Rehabilitation and Reinstatement Plan

Prepared for

Northern Midlands Irrigation Scheme

This is a sub plan of the Construction Environmental Management Plan

DOCUMENT CONTROL & DISTRIBUTION

REVISION REGISTER

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A	First draft submission for internal review
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CONTENTS

1 EMP Scope and Purpose

1.1 Scope

This document is to be read in conjunction with Tasmanian Irrigation's (TI) Construction Environment Management Plan Northern Midlands Irrigation Scheme EPBC Number: 2022/09295 (TI's CEMP).

The Rehabilitation and Reinstatement Plan (RRP) addresses the environmental aspects and impacts of the Northern Midlands Irrigation Scheme. The RRP applies to the scope of work described in the Project Integrated Construction Management Plan (ICMP) and complies with the TI *Environmental Protection Requirements for Construction* and the commitments made in the *Northern Midlands Irrigation Scheme Preliminary Documentation (EPBC Act Ref: 2022/09295),* report for Tasmanian Irrigation Pty Ltd by North Barker Ecosystem Services.

2 Project Environmental Aspects and Impacts

Rehabilitation of the pipeline corridor is crucial to the success of the project long term. Key management aspects to achieve successful outcomes are early reinstatement of topsoil, early vegetation, and initial and ongoing weed management. Vegetation here includes reinstatement of native vegetation for foraging and potential denning habitats for Tasmanian devil, eastern quoll, and spotted-tail quoll. A total of 23.89 ha of native vegetation will be rehabilitated post-construction.

Rivers and creeks within the NMIS are generally classified as cobble and gravel-based rivers. The main risk to this watercourse type is coarse sediment and silt entering the watercourse. The result of these incursions would be the smothering of essential bed vegetation, damage to aquatic habitats, causing the conversion of gravel creeks into clay-based creeks and damage to riffle systems. Promoting early vegetation establishment and rehabilitation of the construction corridors aims to minimise erosion and sedimentation due to prolonged exposure of soils.

3 Objectives and Targets

Environmental objectives are assigned based on project environmental aspects. Environmental targets assist in providing verifiable evidence the environmental objectives have been achieved.

The environmental objectives and targets for this project are outlined in the CEMP. The goal of the RRP is to prevent and mitigate harm to protected matters by remediating vegetation and potential habitats, further minimisethe potential for erosion, the avoidance of sedimentation in waterways, adjoining properties and drains, and preventing the spread of weeds by rehabilitating areas disturbed by construction.

Environmental Aspect	Objective	Target
Native Vegetation	Prevent and mitigate harm to protected flora matters, outside approved Permits to Take and EPBC Conditions, as outlined in TIs Environmental Protection Guidelines, EPG 1.	Restore native vegetation (habitat) available for foraging and denning for threatened carnivores to pre-construction condition in compliance with *Northern Midlands Irrigation Scheme Preliminary Documentation (EPBC Act Ref: 2022/09295)*
Agricultural Land	Maintain construction corridor and minimise extent of disturbance	Rehabilitate impacted project area as per Landowner Access Agreement
Water course crossings	Minimise construction impacts on aquatic ecosystems	Restore stream bed and vegetation to pre-construction condition

Threatened Fauna (Swan galaxias)	Prevent and mitigate harm to protected matters	Access 100% of potential Swan galaxias habitat overlapping with watercourse crossings to avoid or minimise risks from construction activity. Not clear in, dig in, or cause the pipeline to cross any waterway containing running or open water with potential Swan Galaxias habitat unless an aquatic fauna expert undertakes an aquatic survey of the waterway and the aquatic fauna expert has determined that Swan Galaxias is absent from the waterway. If the presence of Swan Galaxias is detected in any waterway the approval holder must submit a proposed waterway crossing method to the department for approval. The approval holder must not clear in, dig in, or cause the pipeline to cross that waterway unless the Minister has approved the method of crossing that waterway. The approval holder must implement the approved waterway crossing method.

4 Environmental Control Measures

The following steps must be followed to prevent and mitigate harm and allow for successful rehabilitation of project area.

- Demarcate the construction corridor to minimise project area footprint and impacts to the environment.
- Reduce the construction corridor to the smallest extent wherever possible, particularly within native vegetation.
- Keep topsoil and subsoil backfill separate. This allows retention of the soil seed bank, which will provide the greatest opportunity for natural regeneration.
- Minimise erosion through implementation of controls as per HB Drainage, Erosion and Sediment Control Plan (ESCP).
- Prevent spread of weeds through implementation of hygiene controls as per HB Weed and Hygiene Management Plan (WHMP).

4.1 Native Vegetation

Areas of impact within forest units will remain treeless post works but will be rehabilitated with grassy and shrubby vegetation present in the local area under rehabilitation commitments.

Areas of native vegetation that require post-work rehabilitation will be remediated via natural regeneration from the soil seed bank. This is the preferred method for rehabilitating native vegetation patches.

Monitoring of rehabilitated project areas will be completed monthly and after significant wet weather until revegetation presents a pre-construction condition.

4.2 Agricultural Land

Rehabilitation of agricultural land must be completed as per Landowner Access Agreements. Areas of agricultural land that require post-work rehabilitation will be remediated via natural regeneration from the soil seed bank or direct seeding. Where seeding is required, seed mix to be as specified by the Landowner.

Monitoring of rehabilitated project areas will be completed monthly and after significant wet weather until revegetation as per Landowner Access Agreement or until project area is accepted by Landowner.

4.3 Watercourses

Where trenching of watercourse crossings is undertaken, the stream bed will be reinstated to match the existing contours and be rehabilitated with native flora. Additional measures may be implemented to prevent erosion of the stream bed during natural regeneration. The requirement of such measures will depend on weather conditions and water course flow and will be addressed in the water course crossing methodology.

Watercourse crossings will be inspected weekly and immediately following any significant storm event until successfully stabilised.

Submission and approval of trenched water course crossings is required as per HB Construction Water Quality Management Plan (CWQMP).

Table 1: Rehabilitation and Remediation Mitigation Measures

Work activities	Impact	Risk	Mitigation measures
Access to site	Disturbance of topsoil and vegetation	Low	i. Maintain work activities within construction corridor. ii. Use existing accesses/farm tracks where practical. iii. Consider stripping of access tracks to preserve integrity of soil layers and maintain topsoil for later reinstatement.
Clearing	Clearing of vegetation	Medium	i. Maintain work activities within construction corridor. ii. Use existing accesses/farm tracks where practical. iii. Where possible, minimise clearing within corridor to extents required to complete work activities. iv. Conduct clearing and stripping activities immediately prior to construction works to minimise exposure of excavated and loose soils.
Topsoil removal	Stockpiling of surface soil	Medium	i. Surface soils removed from the corridor are to be stockpiled nearby for rehabilitation. ii. Topsoil must be kept separate from subsoil and backfill, and protected from erosion or other disturbance. iii. Soil that has to be stockpiled must not be transferred across a waterway or placed on the opposite side of a drain or waterway trench by any method that provides potential for the soil to contaminate the drain or waterway. iv. Topsoil is to be replaced as soon as practically possible once works are completed. v. Sediment fences and cutoff drains or sandbagging will be used to minimise sediment loss of stockpiles where necessary

Work activities	Impact	Risk	Mitigation measures
Trenching	Erosion and sedimentation	Medium	i. Temporary covering or stabilising of the upstream embankment may be required to minimise erosion ii. Additional sediment control measures may also be installed at watercourse crossings to minimise sedimentation and maintain water quality
	Spread of weeds	Medium	i. Monitoring and management of any weed species on the embankments to be undertaken as per the WHMP. ii. A declared weed eradication programme will be implemented in the construction corridor within 12 months of construction completion.
	Impacts on water quality	Medium	i. Monitor weather during construction works. Implement erosion and sediment controls for wet conditions as required. Where forecast for heavy rain, plan works accordingly and aim to minimise total area of excavation and loose soils. ii. Sediment and erosion control measures to be established prior to works as per ESCP. iii. Vegetation removal and soil disturbance during the construction is to be minimised. iv. Sediment control measures to be removed once disturbed areas have been reinstated. v. Watercourse crossings will be monitored following rehabilitation and after significant rain events
	Borrow Pits	Low	i. Any material required to be sourced from quarries or borrow pits will need to be of weed-free status.
Reinstatement and rehabilitation	Revegetation of disturbed areas	Medium	i. Any topsoil stockpiled to be used for reinstatement following construction. ii. Implement rehabilitation directly following construction activities to minimise exposure of excavated and loose soils.

Work activities	Impact	Risk	Mitigation measures
	with appropriate species		iii. All disturbed areas are to be reinstated to pre-construction condition and may include: a. Natural regeneration from seed in soil. b. Seed mix as specified by landowner. c. Revegetation using species occurring at the site. iv. Reinstated ground to be monitored monthly for regeneration and potential weed establishment and maintained to ensure establishment to pre-construction condition. v. Weed monitoring and control activities to the conducted by Hazell Bros for the duration of the defect liability period.

5 Environmental Monitoring & Reporting

5.1 Environmental Monitoring and Inspections

Environmental monitoring will be conducted as follows:

- Each major watercourse crossing is to be inspected weekly and immediately following any significant storm event until successfully stabilised.
- Reinstated ground to be monitored monthly for regeneration and potential weed establishment and maintained to ensure establishment to pre-construction condition.
- If native herbs and grasses are not readily colonising after 6 months, the following methods may be required:
    - Fence off rehabilitation area (temporarily) to reduce browsing mammals to allow for seedling establishment.
    - Plantings (sourced from a local native plant supplier).
- Monthly monitoring may be reduced to every six months should project areas be identified as effectively regenerated.
- Weed monitoring and control activities to the conducted by Hazell Bros for the duration of the defect liability period.
- The Contractor must ensure that rehabilitation and reinstatement controls are complied with, and that the compliance is documented. Compliance will be outlined in:
    - Daily Site Diary
    - Weekly environmental checklists (submitted to TI)

5.2 Project Audits

The project is subject to internal and external audits as determined by the Hazell Bros Audit Schedule. The aim is to conduct an internal management system audit on all projects within three months of project commencement and six monthly thereafter. Projects may also be subject to external surveillance and recertification audits depending on project size, funding and duration. Client audits will be scheduled as per the requirements of section 2.2.2 in the technical specification.