



Snowy 2.0 – Plateau – Trunk Services Rehabilitation Plan

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3	01/08/2024	Updated to address NPWS comments received 01/05/2024 and incorporate comments from other site-specific plan	BC, LM, CB, MB, MV
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1. Background

Schedule 3, Condition 10 (G) of the Snowy 2.0 Main Works Conditions of Approval requires a detailed plan for the rehabilitation of the disturbance area of the Plateau. Schedule 3 condition 9a of the planning approval also states that the proponent must rehabilitate all parts of the site within the Kosciuszko National Park (KNP) to comply with the rehabilitation objectives in Table 3 (refer Appendix A) and ecological rehabilitation objectives in Table 4 (refer Interim completion criteria in Appendix B).

The Plateau portion of the project is located between the Marica entrance and Tantangara, including the trenched area parallel to Snowy Mountain Highway (SMH), and then along Gooandra, Bullocks Hill, Nungar Creek and Tantangara Dam Firetails to Tantangara Reservoir. Trunk services are power and communication cables which run underground between Tantangara and Talbingo storages. The general location is shown in Figure 1.

For ease of description the area parallel to the SMH will be referred to as the SMH section and the area along the fire trails will be referred to as the plateau section.

1.1 Site Description

The overall Plateau site was disturbed to facilitate the cable installation between Tantangara dam and the entrance of the Marica site off the SMH. The services corridor that predominately runs parallel with existing tracks within the park was cleared of vegetation, topsoil stripped and windrowed, trenching and the cable installation undertaken and then the trench backfilled. Most of the corridor has had the site won topsoil reapplied following the backfilling of the trench and in some sections reshaping of the cut batters required to enable a level surface for the trenching machine.

In addition to the main service corridor, a number of other areas were cleared of vegetation and used for temporary material storage “laydowns” and pads formed either side of waterways to facilitate directional drilling underneath to reduce environmental impacts. Major waterways include Gooandra Creek, Eucumbene River, Tantangara Creek, Blankets Creek and Nungar Creek. The pads described have been reinstated to tie in with the surrounding surface and have had topsoil respread. The majority of the corridor and pads have been stabilised with hydromulch including native seeds (further details of the status of individual pad is provided in Appendix C).



Figure 1: Region location

The area to be rehabilitated is approximately 20 Ha, with over 1 hectare of temporary access track removed and revegetated along the SMH section, 4 hectares of laydowns reshaped and revegetated and an 18 km easement following access tracks across the plateau to be revegetated. Figure 2 details

the layout of the trunk services Plateau alignment including the access tracks it follows. Appendix D provides further detail of individual sites.

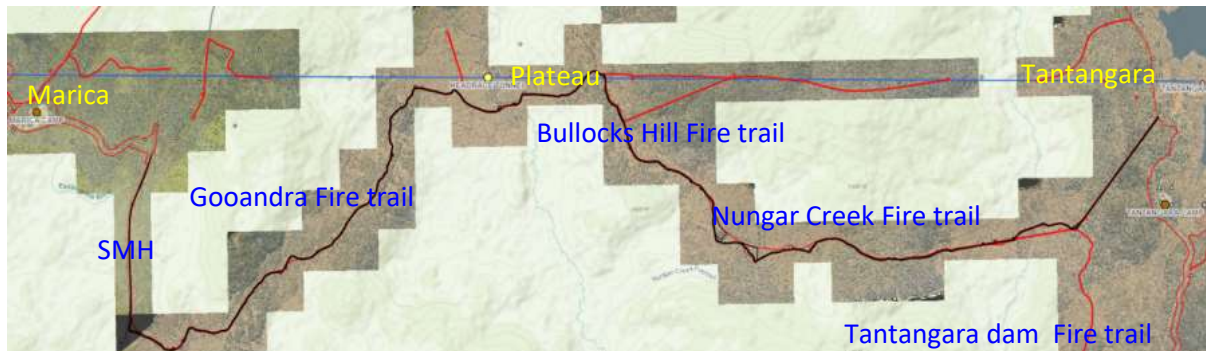


Figure 2: Trunk Services Plateau alignment

2. Scope of rehabilitation works

The plateau section disturbed area is to be rehabilitated with the tracks ultimately returned to National Parks and Wildlife Services (NPWS). Snowy 2.0 access to the tracks will be retained (through the Long-Term Road Strategy) for monitoring and maintenance activities. The SMH section from Goandra Fire Trail to Marica will be completely rehabilitated with no parallel access track retained. Key activities to be undertaken as part of rehabilitation works are as follows and also detailed in Appendix C as sub areas:

- Removal of access track parallel to SMH - refer to Section 3.3 and Appendix C – this has been completed.
- Reinstatement of natural surface levels and compaction relief in preparation for growth medium placement, hydro mulching and revegetation of; HDD and laydown pads, areas adjacent to fire trails including the trench and cut batters that require reshaping.
- Topsoil/growth medium placement (compost blanket where topsoil is not available/suitable) across all disturbed areas – refer to Section 3.4.
- Hydro mulch and dominant native grass seed applied across all disturbed and now topsoiled areas.
- Continue maintenance of gravel tracks from Nungar Creek to Snowy Mountains Highway until they are handed back to NPWS in accordance with the still to be finalised Long Term Roads Strategy. Refer Section 3.5 and Appendix C. Culvert installation at Tantangara Creek is still to be undertaken.
- Rehabilitation of Tantangara Hill including removal of access track on northeastern side - refer to Appendix C.
- Installation of temporary and long-term erosion control measure where required as determined by the Erosion and Sediment Control Plan and LTRS. Refer to Section 3.1 and Appendix C.
- Seeding of all disturbed areas with native grasses and Tube stock planting on pads cut batter and around waterways - refer to Section 4 and Appendix C.
- Placement of thatch to assist native vegetation recovery, boost organic matter and provide microhabitats for plants and animals in appropriate PCTs.
- Ongoing weed control on disturbed areas with a 5m buffer extending past the project boundary, or as far as required if weeds have migrated further from the site.
- Ongoing monitoring in accordance with RMP.

3. Earthworks

3.1 Erosion and sediment control materials

Temporary erosion and sediment controls that don't impede reinstatement of natural surface flows will be retained until appropriate cover is obtained. Straw bales and coir logs used for sediment control will be used in mulching the site once the revegetation work is complete. Sediment fences and other non-organic materials will be removed when no longer required.

Materials used during construction in disturbed areas such as gravel or geofabric has and will be removed. Geofabric has and will be disposed of as per the project waste management plan. Excess gravel removed may be used for inner fill in reinstated batter slopes.

Sections of track either side of water courses have been sheeted with low fines rock (rip rap) and erosion and sediment controls left in place until the area is stabilised as per Construction Erosion and Sediment Control Plan (CESCP) - these waterways are listed in Section 4.3 and shown in Appendix C & D.

For bogs and fens additional erosion measures such as construction of strawbale dams in flowlines and placement of coir and straw filled jute mesh logs as surface water spreaders will be employed where necessary to prevent the formation of incisions (noting none have occurred at time of development of this plan) in addition to other methods outlined in Section H.2.5 of *The Australian Alps rehabilitation manual 2006*. All interventions will be directed by a suitable alpine rehabilitation specialist. Appendix D details the locations of bogs and fens on the alignment.

Erosion and sediment control plan (Snowy 2.0 Construction ESCP) to be updated following completion of construction activities.

3.2 Drainage

SMH section

Natural flow has been re-established with temporary culverts installed for construction access on the SMH section of the services corridor removed.

Plateau section

Hydrological integrity and function of bogs and fens will be monitored, and interventions conducted as per *The Australian Alps Rehabilitation Manual 2006* if required, guided on ground by a suitable Alpine rehabilitation specialist. At this point in time there has been no drying of bogs and fens, or incisions caused by construction activities in bogs and fens (PCT 637). All nearby bogs and fens are identified in Appendix D.

Rollovers and other drainage related features to be reinstated or removed as per the agreed defect list prior to being handed back to NPWS through the LTRS.

3.3 Landform reshaping

No major landform reshaping is required on most of the alignment, only reinstatement of the original surface levels. Where site cuts have been made for the purpose of creating a level surface for construction, reinstatement of the batter has been undertaken for cuts over 0.5m at a gradient no steeper than 1v:2H (50%) (see Figure 3 for example and Appendix C & D for locations).

Compaction of the sites has and will be addressed by 'crazy' ripping to ~200mm depth. Fill material (for reinstatement of batter cuts) has and will continue to be sourced from removal of pads and temporary culverts on the SMH section of the services corridor. The outer layer has and will continue to be topsoiled with topsoil retained during the original construction works, with hydromulch containing native seed applied to provide cover and initial stabilisation.

On the SMH section, the temporary access track running parallel to the SMH has been removed with the natural landform reinstated.



Figure 3: Proposed Batter reinstatement (as indicated by red)

Below Figure 4 demonstrates the revegetation decision making process for determining stabilisation techniques, materials, and vegetation depending on the gradient of the area to be rehabilitated.



Figure 4: Revegetation Decision Making Tool

3.4 Topsoil/growth medium amendment and placement

As topsoil was won in the original construction works it was stockpiled at numerous locations across the site. This material has and will continue to be directly re-applied over the site at the depth it was stripped (between 50mm and 100-mm depth) as part of the rehabilitation works.

Topsoil has been sourced from a windrow immediately adjacent to the area to be rehabilitated along the SMH section). Windrowed material also remains in the Nungar Creek to Tantangara section yet to be completed. Where topsoil has been stockpiled in laydown areas, it has been returned to the area from which it was stripped. If in the event there is not sufficient topsoil available for a particular area or it becomes evident that the reinstated growth medium is not sufficient, a propriety compost blanket will be utilised in addition to hydromulch to provide a suitable growth medium. The compost blanket is applied similar to hydromulch and contains additional organic matter to foster plant growth.

3.5 Access control

Provision of suitable access for vehicles and/or all-terrain vehicles for rehabilitation, weed control and firefighting will be required in the medium term with access for monitoring of the trunk services required once Snowy 2.0 is operational.

Access will be via the SMH, then along Gooandra, Bullocks Hill and Nungar Creek fire trails terminating at the western side of Nungar Creek. The steeper north eastern section of Tantangara Hill will be rehabilitated with no further vehicle access permitted. The section of the alignment between Tantangara Hill and Nungar Creek will be accessed via Tantangara Dam fire Trail as shown in Figure 2.

4. Revegetation

The site will be vegetated using a combination of tube stock planting and direct seeding. One of the major challenges will be competition from weeds, which has shaped the method outlined in Table 1 Revegetation timing.

Table 1: Revegetation timing

Sequence	Task	Timing
1	Access track reinstatement, HDD and laydown pads, batter reinstatement and utilities installation Hydromulching of Marica to Nungar Creek	90% complete - September 2024
2	Tantangara Hill land forming Remaining topsoil placement & straw mulch or hydro mulching – Nungar Creek to Tantangara	2024 / 2025 (November – April)

3	Primary Revegetation (drainage line, HDD pads and laydowns tube stock planting) and weed control of all areas including the trench alignment	2024/2025 (November – April)
4	<p>Secondary revegetation (additional direct seeding and tube stock planting for drainage line, HDD pads and laydowns) pending weed load and monitoring results.</p> <p>Tantangara Hill tubestock and direct seeding</p> <p>Direct seeding of alignment that has not been completed</p> <p>Tantangara Creek culvert installation and revegetation (to be undertaken in autumn 2025)</p>	2024/2025 (November – April)

4.1 Planting design

Tube stock will be randomly planted at a density guided by the monitoring program data for relevant PCTs described in Table 2. Initial planting around drainage lines was at a density of 4 plants per m². This section will be updated following completion of monitoring when target stems per ha are determined for each PCT. It is anticipated that the overstorey density will be approximately 1 plant per 4m.

4.2 Species use and type

This site will be rehabilitated with plants consistent of the alignment and surrounding environment. See Table 2 below for PCT composition that guides species selection for rehabilitation. The species to be used are provided in Appendix J PCT Target Species List of the Main Works RMP with the final composition of the planting design prepared following completion of the first round of reference site monitoring data. Until the interquartile range for each species is established an interim completion criteria using the local reference site data will also be used (see Appendix B). Key species and planting densities (number for site) are nominated in Appendix C. Section 4.2 and Appendix B & C will be updated with a full species list following agreement on the ecological completion criteria indicators with NPWS.

Table 2: PCT Composition

PCT	PCT Name	HA
1196	PCT 1196 - Snow Gum - Mountain Gum shrubby open forest of montane areas, South-eastern Highlands Bioregion and Australian Alps Bioregion	2.873
1224	PCT 1224 - Sub-alpine dry grasslands and heathlands of valley slopes, southern South Eastern Highlands Bioregion and Australian Alps Bioregion	8.441
1225	PCT 1225 - Sub-alpine grasslands of valley floors, southern South Eastern Highlands Bioregion and Australian Alps Bioregion	0.847
303	PCT 303 - Black Sally grassy low woodland in valleys in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion	0.217
637 Alpine bogs and fens GDE dependent ecosystem	CT 637 - Alpine and sub-alpine peatlands, damp herb fields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	0.013
644	PCT 644 - Alpine Snow Gum - Snow Gum shrubby woodland at intermediate altitudes in northern Kosciuszko NP, South Eastern Highlands Bioregion and Australian Alps Bioregion	0.329
679	PCT 679 - Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion	0.018

The species to be used are provided in Appendix B & C and Appendix J of the RMP (PCT Target Species List) with the final composition of the planting design prepared following completion of the first-round monitoring of reference sites. Note no trees will be planted in the alignment due to risk of damage to critical infrastructure. Initial seeding of native grass species has been conducted over the alignment from Marica to Nungar Creek (see Table 3 for mix). Shrubs and trees will be utilised for revegetation of pads and laydowns consistent with reference sites of the applicable PCT.

Table 3: Native seed mix

Species (PCT 1224 ,644,1196)	KG per Ha
<i>Anthosachne scabra</i>	4
<i>Microlaena stipoides</i>	0.5
<i>Poa labillardierei</i>	0.25
<i>Poa sieberiana</i>	4
<i>Poa Helmsii</i>	0.25
<i>Rytidosperma pilosum</i>	1
<i>Rytidosperma caespitosum</i>	0.5
<i>Themeda triandra</i>	1
Total	11.5

4.3 Waterways

Across the overall Plateau site several major waterways are traversed, they include the Eucumbene River, Gooandra Creek, Tantangara Creek, Blankets Creek and Nungar Creek.

4.4 Water requirements

Planting will occur during times where soil moisture content is present with the utilisation of water crystals during planting. Due to access constraints watering will be limited to watering in during planting and if drought conditions occur (no rainfall in 2 months).

5. Resource specification

5.1 Compost/topsoil/growth medium

Compost will only be used in planting holes for tube stock. One litre of compost per planting hole will be used.

Site won topsoil that was stripped and either windrowed or stockpiled on the various laydowns has been applied over the site at ~ 100 mm depth. An Inspection Test Plan (ITP) for topsoil application will be developed and utilised.

If there is a shortfall of topsoil that is restricting vegetation growth, a compost blanket / organic matt may be utilised prior to the hydromulch layer. The compost blanket is an organic layer sprayed over the subsoil to provide additional growth medium. Products used will be certified pathogen free.

5.2 Mulch

Most of the site has been hydromulched (Marica through to Nungar Creek), the composition and rate applied as described in Table 4 (hydromulch mix). This was conducted following completion of the trenching, backfilling, and topsoil placement but before primary and secondary revegetation. Further application of mulch will be reviewed with alternative mulch types such as straw mulch used in lieu of hydromulch. An ITP for hydromulching will be prepared and utilised based off Table 4.

Table 4: Hydromulch mix

Seed Application	Erosion Protection	Topsoil depth	Application Rate	Comments
Native Seed	Straw	50 -100mm	4 t/ha	Guar Gum tackifier to be applied @ 125 kg/ha if straw mulch has no tackifier included in each bale Binder applied @ 300 litres/ha Native seed/mix applied as per ITP Roughened/ripped surface on the contour compaction relief

5.3 Tube stock

Tubestock will be supplied by Snowy Hydro Limited (SHL) as part of the tubestock propagation program grown from seed collected as part of the Snowy 2.0 seed collection program or from local nurseries that support revegetation in KNP.

5.4 Seed

Only native seed will be sown after treatment of weeds. Seed will be sourced from the Snowy 2.0 seed collection program.

5.5 Fencing/tree guards

No fencing or tree guards will be used initially unless monitoring indicates grazing species are having an impact. It is anticipated that fencing of the larger rehabbed laydowns area may be required, fencing design will include mitigations to exclude feral animals and will be designed as required by NPWS. Any temporary fencing installed will be removed when no longer required. Appendix C details the locations of laydowns.

5.6 Fertilisers

A small handful of slow-release phosphorus organic fertiliser will be added to all planting holes in the planting process. Once native species have germinated and begun to grow, additional slow-release organic fertiliser may be used in the maintenance process to augment the growth of the sown species. No fertiliser will be used for direct seeding or in close proximity to drainage lines.

5.7 Signage and safety

Rehabilitation signage with a Snowy 2.0 logo will be erected with relevant site-specific information provided and requesting people remain off the area.

6. Post rehabilitation

6.1 Final land use

It is envisaged that the future use of this site is a combination of native vegetation, access road and underground permanent infrastructure. See Figure 5 for detail.

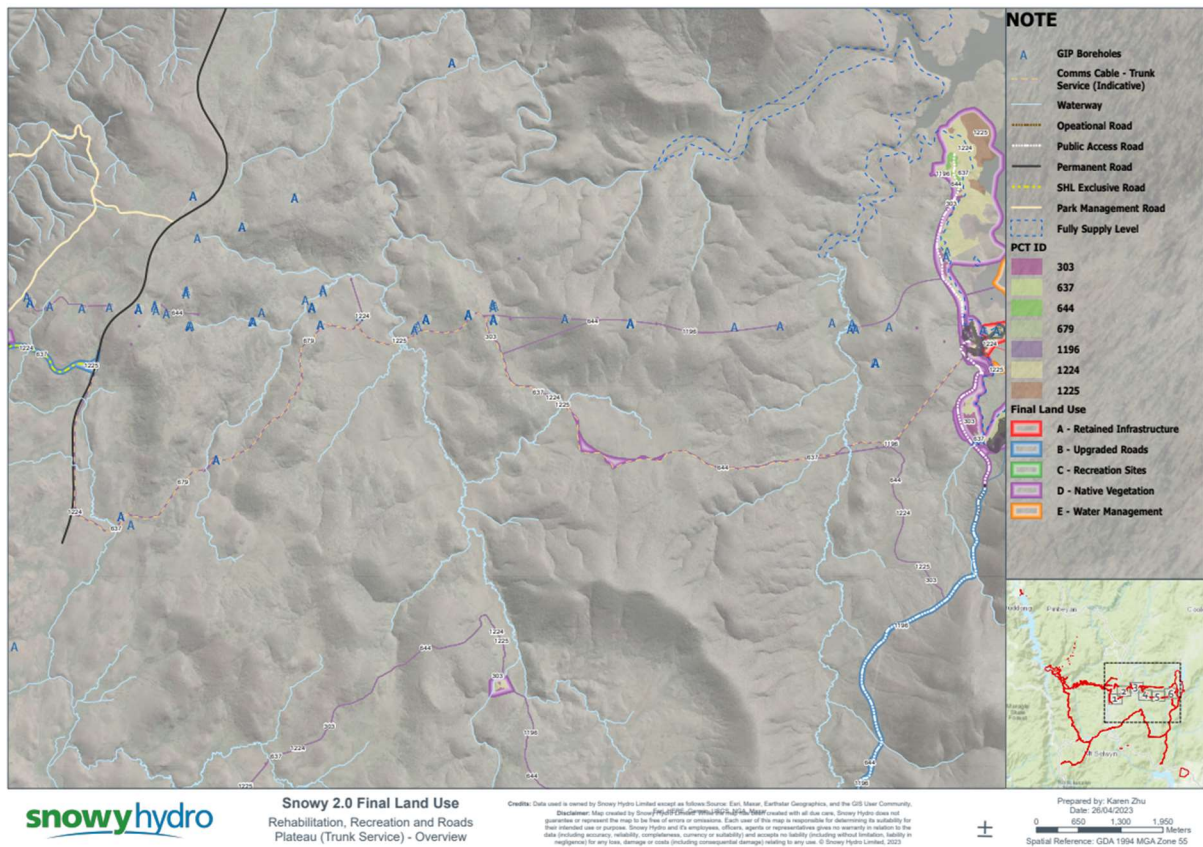


Figure 5: Final land use mapping for Plateau

6.2 Short-term maintenance

A number of short-term maintenance activities (3 weeks to 6 months) will be guided by quarterly monitoring and may include activities such as:

- Access track maintenance
- Sediment and erosion control
- Weed control

6.3 Watering

If a prolonged dry period occurs after the planting, additional watering will be required 4 to 6 weeks after sowing or 8 weeks after planting. Watering is best done with a mobile water cart.

6.4 Long-term maintenance

It is envisaged long-term maintenance activities (+6 months ongoing) such as erosion control and replanting will be undertaken. Maintenance will be guided by monitoring described in Section 7 of this plan and the trigger action response plan outlined in Table 10.2 of the Main Works RMP.

6.5 Weed control

All weed species will be sprayed at the appropriate time with the appropriate herbicide. Weeds that are close to newly germinated seedlings will be weeded by hand.

Annual weed monitoring will be scheduled with weed control programs occurring on a biannual basis as per the Biodiversity Management Plan Appendix F (Weed, Pest and Pathogen Management Plan) Section 5.1.2.1 – Chemical Weed Control. Weeds identified at the site and in the surrounding area include:

- *Anthoxanthum_odoratum* (sweet vernal grass)
- *Dactylis glomerata* (cocks' foot)
- *Hypochaeris radicata* (cats' ear)
- *Acetosella vulgaris* (sheeps sorrel)
- *Holcus lanatus* (Yorkshire fog)
- *Rumex acetosella* (sheep sorrel)
- *Trifolium_repens* (white clover)
- *Cirsium vulgare* (spear thistle)
- *Leucanthemum vulgare* (ox-eye daisy)

6.6 Fertiliser augmentation

Additional slow-release fertiliser (N, P, K) may be applied to established seedlings if seedlings show any signs of nutrient deficiencies.

6.7 Re-mulching

To be undertaken if required for seedlings planted in the revegetation process until they are sufficiently grown to provide their own biomass. Hydromulching of areas that are showing signs of erosion to be utilised where appropriate.

7. Rehabilitation monitoring

Monitoring will be undertaken to provide information on the success of the rehabilitation regarding tubestock growth and mortality, seed germination and establishment, weed invasion, erosion, natural recruitment, and disturbance from grazing animals.

Monitoring will be carried out in accordance with Section 8.2 of the Main Works RMP. This will include observational monitoring (quarterly), unmanned aerial vehicle (UAV) (annually) and ecological monitoring (three yearly)

Quarterly observational monitoring

Quarterly observation checks of rehabilitation sites to be undertaken (4 times per year). A checklist will be used to evaluate performance and detect any failures and will generate maintenance programs and further rehabilitation works (if measures are failing). This checklist will include the measures linked to the Trigger Action Response Plan (TARP) outlined in Section 10.2 of the Main Works RMP. See Appendix E for template or the below link to a digital checklist that will form the basis for the quarterly observational monitoring:

[Appendix E - Quarterly Observational Monitoring Form](#)

Photo points will be established as part of the quarterly monitoring.

Annual monitoring

Annual monitoring (UAV) will occur as described in Table 5 below and in accordance with Section 8.2 of RMP:

Table 5: Annual rehab monitoring - UAV

Monitoring parameter	Description
PCT variation	(1 digital 20m x 20m quadrat per Ha) 5 PCT characteristic species and weeds with species added over time
Weeds	Weed abundance and species
Native species	Species composition, cover, structure, and health
Bare ground	% Area and location
Erosion	Depth, width, length, change over time
Habitat features	Logs and rock
Pest species	Track and individual at time of survey
Human disturbance	Wheel tracks, waste
Legacy Items	Infrastructure for removal

Conducted using UAV and ecologist for species ground truthing.

Three yearly monitoring

Ecological recovery will be measured every 3 years during the same monitoring period as the reference sites. This monitoring will consist of on the ground assessment of species, composition and abundance as described in Table 6 below:

Table 6: PCT Ecological Monitoring – on ground monitoring

Method number	Monitoring method
1	Permanent, full floristic plots (i.e., 20x20m; cover and abundance estimate for all species present). Sites will have a GPS point recorded and 2 permanent corner posts for plots. Data to be collected is: full scientific name, estimated % foliage cover. If less than 1% cover then decimals to be used (0.1, 0.2, 0.3...). Estimated abundance of each species to be recorded from 1 to 10, 10 to 100 with intervals of 10 and 100 to 1000 in intervals of 100 and so on. Species type, i.e., native, exotic, or high threat exotic to be recorded. Threatened species will be recorded per plot.
2	Permanent 50m midline transect located through the middle of the 20m x20m plot. A way point recorded at 0m and 50m and posts used to mark the points.
3	Measurement of all trees for Diameter at Breast Height (DBH) per plot.
4	Recording of all hollow bearing trees per plot.
5	Habitat resources (coarse woody debris, ponds, rocks) per plot. Type and size of coarse woody debris to be recorded.
6	Evidence of vertebrate pests and native species (scats, digging, chewing) per plot to be recorded.
7	Soil surface characteristics will be recorded along the 50m line transect at 5m intervals. Characteristics recorded will be: native vascular plant (living), exotic vascular plant (living), litter (type, depth, and origin), cryptograms, logs (standing or dead), rock, water, bare ground.
8	Soil characteristics - field tests - pH, EC, texture (samples taken in accordance with steps 1-6 of Section 5.4.1 of Biodiversity Conservation Trust Ecological Monitoring Module Operational Manual February 2022)
9	Soil characteristics - laboratory tests - nitrogen, total carbon, available phosphorus, pH, EC. (Samples taken in accordance with steps 1-6 of Section 5.4.1 of Biodiversity Conservation Trust Ecological Monitoring Module Operational Manual February 2022)

Reporting will be undertaken as per Section 8.3 of the Main Works RMP. This requires an annual public report and a separate annual report to NPWS and Biodiversity Conservation Division (BCS).

7.1 Local reference sites

Until set metrics are confirmed following implementation of the monitoring program the following sites will be used to provide initial species type and numbers for initial revegetation in addition to tracking progress of vegetation cover and abundance, see Table 7 for preference sites.

Table 7: PCT Local Reference site

PCT	BDAR Plot – Reference Site	PCT condition
1196	157	High
1224	3036	High
1225	123	High
303	2145	High
637	204	High
644	212	High
679	333	High

Maps of these sites included in Appendix B and Appendix I of the Main Works RMP

Appendix A – Rehabilitation Objectives

Rehabilitation Objectives – Kosciuszko National Park

- COA Schedule 3 Condition 9

Feature	Objective
Land use	<ul style="list-style-type: none"> - Enhance the recreational use of the site in accordance with the approved Recreation Management Plan
Land	<ul style="list-style-type: none"> - Safe, stable, and non-polluting - Ensure the creation of all new landforms complies with the design criteria in Table 2 <ul style="list-style-type: none"> - Minimise surface disturbance of site during construction - Progressively rehabilitate the site as soon as possible following disturbance - Employ interim rehabilitation strategies to areas that can't be permanently rehabilitated yet to minimise dust generation, erosion, uncontrolled discharges of sediment, and the spread of weeds to other parts of the KNP
Infrastructure	<ul style="list-style-type: none"> - Decommission and remove infrastructure, unless NPWS agrees otherwise - Restore all roads on site in accordance with the Long-Term Road Strategy
Community	<ul style="list-style-type: none"> - Ensure public safety

Appendix B – Plateau Interim Completion Criteria (based on Ecological rehabilitation objectives (Table 4) from Main Works planning approval)

Table 1: Interim Completion Criteria

Rehab Objective/Characteristic	Indicator – Specific attribute associated with the objective	Rehabilitation Completion Criteria Benchmark for Indicator	Measure (note interim measures taken from BDAR plots & field sheets where possible)
<p>The vegetation composition of the rehabilitation is recognisable as the target vegetation community contained within the BioNet Vegetation Classification and which was present on site prior to the project’s temporary disturbance.</p>	<p>All native vascular plant species are monitored to species level from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 6.</p>	<p>(a) Native plant species composition is characteristic of the target PCT based on suitable analysis against a reference data set.</p> <p>(b) The target PCT composition score is within or greater than the inter-quartile range of local reference site values for the assigned PCT.</p>	<p>Rehabilitation monitoring reports.</p> <p>Final Independent ecological reports that validate rehabilitation completion criteria have been met.</p> <p>See Table 2 for species composition from BDAR floristics for specific measures.</p>

Rehab Objective/Characteristic	Indicator – Specific attribute associated with the objective	Rehabilitation Completion Criteria Benchmark for Indicator	Measure (note interim measures taken from BDAR plots & field sheets where possible)
<p>The vegetation structure of the rehabilitation is recognisable as, or shows a substantial trend towards, a PCT contained within the BioNet Vegetation Classification, and which was present on site prior to the project’s temporary disturbance.</p>	<p>The cover, abundance and height range of all native vascular plant species are monitored from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 6.</p>	<p>Cover, abundance, and height range of native plant growth forms are characteristic of the target PCTs and within or greater than the inter-quartile range of local reference site values for the assigned PCT.</p>	<p>Rehabilitation monitoring reports.</p> <p>Final Independent ecological reports that validate rehabilitation completion criteria have been met.</p> <p>See Table 3 for species cover and abundance of growth forms data from BDAR floristics.</p> <p>Height range to be included after first round of monitoring as described in Section 7 Table 6.</p>
<p>Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable or shows a substantial trend towards a self-sustaining state.</p>	<p>Growth medium, covering both subsoil and topsoil properties, and soil processes are monitored using methods specified in Section 7 Table 6</p>	<p>Growth medium, including topsoil, is suitable for target PCTs establishment, and indicators of nutrient cycling are suitable for sustaining the target PCTs.</p> <p>All priority attributes of nutrient cycling, soil processes and both subsoil and topsoil properties should be within or greater than the interquartile range of local reference site values for the assigned PCT.</p> <p>Attributes include depth of leaf litter, cryptograms total carbon and total nitrogen.</p>	<p>See Table 4 for ecosystem function measure where available from BDAR field sheets.</p> <p>Measure to be updated after first round of monitoring as majority of nutrient cycling processes not were not captured at time of BDAR.</p> <p>Rehabilitation monitoring reports.</p> <p>Final Independent ecological reports that validate rehabilitation completion criteria have been met.</p>

Rehab Objective/Characteristic	Indicator – Specific attribute associated with the objective	Rehabilitation Completion Criteria Benchmark for Indicator	Measure (note interim measures taken from BDAR plots & field sheets where possible)
	<p>All species are monitored for establishment of second-generation juveniles/immatures and capacity for recruitment from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 6.</p>	<p>Rehabilitation vegetation communities are maturing, and natural recruitment is occurring for species within each growth form at rates within or greater than the interquartile range of local reference site values for the assigned PCT.</p>	<p>Measure to be updated after first round of monitoring as it was not captured at time of BDAR.</p>
	<p>Number and ground cover of weed species are monitored from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 6 with input from annual UAV monitoring outlined in Table 5.</p>	<p>The number and ground cover of weed species is comparable to, or less than, the interquartile range of local reference site values for the assigned PCT. Monitoring program to feed into annual weed control program.</p>	<p>See tables 5, 6, 7, 8, 9, 10, 11 for cover and abundance of individual species for different PCTs/reference sites from initial BDAR floristics. Measure to be updated after first round of monitoring described in Section 7 Table 6.</p>

Rehab Objective/Characteristic	Indicator – Specific attribute associated with the objective	Rehabilitation Completion Criteria Benchmark for Indicator	Measure (note interim measures taken from BDAR plots & field sheets where possible)
	Presence/absence of some fauna habitat features (e.g. flowering plant, decorticating bark, stags with hollows and/or nest boxes) and quantitative assessment of other features (e.g. leaf litter cover, bare ground, wood debris) are monitored from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 6.	Fauna habitat features and resources (food and shelter characteristics) within the rehabilitation vegetation communities are present and within or greater than the interquartile range of local reference site values for the assigned PCT.	<p>Rehabilitation monitoring reports.</p> <p>Final Independent ecological reports that validate rehabilitation completion criteria have been met.</p> <p>Measure to be updated after first round of monitoring described in Section 7 Table 6.</p>

Table 2: Native Richness by growth form

PCT	BAM Plot	Trees	Shrubs	Grasses	Forbs	Ferns	Other
1196	157	1	6	3	17	0	0
1224	3036	2	3	12	19	0	1
1225	123	0	3	11	16	0	0
303	2145	2	5	3	14	0	0
637	204	0	2	3	8	0	0
644	212	3	8	2	24	0	0
679	333	1	7	4	32	0	0

Table 3: Sum of Cover of Native vascular plant by growth form

PCT	BAM Plot	Trees	Shrubs	Grasses	Forbs	Ferns	Other
1196	157	40	16.6	30.3	5.9	0	0
1224	3036	0.3	17.1	75.4	9.5	0	0.1
1225	123	0	0.3	97.9	1.9	0	0
303	2145	30	15.5	47.1	1.8	0	0
637	204	0	0.2	90.4	1.4	0	0
644	212	2.8	2.2	20.2	9.8	0	0
679	333	60	5	82.6	7.1	0	0

Table 4: Ecosystem Function - BDAR

PCT	Litter cover %	Bare ground cover %	Cryptogram cover %	Rock cover %	Stems with Hollows
1196	NA	NA	NA	NA	NA
1224	NA	NA	NA	NA	NA
1225	NA	NA	NA	NA	NA
303	73	0	0	2	2
637	NA	NA	NA	NA	NA
644	64	28	9	0	0
679	NA	NA	NA	NA	NA

Table 5: Species cover and abundance PCT 1196 - Plot 157 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus_pauciflora	Tree	40	20
Daviesia_ulicifolia	Shrub	3	20
Hakea_microcarpa	Shrub	0.3	4
Mirbelia_oxylobioides	Shrub	3	20
Anthoxanthum_odoratum	Introduced	50	1000
Asperula_conferta	Forb	3	500
Poa_sieberiana	Tussock Grass	30	200
Ranunculus_lappaceus	Forb	0.5	100
Poranthera_microphylla	Forb	0.1	50
Dlchondra_repens	Forb	0.3	200
Lomandra_filiformis_subsp_coriacea	Rush	0.1	10
Veronica_subtilis	Forb	0.2	500
Senecio_gunnii	Forb	0.2	50
Ajuga_australis	Forb	0.4	100
Medicago_lupulina	Introduced	0.1	10
Cirsium_vulgare	Introduced	0.5	20
Sonchus_oleraceus	Introduced	0.1	10
Acrothamnus_hookeri	Heath shrub	10	50
Xerochrysum_bracteatum	Forb	0.1	20
Hypochaeris_radicata	Introduced	1	200
Cymbonotus_preissianus	Forb	0.1	20
Acaena_novae-zelandiae	Forb	0.2	100
Veronica_derwentiana_subsp_maideniana	Forb	0.1	3
Themeda_triandra	Tussock Grass	0.2	10
Hovea_heterophylla	Forb	0.1	5
Geranium_solanderi	Forb	0.2	50
Stellaria_pungens	Forb	0.1	5
Pimelea_pauciflora	Shrub	0.1	2
Centaurium_erythraea	Introduced	0.1	20
Acaena_agnipila	Forb	0.1	10
Oreomyrrhis_eriopoda	Forb	0.1	10
Myosotis_discolor	Introduced	0.1	20
Chrysocephalum_semipapposum	Forb	0.1	10
Grevillea_lanigera	Shrub	0.2	5

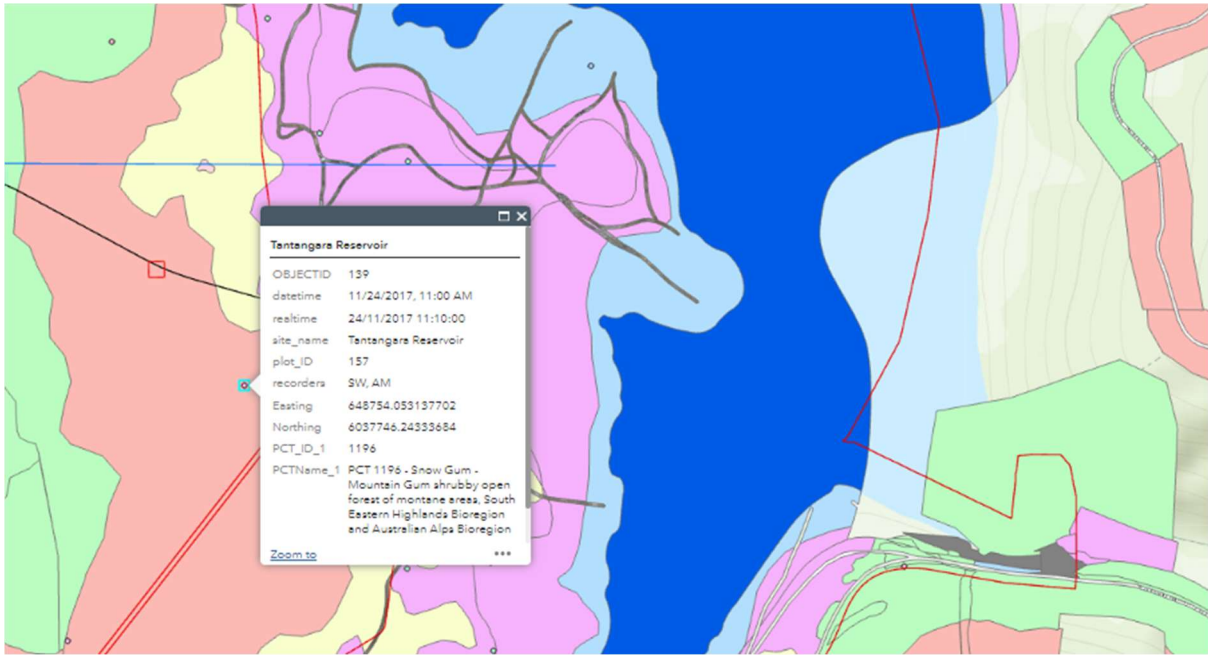


Figure 1 – PCT 1196 local reference site location

Table 6: Species cover and abundance PCT 1224 - Plot 3036 - BDAR

Species	Growth form	Cover%	Abundance
Coronidium_monticola	Shrub	0.1	30
Pimelea_axiflora_subsp_axiflora	Shrub	15	20
Bossiaea_foliosa_Leafy_Bossiaea	Shrub	2	10
Eucalyptus_stellulata_Black_Sally	Tree	0.2	2
Galium_gaudichaudii_Rough_Bedstraw	Forb	0.2	200
Asperula_scoparia_Prickly_Woodruff	Forb	1.5	600
Themeda_triandra	Tussock Grass	30	250
Poa_sieberiana_var_sieberiana_Snowgrass	Tussock Grass	20	300
Elymus_scaber_Common_Wheatgrass	Tussock Grass	1	150
Trifolium_repens_White_Clover	Introduced	0.4	100
Rytidosperma_laeve_Wallaby_Grass	Tussock Grass	2	100
Geranium_obtusisepalum	Forb	1	80
Acaena_ovina_Acaena	Forb	1	70
Crepis_capillaris_Smooth_Hawksbeard	Introduced	1	150
Epilobium_sp	Forb	0.2	60
Senecio_sp	Forb	0.8	100
Scleranthus_biflorus_Two_flowered_Knawel	Forb	1	300
Poa_phillipsiana	Tussock Grass	10	200
Cymbonotus_preissianus_Austral_Bears_Ear	Forb	0.1	15
Cirsium_vulgare_Spear_Thistle	Introduced	0.5	35
Carex_inversa_Knob_Sedge	Sedge	1	150
Luzula_sp	Rush	0.2	100
Arrhenatherum_elatius_var_bulbosum_Bulbous_Oatgrass	Introduced	5	250
Acaena_novae_zelandiae_Bidgee_widgee	Forb	2	300
Collomia_sp	Introduced	0.6	250
Acetosella_vulgaris_Sheep_Sorrel	Introduced	1	350
Stellaria_pungens_Prickly_Starwort	Forb	0.1	50
Carex_sp_Tall_Sedge	Sedge	3	500
Tragopogon_dubius_Goatsbeard	Introduced	0.5	250
Poa_labillardierei_Tussock_grass	Tussock Grass	2	20
Taraxacum_officinale_Dandelion	Introduced	0.1	10
Holcus_lanatus_Yorkshire_Fog	Introduced	0.3	60
Rytidosperma_penicillatum_Slender_Wallaby_Grass	Tussock Grass	6	500
Viola_arvensis_Field_Pansy	Introduced	0.1	30
Dichelachne_inaequiglumis	Tussock Grass	0.1	15

Geranium_antrorsum	Forb	0.8	150
Viola_betonicifolia_Native_Violet	Forb	0.1	20
Geum_urbanum_Herb_Bennet	Forb	0.1	4
Picris_angustifolia_subsp_merxmuelleri	Forb	0.1	1
Eucalyptus_pauciflora_White_Sally	Tree	0.1	1
Cerastium_vulgare_Mouse_ear_Chickweed	Introduced	0.1	20
Poranthera_microphylla_Small_Poranthera	Forb	0.1	30
Plantago_euryphylla	Forb	0.1	10
Senecio_gunnii	Forb	0.1	10
Oxalis_perennans	Forb	0.1	20
Euchiton_involucratus_Star_Cudweed	Forb	0.1	50
Glycine_clandestina_Twining_glycine	Vine	0.1	4
Dichelachne_crinita_Longhair_Plumegrass	Tussock Grass	0.1	15

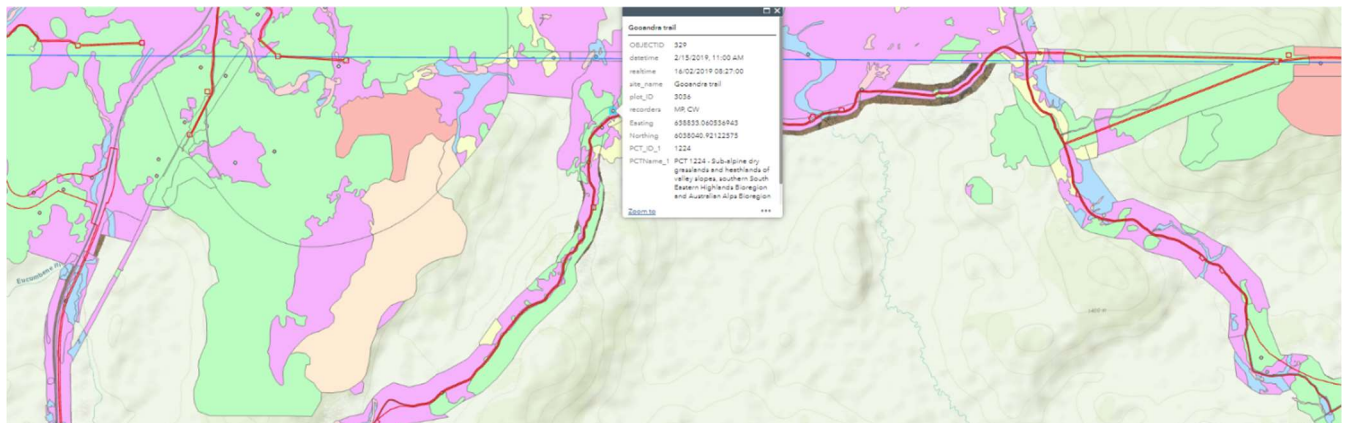


Figure 2 – PCT 1224 local reference site location

Table 7: Species cover and abundance PCT 1225 - Plot 123 - BDAR

Species	Growth form	Cover%	Abundance
Poa_labillardierei	Tussock Grass	50	200
Poa_clivicola	Tussock Grass	45	500
Trifolium_repens	Introduced	2	500
Carex_breviculmis	Sedge	0.1	20
Acrothamnus_hookeri	Heath shrub	0.1	5
Cassinia_monticola	Shrub	0.1	3
Taraxacum_officinale	Introduced	0.1	30
Acetosella_vulgaris	Introduced	0.1	50
Myosotis_discolor	Introduced	0.1	30
Senecio_gunnii	Forb	0.1	20
Cerastium_glomeratum	Introduced	0.1	20
Juncus_sp	Rush	0.1	10
Cardamine_astoniae	Forb	0.1	30
Hydrocotyle_algida	Forb	0.2	300
Hypericum_japonicum	Forb	0.1	50
Gonocarpus_micranthus	Forb	0.1	100
Acaena_novae-zelandiae	Forb	0.1	30
Luzula_modesta	Rush	0.1	100
Senecio_pinnatifolius_var_alpinus	Forb	0.1	2
Carex_gaudichaudiana	Sedge	0.1	30
Ranunculus_graniticola	Forb	0.2	100
Aciphylla_simplicifolia	Forb	0.1	30
Agrostis_venusta	Tussock Grass	0.1	10
Carex_appressa	Sedge	0.2	30
Carex_inversa	Sedge	0.1	50
Viola_betonicifolia	Forb	0.1	20
Oxalis_perennans	Forb	0.1	10
Empodisma_minus	Rush	2	50
Epilobium_billardiereanum_subsp_hydrophilum	Forb	0.1	20
Cymbonotus_preissianus	Forb	0.1	2
Baloskion_australe	Rush	0.1	10
Geranium_antrorsum	Forb	0.1	40
Epacris_microphylla	Heath shrub	0.1	1
Myosotis_australis	Forb	0.1	10
Leucochrysum_albicans	Forb	0.2	100

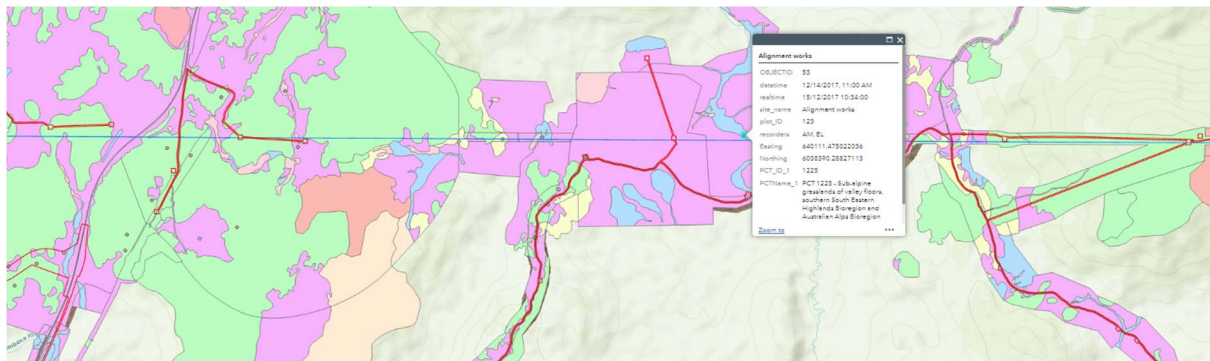


Figure 3 – PCT 1225 local reference site location

Table 8: Species cover and abundance PCT 303 - Plot 2145 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus_stellulata	Tree	25	6
Eucalyptus_pauciflora	Tree	5	4
Hakea_microcarpa	Shrub	10	50
Dillwynia_prostrata	Shrub	5	100
Poa_sieberiana_var_sieberiana	Tussock Grass	45	500
Anthoxanthum_odoratum	Introduced	25	1000
Dactylis_glomerata	Introduced	5	200
Geranium_antrorsum	Forb	0.1	30
Elymus_scaber	Tussock Grass	0.1	20
Senecio_gunnii	Forb	0.1	20
Scleranthus_biflorus	Forb	0.1	30
Microseris_lanceolata	Forb	0.1	10
Poranthera_microphylla	Forb	0.2	200
Asperula_scoparia	Forb	0.2	200
Brachyscome_decipiens	Forb	0.1	10
Acrothamnus_hookeri	Heath shrub	0.1	3
Aciphylla_simplicifolia	Forb	0.1	5
Olearia_sp	Shrub	0.1	20
Acaena_ovina	Forb	0.2	200
Hypochaeris_radicata	Introduced	0.1	30
Acaena_novae-zelandiae	Forb	0.2	100
Ranunculus_graniticola	Forb	0.1	20
Themeda_triandra	Tussock Grass	2	80
Acetosella_vulgaris	Introduced	0.1	100
Persoonia_chamaepeuce	Shrub	0.3	5
Stellaria_pungens	Forb	0.1	20
Viola_betonicifolia	Forb	0.1	30
Agrostis_capillaris	Introduced	1	40
Podolepis_laciniata	Forb	0.1	30

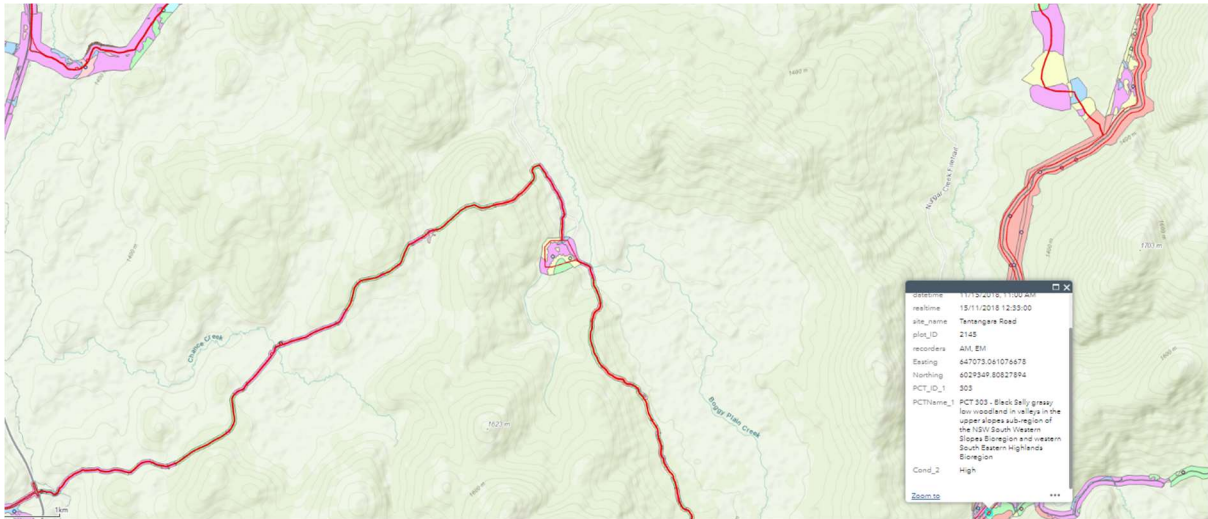


Figure 4 – PCT 303 local reference site location

Table 9: Species cover and abundance PCT 637 - Plot 204 - BDAR

Species	Growth form	Cover%	Abundance
Poa_labillardieri	Tussock Grass	90	1000
Geranium_sp	Forb	0.2	80
Epacris_glacialis	Heath shrub	0.1	1
Epilobium_gunnianum	Forb	0.2	50
Myriophyllum_pedunculatum	Forb	0.3	100
Sonchus_sp	Forb	0.1	20
Veronica_subtilis	Forb	0.1	10
Oreomyrrhis_eriopoda	Forb	0.1	20
Senecio_gunnii	Forb	0.1	10
Juncus_australis	Rush	0.2	10
Anthoxanthum_odoratum	Introduced	0.2	30
Cerastium_glomeratum	Introduced	0.1	10
Ozothamnus_secundiflorus	Shrub	0.1	1
Holcus_lanatus	Introduced	0.1	10
Ranunculus_millanii	Forb	0.3	100
Poa_costiniana	Tussock Grass	0.2	50

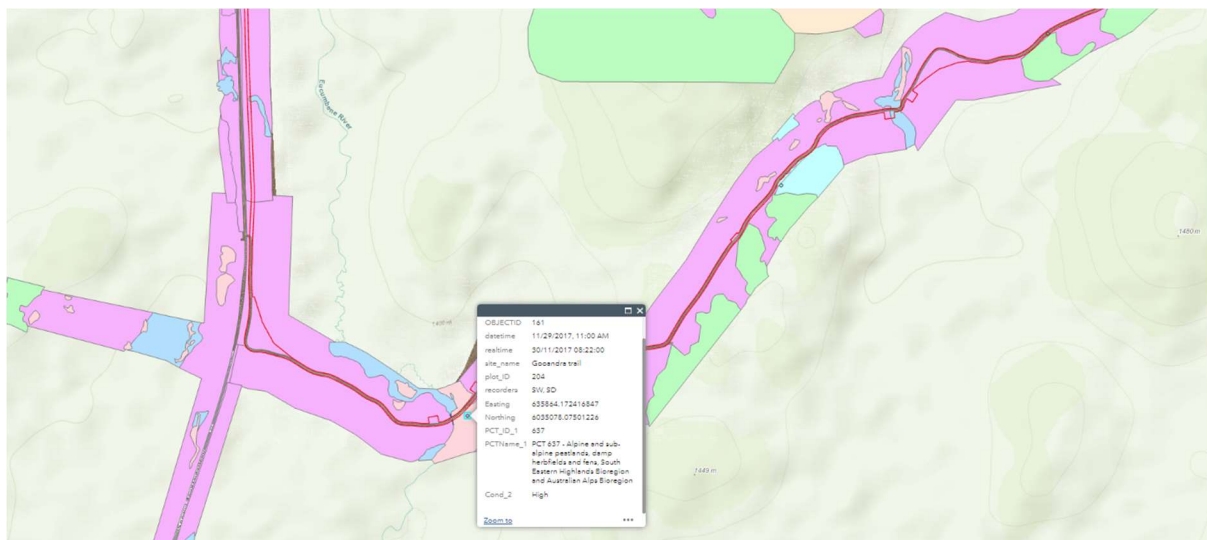


Figure 5 – PCT 637 local reference site location

Table 10: Species cover and abundance PCT 644 Plot 212 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus_pauciflora	Tree	2	30
Anthoxanthum_odoratum	Introduced	5	1000
Poa_sieberiana_var_sieberiana	Tussock Grass	20	1000
Arthropodium_milleflorum	Forb	1	300
Scleranthus_biflorus	Forb	0.5	50
Chrysocephalum_semipapposum	Forb	5	500
Acrothamnus_hookeri	Heath shrub	0.1	10
Wahlenbergia_gloriosa	Forb	0.1	50
Trifolium_repens	Introduced	0.1	10
Hypericum_gramineum	Forb	0.1	1
Acetosella_vulgaris	Introduced	0.6	100
Centaurium_erythraea	Introduced	0.1	10
Grevillea_lanigera	Shrub	1	30
Epilobium_billardioreanum_subsp_cinereum	Forb	0.1	40
Solenogyne_gunnii	Forb	0.4	50
Geranium_antrorsum	Forb	0.1	20
Dichondra_repens	Forb	0.1	50
Medicago_lupulina	Introduced	0.1	20
Holcus_lanatus	Introduced	0.2	40
Oreomyrrhis_eriopoda	Forb	0.1	10
Taraxacum_officinale	Introduced	0.6	500
Asperula_scoparia	Forb	0.5	100
Acaena_novae-zelandiae	Forb	0.5	100
Geranium_solanderi	Forb	0.2	40
Cirsium_vulgare	Introduced	0.1	5
Themeda_triandra	Tussock Grass	0.2	50
Stylidium_graminifolium	Forb	0.1	10
Coronidium_scorpoides	Forb	0.1	10
Daviesia_ulicifolia	Shrub	0.2	10
Cassinia_aculeata	Shrub	0.3	1
Eucalyptus_rubida	Tree	0.3	1
Xerochrysum_subundulatum	Forb	0.1	10
Plantago_gaudichaudii	Forb	0.1	3
Mirbelia_oxylobioides	Shrub	0.2	10
Hakea_microcarpa	Shrub	0.2	2

Cymbonotus_lawsonianus	Forb	0.1	20
Senecio_gunnii	Forb	0.1	20
Cerastium_vulgare	Introduced	0.1	1
Myosotis_australis	Forb	0.1	1
Eucalyptus_stellulata	Tree	0.5	3
Bulbine_bulbosa	Forb	0.1	20
Stellaria_pungens	Forb	0.1	20
Calotis_glandulosa	Forb	0.1	1
Olearia_myrsinoides	Shrub	0.1	1
Discaria_pubescens	Shrub	0.1	1
Calotis_scabiosifolia_var_integrifolia	Forb	0.1	1

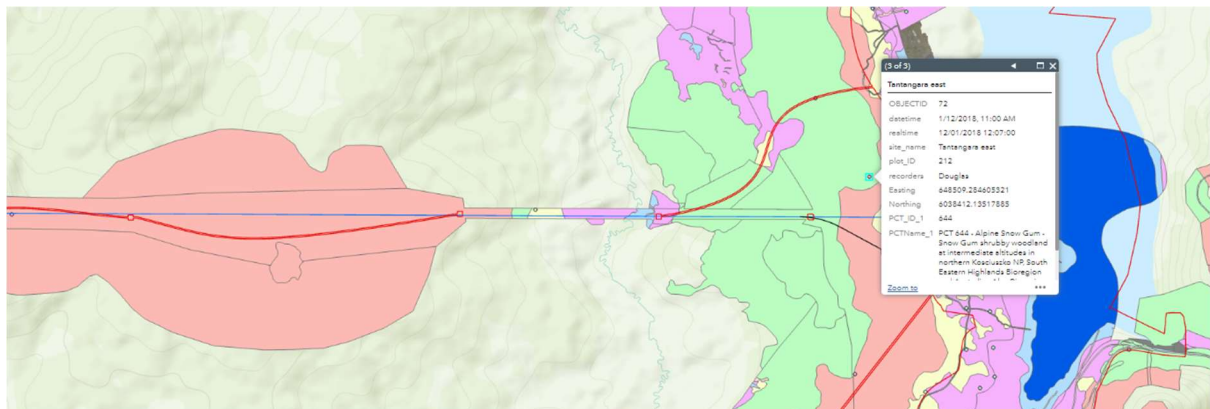


Figure 6 – PCT 644 local reference site location

Table 11: Species cover and abundance PCT 679 - Plot 333 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus_stellulata_Black_Sally	Tree	60	13
Hovea_montana	Shrub	3	40
Poa_phillipsiana	Tussock Grass	70	1000
Senecio_gunnii	Forb	0.5	100
Microseris_lanceolata_Yam_Daisy	Forb	1	2000
Pimelea_linifolia_subsp_linifolia	Shrub	0.4	40
Oreomyrrhis_eriopoda_Australian_Caraway	Forb	0.1	20
Poranthera_microphylla_Small_Poranthera	Forb	0.3	1000
Asperula_scoparia_Prickly_Woodruff	Forb	0.5	1000
Aciphylla_simplicifolia_Mountain_Aciphyll	Forb	0.2	30
Stellaria_pungens_Prickly_Starwort	Forb	0.1	20
Ranunculus_lappaceus_Common_Buttercup	Forb	0.2	40
Acaena_novae_zelandiae_Bidgee_widgee	Forb	0.2	300
Acetosella_vulgaris_Sheep_Sorrel	Introduced	0.1	50
Bulbine_bulbosa_Bulbine_Lily	Forb	0.1	20
Oreomyrrhis_argentea_Silvery_Caraway	Forb	0.1	15
Craspedia_costiniana	Forb	0.3	60
Brachyscome_decipiens_Field_Daisy	Forb	0.2	50
Viola_betonicifolia_Native_Violet	Forb	0.1	10
Scleranthus_brockiei	Forb	0.1	10
Hypochaeris_radicata_Catsear	Introduced	0.3	250
Carex_sp_Tall_Sedge	Sedge	0.1	80
Taraxacum_officinale_Dandelion	Introduced	0.1	40
Arthropodium_milleflorum_Pale_Vanilla_lily	Forb	0.1	10
Rubus_parvifolius_Native_Raspberry	Shrub	0.1	3
Poa_clivicola_Fine_leaved_Snowgrass	Tussock Grass	12	400
Craspedia_sp_White_Billy_buttons	Forb	0.1	4
Acaena_agnipila_Hairy_Sheeps_Burr	Forb	0.1	20
Geranium_antrorsum	Forb	0.2	30
Wahlenbergia_sp	Forb	0.1	40
Cymbonotus_sp	Forb	0.2	50
Veronica_subtilis	Forb	0.1	10
Plantago_euryphylla	Forb	0.4	50
Tasmannia_xerophila	Shrub	0.3	8
Stylidium_graminifolium_Grass_Triggerplant	Forb	0.1	20

Acrothamnus_hookeri	Heath shrub	0.8	40
Brachyscome_aculeata_Hill_Daisy	Forb	0.1	4
Pimelea_axiflora	Shrub	0.1	3
Lagenophora_stipitata_Common_Lagenophora	Forb	0.1	20
Podolepis_robusta_Mountain_Lettuce	Forb	0.1	4
Daviesia_ulicifolia_Gorse_Bitter_Pea	Shrub	0.3	10
Luzula_densiflora_Woodrush	Rush	0.5	100
Lobelia_sp_Angled_Lobelia	Forb	0.1	60
Hypericum_gramineum_Small_St_Johns_Wort	Forb	0.1	20
Podolepis_jaceoides_Showy_Copper_wire_Daisy	Forb	0.1	4
Gonocarpus_montanus	Forb	0.1	30
Poaceae_indeterminate	Introduced	1	100
Leptorhynchos_squamatus_Scaly_Buttons	Forb	1	200

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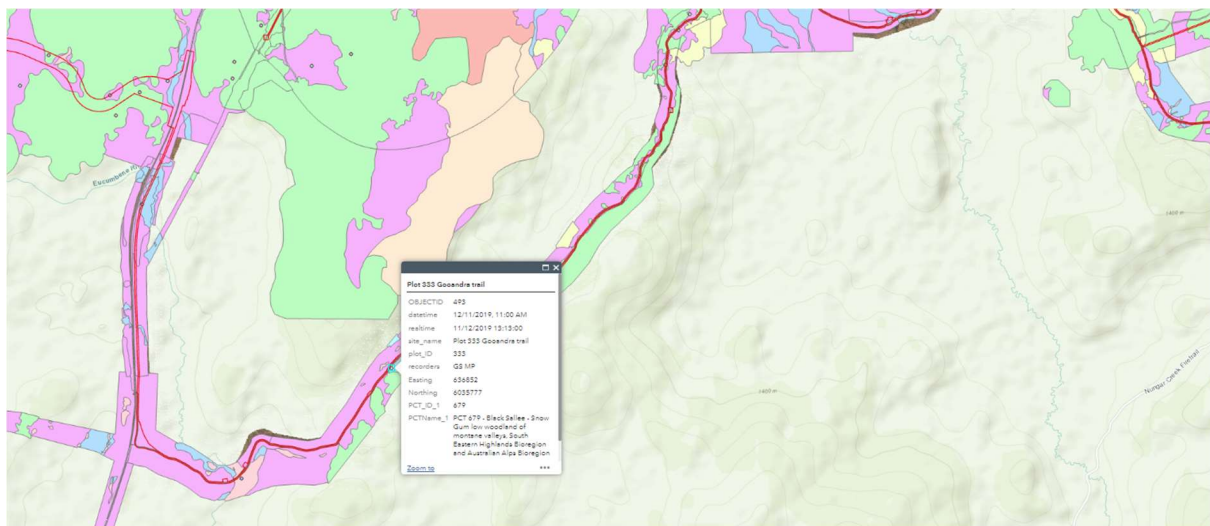


Figure 7– PCT 679 local reference site location

Appendix C – Plateau sub areas

SMH section

Chainage 0000 adjacent to Marica entrance – 800 RMS laydown (–SMH section)



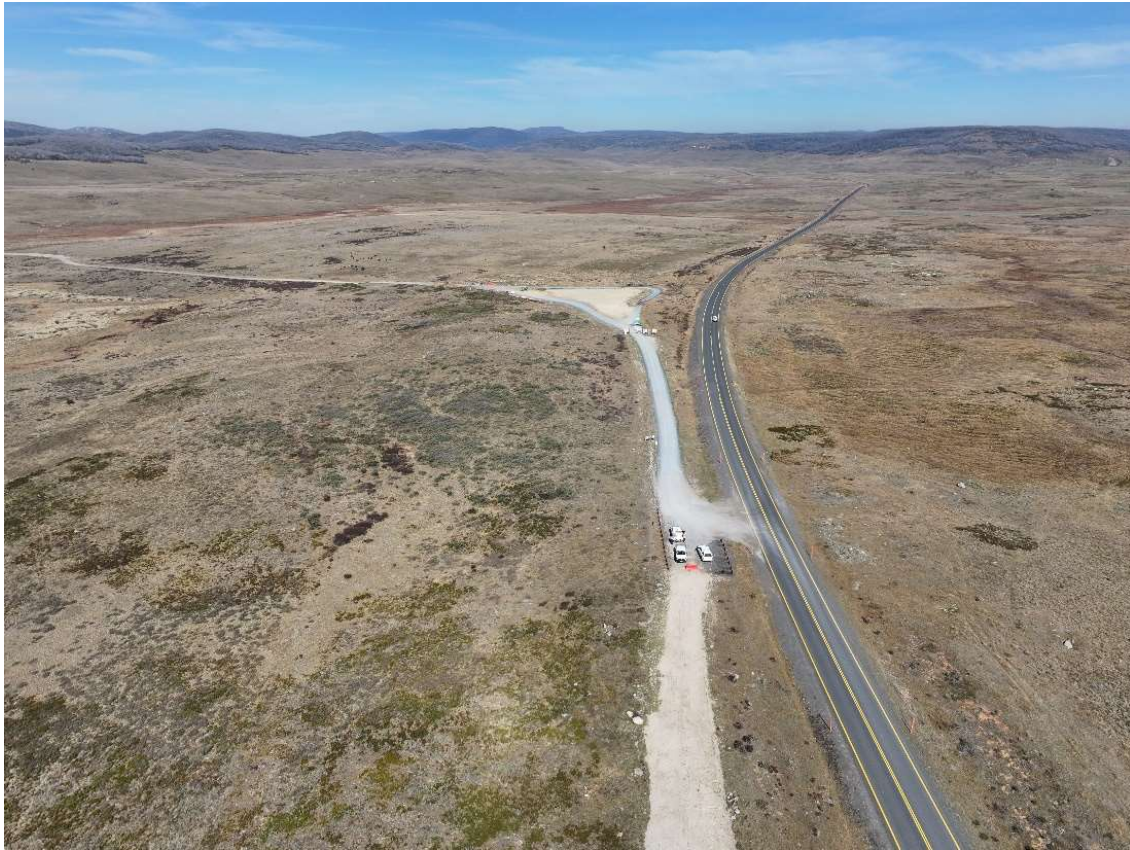
Chainage 800 RMS laydown – 1500 Powerline Creek (–SMH section)



Chainage 1500 Powerline Creek - 1800 (SMH section)



Chainage 1800 – 2300 (Gooandra Trail site entrance laydown) (SMH section) (L1)




Earthworks status – complete – topsoil applied


Gradient - less than 3.5%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 and Section 5.2 Table 4)

PCT Mapping I– Snowy Mountains Highway (SMH) Chainage 0000 - 2300



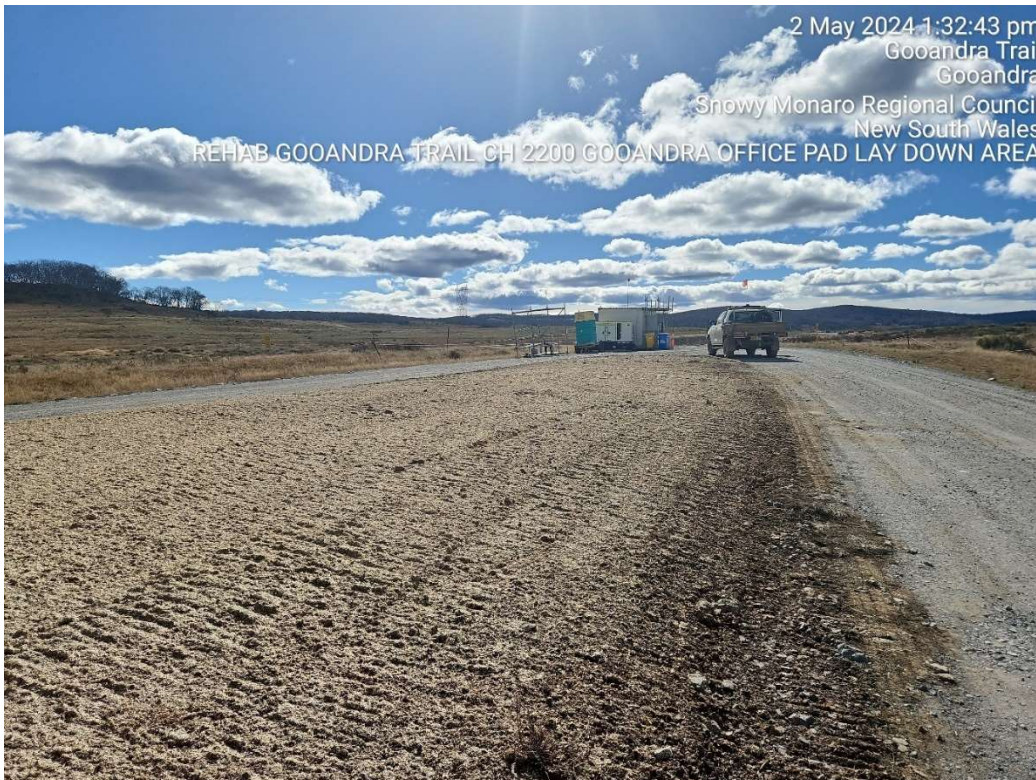
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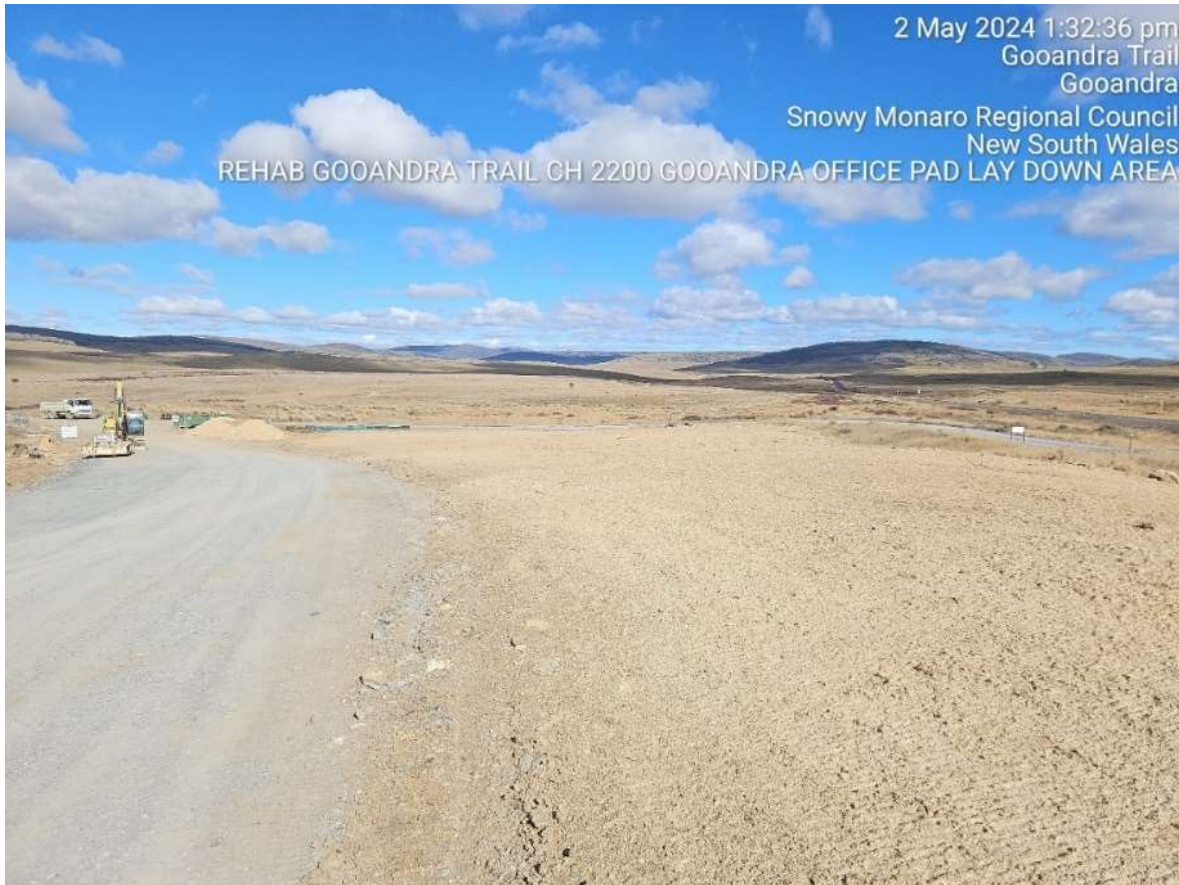
 - 1225

Plateau section – specific sub areas only

Chainage 2000-2300 — Site entrance laydown (L1)

Area – 7,285m² - (area of track to remaining to rehabilitated – 1,200m²)





Earthworks status – 90% (removal of highlighted section of track to be undertaken and demobilisation of wheel wash at the completion of works. Other miscellaneous materials to be removed and windrowed topsoil applied.

Gradient - less than 2%

Cover– complete - hydromulched with native seed ~80% of area completed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	3
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	120
1224	Poa_phillipsiana	120
1224	Hakea Microcarpa	60
1224	Grevillea Australis	50

PCT - 1224



Eucumbene laydowns Chainage 2800— Laydown (L2)

Area – 575m²



Earthworks status – complete – topsoil applied

Gradient - less than 3.5%

Cover – complete - hydromulched initially completed with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4). **Bare area to be re-mulched**

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	20
1224	Hakea Microcarpa	15

PCT - 1224 ■ PCT - 637 ■



Eucumbene laydowns Chainage 3000 — laydown (L3)

Area – 496 m2



Earthworks status – complete – topsoil applied

Gradient - less than 7.5%

Cover – compete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	20
1224	Hakea Microcarpa	15

PCT - 1224



Eucumbene River PCT 637 (Alpine bogs and fens)/1224 (>40m2)

This site will be sown and planted with primary species on the batters and in the disturbed areas of waterway zone. All species selected for the first pass of rehabilitation are considered primary species for this PCT. This site will be monitored, and additional planting and sowing will be done with secondary species as part of the rehabilitation and maintenance program. This site will use a mix of primary species from PCT's 637 and 1224 in the rehabilitation.



Date: 14th May 2024

Alpine bogs and fens will be rehabilitated using techniques described in *The Australian Alps Rehabilitation Manual 2006* and guided on ground by a suitable Alpine rehabilitation specialist.

The table below outlines the primary species to be planted around the waterway as tubestock. Trees are to be planted approximately 3 metres apart with shrubs planted 1-2 metres apart

Botanical Name	Common Name	Number of tubestock	Notes
<i>Carex appressa</i>	Tall Saw Sedge	20	Sow in riparian zone
<i>Poa labillardierei</i>	Tall Tussock Grass	30	Sow in riparian zone
<i>Poa costiniana</i>	Horny Grass	20	Sow in riparian zone
<i>Cassinia aculeata</i>	Sticky Cassinia	10	Plant in well drained areas
<i>Eucalyptus pauciflora</i>	Snow Gum	2	Top of the batter
<i>Eucalyptus stellulata</i>	Black Sallee	2	Plant close to the rock edge.
<i>Grevillea australis</i>	Alpine Grevillea	5	Cutting grown
<i>Grevillea lanigera</i>	Woolly Grevillea	5	Cutting grown

<i>Hakea microcarpa</i>	Small fruit Hakea	10	Plant close to the rock edge
<i>Leptospermum myrtifolium</i>	Myrtle Tea Tree	5	Plant close to the rock edge
<i>Ozothamnus secundiflorus</i>	Cascade Everlasting	5	Plant close to the rock edge
<i>Stellaria pungens</i>	Prickly Starwort	10	Cutting grown

The table below outlines the primary species to be sown as seed around the waterway. The typical sowing rate will be 2 grams per square meter with 100 grams of seed required for this site. Seed will be applied to disturbed areas in spring after the soil temperature has increased with hydromulch to reduce likelihood of impact by rainfall, compaction will be relieved via ripping or raking prior to sowing.

Botanical Name	Common Name	Notes
<i>Anthosachne scabra</i>	Common Wheat Grass	Sow on batters
<i>Bulbine bulbosa</i>	Chocolate Lily	Sow on batters
<i>Microseris lanceolata</i>	Native Dandelion	Sow on batters
<i>Podolepis jaceoides</i>	Showy Copper Wire Daisy	Sow on batters
<i>Microlaena stipoides</i>	Weeping Grass	Sow on batters
<i>Poa clivicola</i>	Fine Leaved Snow Grass	Sow on batters
<i>Poa sieberiana</i>	Grey Tussock Grass	Sow on batters
<i>Senecio gunnii</i>	Gunn's Senecio	Sow on batters
<i>Themeda triandra</i>	Kangaroo Grass	Sow on batters

Goandra Creek laydowns Chainage 4700 — laydown (L4)

Area – 660 m2



Earthworks status – complete - topsoil applied

Gradient - less than 16%

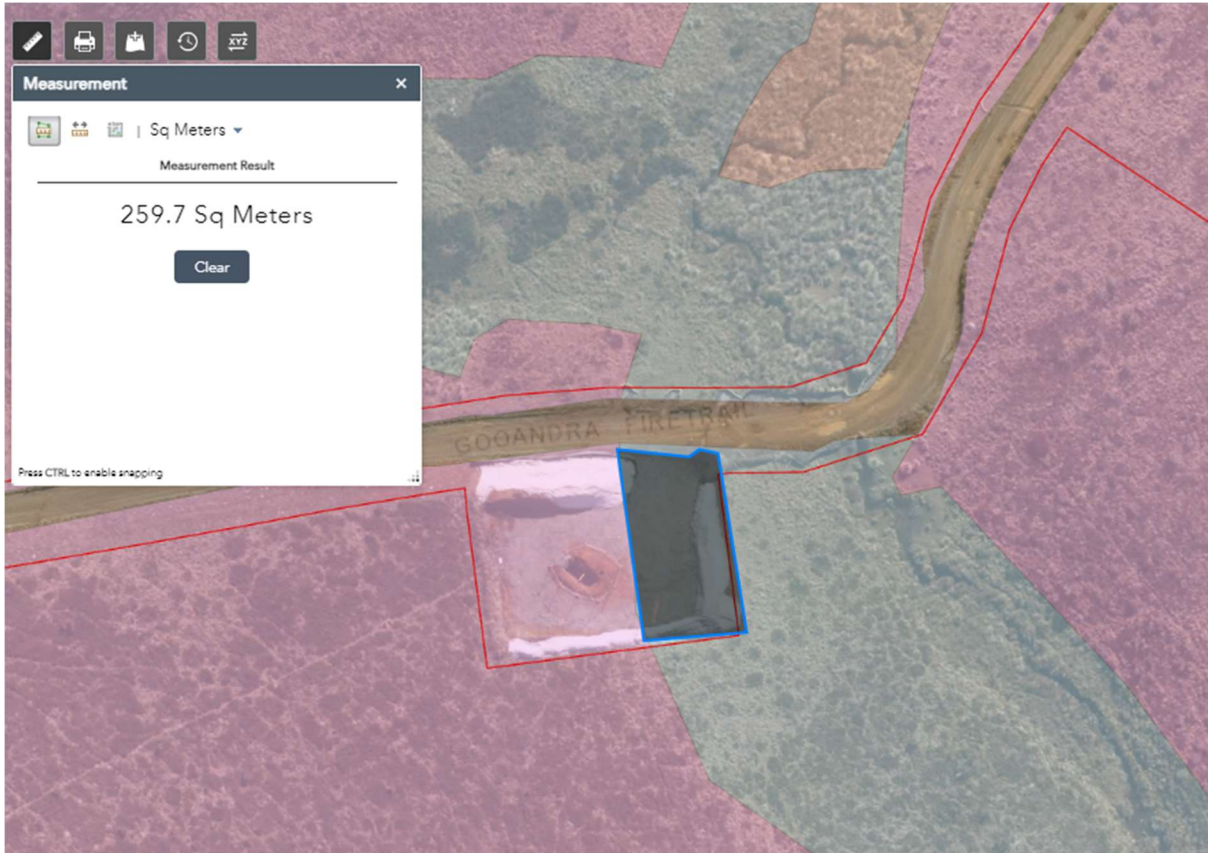
Cover – complete - Hydro mulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	2
1224	Hakea Microcarpa	5
637	Ozothamnus_secundiflorus	3
637	Poa_labillardieri	20
637	Poa_costiniana	10

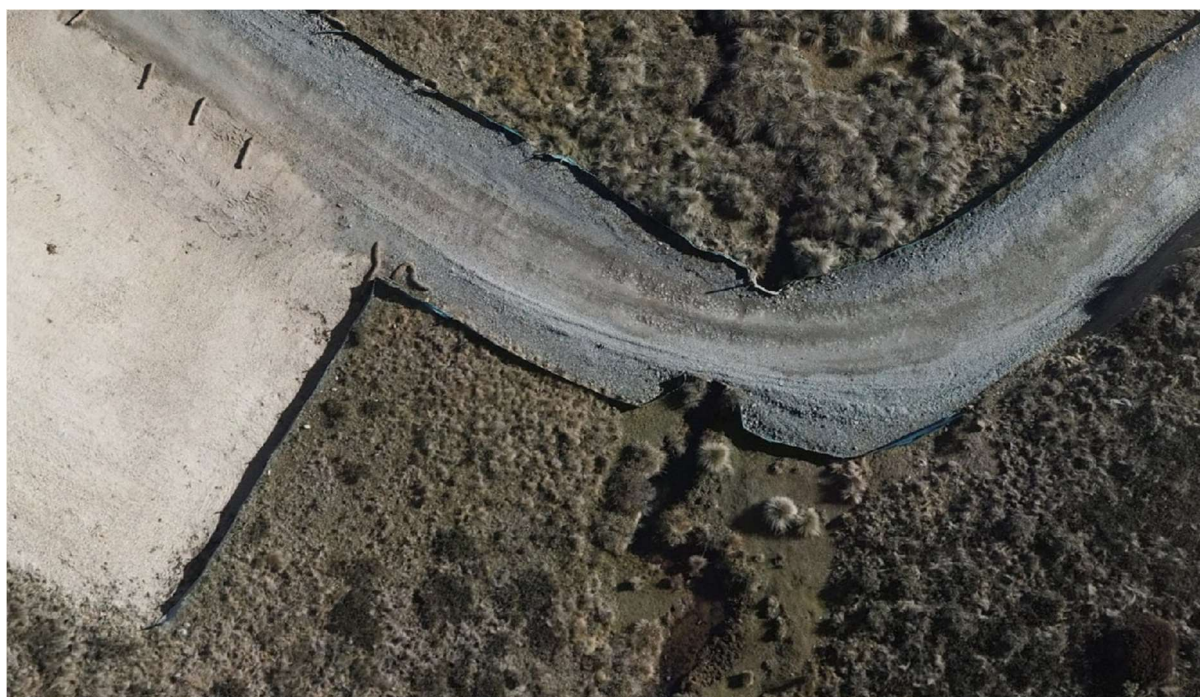
PCT - 1224 – 401m² ■

PCT 637 – 259m² ■



Goandra Creek – PCT 1225 (>40m2)

This site will be sown and planted with primary species on the batters and in the disturbed areas of waterway zone. All species selected for the first pass of rehabilitation are considered primary species for this PCT. These sites will be monitored, and additional planting and sowing will be done with secondary species as part of the rehabilitation and maintenance program.



Date: 14th May 2024

The table below outlines the primary species to be planted around the waterway as tubestock. Trees are to be planted approximately 3 metres apart with shrubs planted 1-2 metres apart

Botanical Name	Common Name	Number of tubestock	Notes
<i>Poa costiniana</i>	Horny Grass	10	Plant in riparian zones
<i>Poa helmsii</i>	Broad Leaved Snow Grass	10	Plant in riparian zones
<i>Poa labillardierei</i>	Tall Tussock Grass	20	Plant on batter and riparian zones
<i>Hakea microcarpa</i>	Small fruit Hakea	15	Plant close to the rock edge.
<i>Ozothamnus cupressoides</i>	Kerosene Bush	10	Plant on batter and riparian zones
<i>Olearia myrsinoides</i>	Silky Daisy Bush	5	Plant in well drained areas of batter
<i>Richea continentis</i>	Candle Heath	10	Plant right of water's edge in ow flows
<i>Stellaria pungens</i>	Prickly Starwort	10	Plant in all areas

The table below outlines the primary species to be sown as seed around the waterway. The typical sowing rate will be 2 grams per square meter with 100 grams of seed required for this site. Seed will be applied in spring after the soil temperature has increased with hydromulch to reduce likelihood of impact by rainfall.

<i>Botanical Name</i>	Common Name	Notes
<i>Bulbine bulbosa</i>	Chocolate Lily	Sow on batter
<i>Chrysocephalum apiculatum</i>	Yellow Buttons	Sow on batter
<i>Microseris lanceolata</i>	Native Dandelion	Sow on batter
<i>Senecio gunnii</i>	Gunns Senecio	Sow on batter
<i>Poa sieberiana</i>	Grey Tussock Grass	Sow on batter
<i>Themeda triandra</i>	Kangaroo Grass	Sow on batter

Chainage 4900 — Cut/Fill batter (CFB 1)

Area – 62 m2



Earthworks status – complete - topsoil applied

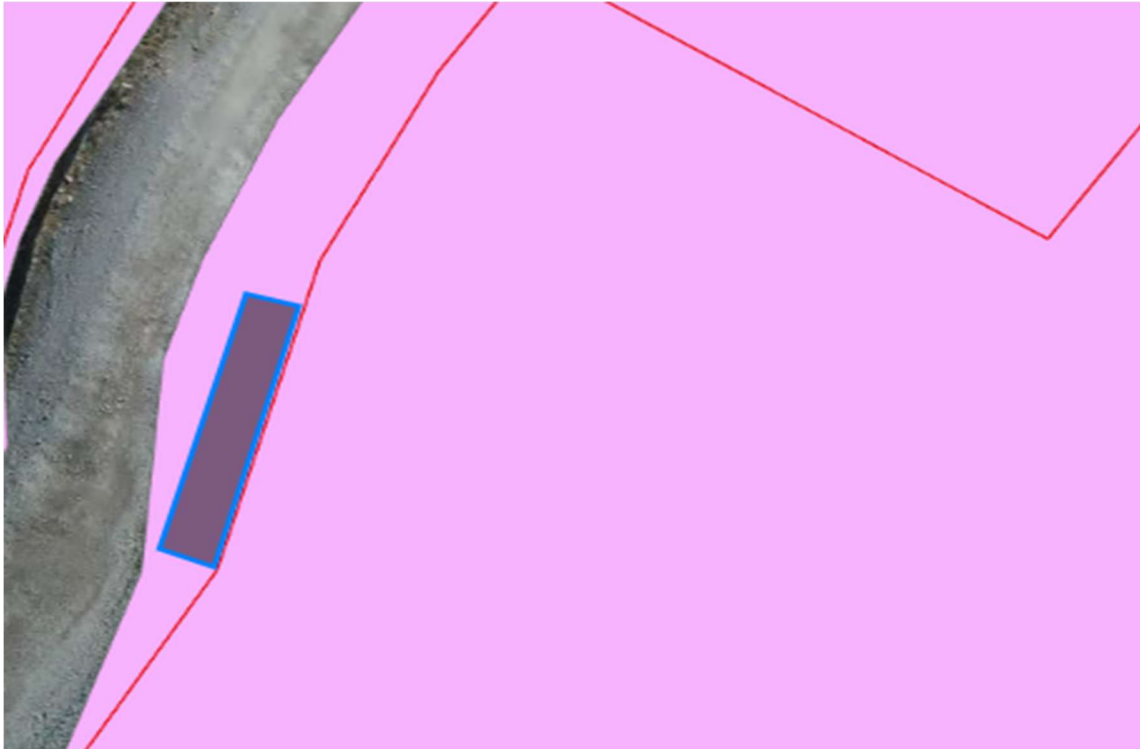
Gradient - less than 38%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below. No trees or shrubs due to being over the alignment

PCT	Priority Species	Number for site
1224	Carex_sp_Tall_Sedge	12
1224	Poa_labillardierei_Tussock_grass	30

PCT - 1224



Goandra Creek laydowns Chainage 5000 — laydown (L5)

Area – 660 m2



Earthworks status – 90% complete - topsoil applied

Gradient - less than 17%

Cover – hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4). Additional hydromulch to be applied after testing complete)

Vegetation – initial tubestock planting – see table below

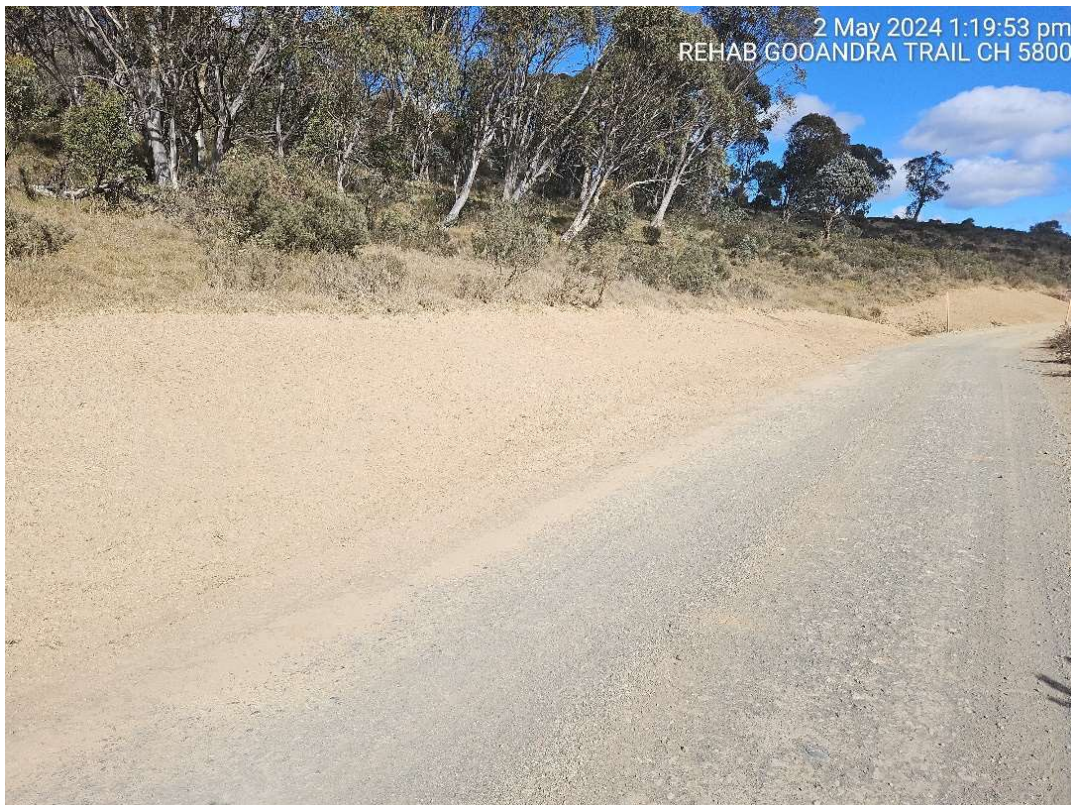
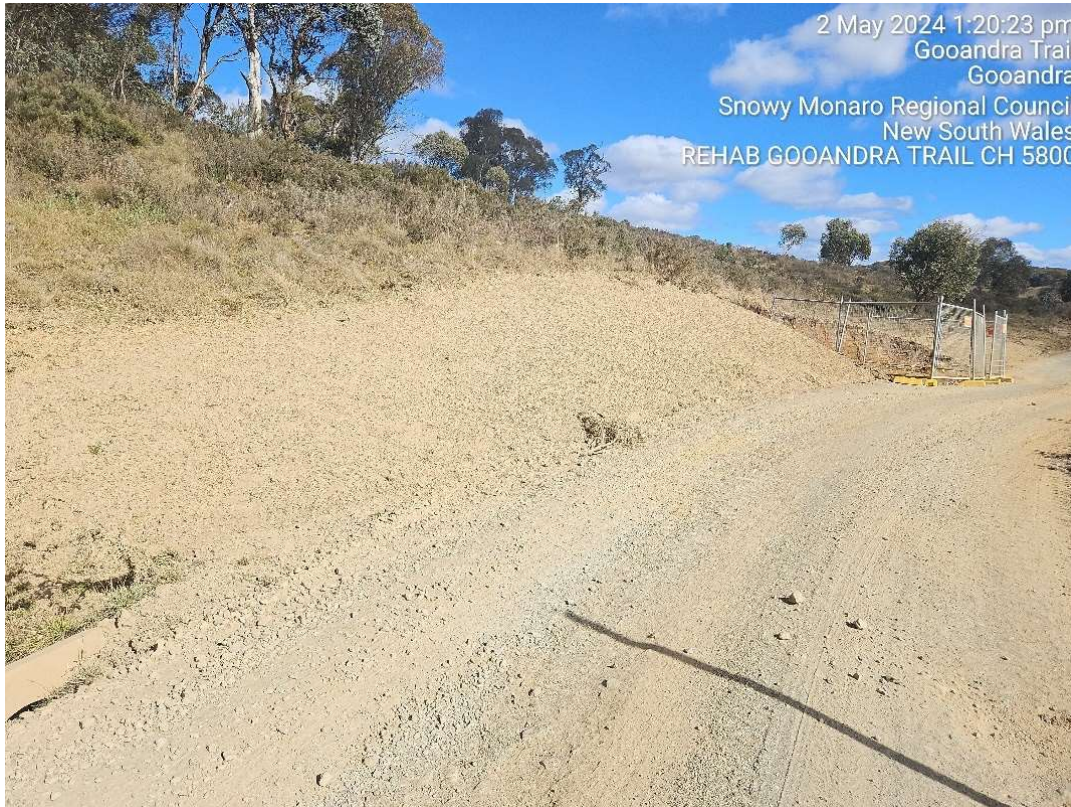
PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	1
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	30
1224	Hakea Microcarpa	15

PCT - 1224



Chainage 5700 – 5900 — Cut/Fill batter (CFB 2) & (CFB 3)

Area – 450 m2



Earthworks status – 95% complete - topsoil applied

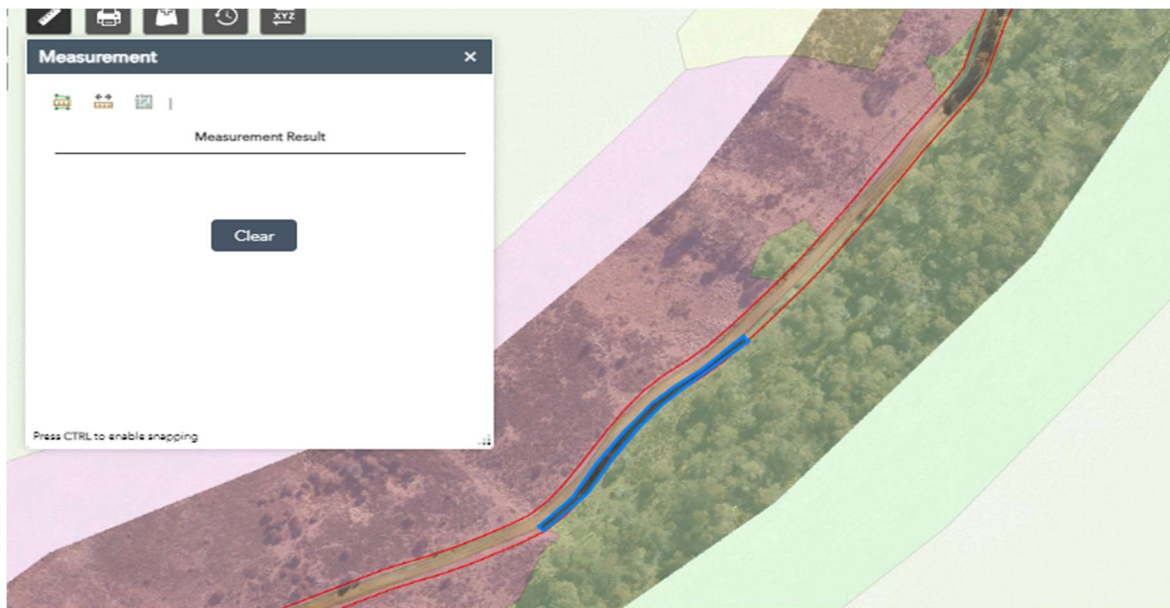
Gradient - less than 30%

Cover – hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4) Additional hydromulch after testing.

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
644	Acrothamnus_hookeri	30 (top metre of batter)
644	Bulbine Bulbosa	40

PCT - 644



Chainage 7000—Laydown (L6)

Area – 460m²



Earthworks status – complete – topsoil applied

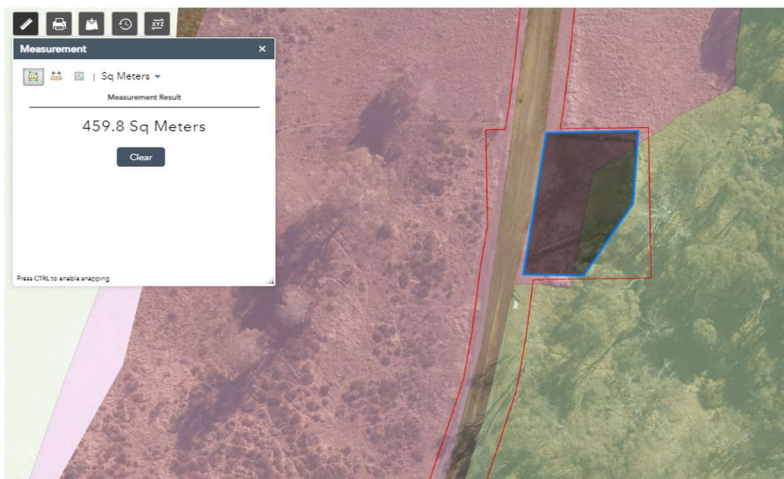
Gradient - less than 10%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4).
Has been undertaken post photo)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	5
1224	Hakea microcarpa	5

PCT - 1224



Chainage 8000—Laydown (L7)

Area – 482m2



Earthworks Status - Complete topsoil applied

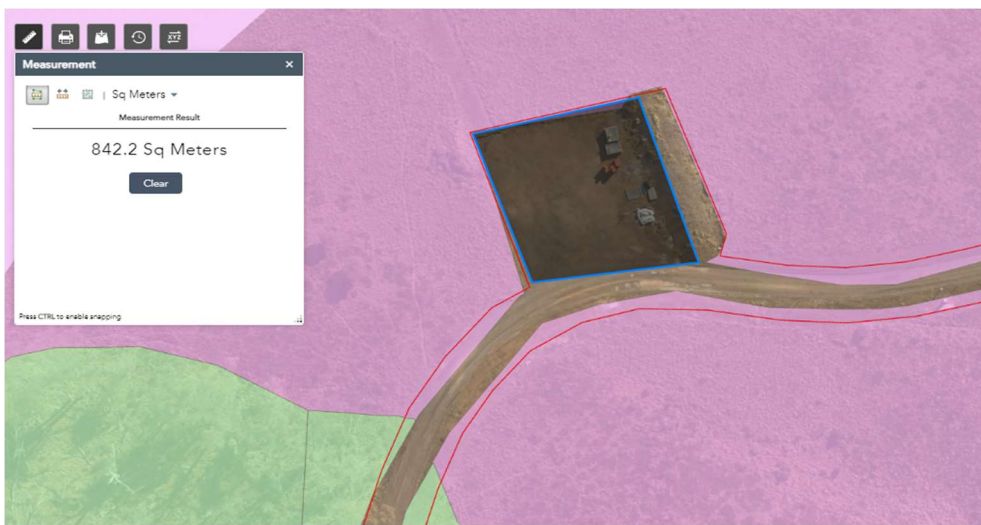
Gradient - less than 2%

Cover– complete - Hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – Initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	22
1224	Hakea microcarpa	5

PCT - 1224



Tantangara Creek laydowns 9200 – (L8)

Area 498 m2



Earthworks status – not complete (site still in use for remaining testing and Tantangara Creek culvert installation work) – culvert installation scheduled for Summer 2024/2025

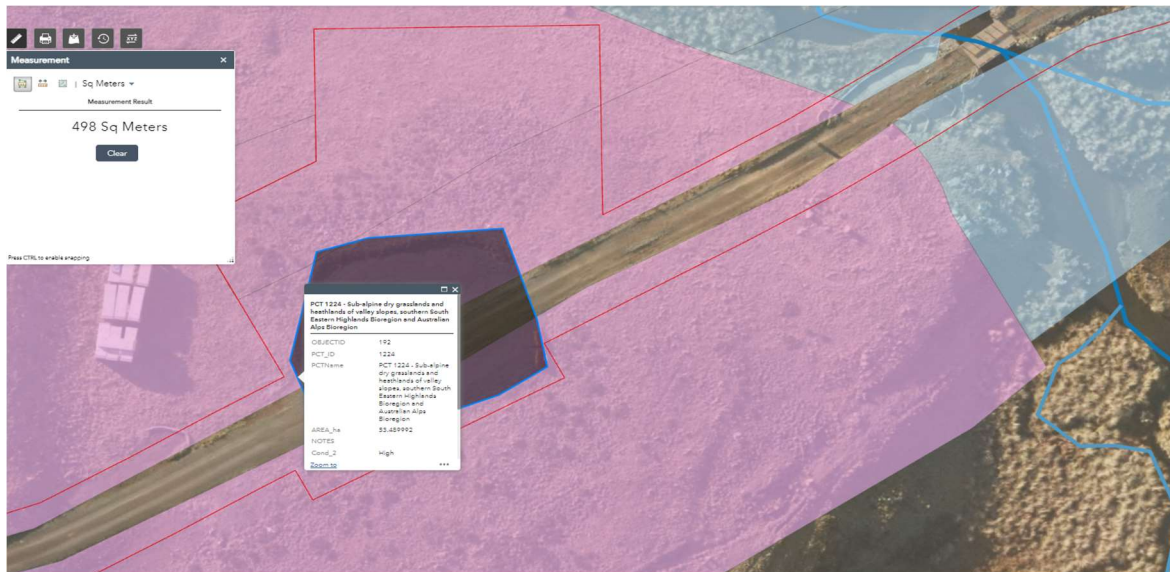
Gradient – less than 16%

Cover – to be hydromulched or straw mulch with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	25
1224	Hakea microcarpa	5

PCT - 1224



Tantangara Creek laydowns 9400 – (L9)

Area 535 m2



Earthworks status – complete – topsoil applied

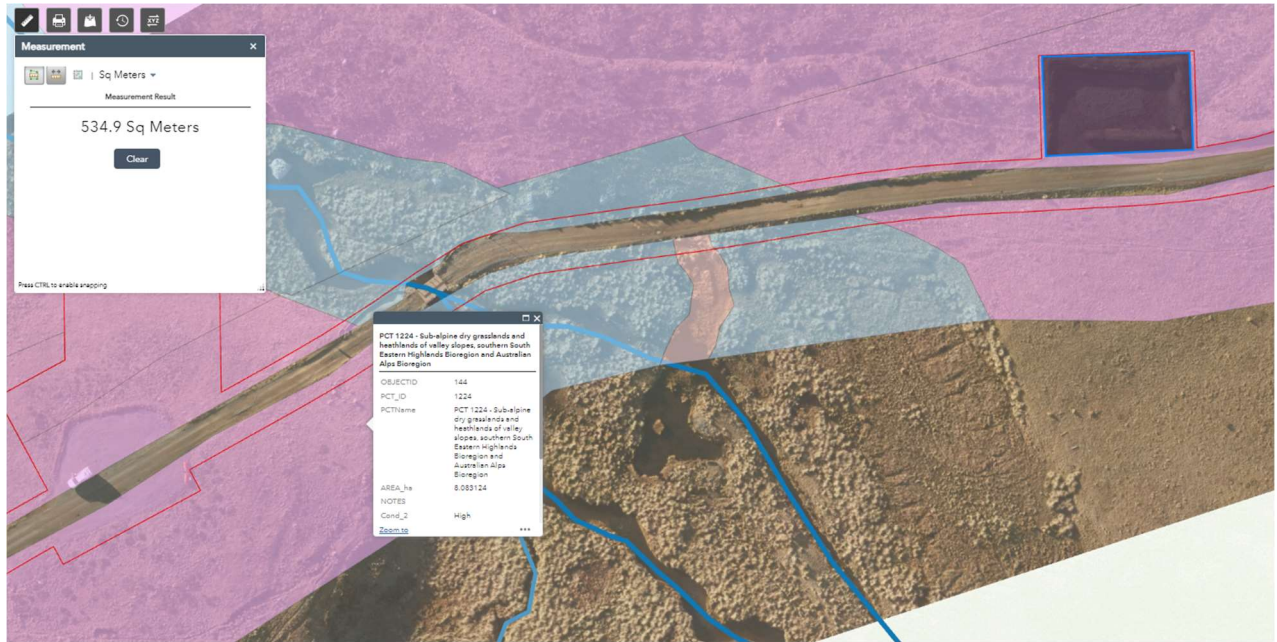
Gradient – less than 16%

Cover– complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Carex_sp_Tall_Sedge	25
1224	Hakea microcarpa	5

PCT - 1224



Plateau – Tantangara Creek – PCT 1225 (>40m2)

This site will be sown and planted with primary species on the batters and in the disturbed areas of waterway zone. All species selected for the first pass of rehabilitation are considered primary species for this PCT. These sites will be monitored, and additional planting and sowing will be done with secondary species as part of the rehabilitation and maintenance program.



Date: 14th May 2024

The table below outlines the primary species to be planted around the waterway as tubestock. Trees are to be planted approximately 3 metres apart with shrubs planted 1-2 metres apart.

Botanical Name	Common Name	Number of tubestock for area	Notes
<i>Carex appressa</i>	Tall saw sedge	10	Plant in riparian zon.
<i>Poa costiniana</i>	Horny Grass	10	Plant in riparian zone
<i>Cassinia aculeata</i>	Sticky Cassinia	10	Plant in well drained areas
<i>Grevillea australis</i>	Alpine Grevillea	5	Cutting grown
<i>Grevillea lanigera</i>	Woolly Grevillea	5	Cutting grown
<i>Hakea microcarpa</i>	Small fruit Hakea	10	Plant close to the rock edge
<i>Leptospermum myrtifolium</i>	Myrtle Tea Tree	5	Plant close to the rock edge
<i>Ozothamnus secundiflorus</i>	Cascade Everlasting	5	
<i>Stellaria pungens</i>	Prickly Starwort	10	Cutting grown
<i>Eucalyptus pauciflora</i>	Snow Gum	5	Top of the batter
<i>Eucalyptus stellulata</i>	Black Sallee	5	Plant close to the rock edge

The table below outlines the primary species to be sown as seed around the waterway. The typical sowing rate will be 2 grams per square meter with 100 grams of seed required for this site. Seed will be applied in spring after the soil temperature has increased with hydromulch to reduce likelihood of impact by rainfall.

Botanical Name	Common Name	Notes
<i>Bulbine bulbosa</i>	Chocolate Lily	Sow on batters
<i>Microseris lanceolata</i>	Native Dandelion	Sow on batters
<i>Podolepis jaceoides</i>	Showy Copper Wire Daisy	Sow on batters
<i>Anthosachne scabra</i>	Common Wheat Grass	Sow on batters
<i>Microlaena stipoides</i>	Weeping Grass	Sow on batters
<i>Poa clivicola</i>	Fine Leaved Snow Grass	Sow on batters
<i>Poa sieberiana</i>	Grey Tussock Grass	Sow on batters
<i>Themeda triandra</i>	Kangaroo Grass	Sow on batters

Blankets Creek laydown Chainage 12800—laydown (L10)

Area – 448 m²



Earthworks status – complete – topsoil applied

Gradient - 12%

Cover – complete- hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	22
1224	Hakea microcarpa	5

PCT - 1224



Blankets Creek laydown Chainage 13000—laydown (L11)

Area – 408 m2



Earthworks status – complete – topsoil applied

Gradient - 12%

Cover – 80% complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4). Additional to be applied after testing is completed

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	20
1224	Hakea microcarpa	5

PCT - 1224



Blankets Creek – PCT 1224 (>40m2)

This site will be sown and planted with primary species on the batters and in the disturbed areas of waterway zone. All species selected for the first pass of rehabilitation are considered primary species for this PCT. These sites will be monitored, and additional planting and sowing will be done with secondary species as part of the rehabilitation and maintenance program.



Date: 14th May 2024

The table below outlines the primary species to be planted around the waterway as tubestock. Trees are to be planted approximately 3 metres apart with shrubs planted 1-2 metres apart.

Botanical Name	Common Name	Number of tubestock for area	Notes
<i>Carex appressa</i>	Tall saw sedge	10	Plant in riparian zone.
<i>Poa costiniana</i>	Horny Grass	10	Plant in riparian zone.
<i>Cassinia aculeata</i>	Sticky Cassinia	10	Plant in well drained areas
<i>Grevillea australis</i>	Alpine Grevillea	5	Cutting grown
<i>Grevillea lanigera</i>	Woolly Grevillea	5	Cutting grown
<i>Hakea microcarpa</i>	Small fruit Hakea	10	Plant close to the rock edge
<i>Leptospermum myrtifolium</i>	Myrtle Tea Tree	5	Plant close to the rock edge
<i>Stellaria pungens</i>	Prickly Starwort	10	Cutting grown
<i>Eucalyptus pauciflora</i>	Snow Gum	1	Top of the batter
<i>Eucalyptus stellulata</i>	Black Sallee	2	Plant close to the rock edge.

The table below outlines the primary species to be sown as seed around the waterway. The typical sowing rate will be 2 grams per square meter with 100 grams of seed required for this site. Seed will be applied in spring after the soil temperature has increased with hydromulch to reduce likelihood of impact by rainfall.

Botanical Name	Common Name	Notes
<i>Bulbine bulbosa</i>	Chocolate Lily	Sow on batters
<i>Microseris lanceolata</i>	Native Dandelion	Sow on batters
<i>Podolepis jaceoides</i>	Showy Copper Wire Daisy	Sow on batters
<i>Anthosachne scabra</i>	Common Wheat Grass	Sow on batters
<i>Microlaena stipoides</i>	Weeping Grass	Sow on batters
<i>Poa clivicola</i>	Fine Leaved Snow Grass	Sow on batters
<i>Poa sieberiana</i>	Grey Tussock Grass	Sow on batters
<i>Themeda triandra</i>	Kangaroo Grass	Sow on batters

Chainage 13600 — laydown (L12)

Area – 21,227m2



Earthworks status – complete – topsoil applied

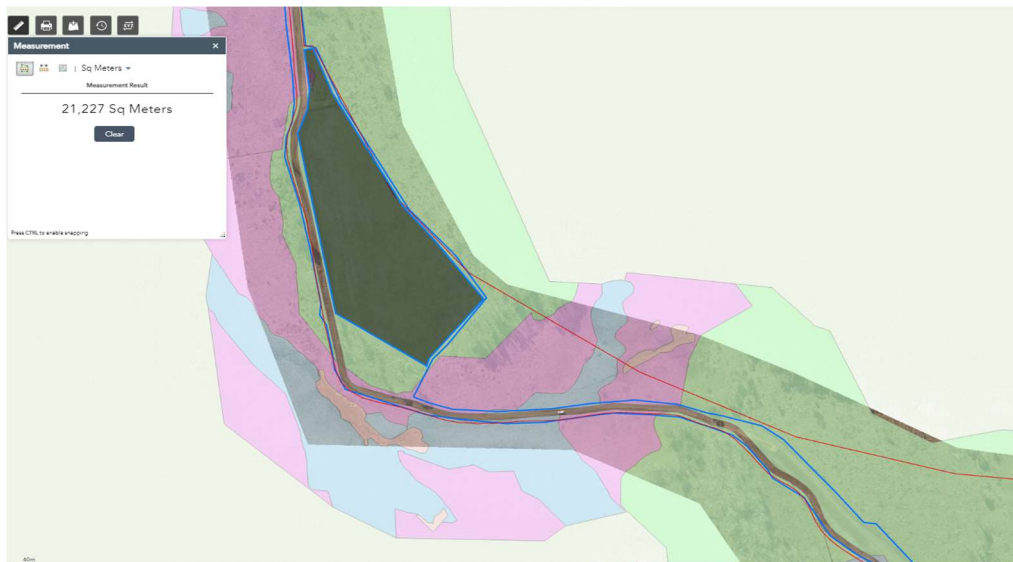
Gradient - 12%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
644	Eucalyptus_pauciflora	125
644	Acrothamnus_hookeri	200
644	Eucalyptus_stellulata	20
644	Hakea_microcarpa	80

PCT - 644



Chainage 14000 — laydown (L13)

Area – 3000 m2



Earthworks status – complete – topsoil applied

Gradient - 3.7%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
644	Eucalyptus_pauciflora	40
644	Eucalyptus_stellulata	12
644	Acrothamnus_hookeri	40
644	Hakea_microcarpa	30

PCT - 644



Chainage 14600 - laydown (L14)

Area –768 m2



Earthworks status – complete – topsoil applied

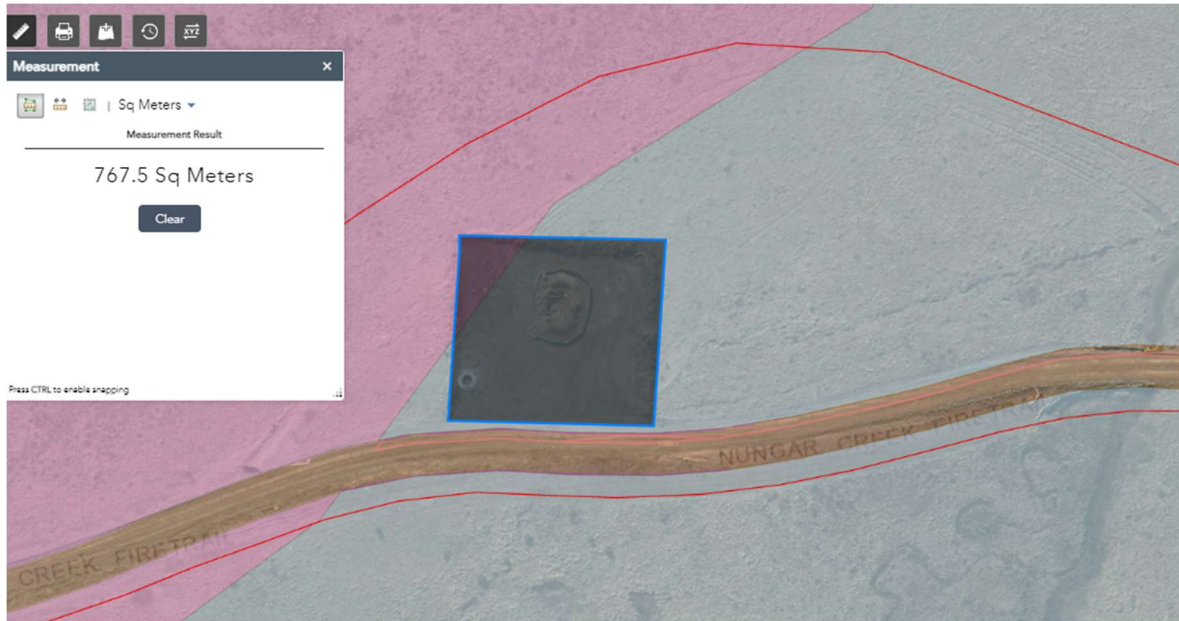
Gradient - 2.1%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1225	Hakea_microcarpa	5
1225	Acrothamnus_hookeri	10
1225	Carex appressa	50
1225	Poa clivicola	100

PCT - 1225



Chainage 14850 — laydown (L15)

Area –858 m2



Earthworks status – complete – topsoil applied

Gradient - 5.1%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1225	Hakea_microcarpa	5
1225	Acrothamnus_hookeri	10
1225	Carex appressa	50
1225	Poa clivicola	100

PCT - 1225



Chainage 16700 - 16850 (S1)

Area – 450 m2



Earthworks status – complete – topsoil applied

Gradient – 10%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1196	Lomandra_filiformis_subsp_coriacea	10
1196	Poa sieberiana	20
1196	Acaena_novae-zelandiae	10

PCT 1196 = ■



Chainage 17400 - laydown (L16)

Area – 537m²



Earthworks status – complete – topsoil applied

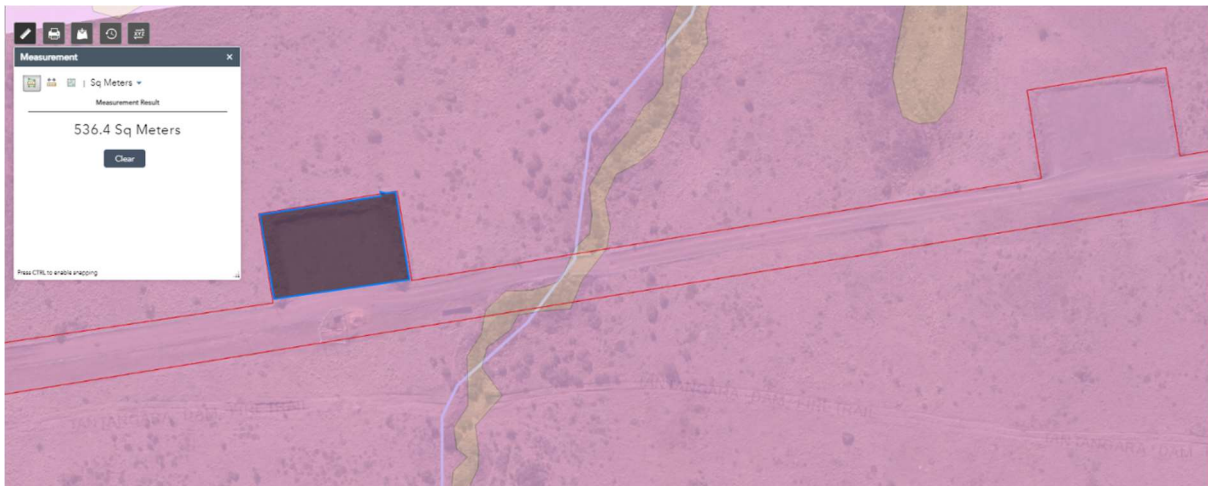
Gradient – 2.5%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	Carex Tall_Sedge	20
1224	Hakea microcarpa	6

PCT - 1224



Chainage 17600 - laydown (L17)

Area - 520 m2



Earthworks status - complete

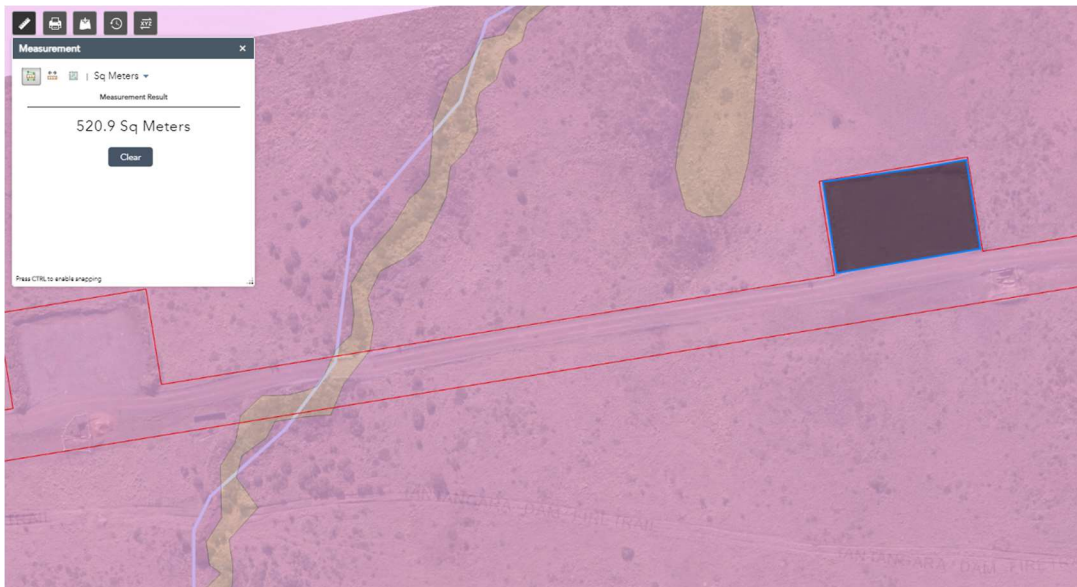
Gradient – 3%

Cover – complete - hydromulched with native seed (see Section 4.2 Table 3 & Section 5.2 Table 4)

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	20
1224	Hakea microcarpa	6

PCT - 1224



Nungar Creek laydown Chainage 17850 — laydown (L18)

Area – 996 m²



Earthworks Status – partially complete

Gradient – 5%

Cover – partially complete - hydromulched with native seed applied to 60% of pad (see Section 4.2 Table 2). Remaining area to be mulched following completion of works

Vegetation – initial tubestock planting – see table below

PCT	Priority Species	Number for site
1224	Eucalyptus_stellulata_Black_Sally	2
1224	Eucalyptus_pauciflora_White_Sally	1
1224	*Carex_sp_Tall_Sedge	40
1224	Hakea_microcarpa	10

PCT - 1224



Nungar Creek laydown Chainage 18200 – 18700 — Nungar creek to Tantangara dam fire trail laydown section (TT1) Tantangara section

Area – 4602 m²

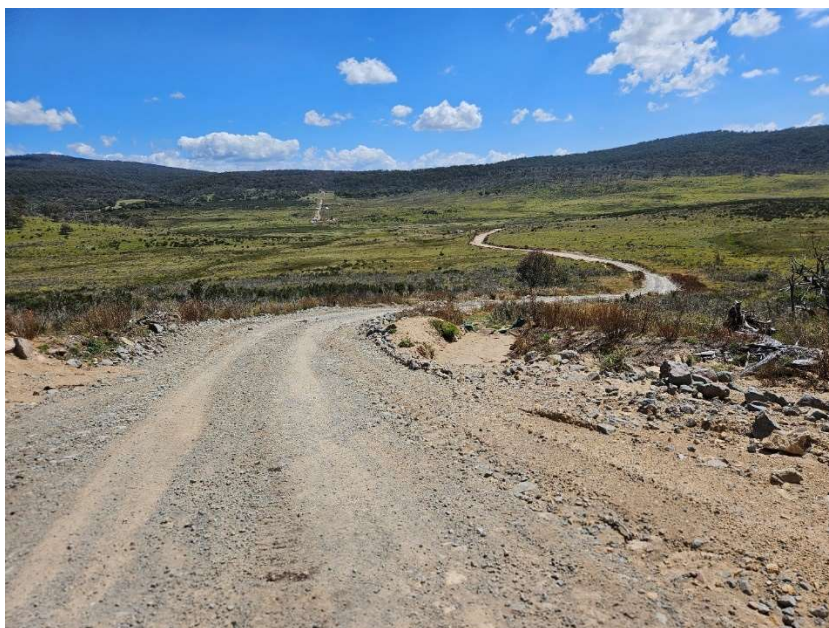


Photo taken facing west towards Nungar Creek

Earthworks Status - partially complete – geofabric to be removed

Topsoil to be spread and track ripped prior to cover being applied to result in a low level 4WD track (wheel tracks with vegetative cover) to allow for inspection pit access, rehabilitation activities and ongoing weed control **(*note presence of Ox eye daisy in area) Weed hygiene procedures apply**

Gradient – 6.2%

Cover/vegetation - native seed to be applied as table below. Weed free straw mulch applied at a rate of one bale per 25m² after seeding

Species (PCT 1224 / 1225)	KG per Ha
Anthosachne scabra	4
Microlaena stipoides	0.5
Poa labillardierei	1
Poa sieberiana	4
Poa Helmsii	0.25
Rytidosperma pilosum	0.5
Rytidosperma caespitosum	1
Themeda triandra	0.25
Total	12

Undertake weed control, monitor weed growth and plant tubestock in PCT 1225 when infestation under control

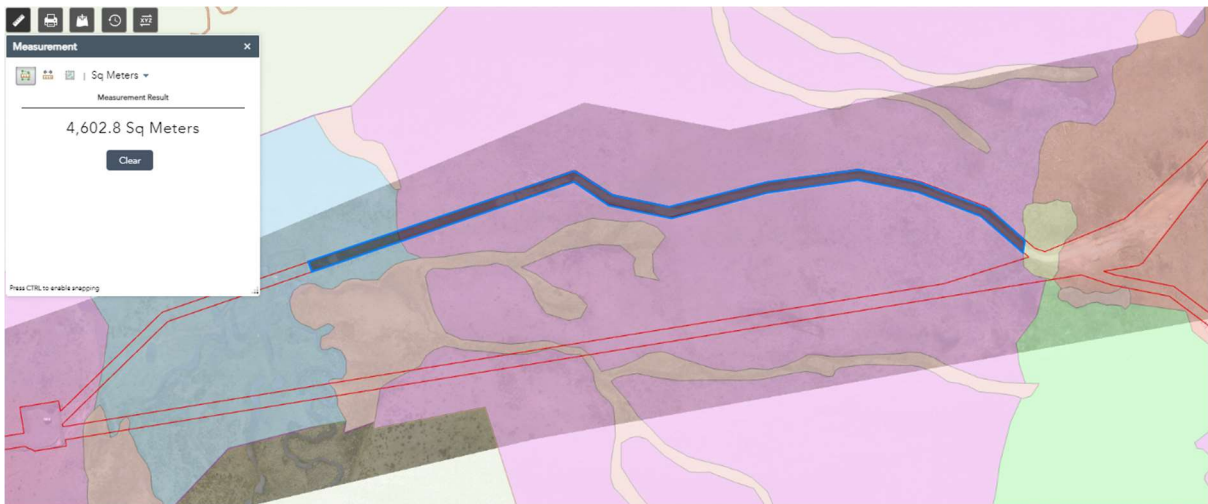
PCT	Priority Species	Number for site
1225	Carex appressa	50
1225	Poa clivicola	300

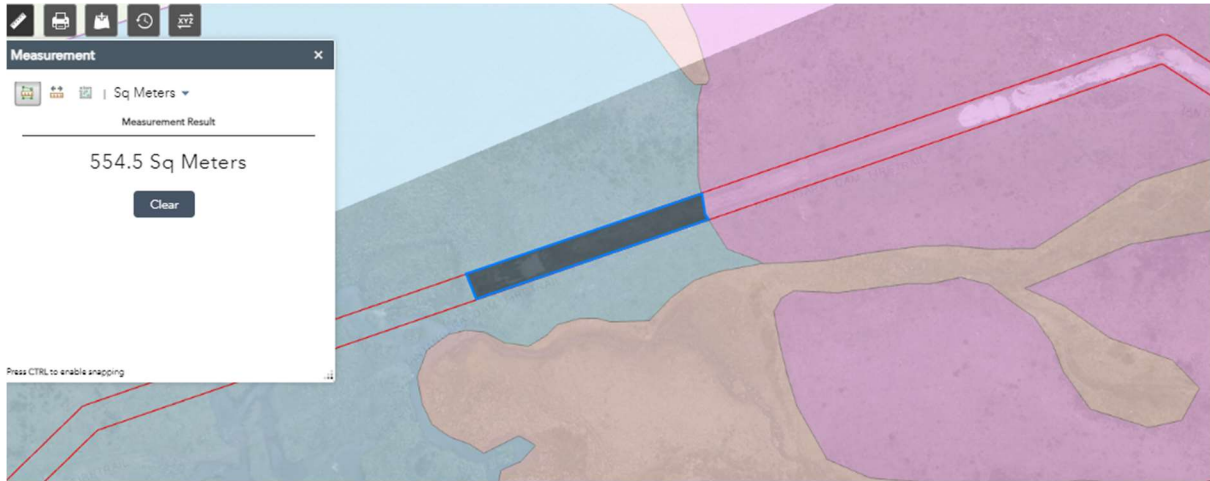
Facing west towards Nungar Creek

Facing Northeast towards Tantangara



PCT - 1224 4047m2 & 1225 555m2





Chainage 18700 – 19700 (Southwestern side of Tantangara Hill down to Tantangara dam fire trail)
4WD access required for ongoing maintenance (**TT2**)

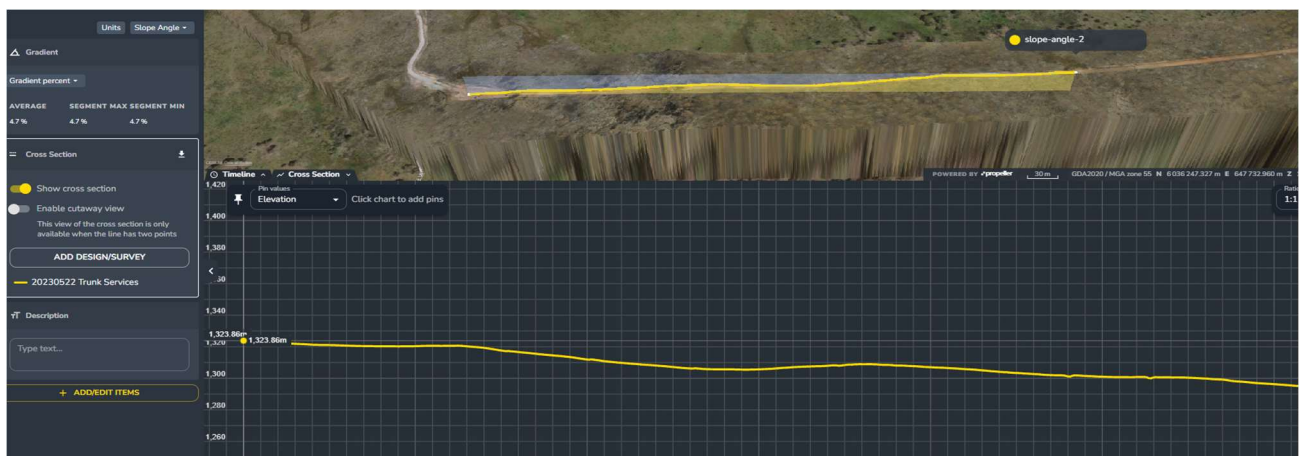
Area - 1.5 ha



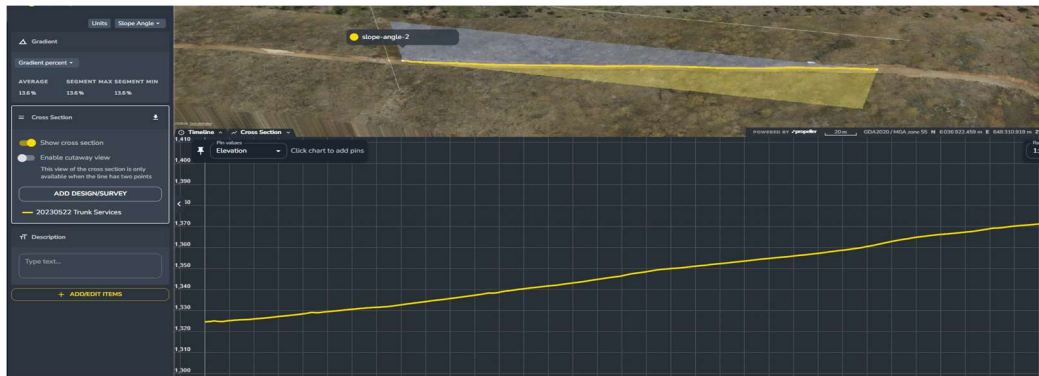
Facing North towards Tantangara Hill

Earthworks status – incomplete - track to be ripped prior to topsoil respread at depth it was stripped, and cover applied (surface roughness maintained), roll overs and scour protection to be retained to break up slope to result in a low level 4WD track (wheel tracks with vegetative cover) to allow for inspection pit access, rehabilitation activities and ongoing weed control

Gradient – lower 650 metres towards Nungar Creek – average 4.7 %



Upper 350 metres to top of Tantangara Hill - average 13%

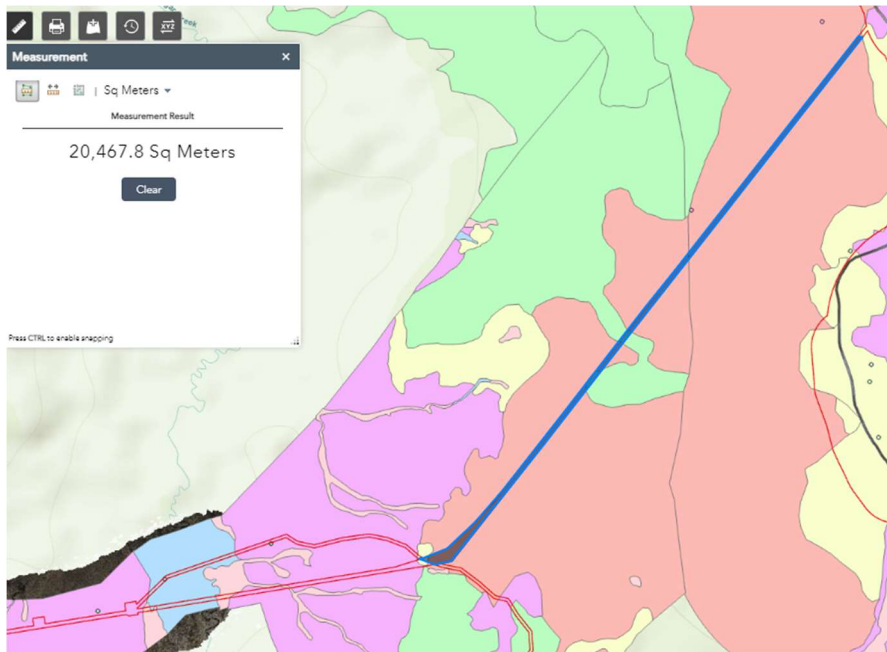


Cover/vegetation– native seed to be applied as table below

Species (1196)	KG per Ha
Anthosachne scabra	4
Microlaena stipoides	0.5
Poa labillardierei	1
Poa sieberiana	5
Poa Helmsii	0.03
Rytidosperma pilosum	1.5
Rytidosperma caespitosum	0.5
Themeda triandra	0.25
Total	12

Straw mulch applied at a rate of one bale per 25m²

PCT - 1196 ■ 2.05 ha **644** ■ 0.9ha



Chainage 19700 – 20000 (Tantangara Hill – Steep section - top of hill to first inspection pit at base of hill) closed to traffic (TT3)

Area 800m²



Earthworks Status – incomplete

Key principals of rehabilitation of the Tintangara Hill slope –

- Natural surface levels to be restored as close as possible to pre-disturbance, safely using site won material, and without affecting the cover over in ground services.
- Extent of the depth of cutting to be minimised with the addition of local materials.
- Tying in of additional local material to prevent any slipping using ripping and track rolling.
- Visible and undulating surface roughness created to provide niches for vegetation growth and break up the slope (including application of heavy thatch).
- No bare ground – establish cover quickly.
- Access control – Logs placed at either end of slope to prevent bike/vehicle access.

Gradient – 37%



Earthworks

- Site won material (subsoil & bunds) to be used to reduced depth of cutting
- Earthworks design to developed in consultation with NPWS to address steep batters and drainage
- Elements such as creation of slope breaks no more 5 metres apart to control surface water flow / undulation using subsoil / topsoil to be incorporated in design
- Application of topsoil ~100 mm (surface roughness maintained)
- ESCP to be updated for rehabilitation work



Reduce the existing batter profile grade as much as possible. This will typically give a "U" shaped finish as roughly illustrated.

We will need to do this for the entire corridor of the Tantangara hill (top to bottom)



Reduce the existing batter profile grade as much as possible. This will typically give a "U" shaped finish as roughly illustrated.

We will need to do this for the entire corridor of the Tantangara hill (top to bottom)

Cover/vegetation

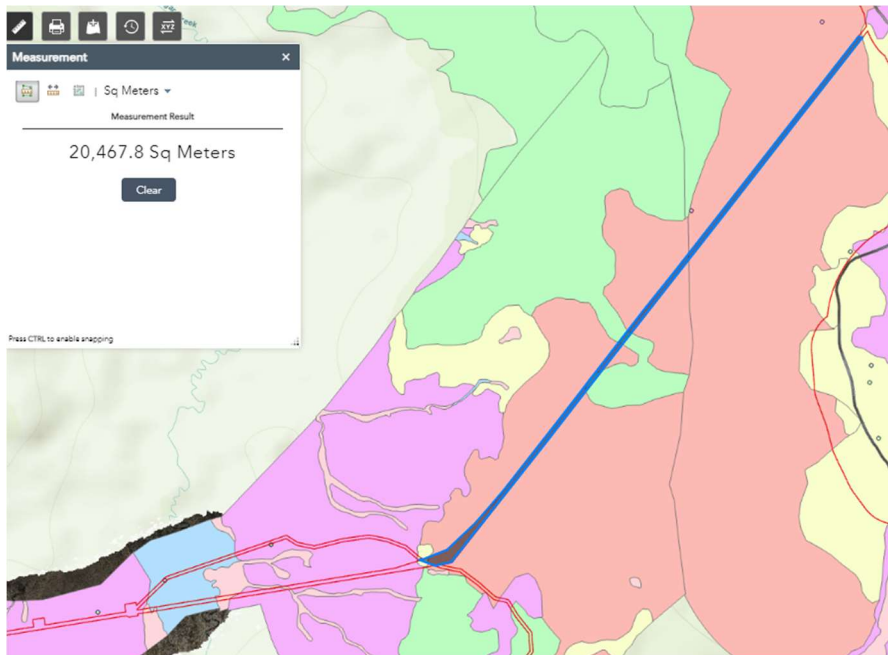
- Native seed to sown at rates specified below
- Rice straw applied at ~25m² per bale after seeding
- Jute mesh applied over site
- Thatch from local site (branches, rocks) used to create niches

PCT - 1196 (Tantangara Hill mix)

Species (1196)	KG per Ha
Anthosachne scabra	6
Microlaena stipoides	1.5
Poa labillardierei	1
Poa sieberiana	5
Poa costiniana	0.5
Rytidosperma pilosum	1.5
Rytidosperma caespitosum	0.5
Themeda triandra	0.25
Total	16.25

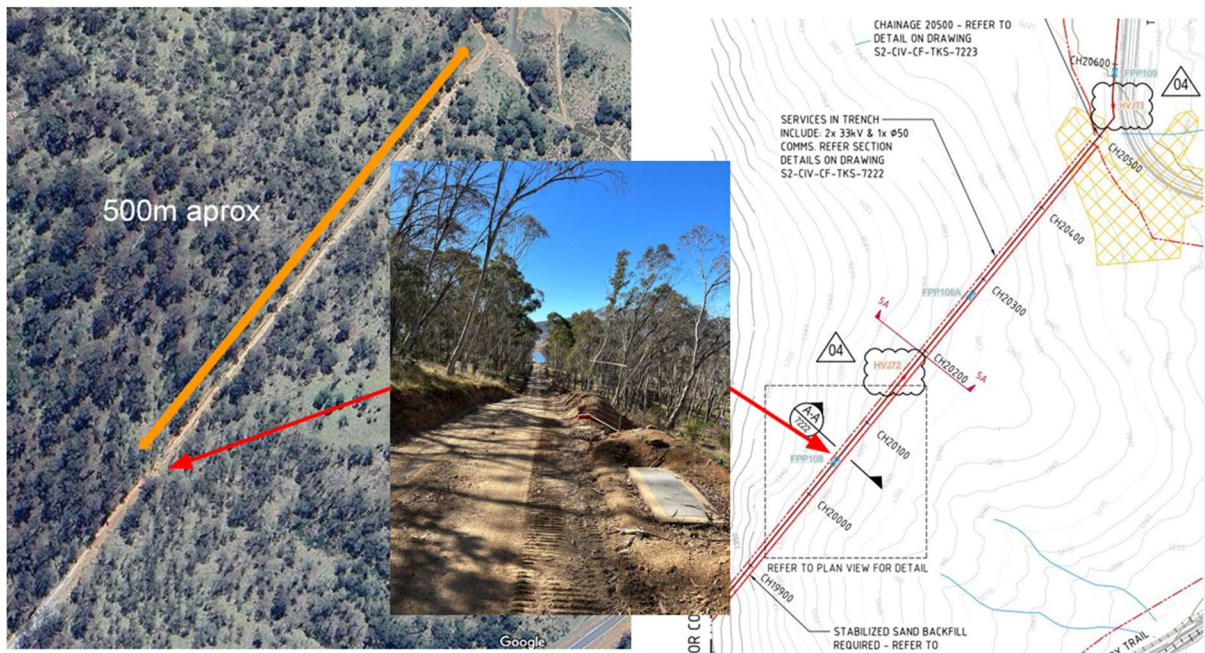
Priority Species	Number for site
Lomandra_filiformis_subsp_coriacea	10
Poa sieberiana	20
Acaena_novae-zelandiae	10

*To be reassessed after earthworks completed to determine suitability of species in respect to root depth and infrastructure.



Chainage 20000 - 20500(Tantangara Hill) (TT4) 4WD access required for maintenance

Area- 5000 m2



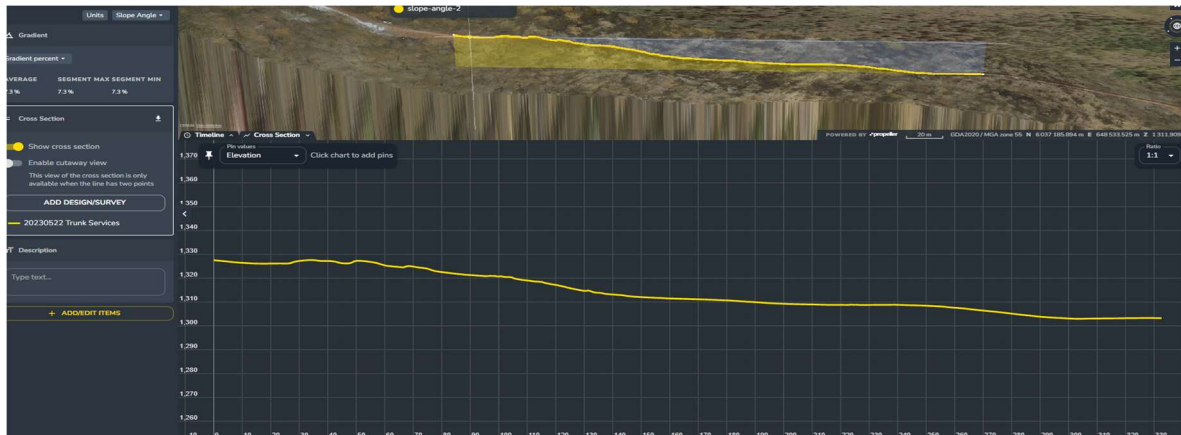
Upper section



Lower section

Gradient

Upper section (350 metres) - average slope – 7.3 %



Lower section (150 metres) - average slope - 21.2 %



Earthworks

- Track to be narrowed still allowing for 4WD access with natural surface reinstated by pulling site won material (bunds) across the track reducing depth of cutting.
Works to result in a low level 4WD track (wheel tracks with vegetative cover) to allow for inspection pit access, rehabilitation activities and ongoing weed control
- Creation of transitable slope breaks/undulation using subsoil/topsoil.
- Application of topsoil ~100 mm.

Access

- Infrastructure (gate, boulders, logs) to be installed at intersection with Quarry trail to restrict public vehicle access.

Cover / Vegetation

- Native seed to sown at rates specified below.
- Rice straw applied at ~25m² per bale with tackifier applied after seeding / hydromulch can also be used.

Species (1196)	KG per Ha
Anthosachne scabra	4
Microlaena stipoides	0.5
Poa labillardierei	1
Poa sieberiana	5
Poa Helmsii	0.03
Rytidosperma pilosum	1.5
Rytidosperma caespitosum	0.5
Themeda triandra	0.25
Total	12

Where SHL & NPWS agree operational changes are required; the plan may be updated without DPHI approval.

Appendix D – Trunk Services Issued For Construction drawing (IFC) - Marica Entrance to Tantangara



Document Number
S2-CIV-CF-TKS-7206

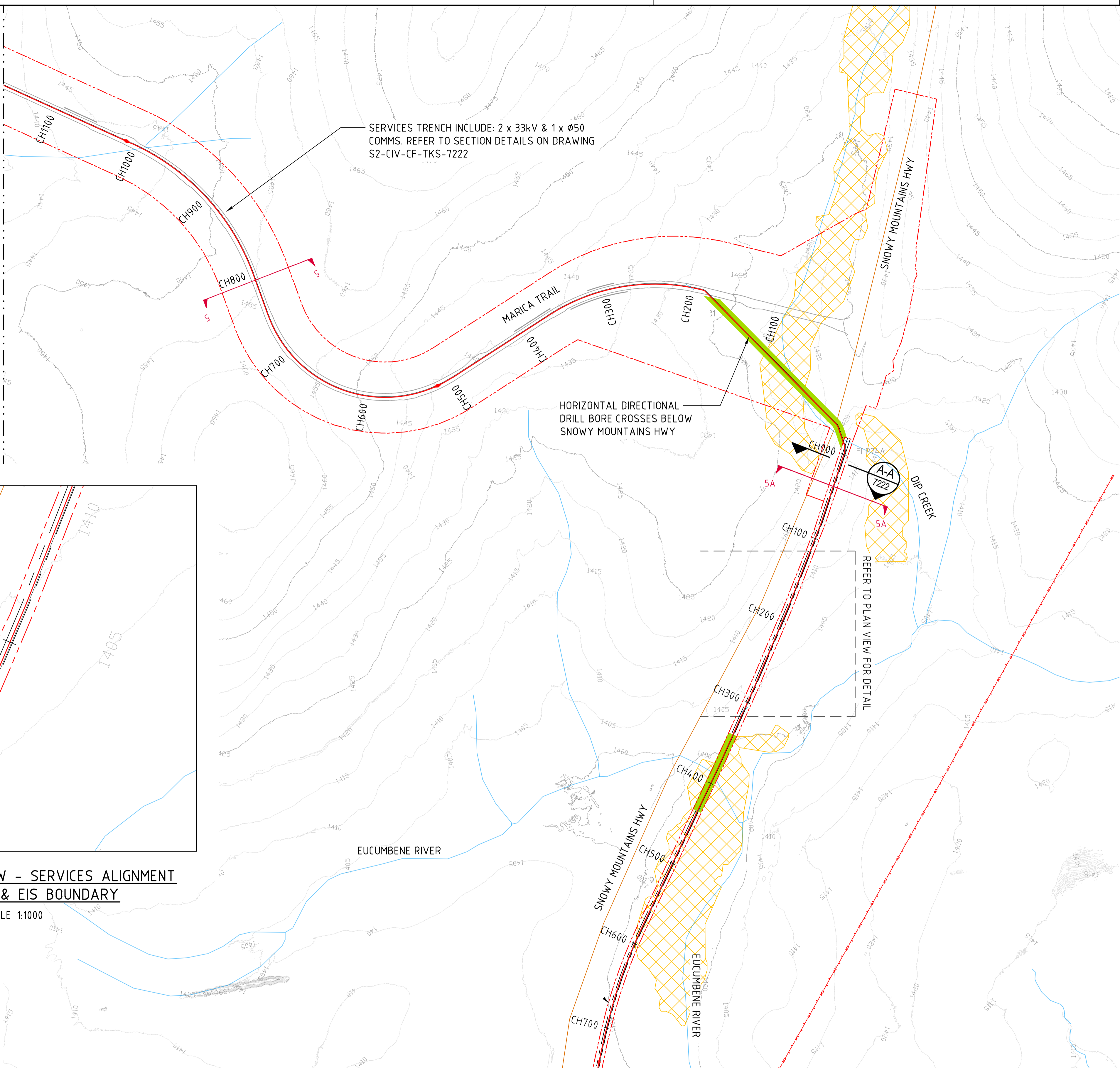
Revision 03

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:51 PM GMT+10:00

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7205

ORIGINAL SIZE A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm



SERVICES TRENCH INCLUDE: 2 x 33kV & 1 x Ø50 COMMS. REFER TO SECTION DETAILS ON DRAWING S2-CIV-CF-TKS-7222

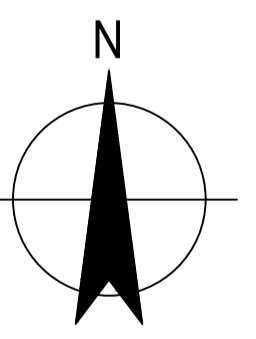
HORIZONTAL DIRECTIONAL DRILL BORE CROSSES BELOW SNOWY MOUNTAINS HWY

REFER TO PLAN VIEW FOR DETAIL



INDICATIVE PLAN VIEW - SERVICES ALIGNMENT WITH TRACK & EIS BOUNDARY

SCALE 1:1000

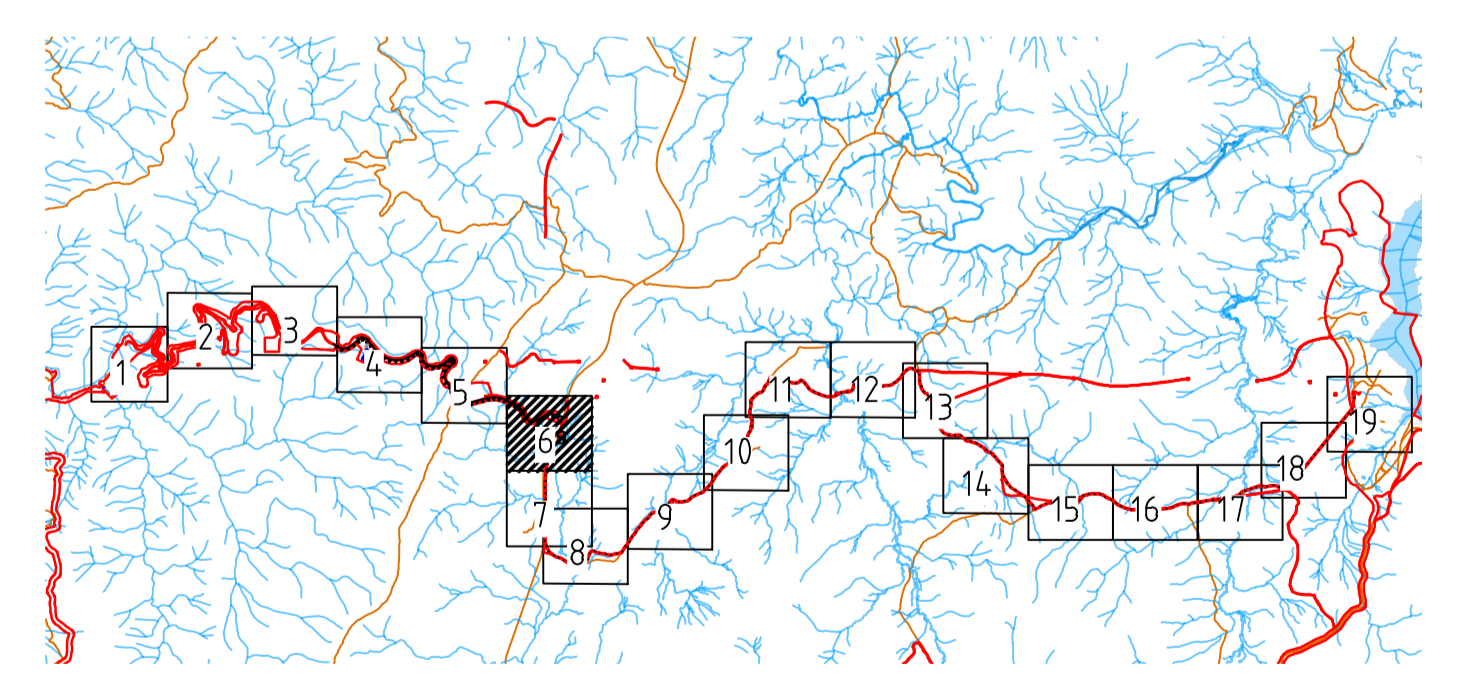


FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7207

MAT PORTAL TO TANTANGARA

SCALE: 1:2500

- LEGEND:**
- MAIN WORKS CONSTRUCTION ENVELOPE
 - NEW TRAIL
- SYMBOLS:**
- BOG/ FENS AREA
 - HORIZONTAL DIRECTION DRILL AREAS
 - ROAD CROSSING
 - MINOR CULVERT CROSSING



KEYPLAN
NOT TO SCALE **FOR CONSTRUCTION**

DESIGNER: SALINI IMPREGILO • CLOUGH • LANE

OWNER:

DESIGNERS DRAWING NUMBER: S2-CIV-CF-TKS-7206

REVISION: 03

SCALE BARS AT A1

SCALE 1:2500 AT ORIGINAL SIZE

SCALE 1:1000 AT ORIGINAL SIZE

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		18 Aug 2021	17:42:20
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST			

DESIGNED BY	G. HAGGETT
DESIGN CHECK	J. GORRINGE
DRAFTED BY	T. POTTER
DRAFTING CHECK	M. GHARIB
DESIGN MANAGER	J. GORRINGE
PROJECT MANAGER	T. STOKES

PROJECT TITLE	SNOWY 2.0	
DISCIPLINE	CIV	ASSET CLASS
		CF
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 6 OF 19		
PHASE	FOR CONSTRUCTION	DRAWING NUMBER
		S2-CIV-CF-TKS-7206
REVISION		03

DRAWING FILE LOCATION / NAME
C:\12d\SW\Area\XP-00-120-00\21-12530552 - Snowy Future Generation JV - Base camps_526\CADD\Drawings\TS01 - TRUNK SERVICES\MAT-TAN\S2-CIV-CF-TKS-7206.dwg



Document Number
S2-CIV-CF-TKS-7207

Revision 03

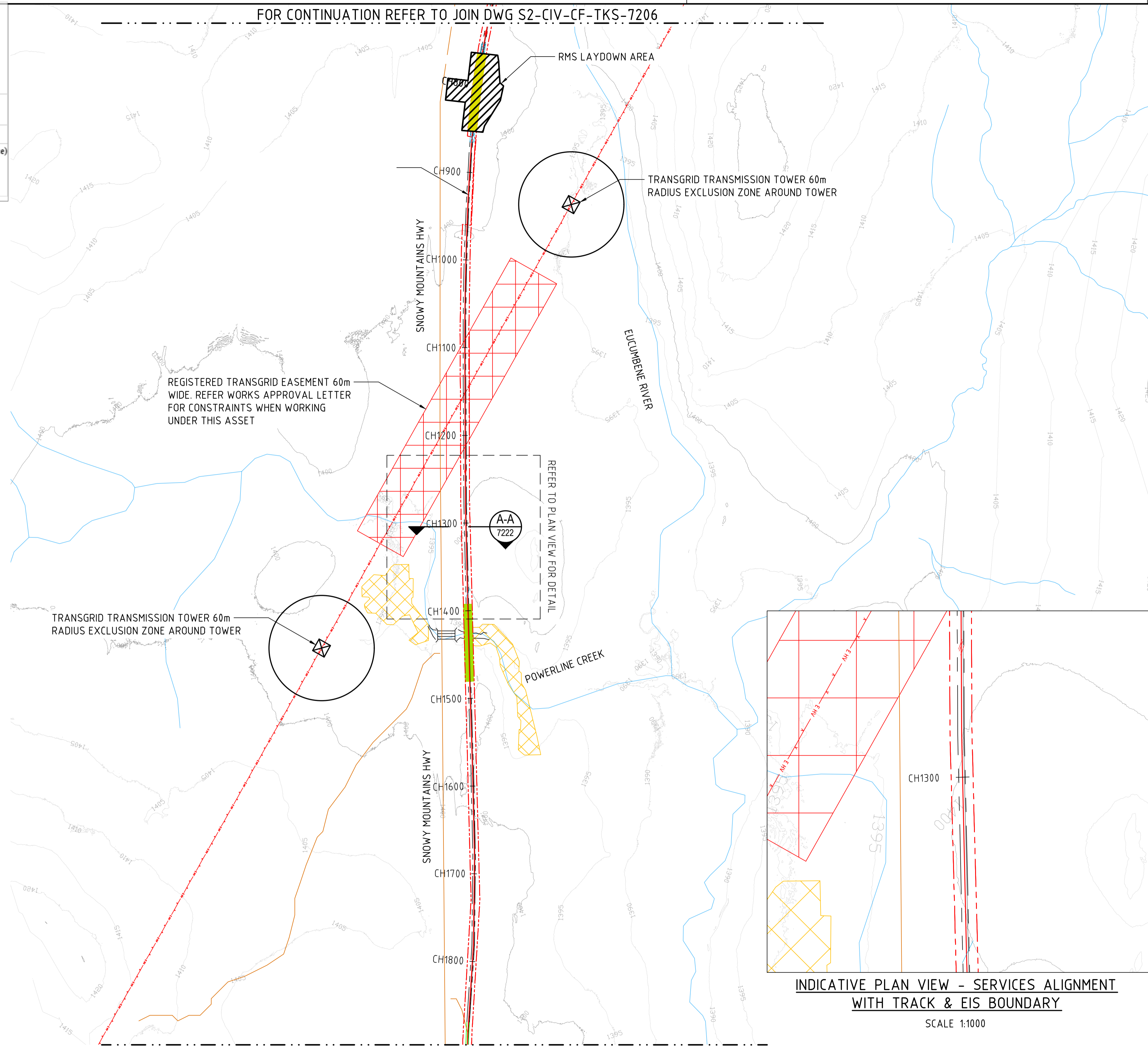
No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:52 PM GMT+10:00

ORIGINAL SIZE A1

150mm
140
130
120
110
100
90
80
70
60
50
40
30
20
10
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FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7206



LEGEND:

- MAIN WORKS CONSTRUCTION ENVELOPE
- WATER COURSE
- SURVEYED FIRE TRAIL (EXISTING)
- NEW TRACK

SYMBOLS:

- TRANSGRID EASEMENT
- BOG/ FENS AREA
- HORIZONTAL DIRECTION DRILL AREAS
- ROAD CROSSING
- MINOR CULVERT CROSSING

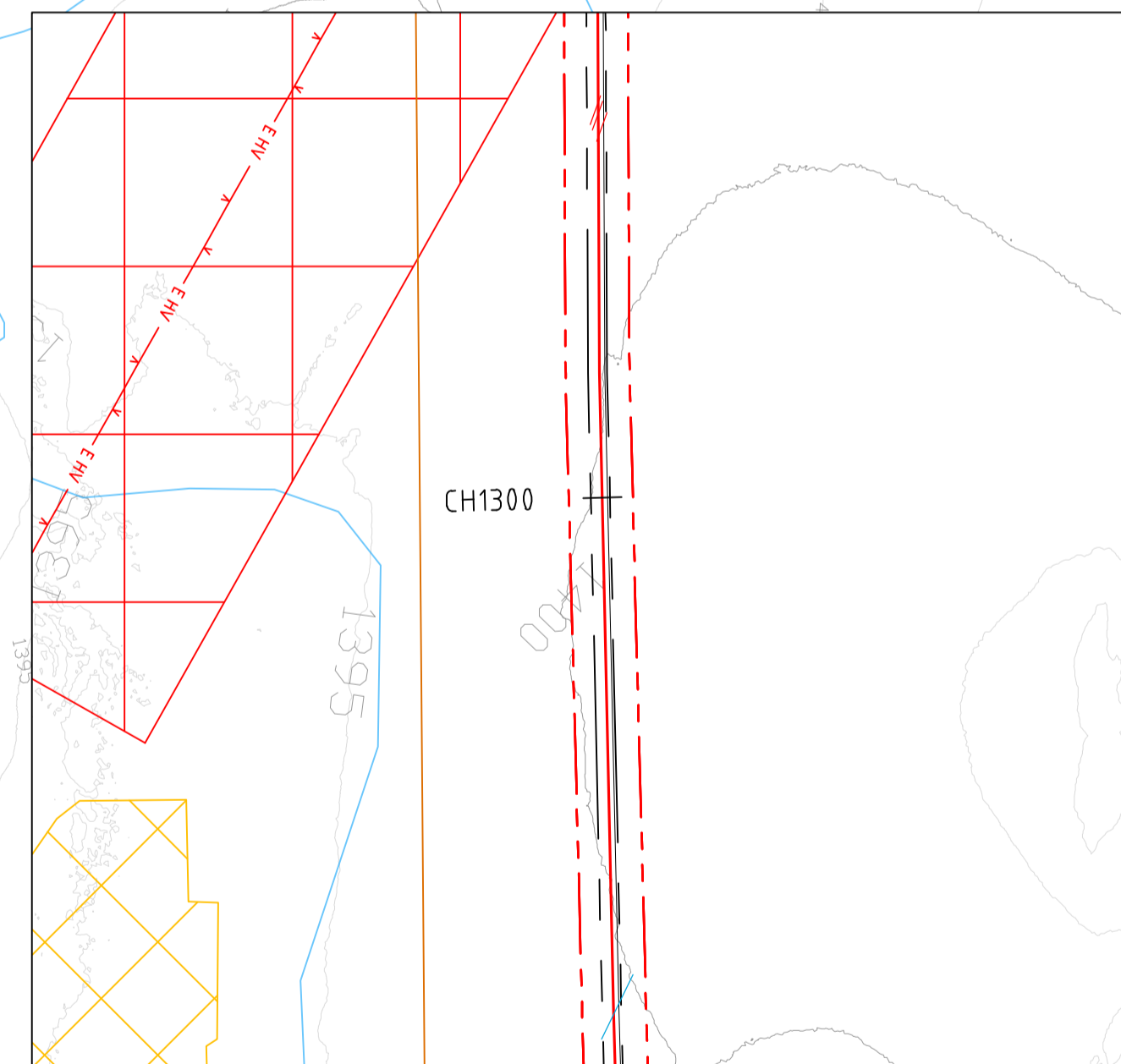
REGISTERED TRANSGRID EASEMENT 60m WIDE. REFER WORKS APPROVAL LETTER FOR CONSTRAINTS WHEN WORKING UNDER THIS ASSET

TRANSGRID TRANSMISSION TOWER 60m RADIUS EXCLUSION ZONE AROUND TOWER

TRANSGRID TRANSMISSION TOWER 60m RADIUS EXCLUSION ZONE AROUND TOWER

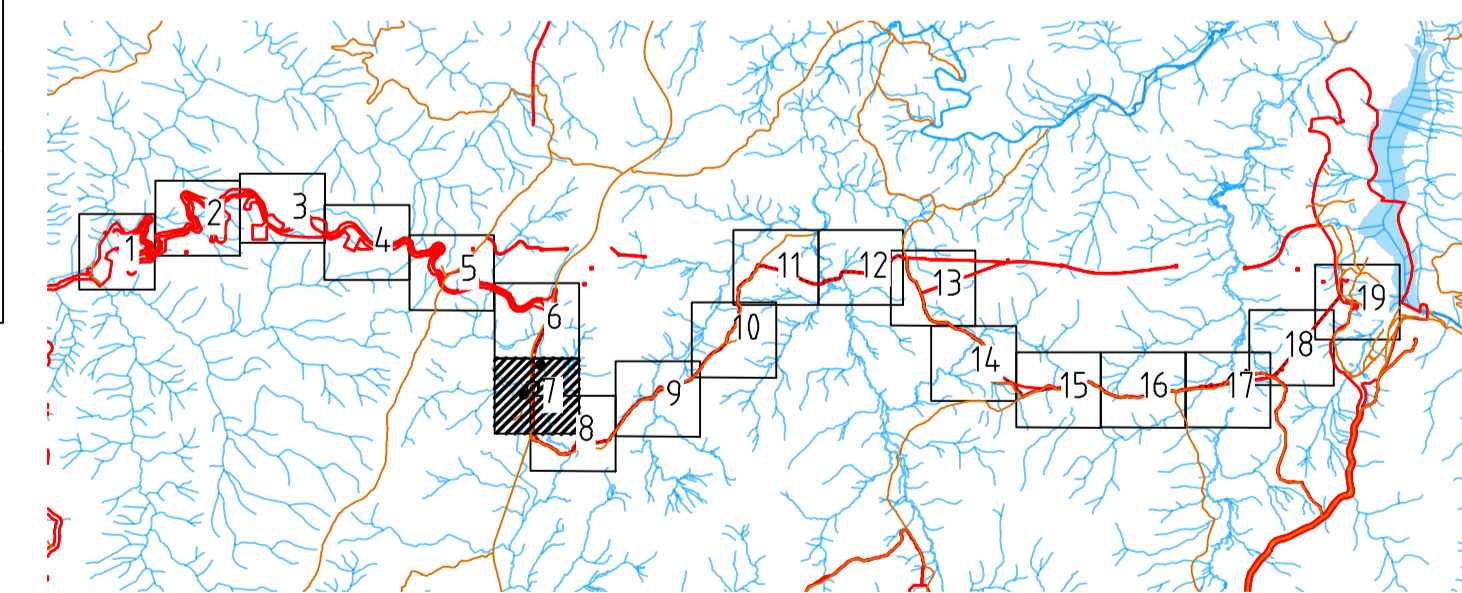
REFER TO PLAN VIEW FOR DETAIL

A-A
7222



INDICATIVE PLAN VIEW - SERVICES ALIGNMENT WITH TRACK & EIS BOUNDARY

SCALE 1:1000

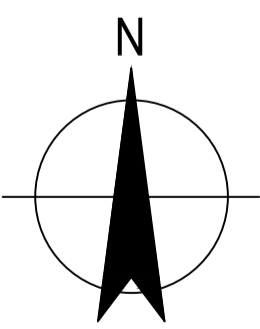


KEYPLAN
NOT TO SCALE

FOR CONSTRUCTION

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7208

MAT PORTAL TO TANTANGARA
SCALE: 1:2500



<p>Future Generation SALINI IMPREGILO • CLOUGH • LANE</p>		
DESIGNER S2-CIV-CF-TKS-7207	OWNER SNOWY HYDRO	SCALE BARS AT A1

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		18 Aug 2021	17:42:53
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J.FROST			

DESIGNED BY	G. HAGGETT
DESIGN CHECK	J. GORRINGE
DRAFTED BY	T. POTTER
DRAFTING CHECK	M. GHARIB
DESIGN MANAGER	J. GORRINGE
PROJECT MANAGER	T. STOKES

PROJECT TITLE	SNOWY 2.0	
DISCIPLINE	CIV	ASSET CLASS CF
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 7 OF 19		
PHASE	FOR CONSTRUCTION	DRAWING NUMBER S2-CIV-CF-TKS-7207
REVISION	03	

DRAWING FILE LOCATION / NAME
C:\12d\SW\Area\IP-00-120-001\21-12530552 - Snowy Future Generation JV - Base camps_526\CADD\Drawings\TS01 - TRUNK SERVICES\MAT-TAN\S2-CIV-CF-TKS-7207.dwg

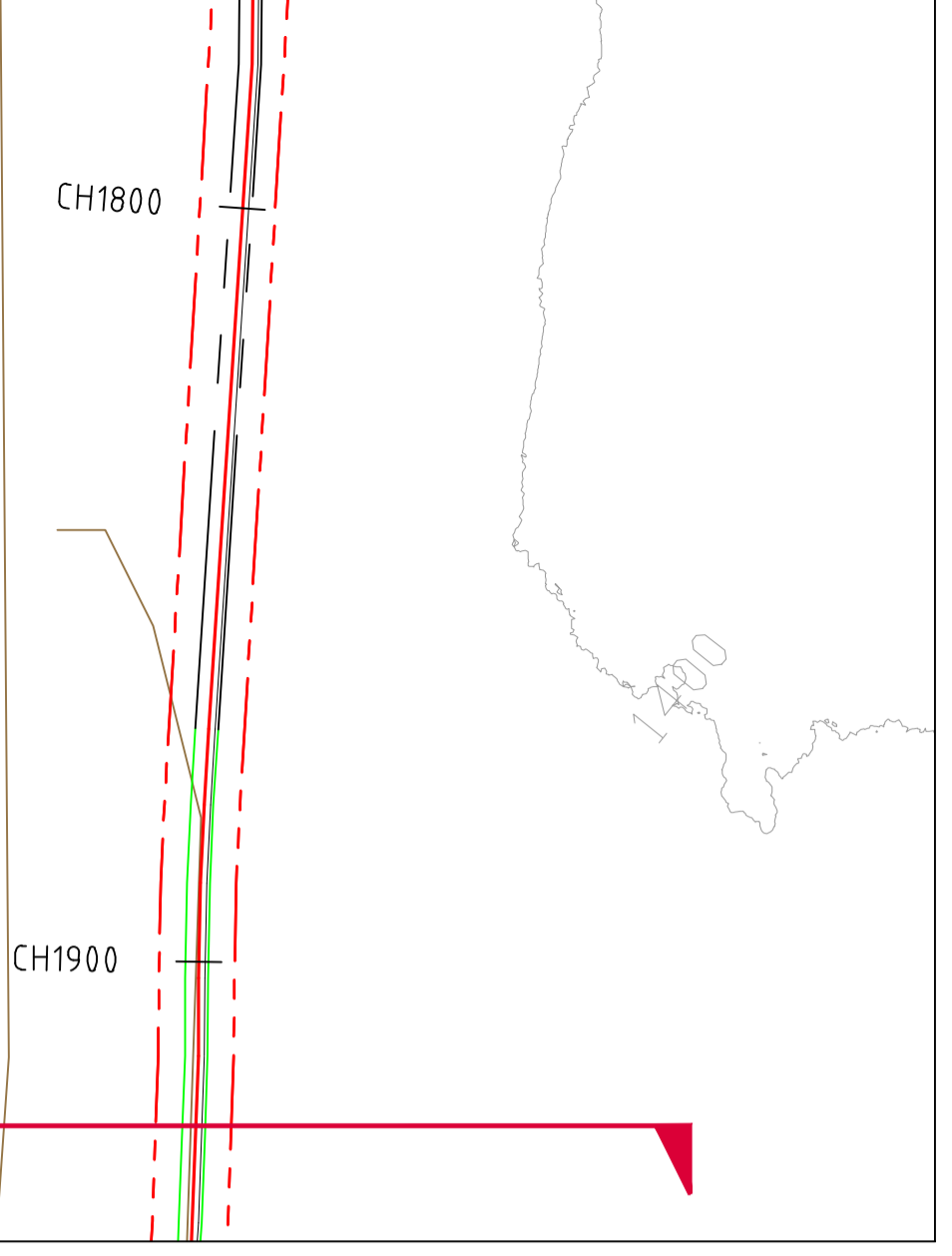
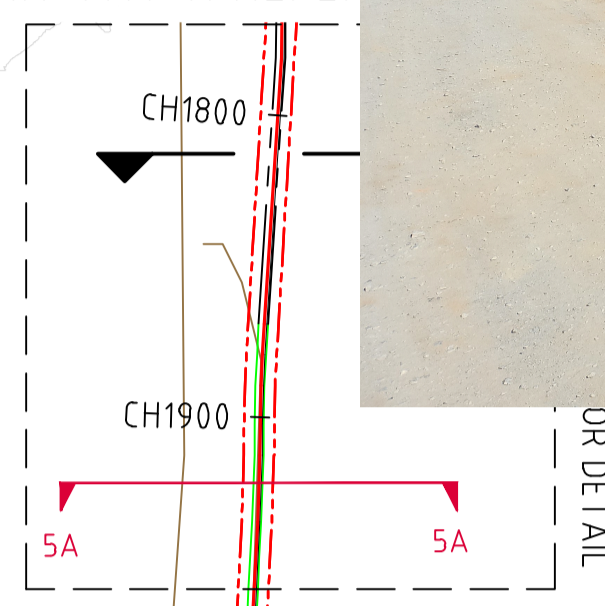


2 May 2024 1:32:16 pm
Gooandra Trail
Gooandra
Snowy Monaro Regional Council
New South Wales
REHAB GOOANDRA TRAIL CH 2200 GOOANDRA OFFICE PAD LAY DOWN AREA

Document Number
S2-CIV-CF-TKS-7208
Revision 03
No-objection with minor comments (Notice)
SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:52 PM GMT+10:00

FOR CONTINUATION REFER

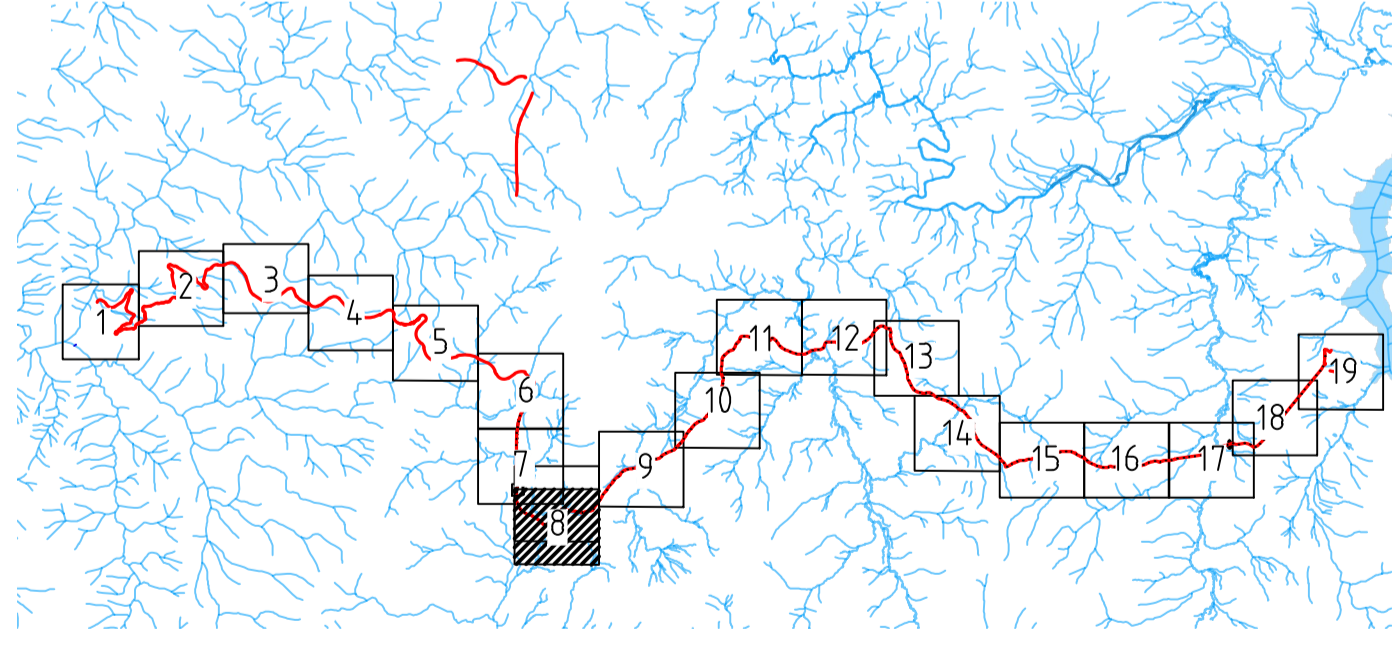
ORIGINAL SIZE A1
150mm
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0



PLAN VIEW - SERVICES ALIGEMENT
CH TRACK & EIS BOUNDARY
SCALE 1:1000

- LEGEND:**
- MAIN WORKS CONSTRUCTION ENVELOPE
 - WATER COURSE
 - SURVEYED FIRE TRAIL (EXISTING)
- SYMBOLS:**
- BOG/ FENS AREA
 - HORIZONTAL DIRECTION DRILL AREAS
 - ROAD CROSSING
 - MINOR CULVERT CROSSING

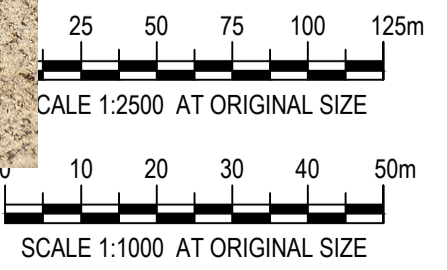
FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7209



KEYPLAN
NOT TO SCALE
FOR CONSTRUCTION

DESIGNER
DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7208

REVISION
03



TITLE	SNOWY 2.0	
ASSET CLASS	CF	
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 8 OF 19		
DRAWING NUMBER	S2-CIV-CF-TKS-7208	REVISION 03

DRAWING FILE LOCATION / NAME
C:\12d\SW\Adara\IP-00-42D-00\21-12530552 - Snowy Future Generation JV - Base camps_526\CADD\Drawings\TS01 - TRUNK SERVICES\MAT-TAN S2-CIV-CF-TKS-7208.dwg



Document Number
S2-CIV-CF-TKS-7209

Revision
03

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:52 PM GMT+10:00

2 May 2024 1:24:47 pm
Gooandra Trail
Gooandra
Snowy Monaro Regional Council
New South Wales
REHAB GOOANDRA TRAIL CH 4900 GOOANDRA CK



FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7210

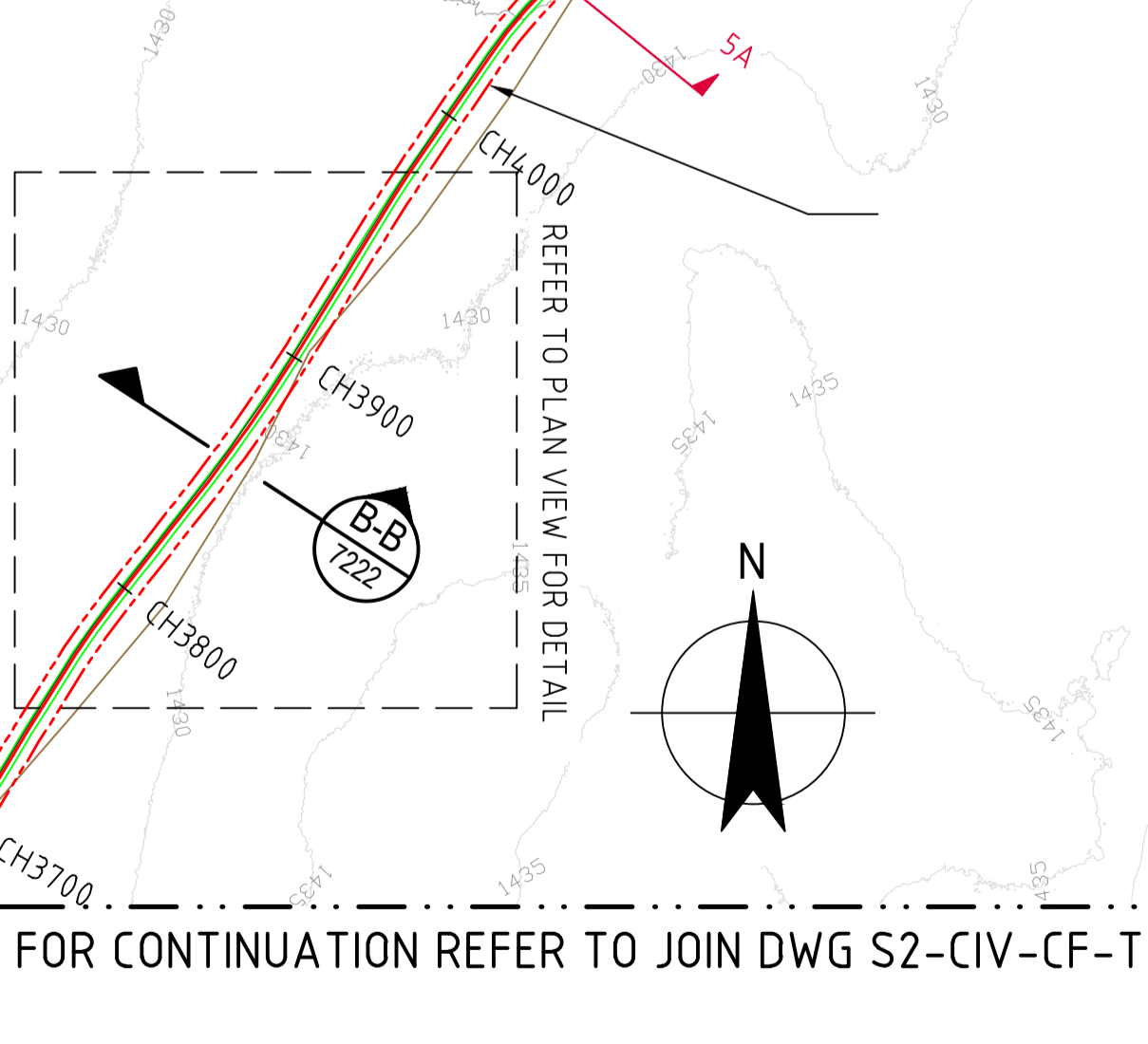
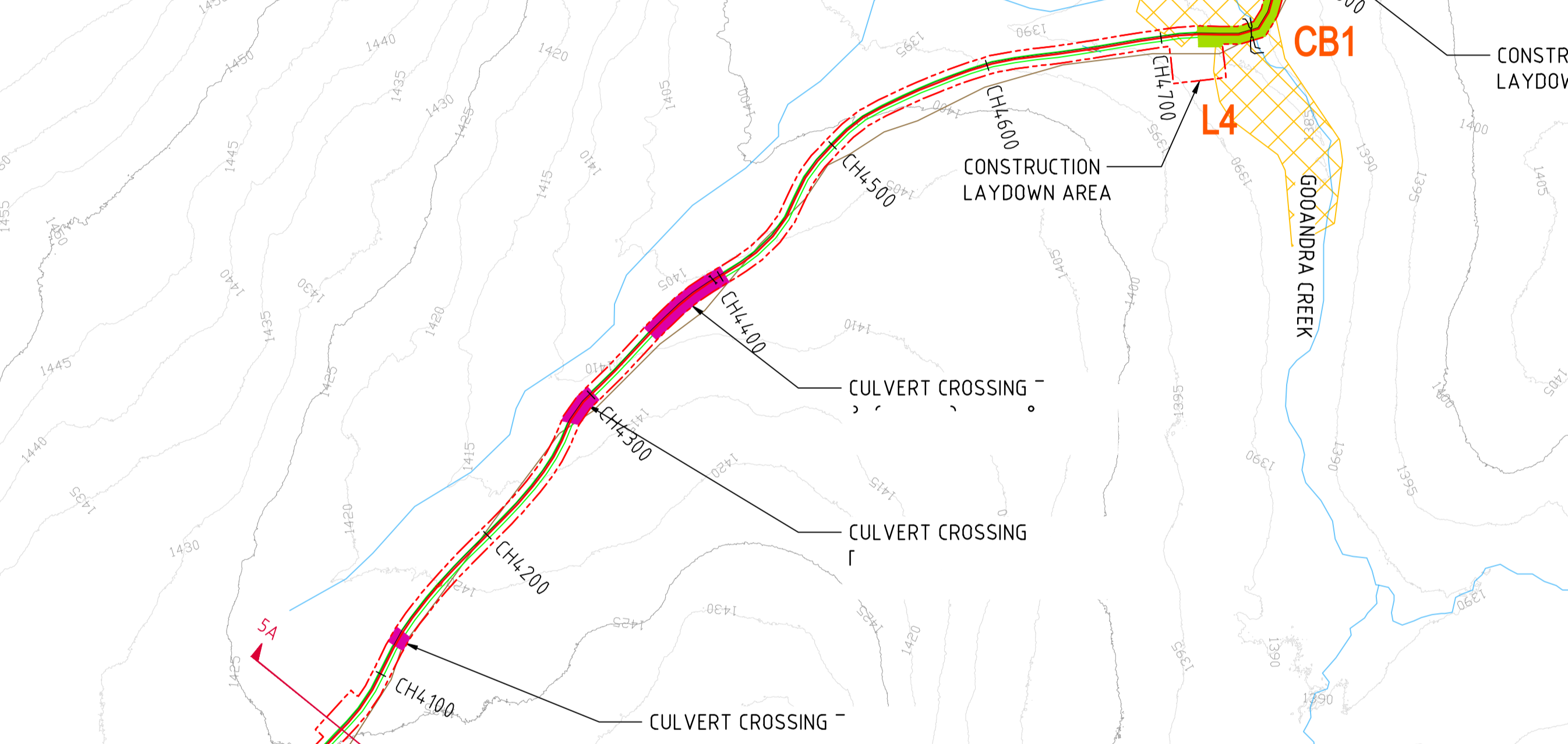
CULVERT CROSSING TO BE BACKFILLED WITH 5% STABILISED SAND

LEGEND:

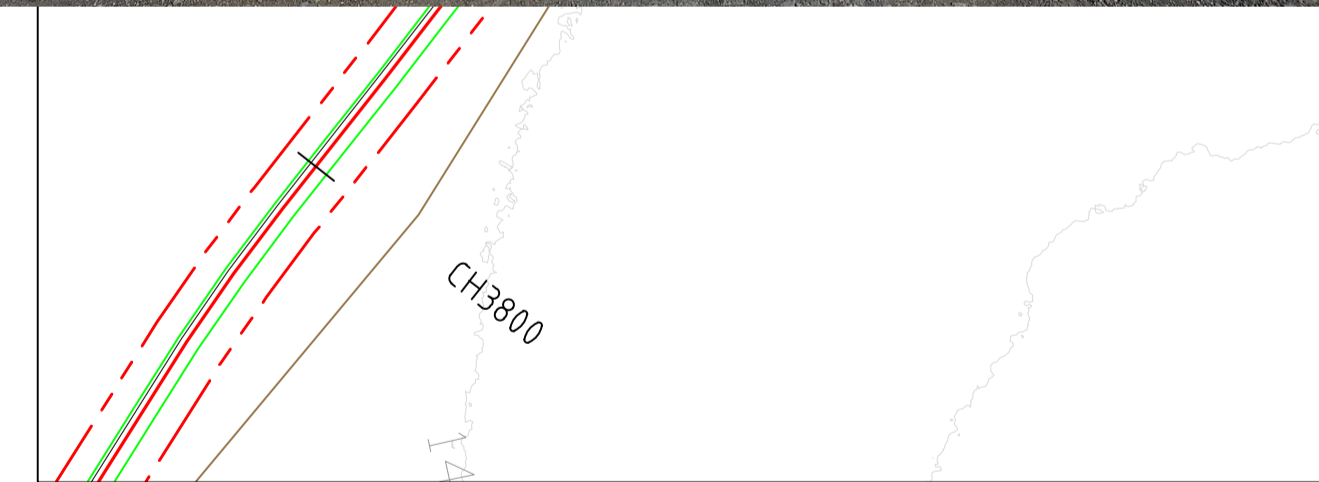
- MAIN WORKS CONSTRUCTION ENVELOPE
 - WATER COURSE
 - SURVEYED FIRE TRAIL (EXISTING)
- SYMBOLS:
- BOG/ FENS AREA
 - HORIZONTAL DIRECTION DRILL AREAS
 - ROAD CROSSING
 - MINOR CULVERT CROSSING

ORIGINAL SIZE A1
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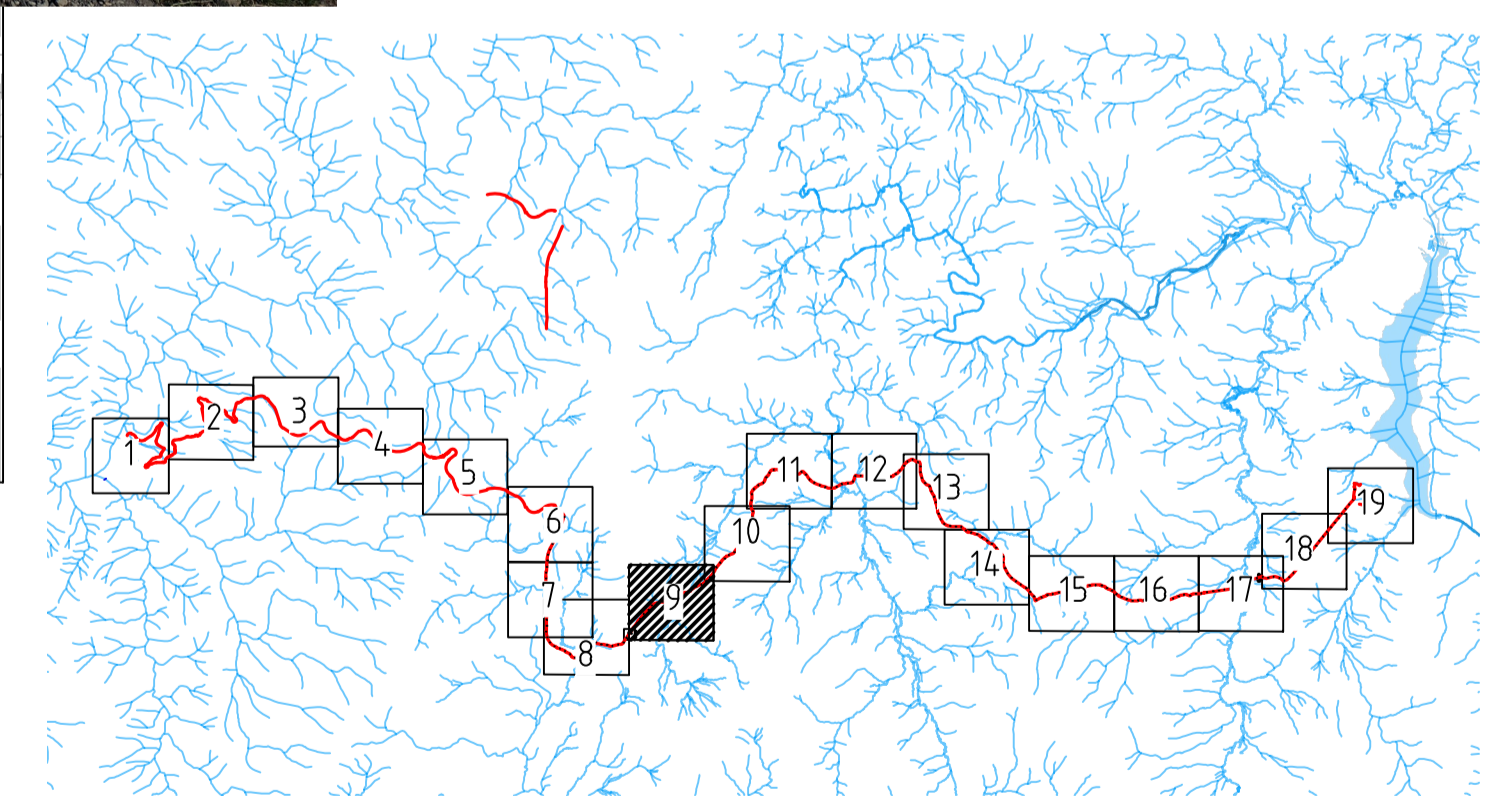
2 May 2024 1:23:24 pm
Gooandra Trail
Gooandra
Snowy Monaro Regional Council
New South Wales
REHAB GOOANDRA TRAIL CH 5100 GOOANDRA CK



2 May 2024 1:24:07 pm
Gooandra Trail
Gooandra
Snowy Monaro Regional Council
New South Wales
REHAB GOOANDRA TRAIL CH 5000 GOOANDRA CK



INDICATIVE PLAN VIEW - SERVICES ALIGNMENT WITH TRACK & EIS BOUNDARY
SCALE 1:1000



KEYPLAN
NOT TO SCALE FOR CONSTRUCTION

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7210

DESIGNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7209

REVISION
03

SCALE 1:2500 AT ORIGINAL SIZE
0 10 20 30 40 50m

SCALE 1:1000 AT ORIGINAL SIZE

APPROVAL	QA TRACKING No	PLOT DATE	TIME
J. FROST		18 Aug 2021	18:20:43
J. FROST			
J. FROST			

DESIGNED BY	G. HAGGETT
DESIGN CHECK	J. GORRINGE
DRAFTED BY	T. POTTER
DRAFTING CHECK	M. GHARIB
DESIGN MANAGER	J. GORRINGE
PROJECT MANAGER	T. STOKES

PROJECT TITLE	SNOWY 2.0	
DISCIPLINE	CIV	ASSET CLASS CF
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 9 OF 19		
PHASE	FOR CONSTRUCTION	DRAWING NUMBER S2-CIV-CF-TKS-7209
REVISION		03



Document Number
S2-CIV-CF-TKS-7210
Revision 03
No-objection with minor comments (Notice)
SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:52 PM GMT+10:00

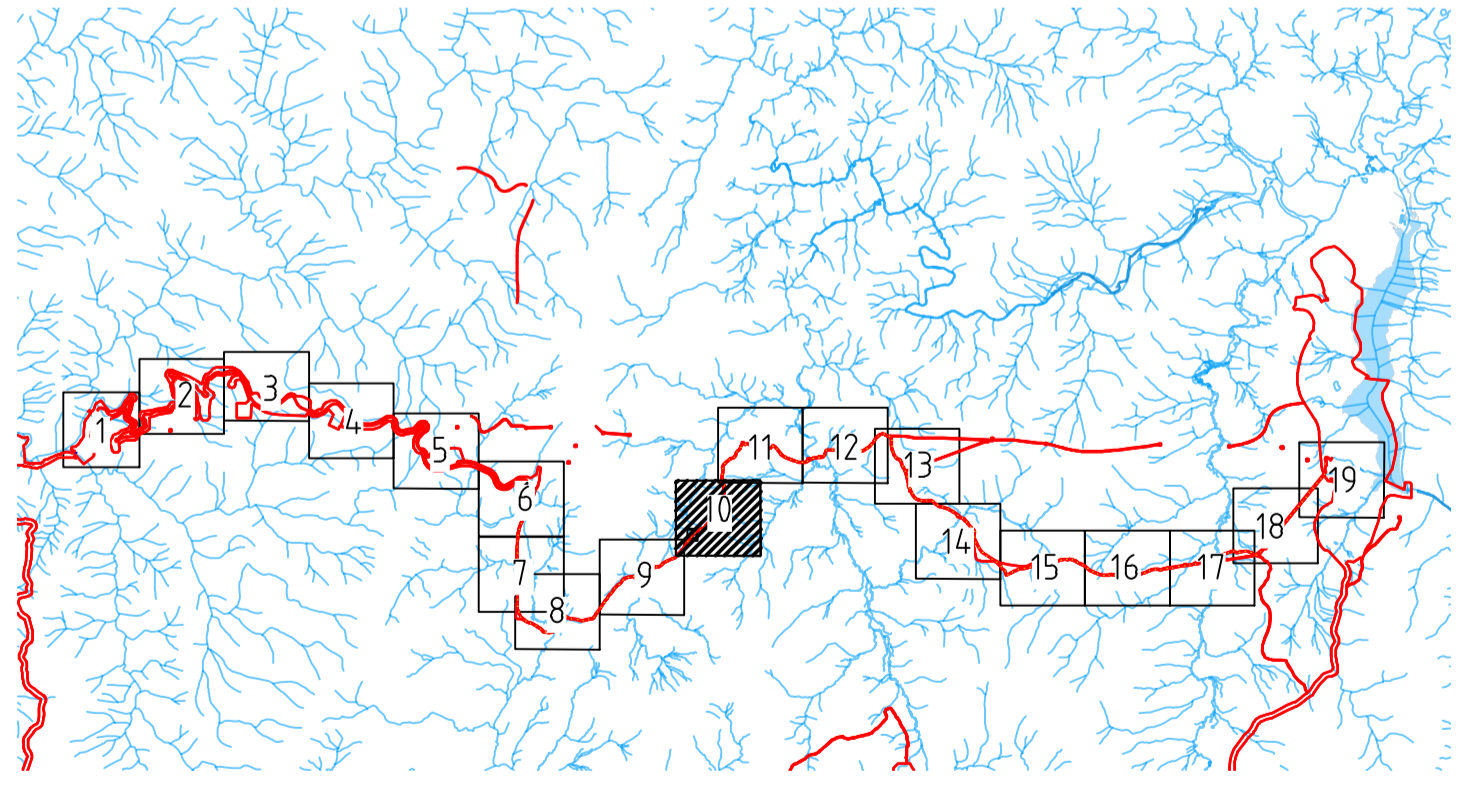
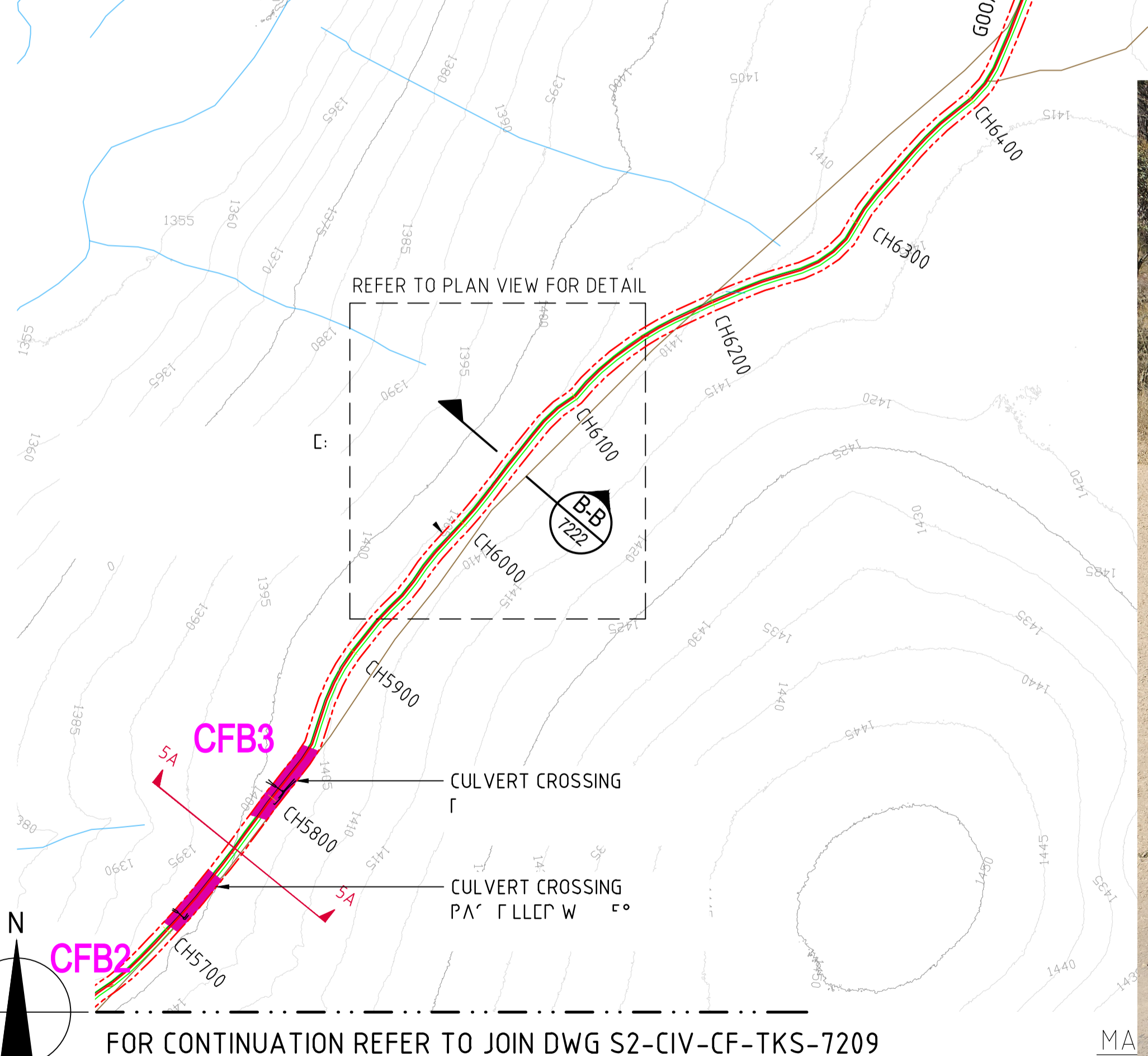
2 May 2024 1:20:23 pm
Gooandra Trail
Gooandra
Snowy Monaro Regional Council
New South Wales
REHAB GOOANDRA TRAIL CH 5800



LEGEND:
 --- MAIN WORKS CONSTRUCTION ENVELOPE
 --- WATER COURSE
 --- SURVEYED FIRE TRAIL (EXISTING)

SYMBOLS:
 BOG/ FENS AREA
 HORIZONTAL DIRECTION DRILL AREAS
 ROAD CROSSING
 MINOR CULVERT CROSSING

ORIGINAL SIZE A1
 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm



KEYPLAN
 NOT TO SCALE
FOR CONSTRUCTION

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7209

SCALE: 1:2500

 SALINI IMPREGILO • CLOUGH • LANE 	OWNER 	SCALE BARS AT A1 	REV 01 28.05.21 ISSUED FOR CONSTRUCTION J. FROST REV 02 16.06.21 ISSUED FOR CONSTRUCTION J. FROST REV 03 18.08.21 ISSUED FOR CONSTRUCTION J. FROST	APPROVAL J. FROST QA TRACKING No. PLOT DATE 18 Aug 2021 TIME 18:20:54	PROJECT TITLE SNOWY 2.0 DISCIPLINE CIV ASSET CLASS CF
			DESIGNER'S DRAWING NUMBER S2-CIV-CF-TKS-7210	REVISION 03	DESIGNED BY G. HAGGETT DESIGN CHECK J. GORRINGE DRAFTED BY T. POTTER DRAFTING CHECK M. GHARIB DESIGN MANAGER J. GORRINGE PROJECT MANAGER T. STOKES



Document Number
S2-CIV-CF-TKS-7211

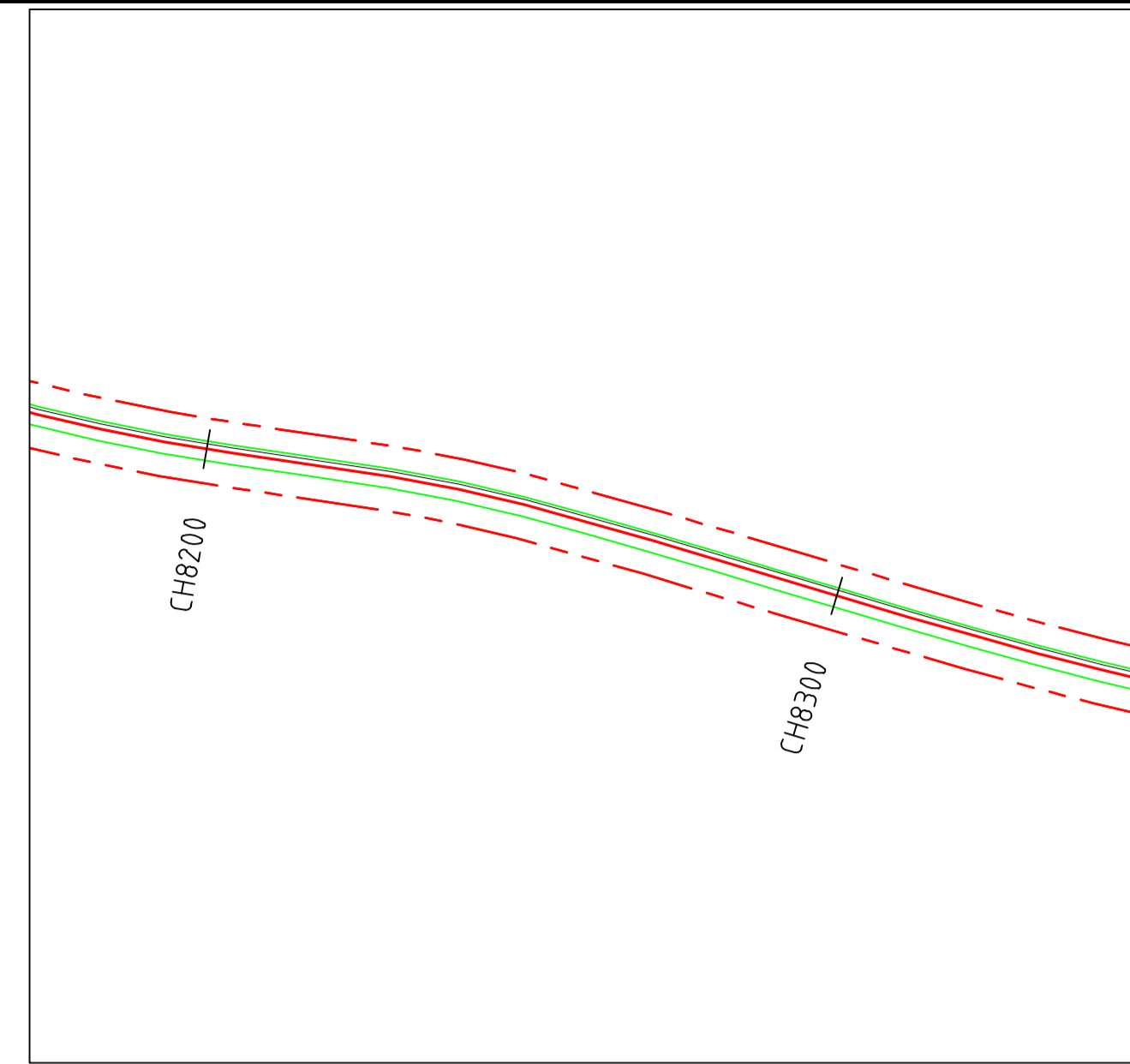
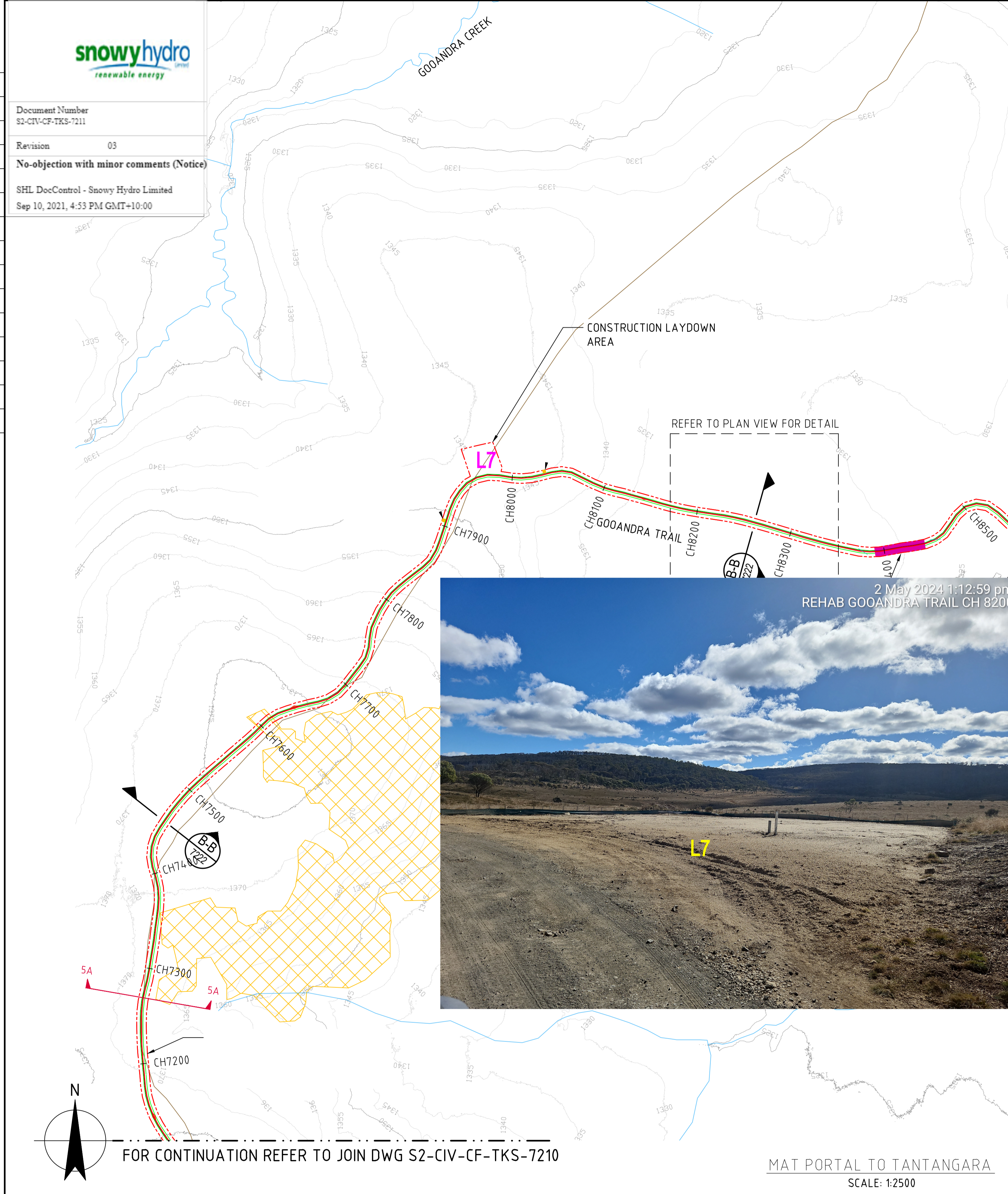
Revision
03

No-objection with minor comments (Notice)

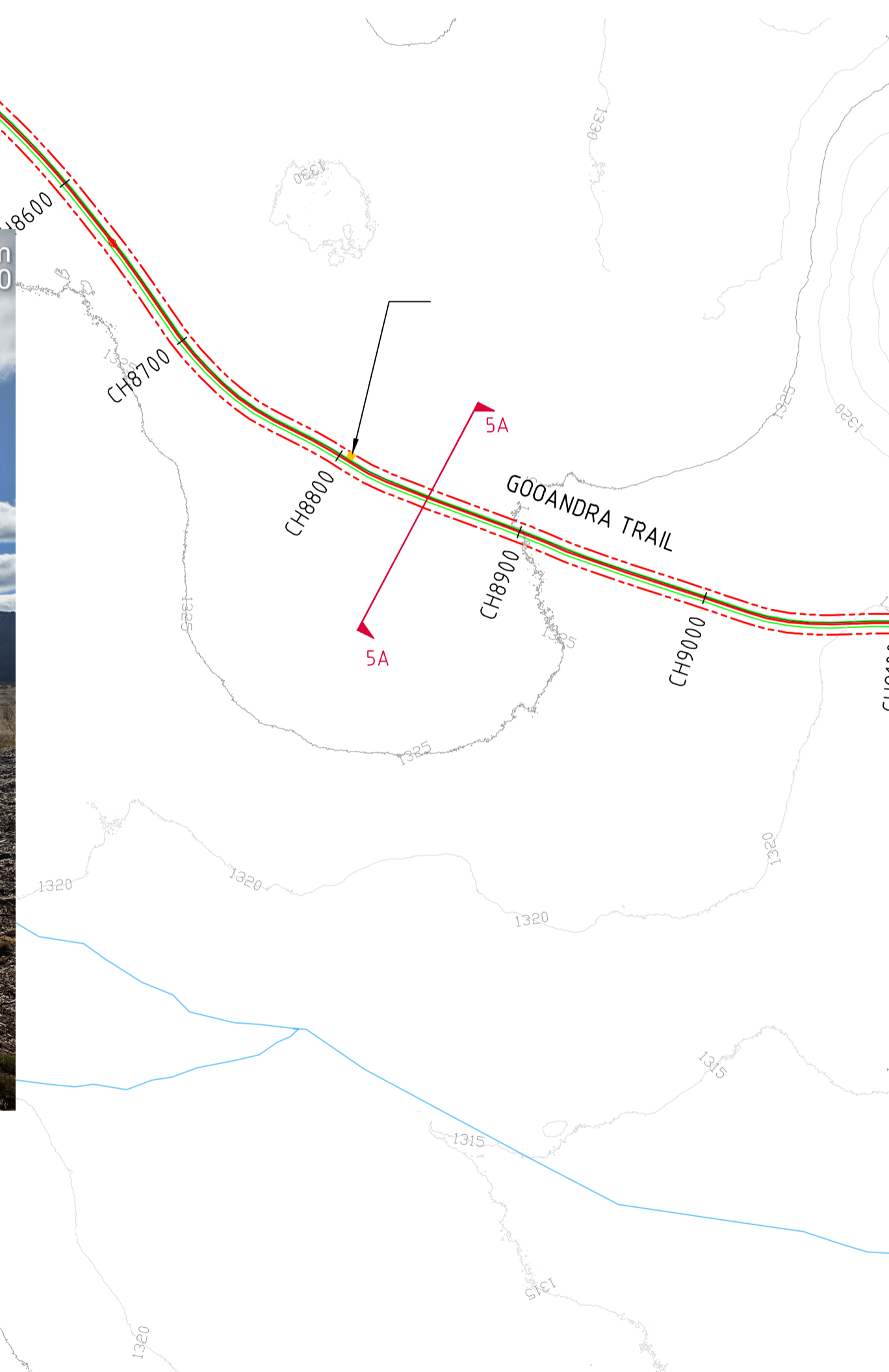
SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:53 PM GMT+10:00

ORIGINAL SIZE A1

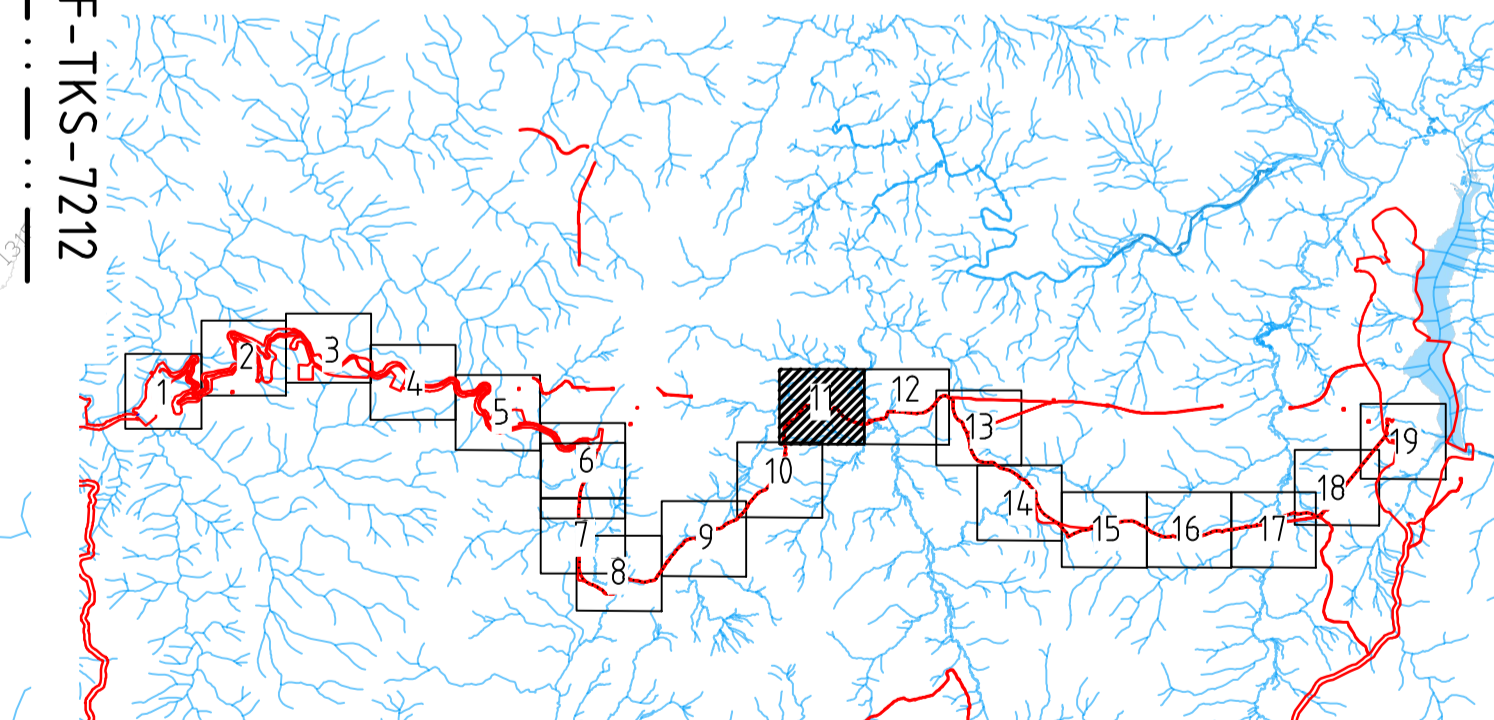
150mm
140
130
120
110
100
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INDICATIVE PLAN VIEW - SERVICES ALIGNMENT
WITH TRACK & EIS BOUNDARY
SCALE 1:1000



FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7212



KEYPLAN
NOT TO SCALE

FOR CONSTRUCTION

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7210

MAT PORTAL TO TANTANGARA
SCALE: 1:2500

DESIGNER: Future Generation (SALINI IMPREGILO • CLOUGH • LANE) and GHD

OWNER: snowyhydro renewable energy

DESIGNERS DRAWING NUMBER: S2-CIV-CF-TKS-7211

REVISION: 03

SCALE BARS AT A1

SCALE 1:2500 AT ORIGINAL SIZE
SCALE 1:1000 AT ORIGINAL SIZE

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		18 Aug 2021	18:21:04
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST			

PROJECT TITLE	SNOWY 2.0	
DISCIPLINE	CIV	
ASSET CLASS	CF	
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 11 OF 19		
PHASE	FOR CONSTRUCTION	DRAWING NUMBER
		S2-CIV-CF-TKS-7211
DESIGNED BY	G. HAGGETT	REVISION
DESIGN CHECK	J. GORRINGE	03
DRAFTED BY	T. POTTER	
DRAFTING CHECK	M. GHARIB	
DESIGN MANAGER	J. GORRINGE	
PROJECT MANAGER	T. STOKES	

DRAWING FILE LOCATION / NAME
C:\12d\SW\dra\p-00-120-00\21-12530552 - Snowy Future Generation JV - Base camps_S26\CADD\Drawings\TS01 - TRUNK SERVICES\MAT-TAN S2-CIV-CF-TKS-7211.dwg



Document Number
S2-CIV-CF-TKS-7212

Revision 03

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:54 PM GMT+10:00



LEGEND:

- MAIN WORKS CONSTRUCTION ENVELOPE
- WATER COURSE
- SURVEYED FIRE TRAIL (EXISTING)

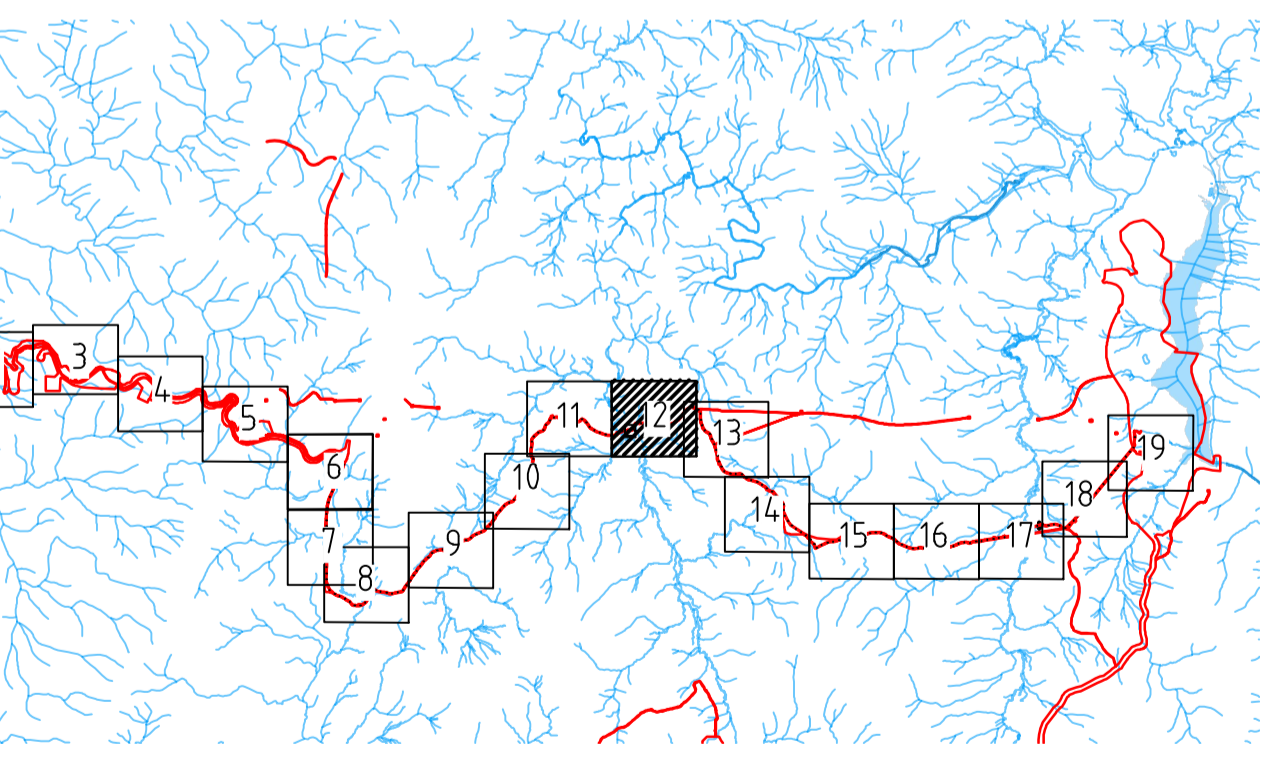
SYMBOLS:

- BOG/ FENS AREA
- HORIZONTAL DIRECTION DRILL AREAS
- ROAD CROSSING
- MINOR CULVERT CROSSING

ORIGINAL SIZE A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7211

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7213



FOR CONSTRUCTION

DESIGNER

OWNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7212

REVISION
03

SCALE BARS AT A1

SCALE 1:2500 AT ORIGINAL SIZE

SCALE 1:1000 AT ORIGINAL SIZE

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
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02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST			

PROJECT TITLE	SNOWY 2.0	
DISCIPLINE	CIV	
ASSET CLASS	CF	
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 12 OF 19		
PHASE	FOR CONSTRUCTION	
DRAWING NUMBER	S2-CIV-CF-TKS-7212	REVISION 03



Document Number
S2-CIV-CF-TKS-7213

Revision 03

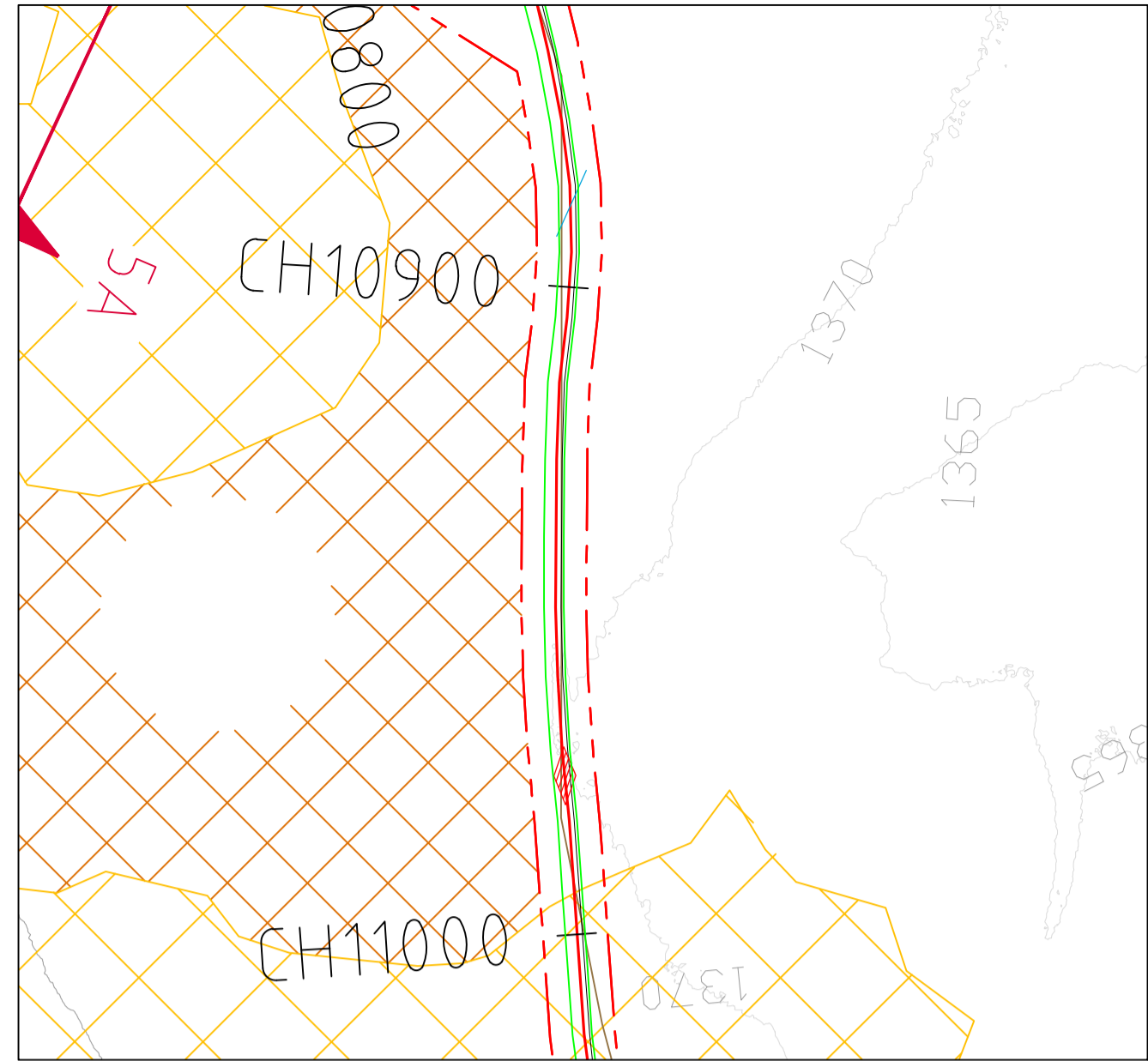
No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:54 PM GMT+10:00

ORIGINAL SIZE A1
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FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7212

REFER TO PLAN VIEW FOR DETAIL



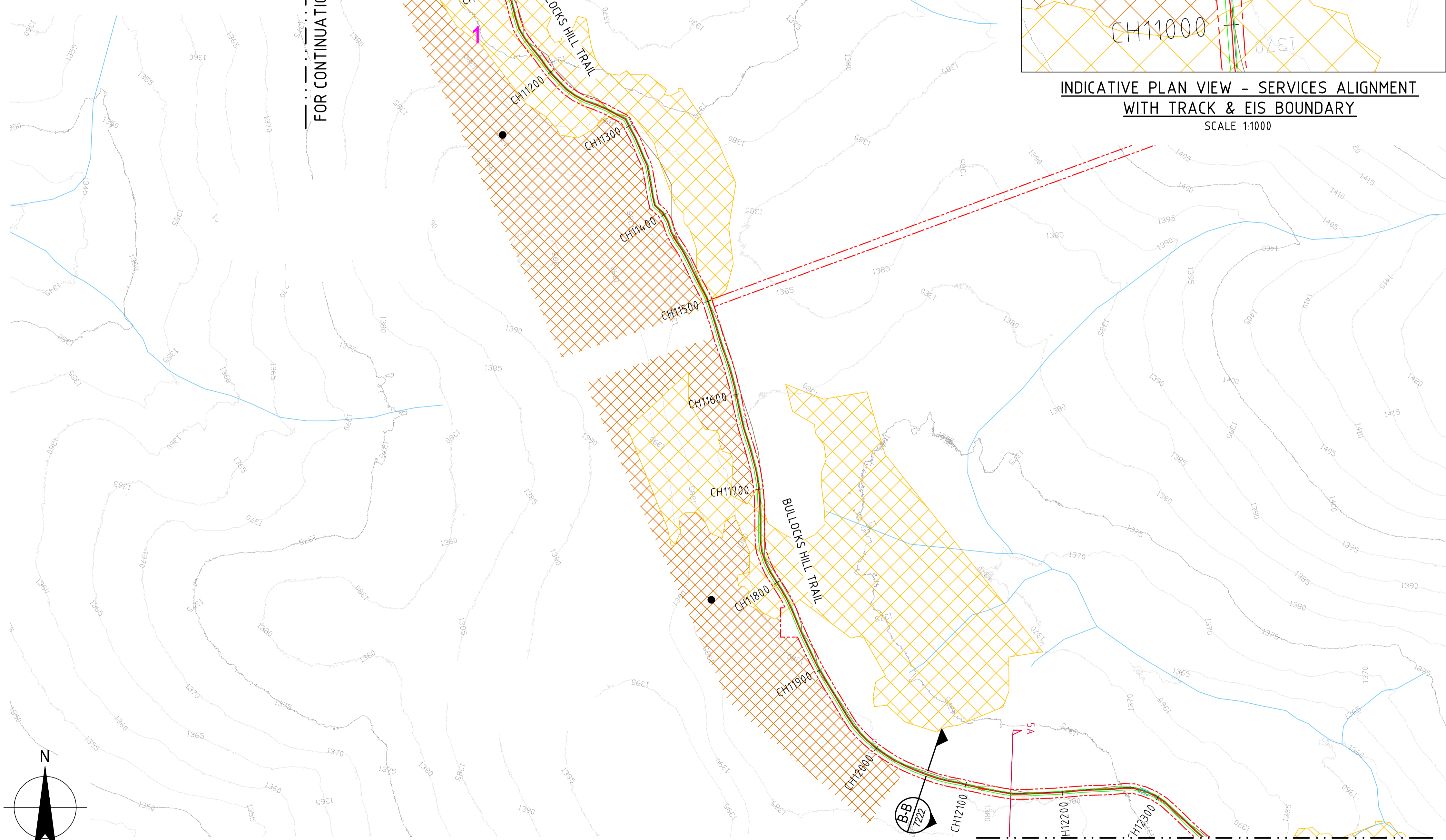
INDICATIVE PLAN VIEW - SERVICES ALIGNMENT WITH TRACK & EIS BOUNDARY
SCALE 1:1000

LEGEND:

- MAIN WORKS CONSTRUCTION ENVELOPE
- WATER COURSE
- SURVEYED FIRE TRAIL (EXISTING)

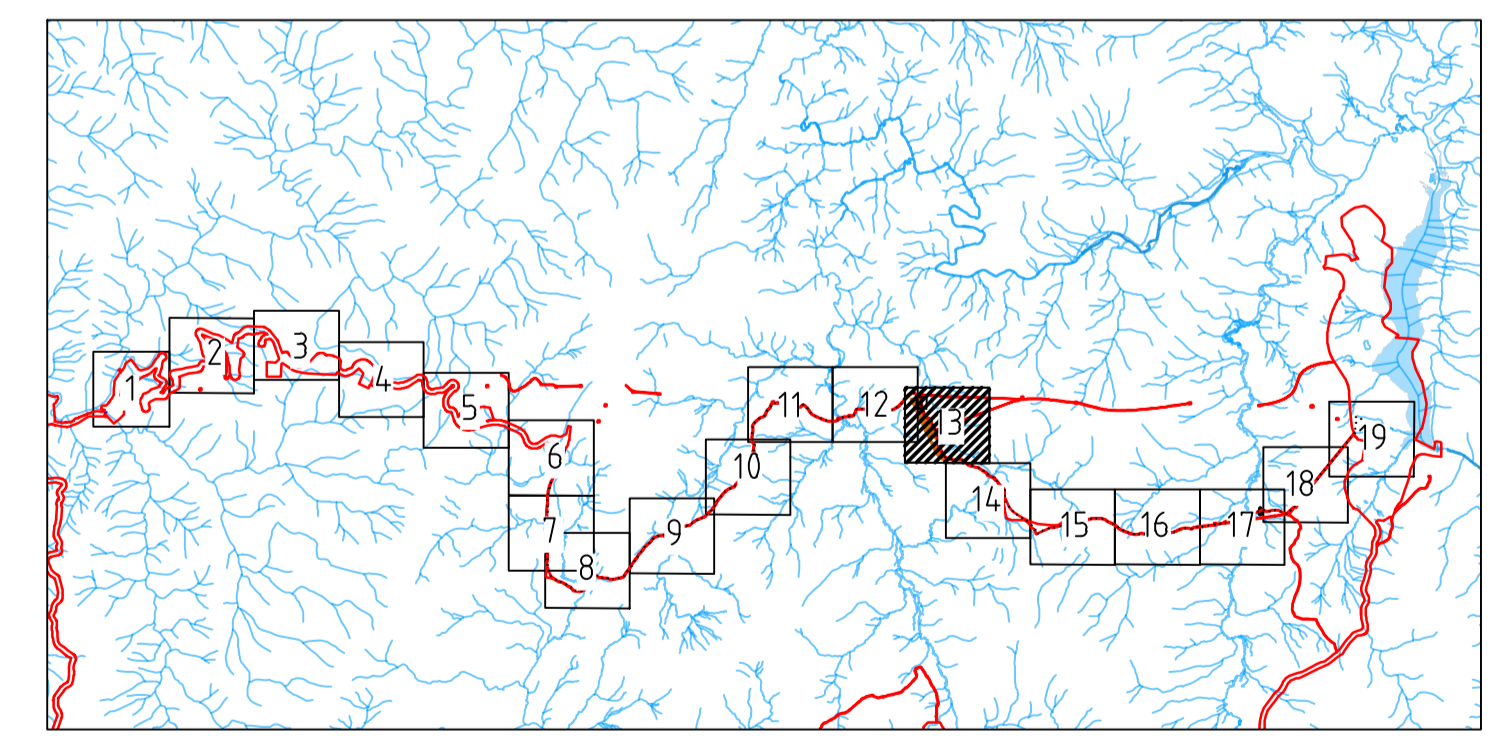
SYMBOLS:

- BOG/ FENS AREA
- HORIZONTAL DIRECTION DRILL AREAS
- ROAD CROSSING
- MINOR CULVERT CROSSING



MAT PORTAL TO TANTANGARA
SCALE: 1:2500

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7214



KEYPLAN
NOT TO SCALE
FOR CONSTRUCTION

DESIGNER

OWNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7213

REVISION
03

SCALE BARS AT A1

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
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03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST			
					DESIGNED BY	G. HAGGETT
					DESIGN CHECK	J. GORRINGE
					DRAFTED BY	T. POTTER
					DRAFTING CHECK	M. GHARIB
					DESIGN MANAGER	J. GORRINGE
					PROJECT MANAGER	T. STOKES

PROJECT TITLE
SNOWY 2.0

DISCIPLINE
CIV

ASSET CLASS
CF

TS01 TRUNK SERVICES
MAT PORTAL TO TANTANGARA
GENERAL ARRANGEMENT
SHEET 13 OF 19

PHASE
FOR CONSTRUCTION

DRAWING NUMBER
S2-CIV-CF-TKS-7213

REVISION
03



Document Number
S2-CIV-CF-TKS-7214

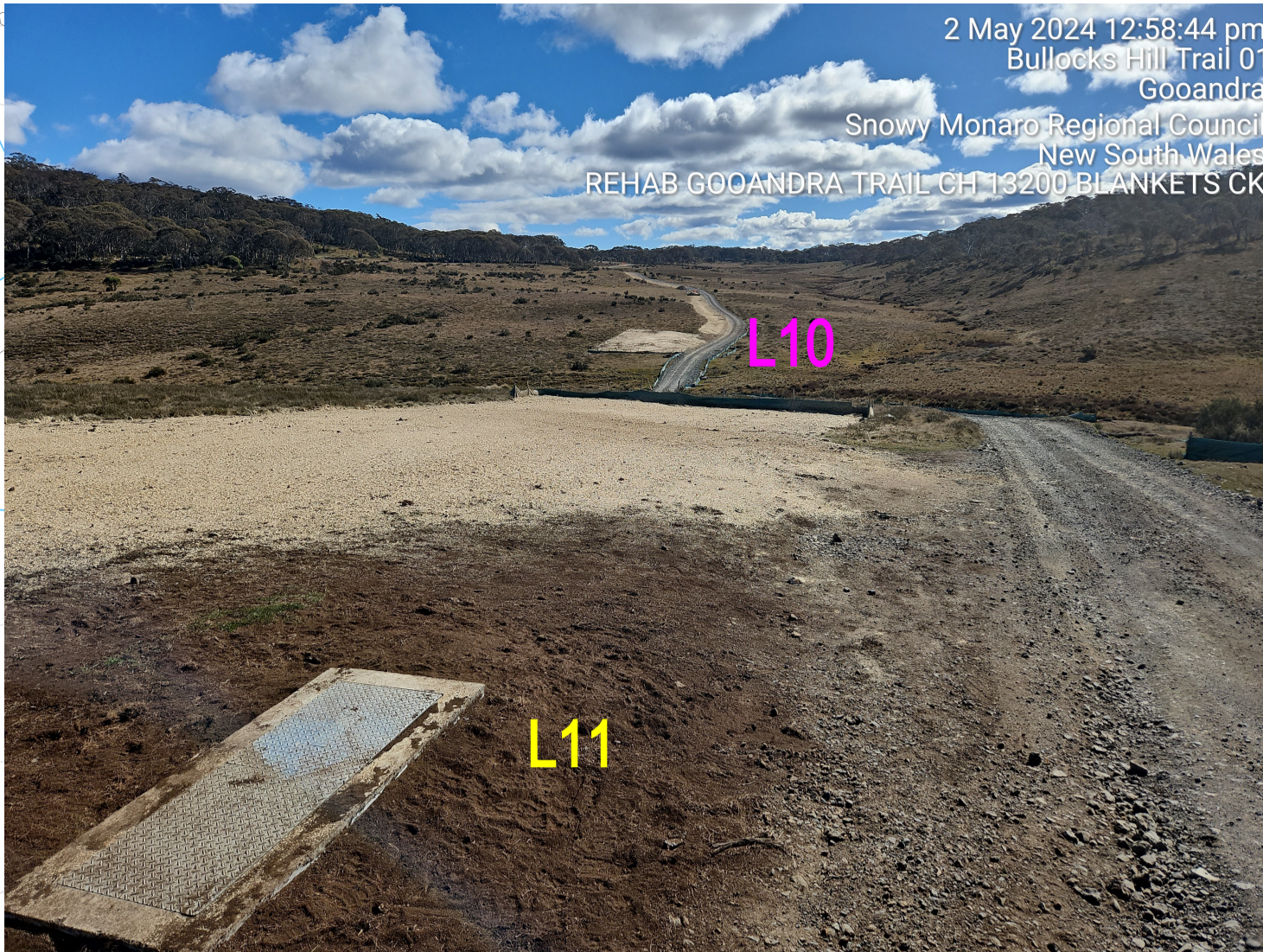
Revision 03

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:54 PM GMT+10:00

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7213

2 May 2024 1:00:19 pm
REHAB GOOANDRA TRAIL CH 13000 BLANKETS CK



LEGEND:

--- MAIN WORKS CONSTRUCTION ENVELOPE
--- WATER COURSE

--- SURVEYED FIRE TRAIL (EXISTING)

SYMBOLS:

BOG/ FENS AREA
HORIZONTAL DIRECTION DRILL AREAS
ROAD CROSSING
MINOR CULVERT CROSSING



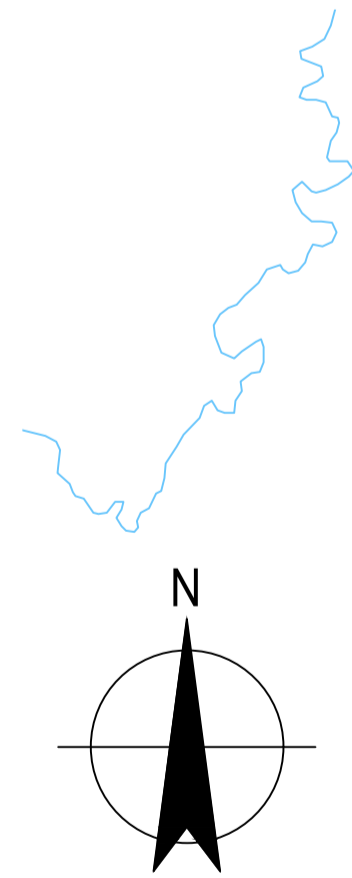
CONSTRUCTION LAYDOWN AREA

CONSTRUCTION LAYDOWN AREA

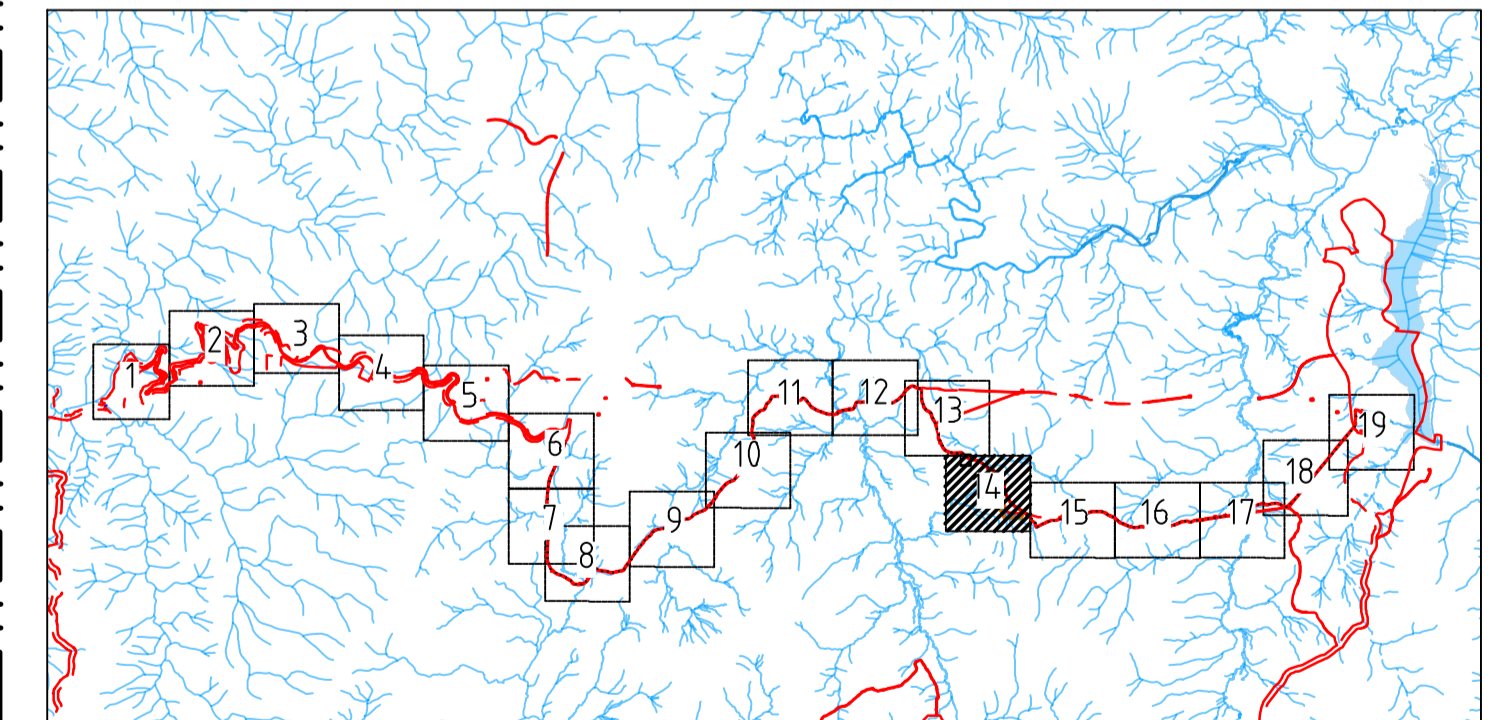
BULLOCKS HILL TRAIL



INDICATIVE PLAN VIEW
WITH TRACK &
SCALE



FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7215



KEYPLAN
NOT TO SCALE

FOR CONSTRUCTION

DESIGNER

OWNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7214

REVISION
03

SCALE BARS AT A1

SCALE 1:2500 AT ORIGINAL SIZE

SCALE 1:1000 AT ORIGINAL SIZE

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
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02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST			
					DESIGNED BY	G. HAGGETT
					DESIGN CHECK	J. GORRINGE
					DRAFTED BY	T. POTTER
					DRAFTING CHECK	M. GHARIB
					DESIGN MANAGER	J. GORRINGE
					PROJECT MANAGER	T. STOKES

PROJECT TITLE
SNOWY 2.0

DISCIPLINE
CIV

ASSET CLASS
CF

TS01 TRUNK SERVICES
MAT PORTAL TO TANTANGARA
GENERAL ARRANGEMENT
SHEET 14 OF 19

PHASE
FOR CONSTRUCTION

DRAWING NUMBER
S2-CIV-CF-TKS-7214

REVISION
03

DRAWING FILE LOCATION / NAME
C:\12d\SW\dra\p-00-120-00121-12530552 - Snowy Future Generation JV - Base camps_526\CADD\Drawings\TS01 - TRUNK SERVICES\MAT-TAN S2-CIV-CF-TKS-7214.dwg

ORIGINAL SIZE A1

150mm
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0



Document Number
S2-CIV-CF-TKS-7215

Revision 03

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:54 PM GMT+10:00



BLANKETS

50

LEGEND:

- MAIN WORKS CONSTRUCTION ENVELOPE
- WATER COURSE
- x- EHV -x- HIGH VOLTAGE OVERHEAD LINE
- SURVEYED FIRE TRAIL (EXISTING)

SYMBOLS:

- BOG/ FENS AREA
- HORIZONTAL DIRECTION DRILL AREAS
- ROAD CROSSING
- MINOR CULVERT CROSSING

ORIGINAL SIZE A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7214

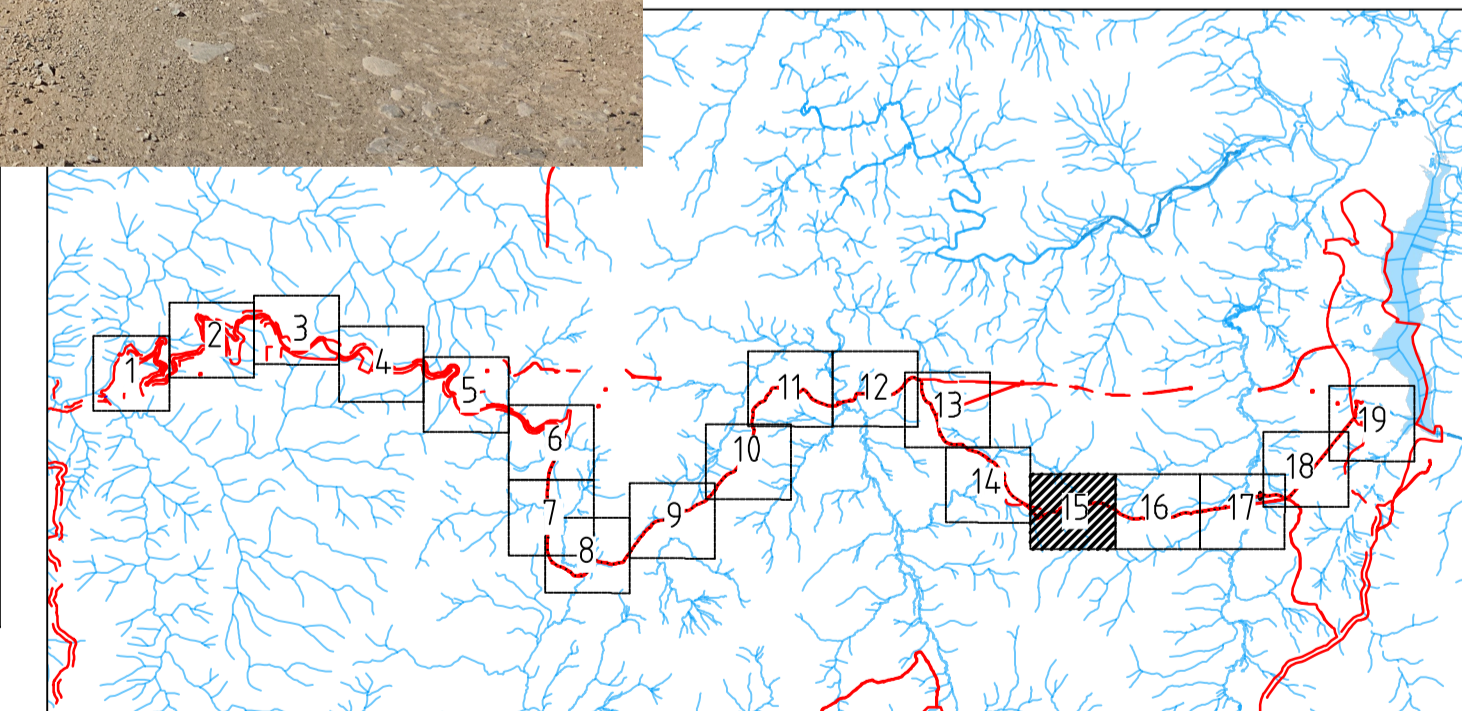
FOR CONTINUATION REFER TO



MAT PORTAL TO TANTANGARA
SCALE: 1:2500



INDICATIVE PLAN VIEW - SERVICES ALIGNMENT
WITH TRACK & EIS BOUNDARY
SCALE 1:1000



KEYPLAN
NOT TO SCALE

FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME
C:\12d\SW\dra\p-00-120-00\21-12530552 - Snowy Future Generation JV - Base camps_526\CADD\Drawings\TS01 - TRUNK SERVICES\MAT-TAN S2-CIV-CF-TKS-7215.dwg

 SALINI IMPREGILO • CLOUGH • LANE																														
DESIGNER	OWNER	SCALE BARS AT A1																												
 SCALE 1:2500 AT ORIGINAL SIZE	 SCALE 1:1000 AT ORIGINAL SIZE	<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>APPROVAL</th> <th>QA TRACKING No</th> <th>PLOT DATE</th> <th>TIME</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>28.05.21</td> <td>ISSUED FOR CONSTRUCTION</td> <td>J. FROST</td> <td></td> <td>18 Aug 2021</td> <td>18:21:57</td> </tr> <tr> <td>02</td> <td>16.06.21</td> <td>ISSUED FOR CONSTRUCTION</td> <td>J. FROST</td> <td></td> <td></td> <td></td> </tr> <tr> <td>03</td> <td>18.08.21</td> <td>ISSUED FOR CONSTRUCTION</td> <td>J. FROST</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME	01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		18 Aug 2021	18:21:57	02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST				03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST			
REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME																								
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		18 Aug 2021	18:21:57																								
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST																											
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST																											
DESIGNERS DRAWING NUMBER S2-CIV-CF-TKS-7215	REVISION 03	PROJECT TITLE SNOWY 2.0																												
DISCIPLINE CIV		ASSET CLASS CF																												
PHASE FOR CONSTRUCTION		DRAWING NUMBER S2-CIV-CF-TKS-7215																												
REVISION 03		REVISION 03																												

TS01 TRUNK SERVICES
MAT PORTAL TO TANTANGARA
GENERAL ARRANGEMENT
SHEET 15 OF 19

PHASE FOR CONSTRUCTION



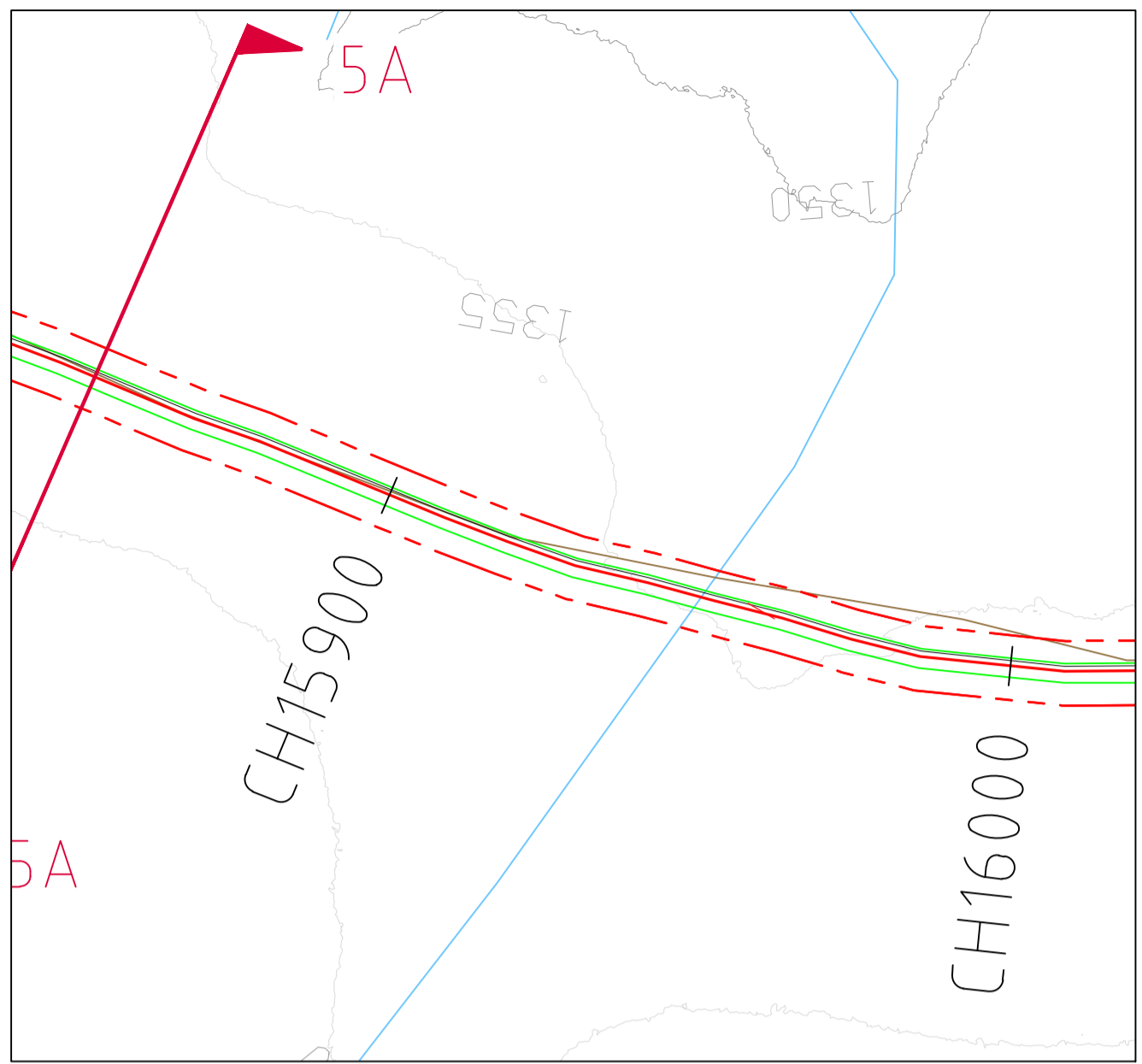
Document Number
S2-CIV-CF-TKS-7216

Revision 03

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Sep 10, 2021, 4:55 PM GMT+10:00

ORIGINAL SIZE A1
FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7215

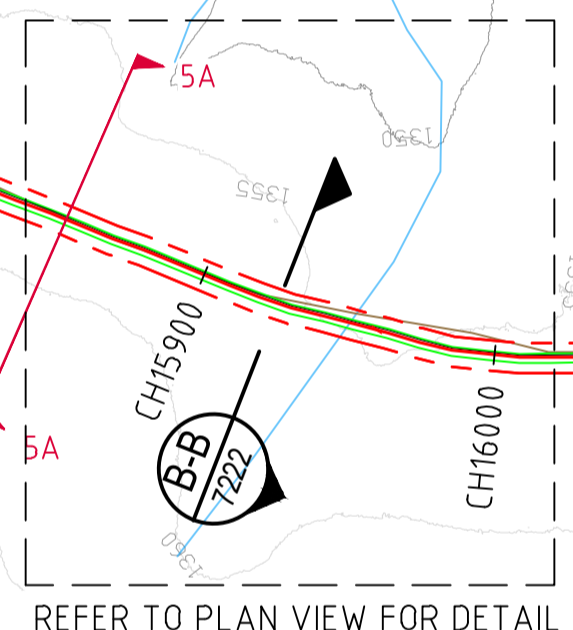


INDICATIVE PLAN VIEW - SERVICES ALIGNMENT
WITH TRACK & EIS BOUNDARY
SCALE 1:1000

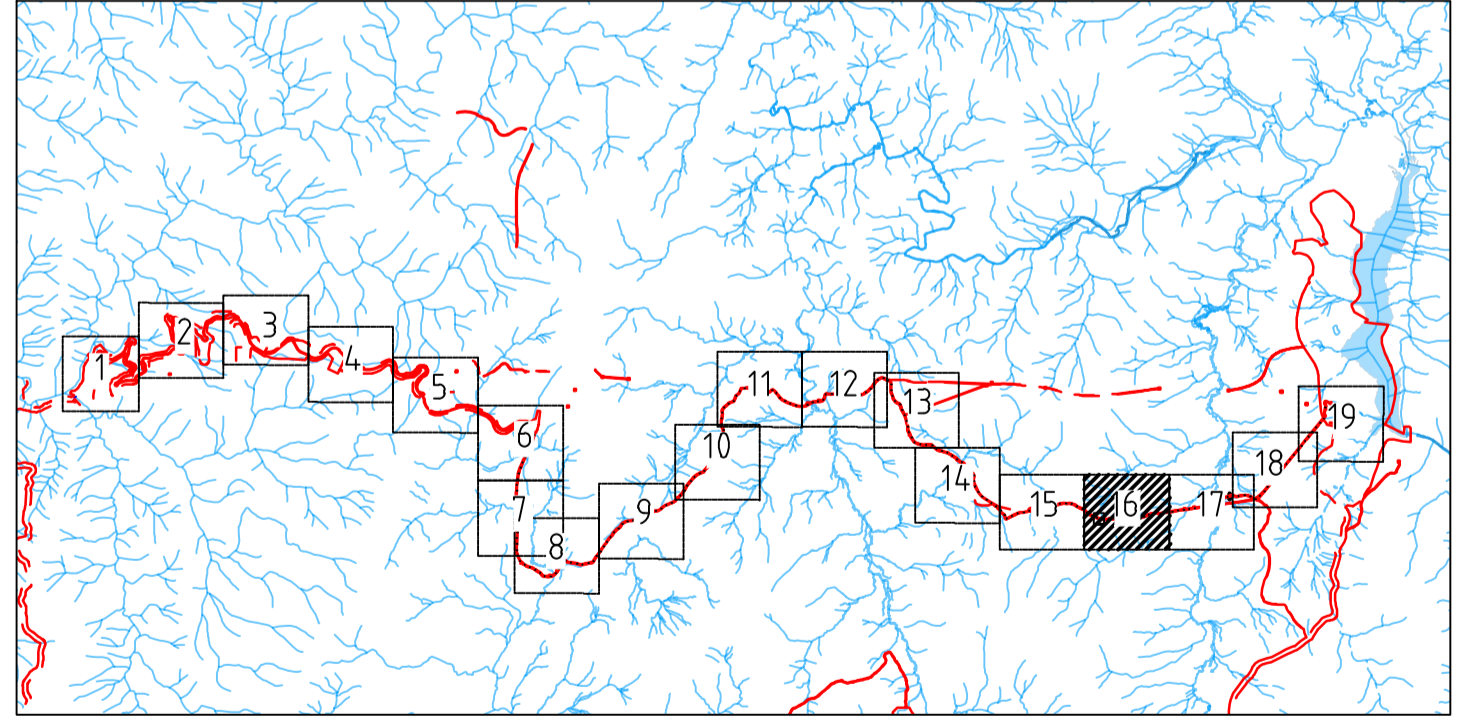
- LEGEND:**
- MAIN WORKS CONSTRUCTION ENVELOPE
 - WATER COURSE
 - HV — HIGH VOLTAGE OVERHEAD LINE
 - SURVEYED FIRE TRAIL (EXISTING)

- SYMBOLS:**
- BOG/ FENS AREA
 - HORIZONTAL DIRECTION DRILL AREAS
 - ROAD CROSSING
 - MINOR CULVERT CROSSING

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7217



REFER TO PLAN VIEW FOR DETAIL



KEYPLAN
NOT TO SCALE
FOR CONSTRUCTION

DESIGNER

OWNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7216

REVISION
03

DWG No	PLOT DATE	TIME	PROJECT TITLE
18 Aug 2021	18:22:09		SNOWY 2.0
DESIGNED BY	G. HAGGETT		DISCIPLINE CIV
DESIGN CHECK	J. GORRINGE		ASSET CLASS CF
DRAFTED BY	T. POTTER		TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 16 OF 19
DRAFTING CHECK	M. GHARIB		
DESIGN MANAGER	J. GORRINGE		
PROJECT MANAGER	T. STOKES		

PHASE	DRAWING NUMBER	REVISION
FOR CONSTRUCTION	S2-CIV-CF-TKS-7216	03

DRAWING FILE LOCATION / NAME
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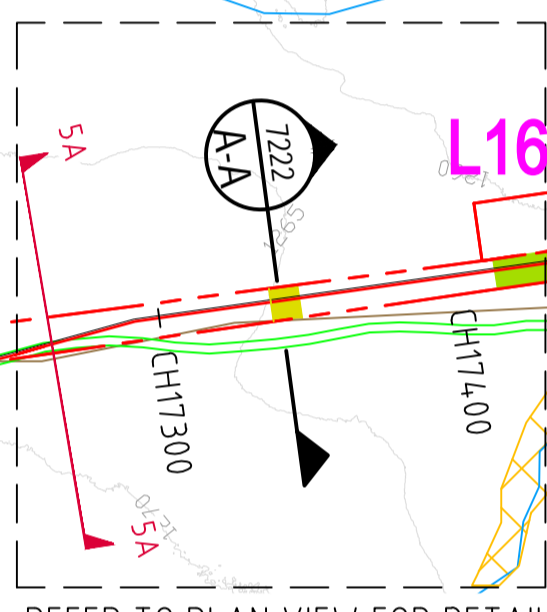


Document Number
S2-CIV-CF-TKS-7217

Revision 04

No-objection with minor comments (Notice)

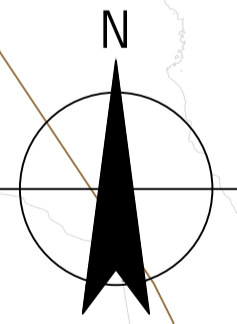
SHL DocControl - Snowy Hydro Limited
Jan 23, 2024, 4:59 PM GMT+11:00



- LEGEND:**
- MAIN WORKS CONSTRUCTION ENVELOPE
 - WATER COURSE
 - SURVEYED FIRE TRAIL (EXISTING)
- SYMBOLS:**
- BOG/ FENS AREA
 - HORIZONTAL DIRECTION DRILL AREAS
 - ROAD CROSSING
 - MINOR CULVERT CROSSING

FOR CONTINUATION REFER

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7217



MAT PORTAL TO TANTANGARA
SCALE: 1:2500

INDICATIVE PLAN VIEW - SERVICES ALIGNMENT
WITH TRACK & EIS BOUNDARY
SCALE 1:1000

KEYPLAN
NOT TO SCALE

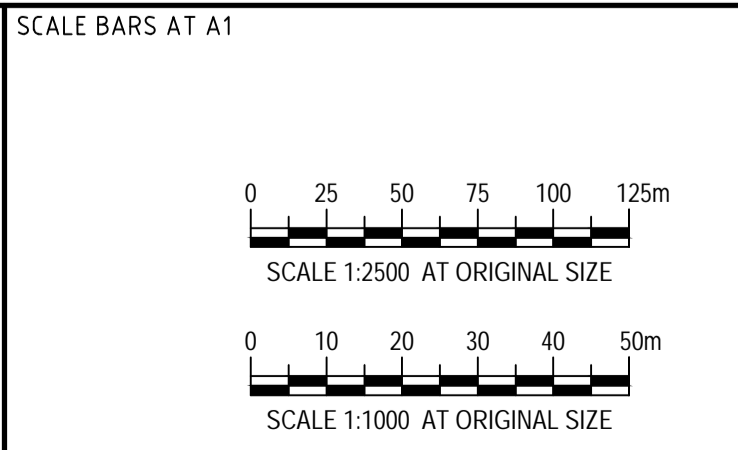
FOR CONSTRUCTION

DESIGNER

OWNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7217

REVISION
04



REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		15 Dec 2023	11:50:02
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST		DESIGNED BY	C. KNOX
04	15.12.23	RE-ISSUED FOR CONSTRUCTION	A. WHIPPS		DESIGN CHECK	M. CHONG
					DRAFTED BY	B. SMITH
					DRAFTING CHECK	D. SMITH
					DESIGN MANAGER	N. BURNETT
					PROJECT MANAGER	M. TAYLOR

PROJECT TITLE		SNOWY 2.0	
DISCIPLINE	CIV	ASSET CLASS	CF
TS01 TRUNK SERVICES MAT PORTAL TO TANTANGARA GENERAL ARRANGEMENT SHEET 17 OF 19			
PHASE	FOR CONSTRUCTION	DRAWING NUMBER	S2-CIV-CF-TKS-7217
		REVISION	04

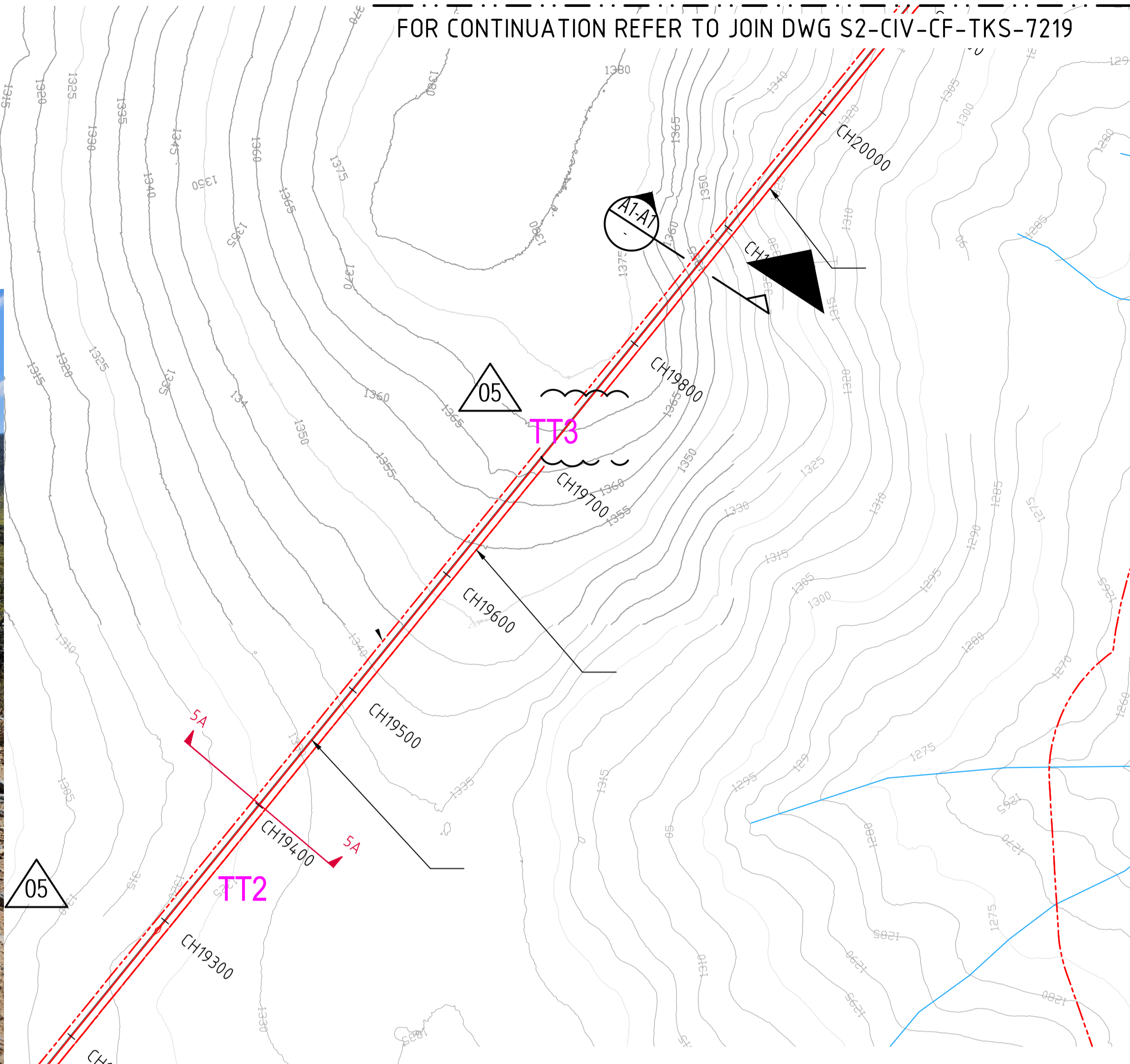


Document Number
S2-CIV-CF-TKS-7218

Revision 05

No-objection with minor comments (Notice)

SHL DocControl - Snowy Hydro Limited
Jan 23, 2024, 4:59 PM GMT+11:00



LEGEND:

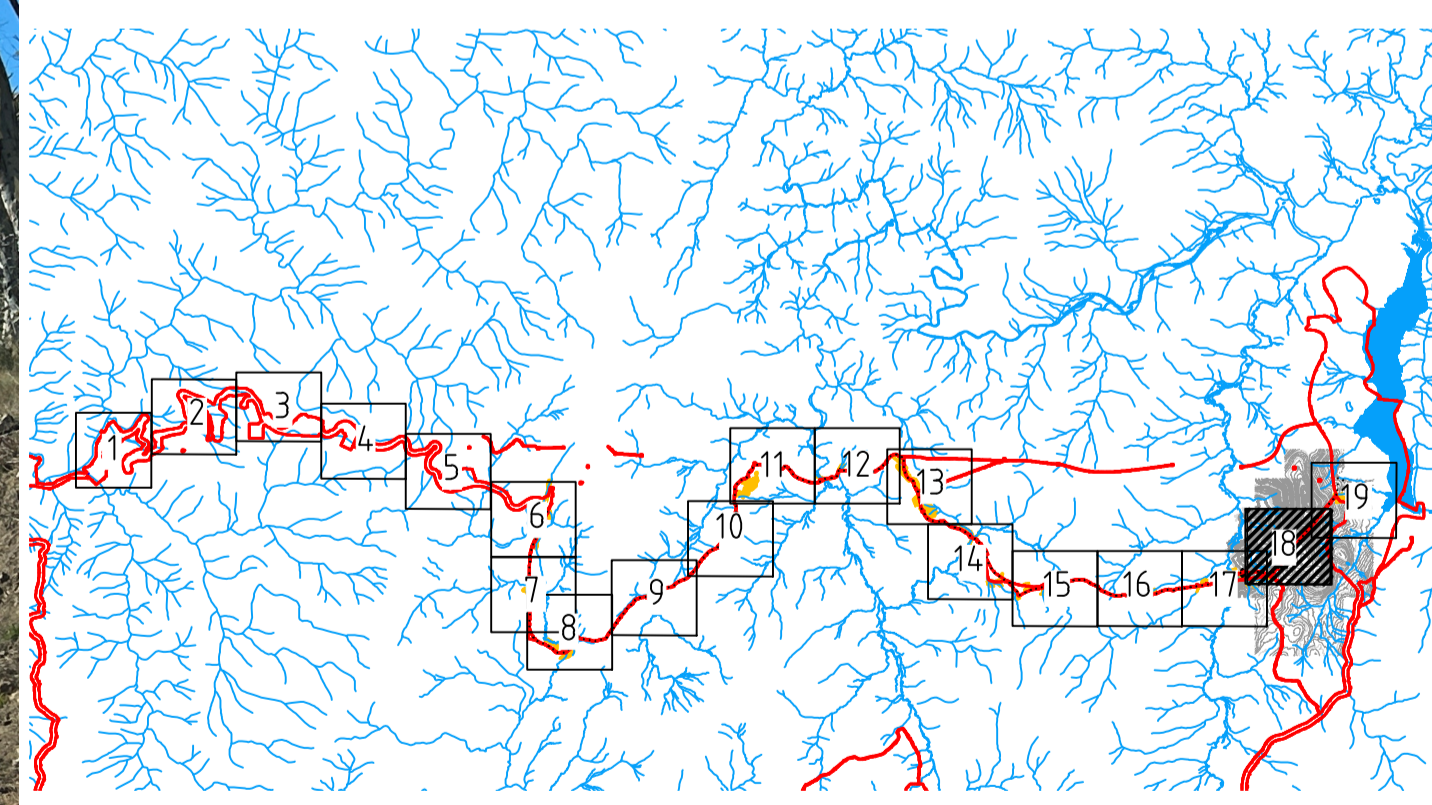
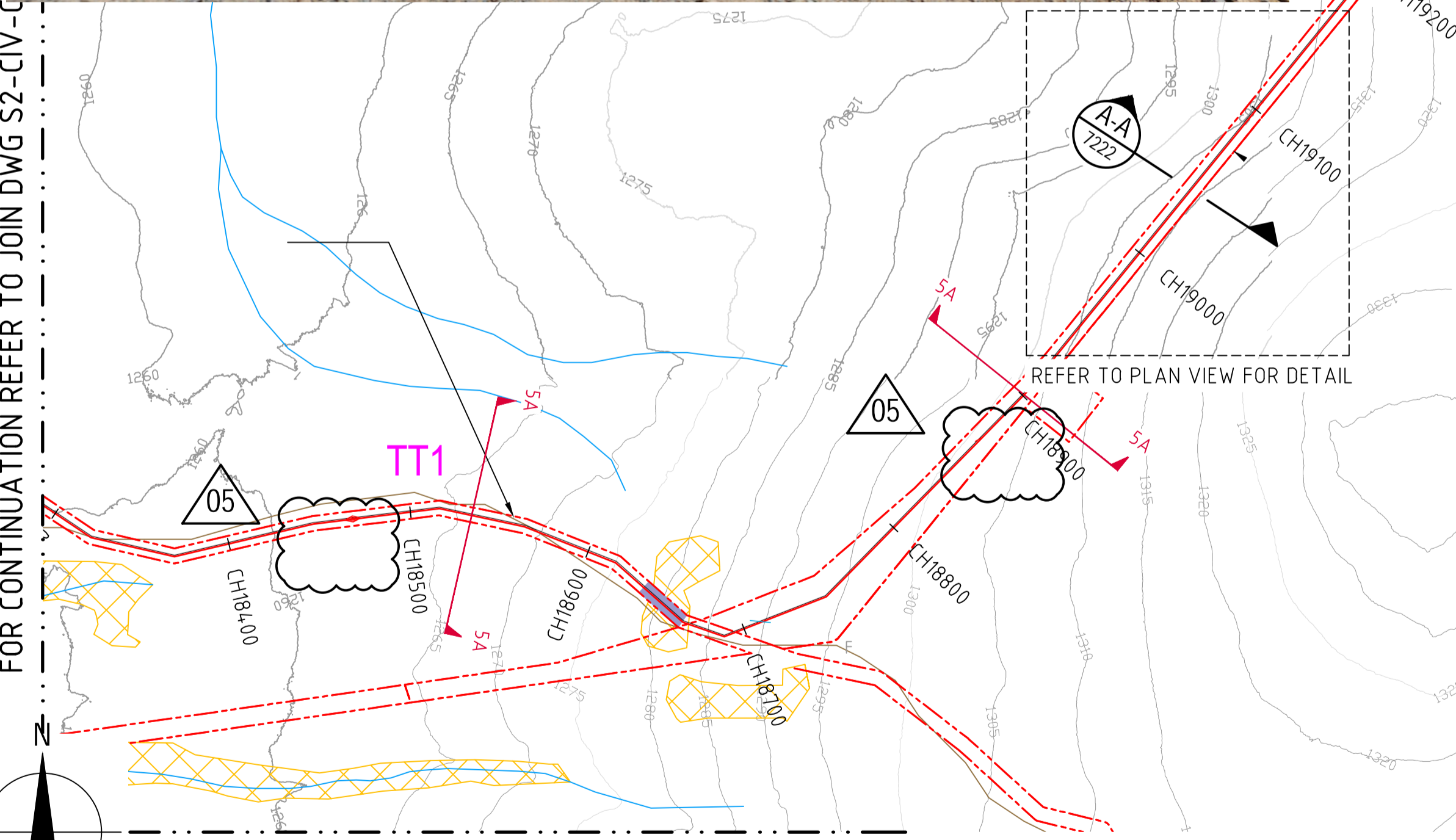
— MAIN WORKS CONSTRUCTION ENVELOPE

— WATER COURSE

SYMBOLS:

☒ BOG/ FENS AREA

■ HORIZONTAL DIRECTION DRILL AREAS



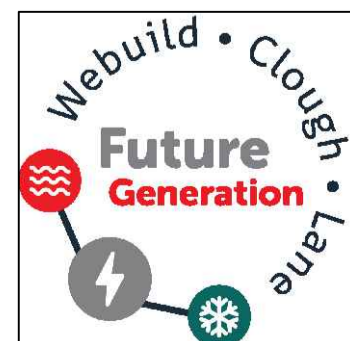
MAT PORTAL TO TANTANGARA
SCALE: 1:2500

SCALE 1:1000

KEYPLAN
NOT TO SCALE

FOR CONSTRUCTION

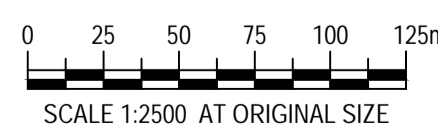
DESIGNER



OWNER



SCALE BARS AT A1



REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME	PROJECT TITLE	SNOWY 2.0
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		15 Dec 2023	11:50:36	DISCIPLINE CIV	ASSET CLASS CF
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST					
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST		DESIGNED BY	C. KNOX		
04	28.03.22	RE-ISSUED FOR CONSTRUCTION	J. FROST		DESIGN CHECK	M. CHONG		
05	15.12.23	RE-ISSUED FOR CONSTRUCTION	A. WHIPPS		DRAFTED BY	B. SMITH		
					DRAFTING CHECK	D. SMITH		
					DESIGN MANAGER	N. BURNETT		
					PROJECT MANAGER	M. TAYLOR		

TS01 TRUNK SERVICES
MAT PORTAL TO TANTANGARA
GENERAL ARRANGEMENT
SHEET 18 OF 19

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7218

REVISION
05

PHASE
FOR CONSTRUCTION

DRAWING NUMBER
S2-CIV-CF-TKS-7218

REVISION
05



Document Number
S2-CIV-CF-TKS-7219

Revision 04

No-objection with minor comments (Notice)

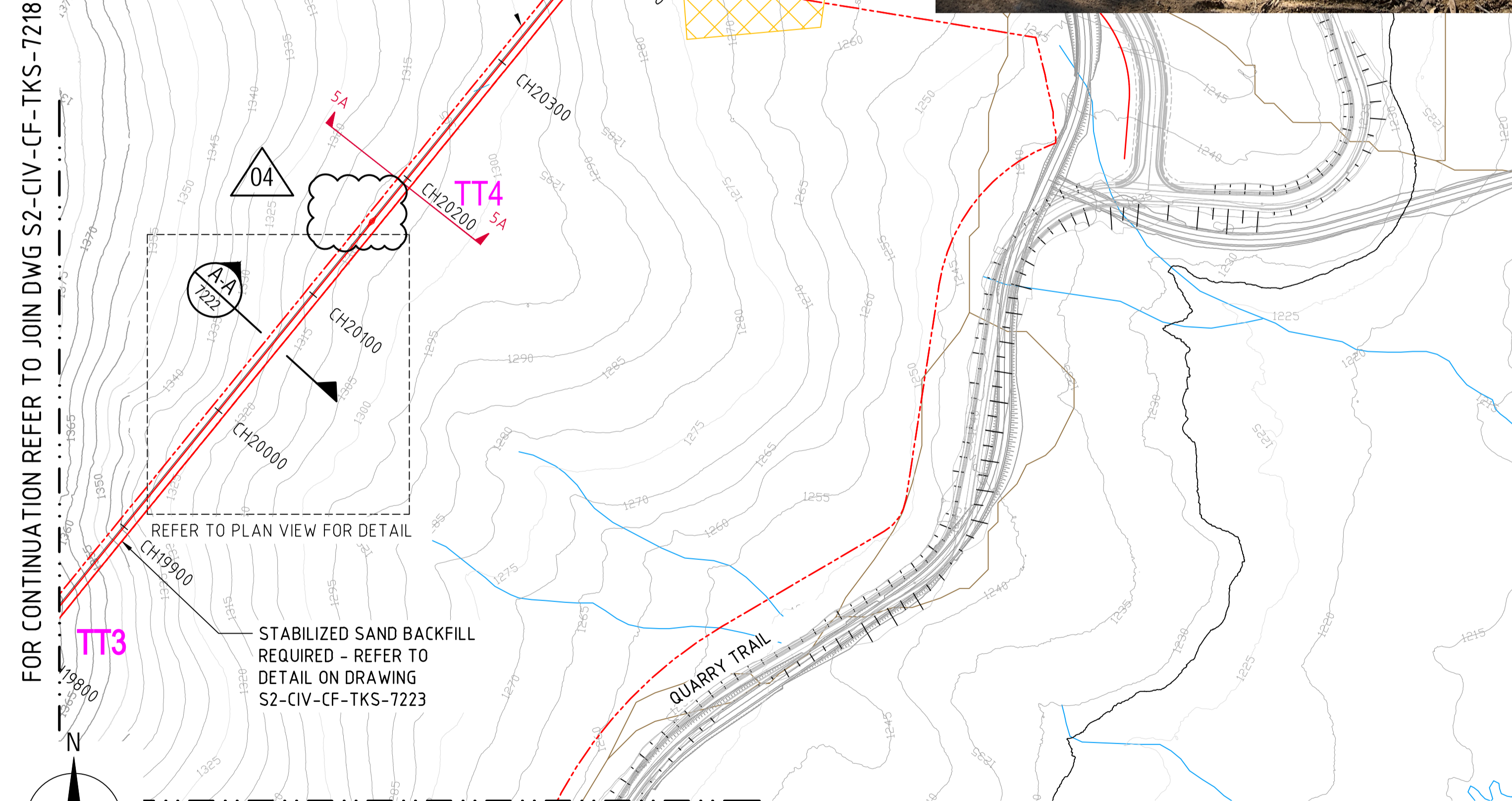
SHL DocControl - Snowy Hydro Limited
Jan 23, 2024, 5:00 PM GMT+11:00



- LEGEND:**
- MAIN WORKS CONSTRUCTION ENVELOPE
 - NEW TRAIL
 - 1 x 50mm COMMS CABLE
- SYMBOLS:**
- BOG/ FENS AREA
 - HORIZONTAL DIRECTION DRILL AREAS
 - ROAD CROSSING
 - MINOR CULVERT CROSSING

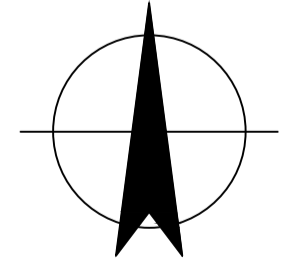
CH 20200 - 20500 to remain accessible with topsoil

FOR CONTINUATION REFER TO JOIN DWG S2-CIV-CF-TKS-7218

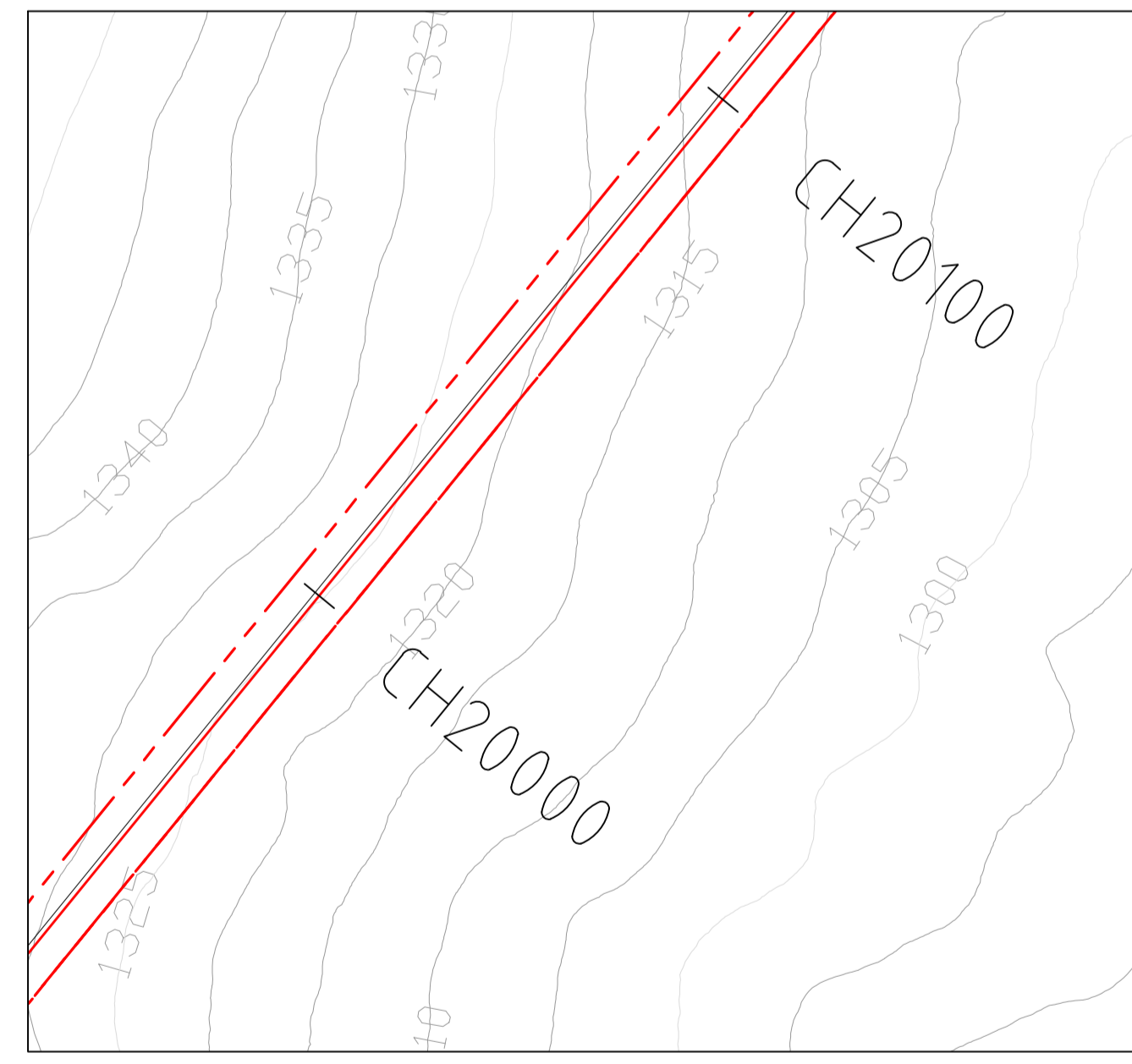


REFER TO PLAN VIEW FOR DETAIL

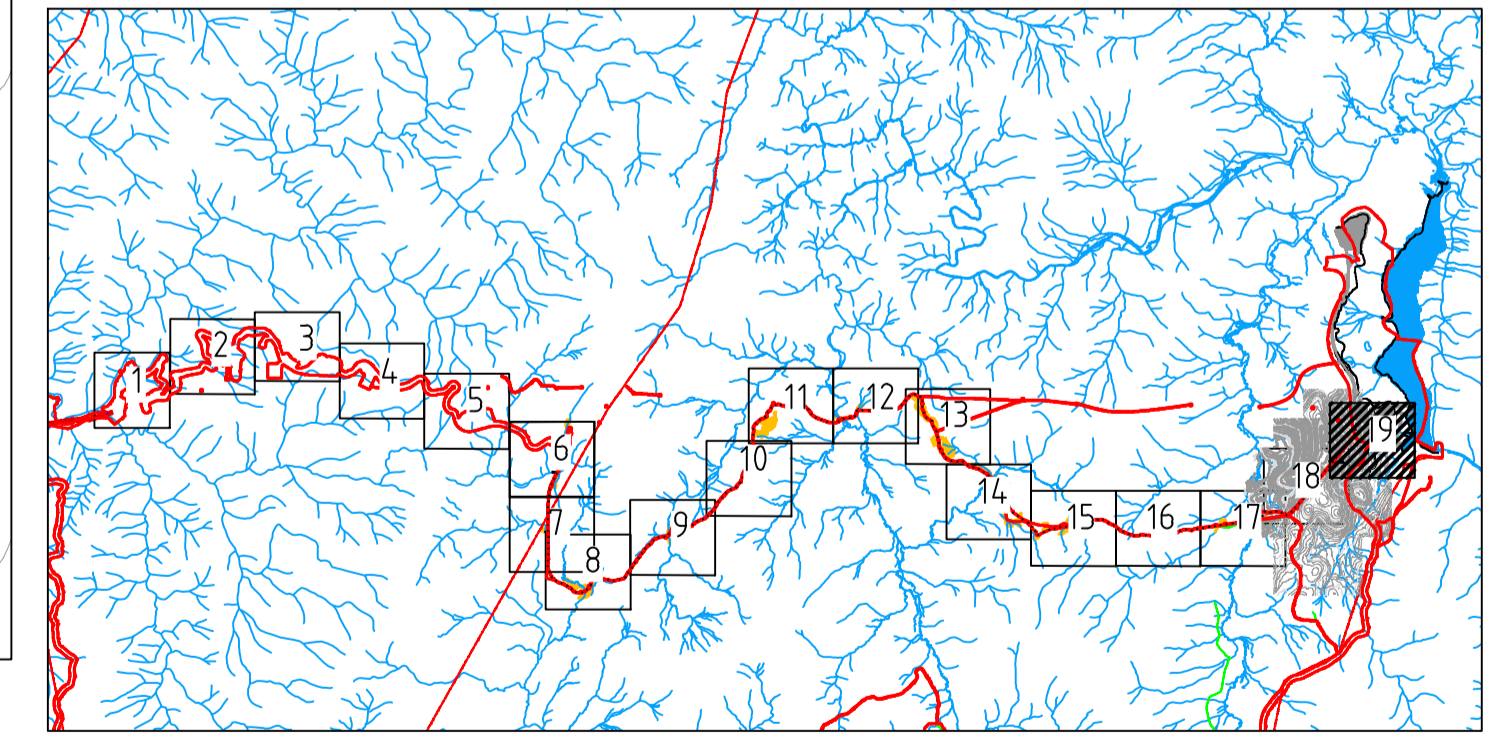
STABILIZED SAND BACKFILL REQUIRED - REFER TO DETAIL ON DRAWING S2-CIV-CF-TKS-7223



MAT PORTAL TO TANTANGARA
SCALE: 1:2500



INDICATIVE PLAN VIEW - SERVICES ALIGNMENT WITH TRACK & EIS BOUNDARY
SCALE 1:1000



KEYPLAN
NOT TO SCALE

FOR CONSTRUCTION

DESIGNER

OWNER

DESIGNERS DRAWING NUMBER
S2-CIV-CF-TKS-7219

REVISION
04

SCALE BARS AT A1

SCALE 1:1000 AT ORIGINAL SIZE

SCALE 1:2500 AT ORIGINAL SIZE

REV	DATE	REVISION DESCRIPTION	APPROVAL	QA TRACKING No	PLOT DATE	TIME
01	28.05.21	ISSUED FOR CONSTRUCTION	J. FROST		15 Dec 2023	11:51:37
02	16.06.21	ISSUED FOR CONSTRUCTION	J. FROST			
03	18.08.21	ISSUED FOR CONSTRUCTION	J. FROST		DESIGNED BY	C. KNOX
04	15.12.23	RE-ISSUED FOR CONSTRUCTION	A. WHIPPS		DESIGN CHECK	M. CHONG
					DRAFTED BY	B. SMITH
					DRAFTING CHECK	D. SMITH
					DESIGN MANAGER	N. BURNETT
					PROJECT MANAGER	M. TAYLOR

PROJECT TITLE
SNOWY 2.0

DISCIPLINE
CIV

ASSET CLASS
CF

**TS01 TRUNK SERVICES
MAT PORTAL TO TANTANGARA
GENERAL ARRANGEMENT
SHEET 19 OF 19**

PHASE
FOR CONSTRUCTION

DRAWING NUMBER
S2-CIV-CF-TKS-7219

REVISION
04

Appendix E – Quarterly Observation Monitoring Form

Quarterly Rehabilitation Inspection (June 2024)

Form completed for each rehabilitation area and submitted to rehab manager - Photos required for each question

* Indicates required question

1. Date *

Example: 7 January 2019

2. Person completing inspection

3. Site *

4. Weather conditions

5. Site Access *

Mark only one oval.

- Site accessible for monitoring
- Monitoring access requires action
- Access control not in place - Action required
- Access control in place
- Other: _____

6. Comments

7. Action

8. Photo monitoring points established *

Mark only one oval.

Yes

No - Action required

Other: _____

9. Action

10. Landform Stability / Erosion *

Mark only one oval.

No erosion present

Minor surface erosion less than growth medium depth

Minor erosion less than 300 mm - Action required

Major erosion more than 300 mm - Immediate action required

Sediment not controlled leaving area - Immediate action required

11. Comments

12. Action

13. Bare Ground / Ground Cover (excluding rocks and logs) *

Mark only one oval.

- No bare ground
- Bare ground - less than 5%
- Minimal bare ground - less than 15% - Monitor
- Bare patches - Between 15 and 30% - Action required
- Bare patches - over 30% - Action required

14. Comments

15. Action

16. Vegetation Health *

Mark only one oval.

- Minimal mortality / sickness observed - Less than 5%
- Mortality / sickness 5 - 20% - Action required
- Mortality / sickness more than 20% - Action required
- Minimal germination following direct seeding - Action required

17. Comments

18. Action

19. Weeds *

Mark only one oval.

- No weeds presents
- Individuals weeds present - Action required
- Weed infestation present - Action required
- Colonising weeds of area present - Action required

20. Comments - Weed species present

21. Action

22. Pests *

Mark only one oval.

- No evidence of pest species observed
- Presence observed minimal impact
- Pest species causing damage to rehabilitation - Action required

23. Comments (What pest, what impact , what species)

24. Action

25. Hydrological Integrity and function of bogs and fens *

Mark only one oval.

- No issue
- Incision forming - Action required
- Drying of bog identified - Action required
- NA

26. Comments

27. Action

28. Waterways and drainage lines *

Mark only one oval.

- No issue
- Bank erosion observed - Action required
- Sedimentation observed - Action required
- NA

29. Comments

30. Action

31. Human interference *

Mark only one oval.

- Wheel tracks
- Litter

32. Action

33. Comments

34. Site Signage *

Tick all that apply.

Yes

No - Action required

35. Comments

36. Action

37. Other comments

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