats and natural hazards, especially in locations where large numbers of people are expected to congregate. ... This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security; and recognising and supporting development required for operational defence and security purposes and ensuring that operational sites are not affected adversely by the impact of other development proposed in the area</i>". <p>The following outlines the relevance to the Shipping and Navigation chapter:</p> <ul style="list-style-type: none"> ■ Framework relevant for preparing marine plans. <p>The following outlines the relevance to the Terrestrial Archaeology and Cultural Heritage chapter:</p> <ul style="list-style-type: none"> ■ Presents the Government's planning policies for England and how these are expected to be applied. Provides guidance for planning authorities and developers on the conservation and investigation of heritage assets. ■ The historic environment is specifically dealt with in section 16 of the NPPF. The policies set out in the NPPF should be interpreted and applied locally to meet local objectives. The NPPF is designed to provide a clear framework to make sure that heritage assets are conserved or enhanced in a manner that is proportionate with their significance. <p>The following outlines the relevance to the Water Resources and Flood Risk chapter:</p> <ul style="list-style-type: none"> ■ The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. The assessment will be undertaken in accordance with, and with reference to the NPPF and its accompanying Flood Risk and Coastal Change and Water Quality and Supply Planning Practice Guidance (PPG). <p>The following paragraphs are relevant to Land Use, Tourism and Recreation chapter:</p> <ul style="list-style-type: none"> ■ Paragraph 104 states "<i>decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users</i>" outlining how public rights of way (PRoW) should be taken into account. <p>The following paragraphs are relevant to the Air Quality chapter:</p> <ul style="list-style-type: none"> ■ Paragraph 192 states: "<i>Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas... Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.</i>"

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		<p>The outlines the relevance to the Onshore Noise and Vibration chapter:</p> <ul style="list-style-type: none"> ■ The NPPF superseded Planning Policy Guidance Note (PPG) 24: Planning and noise amongst other PPGs and Planning Policy Statements (PPSs). In contrast to PPG 24, reference to noise is scant within the NPPF. <p>The following chapters are relevant to the Geology and Ground Conditions chapter:</p> <ul style="list-style-type: none"> ■ Chapter 11: Making effective use of land; ■ Chapter 15: Conserving and enhancing the natural environment; and ■ Chapter 17: Facilitating the sustainable use of minerals. <p>The following paragraphs are relevant to the Terrestrial Traffic and Transport chapter:</p> <ul style="list-style-type: none"> ■ Paragraph 111 of the NPPF states that <i>“development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.”</i> ■ Paragraph 113 of the NPPF states that <i>“all developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.”</i> ■ The document sets out that the Transport Statement (TS) / TA should take into account: <ul style="list-style-type: none"> ● <i>“the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;</i> ● <i>safe and suitable access to the site can be achieved for all people; and</i> ● <i>improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development.”</i> <p>The following paragraphs are relevant to the Seascape, Landscape and Visual chapter:</p> <ul style="list-style-type: none"> ■ Paragraph 160 states that plans should address appropriately the cumulative landscape and visual impacts in relation to the provision of renewable and low carbon energy and heat. ■ Paragraph 180 states that planning policies and decisions should contribute to and enhance the natural and local environment by (amongst other things): protecting and enhancing valued landscapes; and maintaining the character of the undeveloped coast. <p>The following paragraphs are relevant to the Greenhouse Gases chapter:</p> <ul style="list-style-type: none"> ■ Section 14, Paragraph 152 of the NPPF provides that <i>“The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”.</i>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<ul style="list-style-type: none"> ■ Paragraph 154 provides that "<i>New development should be planned for in ways that: ... b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design</i>". ■ Paragraph 158 provides that "<i>When determining planning applications for renewable and low carbon development, local planning authorities should: a) not require applicants to demonstrate the overall need for renewable or low carbon energy...; and b) approve the application if its impacts are (or can be made) acceptable</i>". <p>The following paragraphs are relevant to the Climate Change Resilience chapter:</p> <ul style="list-style-type: none"> ■ Whilst the NPPF does not contain specific policies for NSIPs, it has the potential to be considered important and relevant to the SoS' consideration of the project. The NPPF presents the Government's planning policies for England and how these are to be applied. Guidance relating to ways to minimise vulnerability and improve resilience to climate change impacts is mainly set out in Section 14: Meeting the Challenge of Climate Change, Flooding and Coastal Change. <p>The following paragraphs are relevant to the Materials and Waste chapter:</p> <ul style="list-style-type: none"> ■ The NPPF sets out the Government's planning policies for England and how these should be applied, with the following paragraphs relating to materials and waste. Paragraph 8 highlights that the purpose of the planning system is to contribute to the achievement of sustainable development through three overarching objectives: economic, social and environmental. The environmental objective requires the planning system to contribute and enhance the natural and local environment by "<i>using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy</i>". ■ Paragraphs 209 to 214 outline the sustainable use of minerals, which are "<i>a finite natural resource and can only be worked where they are found</i>". Therefore, it is essential that sufficient supply is maintained through various planning policies, including safeguarding mineral resources by defining Mineral Safeguarding Areas and Mineral Consultation Areas. ■ Specific guidance under this framework (Planning Practice Guidance) provides further information in support of the implementation of waste planning policy.
<p>National Policy Statement (NPS) for Energy (EN-1) (Department for Energy Security & Net Zero, 2023).</p>	<ul style="list-style-type: none"> ■ Chapter 5 Coastal Processes ■ Chapter 12 Underwater Noise and Vibration ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 14 Socio Economics ■ Chapter 15 Major Accidents and Disasters ■ Chapter 16 Shipping and Navigation 	<p>This provides the primary policy guiding decisions by the Secretary of State on applications received for nationally significant energy infrastructure.</p> <p>The following policies are relevant to Coastal Processes:</p> <ul style="list-style-type: none"> ■ Section 5.6.10 - Where relevant, applicants should undertake coastal geomorphological and sediment transfer modelling to predict and understand impacts and help identify relevant mitigating or compensatory measures. ■ Section 5.6.11 - The environmental statement should include an assessment of the effects on the coast, tidal rivers and estuaries. ■ Section 5.6.13 - The applicant should be particularly careful to identify any effects of physical changes on the integrity and special features of Marine Protected Areas (MPAs).

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 17 Marine Archaeology and Cultural Heritage ■ Chapter 18 Terrestrial Archaeology and Cultural Heritage ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 20 Land Use, Tourism and Recreation ■ Chapter 21 Air Quality ■ Chapter 22 Onshore Noise and Vibration ■ Chapter 23 Geology and Ground Conditions ■ Chapter 24 Terrestrial Traffic and Transport ■ Chapter 27 Military and Civil Aviation ■ Chapter 28 Greenhouse Gases ■ Chapter 29 Climate Change Resilience 	<ul style="list-style-type: none"> ■ Section 5.6.15 - Applicants should propose appropriate mitigation measures to address adverse physical changes to the coast. <p>The following policies are relevant to Underwater Noise and Vibration:</p> <ul style="list-style-type: none"> ■ Section 5.12.4 - The policy states that “<i>noise effects of the proposed development on ecological receptors should be assessed by the Secretary of State</i>” and that this includes underwater noise effects for marine developments. ■ National Policy Statements (NPSs) set out the primary policy against which an application for the development consent of the Proposed Scheme will be considered. ■ Section 5.4 within EN-1 outlines the requirement for biodiversity and geological conservation. It is stated that where the development site is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance. <p>The following policies are relevant to Terrestrial Ecology and Biodiversity:</p> <ul style="list-style-type: none"> ■ Paragraph 5.4.19 states that an applicant should “... <i>show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests</i>” in respect of internationally, nationally or locally designated sites of ecological or geological interest. ■ Further paragraph states “...<i>species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action.</i>” <p>The following policies are relevant to Socio Economic:</p> <ul style="list-style-type: none"> • This Overarching National Policy Statement for Energy (EN-1) is part of a suite of National Policy Statements (NPS) designated by the Secretary of State for Energy Security and Net Zero (DESNZ) in January 2024. • Paragraph 5.13.10 states that it may be concluded “<i>that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence (particularly in view of the need for energy infrastructure as set out in the NPS.</i>” • Paragraph 5.13.2 states that “<i>where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES</i>”. <p>The following policies are relevant to Major Accidents and Disasters:</p> <ul style="list-style-type: none"> • EN-1 sets out the Government’s policy for delivery of major energy infrastructure and will be the primary basis for decision making. EN-1 includes reference to the need for mitigation measures to “<i>prevent, control and mitigation major accidents</i>”. <p>The following policies are relevant to Shipping and Navigation:</p> <ul style="list-style-type: none"> • Policy relevant for renewable energy infrastructure within UK waters.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p>The following policies are relevant to Marine Archaeology and Cultural Heritage and Terrestrial Archaeology and Cultural Heritage:</p> <ul style="list-style-type: none"> • Provides the primary policy guiding decisions by the Secretary of State on applications received for nationally significant energy infrastructure, and will be the primary basis for decision making. • Requires identification and assessment of the significance of historic environment assets and assessment of the impacts to this resource as a result of proposed energy infrastructure projects. <p>The following policies are relevant to Water Resource and Flood Risk:</p> <ul style="list-style-type: none"> • The overarching National Policy Statement for Energy EN-1 recognises that flood risk is a natural process that plays an important role in shaping the natural environment (paragraph 5.8.1) and recognises that infrastructure can have adverse effects on the water environment (paragraph 5.16.1). • Paragraph 5.16.2 states that during the construction, operation, and decommissioning phases, development can lead to increased demand for water, involve discharges to water, and cause adverse ecological effects resulting from physical modifications to the water environment. There may also be an increased risk of spills and leaks of pollutants to the water environment. These effects could lead to adverse impacts on health or on protected species and habitats and could result in surface waters, groundwaters or protected areas failing to meet environmental objectives established under the WFD. <p>The following policies are relevant to Land Use, Recreation and Tourism:</p> <ul style="list-style-type: none"> • This NPS contains paragraphs relating to soils and agriculture which have been considered within this chapter. Paragraph 5.11.12 states <i>“Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5).”</i> • The NPS further sets out in paragraph 5.11.24 that consideration should be given to <i>“mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space including appropriate access to National Trails and other public rights of way and new coastal access routes”</i>. • Within paragraph 5.13.4 consideration is also given to socio-economic impacts which may include effects on tourism and other users of the area impacted. <p>The following policies are relevant to Air Quality:</p> <ul style="list-style-type: none"> • This provides the overarching policy to be used by the Secretary of State when determining planning applications for nationally significant renewable energy infrastructure. <p>The following policies are relevant to Onshore Noise and Vibration:</p> <ul style="list-style-type: none"> • This document sets out that operational noise including ancillary activities associated with development, such as increased road and rail traffic movements, or other forms of transportation should be assessed using the principles of the relevant British Standards where appropriate. <p>The following policies are relevant to Ground Conditions:</p>

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		<ul style="list-style-type: none"> • Section 5.11 within EN-1 states that applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5). • Land contamination is referenced in Section 5.11; it is stated that where pre-existing land contamination may be present the objective is to ensure that the site is suitable for its intended use and the options for remediation should be considered where possible. <p>The following policies are relevant to Terrestrial Traffic and Transport:</p> <ul style="list-style-type: none"> • NPS EN-1 contains the generic requirements for the assessment of impacts arising from traffic associated with design, construction and operation of renewable energy infrastructure. Relevant paragraphs are set out below: • Paragraph 5.14.4 states <i>“The consideration and mitigation of transport impacts is an essential part of Government’s wider policy objectives for sustainable development as set out in Section 2.6 of this NPS.”</i> • Paragraph 5.14.5-6 states <i>“If a project is likely to have significant transport implications, the applicant’s ES (see Section 4.2) should include a transport appraisal. The DfT’s Transport Analysis Guidance (TAG) and Welsh Governments WeITAG provides guidance on modelling and assessing the impacts of transport schemes. Applicants should consult National Highways and Highways Authorities as appropriate on the assessment and mitigation.”</i> ■ Paragraph 5.14.7 states <i>“The applicant should prepare a travel plan including demand management and monitoring measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by active, public and shared transport to; reduce the need for parking associated with the proposal; contribute to decarbonisation of the transport network; reduce the need to travel; and secure behavioural change and modal shift through an offer of genuine modal choice and to mitigate transport impacts.”</i> ■ Paragraph 5.14.9-10 states <i>“If additional transport infrastructure is proposed... applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits. Guidance has been issued in England which explains the circumstances where this may be possible, although the Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time.”</i> ■ Paragraph 5.14.18-19 states <i>“A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the Secretary of State should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development... Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should consider requirements to mitigate adverse impacts on transport networks arising from the development.”</i> ■ Paragraph 5.14.14 states <i>“The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that; Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements; Make sufficient provision for HGV</i>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p><i>parking, either on the site or at dedicated facilities elsewhere, to avoid ‘overspill’ parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and, Ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force.”</i></p> <p>The following policies are relevant to Military and Civil Aviation:</p> <ul style="list-style-type: none"> ■ The policy statement is an overarching planning framework for all energy infrastructure. Section 5.5 details how civil and military aviation can be affected by new energy development. If the proposed development may affect civil and military aviation, an assessment should cover consultation, potential impacts of the proposed development and an assessment of cumulative effects of the project with other relevant projects. Paragraphs 5.5.54 and 5.5.55 outline the requirements concerning lighting tall structures to ensure there is no glare to pilots. <p>The following policies are relevant to Greenhouse Gas:</p> <ul style="list-style-type: none"> ■ The Overarching National Policy Statement for Energy (EN-1) is part of a suite of NPS designated by the Secretary of State of DESNZ in January 2024. This document identifies the role that tidal power generation can have in providing relatively predictable low carbon power. <p>The following policies are relevant to Climate Change Resilience:</p> <ul style="list-style-type: none"> ■ EN-1 sets out the Government’s policy for delivery of major energy infrastructure and will be the primary basis for decision making. Section 4.10 highlights that applicants and the Secretary of State (SoS) should take the effects of climate change into account when developing and consenting new energy infrastructure. ■ Paragraph 4.10.1 states that: <i>“Whilst we must continue to accelerate efforts to end our contribution to climate change by reaching Net Zero greenhouse gas emissions, adaptation is also necessary to manage the impacts of current and future climate change. If new energy infrastructure is not sufficiently resilient against the possible impacts of climate change, it will not be able to satisfy the energy needs as outlined in Part 3 of this NPS.”</i> ■ Paragraph 4.10.8 states that: <i>“New energy infrastructure will typically need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the direct (e.g. site flooding, limited water availability, storms, heatwave and wildfire threats to infrastructure and operations) and indirect (e.g. access roads or other critical dependencies impacted by flooding, storms, heatwaves or wildfires) impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure”.</i> ■ Furthermore, paragraph 4.10.11 states that: <i>“Applicants should demonstrate that proposals have a high level of climate resilience built-in from the outset and should also demonstrate how proposals can be adapted over their predicted lifetimes to remain resilient to a credible maximum climate change scenario. These results should be considered alongside relevant research which is based on the climate change projections.”</i> ■ Paragraph 4.10.12 states: <i>“It is appropriate to take a risk-averse approach with elements of infrastructure which are critical to the safety of its operation”.</i>

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		<ul style="list-style-type: none"> Paragraph 4.10.13 states that: “The Secretary of State should be satisfied that applicants for new energy infrastructure have taken into account the potential impacts of climate change using the latest UK Climate Projections and associated research and expert guidance [...] available at the time the ES was prepared to ensure they have identified appropriate mitigation or adaptation measures. This should cover the estimated lifetime of the new infrastructure, including any decommissioning period”.
National Policy Statement (EN-3) (2023).	<ul style="list-style-type: none"> Chapter 5 Coastal Processes Chapter 17 Marine Archaeology and Cultural Heritage Chapter 16 Shipping and Navigation Chapter 18 Terrestrial Archaeology and Cultural Heritage Chapter 23 Geology and Ground Conditions Chapter 26 Infrastructure and Other Marine Users Chapter 27 Military and Civil Aviation 	<ul style="list-style-type: none"> Provides the primary policy guiding decisions by the Secretary of State on applications received for nationally significant energy infrastructure, and will be the primary basis for decision making. Requires identification and assessment of the significance of historic environment assets and assessment of the impacts to this resource as a result of proposed energy infrastructure projects. Policy relevant for renewable energy infrastructure within UK waters Requires identification and assessment of the significance of historic environment assets and assessment of the impacts to this resource as a result of proposed energy infrastructure projects. In relation to tidal stream energy NPS EN-3 states that the Applicant should ensure that the foundation design does not create unacceptable adverse effects on the marine physical environment to include seabed geology. Section 2.5 outlines the consideration of “good design for energy infrastructure”. Notes the need for major infrastructure investment to further the renewable energy sector.
National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security & Net Zero, 2023).	<ul style="list-style-type: none"> Chapter 5 Coastal Processes Chapter 15 Major Accidents and Disasters Chapter 20 Land Use, Tourism and Recreation Chapter 23 Geology and Ground Conditions Chapter 26 Infrastructure and Other Marine Users 	<ul style="list-style-type: none"> EN-5 sets out the Government’s policy for the delivery of electricity networks infrastructure and will be the primary basis for decision making. EN-5 does not include any reference to major accidents and disasters other than to state that “the functional performance of the infrastructure in respect of security of supply and public and occupational safety” must not be threatened by aesthetic design. This NPS acknowledges the impacts overhead lines and underground cabling can have on agricultural land. Policy outlines the appropriate handling of soil to ensure no loss or degradation of agricultural land. There is no reference to recreation or tourism within this NPS. NPS EN-5 recognises that there are potential effects of underground cables on soils (including peat soils) and geology, largely during construction and that these effects should be considered. It also makes reference to the potential effects on agricultural land and soils (including peat soils) in particular Best and Most Versatile (BMV) land and the requirement for mitigation measures to be put in place to limit the detrimental effects. This NPS sets out policy in relation to electricity networks and sets out the factors influencing site selection.
National Policy Statement for Hazardous Waste (Department for Environment, Food & Rural Affairs, 2013).	Chapter 30 Materials and Waste.	<p>This Policy statement outlines the main objectives on Government Policy for hazardous waste, including:</p> <ul style="list-style-type: none"> To protect human health and the environment; Implementation of the Waste Hierarchy; Self-sufficiency and proximity; and

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		<ul style="list-style-type: none"> ■ Climate change. <p>The policy outlines the key principles for the management of hazardous waste, as follows:</p> <ul style="list-style-type: none"> ■ Principle 1: Hazardous waste should be managed as to provide the best possible environmental outcome. ■ Principle 2: Requires a reduction in reliance upon landfill, with landfill only being used where there is no alternative recovery or disposal option available. ■ Principle 3: This principle requires that hazardous waste is not mixed with different categories of hazardous waste or with other waste substances or materials (although co-disposal of some wastes in landfill is allowed). ■ Principle 4: Stipulates that organic hazardous wastes that cannot be reused, recycled or recovered should be subject to destruction using best available techniques, with energy recovery for all appropriate treatments. No hazardous organic waste should be landfilled unless the requirements of the Landfill Directive are met. ■ Principle 5: The practice of relying on higher Landfill Directive waste acceptance criteria to enable some hazardous waste to continue to be landfilled must end.
National Policy Statement for Ports (2012) (Department for Transport, 2012).	<ul style="list-style-type: none"> ■ Chapter 5 Coastal Processes ■ Chapter 16 Shipping and Navigation ■ Chapter 26 Infrastructure and Other Marine Users 	Due to the location of the Project being situated nearby to multiple ports, the NPS will be considered, where relevant.
Natural Environment and Rural Communities (NERC) Act 2006.	Chapter 8 Marine Mammals.	Section 41 of the NERC lists 56 habitats and 943 SPI in England previously identified as priority habitats in the UK BAP (Joint Nature Conservation Committee, 1992-2012), and taken forward into the UK Biodiversity Framework in 2012 (Joint Nature Conservation Committee, 2012). Relevant marine mammal species include: common dolphin, Risso's dolphin, minke whale, harbour porpoise and harbour seal. Local BAPs to note is The North Merseyside BAP, however, this does not reference any marine mammal species.
Noise Policy Statement for England (NPSE) (Department for Environment, Food & Rural Affairs, 2010).	Chapter 22 Onshore Noise and Vibration.	The NPSE was published on 15 March 2010. It sets out the long-term vision for government noise policy, to promote good health and a good quality of life through the management of noise.
North West and North Wales Shoreline Management Plan 2012 (Halcrow, 2012).	Chapter 5 Coastal Processes.	Provides a large-scale assessment of the risks associated with erosion and flooding at the coast and presents policies to help manage these risks in a sustainable manner.
North West river basin district river basin management plan: updated 2022 (Environment Agency, 2022).	Chapter 5 Coastal Processes.	Sets out programmes of measures for water bodies within the River Basin District to reach good status or good potential by 2027.
North West Inshore and North West Offshore Marine Plan (Department for Environment, Food and Rural Affairs, 2021).	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 9 Marine & Intertidal Ornithology 	<ul style="list-style-type: none"> ■ The North West Inshore and North West Offshore Marine Plan introduces a strategic approach to planning within inshore waters. Paragraph 16 in Section 1.3 outlines that the inshore waters covered by this document support internationally significant populations of seabirds and waterfowl, particularly referencing Liverpool Bay SPA.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 10 Fish and Shellfish ■ Chapter 16 Shipping and Navigation ■ Chapter 17 Marine Archaeology and Cultural Heritage ■ Chapter 18 Terrestrial Archaeology and Cultural Heritage ■ Chapter 26 Infrastructure and Other Marine Users ■ Chapter 29 Climate Change Resilience 	<ul style="list-style-type: none"> ■ The framework aims to conserve and enhance marine and coastal heritage assets by considering the potential for harm to their significance. Ensures that marine and coastal heritage assets are considered in the decision-making process and will make provisions for those assets that are discovered during developments. ■ Aims to conserve and enhance marine and coastal heritage assets by considering the potential for harm to their significance. Ensures that marine and coastal heritage assets are considered in the decision-making process and will make provisions for those assets that are discovered during developments. ■ The Marine Plan sets out principles for decision making in how the waters are developed, protected and improved over the next 20 years. It is supported by the relevant policy, Policy NW-CC-2: <i>“Proposals in the north west marine plan area should demonstrate for the lifetime of the project that they are resilient to the impacts of climate change and coastal change.”</i> ■ The Plan outlines how the estuaries of the north west inshore marine plan area are important for migratory fish, for example smelt, eel, trout and salmon, and are breeding grounds for commercially important fish species.
<p>Our Waste, Our Resources: A Strategy for England 2018 (Department for Environment, Food & Rural Affairs, 2018).</p>	<p>Chapter 30 Materials and Waste.</p>	<p>Sets out how the UK Government will preserve material resources by minimising waste, promoting resource efficiency and moving towards a circular economy. The Strategy also outlines the Government’s aims to minimise the damage caused to the natural environment by reducing and managing waste safely and carefully, and by tackling waste crime. It combines actions to take now with firm commitments for the coming years and gives a clear longer-term policy direction in line with the 25 Year Environment Plan.</p>
<p>Planning Practice Guidance (PPG) (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government, 2016).</p>	<p>Chapter 25 Seascape, Landscape and Visual.</p>	<p>Paragraph 037 of PPG (Ref. ID: 8-037-20190721) under the heading of Natural Environment, sub-heading Landscape, supports the use of landscape character assessment as a tool for understanding the character and local distinctiveness of the landscape to inform planning and decision making in addition to Natural England’s National Character Area Profiles.</p>
<p>Powering up Britain 2023 (Department for Business, Energy & Industrial Strategy, 2023).</p>	<p>Chapter 28 Greenhouse Gases.</p>	<p>‘Powering up Britain’ was published in 2023, providing detail on how carbon budgets will be achieved on a policy-by-policy basis, and presenting the Government’s intentions to enhance the country’s energy security and deliver the UK’s net zero commitments, including accelerating the deployment of energy generation from renewables.</p>
<p>The Energy White Paper: Powering Our Net Zero Future (Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, 2020).</p>	<p>Chapter 14 Socio Economics.</p>	<p>The 2020 Energy White Paper builds on a Ten Point Plan for taking action to achieving the target of net zero emissions by 2050, providing further clarity on energy-related measures. It is estimated that the measures in the Paper could reduce emissions across power, industry and buildings and enable further savings in other sectors such as transport. Key commitments relate to targeting offshore wind, supporting the deployment of Carbon Capture and Storage, growing the installation of electric heat pumps and building digital infrastructure for energy systems.</p>
<p>The Infrastructure Planning (Environmental Impact Assessment (EIA)) Regulations 2017 (HM Government, 2017).</p>	<ul style="list-style-type: none"> ■ Chapter 15 Major Accidents and Disasters ■ Chapter 16 Shipping and Navigation 	<p>These Regulations cover the process of EIA in the context of NSIPs.</p>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
The National Adaptation Programme (NAP) (2023) (Department for Environment, Food & Rural Affairs, 2023).	Chapter 29 Climate Change Resilience	The NAP sets the actions that government and others will take to adapt to the challenges of climate change in the UK. It sets out key actions for a five-year period. Section 4.2 addresses the importance of the NPPF in supporting climate change adaptation for development.
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Department for Environment, Food and Rural Affairs, 2007).	Chapter 21 Air Quality.	This predates the Clean Air Strategy and provides a framework for reducing air pollution in the UK with the aim of meeting the objectives and mandatory limit values set by the Air Quality Regulations.
The UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations, (Department for Environment, Food and Rural Affairs, 2017).	Chapter 21 Air Quality.	The Plan sets out roles and responsibilities and measures for bringing NO ₂ levels within the mandatory limit values in the shortest possible time.
UK Marine Policy Statement (HM Government, 2011) (Update 2020) (HM Government, 2011; 2020).	<ul style="list-style-type: none"> ■ Chapter 5 Coastal Processes ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 9 Marine and Intertidal Ornithology ■ Chapter 10 Fish and Shellfish ■ Chapter 16 Shipping and Navigation ■ Chapter 17 Marine Archaeology and Cultural Heritage ■ Chapter 25 Seascape, Landscape and Visual ■ Chapter 26 Infrastructure and Other Marine Users ■ Chapter 27 Military and Civil Aviation 	<p>The following is relevant to the Coastal Processes Chapter:</p> <ul style="list-style-type: none"> ■ Establishes frameworks for preparing Marine Plans and decision making for proposals affecting the marine environment. Aims to ensure that activity within the marine environment contributes to the aims of sustainable development. <p>The following is relevant to the Benthic Ecology and Fish and Shellfish Chapters:</p> <ul style="list-style-type: none"> ■ The MPS provides the framework for preparing Marine Plans and for the decision-making by marine planning authorities. It promotes healthy functioning of marine ecosystems and protects marine habitats and species of importance. A guidance note was published in 2020 on how references to EU law in the UK MPS should be interpreted following the UK's withdrawal from the EU. <p>The following is relevant to the Marine and Intertidal Ornithology Chapter:</p> <ul style="list-style-type: none"> ■ Sets out high-level objectives for the marine space, including achieving a sustainable marine economy and identifies a wide range of relevant marine uses. ■ Requires use of the marine environment and its resources to maximise sustainable activity, prosperity, and opportunities for all. ■ Requirements for biodiversity to be protected, conserved and where appropriate recovered and loss halted. ■ Requirements for healthy marine and coastal habitats can occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems; and the oceans to have viable populations of representative, rare, vulnerable and valued species. <p>The following is relevant to the Shipping and Navigation Chapter:</p> <ul style="list-style-type: none"> ■ Sets out high-level objectives for the marine space, including achieving a sustainable marine economy and identifies a wide range of relevant marine uses including Ports and Shipping. ■ Requires use of the marine environment and its resources to maximise sustainable activity, prosperity and opportunities for all. ■ The MPS goes onto state that <i>'Marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure</i>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p><i>that their decisions are in compliance with international maritime law. Marine Plan development and individual decisions should also take account of environmental, social and economic effects and be in compliance with international maritime law. Marine plan authorities will also need to take account of the need to protect the efficiency and resilience of continuing port operations, as well as further port development.</i> (Clause 3.4.7)</p> <p>The following is relevant to the Marine Archaeology and Cultural Heritage Chapter:</p> <ul style="list-style-type: none"> ■ Sets out high-level objectives for the marine space, including achieving a sustainable marine economy and identifies a wide range of relevant marine uses. ■ Requires use of the marine environment and its resources to maximise sustainable activity, prosperity and opportunities for all. ■ Requires use of marine environment recognises the protection and management needs of marine cultural heritage according to its significance. <p>The following is relevant to the Seascape, Landscape and Visual Chapter:</p> <ul style="list-style-type: none"> ■ The UK Marine Policy Statement (MPS) (states that when ‘developing Marine Plans, marine plan authorities should consider at a strategic level visual, cultural, historical and archaeological impacts not just for those coastal areas that are particularly important for seascape, but for all coastal areas, liaising with terrestrial planning authorities as necessary. In addition, any wider social and economic impacts of a development or activity on coastal landscapes and seascapes should be considered.’ (clause 2.6.5.2). ■ The MPS goes on to state that in ‘considering the impact of an activity or development on seascape, the marine plan authority should take into account existing character and quality, how highly it is valued and its capacity to accommodate change specific to any development...’ (clause 2.6.5.3). <p>The following is relevant to the Infrastructure and Other Marine Users Chapter:</p> <ul style="list-style-type: none"> ■ This Policy sets out how sustainable development of marine areas in the UK can be achieved. <p>The following is relevant to the Military and Civil Aviation Chapter:</p> <ul style="list-style-type: none"> ■ Requires use of the marine environment and its resources to maximise sustainable activity, prosperity and opportunities for all. Also emphasises the importance of safety.
<p>UK Post-2010 Biodiversity Framework (Joint Nature Conservation Committee, 2012).</p>	<ul style="list-style-type: none"> ■ Chapter 6 Benthic Ecology and Plankton ■ Chapter 9 Marine & Intertidal Ornithology ■ Chapter 10 Fish and Shellfish 	<p>The Framework demonstrates how the work of the four countries (England, Northern Ireland, Scotland and Wales) and the UK contributes to achieving the Aichi Targets, and identifies the activities required to complement the country biodiversity strategies in achieving the Targets.</p>
<p>UK Government Land Use Framework (Department for Science, Innovation & Technology and Geospatial Commission, 2023).</p>	<p>Chapter 20 Land Use, Recreation and Tourism.</p>	<p>This framework is not yet published however it is noted that it is due for publication in summer of 2024.</p>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
Waste Management Plan for England 2021 (Department for Environment, Food & Rural Affairs, 2021)	Chapter 30 Materials and Waste.	This Policy document provides a detailed analysis of the present state of waste management at the national level, and assesses how the objectives of the Waste Framework Directive will be effectively supported. It outlines the Waste Hierarchy, which gives top priority to waste prevention, followed by preparing for reuse, recycling, other types of recovery and finally disposal (e.g. landfill).
Local Planning Policy		
Cheshire West and Chester Local Plan (Part One) Strategic Policies (Cheshire West and Chester Council, 2015).	<ul style="list-style-type: none"> ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 20 Land Use, Tourism and Recreation ■ Chapter 22 Onshore Noise and Vibration ■ Chapter 23 Geology and Ground Conditions ■ Chapter 24 Terrestrial Traffic and Transport ■ Chapter 29 Climate Resilience ■ Chapter 30 Materials and Waste 	<p>Cheshire West and Chester Council Local Development Plan sets out the council’s vision for the region. The current Development Plan is made up of the Local Plan (Part One) Strategic Policies (adopted in 2015), the Local Plan (Part Two) Land Allocations and Detailed Policies and Neighbourhood Plans (adopted in 2019). At a meeting of Cabinet on 10 January 2024, the Council formally decided to prepare a new style Local Plan.</p> <p>Part one of the Cheshire and West Chester Local Plan sets out the Council’s policies and strategies to guide planning decisions and establishes the framework for the Cheshire and West Chester a desirable and attractive place to live, work, and learn, up to 2030.</p> <p>Policies relevant to Terrestrial Ecology and Biodiversity are:</p> <ul style="list-style-type: none"> ■ Policy ENV 4: Biodiversity and Geodiversity. The Local Plan will safeguard and enhance biodiversity and geodiversity through the identification and protection of sites and / or features of international, national and local importance. <p>Policies relevant to Water Resources and Flood Risk are:</p> <ul style="list-style-type: none"> ■ Policy ENV 1 (Flood risk and water management) which seeks to reduce flood risk, promote water efficiency measures and protect and enhance water quality through the following mechanisms: <ul style="list-style-type: none"> • All development must follow the sequential approach to determining the suitability of land for development, directing new development to areas at the lowest risk of flooding and where necessary apply the exception test, as outlined in national planning policy; • Developers are required to demonstrate, where necessary, through an appropriate FRA at the planning application stage, that development proposals will not increase flood risk on site or elsewhere, and should seek to reduce the risk of flooding. New development will be required to include or contribute to flood mitigation, compensation and / or protection measures, where necessary, to manage flood risk associated with or caused by the development; • Development proposals should comply with the WFD by contributing to the North West RBMP and Dee RBMP objectives, unless it can be demonstrated that this would not be technically feasible; • The drainage of new development shall be designed to reduce surface water run-off rates to include the implementation of SuDS unless it can be demonstrated that it is not technically feasible or viable; and • Proposals within areas of infrastructure capacity and / or water supply constraint should demonstrate that there is adequate wastewater infrastructure and water supply capacity to serve the development or adequate provision can be made available.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p>Policies relevant to Onshore Noise and Vibration are:</p> <ul style="list-style-type: none"> Policy SOC 5 Health and well-being states (inter alia): <i>“Development that gives rise to significant adverse impacts on health and quality of life (e.g. soil, noise, water, air or light pollution, and land instability, etc) including residential amenity, will not be allowed.”</i> <p>Policies relevant to Geology and Ground Conditions are:</p> <ul style="list-style-type: none"> Policy ENV 6 High quality design and sustainable construction states that development should <i>“mitigate and adapt to the predicted effects of climate change”</i>. Policy ENV 9 Minerals supply and safeguarding identifies that Cheshire West and Chester will make provision for the adequate, steady and sustainable supply of sand, gravel, salt and brine, by maintaining a minimum seven year landbank for aggregate land-won sand and gravel and identifying Minerals Safeguarding Areas. <p>Policies relevant to Terrestrial Traffic and Transport are:</p> <ul style="list-style-type: none"> Policy STRAT 4, Ellesmere Port states <i>“Development in Ellesmere Port has the potential to deliver substantial economic growth through the availability of significant sites for industrial, manufacturing and distribution purposes.” ... “The Council will look to facilitate the development of land for employment uses in this area, and will make provision for transport and other infrastructure improvements required to unlock the development potential of some sites.; Land at Hooton Park is identified as an important sub-regional employment location and is safeguarded for continued office, industrial and warehousing use. Any opportunities for new employment development in connection with the automotive or related industries will be supported; Opportunities for freight transport on the rail network or via the Manchester Ship Canal should be maximised. New links to these networks will be encouraged where appropriate.”</i> Specific transport policy includes: Policy STRAT 10, Transport and Accessibility, which states that development should <i>“Provide and develop reliable and efficient transport networks that support sustainable economic growth in the borough and the surrounding area; Reduce carbon emissions from transport and take steps to adapt our transport networks to the effects of climate change; Contribute to safer and secure transport and promote forms of transport that are beneficial to health; Improve accessibility to jobs and key services which help support greater equality of opportunity; Ensure that transport helps improve quality of life and enhances the local environment.”</i> New development will be required to demonstrate that: <i>“Additional traffic can be accommodated safely and satisfactorily within the existing, or proposed, highway network; Satisfactory arrangements can be made to accommodate the additional traffic before the development is brought into use; Appropriate provision is made for access to public transport and other alternative means of transport to the car; Measures have been incorporated to improve physical accessibility and remove barriers to mobility, especially for disabled and older people. The safety of all road users should be taken into account in the design and layout of new developments.; Opportunities to improve public transport facilities will be taken wherever possible, through improved services, interchange facilities and parking at railway stations.”</i> Lastly, <i>“Proposals for new industrial and warehousing development should maximise opportunities to transport products by non-road modes of transport. Sites alongside the Manchester Ship Canal, Weaver Navigation and</i>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p><i>rail network may be particularly suitable for freight use and these opportunities should be integrated into development proposals where feasible. Existing or potential freight movement opportunities will be safeguarded from development which could preclude continued or future freight use.”</i></p> <p>Policies relevant to Climate Resilience are:</p> <ul style="list-style-type: none"> ■ Policy ENV 4 Biodiversity and Geodiversity. ■ Policy ENV 9 Minerals supply and safeguarding. ■ Policy STRAT 1, Sustainable development “<i>seeks to enable development that improves and meets the economic, social and environmental objectives of the borough in line with the presumption in favour of sustainable development. Proposals that are in accordance with relevant policies in the Plan and support the following sustainable development principles will be approved without delay, unless material considerations indicate otherwise:</i> <ul style="list-style-type: none"> ● <i>Mitigate and adapt to the effects of climate change, ensuring development makes the best use of opportunities for renewable energy use and generation;</i> ● <i>Provide for mixed-use developments which seek to provide access to homes, employment, retail, leisure, sport and other facilities, promoting healthy and inclusive communities whilst reducing the need to travel; and</i> ● <i>Ensure the prudent use of our natural finite resources whilst promoting the re-use, recovery and recycling of materials.”</i> <p>Policies relevant to Materials and Waste are:</p> <ul style="list-style-type: none"> ■ Policy ENV 8: Managing Waste; makes provision for sustainable waste management in Cheshire West and Chester. The aim of the policy is to drive waste management up the waste hierarchy and to ensure that sufficient capacity exists to meet the borough’s predicted waste requirements up to 2030. ■ Policy ENV 9 Minerals supply and safeguarding <p>Policies relevant to Land Use, Tourism and Recreation are:</p> <ul style="list-style-type: none"> ■ Spatial Strategies; ■ STRAT 1: Sustainable development; ■ STRAT 4: Ellesmere Port; ■ STRAT 11: Infrastructure; ■ Social Policies; ■ SOC 5: Health and well-being; and ■ SOC 6: Open space, sport and recreation.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
<p>Cheshire West and Chester Local Plan (Part Two), (Cheshire West and Chester Council, 2019).</p>	<ul style="list-style-type: none"> ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 15 Major Accidents and Disasters ■ Chapter 20 Land Use, Tourism and Recreation ■ Chapter 21 Air Quality ■ Chapter 23 Geology and Ground Conditions 	<p>Part two of the Cheshire and West Chester Local Plan sets out detailed policies to support the strategic objectives set out in Part one of the Local Plan.</p> <p>Policies relevant to Terrestrial Ecology and Biodiversity are:</p> <ul style="list-style-type: none"> ■ Policy DM 44 Protecting and enhancing the natural environment states that <i>“Development likely to have an impact on protected sites (statutory and non-statutory), protected / priority species, priority habitats or geological sites must be accompanied by an Ecological Assessment that complies with industry best practice and guidance.”</i> <p>Policies relevant to Major Accidents and Disasters are:</p> <ul style="list-style-type: none"> ■ Policy DM 11 Safeguarded areas around aerodromes states that <i>“Within the safeguarded areas ... new development which does not adversely affect the operational integrity or safety of an airport or aircraft operations, radar and navigation systems will be supported. In considering proposals for development within a safeguarded area the Council will have particular regard to:</i> <ol style="list-style-type: none"> 1. <i>the height and design of the development; and</i> 2. <i>the likelihood of it creating a birdstrike risk; and</i> 3. <i>the likely impact on navigational aids, radio waves, radar and telecommunications systems for the purposes of air traffic control and aircraft movements.”</i> ■ Policy DM 33 New or extension to hazardous installations identifies that <i>“The borough has concentrations of hazardous installations, namely to the east of Ellesmere Port and to the east of Northwich. Stanlow is a large site east of Ellesmere Port which contains a high number of hazardous operators, including Essar and within the borough at Capenhurst is a nuclear site operated by Urenco. There are also a number of hazardous pipelines that run through the borough.”</i> It goes on to state that <i>“The purpose of this policy is to control the development of hazardous installations to avoid increasing the number of people at risk or risk to environmentally sensitive areas.”</i> ■ Policy DM 34 Development in the vicinity of hazardous installations states <i>“Development in the vicinity of hazardous installations, including proposed new installations for which planning permission or hazardous substances consent has been given, will be supported providing it would not result in a significant increase in the number of people being subjected to threshold levels of risk. Exceptions to this policy may be considered in existing built-up areas or where there is an existing commitment to development, in order to achieve a balance between the need for investment and regeneration within the existing urban areas and the degree of risk involved.”</i> <p>Policies relevant to Land Use, Recreation and Tourism are:</p> <ul style="list-style-type: none"> ■ Policy EP 3 Stanlow special policy area ■ Policy DM 29 Health impacts of new development ■ Policy DM 3: Open space and new development

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		<ul style="list-style-type: none"> ■ Policy DM 36 Provision for sport and recreation ■ Policy DM 39 Culture and community facilities <p>Policies relevant to Air Quality are:</p> <ul style="list-style-type: none"> ■ Policy EP1 which states: <i>“Within the defined settlement boundary of Ellesmere Port as identified on the policies map, development proposals will be supported which are in line with the relevant development plan policies and are consistent with the following principles, where relevant, aimed at delivering the Local Plan (Part One) policy STRAT 4:</i> <ul style="list-style-type: none"> 7. <i>do not give rise to significant adverse impact on air quality in line with Local Plan (Part Two) policy DM31”.</i> ■ Policy DM 31 which states: <i>“In line with Local Plan (Part One) policy SOC5, development must not give rise to significant adverse impacts on health and quality of life, from air pollution...</i> <p><i>An air quality assessment will be required for development proposals that have the potential for significant air quality impacts, including those which:</i></p> <ul style="list-style-type: none"> <i>are classed as major development and have the potential, either individually or cumulatively, for significant emissions; or</i> <i>are likely to result in an increase in pollution levels in an Air Quality Management Area (AQMA)”.</i> <p>Policies relevant to Geology and Ground Conditions are:</p> <ul style="list-style-type: none"> ■ Policy DM 32 Land Contamination and instability.
Cheshire West and Chester Council Local Flood Risk Management Strategy, 2016 (Cheshire West and Chester Council, 2016).	Chapter 19 Water Resource and Flood Risk.	Cheshire West and Chester Council's Local Flood Risk Management Strategy sets out a framework for managing the risk of local flooding.
Cheshire West and Chester Parks and Greenspaces Strategy (Draft V1 2020) (Cheshire West and Chester Council, 2020).	Chapter 20 Land Use, Recreation and Tourism.	Presents a strategy focussed on priority parks and greenspaces owned by Cheshire West and Chester Borough Council for the planning and management of accessible natural green spaces, amenity greenspace and parks and recreations grounds. It will inform the shape and direction of the priorities and development of parks and greenspace from 2020 till 2030.
Halton Delivery and Allocations Local Plan 2014-2037 (Halton Borough Council, 2022).	<ul style="list-style-type: none"> ■ Chapter 14 Socio Economic ■ Chapter 20 Land Use, Recreation and Tourism ■ Chapter 28 Green House Gases ■ Chapter 30 Materials and Waste 	<p>Policies relevant to Socio Economic include:</p> <ul style="list-style-type: none"> ■ Policy CS(R)4: Employment Land Supply outlines that land for employment uses is identified and allocated within the Local Plan to support Halton's economy and to offer businesses and industry a choice of sites so that differing requirements can be met. The policy aims to generate approximately 180ha of land for employment purposes, with an appropriate mix of sites to support the local economy and the wider Liverpool City Region Economy. <p>Policies relevant to Land Use, Recreation and Tourism include:</p> <ul style="list-style-type: none"> ■ Policy CS(R)21: Green Infrastructure; ■ Policy C1: Transport Network and Accessibility;

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		<ul style="list-style-type: none"> ■ Policy HC5: Community Facilities and Services; ■ Policy HC7: Visitor Attractions; ■ Policy HE3: Waterways and Waterfronts; ■ Policy HE6: Outdoor and Indoor Sports Provision; and ■ Policy GR2: Amenity. <p>Policies relevant to Green House Gases include:</p> <ul style="list-style-type: none"> ■ Policy GR5: Renewable and Low Carbon Energy. <p>Policies relevant to Materials and Waste include:</p> <ul style="list-style-type: none"> ■ Policy CS24: Waste; the Council will promote sustainable waste management in accordance with waste hierarchy. The allocation of waste management sites and detailed development management policies will be provided in the Joint Merseyside and Halton Waste Local Plan. ■ Policy CS(R)25: Minerals; the Council will minimise the need for mineral extraction and encourage the use of recycled and secondary aggregates.
<p>Joint Merseyside and Halton Waste Local Plan (Halton Council, Knowsley Council, Liverpool City Council, Sefton Council, St. Helens Council and Wirral Council, 2013).</p>	<p>Chapter 30 Materials and Waste.</p>	<p>The Waste Local Plan was formally adopted by the six councils of Halton, Knowsley, Liverpool, Sefton, St Helens and Wirral in July 2013 which sets out detailed guidance about the allocation of sites for waste disposal and detailed development management policies. It aims to ensure the right mix of sites are identified to maximise the potential for dealing with waste at a higher level in the "waste hierarchy".</p>
<p>Joint Recycling and Waste Management Strategy 2011-2041, Resources Merseyside (Merseyside Recycling and Waste Authority, 2011).</p>	<p>Chapter 30 Materials and Waste.</p>	<p>The strategy aims to provide the headline strategic route map to deliver sustainable waste management on Merseyside, transform the waste agenda and move towards greater resource efficiency.</p>
<p>Knowsley Local Plan Core Strategy (Knowsley Council, 2016).</p>	<ul style="list-style-type: none"> ■ Chapter 20 Land Use, Recreation and Tourism ■ Chapter 21 Air Quality ■ Chapter 28 Green House Gases ■ Chapter 30 Materials and Waste 	<p>The Core Strategy aspect of the Knowsley Local Plan sets the strategic framework for the growth and development of the local authority until 2028, with particular regard to where new regeneration should take place to promote future development in the borough.</p> <p>Policies relevant to Land Use, Recreation and Tourism include:</p> <ul style="list-style-type: none"> ■ Policy CS2 Development Principle 3; ■ Policy CS4 Economy and Employment; ■ Policy CS14 Principal Regeneration Area – Prescott Town Centre states; and ■ Policy CS23 Renewables and Low Carbon Infrastructure. <p>Policies relevant Air Quality include:</p> <ul style="list-style-type: none"> ■ Policy CS2 Presumption in Favour of Sustainable, states that new developments in Knowsley and the preparation of subsequent stages of the Local Plan will be expected to support the certain development

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p>principles. Amongst these, Principle 4 states: “Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:...</p> <p>...e) Mitigating potential negative impacts of traffic growth and road traffic on highway safety, air quality, noise and health.”</p> <ul style="list-style-type: none"> ■ Policy CS7 Infrastructure Provision, pertaining to location, design and management of new development in Knowsley states: “...2) New developments will be required to be...: <ul style="list-style-type: none"> ...e) Inclusive of measures that will mitigate carbon emissions and improve air quality where appropriate.” ■ Policy CS23 Renewable and Low Carbon Infrastructure states: “1) The Council will support proposals that will produce and distribute decentralised, low carbon and renewable energy, provided that they do not cause significant harm (in terms of their number, scale, siting or cumulative impacts) to: <ul style="list-style-type: none"> a) Natural resources, biodiversity, geodiversity, water and air quality and, landscape character.” <p>Relevance to Green House Gases:</p> <ul style="list-style-type: none"> ■ This document sets out the objectives of the Council up to 2028, including development principles for developments to contribute to reductions in carbon dioxide emissions and qualified support for developments that will produce and distribute decentralised, low carbon and renewable energy. <p>Policies relevant to Materials and Waste include:</p> <ul style="list-style-type: none"> ■ Policy CS25 Management of Mineral Resources; the Council will facilitate a steady and adequate supply of minerals to ensure that the borough contributes to meeting sub-regional needs. ■ Policy CS26 Waste Management; the Council will promote sustainable forms of waste management in accordance with the waste hierarchy.
<p>Liverpool City Council Clean Air Plan (The Joint Air Quality Unit, 2019).</p>	<p>Chapter 21 Air Quality.</p>	<p>The Clean Air Plan was developed in response to Ministerial direction received by Liverpool City Council (LCC) in October 2018. The aim of the Plan is to improve local air quality, specifically roadside levels of NO₂, in the shortest possible time. It identifies nine areas where LCC are focussing their efforts to reduce concentrations.</p>
<p>Liverpool City Council Contaminated Land Inspection Strategy, (Liverpool City Council, 2023).</p>	<p>Chapter 23 Geology and Ground Conditions.</p>	<p>This document sets out the way Liverpool City Council proposes to implement its inspection duties under Part 2A.</p>
<p>Liverpool City Council Local Flood Risk Management Strategy (Liverpool City Council, 2018).</p>	<p>Chapter 19 Water Resource and Flood Risk.</p>	<p>The Liverpool City Council Local Flood Risk Management Strategy provides a source of information for all communities and businesses in Liverpool which have suffered from flooding or who are prone to flood risk. It is also important for all Flood Risk Management Authorities with duties in Liverpool to ensure that there is a common understanding of roles and responsibilities within the city. It provides an overview of the following:</p> <ul style="list-style-type: none"> ■ The ongoing flood risk management work in Liverpool; ■ Clarification of which organisations are responsible for different types of flooding; ■ Help to ensure communities understand flood risk; and

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		<ul style="list-style-type: none"> Evidence for decision making.
<p>Liverpool City Region (LCR), Year One Climate Action Plan 2021/22 (Liverpool City Region Combined Authority, 2021).</p>	<p>Chapter 28 Green House Gases.</p>	<p>The LCR Climate Partnership for the Liverpool City Region Combined Authority has created a Climate Action Plan to provide a clear framework of actions to achieve the City Region climate and sustainability goals. This includes specific policies on Climate Literacy and Engagement and Sustainable Energy, with Policy SE6 identifying the need to progress development activities related to a Tidal range project in the Mersey and Liverpool Bay area to assess viability of a large scale generation close to urban and industrial demand of the region.</p>
<p>Liverpool City Region Combined Authority (LCRCA) Plan for Prosperity 2022 (Liverpool City Region Combined Authority, 2022).</p>	<p>Chapter 14 Socio Economic.</p>	<p>The Plan for Prosperity is based upon a clear understanding of the LCRCA economy: where it already excels, where the opportunities lie within the city region, and which areas must be strengthened in order to unlock its full potential. The Plan emphasises the role of good quality employment in supporting the wellbeing of residents creating thriving places.</p>
<p>Building Our Future Liverpool City Region Growth Strategy (Liverpool City Region Combined Authority, 2016).</p>	<p>Chapter 14 Socio Economic.</p>	<p>The Growth Strategy sets out the framework for the delivery of long-term sustainable economic growth. It provides the strategic focus for the priorities and objectives of the Liverpool City Region's key funding tool - the Single Investment Fund (SIF) and future investment programmes. The Strategy is centred on people, place, and productivity with a view to improve the quality of life for all residents.</p>
<p>Liverpool Local Plan 2013-2033 (Liverpool City Council, 2022).</p>	<ul style="list-style-type: none"> Chapter 5 Coastal Processes Chapter 13 Terrestrial Ecology and Biodiversity Chapter 14 Socio Economic Chapter 15 Major Accidents and Disasters Chapter 18 Terrestrial Archaeology and Cultural Heritage Chapter 19 Water Resources and Flood Risk Chapter 20 Land Use, Recreation and Tourism Chapter 21 Air Quality Chapter 22 Onshore Noise and Vibration Chapter 23 Geology Ground Conditions Chapter 24 Terrestrial Traffic and Transport 	<p>The Liverpool Local Plan provides a long-term spatial vision, strategic priorities and policies for future development in the City. It sets out management policies that guide the delivery of development in the City which are used to determine planning applications. These policies provide detailed advice to developers and others on the scale, design, accessibility, sustainability etc. of proposals.</p> <p>The policies relevant to Coastal Processes are:</p> <ul style="list-style-type: none"> Policy R4: Coastal Protection; and Policy R10: Non-Fossil Fuel Energy Sources. <p>The policies relevant to Terrestrial Ecology and Biodiversity are:</p> <ul style="list-style-type: none"> Policy STP3 Protecting Environmentally Sensitive Areas: <ol style="list-style-type: none"> "All development proposals should avoid and / or mitigate negative impacts on European habitat sites within and beyond the Liverpool boundary to such an extent that a conclusion of No Adverse Effects on Integrity can be drawn. Sensitive areas where development may have an impact, and which would therefore require avoidance or careful assessment and mitigation measures, include:" 2a, 2b, 2c and 2d, which include protection of areas for internationally designated sites such as the Mersey Estuary SPA and Ramsar site and Liverpool Bay SPA such that development can be adequately mitigated by implementing approved measures relevant to the site location. Policy GI 6 Protection of Biodiversity and Geodiversity considers protection from harm from development for sites such as SSSI, Local Sites (Local Nature Reserves (LNRs), Local Wildlife Site (LWS), Priority Habitats / Irreplaceable habitats (including ancient woodlands and aged or veteran trees). Legally protected species or

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 25 Seascape, Landscape and Visual ■ Chapter 26 Infrastructure and Other Marine Users ■ Chapter 28 Green House Gases ■ Chapter 29 Climate Resilience ■ Chapter 30 Materials and Waste 	<p>Priority Species must be supported by an Ecological Appraisal and include details of avoidance, mitigation and / or compensation where appropriate.</p> <p>The policies relevant to Socio Economic are:</p> <ul style="list-style-type: none"> ■ Policy EC-3 Delivering Economic Growth states that <i>“development of new and existing businesses sectors with strong growth potential in Liverpool and the City Region will be supported and, where appropriate, protected and enhanced.”</i> ■ Policy R2 Hazardous Substances <i>“seeks to protect public health and safety from hazardous substances. NPPF requirements stress the importance of Planning in the protection of the environment and the need to prevent harm and to protect the natural environment.”</i> <p>The vision for the Local Plan is for Liverpool to become a sustainable, vibrant and distinctive and inclusive global city at the heart of the City Region, with an emphasis on strengthening the city’s economy and maximising social inclusion and equal opportunity.</p> <p>The policy relevant to Terrestrial Archaeology and Cultural Heritage is:</p> <ul style="list-style-type: none"> ■ HD1 Heritage Assets: Listed Buildings; Conservation Areas; Registered Parks and Gardens; Scheduled Ancient Monuments: This aims to conserve and enhance heritage assets within Liverpool through the identification and assessment of the significance of historic environment assets and assessment of the impacts to this resource as a result of proposed development. <p>The policies relevant to Water resources and Flood risk are:</p> <ul style="list-style-type: none"> ■ R3 Flood Risk and Water Management; ■ R4 Coastal Protection; and ■ R5 Rivers, Canals, Watercourses and Culverts. <p>The policies relevant to Land Use, Recreation and Tourism are:</p> <ul style="list-style-type: none"> ■ CC12 Liverpool Waters; ■ CC19 Vacant Sites and Temporary uses; ■ EC8 The Ports of Liverpool and Garston; ■ UD3 Public Realm; ■ HD2 Liverpool Maritime Mercantile City World Heritage Site; ■ GI 5 Water Spaces; ■ TP1 Improving Accessibility and Managing Demand for Travel; ■ TP2 Transport Assessments; ■ TP5 Cycling; and ■ TP6 Walking and Pedestrians.

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<p>The policies relevant to Air Quality are:</p> <ul style="list-style-type: none"> ■ Policy STP2 Sustainable Growth Principles states: <i>“To ensure the sustainable growth of Liverpool, the City Council will support development proposals which address, as appropriate, the following strategic economic, social and environmental principles:...</i> <ul style="list-style-type: none"> <i>r. Minimise adverse impacts on, and include measures to improve, air quality within the City.”</i> ■ Policy R1 Pollution states: <i>“Development proposals which are likely to have a pollution impact should demonstrate that:</i> <ul style="list-style-type: none"> <i>a. Appropriate measures are incorporated to avoid pollution to air, water and soil;...</i> <i>c. The proposal will not undermine the achievement of Air Quality Management Area (AQMA) objectives; and</i> <i>d. It will not lead to a significant decline in air quality”.</i> <p>The policy relevant to Onshore Noise and Vibration is:</p> <ul style="list-style-type: none"> ■ Policy R1 Pollution states (inter alia): <i>“Development proposals which are likely to have a pollution impact should demonstrate that:</i> <ul style="list-style-type: none"> <i>b. The impact of noise, vibration...should not be significant”</i> <p>Policies relevant to Geology and Ground Conditions are:</p> <ul style="list-style-type: none"> ■ Policy GI6 Protection of Biodiversity; and ■ Policy R6 Minerals. <p>The Liverpool Local Plan recognises the need to maximise accessibility by non-car modes of transport. The policies relevant to Terrestrial Traffic and Transport are:</p> <ul style="list-style-type: none"> ■ Policy TP1 Improving Accessibility and Managing Demand for Travel which states the need to manage development proposals resulting in significant impact through Travel Plans, and by improving accessibility by sustainable modes of transport. ■ The Liverpool Local Plan states that development proposals should not compromise existing transport schemes and infrastructure such as; the network surrounding the local ports including waterways, rail freight access, active travel networks, Waterloo Tunnel and Wapping Tunnel between Edge Hill and their junction with the Northern Line. ■ Policy TP1 4 <i>“all developments should address the accessibility of pedestrians and cyclists, as well as public transport users and other users of the transport and movement networks within the City and make a positive contribution to the connection between different transport modes, the reduction and mitigation of climate change and road safety issues.”</i> ■ The LLP also notes in regard to Policy GI 6, for development proposals that are likely to <i>“increase traffic flows on roads within 200m of the Sefton Coast Special Area of Conservation (SAC) by over 1,000 vehicle movements per day or 200 heavy duty vehicle movements per day (in terms of annual average daily traffic</i>

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		<p><i>flows</i>)", that this would result in a significant increase to critical nitrogen load, and would require a suitable ecological appraisal to accompany the planning application.</p> <ul style="list-style-type: none"> Key to the LLP is the reference to the Liverpool City Region Combined Authority Transport Plan 4 (LTP4). <p>The policies relevant to Seascape, Landscape and Visual are:</p> <ul style="list-style-type: none"> Policy CC10 Waterfront Design Requirements states that waterfront development should be high-quality, respect historic surroundings, ensure access and parking, protect heritage and habitats, and enhance connectivity and public spaces. Policy GI 5 Water Spaces. Liverpool City Council supports proposals that increase coastal access and recreational use of water spaces while protecting their settings, ensuring new developments complement their location, enhance public access, and conserve historical and ecological features. <p>The policies relevant to Infrastructure and Other Marine Users are:</p> <ul style="list-style-type: none"> R7 Renewable and Low Carbon Energy: The policy focuses on future development proposals and major development proposals in the City to integrate low carbon energy and decentralised energy networks into the scheme, which would contribute to increasing the use and supply of renewable and low carbon energy. R10 Non-Fossil Fuel Energy Sources: This policy focuses on non-fossil fuel technologies to generate locally sourced energy that will be supported as part of the transition to a low carbon economy. <p>The policy relevant to Green House Gases is:</p> <ul style="list-style-type: none"> Policy R10: Non-Fossil Fuel Energy Sources, identifies that the Mersey Estuary has one of the largest tidal ranges in the country, making it a prime site for a tidal power scheme. The Local Plan supports the adoption of non-fossil fuel technologies to generate locally sourced energy, including tidal energy. <p>The policy relevant to Climate Resilience is:</p> <ul style="list-style-type: none"> Policy STP2 Sustainable Growth Principles states that proposals should be: <i>"well adapted to the effects of climate change by for example incorporating appropriate climate change adaption measures and meeting the highest feasible environmental standards during construction and occupation."</i> <p>With regards to Materials and Waste the Local Plan does not contain detailed policies for Waste as these are set out in the Joint Merseyside and Halton Waste Local Plan.</p>
<p>Liverpool City Region Growth Plan and Strategic Economic Plan (Liverpool City Region Local Enterprise Partnership, No Date).</p>	<p>Chapter 14 Socio Economic.</p>	<p>The Liverpool City Region Growth Plan and Strategic Economic Plan (SEP) provides the strategic framework for interventions to drive new job creation and growth in the City Region. The Growth Plan and SEP articulate the ambitions of the City Region in terms of stimulating job creation as well as providing the rationale for intervention with a particular emphasis placed on enabling private sector investment and growth.</p>
<p>Liverpool City Region's (LCR) Zero Waste Strategic Framework 2040 (Liverpool City Region, 2023)</p>	<p>Chapter 30 Materials and Waste.</p>	<p>The purpose of this strategy is to collectively work to meet the zero waste 2040 target and provide a single voice on all zero waste affairs. This strategy will cover all material resources and waste issues for the LCR, including supporting LCR businesses to increase the efficient circular use of material resources.</p>

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<p>Local Transport Plan 4 (LTP4) (Liverpool City Region Combined Authority (Liverpool City Region Combined Authority, 2022).</p>	<p>Chapter 24 Terrestrial Traffic and Transport.</p>	<p>The LTTP4 is being developed for the period to 2040 and beyond and which is to be published by the end of 2040. Key goals of the document are to:</p> <ul style="list-style-type: none"> ■ <i>“Ensure that transport supports recovery, sustainable growth and development, and that our transport plan, Plan for Prosperity, Climate Action Plan and Spatial Development Strategy are fully aligned;</i> ■ <i>Achieve net-zero carbon emissions by 2040 or sooner whilst safeguarding and enhancing our environment;</i> ■ <i>Improving the health and quality of life of our people and communities through the right transport solutions, including safer, more attractive streets and places used by zero emission transport;</i> ■ <i>Ensuring that our transport network and assets are resilient, responsive to the effects of climate change, and are well maintained; and</i> ■ <i>Ensuring that we respond to uncertainty and change but also innovation and new technologies.”</i>
<p>Liverpool City Region Combined Authority Corporate Plan 2024 - 2028.</p>	<p>Net zero, carbon, climate and nature protection.</p>	<p>The Liverpool City Region Combined Authority Corporate Plan 2024 - 2028 sets out plans for economic growth and provides the framework for the Combined Authority’s activity to do so.</p> <p>Within it are commitments related to the Project including specific reference to <i>“continue to drive the Mersey Tidal Power Project”</i>. Such commitments also include matters relevant to the Project such as net zero, climate and nature protection, including commitment to <i>“strengthen our efforts to reach net zero, taking advantage of the opportunities afforded through our position as Britain’s Renewable Energy Coast”</i> and to <i>“accelerate delivery of our climate actions and activities, lobbying the Government and others to secure the resources to enable us to deliver our aim to achieve net zero by 2035”</i>.</p> <p>Furthermore, the Plan seeks to do this mindful of the surrounding environment with <i>“adopting a locally led approach to nature recovery, working with partners to produce an evidence-based Local Nature Strategy by March 2025”</i> (which the Project will need to be cognisant of and support).</p>
<p>Local Plan for Sefton (Sefton Council, 2017).</p>	<ul style="list-style-type: none"> ■ Chapter 15 Major Accidents and Disasters ■ Chapter 18 Terrestrial Archaeology and Cultural Heritage ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 20 Land Use, Recreation and Tourism ■ Chapter 21 Air Quality ■ Chapter 22 Onshore Noise and Vibration 	<p>This document sets out Sefton Borough Council’s long term vision and policy for development in the city.</p> <p>The following policies are relevant to Major Accidents and Disasters:</p> <ul style="list-style-type: none"> ■ Policy EQ4 Pollution and Hazards requires that development proposals take into account whether there is an environmental risk and, if there is, how this can be managed, mitigated or reduced, in accordance with policy EQ4, other Local Plan policies and statutory and regulatory requirements. It also states that <i>“The risk posed by the storage and use of hazardous substances is reduced by maintaining appropriate distances (defined by the Health and Safety Executive) between establishments where hazardous substances are present and sensitive areas.”</i> <p>The following policies are relevant to Terrestrial Archaeology and Cultural Heritage:</p> <ul style="list-style-type: none"> ■ NH9 Heritage assets; ■ NH10 Demolition or substantial harm to designated Heritage Assets; ■ NH11 Works affecting Listed buildings;

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	<ul style="list-style-type: none"> ■ Chapter 23 Geology and Ground Conditions ■ Chapter 24 Terrestrial Traffic and Transport ■ Chapter 25 Seascape, Landscape and Visual ■ Chapter 28 Green House Gases ■ Chapter 29 Climate Resilience ■ Chapter 30 Materials and Waste 	<ul style="list-style-type: none"> ■ NH12 Conservation Areas; ■ NH13 Registered Parks and Gardens; ■ NH14 Scheduled Monuments and non-designated archaeology; ■ NH15 Non-designated Heritage Assets <p>These policies aim to conserve and enhance heritage assets through the identification and assessment of the significance of historic environment assets and assessment of the impacts to this resource as a result of proposed development.</p> <p>The following policy is relevant to Water Resources and Flood Risk:</p> <ul style="list-style-type: none"> ■ Policy EQ8 Flood Risk and Surface Water. <p>The following policies are relevant to Land Use, Recreation and Tourism:</p> <ul style="list-style-type: none"> ■ Policy HC2 Housing Type, Mix and Choice; ■ Policy ED1 The Port and Maritime Zone; ■ Policy ED5 Tourism; ■ Policy ED8 Southport Seafront; ■ Policy IN2 Transport; ■ Policy EQ9 Provision of public open space, strategic paths and trees; ■ Policy NH4 The Sefton coast; and ■ Policy NH5 Protection of open space and Countryside Recreation Areas <p>The following policies are relevant to Air Quality:</p> <ul style="list-style-type: none"> ■ Policy EQ4 Pollution and Hazards states: <i>“Development proposals should demonstrate that environmental risks have been evaluated and appropriate measures have been taken to minimise the risks of adverse impacts which include amenity, damage to health and wellbeing, property and the natural environment (including internationally important nature sites) from:</i> <ul style="list-style-type: none"> a. <i>Pollution of the land, water (including surface water and groundwater) and the air...”</i> ■ Policy EQ5 Air Quality states: <i>“1. Development proposals must demonstrate that they will not:</i> <ul style="list-style-type: none"> a. <i>Hinder the achievement of Air Quality Management Area objectives and the measures set out in an Air Quality Management Area Action Plan, or...</i> c. <i>Lead to the declaration of an Air Quality Management Area, or</i> d. <i>Lead to a material decline in air quality”</i> <p>The following policies are relevant to Onshore Noise and Vibration:</p>

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		<ul style="list-style-type: none"> ■ Policy ED1 The Port and Maritime Zone states (inter alia): <i>“Development and re-structuring will be permitted in the Port and Maritime Zone... provided that the following criteria are met:</i> <ul style="list-style-type: none"> <i>e. Appropriate mitigation is included that ensures that impacts resulting from noise, dust, smells or other forms of pollution on the amenity of other occupiers within the area and on adjacent communities are mitigated and minimised.”</i> ■ Policy EQ4 Pollution and Hazards states (inter alia): <i>“1. Development proposals should demonstrate that environmental risks have been evaluated and appropriate measures have been taken to minimise the risks of adverse impacts which include amenity, damage to health and wellbeing, property and the natural environment (including internationally important nature sites) from:</i> <ul style="list-style-type: none"> <i>c. Noise/vibration</i> <i>2. Development will be permitted where it can be demonstrated that:</i> <ul style="list-style-type: none"> <i>c. The impact of noise/vibration and lighting will not be significant or can be reduced to an acceptable level.”</i> <p>The following policies are relevant to Geology and Ground Conditions:</p> <ul style="list-style-type: none"> ■ EQ6 Contaminated Land; ■ NH8 Minerals; and ■ NH1 Natural Assets. <p>The following policies are relevant to Terrestrial Traffic and Transport:</p> <ul style="list-style-type: none"> ■ Policy ED1 The Port and Maritime Zone, where development will be permitted where <i>“shown on the policies map, must be a port related activity... The development is designed to encourage walking and cycling... Appropriate mitigation is included that ensures that impacts resulting from noise, dust, smells or other forms of pollution on the amenity of other occupiers within the area and on adjacent communities are mitigated and minimised... For development which is outside the Seaforth Nature Reserve, but within the remainder of the Port and Maritime Zone including any expansion of the operational port area to the A565, it can be demonstrated that there are no likely significant effects on the Mersey Narrows and North Wirral Foreshore and Liverpool Bay Special Protection Areas and other internationally important nature sites.”</i> ■ Policy ED11 Crosby Centre, states that <i>“The improvement of traffic flows and accessibility within and beyond the centre will be supported. Improvements to facilitate pedestrian, cycling, and vehicular access within and beyond the Centre will be required as part of development proposals.”</i> ■ Policy IN2 Transport, states that the Local Plan <i>“will seek an efficient and extensive transport network which enables services and facilities to be accessible to all, whilst also reducing congestion and minimising the environmental impact of transport. It will achieve this by:</i> <ul style="list-style-type: none"> <i>(1g.) Traffic management improvements to the A565 and A5036;</i> <i>(2b.) Protecting the freight distribution network;</i> <i>(2c.) Maintaining, improving and extending the walking and cycling network”.</i>

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		<p><i>Further, the Sefton Local Plan states that “Access onto the Primary Route Network will be restricted as follows:</i></p> <p><i>(4a) direct access onto the motorway and trunk road network will not normally be permitted;</i></p> <p><i>(4b) access onto the remainder of the primary route network, whether indirectly (by way of an existing access) or directly (by a newly built access) will be permitted where it does not reduce the capacity of the road; and</i></p> <p><i>(5) Direct access onto the primary route network will not be permitted where a reasonable alternative exists.”</i></p> <p>The following policies are relevant to Seascape, Landscape and Visual:</p> <ul style="list-style-type: none"> Policy EQ2 Design explains that development is permitted if it enhances local character, ensures safe and integrated site layout and access, and features high-quality, adaptable building design, with additional criteria for major sites. <p>The following summarises the relevance to Greenhouse Gases:</p> <ul style="list-style-type: none"> Adopted in 2017, the Local Plan encourages sustainable development and economic growth. It outlines the vision which includes increasing the use of low-carbon, decentralised and renewable energy. <p>The following policies are relevant to Climate Change Resilience:</p> <ul style="list-style-type: none"> Policy SD2 Principles of Sustainable Development includes “<i>to respond to the challenge of climate change</i>”. <p>The following policies are relevant to Materials and Waste:</p> <ul style="list-style-type: none"> Policy IN3 Waste, the Council will promote sustainable waste management in accordance with the waste hierarchy. Although the Local Plan contains policy IN3, more detailed guidance about the allocation of sites for waste disposal and detailed development management policies are contained in the Joint Merseyside and Halton Waste Local Plan. Policy NH8 Minerals, the Council will minimise the need for minerals extraction; the use of recycled, secondary and substitute materials will be encouraged.
<p>Port of Liverpool Port Marine Safety Code (PMSC) Marine Safety Plan 2024 – 2026 (Peel Ports Group Limited, 2023).</p>	<p>Chapter 16 Shipping and Navigation.</p>	<p>The Project is located within the Port of Liverpool Statutory Harbour Authority (SHA).</p>
<p>Sefton Council Contaminated Land Inspection Strategy (Third Review), Revised August 2010 (Sefton Council, 2010).</p>	<p>Chapter 23 Geology and Ground Conditions.</p>	<p>The document sets out how Sefton Council will implement its contaminated land inspection duties under Part 2A</p>
<p>Sefton Council Local Flood and Coastal Erosion Risk Management Strategy 2022-2030 (Sefton Council, 2022).</p>	<p>Chapter 19 Water Resources and Flood Risk.</p>	<p>The strategy provides an overview of flood and coastal erosion risk management in Sefton and integrates the concept of sustainable development through careful consideration of the three fundamental pillars: people, place and productivity. It provides information on who the risk management authorities are in Sefton, their relevant functions and how our approach to flood risk management is coordinated. It offers information on how wider environmental objectives will be achieved in Sefton and provides timescales of when our approach will be reviewed. The strategy is supported by a ‘Business Plan’ which outlines Sefton’s future measures for managing</p>

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		flood and coastal erosion risk and provides detail on the process, timescales, benefits and costs associated with any proposed measures.
St Helens Borough Local Plan up to 2037 (St Helens Borough Council, 2022).	<ul style="list-style-type: none"> ■ Chapter 20 Land Use, Recreation and Tourism ■ Chapter 28 Greenhouse Gases ■ Chapter 30 Materials and Waste 	<p>St Helens Borough Local Plan to 2037 identifies how and where new development should take place in order to implement successful future development.</p> <p>Policies relevant to Land Use, Recreation and Tourism include:</p> <ul style="list-style-type: none"> ■ Policy LPA02 Development Principles ■ Policy LPA06 Transport and Travel ■ Policy LPA07 Infrastructure Delivery and Funding; ■ Policy LPA08 Green Infrastructure; ■ Policy LPA10 Parkside West ■ Policy LPA11 Bold Forest Garden Suburb ■ Policy LPC05 Open Space; ■ Policy LPC13 Renewable and Low Carbon Energy Development; and ■ Policy LPD06 Prominent Gateway Corridors. <p>Relevance to Green House Gases:</p> <p>This Local Plan aims to promote sustainable development through strategic and non-strategic policies, including ensuring quality development that considers design opportunities for reducing GHG emissions and criteria for assessing proposals for Renewable and Low Carbon Energy Development.</p> <p>Policies relevant to Material and Waste include:</p> <ul style="list-style-type: none"> ■ Policy LPC14 Minerals, the Council will minimise the need for primary mineral extraction; provision of substitute, secondary or recycled sources will be encouraged in preference to land-won resources. ■ Policy LPC15 Waste, the Council will promote the sustainable management of waste in accordance with the waste hierarchy. Policy LPC15 should be read in conjunction with the Joint Merseyside and Halton Waste Local Plan.
St Helens Inclusive Growth Strategy 2023-2028 (St Helens, 2023).	Chapter 14 Socio Economics.	In relation to regeneration, development, and inward investment, the Inclusive Growth Strategy aims to give young people and adults a clear route to good quality jobs in the borough and in the wider economy, including ensuring access to a range of qualifications focused on construction, engineering, low carbon, and health and social care opportunities, including through retraining for adults.
Towards a Spatial Development Strategy for the Liverpool City Region to 2024 (Liverpool City Region Combined Authority, 2023).	<ul style="list-style-type: none"> ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 20 Land Use, Recreation and Tourism 	The Liverpool City Region Combined Authority is currently preparing a Spatial Development Strategy (SDS). The draft Spatial Development Strategy has undergone public engagement in 2024, with the intention to be adopted in 2025. This will set out a strategic planning framework for the future development and use of land in the city region

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 23 Geology and Ground Conditions ■ Chapter 29 Climate Change Resilience 	<p>looking ahead at least 15 years. This includes planning for homes, the economy and jobs, infrastructure and natural environment.</p> <p>Relevant policies for Water Resource and Flood Risk include:</p> <ul style="list-style-type: none"> ■ Policy LCR SP8 – River Mersey and the Coast; and ■ Policy LCR DP13 – Water Management and Flood Risk. <p>Relevant policies for Land Use, Recreation and Tourism include:</p> <ul style="list-style-type: none"> ■ LCR SP8 – River Mersey and the Coast; ■ LCR SP9 – Culture, Tourism and Visitor Attractions; and ■ LCR DP12 – Resources. <p>Relevant policies for Geology and Ground Conditions include:</p> <ul style="list-style-type: none"> ■ Policy LCR SP3 – Brownfield Deliverability and Regeneration; ■ Policy LCR DP5 – Impacts on Health; and ■ Policy LCR DP7 – The Natural Environment and Nature Recovery. <p>Relevant policy for Climate Change Resilience includes:</p> <ul style="list-style-type: none"> ■ Policy LCR DP1 – Planning for Climate Change states that development should include measures such as: <i>“the incorporation, from an early stage, into the design and layout of new development and infrastructure of climate change adaptation measures”</i> and <i>“of green and blue infrastructure within development providing climate change mitigation benefits”</i>.
Wirral Economic Strategy 2021 - 2026 (Wirral Council, 2021).	Chapter 14 Socio Economic.	The Economic Strategy aims to create vibrant places, where <i>“communities and businesses thrive and people choose to live, work and visit”</i> . Wirral Council are also committed to ensuring that wealth is more broadly distributed and that the needs of the most deprived areas are addressed through this strategy.
Wirral Council Local Flood Risk Management Strategy (2016-2019), (Wirral Council, 2016).	Chapter 19 Water Resource and Flood Risk.	The Wirral Council Local Flood Risk Management Strategy sets out how the metropolitan borough will manage flood risk from 2016-2019, from surface water runoff, groundwater, the sea and ordinary watercourses for which the Council has a responsibility as LLFA. The aim of the strategy is to ensure the overall context of the National Strategy is met through Wirral’s management of flood risk.
Wirral Local Plan 2000 (Unitary Development Plan), (Wirral Council, 2000).	<ul style="list-style-type: none"> ■ Chapter 18 Terrestrial Archaeology and Cultural Heritage ■ Chapter 19 Water Resources and Flood Risk ■ Chapter 23 Geology and Ground Conditions 	<p>This plan sets out Wirral Metropolitan Borough Council’s long term vision and policy for development in the city. The current Local Plan is the Unitary Development Plan, adopted in February 2000. Wirral Council is currently preparing a new Local Plan between 2021 and 2037.</p> <p>Policies of relevance to the Terrestrial Archaeology and Cultural Heritage assessment include:</p> <ul style="list-style-type: none"> ■ CH1 - Development Affecting Listed Buildings and Structures; ■ CH2 - Development Affecting Conservation Areas; ■ CH3 - Demolition Control Within Conservation Areas;

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 25 Seascape, Landscape and Visual ■ Chapter 26 Infrastructure and Other Marine Users 	<ul style="list-style-type: none"> ■ CH4 - Bidston Village Conservation Area; ■ CH5 - Hamilton Square Conservation Area; ■ CH6 - Birkenhead Park Conservation Area; ■ CH7 - Oxtun Village Conservation Area; ■ CH8 - Rock Park Conservation Area; ■ CH9 - Port Sunlight Conservation Area; ■ CH10 - Eastham Village Conservation Area; ■ CH11 - Caldy Conservation Area; ■ CH12 - Frankby Village Conservation Area; ■ CH13 - Gayton Conservation Area; ■ CH14 - Heswall Lower Village Conservation Area; ■ CH15 - Thornton Hough Conservation Area; ■ CH16 - West Kirby Old Village Conservation Area; ■ CH17 - Saughall Massie Conservation Area; ■ CH18 - Wellington Road (New Brighton) Conservation Area; ■ CH19 - Thurstaston Conservation Area; ■ CH20 - Bromborough Village Conservation Area; ■ CH21 - Barnston Village Conservation Area; ■ CH22 - Bromborough Poll Conservation Area; ■ CH23 - Flaybrick Cemetery Conservation Area; ■ CH24 - Development Affecting Scheduled Ancient Monuments; ■ CH25 - Development Affecting Non-Scheduled Remains; and ■ CH26 - The Preservation Of Historic Parks and Gardens. <p>These policies aim to conserve and enhance heritage assets through the identification and assessment of the significance of historic environment assets and assessment of the impacts to this resource as a result of proposed development.</p> <p>Policies of relevance to the Water Resource and Flood Risk assessment include:</p> <ul style="list-style-type: none"> ■ Policy WA1 Development and flood risk; ■ Policy WA2 Development and land drainage; ■ Policy WA3 Development and groundwater protection;

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<ul style="list-style-type: none"> ■ Policy WA4 Safeguarding water resources; ■ Policy WA5 Protecting surface water; and ■ Policy WA6 Development within the river corridors. <p>Policies of relevance to the Geology and Ground Conditions assessment include:</p> <ul style="list-style-type: none"> ■ Section 12 Agriculture, the Local Planning Authority (LPA) will seek to prevent loss of Wirral’s BMV agricultural land. ■ Section 18 Minerals. <ul style="list-style-type: none"> ● Policy MIN1. The LPA in conjunction with the other Merseyside Metropolitan Districts will endeavour to maintain a landbank of reserves of sand, gravel and crushed rock. It is noted within the UDP that supply of minerals within the Wirral is limited. ■ Section 21 Pollution and Hazards. <ul style="list-style-type: none"> ● Policy PO5 Criteria for the Development of Contaminated Land. ● Policy PO6 Migration of Landfill Gas. ● Policy PO7 Development on Unstable Land. <p>Policies of relevance to the Seascape, Landscape and Visual assessment include:</p> <ul style="list-style-type: none"> ■ Policy LAN1 Principles for Landscape. Proposals will not be permitted where their visual impact would be inappropriate, in terms of the character, appearance and landscape setting of the surrounding area. ■ Policy COA1 Principles for the Coastal Zone. Developments must preserve and enhance the character of Wirral Coastal Zone, in particular its national and international importance for nature conservation and the quality of the coastal landscape. <p>Policies relevant to Infrastructure and Other Marine Users are:</p> <ul style="list-style-type: none"> ■ Policy REN1 Principles for Renewable Energy: The policy prioritizes sustainable development and reducing fossil fuel use, actively encouraging novel technologies like biogas, biomass, hydro-electricity, landfill gas, solar energy, waste combustion, wave and tidal power, and wind power through Non-Fossil Fuel Obligations (NFFO).
<p>Wirral Local Plan 2021-2037 – Submission Draft, 2022 (Wirral Council, 2022).</p>	<ul style="list-style-type: none"> ■ Chapter 13 Terrestrial Ecology and Biodiversity ■ Chapter 15 Major Accidents and Disasters ■ Chapter 21 Air Quality ■ Chapter 22 Onshore Noise and Vibration 	<p>This Local Plan was submitted to the Secretary of State for examination on the 26 October 2022 and sets out the strategies, policies and proposals for meeting the Wirral borough’s developmental needs over the next 15 years. Subject to the examination, the plan will supersede the existing Unitary Development Plan adopted in 2000 (Wirral Council, 2000).</p> <p>Policies relevant to Terrestrial Ecology and Biodiversity include:</p> <ul style="list-style-type: none"> ■ Policy WD 3 Biodiversity and Geodiversity. This supports the protection and enhancement of biodiverse and geodiverse assets, and ecological networks, and the provision of Biodiversity Net Gain. Ecological networks support the movement of species, their geographical range, and prevent isolation of habitat. Under Policy WD 3: <i>“Development which may adversely affect the integrity of internationally important sites will only be permitted</i>

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
	<ul style="list-style-type: none"> ■ Chapter 23 Geology and Ground Conditions ■ Chapter 24 Terrestrial Traffic and Transport ■ Chapter 25 Seascape, Landscape and Visual ■ Chapter 26 Infrastructure and Other Marine Users ■ Chapter 28 Greenhouse Gases ■ Chapter 29 Climate Change Resilience ■ Chapter 30 Materials and Waste 	<p><i>where there are no alternative solutions, there are imperative reasons of overriding public interest, suitable mitigation is in place and compensatory provision is secured. Following the application of the biodiversity harm avoidance, mitigation and compensation hierarchy, development which may cause significant harm to other designated sites of nature or geological conservation importance, Priority Habitats, legally protected species and Priority Species of conservation concern will only be permitted on:</i></p> <ol style="list-style-type: none"> 1. <i>Sites of National Importance (including Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs).....:</i> 2. <i>Sites of Local Importance - Local Nature Reserves, Local Wildlife Sites and Regionally Important Geological/Geomorphological Sites: ...;</i> 3. <i>Sites including Irreplaceable Habitats (as defined in the NPPF and including ancient woodlands and aged or veteran trees) or Priority Habitats.”</i> <p>Policies relevant to Major Accidents and Disasters include:</p> <ul style="list-style-type: none"> ■ Policy WD 13 Telecommunications Development. Paragraph 6.80 states that “<i>Industrial installations and processes in the Borough are controlled through other regulatory mechanisms to ensure that pollution and the risk of accidents are managed. Policy WD 14, in line with national policy, is intended to complement statutory processes to minimise the effects of development on public health and the local and natural environment.</i>” ■ Policy WD 13 Telecommunications Development Paragraph 6.90 states that “<i>In order to prevent the consequences of major accidents, Policy WD 16 seeks to control sites where hazardous substances are present and the siting of new notifiable hazards away from population and environmentally sensitive areas.</i>” ■ Policy WD 17 includes the requirement to consider safeguarded areas around aerodromes. <p>Strategic objectives and policies relevant to Air Quality include:</p> <ul style="list-style-type: none"> ■ Strategic Objective 10 states: “<i>Reduce social, economic and environmental deprivation, especially in the eastern part of the peninsula, through development that achieves... environmental conditions including maintaining good air quality for good health.</i>” ■ Policy WD 14 Pollution and Risk states: “<i>Development proposals that will result in an unacceptable increase in the risk to human health and the environment, impose significant restrictions on the continued operation of existing licenced or controlled processes, or that would lead to an existing use being classified as a statutory nuisance or to the designation of an Air Quality Management Area will not be permitted</i>”. <p>Policies relevant to Onshore Noise and Vibration include:</p> <ul style="list-style-type: none"> ■ Policy WS7.2 Privacy and Amenity states (inter alia): “<i>Development proposals must take account of the privacy and amenity of the development’s users and neighbours. Proposals will be required to:</i> <ol style="list-style-type: none"> 5. <i>adequately address issues of vibration, noise...likely to arise from any use or activities as a result of the development or from neighbouring uses or activities</i>” <ul style="list-style-type: none"> ■ Policy WD3 Biodiversity and Geodiversity refers to construction impacts and recommends that construction work within 300 m of the Mersey Narrows and North Wirral Foreshore SPA and Ramsar and the Mersey

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		<p>Estuary SPA and Ramsar are undertaken during periods when bird populations are low (i.e. April to August). Where this isn't possible, a noise assessment considering criteria agreed with Natural England will be required.</p> <p>Policies relevant to Geology and Ground Conditions include:</p> <ul style="list-style-type: none"> ■ Policy WD 3 Biodiversity and Geodiversity; ■ Policy WD 15 Contamination and Instability; ■ Policy WM 3 Safeguarding Mineral Reserves and Infrastructure; and ■ Policy WS 5.6 Protecting Geodiversity. <p>Policies relevant to Terrestrial Traffic and Transport include:</p> <ul style="list-style-type: none"> ■ Policy WS 4.3 The Port and Maritime Zone, which states that <i>“Port and marine-related proposals requiring approval from the Local Planning Authority will be permitted within the port and maritime zone shown on the Policies Map, where they:</i> <ol style="list-style-type: none"> <i>(1). make effective use of existing port infrastructure and/or associated rail facilities;</i> <i>(2). are accessible to the Key Route Network;</i> <i>(3). minimise the visual impact on the surrounding area and the amenity of neighbouring users including cross river, including through the use of routing protocols for traffic to and from the development; and</i> <i>(4). contribute towards the reduction of greenhouse gas emissions, through the more efficient use of rail and water transport.”</i> ■ Paragraph 3.106 also states that <i>“Routing protocols for traffic and any required mitigation will be outlined within Transport Assessments which, where appropriate, will be submitted for approval to Wirral Council and neighbouring authorities where development may impact on neighbouring authority transport networks (refer Appendix 8)”</i>. ■ The Transport strategy for Wirral states that current transport issues identified by the Wirral Strategic Transport Model include: <i>“Congestion and high traffic flows on the A41 – particularly north of Bromborough where population densities rise; Car dominated infrastructure in the wider Birkenhead area resulting in severance issues for communities; Limited active travel and public transport accessibility to Wirral Waters... Conflict between industrial and active travel users on the east of the Borough – e.g. traffic to the Ro -Ro terminal competing with leisure users on the Wirral Circular Trail.”</i> ■ The Wirral Local Plan states that the transport strategy aims to <i>“incorporate high quality design standards and optimise the condition of our highway network for all road users to maximise highway safety for all modes of transport such as segregated cycle lanes, footways, crossing points, sight lines and visibility splays, and other traffic management features.”</i> Key policy includes; Policy WS 9.2 Accessibility and Sustainable Transport, which states <i>“Development proposals should where practicable incorporate measures to:</i> <ol style="list-style-type: none"> <i>(1) improve accessibility, connectivity and ease of movement in order to facilitate and promote the prevalence and availability of sustainable travel options;</i>

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		<p>(2). <i>be easily accessible to existing or future planned sustainable travel options and infrastructure projects which provide a coherent, direct, safe, comfortable and attractive modal alternative to future occupants and reduce private car usage; and</i></p> <p>(3). <i>be designed and laid out to give priority to walking, cycling and public transport and be appropriate for the type and volume of traffic likely to use and service the development.”</i></p> <ul style="list-style-type: none"> ■ Policy WS 9.4 Impact on Networks states that “<i>Development proposals must demonstrate that the resulting cumulative impacts on the efficient operation of the highway and wider transport network, within and outside the Borough, will not be severe” and “Proposals for major development will be required to provide a Transport Statement, Traffic Assessment and/ or Travel Plans where appropriate.” And “Development proposals will not create hazardous highway conditions.” And “Where appropriate, development proposals will be required to demonstrate how they will not result in a material increase or significant change in the character of traffic using a rail crossing, unless it can be demonstrated that safety will not be compromised in consultation with Network Rail.”</i> ■ Policy WS 9.5 Overnight Lorry Parking states that “<i>Overnight Lorry Parking facilities should be located in urban commercial locations where they would not prejudice residential amenity, planned regeneration or highway safety.”</i> <p>Policies relevant to Seascape, Landscape and Visual include:</p> <ul style="list-style-type: none"> ■ Policy WS 7.1 Design Principles. Development proposals are required to be visually attractive and positively enhance the character, appearance and setting of the surrounding area. ■ Policy WD 4.1 Coastal Defence and Erosion. Coastal protection and development must not harm coastal processes, biodiversity, heritage, or water quality, and must ensure public access preservation. Developments in erosion-prone areas must demonstrate safety in line with national policy. ■ Policy WS 5.8 Landscape Character. Development will not be permitted where the visual impact on the local and wider landscape would be inappropriate in terms of character, appearance, and landscape setting of the surrounding area. <p>Policies relevant to Infrastructure and Other Marine Users include:</p> <ul style="list-style-type: none"> ■ Policy WS8 Strategy for Sustainable Construction, Renewable and Low Carbon Energy; ■ Policy WS 8.4 On site Renewable and Low Carbon Energy; ■ Policy WS 8.5 Carbon Compensation through Renewable and Low Carbon Energy; ■ Policy WS 8.7 Stand-alone Renewable and Low Carbon Energy Schemes; ■ Policy WS 8.8 Climate Change and Energy Statement; ■ Policy WS 8.6 Heat and Power Networks; ■ Policy WS 10 Infrastructure Delivery; ■ Policy WS 10.2 District Heat Networks;

Overarching Policy	Topic(s) of Relevance	Relevant Policy Content
		<ul style="list-style-type: none"> ■ Policy WM 4 Oil and Gas Development; and ■ Policy WD 13 Telecommunications Development. <p>Strategic objectives relevant to Green House Gases include:</p> <ul style="list-style-type: none"> ■ The draft Local Plan includes a strategy for Moving to Zero Carbon, identifying that the waters surrounding the Wirral are a potential source of renewable energy, which could support the provision of decarbonised energy supplies. ■ Through Strategic Objective 4, the Local Plan seeks to “<i>make responsible use of land and natural resources to mitigate and adapt to climate change</i>”. Policies in support this strategic aim include Policy WS 6.1 Placemaking Principles: “<i>Developments are required to... be flood resilient throughout its lifetime and incorporate sustainable drainage and water management systems and adaptability to address climate change.</i>” ■ Policy WS 7.5 aims for buildings to be “<i>zero carbon ready by design,</i>” setting local energy efficiency standards, adopting an energy hierarchy approach, and requiring contributions to a carbon compensation fund if standards are unmet, while encouraging developments to reduce carbon emissions and maximize renewable energy use. <p>Policies relevant to Materials and Waste include:</p> <ul style="list-style-type: none"> ■ Policy WM 2.2 Substitute, Secondary and Recycled Aggregated; the Council will encourage the use of substitute, secondary or recycled aggregates and mineral waste as alternative materials to primary land-won minerals. ■ Policy WM 6: Waste Management; New waste management development will be permitted in accordance with the spatial strategy, policy criteria and site allocations for new waste management development set out in the Joint Merseyside and Halton Waste Local Plan.
Wirral MBC Contaminated Land Inspection Strategy, adopted June 2001 (Wirral Council, 2001).	Chapter 23 Geology and Ground Conditions.	The inspection strategy details the councils approach to the inspection of contaminated land.

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APPENDIX 4.2 TRANSBOUNDARY MATRIX

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EIA Scoping Report: Volume 3 Appendix 4.2 Transboundary Screening Matrix

September 2024

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Mersey Tidal Power

EIA Scoping Report: Volume 3 Appendix 4.2 Transboundary Screening Matrix

Document History

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ACRONYMS AND ABBREVIATIONS

Term	Definition
EEA	European Economic Area Member State
UNECE	United Economic Commission for Europe
NSIP	Nationally Significant Infrastructure Project

1 TRANSBOUNDARY SCREENING MATRIX

1.1 INTRODUCTION

- 1.1.1 This appendix identifies the transboundary receptors of relevance to the Project and considers the potential significant effects from construction, operation (including maintenance) and decommissioning of the Project on these receptors.
- 1.1.2 The following text sets out the legislative requirements for considering transboundary effects and is followed by a screening of potential effects from environmental topics to determine which would be of relevance to the Project for further analysis.

1.2 LEGISLATIVE CONTEXT

- 1.2.1 Transboundary effects refer to the environmental impacts that a development in one European Economic Area (EEA) Member State (referred to as 'EEA States') might have on the environment of another EEA state(s).
- 1.2.2 The UK, as a signatory to the United Economic Commission for Europe (UNECE) Convention on Environmental Impact Assessment (2017) in a Transboundary Context (known as the 'Espoo Convention'), is committed to enhancing cooperation between EEA states in assessing these transboundary environmental effects.
- 1.2.3 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (referred to as 'EIA Regulations') incorporate the requirements of the EIA Directive. These requirements govern statutory notification and consultation regarding the transboundary impacts of development on other EEA States.
- 1.2.4 According to Regulation 14 of the EIA Regulations, an application for an order granting development consent for 'EIA development' must include an environmental statement (ES). This ES should contain the information specified by Regulation 14, including any additional information outlined in Schedule 4 (if relevant). Notably, Schedule 4 mandates that the description of likely significant effects should encompass those of a transboundary nature.
- 1.2.5 Regulation 32 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 outlines the procedural duties required when the Secretary of State (SoS) believes that a Nationally Significant Infrastructure Project (NSIP) may significantly affect the environment in another EEA State, or when another EEA State believes its environment may be significantly affected by an NSIP.

- 1.2.6 The Planning Inspectorate Advice Note Twelve: Transboundary Impacts (2015) details the consultation procedures associated with an application for a Development Consent Order, particularly when the development may have significant transboundary impacts. The rest of this Appendix follows the guidance provided for ease of review.
- 1.2.7 Screening for likely significant effects on the environment of another EEA State can occur whenever new relevant information becomes available. If a likely significant effect on the environment of any other EEA State(s) is identified, the Planning Inspectorate’s role includes identifying the EEA State(s) to be notified, notifying these states, consulting with EEA States, and informing the EEA State(s) of the outcome of the application for development consent.
- 1.2.8 Documents that have been used to inform this transboundary screening appendix are as follows:
- EIA Scoping Report, Chapters 5 to 31;
 - Habitats Regulation Assessment Screening Report (**Appendix 3.3**); and
 - Water Framework Directive Scoping Report (**Appendix 3.4**).

1.3 TRANSBOUNDARY SCREENING

- 1.3.1 The transboundary screening matrix presented in **Table 1.1** summarises where significant transboundary impacts are anticipated and, therefore scoped in or out of the ES.

Table 1.1: Transboundary Screening Matrix

Screening Criteria	Summary of Relevant Information
Location of Development (including existing use) and Geographical area	<p>The Project consists of the following main components:</p> <ul style="list-style-type: none"> ▪ A tidal range barrage located within the channel of the Mersey Estuary which contains: <ul style="list-style-type: none"> • A Power Generation System with control equipment and a sub-structure housing turbines with an expected electrical output of up to 1GW; • A Hydro Control System (including sluice gates); • A Marine Navigation System (including locks); • A Power Export System;

Screening Criteria	Summary of Relevant Information
	<ul style="list-style-type: none"> • Onshore operational facilities including control centre, maintenance, stores and office buildings, car parks; and • Associated rock armour and breakwaters. <ul style="list-style-type: none"> ■ An onward grid connection to a National Grid substation or other substations; and ■ Utilisation of the surrounding port facilities during the construction phase in addition to other potential associated developments which may support the construction phase. <p>The Scoping Boundary consists of two Development Areas – Tidal Barrage Development Area and Grid Connection Development Area. In total, the Scoping Boundary covers 16.6km²</p> <p>The Tidal Barrage Development Area denotes the area within which the permanent structure of the tidal barrage will be located within, and covers an area of 2.4km².</p> <p>The Grid Connection Development Area contains the potential points of connection for the tidal barrage and potential areas of routeing. These connection points include Breck Road, Birkenhead or Capenhurst in the Wirral, or through Liverpool to Lister Drive. This Development Area is 14.2km².</p>
Environmental Importance	<p>The Mersey Narrows and North Wirral Foreshore is of national and international importance as a designated Site of Special Scientific Interest (SSSI), a Natura 2000 Special Protection Area (SPA), Special Area of Conservation (SAC) and RAMSAR site.</p> <p>The Mersey Estuary, a designated RAMSAR, SSSI and Natura 2000 SPA site, is a large, sheltered estuary comprising large areas of saltmarsh and intertidal sand and mudflats.</p> <p>The Ribble and Alt Estuaries, a designated SPA and RAMSAR site which is a large area comprising , extensive sand and mudflats, saltmarsh and dunes.</p> <p>Additional designated sites include;</p> <ul style="list-style-type: none"> ■ Sefton Coast SAC; ■ Dibbinsdale SSSI; ■ Meols Meadows SSSI; ■ Thurstaston Common SSSI; ■ The Dungeon SSSI;

Screening Criteria	Summary of Relevant Information
	<ul style="list-style-type: none"> ■ Heswall Dales SSSI; ■ New Ferry SSSI; ■ Liverpool Bay SPA; and ■ Dee Estuary SAC.
<p>Potential impacts and Carrier, and Extent</p>	<p><u>Offshore Physical and biological environment:</u></p> <ul style="list-style-type: none"> ■ Coastal Processes: The offshore study area for coastal processes has been initially defined based on potential tidal excursion distances and will be further refined through results from hydrodynamic modelling of far-field processes, and the inshore study area excludes impacts upstream of the tidal limit of the River Mersey. These extents were defined so that all likely potential impacts were included; outside of the study area all effects are expected to be negligible. ■ Benthic Ecology and Plankton: Due to the localised nature of the potential impacts, the relatively small distances travelled by most benthic species and the fact that plankton assemblages are largely influenced by tidal and current movements, transboundary effects are considered unlikely to occur and therefore transboundary effects have been scoped out of the assessment. ■ Invasive Non-native Species: Many INNS are mobile or able to spread through propagation or pathways of movement associated with the project. As a result, they are not subject to Project boundaries (with the exception of physical habitat changes) and therefore may move beyond the scope of the Project. If INNS are introduced into the Study Area, their effects may be wide reaching due to spread over time. <p>The creation of new hard substrate may also act as an intermediate, 'stepping-stone' location for biofouling species which could facilitate their spread across the boundaries of the Study Area.</p> <p>Furthermore, the desk-based component of the INNS assessment is subject to the natural spread of INNS. This means that whilst a species may have been recorded at a location in the past, this does not mean that it is currently present at that location. This can be said for the absence of a species records which does not necessarily mean that it is</p>

Screening Criteria	Summary of Relevant Information
	<p>not present. This can be overcome by undertaking INNS surveys of the Study Area to have an up-to-date record of INNS distribution.</p> <p>Whilst the natural spread of INNS is likely, the transboundary movement of INNS on and off the Study Area can be controlled through the implementation of appropriate biosecurity measures.</p> <ul style="list-style-type: none"> ■ Fish and Shellfish: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore transboundary effects have been scoped out of the assessment. ■ Marine mammals: There is potential for transboundary impacts on marine mammals due to the mobile nature of marine mammal species and the geographical scale of management units (MUs), particularly where these extend beyond the limits of UK waters. For example, grey seals can travel large distances of up to 1,200km and have been recorded crossing the English Channel moving from France to haul-out sites in the south-west of the British Isles (Vincent et al., 2017). <p>Direct impacts may occur during the construction, operation and maintenance, and decommissioning phases of the Project, however, the extent cannot be determined at this stage and will be subject to assessment in the EIA. However, due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur.</p> <p>It is proposed that impacts to marine mammal receptors are subject to transboundary assessment in the EIA. Likely significant effects upon European Sites with marine mammals as qualifying features will be assessed within the HRA.</p> <p>Only impacts scoped in for the Project in isolation will be considered in the transboundary impact assessment.</p> <ul style="list-style-type: none"> ■ Marine and Intertidal Ornithology: There is a potential for transboundary impacts on marine and intertidal ornithology due to the mobile nature of bird species, particularly where these extend beyond the limits of UK waters.

Screening Criteria	Summary of Relevant Information
	<p>Direct impacts may occur during the construction and decommissioning phases of the Project, the extent cannot be determined at this stage and will be subject to assessment in the EIA. However, due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur.</p> <p>It is proposed that impacts to marine and intertidal receptors are subject to transboundary assessment in the EIA. Likely significant effects upon European Sites with marine and intertidal ornithology as qualifying features will be assessed within the HRA.</p> <p>Only impacts scoped in for the Project in isolation will be considered in the transboundary impact assessment.</p> <p><u>Offshore Infrastructure:</u></p> <ul style="list-style-type: none"> ■ Commercial Fisheries: International fishing fleets will be considered within the baseline and impact assessment of the EIA. There is no potential for additional transboundary impacts upon commercial fisheries. ■ Underwater Noise and Vibration: Potential transboundary effects from construction, operation and decommissioning of the tidal barrage are unlikely to generate transboundary impacts given the location within the estuary. Therefore, this topic is scoped out. ■ Shipping and navigation: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore no further transboundary effects are identified. Whilst it is recognised that ships may be internationally owned or operating between different ports in different states, these impacts have been captured and assessed within the shipping and navigation chapter. ■ Military and Civil Aviation: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore there is no potential for the Project to have significant effects on military and civil aviation elements. ■ Marine archaeology and cultural heritage: Due to the localised nature of the potential impacts, transboundary

Screening Criteria	Summary of Relevant Information
	<p>effects are considered unlikely to occur and therefore have been scoped out of the assessment.</p> <ul style="list-style-type: none"> ■ Seascape and landscape: Due to the relatively localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore are scoped out. <p><u>Onshore Infrastructure:</u></p> <ul style="list-style-type: none"> ■ Terrestrial Archaeology and cultural heritage: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore scoped out of further assessment. ■ Geology and Ground Conditions: Due to the localised nature of the potential impacts, transboundary effects on all but neighbouring site users and controlled waters receptors are considered unlikely to occur and therefore scoped out of further assessment. <p>The transboundary effects to controlled waters receptors will be considered further within the ES.</p> <ul style="list-style-type: none"> ■ Terrestrial Traffic and Transport: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and it is therefore not proposed to consider these further as part of the traffic and transport chapter. ■ Terrestrial Ecology and Biodiversity: Due to the localised nature of the potential impacts on Terrestrial Ecology and Biodiversity receptors, transboundary effects are considered unlikely to occur and therefore are not considered further. ■ Air quality: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and are therefore not discussed further. ■ Noise and Vibration: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and, therefore, are not considered further. ■ Infrastructure and Other Marine Users: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur due to all likely interactions with infrastructure and other marine users to be within UK territorial waters. Therefore it is proposed that this

Screening Criteria	Summary of Relevant Information
	<p>impact will be scoped out from further consideration within the EIA.</p> <ul style="list-style-type: none"> ■ Greenhouse Gases: As noted in Section 28.12 impacts from GHG emissions are not restricted to a specific location or physical boundary, therefore there is potential for transboundary effects. However, as the receptor for GHG emissions is the global climate the associated effects cannot be ascribed to a specific location and EIA effects are considered in terms of the contribution to global GHG levels attributable to the Project. ■ Climate Change Resilience: No effects on climate change resilience receptors are likely to be transboundary. Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore are not considered further. ■ Materials and Waste: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur and therefore are not considered further. ■ Major Accidents and Disasters: By definition, a MA&D event could result in a significant environmental effect and may result in transboundary effects. The ES will consider potential transboundary effects for those MA&D types which have been scoped in for further assessment. ■ Socio Economics: Due to the nature of the potential impacts, transboundary effects beyond the North West region are considered unlikely to occur and therefore have been scoped out of further consideration. ■ Water Resources and Flood Risk: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur. ■ Land Use, Recreation and Tourism: Due to the localised nature of the potential impacts, transboundary effects are considered unlikely to occur for land use, recreation and tourism receptors.
Magnitude	The magnitude of transboundary impacts on marine mammals and from major accidents and disasters will be determined through EIA.

Screening Criteria	Summary of Relevant Information
Probability	The likelihood of transboundary impacts on marine mammals and from major accidents and disasters will be determined through EIA.
Duration	Should they be identified, transboundary impacts during construction would occur over the duration of the construction period (up to 10 years for construction and 2 years for commissioning). Impacts during operation would be long-term over the barrage's operational life.
Frequency	The frequency of transboundary impacts on marine mammals and from major accidents and disasters will be determined through EIA. There is unlikely to be frequent impacts from major accidents and disasters, as these would expected to be isolated events if occurring.
Reversibility	The reversibility of transboundary impacts on marine mammals and from major accidents and disasters will be determined through EIA.
Cumulative impacts	The cumulative effect assessment (CEA) has not yet been undertaken and will be determined through EIA.

1.4 REFERENCES

HM Government, (2017). *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, No.572*. Available online at: <https://www.legislation.gov.uk/uksi/2017/572/contents/made> (Accessed: April 2024).

Planning Inspectorate, (2015). *Nationally Significant Infrastructure Projects - Advice Note Twelve: transboundary impacts and process*. Available online at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-twelve-transboundary-impacts-and-process> (Accessed: May 2024).



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APPENDIX 8.1 IRISH SEA CETACEAN SPECIES

ASCOBANS: Agreement on Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas.

BERN Convention: Convention on the Conservation of European Wildlife and Natural Habitats.

CITES: Convention on International Trade in Endangered Fauna and Flora.

CMS: Convention on Migratory Species (Bonn Convention).

CNH: Conservation on Natural Habitats 1994.

CSA: Conservation of Seals Act 1970

IUCN: International Union for Conservation of Nature and Natural Resources Red List.

OSPAR Convention: Convention for the Protection of the Marine Environment of the North-East Atlantic.

SPI: Species of Principal Importance in England under NERC Act 2006.

UK BAP: UK Biodiversity Action Plan Priority, superseded in 2012 by the UK Post 2010 Biodiversity Framework.

UK CHR: Conservation of Habitat and Species Regulations 2010.

WCA: Wildlife and Countryside Act 1981 (Section 5).

CHECKLIST OF IRISH SEA CETACEAN SPECIES

Species Name	Taxonomy	Habitat ¹	Further Protection Status
Northern Right Whale	<i>Eubalaena glacialis</i>	S / SC / P	WCA Bern Convention CITES UK CHR UKBAP SPI OSPAR IUCN Red List CMS CNH
Bowhead Whale	<i>Balaena mysticetus</i>	S	WCA Bern Convention CITES UK CHR
Minke Whale	<i>Balaenoptera acutorostrata</i>	C / S / OB	WCA Bern Convention CITES UKBAP IUCN Red List CNH SPI UK CHR
Sei Whale	<i>Balaenoptera borealis</i>	S / SC / P	WCA Bern Convention CITES UK CHR UKBAP SPI IUNC Red List CMS CNH
Blue Whale	<i>Balaenoptera musculus</i>	SC / P	WCA Bern Convention CITES UK CHR UKBAP OSPAR

¹ A: Abyssal waters, C: Coastal, S: Shelf waters (<200 m), OB: Offshore Banks, P: Pelagic, SC: Slopes and Canyons

Species Name	Taxonomy	Habitat ¹	Further Protection Status
			IUCN Red List CMS CNH
Fin Whale	<i>Balaenoptera physalus</i>	C / S / SC / P	WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Humpback Whale	<i>Megaptera novaeangliae</i>	C / S / SC / P	WCA Bern Convention CITES UK CHR UKBAP IUCN Red List CMS CNH
Sperm Whale	<i>Physeter macrocephalus</i>	SC / A	WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Pygmy Sperm Whale	<i>Kogia breviceps</i>	SC / A	ASCOBANS WCA Bern Convention CITES UK CHR CMS CNH
Dwarf Sperm Whale	<i>Kogia sima</i>	SC / A	WCA Bern Convention CITES UK CHR

Species Name	Taxonomy	Habitat ¹	Further Protection Status
Beluga Whale	<i>Delphinapterus leucas</i>	S	WCA Berne Convention CITES UK CHR
Harbour Porpoise	<i>Phocoena phocoena</i>	C / S / OB	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI OSPAR IUCN Red List CMS CNH
White-beaked Dolphin	<i>Lagenorhynchus albirostris</i>	S	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Atlantic White-sided Dolphin	<i>Lagenorhynchus acutus</i>	OB / P	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Risso's Dolphin	<i>Grampus griseus</i>	C / S / SC	ASCOBANS WCA Bern Convention CITES UK CHR

Species Name	Taxonomy	Habitat ¹	Further Protection Status
			UKBAP SPI IUCN Red List CMS CNH
Bottlenose Dolphin	<i>Tursiops truncatus</i>	C / S / OB / P	ASCOBANS WCA Bern Convention UK CHR UKBAP SPI IUCN Red List CMS CNH
Striped Dolphin	<i>Stenella coeruleoalba</i>	P	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP CMS CNH
Common Dolphin	<i>Delphis delphis</i>	C / S / OB / P	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
False Killer Whale	<i>Pseudorca crassidens</i>	P	ASCOBANS WCA Bern Convention CITES UK CHR CMS CNH

Species Name	Taxonomy	Habitat ¹	Further Protection Status
Killer Whale	<i>Orcinus orca</i>	C / S / SC / P	ASCOBANS WCA Bern Convention CITES UKBAP SPI IUCN Red List CMS CNH UK CHR
Long-finned Pilot Whale	<i>Globicephala melas</i>	SC / OB / P	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Sowerby's Beaked Whale	<i>Mesoplodon bidens</i>	SC / A	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Gervais' Beaked Whale	<i>Mesoplodon europaeus</i>	SC / A	ASCOBANS WCA Bern Convention CITES UK CHR IUCN Red List CMS CNH
True's Beaked Whale	<i>Mesoplodon mirus</i>	SC / A	ASCOBANS WCA

Species Name	Taxonomy	Habitat ¹	Further Protection Status
			Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Cuvier's Beaked Whale	<i>Ziphius cavirostris</i>	SC / A	ASCOBANS WCA Bern Convention CITES UK CHR UKBAP SPI IUCN Red List CMS CNH
Northern Bottlenose Whale	<i>Hyperoodon ampullatus</i>	SC / A	ASCOBANS WCA Bern Convention CITES UK CHR

CHECKLIST OF IRISH SEA PINNIPED SPECIES

Species	Taxonomy	Habitats ²	Further Protection Status
Common (Harbour) Seal	<i>Phocoena phocoena</i>	C / E	WCA UK BAP SPI IUCN Red List CMS CNH UK CHR CSA
Grey Seal	<i>Halichoerus grypus</i>	C / E / P	WCA CNH CMS IUCN Red List UK CHR CSA
Bearded Seal	<i>Erignathus barbatus</i>	A	WCA UK CHR CNH CSA
Hooded Seal	<i>Cystophora cristata</i>	A	WCA Bern Convention UK CHR CSA
Ringed Seal	<i>Pusa hispida</i>	A	WCA CSA UK CHR CNH
Walrus	<i>Odobenus rosmarus</i>	A	WCA CSA

² A: Arctic, C: Coastal, E: Estuarine, P: Pelagic

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