Appendix U Draft Harvest and Earthworks Management Plan

Enviser Ref: 1480

October 2025

Harvest Plan and Forestry Earthworks Management Plan (DRAFT)

Taharoa Forest, Southern Block

Taharoa Ironsands Ltd

Contents

1 Introduction

Taharoa Ironsands Limited (TIL) owns a 60.6 hectare Radiata Pine plantation forest (Taharoa forest), which is located in the Southern Block of the Taharoa Ironsand Mine. The forest will be felled ahead of mining activities in this Block. The timing of the felling is yet to be determined but given the size of the forest and the local long-tailed bat population, it may be undertaken in stages.

The proposed activity is to undertake harvesting, earthworks and associated sediment discharges at the Taharoa forest over the next 35 years. The trees will be of a harvestable age in 10-15 years but may be felled sooner if mining activities in that part of the Southern Block need to commence earlier.

The Resource Management (National Environmental Standards for Commercial Forestry) Regulations 2017 (NES-CF) came into force on 1 May 2018. They provide nationally consistent regulations to manage the environmental effects of commercial forestry. The harvesting of the Taharoa forest, and associated earthworks and discharges, have been assessed against the relevant provisions in the NES-CF as described in the substantive application. Resource consent is required (and has been sought) for earthworks, discharges and harvesting as a Restricted Discretionary activity because the forest is located in a 'red zone' as defined in the NES-CF and the activities do not meet the permitted activity requirements. Most of the forest is located on land which is classified as having a very high risk of erosion (red) under the Erosion Susceptibility Classification (ESC). The Land Use Classification of the forest in the ESC Reporting tool is predominantly classified as Class 8e4 with some Class 7e7 (yellow – moderate). See the harvest plan in Appendix A.

An application for resource consent under the NES-CF must be accompanied by both a Forestry Earthworks Management Plan and a Harvest Plan. This document provides both of those management plans. For a more detailed description of the proposed activity, and assessment of the effects of harvest and earthworks activities on the environment, and the proposed mitigation measures, see the substantive application.

This document was informed by an earlier draft Harvest Management Plan prepared for TIL by Forest Management Group Ltd.

1.1 Description of the setting

The Taharoa forest covers an area of approximately 60.6 ha and is located within the Taharoa Ironsands Mine site, which is legally described as the Taharoa C Block. The location of the forest in the wider environmental setting is shown on the map included in Appendix A. The forest is adjacent to Lake Rotoroa and Lake Numiti. There are no rivers or streams flowing through or adjacent to the forest.

The topography of the harvest setting is flat on the western edge which transitions to rolling slopes towards the shore of Lake Rotoroa on the eastern side, with elevation contours shown on the map in Appendix A. The sites soils are free-draining sands, with overland flow only occurring in very heavy sustained rainfall events.

There are no man-made structures, such as buildings, fences or power lines within the harvest setting.

The forest has primarily been established on previously mined ground, which has been filled with tailings and then recontoured. TIL seeks to re-mine the area as part of the substantive application but cannot do so until the forest has been harvested.

1.2 The proposed activities

1.2.1 Earthworks

There is an existing road adjacent to the forest on the western boundary, which is currently used for maintenance and access to the Southern Block of the mine site. TIL intends to use the existing road as much as possible, however earthworks will be required for the following:

- Upgrading existing road to allow safe use of the roads by heavy vehicles for the purposes of carting logs out of the forest. This may include re-contouring and grade re-alignment, upgrading subgrade/basecourse material, widening and provision of passing bays, and improvements to stormwater management.
- Construction of a 400 m road extension and 4 skid (landing) sites.
- Any ancillary earthworks associated with the above.

The road and skid sites are shown on the Harvest Map in Appendix A. To minimise extraction distance and accessibility for transport, four landing sites are proposed along the western edge of the forest. Their location on the western side of the forest will ensure all processing and transport will occur as far as possible from the lakes. The width of road will be determined once the Harvest Plan is finalised ahead of felling. Skid site size will typically be between 2000-3000 m^2 but may be larger where necessary.

Earthworks will primarily be undertaken with existing mine machinery at the site, such as excavators, dozers and dump trucks. Any earthworks will reflect the final harvest timing and may take up to 3-4 weeks prior to harvesting commencing. Where possible, earthworks will be prioritised to occur during dry periods to minimise the potential of sediment mobilising across the site. There are no streams within the forest, but Lake Rotoroa is adjacent to the forest on its eastern boundary so sediment must be managed appropriately in that part of the forest.

To reduce the risk of erosion and sediment transportation from soil exposed on roads, best practice Erosion and Sediment Control (ESC) measures will be put in place to prevent water running down roads and causing excessive erosion. TIL has an extensive ESC management plan which it implements across the entire mine site to control the risks of sediment entering waterways. The measures to be implemented within the forest setting will be similar to the rest of the mine site. TIL will ensure roads and skid sites are surfaced appropriately to reduce environmental risks.

A draft Earthworks Management Plan is included in this document and will be updated closer to the commencement of harvesting.

1.2.2 Harvesting

A managed approach to harvesting will be implemented, which will be reflective of the age of trees, the timing of mining in the Southern Block, and environmental mitigation requirements. The forest will be of a harvestable age in 10-15 years, however it may be harvested sooner to suit mine scheduling in the Southern Block. Maintaining a 30 m buffer adjacent to the lake and wetlands,

combined with staged harvesting, will ensure risks to ecological values are managed appropriately, as per the recommendations included in the fauna ecological assessment[1].

A draft Harvest Plan, as required by the NES-CF, is included in this document and will be updated closer to the commencement of harvesting.

Tree felling will be completed by mechanical methods. However, traditional manual felling methods may be used at times to ensure desired safety and environmental outcomes can be achieved.

Ground-based clear-felling will be undertaken by skidders because of the site topography (low angle slopes) and logs will be extracted to landings by ground-based mechanical methods.

Felling will be undertaken in a way that ensures impacts on the environment are minimised, i.e. ensuring felling is away from native vegetation, lakeside wetlands and Lake Rotoroa.

Processing will occur at the skid sites, by machine.

Loading out and trucking the cut logs to market will be done by loaders and trucks.

Following harvest, the area will be mined, and for this reason, all harvesting waste, i.e. slash/off-cuts, will be removed from the forest area. Harvesting waste will be mulched and used across the wider mine site for rehabilitation projects.

1.3 Assessment of effects

The assessment of the effects of earthworks and harvesting on the environment is included in the substantive application. Given the location of the forest within the wider mine area and the environmental setting, the biggest risks to the environment, as set out in the AEE, are too long-tailed bats, which may roost and forage in and adjacent to the forest and indigenous vegetation along the Lake Rotoroa margin, and sediment entering lakeside wetlands and the lake. The technical assessments that support the application to harvest the forest are appended to and discussed in the substantive application and should be read alongside this document.

To ensure any adverse effects from earthworks and harvesting activities are minimised and managed appropriately, a range of mitigation measures are proposed, which reflect forestry best practice guidance, the recommendations of the project ecologists and TIL's environmental management protocols, which are implemented across the wider mine site. More details of the proposed measures are set out in the substantive application, conditions of consent and the management plans included in this document, but are summarised here:

- To manage potential adverse effects on bats that may commute and forage in the forest, a 30m setback from the lake and fringing wetlands will be maintained. This will include planting and/or maintaining indigenous species and some fast-growing exotics and will shorten the lag time between habitat loss and new foraging habitat becoming available. Existing exotic forest within the 30m setback from the lake will be retained (the harvest plan in Appendix A shows the setback areas, including some exotic forest which will not be felled).
- Staged harvesting to maintain effective habitat for commuting and foraging may be required. This will be determined in consultation with the project ecologist, closer to the commencement of harvesting.

[1] Ecological Assessment – Fauna. Prepared by SLR Consulting New Zealand, August 2025.

- To manage potential adverse effects on bats which may roost within the forest, bat roost protocols will be implemented (as proposed in consent conditions). This will ensure that prior to tree felling, any bat roost trees are identified, and bats protected.
- To protect an area of indigenous vegetation along the shore of Lake Rotoroa, a 30m setback from the lake will be maintained as shown on the harvest plan in Appendix A.
- Directional felling, away from Lake Rotoroa and the lakeside wetland, to minimise potential adverse effects on water quality, will occur.
- The extent of disturbed ground within 100m of the lake edge will be minimised where possible, and if required, cut-off drains to intercept runoff so it does not discharge into the lake, will be constructed.
- No activities will occur during heavy sustained rainfall events.
- All earthwork activities will be generally in accordance with the draft Forestry Earthworks Management Plan.
- All harvesting activities will be generally in accordance with the draft Harvest Plan.
- The draft Forestry Earthworks and Harvest Management Plan will be revised by the 1 January each year that earthworks and harvesting are occurring in the Taharoa forest, prior to the commencement of activities.
- Monitoring during earthworks and harvesting will include weekly checks of infrastructure (roads and skid sites) and machinery, and additional checks during heavy rainfall events.
- The Mine's Erosion and Sediment Control Plan will apply to excavation and harvest activities at the forest site (where applicable).

1.4 Management Plans

1.4.1 Forestry Earthworks Management Plan

Subpart 3 of the NES-CF manages earthworks associated with commercial forest activities. Regulation 35authorises, as a restricted discretionary activity, earthworks associated with forest harvesting, with clause (3)(i) restricting discretion to the preparation and content of a forestry earthworks management plan (FEMP). The FEMP requirements are set out in Schedule 4 and must –

a) Identify the environmental risks associated with the earthworks and provide measures to avoid, remedy, or mitigate the adverse effects of the activity on the environment; and
b) Contain the details required by Schedule 4; and
c) Be in place at least 20 working days before the earthworks begin; and
d) If the earthworks are required for a salvage operation, be in place 2 days before the earthworks begin.

1.4.2 Harvest Plan

Subpart 6 of the NES-CF manages harvesting, with Regulation 71 authorising, as a restricted discretionary activity, forest harvesting. Clause (2)(a) restricts discretion to the preparation and content of a harvest plan (HP) and a FEMP. The HP requirements are set out in Schedule 6 and must:

a) Identify the environmental risks associated with the earthworks and provide operational responses to those risks that avoid, remedy, or mitigate the adverse effects of the activity on the environment; and
b) Contain the details required by Schedule 6; and
c) Be in place at least 20 working days before harvesting begins, except where the harvesting is a salvage operation; and

d) If the harvesting is a salvage operation, be in place before harvesting begins.

Clause 66(3) states that *in the case of any …red zone, a harvest management plan must be accompanied by a forestry earthworks management plan that contains the details required by Schedule 4 or a combined plan that contains all the details required by Schedules 4 and 6.*

1.5 How this document is set out

The matters which must be included in a FEMP and HP are very similar; therefore one management plan has been prepared below which satisfies the requirements of both schedules, as provided for by Clause 66(3) of the NES-CF. Where a matter is required for only one schedule, this is clearly identified.

2 Person and property details

Schedule 4 FEMP	Schedule 6 HP	Item	Details
1(a)	1(a)	The plan and notice date	Plan date: September 2025 Notice date: TBC 60 working days before harvesting or earthworks commence
1(b)	1(b)	Landowner or their agent	The Proprietors of Taharoa C Block Inc
1(c)	1(c)	Forest owner (if different)	Taharoa Ironsands Limited
1(d)	1(d)	Forest manager (if different)	Taharoa Ironsands Limited
1(e)	1(e)	Contact details for service	c/- Wayne Coffey, Taharoa Ironsands Ltd Level 19, Ntt Tower, 157 Lambton Quay, Wellington, 6011
1(f)	1(f)	Region and district in which the forest is located	Waikato Region / Waitomo District
1(g)	1(g)	Road used for forest access and rural number of entry point	Taharoa Road, Taharoa 3988
1(h)	1(h)	Forest name or property location identifier	Taharoa forest, title SA34B/688
1(i)	1(i)	Cadastral and map references, or GIS polygon reference	38°10'47.0"S 174°43'21.5"E

3 Map

The plans must include a map or maps that include and show the matters set out in Section 2 of Schedules 4 and 6, and which are listed in the following table. The map is included in **Appendix A**.

Schedule 4 FEMP	Schedule 6 HP	Item	Details
2(a)	2(a)	**A scale not less than 1:10,000**	Y
2(b)	2(b)	**The record of title, the date, and a north arrow**	Y, legal title boundary is shown on map

2(c)	2(c)	**The external property boundaries within 200 m of the commercial forestry activity area**	Y
2(d)	2(d)	**The contour lines at intervals less than or equal to 20 m**	Y
2(e)	2(e)	**The erosion susceptibility classification (NESCF overlay map)**	7e 7 – yellow (moderate) – approximately 15.9 ha 8e 4 – red (very high) – approximately 45.3 ha
2(f)	2(f)	**The location of any significant natural areas and vegetation clearance areas**	None in the harvest area. There is an SNA outside the harvest area to the north.
2(g)	2(g)	**Any water body or the coastal marine area, including –** **(i) wetlands larger than 0.25 ha and lakes larger than 0.25 ha; and** **(ii) rivers to their perennial extent; and** **(iii) rivers where the bankfull channel width is 3 m or more; and** **(iv) any outstanding freshwater body or water body subject to a water conservation order; and** **(v) any setbacks from any identified water body or the coastal marine area**	(i) Lake Rotoroa is part of the Taharoa Lakes (comprising 3 interconnected lakes with a combined surface area of approximately 2.55 ha), and lakeshore wetland (area unknown) (ii) rivers – none (iii) rivers – none (iv) outstanding freshwater bodies' or WCO – none (v) setbacks from water body or the coastal marine area – proposed setback of 30m from lake edge and wetland
2(h)	2(h)	**Any registered drinking water supply and any drinking water sources for more than 25 people within 1km downstream of the commercial forestry activity**	None
2(i)	2(i)	**The location of any forestry infrastructure, including existing and proposed-** **(i) roads** **(ii) tracks** **(iii) landings** **(iv) firebreaks** **(v) river crossings (permanent and temporary)** **(vi) fuel storage and refuelling sites** **(vii) end-haul deposit sites** **(viii) slash storage areas**	(i)roads - use existing road plus an extension (see map) (ii) tracks – no additional tracks will be constructed (iii) landings - there will be 4 skid sites (see map) (iv) fire breaks - none proposed (v) river crossings – none required (vi) fuel storage & refuelling - will occur on the skid sites (vii) end-haul deposit sites - none (viii) slash storage areas – on stable ground to the side of the

			skid sites. Slash will be removed from the site ahead of mining, by mulching and reusing for rehabilitation projects across the mine site
2(j)	2(j)	**Spatial information associated with the activity described under clause 3**	See map

4 Activity

Section 3 of each schedule lists information required to describe the activity.

Schedule 4 FEMP	Schedule 6 HP	Details
3(a)	3(a)	**The commercial forestry activity being undertaken** Harvesting of *Pinus radiata* in an area of approximately 60.6 hectares as shown in Appendix A.
3(b)	3(b)	**Where the activity is taking place** Southern Block of the Taharoa Ironsand Mine

3(c)	3(c)	**When the activity will begin and end**
		A commencement date has not yet been determined. The trees will be harvestable within 10-15 years but may be harvested sooner if TIL wishes to commence mining in the forest area before then. Earthworks to upgrade roads and construct the skid sites will be completed at least 3-4 weeks prior to harvest commencement.
		To minimise potential adverse effects on bats which may roost, forage and commute in the forest, the following measures, which must occur prior to harvesting, will need to be accounted for when determining when to commence harvesting:
		• Identification of potential roosting trees within the forest (as per bat roost protocols), noting:
		  ○ There are timing restrictions for felling bat roost trees (can only occur between October 1 and following April 30)
		  ○ acoustic monitoring must be undertaken
		  ○ climbing inspections may be required
		• Maintenance and establishment of habitat suitable for foraging and commuting, in the buffer area adjacent to the lake and wetland margins, prior to any harvesting.
		• Staged harvesting may be required (as confirmed by project ecologist when the HP and FEMP are updated closer to the commencement of harvesting).
		If staged harvesting is required, the overall harvest time will be extended.

3(d)	3(d)	**How the activity is to be undertaken** The access road, skidder sites and erosion control measures will be installed first, as set out in the description of the activity in Section 1, and below. The road and skid sites will be located to the west of the forest to ensure the majority of earthworks and 'high risk activities' occur the furthest distance from Lake Rotoroa possible.

		Existing road – the existing road shown on the map will be utilised, with upgrades if required to accommodate machinery and trucks. New road – approximately 400m of new road (an extension of the existing road) will be constructed to access the southern part of the forest. Skid sites – four skid sites will be constructed for harvesting and processing logs. Measures to manage the potential movement of sediment across the site and into the lakeshore wetland and Lake Rotoroa will be implemented as set out in Section 5 of this plan. TIL has, and implements, an extensive site wide erosion and sediment control (ESC) plan for mining activities (including the construction and maintenance of roads) which will be relied on to manage sediment across the forest site (the forest is within the wider mine site). Where additional measures are required, such as adjacent to the lake, these are set out in the following section of this plan. Trees will be harvested utilising machine harvesters and manual felling. Felled logs will be pulled to defined skidder sites shown in Appendix A, for transport off-site. To ensure harvesting near Lake Rotoroa is managed to minimise adverse effects to water quality, directional felling will be implemented, with trees being felled away from the lakeshore wetland and lake. Additional measures to prevent runoff from the forest site towards the lake will be implemented, such as diversion channels or soak holes and sediment traps.
3(e)	-	**The scope of work covered by the earthworks (including estimated earthworks cut and fill volumes, by ESC zone if there is more than 1)** Because most of the site is within a red ESC zone (45.3 ha), the entire site is treated as red for management purposes. For this reason, the earthworks cut and fill volumes are not separated by ESC zone. Total earthworks volume at the site will be up to 10,000m^3, including: • Upgrading existing roads for skidder operation (estimated volume of 2,000m^3 to 3,000m^3 of earthworks) • Building skid sites on the edge of the harvest setting, for processing logs (each skidder site will require approximately 1,000m^3 of earthworks – 3 of the 4 skidder sites are in the high risk erosion area) • Extending the existing logging road by approximately 400 m to allow access to Southern section of the harvest site (estimated 1,500m^3 to 3,000m^3 of earthworks)
3(f)	-	**Whether the earthworks are for maintenance, upgrade, road widening, realignment, or new work** Roads • Upgrade work: approximately 1,200 m of existing forest road will be upgraded for log truck access. • New work: Approximately 400 m of new road will be formed to provide log truck access from farm road to skids. The average cut batter height will be 1m or less. Skids/Landings • Upgrade work: N/A

		• New work: 4 new skids will be built on flat edges of the harvest setting next to the logging road. Trucks/Fire breaks • Upgrade work: N/A • New work: No engineered tracks necessary on flat harvest setting. The Skidder will extract logs from the felling machine and transport them back to skids to avoid removing top layer of soil material from repetitive machine movement on a small number of tracks. Water body crossings (permanent and/or temporary) • No crossings are required Material • Wood chip material to be used as road surface layer where required.
3(g)	-	**The anticipated construction time for forestry earthworks and stabilisation** Earthworks will be completed within 3-4 weeks of commencement of forest harvesting, noting however, that because of the proposed staging of harvesting, earthworks will occur as required to service each 'stage' of forest harvesting which will ensure that earthworks are not left exposed unnecessarily.
3(h)	-	**The rainfall event size and duration that has been used to design the sediment control measures referred to in clause 4 and the heavy rainfall contingency and response measures referred to in clause 6** Heavy rain event of 5% Annual Exceedance Probability (AEP) or greater, at 20-minute intervals which equates to a rainfall depth of 18.2mm (Niwa High Intensity Rainfall System – Port Taharoa).
-	3(e)	**The harvesting method, whether ground-based or hauler, or any other method, and the hauler system type** Because of the relative flat topography of the site, ground-based harvest methods will be used at the site. Harvest method: Ground based Harvest setup: Ground based shovelling and skidder extraction Ground Based: Tether/traditional Hauler: Highlead/grapple etc
-	3(f)	**The planned timing, duration, intensity, and any proposed staging of the harvest** Timing: the proposed timing of harvesting is set out above in section 3(c), and timing will be determined in large part to manage potential adverse effects on bats. Because the trees will not be of harvestable age for 10-15 years, exact timing is unknown and will be confirmed when the HP is finalised closer to harvesting. In addition, it should be noted that timing will also depend on mining activities in the Southern Block, so harvesting the forest could be brought forward or pushed back depending on mine activities. The forest is relatively small, at only 60.6 ha, so if harvested all at once could be completed within 3 to 4 months. Duration: tbc Intensity: 300 t/day Staging: Hot deck operation using a two-stage log transport system to reduce the roading infrastructure and the size and number of landings required.

5 Management requirements

Section 4 of both schedules addresses the management practices to address adverse effects of harvesting and earthworks on significant natural areas, water quality and sediment, erosion and sedimentation, slash management, indigenous birds, fish species, and other indigenous species of fauna.

Schedule 4 FEMP	Schedule 6 HP	Details
Significant natural areas		
4(1)	4(1)	**The plan must describe-** **(a) How any significant natural area identified under clause 2(f) is to be avoided when undertaking commercial forestry activity; and** No SNAs identified under clause 2(f)
		(b) The operational restrictions, including on afforestation or replanting, earthworks operations, or harvesting, as applicable, that will be used to ensure that no commercial forestry activity occurs within the significant natural area No SNAs identified under clause 2(f)
Water quality and sediment		
4(2)	4(2)	**The plan must identify, for sites with a water body, the risks from material that is mobilised, including woody debris, slash, or sediment, to the following if they are located downstream of the commercial forestry activity:**
		(a) Public roads and other infrastructure There are no public roads or other infrastructure near the forest.
		(b) Properties, including dwellings There are no properties, including dwellings near the forest.
		(c) Rivers, lakes, estuaries, and the sea Rivers: There are no perennial or ephemeral rivers in or near the harvest setting. Lakes: Lake Rotoroa is on the eastern boundary of the harvest setting. The lake and lakeshore wetlands have both environmental and cultural values, as described in the substantive application. Any discharge of sediment or contaminants, or deposition of material into the lake or wetlands may adversely affect those values, by changing water quality. Estuaries: There are no estuaries near the site Sea: The site is not adjacent to the sea
		(d) Drinking water supplies There are no drinking water supplies within or downstream of the site.
Erosion and sedimentation		
4(3)(a)	-	**The plan must include-**

		(a) A description of the management practices that will be used to avoid, remedy, or mitigate risks due to forestry earthworks that have been identified on the map, including, in sufficient detail to enable site audit of the management practices to be carried out, - i. **The proposed erosion and sediment control measures to be used** The risks to the freshwater in the lake and wetlands, from erosion and sediment discharges, will be minimised by the establishment of a 30 m planted buffer area, between the harvest area and wetlands and lake (as shown on the harvest plan in Appendix A). ESC measures during earthworks and harvesting will be implemented to reduce risks to freshwater. A variety of runoff controls and surface stabilisation techniques will be implemented to prevent on-site erosion problems. Site topography will assist with ensuring adverse effects on fresh water are minimised and excavation within 100m of water will be closely managed to stabilise the site, with sediment traps constructed where required. Directional felling and hauling of trees will occur away from any wetlands and lakeshore. Due to the permeable sands at the site, and site topography, ground disturbance works in proximity to the lakeshore wetland and lake are judged to have a medium risk. The road and skid sites will be located on the western side of the forest, away from the wetland and lake so risks of sediment entering water from these will be nil. All road upgrades and construction will be completed in accordance with ESC measures set out in the Mine's EMP. During harvesting, directional felling will occur, away from the lakeshore wetland and lake. The surface cannot be protected from rainfall and stormwater runoff by replanting because the site will be left bare for mining. Instead, sediment will be captured by a range of measures as outlined below. ESC measures include: • Stabilisation – compaction to stabilise surfaces, following routine site inspections • Runoff control – diversion channels and water bars/bunds will be constructed where required, particularly to keep clean water from running across the area of disturbed ground.

		• Sediment control – soak holes/sediment traps and silt fencing on the downslope side of the disturbed ground as needed. • Buffers/setbacks (as shown on map in Appendix A) will be developed and maintained (where within Taharoa C boundary: ○ 30 metres between the boundary of forest harvesting and lake margin wetlands and the lake • Indigenous vegetation surrounding the lake margin will be retained to help erosion and sediment control and to filter runoff. • Regular monitoring and inspections, especially during heavy rainfall events, to ensure measures are working appropriately and as intended. Any improvements in design will be implemented immediately. • Sediment controls will be regularly inspected and maintained to ensure their storage capacity is maintained. Any accumulated sediment will be removed. • All sediment control devices will be inspected before a storm that is likely to result in rainfall depths approaching the design criteria (i.e. 18.2mm). The measures will also be inspected after the storm and repairs/maintenance undertaken as needed.
		ii. The situations in which they will be used The ESC measures set out above will be used as required, when activities: • are within 100m of the lakeshore wetland and lake. • On sloping ground where there is a chance of concentrated runoff. This will be assessed prior to the commencement of ground disturbance activities.
4(3)(b)	-	**The following minimum erosion and sediment control measures:** **iii. Water run-off control measures** Water run-off to be directed into cutover containing slash wherever possible through best management practices e.g. water tables, sediment traps and cut-offs.
		iv. Sediment control measures during construction and during harvest Any tracking from repetitive machine movement will be machine compacted, and water cut-offs will be installed when adverse weather is expected to prevent erosion during storm events and to stabilise the site post-operation. Consideration of water flow is to be incorporated into the final excavation design and harvest plan once the commencement date has been set and before any track road is opened. The water control shall ensure any runoff is collected and discharged in a manner that prevents erosion and minimises the discharge of sediment. The ESC measures are set out in section (4)(3)(a).

		v. The method to be used to manage excess fill for large-scale cut and fill operations and, if the method is end haul, the proposed disposal location Due to site topography, there will be no large-scale cut and fill required at the site. However, cut and fill operations will follow best management practices and spoil to be placed in a location where it will not mobilise into a waterway or waterbody in a 5% AEP event i.e. not within close proximity of water, not within gullies or on steeply sloping ground. It is expected that any spoil will be side cast next to the track and used to control runoff and run-on water.
		vi. Methods to be used to stabilise batters, side cast, and cut and fill. Machine track rolling to be used for compaction. Fill batters to be bucket compacted where practicable. Batters that have not regenerated naturally after harvesting will be stabilised, unless mining is to be progressed through the area.
-	4(3)	**The plan must include a description of the management practices that will be used to avoid, remedy, or mitigate erosion and sedimentation risks due to commercial forest harvesting. Those risks include risks relating to features that must be protected during the operation, including significant natural areas. The features must be mapped. The description must include, in sufficient detail to enable site audit of the management practices to be carried out, -** **(a) The proposed erosion and sediment control measures to be used;** The site's soils are free-draining sands. Overland flow only occurs in very heavy sustained rainfall events. In these conditions, active forestry operations will not be undertaken. The primary risk of erosion and sedimentation is along the boundaries of the harvest area closest to the edge of Lake Rotoroa. Discharge of sediment and woody debris/slash to the lake will be avoided. To avoid these discharges, the following shall be implemented on that interface: • A 30m buffer from the lake edge and fringing wetland shall be implemented at all times. • No slash or debris shall be stockpiled/stored within 100m of the lake edge. • The 30m buffer must not be disturbed in any way to ensure the vegetation in that buffer is maintained and retains the ability to filter any overland flow. • Any areas of disturbed ground larger than 100m^2 within 100m of the lake edge, shall be stabilised as soon as practicable. • If required, cut off drains discharging to soakage pits shall be installed across the top of the slope leading down to the lakes. The purpose of these will be to intercept runoff from heavy

		sustained rainfall events before it discharges down the slope to prevent erosion and entrapment of sediment/woody debris.
		(b) The situations in which they will be used These additional measures will be deployed along the lakeside edge of the harvest area at all times.
Slash		
-	4(4)	**The plan must describe the management practices that will be used to avoid, remedy, or mitigate risks relating to slash. Those risks include risks relating to features that must be protected during the operation, including significant natural areas. The features must be mapped. The management practices must include procedures for-**
		(a) Avoiding instability of slash and the ground under slash piles at landings Slash movement has the potential to increase soil erosion and sedimentation. Slash will be stored at designated slash storage areas (adjacent to skid sites), on landings with stable ground. Slash will not be deposited onto land that would be covered by water during a 5% AEP event. Slash piles will be managed to remain stable and avoid the collapse of a pile or the ground under the pile, by ensuring stormwater is diverted away from any slash piles. Skid sites to be located on flat terrain at least 200m from waterways or water bodies.
		(b) Keeping slash away from high-risk areas (no-slash zones) There will be no slash piles within 100 metres of the lake or wetland.
		(c) Managing slash in the vicinity of waterways, including identifying any areas where it would be unsafe or impracticable to retrieve slash from water bodies Trees adjacent to the lake boundaries are to be felled directionally away from the lakes. There are no other waterways within the forest area. There will be no machine access to the lake edge setback unless it is required for safety purposes for tree felling (section 68(5)(b)(iii)).
		(d) Ensuring that slash is not mobilised in heavy rain events (5% AEP or greater) and contingency measures for such movement, including requirements for slash removal from streams and use of slash traps. Slash will not be located near streams because there are none within or downstream of the site. Stormwater will be diverted and discharged away from slash piles to reduce the risks of slash mobilisation during heavy rain events. All slash will be removed and reused across the wider mine site – it will be mulched and used in rehabilitation projects across the site.
Indigenous birds		

4(4)	4(5)	**The plan must describe the procedures required by regulation 102(2), if applicable** There are no indigenous bird species that are Nationally Critical, Nationally Endangered or Nationally Vulnerable located with the Southern Block of the mine site (the forest is within the Southern Block). See Assessment of Effects on Fauna prepared by SLR Consulting NZ., as appended to the substantive application.
Fish species		
4(5)	4(6)	**The plan must include,-** **(a) With reference to the map, a description and the location of any relevant species identified-** **i. Using the electronic tool referred to in item 9 of Schedule 2 (Fish Spawning Indicator); or** There are no NES-CF Fish Spawning Habitats within the harvest setting.
		ii. By a freshwater fish survey required by regulation 97(4)(b)
		(b) Confirmation of areas where and periods when disturbance is not permitted N/A
		(c) Procedures to avoid disturbance of a wetland or the bed, or vegetation in the bed, of a perennial river or lake, including sequencing of harvesting and earthworks and operational restrictions. There are no rivers within or downstream of the harvest setting, however it is adjacent to Lake Rotoroa and its lake shore wetlands. A buffer of at least 30m will be maintained to manage the effects of harvesting and earthworks on the wetland and/or lake.
Other indigenous species of fauna		
4(6)	4(7)	**The plan must include procedures to-** **(a) Identify any threatened or at-risk species of indigenous fauna present within the forestry earthworks activity / forestry harvest areas** Bat surveys have identified long-tailed bats in the vicinity of the Taharoa forest. See **Appendix B** for the bat survey results included in the Fauna Assessment prepared by SLR Consulting NZ. The pine plantation forest is used by long-tailed bats for foraging and potentially roosting. The assessment concluded that potential roost trees may be present within the pine plantation forest, however there are likely low numbers of bats.

		(b) Mitigate adverse effects on those species from the forestry earthworks / harvesting activity To manage potential adverse effects on bats, the following mitigation will be implemented: • Bat Roost Protocols (vegetation clearance protocols) to identify and protect roosting sites • Establishment and maintenance of buffer areas, including fast growing exotic trees, to provide suitable habitat for foraging, commuting and roosting. This will shorten the lag time between habitat loss and new foraging and roosting habitat becoming available • Staging of tree harvesting, as recommended by the project ecologist.

6 Plan information specification

Section 5 of both Schedules 4 and 6 state that the information required by clauses 1 to 4 must be submitted in a GIS-compatible format if requested by the relevant council. This is available if requested.

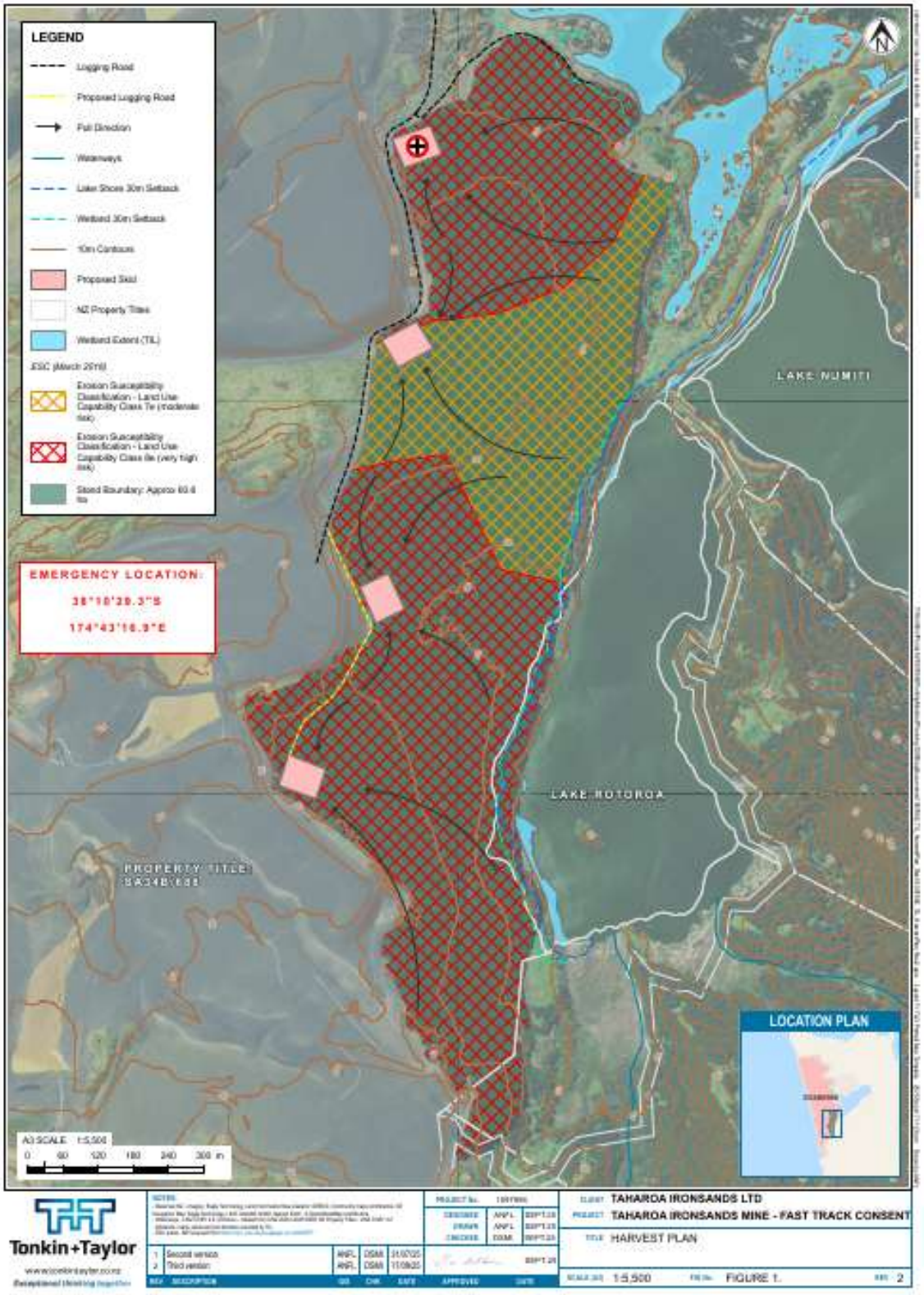
7 Management practices for maintenance and monitoring

Section 6 of both schedules relates to management practices for maintenance and monitoring, both during activities and post-harvest to monitor residual risks and the corrective action processes.

Schedule 4 FEMP	Schedule 6 HP	The plans must include -
6	6	**(a) The proposed routine maintenance and monitoring processes** The Harvest crew and the TIL harvesting supervisor will undertake weekly checks on infrastructure as part of a routine maintenance and monitoring response. Regular site checks will be undertaken when working near the lake and wetland as the project progresses to ensure sediment is not entering water.
		(b) The proposed heavy rainfall contingency and response measures, including- **i. Specific triggers or thresholds for action** **ii. Post-event monitoring and remedial works** In the event of forecasted or actual heavy rainfall that is equivalent to the design storm (i.e. above 18.2mm rainfall depth in 20 minutes): (a) prior to forecasted events, all sediment control structures will be inspected and reinforced where required, and any tracking from repetitive machine movement will be compacted and water cut-offs will be installed where necessary. (b) operations will be suspended when rainfall is predicted to exceed the design storm (i.e. 18.2mm in 20 minutes), as determined by review of MetService forecasts.

		(c) post-event, a full inspection of earthworks, water crossings, and sediment controls will be conducted on the first workday following the event. (d) any observed failures or sediment discharges will be documented, and remedial actions (such as re-compaction, reinstallation of controls, or additional planting) will be implemented within 72 hours to stabilise affected areas. Any accumulated sediment that is reducing the effectiveness of the sediment controls shall be removed. Road surface will be topped up to avoid ponding and/or road decay as required.
		(c) **The post-harvest monitoring of residual risks, and the corrective action processes** Post-harvest monitoring to occur for a minimum of 6 months. Any waterbodies will be checked to ensure slash is removed and placed in stable locations if safe to do so. If any issues are found, these will be rectified before works on site are considered completed to NES-CF standards. Relevant regulatory authorities will be contacted on completion of works on site. Once a compliance report is produced, the site will be handed back to the forest/landowner for ongoing maintenance and compliance with the NES-CF. If no monitoring is undertaken by relevant regulatory authorities, the site will be handed back to the forest/landowner for ongoing maintenance and compliance with the NES-CF.

Appendix A Harvest Plan



Appendix B Bat Survey Map

The map is sourced from the Fauna Ecological Assessment report prepared by SLR Consulting NZ for the Taharoa Ironsands Central and Southern Blocks Mining Project (8 September 2025).