Iarnród Éireann
Irish Rail

Rosslare ORE Hub

EIAR Concluding Chapters

Chapter 26:

Summary of Secondary Mitigation Measures and Monitoring

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LIST OF ABBREVIATIONS

ADD	Acoustic Deterrent Device
AOP	Air Over Pressure
AQMP	Air Quality Management Plan
CEMP	Construction Environmental Management Plan
CLO	Community Liaison Officer
CTMP	Construction Traffic Management Plan
DMP	Dust Management Plan
ECoW	Ecological Clerk of Work
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EPBD	Energy Performance of Buildings Directive
EU	European Union
EU	European Union
FLO	Fisheries Liaison Officer
GGBS	Ground Granulated Blast furnace Slag
HVO	Hydrotreated Vegetable Oil
IEMA	Institute of Environmental Management and Assessment
IEMA	Institute of Environmental Management & Assessment
MMO	Marine Mammal Observer
MZ	Monitored Zone
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
NTU	Notional Turbidity Units
NVMP	Noise and Vibration Management Plan
oCEMP	Outline Construction Environmental Management Plan
ORE	Offshore Renewable Energy
ORE	Offshore Renewable Energy
QI	Qualifying Interests
RoRo	Roll on/Roll off
SAM	Static Acoustic Monitoring
SOPs	Standard Operating Procedures
SSC	Suspended Sediment Concentration
WMO	World Meteorological Organisation

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26 SUMMARY OF SECONDARY MITIGATION MEASURES AND MONITORING

26.1 INTRODUCTION

Three types of mitigation measures are considered in this EIAR:

- **Primary mitigation** is an inherent part of the project design. Primary mitigation relates to the location, design or timing of the project, and these measures are intended to avoid and reduce significant adverse effects on the environment.
- **Secondary mitigatio**n requires further activity in order to achieve the anticipated outcome and, is required. Where potentially significant adverse effects have not been avoided by project location, design or timing or require to be further reduced to within acceptable levels, secondary mitigation may be required.
- **Tertiary mitigation** measures are required regardless of any EIA assessment and may include measures that are set out as a result of legislative requirements and/or standard sectoral practices. Typically, these measures are standardised and often covered by other forms of legislation or controls, therefore they are not presented in extensive detail in the EIAR.

The primary mitigation measures which were applied to the design and development of the Rosslare ORE Hub are described in EIAR Chapter 5: Assessment of Alternatives and Project Design, and Chapter 6: Project Description. The environmental topic chapters of the EIAR also identify in detail the primary, secondary and tertiary mitigation applicable to each.

This EIAR chapter presents a summary of the secondary mitigation measures (i.e., the measures required in cases where significant adverse effects have not been avoided by project location, design or timing or require to be further reduced to within acceptable levels) which have been identified for each environmental topic chapter, during construction and operation.

The secondary mitigation measures are otherwise known as' environmental commitments', which IÉ will ensure adherence to during the construction stage (through the CEMP prepared by the appointed Contractor) and operation stage (by facility users and ORE developers and operators) through Rosslare Europort's bylaws and port operations plans and procedures.

IÉ will ensure adherence to the secondary mitigation measures contained in the EIAR and summarised herein during construction and operation of the ORE Hub through:

- the Construction Environmental Management Plan (CEMP) which the appointed Contractor will prepare based upon the outline CEMP (oCEMP).
- Rosslare Europort's bylaws and port operations policies and procedures which facility users and ORE developers and operators will be required to comply with.

In cases where residual effects (i.e., environmental effects which remain following the application of mitigation) are uncertain or where the effectiveness of proposed mitigation measures requires validation, commitments for monitoring are set out in each environmental topic chapter of the EIAR. The monitoring commitments are also summarised in this chapter.

26.2 CONSTRUCTION PHASE SECONDARY MITIGATION AND MONITORING MEASURES

Table 26.1 summarises the secondary mitigation measures and relevant monitoring programmes recommended within each environmental topic chapter of the EIAR for the construction phase of the Proposed Development.

The construction phase mitigation measures as set out below and the tertiary mitigation measures set out in the topic-specific EIAR chapters have been incorporated into the oCEMP. The oCEMP details the minimum requirements that will be adhered to during construction of the Rosslare ORE Hub. The purpose of the oCEMP is to give guidance to the appointed construction contractor(s) who will then prepare and implement the detailed CEMP, with adequate considerations given to the mitigation and monitoring set out in the EIAR.

Table 26.1: Secondary Mitigation Measures and Monitoring Summary – Construction Phase

Construction Phase Mitigation and Monitoring
EIAR Chapter 7: Geology, Soils, Hydrogeology and Contamination
Mitigation There is no requirement for secondary mitigation for Geology, Soils, Hydrogeology and Contamination receptors. **Monitoring** Specific monitoring plans to ensure topic-specific primary and tertiary mitigation measures are successfully implemented during construction will be prepared prior to construction and will be included in the contractor's Construction Environmental Management Plan.
EIAR Chapter 8: Coastal Processes
Mitigation and Monitoring Maintenance dredging of the existing Rosslare Europort will not occur at the same time as capital dredging for the Proposed Development, to avoid cumulative impacts. The contractor will monitor turbidity in real-time using turbidity monitors to identify any increased Suspended Sediment Concentration (SSC) that arises and will implement controls if the turbidity limit control value of 300mg/l is breached at the monitored locations. Monitoring will comprise one offshore buoy in a typically up-current location and another offshore buoy in a typically down-current location corresponding to locations to the east of the dredged boundary and the north-west of the dredged boundary to detect increased SSC from dredging activities and release of sediment from the reclamation area through the weir-box. The tide tends to flow east to north-west and vice-versa between flood to ebb. The buoys will be positioned approximately 300m outside the boundary of dredging and outside of regular navigation routes for RoRo vessels and construction plant. The background reading will be read from the up-current monitoring buoy, and the assessment of turbidity will be read from the down-current monitoring buoy. Up-current and down-current positions must be swapped between flood and ebb tidal cycles. This limiting control value of SSC will be correlated with Notional Turbidity Units (NTU) for samples of sediment initially recovered from the site prior to commencement. This allows instantaneous readings to be taken with real-time NTU meters on the monitoring buoys which are matched to suspended sediment values. The buoys will be set to relay real-time events (including trigger values) and warn the contractor of high values of suspended sediment. Dredging and reclamation area infilling may lead to an increase in suspended sediment levels within the water column. Close monitoring of turbidity in

Construction Phase Mitigation and Monitoring
real-time using turbidity monitors within Rosslare Europort will be undertaken to identify any increased SSC that arises. If the SSC increases above the maximum turbidity limit control value (300 mg/l), the weir box will be raised in steps, to its maximum elevation to control release of suspended sediment. Should this action not be sufficient, a thorough review of construction techniques will be undertaken by the contractor to identify areas for enhancement and prevent recurrence. Steps to prevent recurrence will include reconfiguring the settlement lagoon/weir box and stopping dredging until the SSC reading is below the turbidity limit control value.
EIAR Chapter 9: Water Quality and Flood Risk
Mitigation There is no requirement for secondary mitigation for Water Quality and Flood Risk receptors. **Monitoring** The contractor will monitor turbidity in real-time using turbidity monitors to identify any increased Suspended Sediment Concentration (SSC) that arises and will implement controls if the turbidity limit control value of 300mg/l is breached at the monitored locations. Monitoring will comprise one offshore buoy in a typically up-current location and another offshore buoy in a typically down-current location corresponding to locations to the east of the dredged boundary and the north-west of the dredged boundary to detect increased SSC from dredging activities and release of sediment from the reclamation area through the weir-box. The tide tends to flow east to north-west and vice-versa between flood to ebb. The buoys will be positioned approximately 300m outside the boundary of dredging and outside of regular navigation routes for RoRo vessels and construction plant. The background reading will be read from the up-current monitoring buoy, and the assessment of turbidity will be read from the down-current monitoring buoy. Up-current and down-current positions must be swapped between flood and ebb tidal cycles. This limiting control value of SSC will be correlated with Notional Turbidity Units (NTU) for samples of sediment initially recovered from the site prior to commencement. This allows instantaneous readings to be taken with real-time NTU meters on the monitoring buoys which are matched to suspended sediment values. The buoys will be set to relay real-time events (including trigger values) and warn the contractor of high values of suspended sediment. Dredging and reclamation area infilling may lead to an increase in suspended sediment levels within the water column. Close monitoring of turbidity in real-time using turbidity monitors within Rosslare Europort will be undertaken to identify any increased SSC that arises. If the SSC increases above the maximum turbidity limit control value (300 mg/l), the weir box will be raised in steps, to its maximum elevation to control

Construction Phase Mitigation and Monitoring
release of suspended sediment. Should this action not be sufficient, a thorough review of construction techniques will be undertaken by the contractor to identify areas for enhancement and prevent recurrence. Steps to prevent recurrence will include reconfiguring the settlement lagoon/weir box and stopping dredging until the SSC reading is below the turbidity limit control value.
EIAR Chapter 10: Terrestrial Ecology

Mitigation and Monitoring
 	
Pre-construction surveys will be undertaken by a suitably qualified Ecological Clerk of Work (ECoW) for protected species prior to vegetation clearance and/or construction.
 	
These will include the following:
 	
• Badger
  ○ A confirmatory badger survey will be carried out by a qualified ECoW, prior to vegetation clearance and/or construction commencing. The survey area will extend up to 150m beyond all works areas within suitable habitat, in line with the Guidelines for the Treatment of Badgers during the Construction of National Road Schemes (NRA, 2005). Should a sett be recorded within the scheme extents prior to construction, steps for sett closure will need to be documented in the mitigation strategy and presented in the ECoW Survey Report
• Otter
  ○ Pre-construction surveys will be undertaken by an experienced ecologist no more than 10-12 months in advance of the commencement of works to confirm whether otter holts, couches, or intensified activity have become established within or adjacent to the Proposed Development Boundary.
  ○ Exclusion zones will be established around identified holts, with a buffer distance determined based on guidance from the NRA Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (2008).
  ○ Timing restrictions will be implemented on construction activities to avoid peak otter activity periods, particularly during crepuscular and nocturnal hours.
  ○ Monitoring by the ECoW during construction will ensure compliance with mitigation measures and allow a rapid response to any unforeseen otter activity.
  ○ Toolbox talks will be delivered to all construction staff by the ECoW prior to works commencing, highlighting the presence of otters, the mitigation measures in place, how to identify otter signs, and the procedures to follow if otters are encountered during construction, as set out above.

Construction Phase Mitigation and Monitoring

• Bats
  ○ A confirmatory bat Preliminary Roost Assessment survey will be conducted by a qualified ecologist with bat expertise to ensure no roosts have become established within the Proposed Development Boundary prior to the commencement of any construction stage activities
  ○ If roosting/foraging bats are identified, the Design and Construction of bat mitigation measures will comply with the requirements of the bat specialist, the Standards, and the UK bat mitigation guidelines 'A Guide to Impact Assessment, Mitigation and Compensation for Developments Affecting Bats' (Reason and Wray, 2023).
 	
To protect reptiles potentially in the area during construction in line with the NRA Guidelines for Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (2008)[1], the ECoW will be responsible to ensure:
 	
• Temporary fencing (such as bitumen felt, tin, carpet tiles, or bitumen onduline) will be installed to prevent reptiles from entering active construction zones where they may be at risk. This will be designed so that reptiles cannot pass under, over, or through it. It should be buried securely into the ground and high enough to prevent reptiles from climbing or jumping over. Temporary fencing can be installed in areas with extensive construction activities, such as zones where scrub will be removed or at the interface between the proposed land reclamation works and the onshore area. This approach will help reduce potential harm to reptiles by keeping them out of high-risk zones during construction.
• Progressive habitat manipulation will be conducted during the lizard active season (March to October) to encourage lizards to move naturally out of the works area. Vegetation clearance will be carried out in stages, with an initial cut to approximately 150 mm, followed by a second cut to ground level. This phased approach will guide lizards towards adjacent suitable habitats. To prevent lizards from returning, reptile-proof fencing may be erected around the works area.
• If trapping and relocation are required, reptile-proof fencing will first be installed around the works area to ensure lizards cannot re-enter. Artificial refugia, such as roofing felt or mats, will be placed to attract lizards. These refugia will be checked daily, and any lizards found will be captured and relocated to a pre-identified receptor site. Habitat manipulation may also be employed to concentrate lizards into smaller areas, making the capture process more efficient.
• Following the trapping phase, a systematic destructive search of the topsoil layers will be carried out to locate any remaining lizards. This process involves carefully excavating and inspecting the soil and will only be undertaken once it is reasonably certain that most lizards have been removed to minimise risks of harm.

[1] https://www.tii.ie/media/4nthqz3a/ecological-surveying-techniques-for-protected-flora-and-fauna-during-the-planning-of-national-road-schemes.pdf

Construction Phase Mitigation and Monitoring
• If translocation is necessary, a receptor site meeting specific criteria will be identified. The site must be located close to the Proposed Development Boundary and be at least the same size as the lost habitat or larger for high-quality habitats. It must include features such as hibernation sites and water bodies, be free from development risks, and be managed to maintain its suitability for reptiles in the long term. New habitats will be prepared and improved as necessary before the commencement of capture and translocation to ensure their suitability for reptiles. Adequate time will be allowed for habitat establishment, ensuring that translocated lizards can thrive in their new environment. The following measures will be implemented for otter during piling, blasting and dredging (including perimeter bund installation and reclamation area infilling) works: • A trained and experienced Marine Mammal Observer/s(MMO/s) will be appointed to monitor for otters during piling, dredging, dumping of sediment, rock placement and blasting operations. The MMO will scan the surrounding area to ensure no otters are in the pre-determined exclusion zone in the 30-minute period prior to operations. The appropriate Monitored Zone (MZ) recommended by National Parks and Wildlife Service (NPWS) (DAHG, 2014[2]) will be implemented during dredging works, including dumping, piling and blasting activities. • For dredging and material placement within the enclosed lagoon (Small Boat Harbour) and bunded areas (ORE Berths), MMOs will conduct a 30-minute pre-watch prior to commencement to ensure no otters are present within the bunded areas prior to any material placement activities. The 30-minute pre-watch is only required if the MMO has not been continuously present leading up to the rock placement activities. For example, if the MMO is already conducting a pre-watch during dredging operations, this monitoring will continue through the dredging activities and the transit from the Dredging Area to the Reclamation Area, covering the requirements for material placement. If material placement occurs prior to or following dredging activities, the pre-watch can be coordinated to include all activities within a single continuous monitoring period. • MMOs will be positioned on appropriate elevated platforms from which the entire MZ can be effectively covered without any obstruction of view. MMOs will be positioned as near to the centre of the MZ as is practicable, i.e., adjacent to the sound source. • Noise-producing activities will only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring is not possible, the sound-producing activities will be postponed until effective visual monitoring is possible. Visual scanning for otters will only be effective during daylight hours and if the sea state is World Meteorological Organisation Sea State 4 (≈Beaufort Force 4 conditions) or less. • A clear communication protocol, agreed on-site, will be established between the MMO and the Works Superintendent to confirm whether the relevant activity may proceed or resume following a break. Activities will only commence or resume upon positive confirmation from the MMO.

[2] https://www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance_Jan%202014.pdf

Construction Phase Mitigation and Monitoring

• All otter detections will be systematically recorded, encompassing both sightings observed during formal monitoring watches and incidental observations made outside of these designated periods, including observations made by additional personnel onsite. Detailed records of all otter sightings documented will be reported to the NPWS.
• Any approach by otters into the immediate (<50m) works will be reported to NPWS without delay.
 	
Piling Specific Remedial and Mitigation Measures
 	
• A 1,000 m Monitored Zone (MZ) will be applied, with a 30-minute pre-watch required before commencement. No otters may be present in the MZ during this period.
  o Once operations are underway with appropriate ramp-up, activities will continue regardless of night-time conditions, reduced visibility, or the presence of marine mammals within the MZ.
• Bunded Area Checks: For works within the enclosed Small Boat Harbour or bunded areas at the ORE Berths, MMOs will confirm the absence of otters within the enclosed areas before works commence.
• Ramp-Up Procedures: A ramp-up or soft start will be used for where practicable, and possible to do, gradually increasing underwater noise levels over 20–40 minutes after pre-start monitoring.
  o Where the measures outlined for a ramp-up procedure cannot be implemented, alternative approaches must be considered. These alternatives should involve introducing underwater acoustic energy in a consistent, gradual, and sequential manner over a period of 20–40 minutes before reaching full output.
• Real-Time Acoustic Monitoring (SAM): During the harbour seal breeding season (May–July), real-time underwater noise monitoring will be used to constrain disturbance. The 145 dB re 1 µPa² (SPLrms) displacement threshold will be applied to ensure that noise remains below this level beyond the 1,000 m MZ. If the threshold is exceeded outside the MZ, works will cease. Appropriate adjustments will then be implemented to ensure that displacement thresholds remain below this level outside the MZ before piling can resume.
• As per NPWS guidance (DAHG, 2014), once piling operations are underway following the 30-minute pre-watch by the MMO and an appropriate ramp-up procedure, activities will continue regardless of the presence of an otter or marine mammal within the MZ.
 	
Blasting Specific Remedial and Mitigation Measure
 	
• 1,000 m MZ: A 1,000 m exclusion zone (as per DAHG, 2014) will be established around the blasting location. A 30-minute pre-blast watch will be conducted by a qualified MMO to confirm that no marine mammals or otters are present within the MZ. If any are observed, detonation will be postponed until the zone is clear.

Construction Phase Mitigation and Monitoring

• Acoustic Deterrent Device (ADD) Use:
  ○ An ADD(s) will be deployed prior to detonation to encourage marine mammals and otters to vacate the 1,000 m MZ. ADDs will be deployed as follows:
  I. Positioned as close to the detonation site as safely possible.
  II. Activated only after a 30-minute visual check confirms no marine mammals or otters within 100 m of the device(s).
  III. Remain active during any delay due to mammal presence; if delays are prolonged, the ADD may be paused to avoid habituation and restarted after 20 minutes to reinitiate deterrence.
  IV. ADD duration and configuration will be agreed with the statutory authority and tailored to ensure effective deterrence from the full PTS zone.
  ○ To avoid unnecessary auditory impacts, an ADD specifically designed for harbour porpoise (e.g. FaunaGuard Porpoise Module) will be used. These devices emit high-frequency signals (60–150 kHz) at lower sound pressure levels, aligned with the species' auditory range. This frequency band also falls well within the functional hearing range of phocid carnivores (100 Hz–130 kHz in water) as defined by Southall et al. (2007), which are used here as a recognised proxy for otters. On this basis, the ADDs are expected to elicit effective avoidance responses not only in porpoises but also in otters, ensuring that both species are deterred from the MZ prior to blasting. They also include:
  I. Ramp-up features to gradually increase signal strength.
  II. Variable signal sequences to minimise habituation. This approach reduces the risk of TTS while ensuring mammals vacate the area prior to detonation (Schaffeld et al., 2019).
• Daylight-Only Blasting: All blasting will be conducted during daylight hours to ensure effective visual monitoring. Early-day scheduling will allow flexibility for postponement in case of mammal presence or poor conditions.
• Fixed MMO Location and Continuous Monitoring: MMOs will maintain a fixed observation point throughout the 30-minute pre-watch and up to the point of detonation. If any mammal enters the MZ during this period, the blast will be cancelled or delayed until the zone is clear.
• Blast Delay Protocol: If mammals remain within the MZ, blasting will not proceed until clearance is confirmed through visual observation and/or ADD effectiveness.
 	
Dredging Specific Remedial and Mitigation Measures
 	
• 500 m MZ: A 30-minute pre-watch will be undertaken by a qualified MMO before the onset of any dredging or sediment disposal activity. No dredging will commence unless the MMO confirms that no marine mammals or otters have been observed within a 500 m MZ during this period.
• No Requirement to Halt Once Active: In line with NPWS guidance, once dredging has commenced (following the pre-watch and a soft start or ramp-up where appropriate), operations may continue regardless of visibility, weather conditions, or mammal presence within the MZ.

Construction Phase Mitigation and Monitoring
• Best Practice During Operations: MMOs will remain present during active dredging and, where feasible, may recommend brief pauses or adjustments to the works to allow nearby animals to move away from the source. • Seasonal Real-Time Monitoring: Although dredging noise is not predicted to exceed auditory injury thresholds for otters, behavioural disturbance and temporary displacement remain possible within the predicted 1.3 km disturbance range. To manage this risk, real-time Static Acoustic Monitoring (SAM) will be used during the harbour seal breeding season (May to July) • A displacement threshold of 140 dB re 1 µPa² will be applied as a precautionary benchmark, consistent with thresholds established for sensitive hearing groups. If SAM detects that this threshold is exceeded beyond 1,000 m from the dredging operations, works will be paused and adjustments made before recommencing.
EIAR Chapter 11: Benthic Ecology
Mitigation There is no requirement for secondary mitigation for benthic ecology receptors. However, with due regard to the precautionary principle, turbidity monitors will be employed to ensure SSC levels (and thereby the potential for increased bed thickness changes) do not exceed the predicted values, as explained below under “monitoring”. **Monitoring** The contractor will monitor turbidity in real-time using turbidity monitors to identify any increased Suspended Sediment Concentration (SSC) that arises and will implement controls if the turbidity limit control value of 300mg/l is breached at the monitored locations. Monitoring will comprise one offshore buoy in a typically up-current location and another offshore buoy in a typically down-current location corresponding to locations to the east of the dredged boundary and the north-west of the dredged boundary to detect increased SSC from dredging activities and release of sediment from the reclamation area through the weir-box. The tide tends to flow east to north-west and vice-versa between flood to ebb. The buoys will be positioned approximately 300m outside the boundary of dredging and outside of regular navigation routes for RoRo vessels and construction plant. The background reading will be read from the up-current monitoring buoy, and the assessment of turbidity will be read from the down-current monitoring buoy. Up-current and down-current positions must be swapped between flood and ebb tidal cycles. This limiting control value of SSC will be correlated with Notional Turbidity Units (NTU) for samples of sediment initially recovered from the site prior to commencement. This allows instantaneous readings to be taken with real-time NTU meters on the monitoring buoys which are matched to suspended sediment values. The buoys will be set to relay real-time events (including trigger values) and warn the contractor of high values of suspended sediment.

Construction Phase Mitigation and Monitoring
Dredging and reclamation area infilling may lead to an increase in suspended sediment levels within the water column. Close monitoring of turbidity in real-time using turbidity monitors within Rosslare Europort will be undertaken to identify any increased SSC that arises. If the SSC increases above the maximum turbidity limit control value (300 mg/l), the weir box will be raised in steps, to its maximum elevation to control release of suspended sediment. Should this action not be sufficient, a thorough review of construction techniques will be undertaken by the contractor to identify areas for enhancement and prevent recurrence. Steps to prevent recurrence will include reconfiguring the settlement lagoon/weir box and stopping dredging until the SSC reading is below the turbidity limit control value.
EIAR Chapter 12: Fish, Shellfish and Turtle Ecology
Mitigation There is no requirement for secondary mitigation for fish, shellfish and turtle ecology receptors. **Monitoring** The contractor will monitor turbidity in real-time using turbidity monitors to identify any increased Suspended Sediment Concentration (SSC) that arises and will implement controls if the turbidity limit control value of 300mg/l is breached at the monitored locations. Monitoring will comprise one offshore buoy in a typically up-current location and another offshore buoy in a typically down-current location corresponding to locations to the east of the dredged boundary and the north-west of the dredged boundary to detect increased SSC from dredging activities and release of sediment from the reclamation area through the weir-box. The tide tends to flow east to north-west and vice-versa between flood to ebb. The buoys will be positioned approximately 300m outside the boundary of dredging and outside of regular navigation routes for RoRo vessels and construction plant. The background reading will be read from the up-current monitoring buoy, and the assessment of turbidity will be read from the down-current monitoring buoy. Up-current and down-current positions must be swapped between flood and ebb tidal cycles. This limiting control value of SSC will be correlated with Notional Turbidity Units (NTU) for samples of sediment initially recovered from the site prior to commencement. This allows instantaneous readings to be taken with real-time NTU meters on the monitoring buoys which are matched to suspended sediment values. The buoys will be set to relay real-time events (including trigger values) and warn the contractor of high values of suspended sediment. Dredging and reclamation area infilling may lead to an increase in suspended sediment levels within the water column. Close monitoring of turbidity in real-time using turbidity monitors within Rosslare Europort will be undertaken to identify any increased SSC that arises.

Construction Phase Mitigation and Monitoring
If the SSC increases above the maximum turbidity limit control value (300 mg/l), the weir box will be raised in steps, to its maximum elevation to control release of suspended sediment. Should this action not be sufficient, a thorough review of construction techniques will be undertaken by the contractor to identify areas for enhancement and prevent recurrence. Steps to prevent recurrence will include reconfiguring the settlement lagoon/weir box and stopping dredging until the SSC reading is below the turbidity limit control value.
EIAR Chapter 13: Marine Mammals
Mitigation and Monitoring The following mitigation measures will be implemented during the construction phase of the Proposed Development to minimise the risk of injury or disturbance to marine mammals in the area of operations, in accordance with the NPWS "Guidance *to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters"* (DAHG, 2014). Should updated statutory guidelines be issued before or during the construction phase that supersede the 2014 guidance, the updated guidelines will be fully adhered to. A trained and experienced Marine Mammal Observer (MMO) or MMOs will be appointed to monitor for marine mammals during piling, dredging, dumping of sediment, rock placement and blasting operations. The MMO(s) will scan the surrounding area to ensure no marine mammals are in the pre-determined exclusion zone in the 30-minute period prior to operations. The appropriate MZ recommended by NPWS (DAHG, 2014) will be implemented for dredging works, including dumping, piling and blasting activities. For rock placement within the bunds, MMOs will ensure no marine mammals are present within contained (small boat harbour) and partially enclosed (ORE berths) bunded areas by conducting a 30-minute pre-watch prior to any rock placement activities. The 30-minute pre-watch is only required if the MMO has not been continuously present leading up to the *rock* placement activities. For example, if the MMO is already conducting a pre-watch during dredging operations, this monitoring will continue through the dredging activities and the transit from the Dredging Area to the Reclamation Area, covering the requirements for rock placement. If rock placement occurs prior to or following dredging activities, the pre-watch can be coordinated to include all activities within a single continuous monitoring period. MMOs must be located on an appropriate elevated platform from which the entire MZ can be effectively covered without any obstruction of view. MMOs will be positioned as near to the centre of the MZ as is practicable, i.e., adjacent to the sound source. Noise-producing activities will only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring is not possible, the sound-producing activities will be postponed until effective visual monitoring is possible.

Construction Phase Mitigation and Monitoring
Visual scanning for marine mammals will only be effective during daylight hours and if the sea state is World Meteorological Organisation (WMO) Sea State 4 (≈Beaufort Force 4 conditions) or less. A clear communication protocol, agreed on-site, will be established between the MMO and the Works Superintendent to confirm whether the relevant activity may proceed or resume following a break. Activities will only commence or resume upon positive confirmation from the MMO. All marine mammal detections will be systematically recorded, encompassing both sightings observed during formal monitoring watches and incidental observations made outside of these designated periods, including observations made by additional personnel on board. Detailed records of all marine mammal sightings documented will be reported to the NPWS. Any approach by marine mammals into the immediate (<50m) works will be reported to NPWS. The MMO will keep a record of the monitoring and log all relevant events using standardised data forms available from NPWS and submit to the NPWS on completion of the works. <u>Piling Specific Remedial and Mitigation Measures</u> 1,000 m Monitored Zone (MZ): A 30-minute pre-watch will be conducted by a suitably qualified MMO prior to commencing piling, blasting, dredging, or dumping. No marine mammals may be observed within the defined MZ of 1,000 m during this period (DAGH, 2014). Once operations are underway with appropriate ramp-up, activities will continue regardless of night-time conditions, reduced visibility, or the presence of marine mammals within the MZ. Bunded Area Checks: For works within the enclosed Small Boat Harbour or bunded areas at the ORE Berths, MMOs will confirm the absence of marine mammals within the enclosed areas before works commence. Ramp-Up Procedures: A ramp-up or soft-start will be used for piling where practicable, increasing noise levels gradually over 20–40 minutes after the pre-watch. The protocol will be repeated after any break of more than 30 minutes. Real-Time Static Acoustic Monitoring (SAM): During the harbour seal breeding season (May–July), real-time underwater noise monitoring will be used to constrain disturbance. The 140 dB re 1 μPa^2 (SPLrms) displacement threshold will be used to ensure that noise remains below this level beyond the 1,000 m MZ. If the threshold is exceeded outside the MZ, works will cease. Appropriate adjustments will then be implemented to ensure that displacement thresholds remain below this level outside the MZ before piling can resume. As per NPWS guidance (DAHG, 2014), once piling operations are underway

following the 30-minute pre-watch by the MMO and an appropriate ramp-up procedure, activities will continue regardless of the presence of a marine mammal within the MZ. By ensuring that any displacement impact zones are restricted to the MZ, displacement of harbour seals during the breeding season will be reduced to negligible levels, further decreasing the likelihood of impacts on breeding populations.

Piling works for the Proposed Development and not to occur simultaneously to the piling works associated with the Berth 3 extension, avoiding potential environmental impacts from associated elevated levels of underwater noise being introduced into the marine environment.

Blasting Specific Remedial and Mitigation Measures

1,000 m MZ: A 1,000 m exclusion zone (as per DAHG, 2014) will be established around the blasting location. A 30-minute pre-blast watch will be conducted by a qualified MMO to confirm that no marine mammals are present within the MZ. If any are observed, detonation will be postponed until the zone is clear.

Acoustic Deterrent Device (ADD) Use:

An ADD(s) will be deployed prior to detonation to encourage marine mammals, particularly harbour porpoise, to vacate the 1,000 m MZ. ADDs will be deployed as follows:

i) Positioned as close to the detonation site as safely possible.

ii) Activated only after a 30-minute visual check confirms no marine mammals within 100 m of the device(s).

iii) Remain active during any delay due to mammal presence; if delays are prolonged, the ADD may be paused to avoid habituation and restarted after 20 minutes to reinitiate deterrence.

iv) ADD duration and configuration will be agreed with the statutory authority and tailored to ensure effective deterrence from the full PTS zone.

Species-Specific ADD Configuration:

Construction Phase Mitigation and Monitoring

To avoid unnecessary auditory impacts, an ADD specifically designed for harbour porpoise (e.g. FaunaGuard Porpoise Module) will be used. These devices emit high-frequency signals (60–150 kHz) at lower sound pressure levels, aligned with the species' auditory range. They also include:

i) Ramp-up features to gradually increase signal strength.

ii) Variable signal sequences to minimise habituation. This approach reduces the risk of TTS while ensuring porpoises vacate the area prior to detonation (Schaffeld *et al*., 2019).

Daylight-Only Blasting: All blasting will be conducted during daylight hours to ensure effective visual monitoring. Early-day scheduling will allow flexibility for postponement in case of marine mammal presence or poor conditions.

Fixed MMO Location and Continuous Monitoring: MMOs will maintain a fixed observation point throughout the 30-minute pre-watch and up to the point of detonation. If any marine mammal enters the MZ during this period, the blast will be cancelled or delayed until the zone is clear.

Blast Delay Protocol: If harbour porpoise or other QI species remain within the MZ, blasting will not proceed until clearance is confirmed through visual observation and/or ADD effectiveness.

<u>Dredging Specific Remedial and Mitigation Measures</u>

- 500 m MZ: A 30-minute pre-watch will be undertaken by a qualified MMO before the onset of any dredging or sediment disposal activity. No dredging will commence unless the MMO confirms that no marine mammals have been observed within a 500 m MZ during this period.
- No Requirement to Halt Once Active: In line with NPWS guidance, once dredging has commenced (following the pre-watch and a soft start or ramp-up where appropriate), operations may continue regardless of visibility, weather conditions, or marine mammal presence within the MZ.
- Best Practice During Operations: MMOs will remain present during active dredging and, where feasible, may recommend brief pauses or adjustments to the works to allow nearby animals to move away from the source.

Construction Phase Mitigation and Monitoring
• Seasonal Real-Time Static Acoustic Monitoring: During the harbour seal breeding season (May to July), real-time SAM will be deployed to measure received underwater noise levels. A displacement threshold of 140 dB re 1 µPa² will be used to manage the spatial extent of potential disturbance.   o If SAM detects that this threshold is exceeded beyond 1,000 m, dredging will be paused and adjustments made before recommencing.
EIAR Chapter 14: Ornithology
Mitigation No construction phase secondary mitigation measures have been identified for Ornithology receptors. **Monitoring** No construction phase monitoring requirements have been identified.
EIAR Chapter 15: Commercial Fisheries and Aquaculture

Mitigation
• A Fisheries Liaison Officer (FLO) will maintain effective communications between the Proposed Development and fishers during the construction phase of the Proposed Development, as set out in the Seafood/ORE Engagement in Ireland guidance (Seafood/ORE Working Group, 2023) and will be responsible for:
  o Appropriate liaison with relevant fishing interests to ensure that they are fully informed of development planning and any marine activities and works
  o Timely issue of notifications including Notice to Mariners and other navigational warnings to the fishing community to provide advance warning of project activities and associated advisory safe passing distances
• A contingency plan will be developed by Iarnród Éireann to address any unforeseen impact on the local fleet, in particular any displacement of Rosslare fleet resulting in:
  o Increased steaming times to fishing grounds
  o Increased fishing pressure on adjacent shellfish resources
  o Gear conflicts or other technical interactions with adjacent operators

Construction Phase Mitigation and Monitoring
○ Economic impacts on adjacent operators • A Fisheries Management and Mitigation Strategy will be prepared by Iarnród Éireann setting out the approach to fisheries liaison and means of delivering co-existence and disruption agreements ahead of construction • A buoyed construction area will be implemented around the site by Iarnród Éireann • A dropped object protocol will be implemented **Monitoring** No construction phase monitoring requirements have been identified.
EIAR Chapter 16: Cultural Heritage
Mitigation and Monitoring During the construction phase archaeological monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by the DHLGH.
EIAR Chapter 17: Traffic and Road Transport
Mitigation No construction phase secondary mitigation measures have been identified for Traffic and Transport receptors. **Monitoring** The contractor will be obliged to implement the mitigation measures outlined in the Construction and Environmental Management Plan and the Construction Traffic Management Plan with respect to monitoring, inspections and record keeping during the construction phase of the Proposed Development.
EIAR Chapter 18: Air Quality
Mitigation At the construction planning stage, the siting of activities and storage piles will consider the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. The prevailing wind, predominantly westerly to south-westerly, is expected to be beneficial, as it will help disperse dust away from sensitive residential receptors. The wind direction should be carefully considered when choosing

Construction Phase Mitigation and Monitoring
locations for construction compounds and storage piles. Placing these facilities downwind of sensitive receptors will minimise the potential for dust nuisance at those locations. Good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or quickly implementing effective control measures before the potential for nuisance occurs. When rainfall is greater than 0.2mm/day, dust generation is generally suppressed (IAQM, 2024; UK ODPM, 2002). The potential for significant dust generation is also reliant on threshold wind speeds of greater than 10 m/s (19.4 knots) (at 7 m above ground) to release loose material from storage piles and other exposed materials (USEPA, 1986). Particular care should be taken during periods of high winds (gales), as these conditions increase the potential for significant dust emissions. The following measures will be implemented to prevent dust nuisance during unfavourable meteorological conditions: • The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented, and that dust impacts and nuisance are minimised • During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions • The name and contact details of a person to contact regarding air quality and dust issues will be displayed on the site boundary; this notice board should also include head/regional office contact details • A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out • It is the responsibility of the contractor to demonstrate full compliance with the dust control conditions herein at all times • The procedures put in place will be strictly monitored and assessed at all times • The dust minimisation measures will be reviewed at regular intervals throughout the works to ensure their effectiveness and to maintain the goal of minimising dust emissions through the use of best practices and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem. Preparing and Maintaining the Site • The site layout will be planned so that machinery and dust causing activities are located as far away as possible from sensitive receptors • Solid screens or barriers will be erect around dusty activities or along the site boundary, ensuring that they are at least as high as any stockpiles on site • Specific operations with a high dust production potential will be fully enclosed, particularly where the site is active for an extensive period • Avoid site runoff of water or mud • Site fencing, barriers and scaffolding will be regularly cleaned using wet methods

Construction Phase Mitigation and Monitoring
• Materials with a potential to produce dust will be removed from the site as soon as possible; if materials are to be re-used on-site, they should be properly covered, seeded or fenced to prevent wind whipping. Operating Vehicles / Machinery and Sustainable Travel • All vehicles will be switched when stationary ensuring no idling vehicles • The use of diesel or petrol -powered generators will be avoided where possible with mains electricity or battery powered equipment being used where practicable • Impose and signpost a maximum-speed-limit of 20 km/h haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated contractor and with the agreement of the local authority, where appropriate) • Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) Operations • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate • Use enclosed chutes and conveyors and covered skips • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods Waste Management • Avoid bonfires and burning of waste materials Measures Specific to Earthworks • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable • Only remove the cover in small areas during work and not all at once • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust

Construction Phase Mitigation and Monitoring
Measures Specific to Construction • Avoid scabbling (roughening of concrete surfaces) if possible • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place • For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust Measures Specific to Trackout • A speed restriction of 20 km/h will be applied as an effective control measure for dust for on-site vehicles • Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. If sweeping using a road sweeper is not possible due to the nature of the surrounding area, then a suitable smaller scale street cleaning vacuum will be used. • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable • Record all inspections of haul routes and any subsequent action in a site logbook • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable) **Monitoring** Monitoring of construction dust deposition to nearby sensitive receptors, along the site boundary, during the construction phase of the Proposed Development, is recommended to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI (German VDI 2002). The Bergerhoff Gauge consists of a collecting container and a stand with a protective cage. The collecting container is secured to the stand, with its opening located approximately 2 m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).
EIAR Chapter 19: Noise and Vibration
Mitigation and Monitoring The contractor will appoint a Community Liaison Officer to ensure that any complaints in relation to noise and vibration are dealt with promptly and efficiently during construction.

Construction Phase Mitigation and Monitoring

In terms of blast design control, specific guidance will be obtained from the recommendations contained within BS 5228-2 (2009+A1:2014) in relation to blasting operations in addition to experienced blast control techniques used by the contractor. These will include some or all of the following:

- All blasting will be undertaken by professionally trained blast contractors
- Restriction of hours within which blasting can be conducted (09:00 – 19:00hrs)
- During the commencement of the blasting activities an initial low-level blast will be carried out (i.e. a low Maximum Instantaneous Charge (MIC)) and monitoring will be carried out simultaneously at a number of sensitive properties in different directions in order to generate specific scaled distance graphs
- The scaled distance graphs will be used to determine the optimum MIC for subsequent blasts area in order control vibration and AOP limits below the relevant limit values at the nearest sensitive buildings
- Explosive charges will be properly confined by a sufficient amount of stemming
- Blasting contractors will ensure that the minimum amount of primer cord is used, and that no primer cord is located above ground
- The design, execution and completion of any blasting within 100 metres of any vulnerable structure will require special considerations. This will include the use of pre and post condition structural surveys by a competent structural engineer
- Ground vibration and air over pressure (AOP) will be recorded simultaneously for each blast at the most sensitive locations, depending on the works area being blasted

In line with best practice mitigation measures from vibration sources, good communication and public relations are a key factor in reducing any startle effects to residents. In this instance, a Public Communications Strategy will be implemented by the contractor prior to the commencement of any blast works. In such cases the following recommended mitigation measures are proposed:

- Relevant nearby residents will be notified before any work, and blasting starts (e.g. a minimum of 24-hour written notification)
- The implementation of an onsite documented complaints procedure will be maintained by the contractor
- The use of independent monitoring will be undertaken by external bodies for verification of results

Dredging-specific measures:

During periods outside of daytime hours the dredging vessel will be located a minimum of 200m from the shoreline in order that noise levels attenuate sufficiently to the local receptor locations. Should noise monitoring results indicate that noise levels are below the specified construction noise thresholds then there is the potential for the dredging works to be undertaken closer to the shoreline. Noise measurements must be monitored closely when moving the dredging activity closer to the shoreline (and hence the NSLs) to ensure that the construction thresholds are not exceeded.

Control of noise sources:

Construction Phase Mitigation and Monitoring
If the use of low noise plant or replacing a noisy item of plant are not viable or practicable options, consideration should be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods, often in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact. BS5228 states that "as far as reasonably practicable sources of significant noise should be enclosed". In applying this guidance, constraints such as mobility, ventilation, access and safety must be taken into account. Items suitable for enclosure include pumps and generators. Demountable enclosures that could be moved around site as necessary may also be used to screen operatives using hand tools such as angle grinders. BS5228 makes a number of recommendations in relation to "use and siting of equipment". These are relevant and hence are reproduced below. These recommendations should be implemented on the site. • "Plant should always be used in accordance with manufacturers' instructions. Care should be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading should also be carried out away from such areas. • Circumstances can arise when night-time working is unavoidable. Bearing in mind the special constraints under which such work has to be carried out, steps should be taken to minimise disturbance to occupants of nearby premises. • Machines such as cranes that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Machines should not be left running unnecessarily, as this can be noisy and waste energy. • Plant known to emit noise strongly in one direction should, when possible, be orientated so that the noise is directed away from noise-sensitive areas. Attendant operators of the plant can also benefit from this acoustical phenomenon by sheltering, when possible, in the area with reduced noise levels. • Acoustic covers to engines should be kept closed when the engines are in use and idling. The use of compressors that have effective acoustic enclosures and are designed to operate when their access panels are closed is recommended. • Materials should be lowered whenever practicable and should not be dropped. The surfaces on to which the materials are being moved could be covered by resilient material." Also note the following outline guidance in relation to specific considerations which may be deployed as required by the contractor: • For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels during operation can reduce noise levels by up to 10 dB. Mobile plant should be switched off when not in use and not left idling. • For piling plant, noise reduction can be achieved by enclosing the driving system in an acoustic shroud. For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system or utilising an acoustic canopy to replace the normal engine cover.

Construction Phase Mitigation and Monitoring
• For percussive tools such as pneumatic concrete breakers, rock drills and tools a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries. • For all materials handling ensure that materials are not dropped from excessive heights and drop chutes/dump trucks are lined with resilient materials. • For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation. • Demountable enclosures can also be used to screen operatives using hand tools and may be moved around site as necessary. • All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures. The contractor will be required to ensure construction activities operate within the noise limits set out within this assessment. Any noise monitoring should be conducted in accordance with the International Standard ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.
EIAR Chapter 20: Navigation and Shipping
Mitigation No construction phase secondary mitigation measures have been identified for Navigation and Shipping receptors. **Monitoring** No construction phase monitoring requirements have been identified.
EIAR Chapter 21: Population and Human Health
Mitigation Secondary mitigation measures proposed to avoid or minimise adverse population and human health effects during the construction of the Proposed Development are:

Construction Phase Mitigation and Monitoring

• The implementation of the following management plans:
  ○ Construction Traffic Management Plan (CTMP).
  ○ Air Quality Management Plan (AQMP)
  ○ Dust Management Plan (DMP)
  ○ Noise and Vibration Management Plan (NVMP)
• Iarnród Éireann is committed to proactive, transparent, and ongoing engagement with local communities and stakeholders throughout the construction phase of the Proposed Development.
 	
A Community Liaison Officer (CLO) will be appointed as the primary point of contact for the local community. The CLO will manage all public-facing communications and respond to queries or concerns raised by members of the public, local groups, or statutory consultees.
 	
Monitoring
 	
No construction phase monitoring requirements have been identified.

EIAR Chapter 22: Material Assets
Mitigation No construction phase secondary mitigation measures have been identified for Material Assets. **Monitoring** No construction phase monitoring requirements have been identified.
EIAR Chapter 23: Seascape, Landscape and Visual Impacts
Mitigation As site construction evolves, the Proposed Development will be encircled with appropriate site hoarding and fencing to partially screen the construction of the proposed buildings and some of the lower-lying constructed elements within the development. **Monitoring**

Construction Phase Mitigation and Monitoring
No construction phase monitoring requirements have been identified.
EIAR Chapter 24: Climate
Mitigation The following measures to reduce the embodied carbon of the construction works are: • Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials that can be reused/recycled, in compliance with The Circular Economy and Miscellaneous Provisions Act 2022 • Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods • Ensure all plant and machinery are well maintained and inspected regularly • Reconsideration of the design to reduce materials required. The volume of concrete required has been minimised within the design, with a choice to use the dredged spoil and rockfill material as a more sustainable alternative. Minimisation of carbon intensive materials within the design is considered a primary mitigation measure and higher on the IEMA hierarchy of mitigation with respect to carbon. • The replacement, where feasible, of concrete containing Portland cement with a low carbon concrete as per the Climate Action Plan. An example of a replacement material is a 25% ground granulated blast furnace slag (GGBS) although other options also apply and provided that they have an embodied carbon that is as low or lower, then they are suitable for the final design with respect to the carbon assessment. • The Proposed Development will minimise wastage of materials due to poor timing or over ordering on site thus helping to minimise the embodied carbon footprint of the Proposed Development • The use in construction plant and equipment of sustainably sourced Hydrotreated Vegetable Oil (HVO) as a 100% replacement of fossil fuels. HVO use is considered a stepping stone towards the use of electric construction plant as it becomes available in the market. • Procurement contracts will ensure that lower carbon choices are considered favourable during tender • Where practicable, opportunities for materials reuse will be incorporated within the extent of the Proposed Development including the use of reclaimed asphalt and recycled aggregate, which will reduce the virgin material needs • Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport **Monitoring** No construction phase monitoring requirements have been identified.

26.3 OPERATIONAL PHASE SECONDARY MITIGATION MEASURES AND MONITORING

Table 26.2 summarises the operational phase secondary mitigation measures and monitoring proposed in the EIAR technical chapters.

Table 26.2 Secondary Mitigation Measures and Monitoring Summary – Operational Phase

Operational Phase Mitigation and Monitoring
EIAR Chapter 7: Geology, Soils, Hydrogeology and Contamination
Mitigation A comprehensive suite of Standard Operating Procedures (SOPs) for the Proposed Development providing mitigation of all environmental aspects relevant to Geology, Soils, Hydrogeology and Contamination, and mechanisms to ensure effective implementation, will be prepared by the applicant prior to the operational phase. **Monitoring** Environmental monitoring of seabed level (i.e. bathymetry) will be undertaken to inform an adaptive dredging strategy for the operational life of this project.
EIAR Chapter 8: Coastal Processes
Mitigation and Monitoring The works contractor will conduct a pre-construction bathymetric survey of the seabed in and surrounding Rosslare Europort and a topographic survey of the beaches immediately to the northwest and southeast of Rosslare Europort to form the baseline for post-construction monitoring. The applicant will conduct regular post-construction monitoring using bathymetric and topographic surveys of the seabed in Rosslare Europort and the beaches immediately to the northwest and southeast of Rosslare Europort. Monitoring will inform validation of coastal processes modelling undertaken for the Proposed Development.

Operational Phase Mitigation and Monitoring
EIAR Chapter 9: Water Quality and Flood Risk
Mitigation No operational phase secondary mitigation measures have been identified for Water Quality and Flood Risk receptors. **Monitoring** The Ports Operations Team will monitor and clear interceptors and gullies on a regular basis. In the event of a potential environmental incident which may affect water quality, the Port Operations Team will initiate additional investigative sampling as required to seek to identify the possible source and nature of any pollutants present. General observations which could aid the investigation should be recorded (i.e. weather conditions, visual observations of the water surface for discolouration or liquids, olfactory observations such as unusual smells, etc.). It may be necessary to conduct water quality sampling with laboratory analysis of standard contaminant suites in the event of a potential environmental incident.
EIAR Chapter 10: Terrestrial Ecology
Mitigation No operational phase secondary mitigation measures have been identified for Terrestrial Ecology receptors. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 11: Benthic Ecology
Mitigation The biotope SS.SSa.CMuSa.AalbNuc, which is the dominant biotope within the Development Area and surrounding study site, is vulnerable to the potential introduction of Invasive Non Indigenous Species (INIS). An INIS management plan will be prepared by the applicant prior to the operational phase.

Operational Phase Mitigation and Monitoring
Monitoring No operational phase monitoring requirements have been identified.
EIAR Chapter 12: Fish, Shellfish and Turtle Ecology
Mitigation No operational phase secondary mitigation measures have been identified for Fish, Shellfish and Turtle Ecology.. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 13: Marine Mammals
Mitigation No operational phase secondary mitigation measures have been identified for Marine Mammal Ecology receptors. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 14: Ornithology
Mitigation In order to reduce disturbance to sensitive species such as red-throated divers and common scoters, as well as other seabird species in the vicinity, a speed limit of 6 knots will be applied within the harbour bounds for small boat harbour users. **Monitoring**

Operational Phase Mitigation and Monitoring
Following completion of construction works, a series of bird surveys will be carried out to monitor bird usage of the area. The bird survey programme will be based on the programme for the baseline bird surveys, with a combination of vantage point surveys and walkover surveys carried out within the site and offshore area for a minimum of 12 months. Kittiwake breeding surveys will be undertaken as part of post-construction monitoring with count of nests to be conducted following construction each June for a minimum of 2 years.
EIAR Chapter 15: Commercial Fisheries
Mitigation The Harbourmaster will continue to maintain effective communications between the Proposed Development and fishers The Fisheries Management and Mitigation Strategy (FMMS) will continue to be implemented during the operational phase of the Proposed Development. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 16: Cultural Heritage
Mitigation An Archaeology Management Plan will be prepared by the archaeologist to ensure that the observation, recording and recovery of any material of archaeological interest that occurs during the operational phase of the project. **Monitoring** No operational phase monitoring requirements have been identified.

Operational Phase Mitigation and Monitoring
EIAR Chapter 17: Traffic and Road Transport
Mitigation Due to the very low volumes of traffic forecast to be generated during the operational stage of the development, no mitigation measures are required. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 18: Air Quality
Mitigation No site-specific mitigation measures are proposed for the operational phase. However, should evidence of potential dust impacts occur during the operational phase as a result of unbound surface materials the mitigation measures set out for the mitigation of trackout during the construction phase will be implemented in order to mitigate emissions. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 19: Noise and Vibration
Mitigation As a general Noise Control mitigation, as part of the detailed design of the development, selection of quiet plant items and, where necessary, appropriately selected remedial measures (e.g., enclosures, silencers etc.) will be specified in order that the adopted criteria is achieved at the façades of noise sensitive properties.

Operational Phase Mitigation and Monitoring
Additionally, a range of 'good practice' measures are recommended for operatives that arrive to site during the night period: • Vehicle engines will not be left idling once on site. • Drivers should minimise impact sounds whilst exiting or entering their vehicle. • All radios and amplified music in the vehicles will be turned off prior to the doors being opened. • There should be no unnecessary shouting or communicating in raised voices whilst on site. There should be no unnecessary sounding of horns whilst on site. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 20: Navigation and Shipping
Mitigation The assessment of effects for Navigation and Shipping has determined that all impacts of the Proposed Development during construction and operational phases would be not significant with embedded risk controls. Therefore, no secondary mitigation is required. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 21: Population and Human Health
Mitigation No operational phase secondary mitigation measures have been identified for Population and Human Health receptors. **Monitoring** No operational phase monitoring requirements have been identified.

Operational Phase Mitigation and Monitoring
EIAR Chapter 22: Material Assets
Mitigation Given that the operational phase is anticipated to have minimal impact on material assets receptors, no mitigation measures are deemed necessary to address potential adverse effects. **Monitoring** No operational phase monitoring requirements have been identified.
Chapter 23 Seascape, Landscape and Visual
Mitigation During the operational phase of the development, the storage of renewable energy infrastructure within the ORE Hub will be undertaken in a neat and organised manner to reduce and further visual effects relating to visual clutter and confusion. **Monitoring** No operational phase monitoring requirements have been identified.
EIAR Chapter 24: Climate
Mitigation The following mitigation measures will also be put in place during the operational phase. These policies are designed to align with the Proposed Development with CAP24 and the national climate target of a trajectory to net zero by 2050: • Nearly Zero-Energy Buildings • Require operations to achieve high recycling rates with an aspiration to achieve zero waste directly to landfill

Operational Phase Mitigation and Monitoring
• Promote the use of bicycles (including push bikes, electric bikes, and cargo bikes), public transport, electric vehicles and shared mobility options as an alternative to car use among employees by creating and maintaining facilities (both inside and outside of buildings) that support such options, including secure and accessible bicycle parking, shared mobility parking, and charging stations, as appropriate, with a view to achieving the National Transport Authority's Smarter Travel Mark • Should any vehicles be required for the operation of the Proposed Development, only zero-emissions vehicles will be procured (purchase or lease) and Iarnród Éireann will act as an international leader in this area. An exception applies where the vehicle is exempt under European Communities (Clean and Energy-Efficient Road Transport Vehicles) (Amendment) Regulations (S.I. 381 of 2021). • Incorporate appropriate climate action and sustainability training (technical and behavioural, including green procurement training) into learning and development strategies for staff • Ensure all senior management complete a climate action leadership training course • Implement Green Public Procurement, using the Environmental Protection Agency (EPA) Green Public Procurement Guidance and criteria and Office of Government Procurement's online Green Public Procurement Criteria Search tool as resources • Comply with the public sector requirement to not install heating systems that use fossil fuels after 2023, in (1) new buildings, and (2) "major renovation" retrofit projects as defined in the Energy Performance of Buildings Directive (EPBD) unless at least one of the following exceptions applies • The fossil-fuel use is only through using electricity from the grid Primary mitigation has been built into the project design to address the vulnerability of the Proposed Development to climate change and have been considered in the assessment reported in Chapter 24: Climate. Monitoring will include the ongoing management of adaptation and resilience of the Operational Phase in order to measure effectiveness. If monitoring of adaptation and resilience measures indicates the measures are not effective, and climate is impacting on the infrastructure of the Proposed Development, then they should be reviewed and updated. The Proposed Development will maintain a Major Incident Management and Severe Weather Team Plan for the ORE Hub to ensure the critical infrastructure is protected during operation from the impacts of severe weather.

Operational Phase Mitigation and Monitoring
Infrastructure to support the traditional port operations will facilitate the specific needs of electric cars and freight. These needs will change over the design lifespan of the project as there is a greater uptake of electric vehicles. **Monitoring** Monitoring will include the ongoing management of adaptation and resilience of the Operational Phase in order to measure effectiveness. If monitoring of adaptation and resilience measures indicates the measures are not effective and climate is impacting on the construction and operation of the Proposed Development, then they should be reviewed and updated. The design working life of the Proposed Development is based on the current generation of Eurocodes which include climate data that is 10-15 years old. During the operation and maintenance of infrastructure, it will be essential to revisit the available climate data and any critical assumptions. This can be carried out at regular intervals (e.g. 5-10 years) as part of the asset management to address evolving climate risks. Monitoring will include the ongoing management of adaptation and resilience of the Operational Phase in order to measure their effectiveness. If monitoring of adaptation and resilience measures indicates the measures are not effective and climate is impacting on the construction of the Proposed Development, then they should be reviewed and updated.

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