MERC Consultants
environmental and conservation services

Statement of Compliance with the Marine Strategy Framework Directive (MSFD)
Applicant: Uisce Éireann
MUL application for: Rosie Hackett Bridge - Liffey Siphon Project: Proposed Maritime Site Investigations
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1. Introduction

The key objective of the Marine Strategy Framework Directive (MSFD) is to protect the marine ecosystem and biodiversity upon which our health and marine-related economic and social activities depend. Its aim is to achieve good environmental status (GES) of the EU's marine waters and sustainably protect the resource base upon which marine-related economic and social activities depend.

To help EU countries achieve a good environmental status (GES), the directive sets out 11 illustrative qualitative descriptors. To achieve this goal of GES, the MSFD has set out a programme of measures to address the identified stressors. A total of 28 separate measures have been set out. These measures are mostly focused on reducing pressures by improving water quality and preventing environmental damage. Negative impacts stated in the MSFD include, for example, pollution, biodiversity loss, seabed damage, overexploitation, spread of non-indigenous species, marine litter, underwater noise, and ocean warming and acidification.

The proposed maritime usage comprises temporary site investigations (SI) within Area A (1,831.81 m²; 0.183 ha) in the tidal inner River Liffey between Rosie Hackett Bridge and Butt Bridge, extending between Eden Quay and Burgh Quay. The assessed scope comprises MBES bathymetry; parametric and/or boomer sub-bottom profiling; marine refraction seismic; marine electrical resistivity tomography (ERT); two marine boreholes from a modular four-legged jack-up barge; benthic ecology sampling/drop-down video; ancillary water/CTD observations; non-disturbance archaeological dive/quayside inspection, probe and metal-detector survey; and testing of recovered material as required. The permanent siphon and associated construction are outside this assessment.

The works lie within the Liffey Estuary Upper transitional waterbody (IE_EA_090_0400), with downstream tidal connectivity to Dublin Port and Dublin Bay. As the works are within a WFD

transitional waterbody, this MSFD assessment considers potential effects on connected downstream coastal and marine waters and on Good Environmental Status; WFD status and the Article 4 no-deterioration test are addressed separately in the WFD compliance assessment. The defined SI envelope comprises an overall programme of approximately 14-21 days; drilling at two boreholes for up to 14 days; works up to 12 hours/day and predominantly in daylight; jack-up mobilisation/demobilisation over up to four nights; three 65 m marine-refraction lines (195 m total); ERT traverse(s) totaling up to approximately 300 m maximum; two marine boreholes undertaken using roto-sonic drilling with continuous casing through sediment/overburden and rotary coring through bedrock; minor localised suspension of fine sediment associated with penetration or tool insertion/removal is expected to be extremely limited in extent and duration.

2. MSFD assessment

The assessment below considers the 11 qualitative descriptors used under the MSFD. It is based on the defined activity description and the findings of the SISEIA, SISAA and Annex IV Risk Assessment. Where a pressure pathway exists, the assessment reflects the project design, operating envelope and environmental controls applied to the site investigations. Appropriate Assessment requirements identified in the SISAA are considered under the separate EU Habitats Directive Article 6(3) process and do not alter the MSFD-scale assessment of Good Environmental Status.

Descriptor	Analysis	Assessment
Descriptor 1: Biodiversity is maintained	The SISEIA and SISAA identify biodiversity pathways associated with local riverbed disturbance, suspended sediment and possible contaminant mobilisation, underwater and above-water noise, vessel/platform presence, artificial lighting, temporary channel occupation and accidental pollution. The Annex IV assessment carries cetaceans, otter and bats forward for project-specific consideration. Benthic fauna, estuarine/migratory fish and birds are also relevant through the wider environmental and AA assessments. These pressures are bounded by the defined 14-21-day SI programme and discrete physical footprint.	Localised biodiversity effects may occur within the immediate works area, but the defined temporary SI envelope does not provide a mechanism for deterioration of biodiversity at the scale of MSFD Good Environmental Status. Project-specific protected-species requirements remain addressed through the SISAA and Annex IV Risk assessment processes
Descriptor 2: Non-indigenous species do not adversely alter ecosystems	Mobilisation of vessels, platforms and equipment creates a potential pathway for the introduction or spread of non-indigenous species. The principal jack-up barge will be transported to site by land and assembled/deployed within the River Liffey, substantially limiting transfer of marine fouling organisms; the small survey/support vessel is expected to operate locally for short-duration works. Risk-based inspection, cleaning or other	Given these project characteristics and the limited scale and duration of vessel/equipment movements, no credible pathway is identified for adverse alteration of ecosystems by non-indigenous species at the

	biosecurity measures will be applied where a credible transfer vector is identified.	scale relevant to MSFD Good Environmental Status.
Descriptor 3: Populations of commercial fish and shellfish species are healthy	There is no commercial fishing within the immediate inner-Liffey investigation area. The Liffey does, however, support estuarine and migratory fish, including salmonids, eel and lamprey. Potential pressures include underwater sound/vibration, suspended sediment, water-quality effects, lighting and temporary channel occupation.	No significant effect on commercial fish or shellfish populations at MSFD scale is identified. Migratory and estuarine fish remain addressed under the WFD, SISEIA and wider fish-ecology assessment, including maintenance of practicable passage through the river corridor where feasible and safe.
Descriptor 4: Food webs ensure long-term abundance and reproduction of species	The proposed works are temporary and spatially confined. Localised disturbances of benthos or fish prey may occur through the two boreholes, eight jack-up leg placements, ERT traverse(s) totaling up to approximately 300 m, benthic grabs and underwater noise. These pressures are discrete and short-term and do not provide a mechanism for ecosystem-scale alteration of food-web structure or reproductive success.	No significant effect on food-web structure, long-term abundance or reproductive success is predicted at the scale relevant to MSFD Good Environmental Status.
Descriptor 5: Eutrophication is reduced	No nutrient discharge is an intended component of the site investigations. Roto-sonic drilling with continuous casing will be specified for the marine boreholes to minimise disturbance, maintain borehole stability and support controlled recovery of drilled material. Minor localised suspension of fine sediment may occur during penetration or tool insertion/removal but is expected to be extremely limited in extent and duration.	No material eutrophication pathway is identified for the defined SI envelope.
Descriptor 6: Sea-floor integrity ensures the proper functioning of ecosystems	Direct riverbed interaction is limited to two roto-sonic boreholes with continuous casing, eight jack-up leg placements, ERT traverse(s) totaling up to approximately 300 m, and up to 30 benthic sampling locations with a maximum of four 0.1 m² Day-grab samples per location. Boreholes may extend to a maximum of 20 m below bed level and will be approximately 200 mm diameter through overburden and 100 mm diameter through rock. Any fine-sediment suspension associated with	Riverbed effects are discrete, temporary and localised. They are not predicted to affect sea-floor integrity or ecosystem functioning at the scale relevant to MSFD Good Environmental Status.

	borehole penetration or tool insertion/removal is expected to be extremely localised and short-lived.	
Descriptor 7: Permanent alteration of hydrographical conditions does not adversely affect ecosystems	The site investigations do not include permanent work within the river channel. The approximately 12 m x 14 m jack-up barge will temporarily occupy two borehole positions and may locally influence flow around the platform/safety area, but no permanent alteration of tides, currents or hydrographical conditions is proposed. Navigation between Rosie Hackett Bridge and Butt Bridge is currently very limited due to bridge-height restrictions. Dublin Port requirements will be established in advance, with the appointed Contractor liaising with the Harbour Master throughout the works and advance notification provided to marine operators and the public where navigational disruption may occur.	No permanent hydrographical alteration is predicted. Temporary local effects associated with platform occupation are not expected to affect this descriptor at MSFD scale.
Descriptor 8: Concentrations of contaminants give no pollution effects	Inner-Liffey sediments may contain contaminants associated with historic and contemporary urban and port activity. Boreholes, jack-up legs and benthic sampling can mobilise small quantities of sediment, while fuels, lubricants and drilling fluids create accidental-release pathways. Roto-sonic drilling with continuous casing is specified to minimise disturbance and sediment mobilisation and to assist controlled recovery of drilled material. Minor localised suspension of fine sediment during penetration or tool insertion/removal is expected to be extremely limited in extent and duration.	A contaminant pathway is recognised and controlled. Given the small disturbance footprint, the specified roto-sonic/continuous-casing method and pollution-prevention measures, no significant pollution effect or deterioration of this descriptor is predicted at MSFD scale.
Descriptor 9: Contaminants in seafood are at safe levels	There is no commercial fishing in the area, and no activity is intended to introduce contaminants into seafood resources. Any potential pathway is indirect through mobilisation of small quantities of existing bed sediment and subsequent exposure of aquatic biota. Roto-sonic drilling with continuous casing is specified to minimise disturbance and sediment mobilisation, and any fine-sediment suspension associated with penetration or tool insertion/removal is expected to be extremely limited in extent and duration.	No significant pathway to increased contaminants in seafood is identified for the defined SI envelope.
Descriptor 10: Marine litter does not cause harm	No deliberate disposal of waste or material to the river is proposed. Potential wastes associated with the temporary SI include drilling arisings/cores, sediment samples and general vessel/platform waste. Detailed handling and management arrangements will be addressed in the appointed	No significant marine-litter effect is predicted for the defined SI envelope.

	survey contractor's site- and activity-specific Method Statements.	
Descriptor 11: Introduction of energy, including underwater noise, does not adversely affect the ecosystem	The principal underwater acoustic sources are MBES, parametric and/or boomer sub-bottom profiling, marine refraction seismic and vessel/platform activity; roto-sonic drilling is treated as a local mechanical/vibratory source. MBES operates within 190-420 kHz; the parametric SBP uses 85-115 kHz primary and 2-22 kHz secondary frequencies (up to 232 dB re 1 µPa @ 1 m, typically <200 dB); and the AA301 boomer operates at 0.5-5 kHz and 205-211 dB re 1 µPa @ 1 m. For marine refraction, a small airgun of the type typically used on similar marine SI projects is the reference source; the specialist supplier will determine the final source based on site conditions, with a weight-drop/impact source remaining open for consideration. The selected source will remain within the assessed envelope of peak frequencies 5-90 kHz, source levels 186-220 dB re 1 µPa @ 1 m and three 65 m lines (195 m total) within one daylight day. Activity-appropriate NPWS (2014) marine-mammal procedures will be applied to relevant sound-producing activities.	Underwater noise is a relevant but short-duration pressure pathway. Within the defined acoustic envelope and applicable marine-mammal controls, no adverse effect on the ecosystem at the scale of MSFD Good Environmental Status is predicted.

3. Conclusion

The proposed project is limited to temporary site investigations in the inner River Liffey. Potential interactions with MSFD descriptors are principally associated with biodiversity, non-indigenous species, local riverbed disturbance, contaminants and underwater noise. These pressures are spatially confined and temporary.

The defined project controls address pollution prevention and containment; drilling returns and arisings; sediment and contaminated-material handling; waste management; risk-based invasive-species biosecurity where a credible transfer vector is identified; navigation and safety-zone arrangements, including Harbour Master liaison and advance notification of navigational disruption as required; lighting and working hours; and activity-appropriate NPWS (2014) protected-species/noise procedures.

For the defined SI envelope, no mechanism has been identified by which the proposed site investigations would compromise Good Environmental Status at the scale addressed by the MSFD.

No credible transboundary environmental pathway is identified for these localised inner-Liffey investigations.

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