

APPENDIX ONE: SUMMARY TABLE OF LANDSCAPE FIELD NOTES

PREFERRED ROUTE	NATURAL CHARACTER*	AMENITY	VISIBILITY/VISUAL SENSITIVITY	KEY LANDSCAPE ELEMENTS	KEY ISSUES AND EFFECTS	OPTIONS
Kiwi Burn Terminal to Whitestone Flats (0.0 – 9.5 km)	Kiwi Burn Terminal area most modified and well-used point in study area. Grazed terraced flats on true left bank; dramatic rock-lined gorge where mararora river narrows. Swingbridge crosses river at this point providing access to tracks and hut around the Kiwi Burn. Established track as far as hut. Route then climbs up and over Dunton saddle to the Whitestone flats at Glen Echo Station. From 5km to approx 6.5km mark landscape is very steep in places and with large pockets of dense tangled undergrowth. Natural character: Moderate	High amenity values around Kiwi Burn 'carpark' and swingbridge; rapids through gorge popular with kayakers; hut and tracks in this area used regularly if not frequently. Regular noise of fixed wing aircraft in area. Amenity values: High	Rough character of topography along section of route beyond hut to Whitestone flats should help absorb monorail structure. Higher amenity values of section from terminal to hut mean structure will be visible to more people. From the stretch of track alongside the Mararora, the Mavora Lakes road, power poles and farm buildings can be seen on the true left bank. Existing modifications can reduce the sensitivity of the receiving landscape and permit additional modifications to blend in more easily than a natural setting. In this case the river reduces this effect a little since it acts as a natural division between the less modified right bank and the more modified left bank. Visual sensitivity: Moderate	The Mararora is a significant braided river; terraced landforms either side of river - cleared on true left, draped in beech on right. The riparian edge on the true left has been fenced off and is revegetating. Beyond the hut the route sidles up to Dunton saddle at approx. 700m, crossing steep slopes and two significant deep guts on the way. A sizeable plateau at the saddle drops off at more gentle grades down to river terraces towards Whitestone flats.	Construction and alignment across steep guts - effect on ground and canopy of large substantially engineered structures; conflict with those using the Kiwi Burn area for recreational purposes; construction and operation of terminal	Move terminal site to left of access road and push crossing point downstream to 1km mark; once in bush on true right, stay in until Kiwi Burn clearing; care with construction and alignment across steep guts and faces - curve rail to follow contours and stick as close to ground-level as possible. Benefits: limit effects on the recreational experiences of other users Disadvantages: difficulty acquiring land
Whitestone Flats to Whitestone/Upukerora Saddle (9.5 – 17.0 km)	Strongly terraced landforms around Whitestone river flats; quite modified rural landscape around Limestone Hill and up towards Whitestone/Upukerora saddle; large amount of deer fencing. Attractive tussocky clearing on slopes around the back of Limestone Hill with picturesque views north to Snowdon Peak. Natural character: Moderately Low to Moderately High	Access up Whitestone River requires owners permission; used by fishermen and hunters. Private hut up Whitestone river at base of Limestone Hill Amenity values: Moderately low due to difficult access	The route around Limestone Hill that avoids Glen Echo land runs through some attractive and varied landscape. This route is likely to disturb landscape values more than an alignment across the farmed Whitestone flats in front of limestone hill, however it remains on the margins of modified landscapes and provides a more scenic experience for the monorail traveller. Whitestone River terraces able to absorb a more linear alignment but river margins are typically more sensitive Visual sensitivity: Moderately Low	Very strong, straight terrace landforms run alongside the Whitestone River which is a substantial semi-braided river at this point. Limestone Hill itself is an interesting feature at 878m, half vegetated and half grazed. Sinuous edge along cleared tongue (towards Whitestone saddle) but modified simple transition from bush to clearing. Character of clearing between kms 12 and 15 appears more open when travelling north to south since the clearing opens into the Whitestone flats at this end. Attractive terracing around Whitestone River becomes visible at approximately 13km. Tongues of bush and undulating spurs open and close space and views in both directions.	Care in alignment along sinuous bush edge up narrow clearing - ideal if route can be tucked close to but outside bush edge and follow curves in topography and bushline as much as possible. Avoid too many bush/clearing transitions but where they're required, angle line into/out of bush preferably on curve (following natural contours where appropriate).	
Whitestone/Upukerora Saddle to Upukerora River (17.0 – 20.5 km)	Narrow, steep-sided river valley. Quite dense tangled undergrowth in places with gaps in canopy. Higher in -river values - meandering substantial river. Natural character: High	Dramatic view up Upukerora river to mountains in distance - braided river bed in foreground and mountains framed by steep valley sides. Downstream, tongues of beech appear to enclose valley completely. Track up river well marked but does not appear to be well used. Access up Upukerora River requires owners permission; used by fishermen and hunters. Amenity values: Moderately low due to difficult access	A rail tucked into one side of a narrow bush-covered valley would be significantly less sensitive than one pushed closer to the valley floor and river bed. In this case, many river crossings would be required and the monorail would be likely to replace the river as the focus of the valley. Visual sensitivity: Broad scale - Moderately Low Localised scale - Moderately High	Occasional little waterfalls on upper terraces. Sizeable trees and dense in places but not of the same dramatic diameter seen over Dunton toe. Boggy areas on lower flood terraces. Obvious river flood effects in places where big flows have undercut banks. Significant snow damage-many large fallen trees.	Construction and alignment in a narrow river valley where there are steep slopes rising immediately from river. Care in alignment away from river bed and care in construction on slopes above.	
Upukerora River Flats	Follows the Upukerora River, one of the largest, semi-braided rivers in the study area, traversing it where there are more open river flats. Some of the steeper slopes on either side of the river are bush-covered down to the water, while the flatter terraces are generally dominated by exotic pasture species. The introduction of a monorail into this environment will effect perceptions of the current level of naturalness. Some cut and fill may be required for the first kilometre downstream where the slopes into the river are steeper. Natural character: Overall, high but sense of localised modification.	Visitors to this area around the Upukerora River are most likely to be hunters and anglers. Four wheel drive access up the river is possible and requires permission from the property owners. This alignment is generally on the edge of more modified rural landscapes, rather than encroaching on the more remote and wild landscapes. Would mostly be viewed beyond exotic grassland-covered river flats, set against bush slopes and terraces. Amenity values: Overall, moderate	A rail tucked against the beech fringes would be absorbed more easily into the landscape than one pushed into the open valley or close to the river bed. Where the river must be crossed the monorail will be highly visible. Visual sensitivity: Moderately High	The large, semi-braided river and modified grasslands surrounded by sinuous beech edge are the key characteristics of this area.	Careful installation of piers on steep slopes and narrow terraces and where possible avoid cut and fill on steep slopes that drop directly into the river bed. Care with alignment at crossing point - minimise distance across river and from bush edge to bush edge.	

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ALTERNATIVE OPTION 'B' (Superceded)	NATURAL CHARACTER*	AMENITY	VISIBILITY/VISUAL SENSITIVITY	KEY LANDSCAPE ELEMENTS	KEY ISSUES AND EFFECTS	OPTIONS
Upukerora River to Dunton Swamp (18.5 – 22km)	Bush here has an aged feeling. Coherent natural patterns and processes illustrate ecological cycles that are clearly frequent and ongoing. The trees are predominantly red beech, many with large trunks, high canopies (30m+) and frequent coverage. Terrace landforms are pronounced enough to remain legible under the vegetation. Natural character: Very High	Size of trees is immediately impressive. Four wheel drive access up Upukerora River is possible but requires property owners permission. Walking track cuts further west across lower toe. Amenity values: Overall, low due to limited use and difficult access	If rail could be threaded between trees beneath canopy without removing it, the track and carriages could be well absorbed into the landscape. However, the size and density of the trees here means any cut into the vegetation is likely to cause some noticeable gaps in the canopy and disturbance to an otherwise relatively sheltered and stable site Visual sensitivity: Moderately High	Terraced toe of Dunton peak with mostly gradual rise on northwestern side and very steep drop-off where the route sidles down to meet the Upukerora. Quite undulating before reaching escarpment. More undergrowth, lower canopy and patchy sunshine near the top of the 'plateau'. Trees of a less impressive size around scarp. Varied bush edge at Upekerora terrace, rises steeply and quickly just inside bush edge.	Size of tree canopy is a cause for concern in regards to the amount of canopy that would be removed with the felling of a single tree. Density of large trees is also concerning in terms of construction - extreme care would have to be taken to create location specific rail spans and curves to avoid as many trees as possible. Construction on gradient of escarpment above Upukerora river.	Move alignment to follow downstream of the Upukerora as far as Dunton Swamp then cut around base of toe approximately along route of existing walkway. Benefits: avoids area of high natural character and landscape values Disadvantages: possible engineering issues through river bend
Dunton Swamp	Large open clearing, approximately 1km wide and 3km long. The wetland and the bush edge have been modified at the northeastern edge and southernmost tip of the clearing. The transition between forest and swamp is quite sharp in these places. There is a pocket of wetland in the southeast with high natural character values including a more coherent transition where it meets the forest edge. Natural character: Moderate (apart from area described above)	Walking track comes within 20-30m of swamp/bush edge in places. Looks like it has been well used in the past but not for some time - frequent tree fall. Picturesque views of surrounding mountains in most directions. Proximity of Dunton Peak creates a dramatic transition from bush to clearing at the northern end of Dunton Swamp. Amenity values: Overall, low due to limited use and difficult access	The size of the clearing and being ringed by hills and mountains makes it an arena of focus where structures and movement alien to existing characteristics are likely to be highly visible. Visual sensitivity: Moderately High	The lower slopes of the Dunton range end in fingers of bush that create a long sinuous bush edge to the Dunton swamp. There is a feeling of enclosure in spite of large size of clearing - Dunton range rises immediately to the east to approx. 1400m, another range to about half the elevation on the western edge, only a narrow valley opens to the north and southern end blocked by another peak of approx. 1000m; narrow swampy margin right at bush edge where water collects from dunton range then disperses into swamp; undulating ground rises to distinct saddle at approximately the 23km mark.	Entrance/exit of rail at bush/clearing edges as above; alignment should complement (rather than contrast) sinuous pattern of bush edge; visibility of line through swamp; avoid alignment through area identified as having particularly high values	Alignment through swamp should enter/exit bush edge at approx. 22km to avoid special landscape area. COLOUR
Northern edge of Dunton Swamp to Retford Stream (23.7 – 30.0 km)	Modified farm country prior to approximately 30km and signs of a vehicle track on slopes above Retford Stream. Scrubby re-growth gives way to more mature beech forest approximately 500m from farm boundary. There are a number of modified grassland clearings from here to the northern edge of Dunton Swamp. Apart from a distance of approximately 1500-2000m the route corridor runs within sight of Morainic Creek or its left branch (junction at 25.5km) for most of this stretch. Between kms 26.4 and 30 it appears to be a significant meandering river. The left branch is narrower and runs through a small narrow river valley down from Dunton Swamp. The natural processes and patterns are coherent and legible for much of this stretch (29-23.7km) with signs of frequent natural disturbance in the form of windthrow. Natural character: Grasslands-Moderate Bush-Moderately High	Access requires land-owners permission; views in and out minimal on bush-clad valley floor; scenic wilderness experience; very attractive transition at Dunton Swamp edge. Amenity values: Overall, low due to limited use and difficult access	Rail could be visible in clearing from some points along walking track but this is rarely used. Otherwise views in and out largely protected by bush cover and landforms Visual sensitivity: Moderately Low	Rivers/streams - sound and/or sight major part of experience along much of route; terraced landforms become more legible and dramatic at approximately the 24,25 km mark where there is a marked transition into a narrow river gut; steep slopes up from river around 28,29 km mark; one main clearing with scenic mountain views of the Dunton Range.	Construction on steep slopes around river margins, particularly area around 24km just northeast of Dunton swamp where river valley narrows; care with alignment at bush/clearing transitions	Rail at northern transition point could naturally flow into/out of river 'neck' but is part of a very attractive area - either needs to be constructed and aligned with extreme care (which is likely to provide an interesting and dramatic experience for travellers), or suggest a more northern route. Benefits (of northern route): avoids landscape with high values Disadvantages: lose dramatic transition narrow river gully experience

*note - ranked in high country context