

3 June 2026

Landpro Reference: 26145

Council Reference: RMFT26.001; RM25.551

Re: RMFT26.001 Mt Iron Junction – technical audit of EMP

1. Introduction

Landpro has been engaged by Otago Regional Council (ORC) to undertake a technical review of the environmental management plan (EMP) prepared by Enviroscope, dated 24/11/2025, provided as Appendix L to the Mount Iron Junction Fast Track application (the application).

The review undertaken by Landpro was limited to the following:

1. The EMP itself;
2. The Earthworks Cut / Fill Depths plan (Dwg No. 003) provided by Patersons during a site visit on April 28, 2026; and
3. Draft conditions provided by ORC.

The EMP review was undertaken within the scope of the RPW Rule 14.5.2.1 relevant matters of discretion. These are:

- *Any erosion, land instability, sedimentation or property damage resulting from the activities;*
- *Effectiveness of the proposed erosion and sediment control measures in reducing discharges of sediment to water or to land where it may enter water; and*
- *The extent to which the activity complies with the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016(Auckland Council Guideline document GD2016/005); and*
- *Any adverse effect on water quality including cumulative effects, and consideration of trends in the quality of the receiving waterbody;...*

The findings of the review, in relation to the listed matters of discretion, are presented in the following sections. It is noted that while the EMP supplied is not labelled as 'draft', various paragraphs therein, along with the draft conditions supplied by the applicant, indicate that it equivalates to a draft, and that a finalised EMP will be supplied for review and acceptance prior to start of earthworks. This review has therefore been undertaken with the understanding that the EMP will be further revised and refined to ORC's acceptance prior to start of earthworks.

2. Environment Court Code of Conduct

My full name is William John Nicolson and I am employed as a Principal Environmental Consultant and Planner at Landpro Limited. I hold the qualification of BAppSc (Hons, First Class) in Environmental Management from the University of Otago. I have been involved in environmental management for the past 15 years, with the past ~8 years at Landpro Ltd, providing consultancy services for a wide range of clients throughout New Zealand.

I am a Certified Environmental Practitioner (CEnvP), an Associate member of the New Zealand Planning Institute, and a Practitioner of the Institute of Sustainability and Environmental Professionals.

Over the past 15 years, I have undertaken a wide range of environmental management-related work for a variety of clients, with a particular focus on erosion and sediment control (ESC). I have developed, implemented and audited ESC plans and EMPs on large, complex projects in New Zealand, Canada and the UK.

I confirm that I have read and agree to comply with the Environment Court 'Code of Conduct for Expert Witnesses' (Practice Note 2023). This evidence is within my area of expertise, except where I state otherwise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

In this matter, I have been engaged by ORC to provide independent environmental management advisory services, including preparation of this evidence. While I have been engaged by ORC, my duty is to impartially assist the Decision Makers, and my duty to the Expert Panel overrides any obligations I have to the ORC.

3. Erosion, land instability, sedimentation or property damage

Erosion and sedimentation

Removal of existing vegetation and topsoil from the site, and succeeding bulk earthworks, exposes subsoils to increased risk of water and wind erosion. In general, however, the measures proposed in the EMP to manage water- and wind-

generated erosion are robust, and should suitably mitigate the erosion risk. The same applies to sedimentation.

Land instability

Table 3 of the EMP summarises earthworks quantities. Based on the table, and the Earthworks Cut/Fill Depths plan provided by Patersons, cut and fill volumes and depths are relatively minor, reflecting the already comparatively flat site.

Much of the volumes comprise waste topsoil and stockpiles, stripped and respread topsoil, with the remainder comprising both site-won and imported fill. Based on this, and what appears to be cut and fill depths that are generally less than 1 m in depth/height, significant land instability effects are not expected to be significant. Please note, however, that an informed assessment of land instability effects needs to be made by a geotechnical engineer.

Property damage

Given the relatively free-draining nature of the soils, the relatively flat topography, and the relatively small cut and fill depths and heights, the risk of neighbouring property damage due to uncontrolled or untreated runoff in relation to the works is not likely to be significant. Addressing the clarifications and further information items raised in relation to the EMP (see Table 1 below) should further mitigate this risk.

Minor nuisance to neighbouring property from dust, noise and vibration generated by the works is possible, and will need to be closely monitored and additional mitigations enforced if complaints are received.

4. Effectiveness of the proposed ESC measures

The erosion and sediment control (ESC) measures proposed in Section 4 and appendices 1 and 2 of the EMP are, in general, robust and clearly presented. The below table identifies queries and/or suggested additions to the ESCP and EMP to ensure the ESC measures are as effective as possible.

Table 1: EMP review action items

EMP Section	Issue/clarification sought
1.1	The final paragraph states that a detailed EMP and ESCP will be provided closer to start of works. What further details do Enviroscope intend to include in these documents, that have not already been

EMP Section	Issue/clarification sought
	included? This will be useful to know, and may address some of the following queries/issues raised.
1.2	<i>'The site can be accessed via the sealed Wānaka-Luggate Highway in the northwest boundary and State Highway 6 in the northeast corner boundary.'</i> Confirming that neither of these entrances will be used for site access during earthworks, and only the Junction Road accesses detailed in the ESCP will be used?
1.2 Table 2	<i>'The results found indicative soakage rates of 0.07 L/s/m² – free draining, meaning insufficient water was able to be introduced to establish a pool of water at the base of the pit due to high soakage.'</i> This equates to 252 mm/hour, and while this is a relatively fast soakage rate, it is not the same as the 1000 mm/hour used to design the sediment basins. The 'free draining' determination reported in the Geotech report was for Soakage Area 2 (SA2), whereas our understanding was that SA1 had a minimum reported soakage rate equivalent to 252 mm/hr. Given the distance between the two soakage areas, and given the reported possibility of encountering sand lenses and irregularities that could impede soakage, provide further justification for the soakage rate chosen for sediment basin design.
2.1	Stormwater inlet protection along SH6 in particular may be high risk due to potentially large inflows during rain events – meaning there is a risk of clogging and surface ponding etc occurring. How will this risk be managed?
2.1	Various mentions of staging of works as a form of mitigation is made throughout the EMP, but no staging plans are included in the EMP. Will these be provided with the next (pre-start) version of the EMP?
2.1	<i>'If flows within the northern portion of catchment 1 are no longer able to gain fall to Sediment Basin 1 (SB1), construct an additional sediment basin (SB4) as shown on ESCP-002.</i> If it's observed that not all C1 runoff is being directed to SB1, it will still take time to construct SB4 – in which case, there is a risk of uncontrolled/untreated runoff leaving the site at this location until this basin can be constructed. Confirm whether there is sufficient information via the existing and design contours to

EMP Section	Issue/clarification sought
	determine whether SB4 is needed or not, and consider making this more directive in the next version of the EMP.
2.2	Site work hours of 0730-1800 is quite long, particularly given the proximity to neighbours (and potential for nuisance outside of traditional working hours). Ensure that the operation hours listed in the EMP match any relevant consent conditions, when granted.
3.4	<i>'The Environmental Consultant (SQEP) can (subject to consent conditions), monitor the site monthly...'</i> Change this to 'will' or 'shall', to reflect the proffered consent conditions.
4.5.1	See discussion above regarding design soakage rates.
4.5.1	Sediment Basin 3 – it is worth noting that any water that needs to be pumped out of this basin as a contingency is unlikely to meet the discharge criteria, without prior chemical treatment.
4.7 Table 7	Clarify whether sediment removal needs to occur more often than the proposed 20-30% capacity threshold for the sediment basins. Is there a risk that infiltration may be significantly lowered after just a thin layer of silt has formed on the base?
5.2	It would be useful, particularly for those working onsite during the works, to have mapped flowpaths for any runoff that may leave site. This can help to inform emergency procedures in the event of an uncontrolled spill or release of sediment-laden runoff.
5.5 Table 8	A discharge quality threshold of 200 NTU is proposed, however the draft conditions provided by ORC set a limit of 150 NTU for turbidity. Further, it may be beneficial to send one or two subsoil samples from the site to a lab to establish a correlation between turbidity and TSS, on the basis that certain soils in Wanaka can exhibit a tendency to have a much lower turbidity (NTU) as a field equivalent to 50 mg/L TSS (i.e. 150 NTU may be too high). Given the lack of nearby watercourses, however, I would be open to further justification as to why the 150 NTU limit set is appropriate in this instance.

EMP Section	Issue/clarification sought
	While GD05 indicates 100 mm visual clarity is appropriate as a discharge criterion, I note that the ORC Earthworks Guidelines state that 'this limit may not be an appropriate limit...for the Upper Lakes area'. Please comment on whether the 100 mm limit remains appropriate, in light of this. Draft conditions 6 and 7 of the discharge permit state that turbidity, visual clarity, TSS and pH are to be analysed following a significant rain or adverse weather event (the condition also states that samples must be collected prior to such an event, which I assume is an error). However, the EMP only proposes that turbidity or visual clarity are tested initially, and TSS and pH analysis is to follow only if the turbidity or clarity limits are exceeded. This discrepancy between the conditions and EMP discharge criteria will need to be resolved. I would further suggest an amendment to the consent condition requiring EITHER visual clarity OR turbidity (not both), noting that turbidity is a more robust mechanism for quantifying suspended sediment load.
5.5 Table 9 Samp- ling Scope	Change 'sediment retention pond' to 'sediment basin'. If decanting earth bunds are unlikely to be used, consider removing this. In addition to monitoring discharges from sediment basins, visual inspection of all other offsite discharges and sampling as necessary (such as discharges through silt fences) is recommended. This may not be necessary if inlet protection is working well, but initial visual inspections of all offsite discharges should still occur.
5.5 Table 9 Samp- ling Design	The discharge direction/location for SB4 is not shown on the ESCP. While this is currently marked as a contingency basin, this detail should still be shown on the plan.
6.4	Where will water be sourced for dust suppression? It would be worth considering this now, to ensure provision for water is made ahead of start of works. <i>'If dust activities cannot be controlled during high winds, works will cease until favourable conditions return.'</i> I would further recommend scheduling earthworks in close proximity to neighbours during

EMP Section	Issue/clarification sought
	forecasted calm conditions. Use the forecast to avoid high-risk works taking place during high winds in the first place – often the decision to cease works come too late (i.e. after a complaint has already been received).
Appendix 1 ESCP-006	The sediment basin designs are labelled as ‘Type D Sediment Basin from IECA’, however our understanding is that these basins are designed for finer particles that remain in suspension for long periods, require flocculation and have a larger volume and residence time than Type C basins, by comparison. Please confirm that the chosen basin design is correct. The design instructs the ‘internal batter’ to be lined, however does the author mean ‘inlet batter’, or all batters? Please clarify. Suggest providing a detailed design or indicative spec for any DWDC at the interface with the basin inlet (pond entry), as this is an important design feature.
Appendix 2 Sed basin calcs	Has the soakage depth taken into account the potential for encountering groundwater? If groundwater is shallower than 24 m depth, would this reduce the basin soakage volume?

For clarity, all of the items raised in the above table can be addressed as part of the next EMP revision. For the purposes of assessing the suitability of the proposed ESC measures in relation to the rule condition, it is considered that the measures proposed are likely to be effective.

5. Compliance with GD05

As detailed in Table 1, the key departure from GD05 is the sediment basin designs. Given the reported high soakage rates for the site, this departure is considered acceptable, on the proviso that the issues/queries raised in relation to the basins are addressed.

Other than this, the ESCP is generally in accordance with GD05.

6. Effects on water quality

In general, I agree with the assessment of effects on water bodies provided in Section 5.4 of the EMP. The 2018 geotechnical report referenced by the EMP indicates that soil permeability is high, and excessive runoff is unlikely to be encountered at the site. In the event that this does occur, the sediment basins (provided the issues raised in Table 1 are addressed or clarified) should be sufficient to detain and dispel sediment-laden runoff originating from the earthworks.

As always, however, there remains a risk of the basin's infiltration capacity being exceeded during events that exceed the design storm, in which case they would overflow towards either reticulated stormwater (SB1) or SH6 (SBs 1 and 2). In the case of the latter two discharges, it is not clear what the effects on water quality from these discharges will be, but as the catchments are not significant, adverse effects on nearby watercourses may not occur.

Ngā mihi nui,



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