

Environmental Standard Operating Procedure

ESOP Name	Mud pumping
ESOP Number	7
Revision Date	22/02/2023
Related ESOPs	2 Biosecurity



Aim

Mud pumping, or suction dredging, is used to remove sediment in areas where access for large machinery is not possible. This approach is often used in small or isolated waterbodies for conservation purposes. Recently accumulated sediments are removed with the mud-pumping vessel to provide increased water depth for plant growth and to remove nutrients stored in the mud which may have implications for water quality.

This standard procedure aims to provide a framework within which mud-pumping may be undertaken without causing undue disturbance to wildlife and habitats.

Standard Methodology

- Mud pump vessel with a pipeline pumps liquid mud to lagoons. Liquid mud is pumped to geobags, a spread site, or where possible, directly onto adjacent land. An in-line (secondary) pump may be used if mud needs to be transported over longer distances (>300 m) or up slopes.

Procedure

Pre-works

- Determine a suitable site for disposal of liquid mud within distance of pipeline with permissions from landowner
- Determine appropriate method for storing liquid mud to dry out if required, for example lagoons or geobags.
- Pre-works survey of dredge and disposal site must be undertaken by the ecology team to confirm whether or not any protected species are present and to allow mitigation to be put in place.
- Sediment stratigraphy and depths to be analysed to guide project design.
- Sediment chemical quality report to be produced prior to works.
- Target water depth determined using Waterways Standards (see Sediment Management Strategy) or a site-specific survey guided by palaeolimnological study.

Operational

- Leave a minimum non-intervention margin of 3m from the bank, unless otherwise stated.

Consultation

The following must be confirmed by the Ecology team before works commence:

- Exemption from Waste Management Licensing Regulations required for treatment (drying) or spreading of sediment
- Natural England assent if site is designated.
- Wildlife licence application for protected species – to be determined by Ecology team through pre-works site assessment and survey.
- Environment Agency permit if works are within 9m of a main river

- Internal Drainage Board permission if works impact a main drain
- If public footpath path closure is required, consultation with Norfolk County Council RoW team, or provide a methodology to maintain the path open.

Risk Assessment

Hazard	Initial Risk			Controls / Safeguards / Precautions	Revised Risk		
	S	L	R		S	L	R
Removal of sedentary species such as freshwater mussels or water plants	4	5	C	Undertake pre-works surveys and work within the appropriate season as specified by the responsible ecologist.	4	2	B
Re-suspension of sediment	4	3	B	Temporary impact minimised through operator training	4	1	B
Release of liquid mud into open water or other sensitive habitat	4	4	C	Determine appropriate disposal site and method; complete daily checks of the pipeline.	4	1	B
Introducing invasive non-native species to isolated sites on machinery/equipment	4	2	B	Refer to biosecurity ESOP and assess risks on a site by site basis to mitigate accordingly.	4	1	B
Audible or visual disturbance of breeding/overwintering birds.	3	2	B	Checks of the disposal site to be undertaken by ecologists before works begin and timings set to avoid impacts	3	1	A

Matrix

		LIKELIHOOD				
		Very unlikely	Unlikely	Moderately likely	Likely	Very likely
SEVERITY		1	2	3	4	5
Low (minimal, short-term disturbance levels and negligible damage to native habitats.)	1	A	A	A	A	A
Medium (moderate, short-term disturbance levels, some damage to native habitats/species. Regenerates quickly.)	2	A	A	A	B	B
High (high disturbance levels over a longer period and displacement of species. Damage to native habitats. Significant time to regenerate)	3	A	B	B	C	C
Very High (Long-term disturbance with displacement/death of species. Significant damage to native habitats that takes a significant time to regenerate.)	4	B	B	C	C	C

RISK	
A	OK. Work to provisions in risk assessment
B	Proceed with caution. Dynamically review risks.
C	Cancel task. Approach project in a different way.