MWP

PROJECT DESCRIPTION

Maintenance Dredging at Sarsfield Lock, Limerick City

Waterways Ireland

November 2026

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1. Introduction

Malachy Walsh & Partners was commissioned by Waterways Ireland to carry out the baseline surveys, assess the impact on the environment and develop their Dumping at Sea (DaS) and Marine Usage License (MUL) applications for a maintenance dredging project at Sarsfield Lock in Limerick City. Waterways Ireland is the North / South Implementation Body responsible for the inland navigable waterways systems in Ireland. The main functions of Waterways Ireland are the management, maintenance, development and restoration of the inland navigable waterway system throughout the island of Ireland, principally for recreational purposes.

2. Project Description

The Proposed Works are at Sarsfield Lock on the River Shannon Estuary in Limerick City, Co. Limerick. A 10-year MUL is sought from the Maritime Area Regulatory Authority (MARA) in other to facilitate a planned 8-year dredging programme. The reason for a 10-year MUL is to allow time for the resourcing and mobilisation of equipment and personnel to undertake the works, and to allow time for the Dumping at Sea (DaS) application processing time with the Environmental Protection Agency (EPA). An application for DaS has already been submitted to the EPA, file ref.: S0040-01. See Table 2-1 for an outline of the 10 year MUL licence.

Table 2-1: 10-Year Programme of Dredging

10-Year MUL Licence Programme										
2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Granting of MUL and DaS	Procurement of contractor to carry out dredging works	Dredging between October 2029 - February 2030	Dredging between October 2030 - February 2031	Dredging between October 2031 - February 2032	Dredging between October 2032 - February 2033	Dredging between October 2033 - February 2034	Dredging between October 2034 - February 2035	Dredging between October 2035 - February 2036	Dredging between October 2036 - February 2037	Dredging between October 2037- February 2038

2.1 Proposed Works

The Proposed Works involve the excavation of sediment from the riverbed, termed “maintenance dredging”, at locations upstream and downstream of Sarsfield Lock, Figure 2-1. Maintenance dredging has previously been carried out at this location, with the most recent dredging campaign finishing in December 2011. Maintenance dredging is required to deepen or maintain navigable channels, which are at risk of becoming silted over time due to the transport of suspended sediments into the sheltered waters of the harbour, that in turn deposit on the riverbed. This is required also to allow boats to moor in the marina and other parts of the channel. The project will increase the navigability of the quays and thereby reduce the associated safety concerns for pleasure and commercial boats. The works will focus on maintaining the navigability of the river channel and ensuring safe access for users.

Dredged material will be removed via Dredge/Overslag Pump (DOP) pump and floating discharge pipes into the water column of the main channel of the River Shannon. Dredged material will be pumped across the weir at three discharge locations.

A Dumping at Sea (DaS) permit application to dispose of the material at the proposed discharge location has been submitted to the EPA under the Foreshore and Dumping at Sea (Amendment) Act 2009.

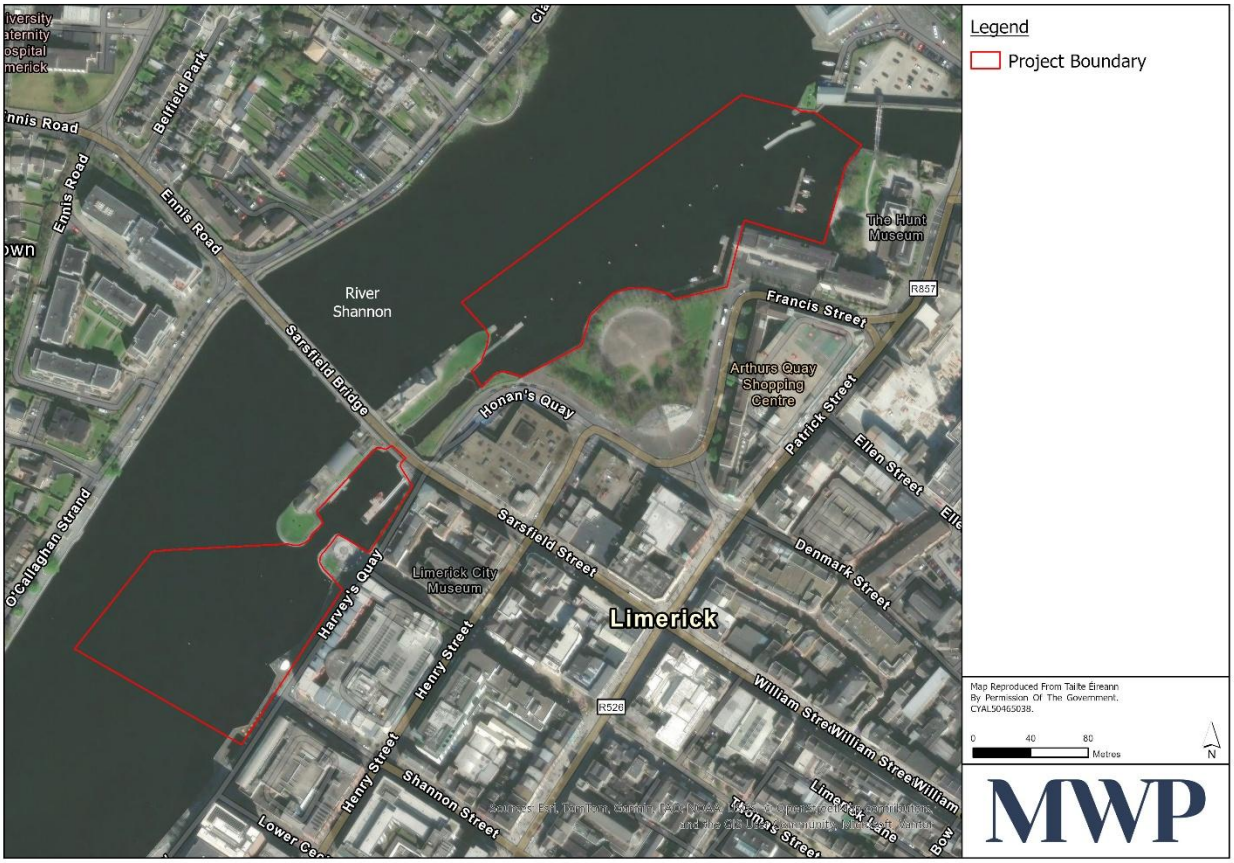

Figure 2-1: Project Boundary (MUL Area)

2.2 Dredging Methods

Dredged material will be removed by DOP pump to floating discharge pipes. This method will have a DOP pump attached to a crane on a 4-unit pontoon raft operating at twelve (12) set-up locations upstream of the weir and 14 set ups downstream of the weir. The raft has two (2) spud legs that hold the raft in position at the designated set up point. A 10mm mesh will be placed over the suction pipe of a DOP pump to remove the silt from each area, excluding larger sediments and materials on the riverbed. This will only be active at one of the identified set-up points at a time throughout the dredging period. Specifications for the crane and pontoon are shown in **Figure 2-2**. DOP pumping and floating pipe dredging is appropriate for maintenance of smaller harbours. The dredging method can be an effective, economical and environmentally suitable solution.

SPECIFICATION

Vessel Name: Kismet
Type: Multi-Purpose Work Boat
Road Transportable
Design: Steel
Port of Registry: Skibbereen
Call Sign: EI-MZ-9
Official Number: 404849
Length: 14.5 metres
Draft: 1.1 metre
Beam: 8.5 metres
Gross Tonnage: 27.6 T
Net Tonnage: 8.3 T
Propulsion: 2 no Caterpillar 3208 NA 210HP
Twin disc transmission MG5061SC 3:1
Crane: 47 tonnes/metre
H.S. Marine AK 55 E4 Crane
Winch: 13 tonnes
Access: Loading Ramp
Clear Deck Area: 115 Sq metres
Cargo Capacity: 42 tonnes to sea



Figure 2-2: Specification of type of Crane and Pontoon to be used

The silt will be pumped via a 200mm floating discharge pipe to the discharge areas on an ebbing tide. The discharge pipes will be connected to the pump and floating on the surface. Concrete anchor blocks will be placed at 10 metre intervals on the riverbed and fastened to the discharge pipes via a light chain to hold it in position. The solid concentration ratio is expected to be 80/20. The operating window to carry out works based on tide tables for the area is expected to be 5 hours per day. Based on the quantities, Table 2-1, it is estimated that 108 hours of pumping will be required.

2.3 Dredge and Discharge Areas

As part of the Shannon Navigation in the Limerick City, the area around Sarsfield Lock and the Abbey River underwent a previous significant dredging operation in November and December 2011. Almost 12,000m³ of bed material deposits were removed to licensed landfill to restore navigation depths for boat traffic.

After the flood event of 2015/16, a Hydrographic survey was carried out at the request of locals and users on the navigation to determine if the Limerick Navigation had silted up above the required navigation depth. From the survey, approximately 3,000m³ of material was shown upstream of the Lock at three (3) locations. A more recent survey showed estimated quantities in excess of 3,361m³ of material above the Lock and 5,374m³ of material below the Lock (8,655m³ of silt and 80m³ of material containing solids), significantly reducing the navigability of

the area. The dredging works aim to return the area to the previous navigation levels. These dredge areas are shown in Figure 2-3.

The dredging method will result in dredged material to be pumped across the weir to the River Shannon, see Figure 2-3. Material dredged in Areas A, B and C (Plant set up Locations 1 to 12) will be pumped to Discharge Area 1 and 2 upstream of Sarsfield Bridge, refer to Figure 2-4. Material dredged in Areas D and E (set up locations 13 to 26) will be pumped to Discharge Area 3 downstream of Sarsfield Bridge, refer to Figure 2-5. Coordinates for the discharge areas are presented in Table 2-2 and loading operation coordinates are shown in Table 2-3. The location of the loading operation is shown in Figure 2-6.

Table 2-2: Discharge Site Coordinates

Discharge Site	Location	ITM East	ITM North	Longitude	Latitude
Discharge Area A	Northeast	557250	657180	52° 39' 50.801"	8°37' 55.128"
	Northwest	557267	657167	52° 39'50.385"	8° 37' 54.217"
	Southeast	557224	657124	52° 39'48.982"	8° 37' 56.485"
	Southwest	557212	657137	52° 39'49.399"	8° 37' 57.130"
Discharge Area B	Northeast	557525	657408	52° 39'58.256"	8° 37' 40.599"
	Northwest	557540	657392	52° 39'57.742"	8° 37' 39.794"
	Southwest	557490	657357	52° 39'56.596"	8° 37' 42.438"
	Southwest	557479	657372	52° 39'57.078"	8° 37' 43.031"
Discharge Area C	Northeast	557635	657486	52° 40'0.810"	8° 37' 34.781"
	Northwest	557651	657471	52° 40'0.330"	8° 37' 33.923"
	Southeast	557603	657433	52° 39'59.087"	8° 37' 36.460"
	Southwest	557592	65744	52° 39'59.537"	8° 37' 37.052"

Table 2-3: Loading Operation Coordinates

Loading Area	Latitude (WGS84)	Longitude (WGS84)
(a)	5° 56.516' N	24° 30.616' E
(b)	5° 56.515' N	24° 30.631' E
(c)	5° 56.507' N	24° 30.631' E
(d)	5° 56.507' N	24° 30.616' E

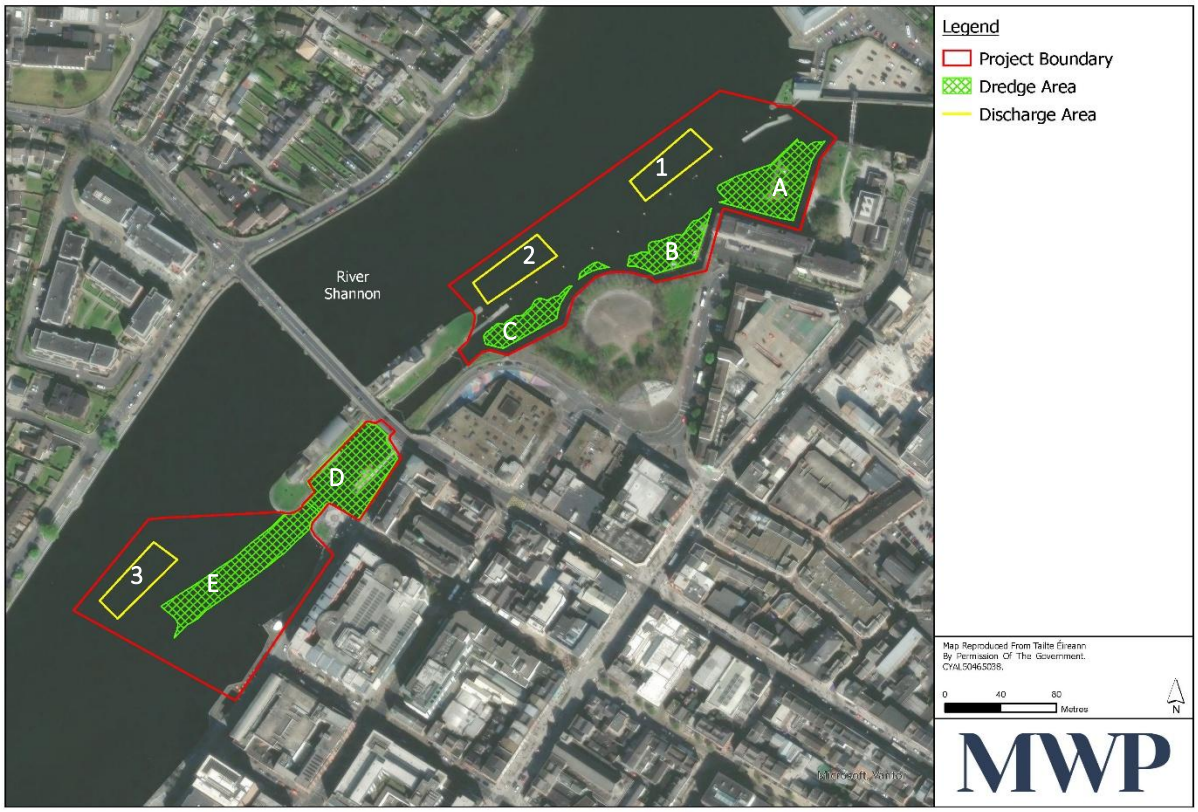

Figure 2-3: Dredge and Discharge Areas

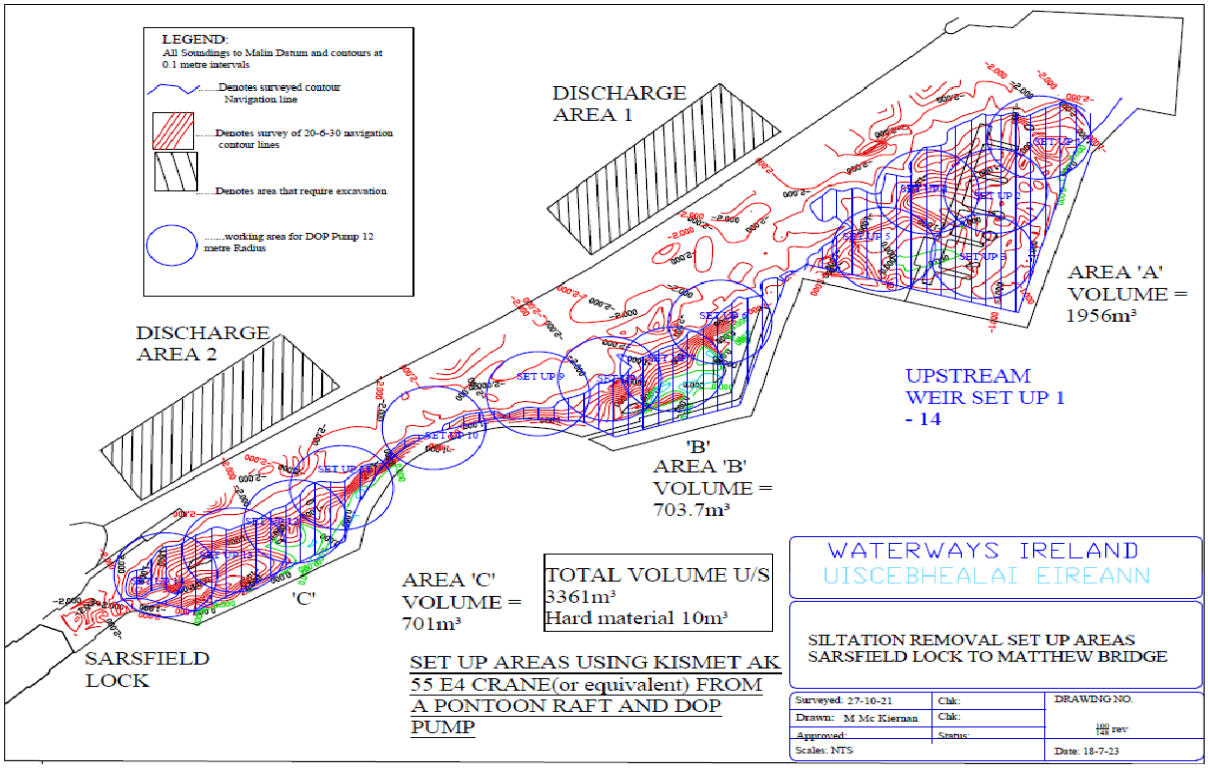

Figure 2-4: Setup Areas upstream from Sarsfield Lock

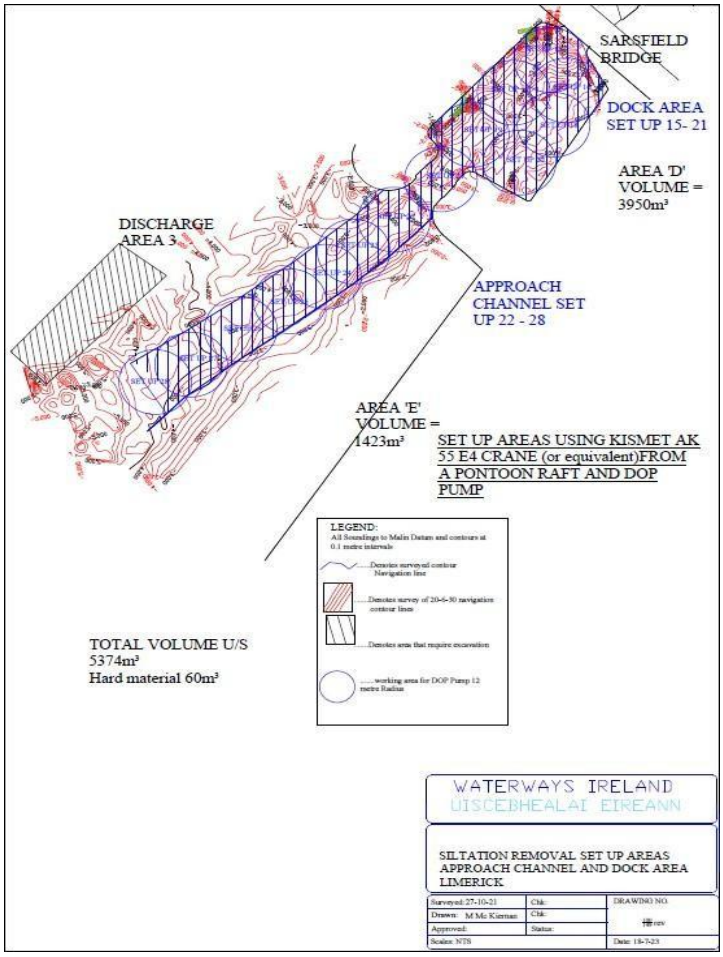

Figure 2-5: Setup Areas Downstream from Sarsfield Lock



Figure 2-6: Loading Operation Location

2.4 Dredging Programme

The areas within the river will be dredged during the period October to February inclusive, with the agreement of the IFI and the NPWS. This work period would avoid the downstream migratory period for salmon smolts and juvenile lampreys; along with upstream migrations of eels and smelt. Juvenile salmon and smolts move downstream through the Abbey River (April/May); smelt spawn within the Abbey River and Lower Shannon during March/April; lamprey transformers (sea and river species) migrate downstream in the spring, adult sea and river lamprey move upstream in the spring, adult salmon run the river Shannon from February onwards. In particular the times when juvenile fish are present (and smelt spawning) should be avoided. During the period of October to February, it is anticipated that each dredging operation will take a maximum of 15 days to complete.

2.4.1 Larger Granular Material

The purpose of the loading operation is to remove the larger granular material that is unable to be collected and dispersed by the DOP Pump and floating discharge pipes from the maintenance dredging work. The larger material, estimated to be approximately 70m³, will be collected by a long reach excavator with a perforated bucket on a pontoon raft and transported to a waiting clay barge with a capacity of 10m³. The clay barge will then travel approximately 1 km down the River Shannon to Limerick Port where the material is loaded onto waiting trucks and/or roll on off steel sealed skips to be immediately removed to a licenced waste facility for recovery or disposal. There is already an agreement in place to allow the granular material to be loaded at this location with Shannon Foynes Port Company who operate the Limerick Port, and no temporary storage is needed, preventing the probability for leakage or run off. The large granular material will be removed in the first year of dredging, estimated 2027. It is estimated at 70m³ / approx. 145 wet tonnes and will be done within the first period of dredging which is anticipated to be circa. 15 days.

2.4.2 Dredging Volumes

The total quantity is 21,181 m³ or 40,249 tonnes over a dredging eight-year period. The highest volume will be dredged in Year 1, 6,355 m³ or 12,075 tonnes. Of this, 6,285m³ will be discharged to the main channel of the river while the remaining 70m³ of granular material will be removed from the site.

The amount per load will be determined by the type and size of dredger that is contracted which is subject to a separate tender process. If a larger and faster dredger is procured, then the operations could be done in a shorter time. The drawing schedule of dredge material over the 8-year period is provided in Table 2-1.

The numerical modelling carried out for the proposed dredging works assessed the tidal and river flow operating criteria with the discharge material. The modelling indicates that the proposed discharge methods and rates does not have a significant impact on the morphodynamics of the riverbed. The modelling indicates that there may be some slight changes in intertidal bed levels in localised areas adjacent.

Table 2-4: Drawing Schedule of Material Dredged over the 8-year period

Year	Net (m^3)	Net (tonnes)
1	6,355	12,075
2	2,118	4,025
3	2,118	4,025
4	2,118	4,025
5	2,118	4,025
6	2,118	4,025
7	2,118	4,025
8	2,118	4,025
Total	**21,181**	**40,249**