



Works approval number	W6673/2022/1
Works approval holder	Covalent Lithium Pty Ltd
ACN	623 090 139
Registered business address	Level 17, 109 St Georges Terrace PERTH WA 6000
DWER file number	DWER2022/000129
Duration	28/11/2022 to 28/11/2027
Date of issue	28 November 2022
Premises details	Earl Grey Lithium Project IWL/TSF Marvel Loch-Forrestania Road MOUNT HOLLAND Legal description - Mining tenement G77/137, M77/1066 and M77/1080 as depicted in Figure 1, Schedule 1.

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed design capacity
Category 5: Processing or beneficiation of metallic or non metallic ore: Prescribed Premises on which: a) Metallic or non metallic ore is crushed, ground, milled or otherwise processed; or b) Tailings from metallic or non metallic ore are reprocessed; or c) Tailings or residue from metallic or non metallic ore are discharged into a containment cell or dam.	1.2 million tonnes of tailings per annum into IWL/TSF

This works approval is granted to the works approval holder, subject to the attached conditions, on 28 November 2022, by:

**A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
28/11/2022	W6673/2022/1	Works approval granted.

Interpretation

In this works approval:

- (a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a condition, each row in a table constitutes a separate condition;
- (d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:
 - (i) if dated, refers to that particular version; and
 - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The works approval holder must:
 - (a) construct the critical containment infrastructure;
 - (b) in accordance with the corresponding design and construction requirements; and
 - (c) at the corresponding infrastructure location as set out in Table 1.

Table 1: Critical containment infrastructure design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
1.	IWL/TSF - starter embankment	- Height of TSF starter embankment maximum of 9 meters (RL 439 m AHD). - Starter embankment to be constructed as per specifications of fill materials detailed in Section 2.6 and 5.2. of Scope of Works – Covalent Lithium Pty Ltd IWL/TSF Stage 1 - Report reference number: 754-PERGE276922 – 13 July 2021. - The construction of embankment shall be supervised by a suitably qualified geotechnical engineer. - Dust to be minimised by using water truck to wet down work areas. - Transition zone (B1) comprising of well graded selected/transitional mine waste placed at the interface between the upstream compacted clayey material and downstream mine waste. - Surface soil within the embankment footprint area to be compacted to achieve a density ratio greater than 95% SMDD as part of the embankment construction, to limit seepage through the foundation. - Downstream seepage interception system, to be constructed within the embankment footprint, and to comprise of interception drainage pipes (perforated draincoil DN100 SN8) connecting to a collector pipe (solid HDPE pipe, DN110 PE100 PN12.5). - Drainage pipes to be placed within trenches with geotextile placed at the surrounding interfaces and backfilled with aggregate. The collector pipe to be placed within a trench	As shown in Schedule 1, Figure 1 and Figure 2

	Infrastructure	Design and construction requirements	Infrastructure location
		backfilled with aggregate. The depth of trench to be about 3 m. Layout and general arrangement as specified in Figures 2, 3, 4 and 5 of Schedule 1	
		- Vibrating wire piezometers (VWP) to be installed as part of the starter embankment construction. - VWPs must be installed in eight pairs, with VWP wires in a conduit installed in a trench (nominally 0.5 m deep) running under the embankment to terminal data loggers adjacent to the final downstream embankment toe line - The VWPs will be located at the base of the embankment (i.e. one (1) at the upstream embankment toe, and one (1) along the middle of the starter embankment for each VWP group).	As depicted in Schedule 1, Figure 9
2.	IWL/TSF – embankment lift stage 2	- Height of TSF stage 2 embankment raise to be a maximum of 3 meters (RL 442 m AHD). - Layout and general arrangement as specified in Figure 4 and Figure 5 of Schedule 1	As shown in Schedule 1, Figure 4 and Figure 5
3.	IWL/TSF – embankment lift stage 3	- Height of TSF stage 3 embankment raise to be a maximum of 3 meters (RL 445 m AHD). - Layout and general arrangement as specified in Figure 4 and Figure 5 of Schedule 1	
4.	IWL/TSF – embankment lift stage 4	- Height of TSF stage 4 embankment raise to be a maximum of 3 meters (RL 448 m AHD). - Layout and general arrangement as specified in Figure 4 and Figure 5 of Schedule 1	
5.	IWL/TSF – decant infrastructure	<u>Decant accessway</u> - Design slopes of 1:1.5 (V: H) on both sides and a minimum crest width of 8 m. - The decant accessway crest must have minimum 0.5 m high windrows on both sides. - The decant accessway for the starter embankment must be constructed in a single stage using mine waste rock. - For the rest of the stages, the decant accessway must be raised in a single stage concurrently with Zone A raising for each stage. - The perimeter embankment (upstream Zone A) and decant accessway crests will be sheeted with a nominal 100 mm thickness of	As shown in Schedule 1, Figure 1 and Figure 5

	Infrastructure	Design and construction requirements	Infrastructure location
		wearing course material. <u>Decant facilities</u> - The decant water recovery system to comprise of a submersible pump located within a pre-cast, slotted concrete rings which are surrounded by rockfill of nominal 10 m radius (pump to be designed for flow rate of approximately 20 litre/sec). - Access to the pump will be via the decant accessway, with return water pumped back to a process water pond nearer to the plant for reuse.	
6.	Return water storage pond	- Constructed with a footprint area of approximately 8,600 m². - Enclosed impoundment area is to be approximately 5,300 m², at an embankment crest elevation of RL433 m. - Design embankment crest level must provide storage capacity of approximately 10,000 m³ with allowance for design storm rainfall and 0.5 m freeboard. - Layout and general arrangement as specified in Figure 8 of Schedule 1	As shown in Schedule 1, Figure 1 and Figure 8
7.	Pipelines carrying tailing and decant return water	- Pipelines to be fitted with a leakage detection system to monitor for pressure and flow changes or drops. - Pipelines to be constructed within bunded open trenches sized sufficiently to contain any spill of material resulting from pipeline leaks or bursts during operation.	As shown in Schedule 1, Figure 1 and Figure 2

Construction of monitoring infrastructure

- The works approval holder must design, construct, and install groundwater monitoring bores in accordance with the requirements specified in Table 2.

Table 2: Infrastructure requirements – groundwater monitoring bores

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
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IWL/TSF Groundwater monitoring bore(s)	<u>Bore location and number:</u> Bores to be constructed surrounding IWL/TSF. Appropriate location and number of bores to be assessed and identified by suitably qualified hydrogeologist, supported by geological and geophysical assessments, including ground-based investigations.	N/A	Must be installed and determined to be operational by no later than 3 calendar months prior to the commencement of time limited operations of IWL/TSF starter embankment authorised under condition 7.
	<u>Bore design and construction:</u> Designed and constructed in accordance with <i>ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores</i> where applicable. Bore screens must target the part, or parts, of the aquifer most likely to be affected by contamination. Where temporary/seasonal perched features are present, bores must be nested, and the perched features individually screened.		
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring bores. A record of the geology encountered during drilling must be described and classified in accordance with the <i>Minimum Construction Requirements for Water Bores in Australia</i> , ensuring that sufficient information is recorded to provide a thorough understanding of the geological profile. Any observations of staining / odours or other indications of contamination must be included in the bore log.		
	<u>Bore construction log:</u> Bore construction details must be documented within a bore construction log to demonstrate compliance with <i>ASTM D5092/D5092M-16</i> where applicable for bore design and construction. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.		
	<u>Bore development:</u> All installed monitoring bores must be developed after drilling to remove fine		

	sand, silt, clay and any drilling mud residues from around the bore screen to ensure the hydraulic functioning of the bore. A detailed record should be kept of bore development activities and included in the bore construction log.		
	<u>Installation survey:</u> The vertical (top of casing) and horizontal position of each monitoring bore must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	<u>Bore network map:</u> A bore location map (using aerial image overlay) must be prepared and include the location of all monitoring bores in the monitoring network and their respective identification numbers.		

3. The works approval holder must, within 60 calendar days of the monitoring bores being constructed, submit to the CEO a well bore construction report evidencing compliance with the requirements of conditions 2.

Compliance reporting (critical containment infrastructure)

4. The works approval holder must within 60 calendar days of the Critical Containment Infrastructure identified by condition 1 being constructed and/or installed:
- (a) undertake an audit of their compliance with the requirements of condition 1; and
 - (b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.
5. The Critical Containment Infrastructure Report required by condition 4 must include as a minimum the following:
- (a) certification by a suitably qualified geotechnical engineer that each item of critical containment infrastructure or component(s) thereof, as specified in condition 1, has been built and installed in accordance with the requirements specified in condition 1;
 - (b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 1;
 - (c) photographic evidence of the installation of the infrastructure;
 - (d) include monitoring data indicating the baseline ambient groundwater quality at the premises; and
 - (e) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.
6. The monitoring of the baseline ambient groundwater quality required under condition 5(d) must be undertaken in accordance with the requirement of Table 3.

Table 3: Determination of baseline ambient groundwater quality

Parameter ³	Monitoring location	Unit	Frequency	Averaging period	Sampling
SWL ¹	All proposed monitoring bores as established under condition 2 of this works approval.	mbgl	Prior to the commencement of time limited operations for IWL/TSF starter embankment	Spot sample	Sampling in accordance with AS/NZS 5667.11 Analysis in accordance with AS/NZS 5667.1
pH ²		-			
EC ²		mS/cm			
Ammonia, NH ₃		mg/L			
Bicarbonate Alkalinity as HCO ₃					
Calcium Carbonate CaCO ₃					
Carbonate Alkalinity as CO ₃					
Nitrate, NO ₃ as NO ₃					
Nitrite, NO ₂ as NO ₂					
Total Alkalinity as CaCO ₃					
Total Dissolved Solids, TDS					
Total Hardness by Calculation					
Sulfate, SO ₄					
Calcium, Ca					
Chloride, Cl					
Lithium, Li					
Magnesium, Mg					
Potassium, K					
Silica, Soluble					
Sodium, Na					
Total nitrogen, TN					
Total phosphorus, TP					
Aluminum, Al					
Antimony, Sb					
Arsenic, As					
Barium, Ba					
Beryllium, Be					
Bismuth, Bi					
Boron, B					

Parameter ³	Monitoring location	Unit	Frequency	Averaging period	Sampling
Bromide, Br					
Cadmium, Cd					
Caesium, Cs					
Chromium, Cr					
Cobalt, Co					
Copper, Cu					
Fluoride, F					
Hexavalent Chromium, Cr ⁶⁺					
Iron, Fe					
Lead, Pb					
Manganese, Mn					
Mercury, Hg					
Molybdenum, Mo					
Nickel, Ni					
Niobium, Nb					
Rubidium, Rb					
Selenium, Se					
Silicon, Si					
Tantalum, Ta					
Thallium, Tl					
Thorium, Th					
Tin, Sn					
Uranium, U					
Vanadium, V					
Zinc, Zn					
Gross Alpha	All proposed monitoring bores as established under condition 2 of this works approval.	Bq/L	Prior to the commencement of time limited operations for IWL/TSF	Spot sample	Sampling in accordance with AS/NZS 5667.11 Analysis in accordance with AS/NZS 5667.1
Gross Beta					

Note 1: SWL must be determined before the collection of any other water samples

Note 2: In-field non-NATA accredited analysis is permitted

Note 3: Levels of detection is required to be sufficient to enable comparison with ANZECC/ARMCANZ Guidelines

Time limited operations

Commencement and duration

7. The works approval holder may only commence time limited operations for an item of critical containment infrastructure identified in condition 1 where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that items of infrastructure as required by condition 4 meets the requirements of that conditions.
8. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 1 (as applicable):
 - (a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 7 for that item of infrastructure: or
 - (b) until such time as a licence amendment for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, if one is granted before the end of the period specified in condition 8(a).

Time limited operations requirements and emission limits

9. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 4 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 4.

Table 4: Infrastructure and equipment requirements during time limited operations

Item No.	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Earl Grey IWL/TSF	- To be maintained as per the design and construction / installation requirements in condition 1. - Tailings in the form of slurry will be discharged into the facility in thin discrete layers (i.e. less than 300 mm nominal thickness). - Tailings deposition to maximise wet areas and must ensure that the surface of the TSF Project Area remains sufficiently wet to reduce the potential of fine particulate dust emissions. - Maintain and operate spigots. Daily visual inspections to check for integrity or any malfunction. - Supernatant decant water recovery system comprises of pump returning water to the process plant. Decant return to the process water pond to be maximized, with a minimum pump capacity of 20L/s. - The edge of decant water pond shall be kept at least 110 m away from the embankment under normal operating	Figure 1 of Schedule 1

Item No.	Site infrastructure and equipment	Operational requirement	Infrastructure location
		conditions. - Decant pond to be approximately 27,000 m³ in volume. - The facility will have sufficient capacity to store water during a storm event of 1:100-year AEP, 72-hour duration whilst maintaining the required minimum total freeboard of 500 mm. - Daily visual inspection of the location and size of the decant pond - Daily visual inspection of the integrity of the embankment and perimeter containment embankment. - Periodic monitoring and maintenance across the TSF embankments and surrounding waste rock landform to prevent and mitigate any potential localised erosion which can result in sedimentation downstream.	

Emissions during time limited operations

10. The works approval holder must ensure that the emissions specified in Table 5 are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 5: Authorised discharge points during Time-limited operations

Emission	Discharge point	Discharge point location
Tailings	Earl Grey IWL/TSF	As shown in Figure 1 of Schedule 1

Monitoring during time limited operations

11. The works approval holder must monitor the groundwater during time limited operations for concentrations of the identified parameters in accordance with Table 6.

Table 6: Monitoring of ambient concentrations during time limited operations³.

Parameter	Monitoring location	Unit	Frequency	Averaging period	Sampling
SWL ¹	All proposed monitoring bores as established under condition 2 of this works approval.	mbgl	Quarterly	Spot sample	Sampling in accordance with AS/NZS 5667.11
pH ²		-			
EC ²		mS/cm			
Ammonia, NH ₃		mg/L			Analysis in accordance with AS/NZS
Bicarbonate Alkalinity as HCO ₃					
Calcium Carbonate CaCO ₃					

Carbonate Alkalinity as CO ₃					5667.1
Nitrate, NO ₃ as NO ₃					
Nitrite, NO ₂ as NO ₂					
Total Alkalinity as CaCO ₃					
Total Dissolved Solids, TDS					
Total Hardness by Calculation					
Sulfate, SO ₄					
Calcium, Ca					
Chloride, Cl					
Lithium, Li					
Magnesium, Mg					
Potassium, K					
Silica, Soluble					
Sodium, Na					
Total nitrogen, TN					
Total phosphorus, TP					
Aluminum, Al					
Antimony, Sb					
Arsenic, As					
Barium, Ba					
Beryllium, Be					
Bismuth, Bi					
Boron, B					
Bromide, Br					
Cadmium, Cd					
Caesium, Cs					
Chromium, Cr					
Cobalt, Co					
Copper, Cu					
Fluoride, F					
Hexavalent Chromium, Cr ⁶⁺					
Iron, Fe					

Lead, Pb					
Manganese, Mn					
Mercury, Hg					
Molybdenum, Mo					
Nickel, Ni					
Niobium, Nb					
Rubidium, Rb					
Selenium, Se					
Silicon, Si					
Tantalum, Ta					
Thallium, Tl					
Thorium, Th					
Tin, Sn					
Uranium, U					
Vanadium, V					
Zinc, Zn					

Note 1: SWL must be determined before the collection of any other water samples

Note 2: In-field non-NATA accredited analysis permitted.

Note 3: Level of detection is required to be sufficient to enable a comparison with ANZECC/ARMCANZ Guidelines.

- 12.** The works approval holder must record the results of all monitoring activity required by condition 11.

Compliance reporting

- 13.** The works approval holder must submit to the CEO a report on the time limited operations within 60 calendar days of the completion date of time limited operations, or 60 calendar days before the expiration date of the works approval, whichever is sooner.
- 14.** The works approval holder must ensure the report required by condition 13 includes the following:
- (a) a summary of the time limited operations, including timeframes and amount of tailing discharged;
 - (b) a summary of monitoring results obtained during time limited operations under condition 11
 - (c) a summary of the environmental performance of each item of infrastructure or equipment as constructed or installed, which at minimum includes records detailing the:
 - (i) environmental performance of the tailing delivery and decant water pipelines including spigots for discharge of tailings into the TSF; and
 - (ii) performance of the underdrainage systems.

Records and reporting (general)

- 15.** The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

 - (a) the name and contact details of the complainant, (if provided).
 - (b) the time and date of the complaint.
 - (c) the complete details of the complaint and any other concerns or other issues raised; and
 - (d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.
- 16.** The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

 - (a) the works conducted in accordance with conditions 1
 - (b) any maintenance of infrastructure that is performed in the course of complying with conditions of this works approval.
 - (c) monitoring programmes undertaken in accordance with conditions 11; and
 - (d) complaints received under condition 15.
- 17.** The books specified under condition 16 must:

 - (a) be legible.
 - (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval.
 - (c) be retained by the works approval holder for the duration of the works approval; and
 - (d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 7 have the meanings defined.

Table 7: Definitions

Term	Definition
AHD	means Australian Height Datum
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
CN	means cyanide
critical containment infrastructure	means the items of infrastructure listed in condition T2.
Critical Containment Infrastructure Report	means a report to satisfy the CEO that works of critical containment infrastructure have been constructed in accordance with the works approval.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
EC	means electrical conductivity
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	<i>Environmental Protection Act 1986 (WA).</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA).</i>
HDPE	means high-density polyethylene
IWL/TSF	means integrated water landform / tailings storage facility

Term	Definition
Minimum Construction Requirements for Water Bores in Australia	means the document <i>Minimum Construction Requirements for Water Bores in Australia</i> developed by the National Uniform Drillers Licensing Committee, as amended from time to time.
NATA	means the National Association of Testing Authorities, Australia.
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis.
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map Figure 1 in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
quarterly period	Means the four inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September, and 1 October to 31 December.
SMDD	Standard maximum dry density as a test standard of AS 1289.5.2.1, 2.1.1
suitably qualified geotechnical engineer	means a person who: a) holds a Bachelor of Engineering recognised by the Institute of Engineers; and has a minimum of five years of experience working in the field of geotechnical engineering or is otherwise approved by the CEO to act in this capacity.
suitably qualified hydrogeologist	means a person who holds a tertiary qualification specialising in environmental science or equivalent and has a minimum of five years of experience working in area of hydrogeology, including investigation and assessment of groundwater resources, or who is otherwise approved by the CEO to act in this capacity.
SWL	means standing water level
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
VWP	means vibrating wire piezometer
WAD CN	means weak acid dissociable cyanide
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.

Term	Definition
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

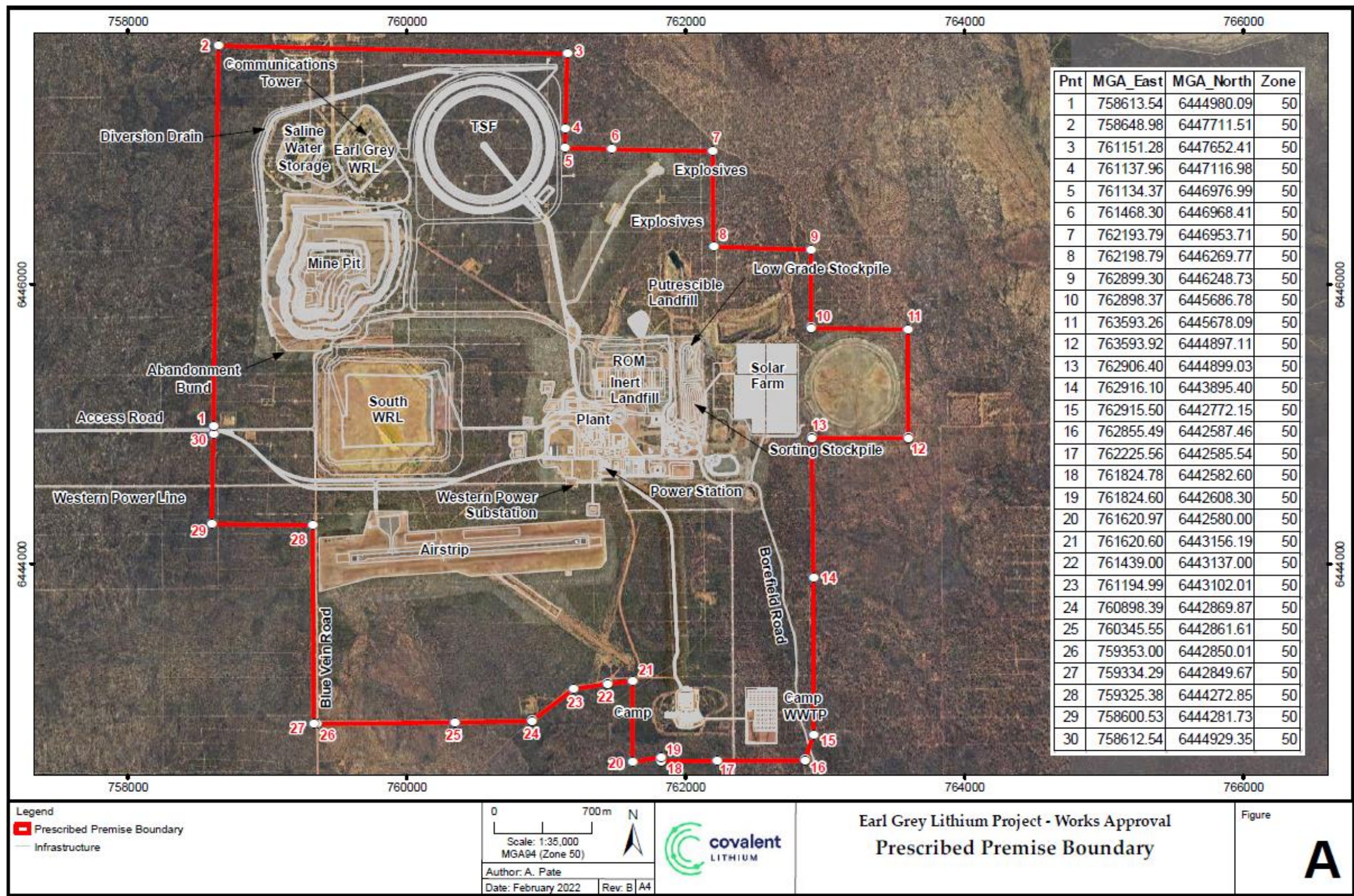


Figure 1: Earl Grey Lithium Project IWL/TSF site layout

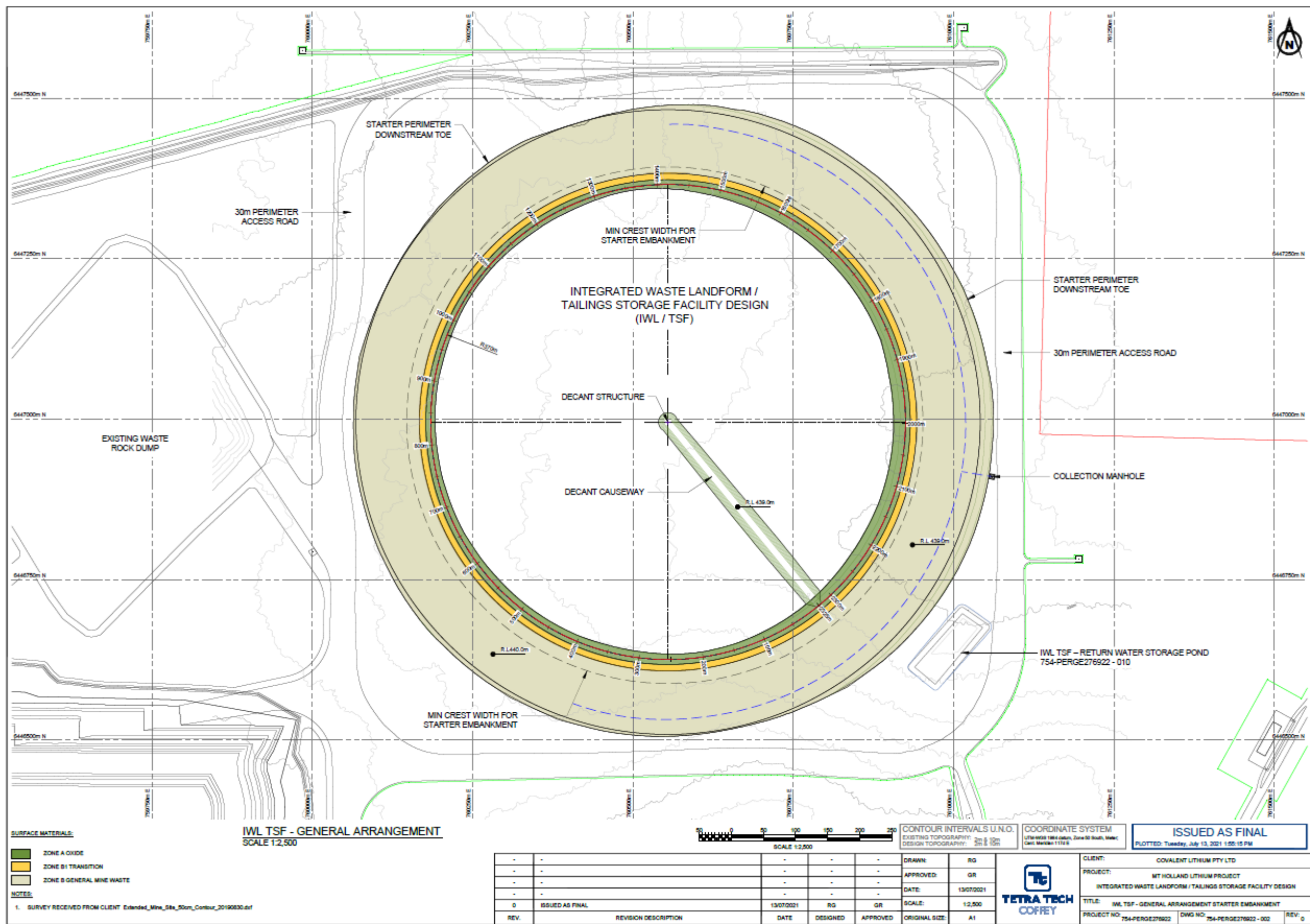


Figure 2: IWL/TSF General arrangement – starter embankment

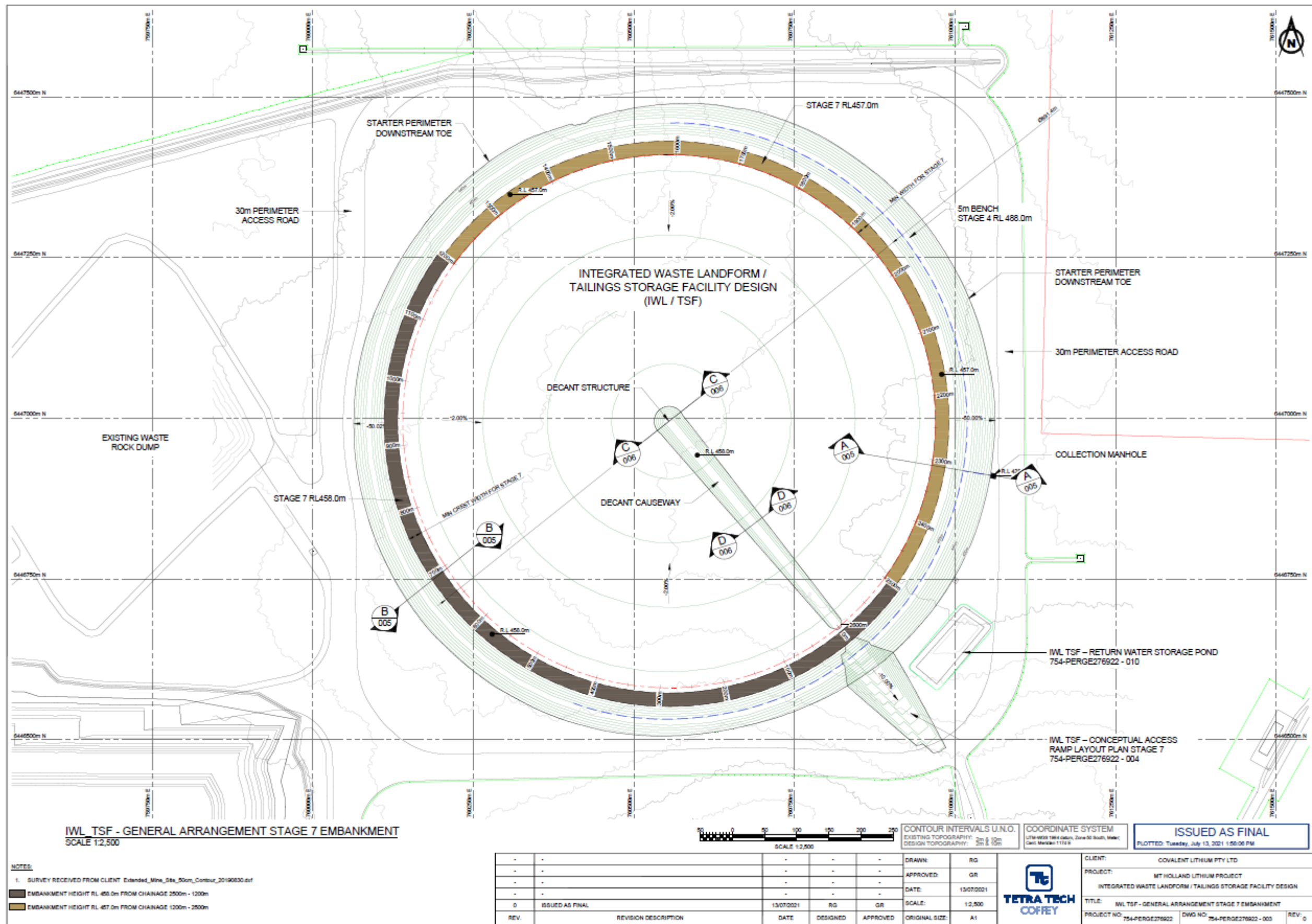


Figure 3: IWL/TSF General arrangement – stage 7 embankment (Note: only stages 1 – 4 are authorized under this works approval).

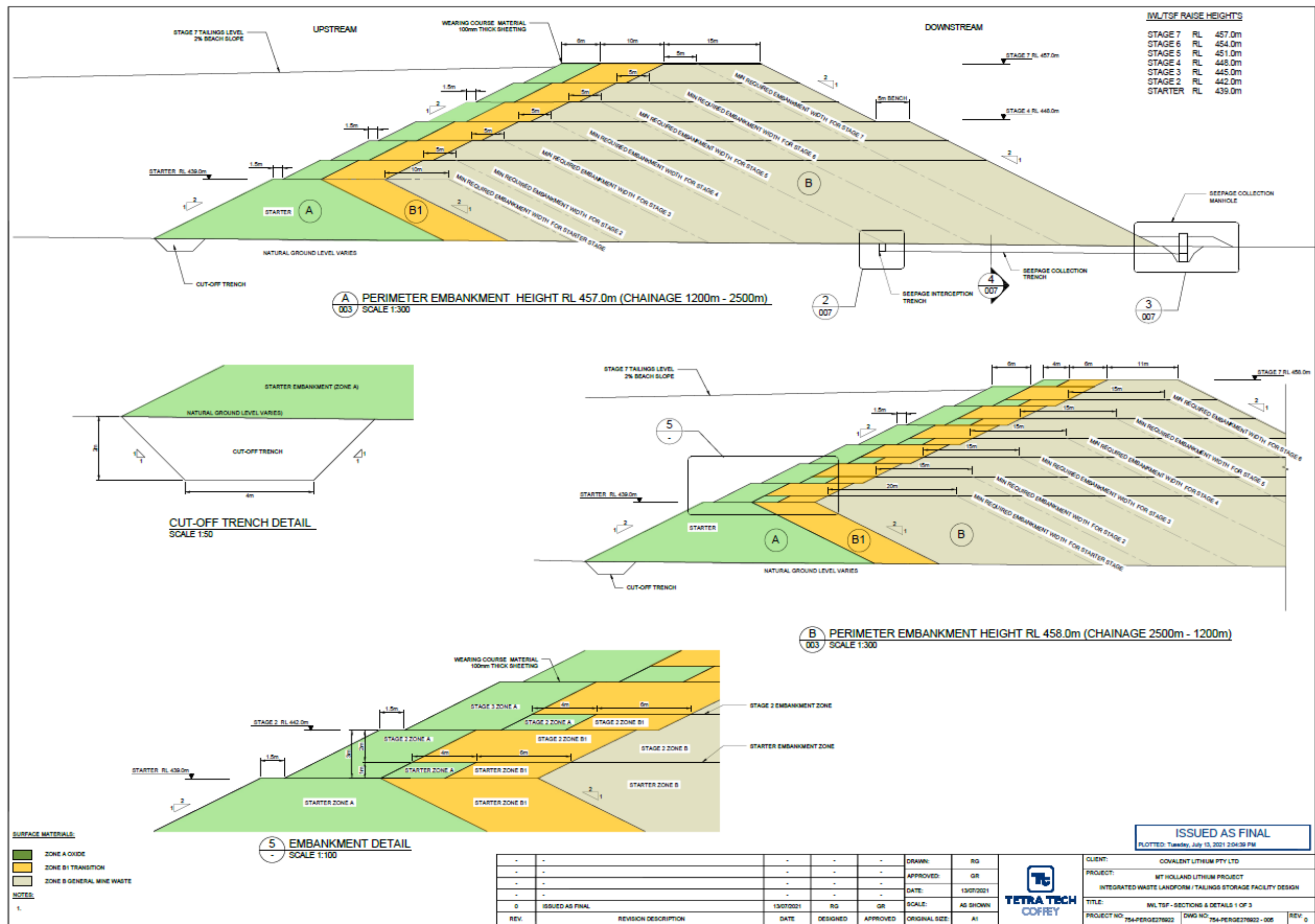


Figure 4: IWL/TSF embankment detail and proposed raise heights (Note: only stages 1 – 4 are authorized under this works approval).

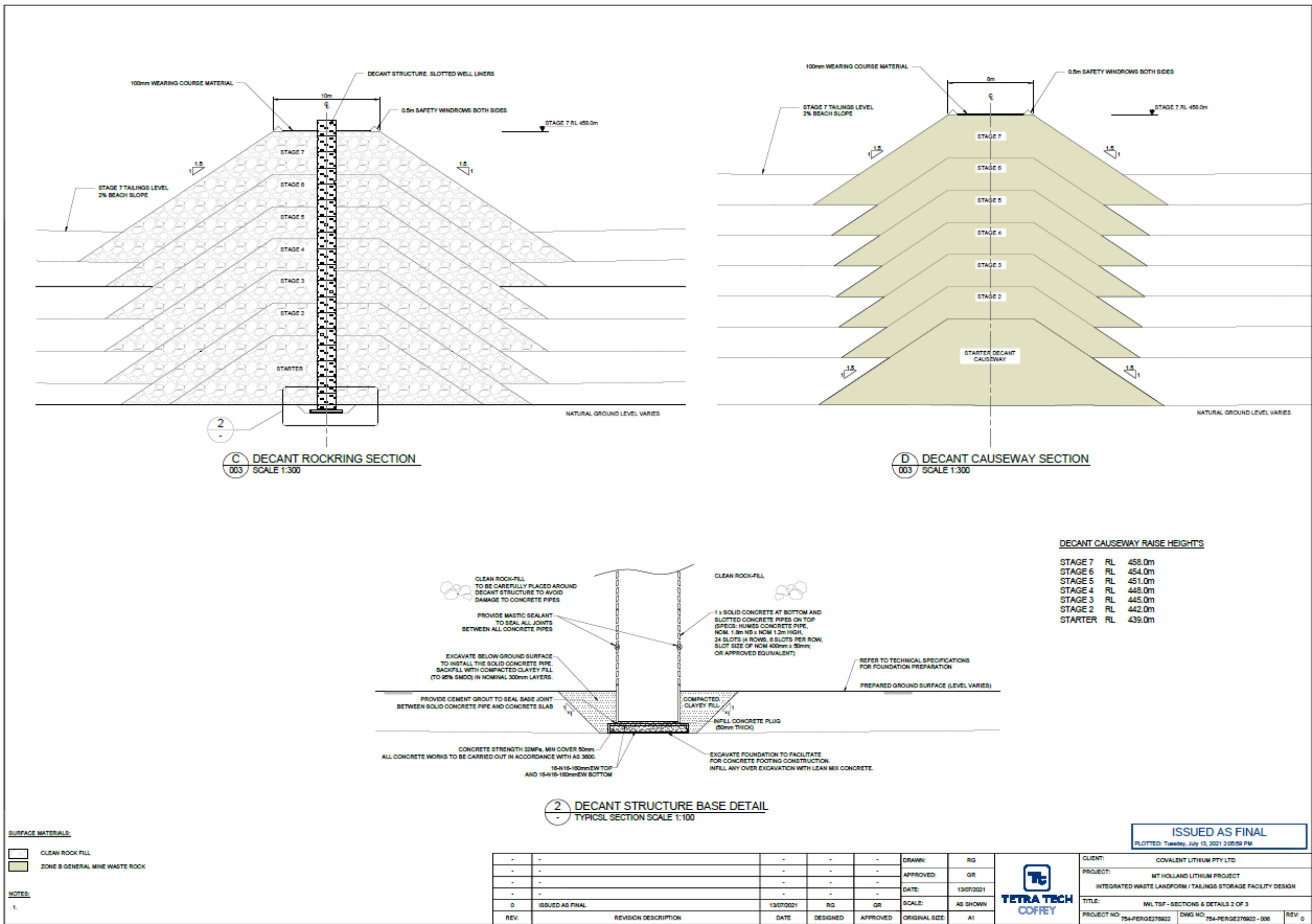


Figure 5: IWL/TSF decant causeway and decant structure base detail

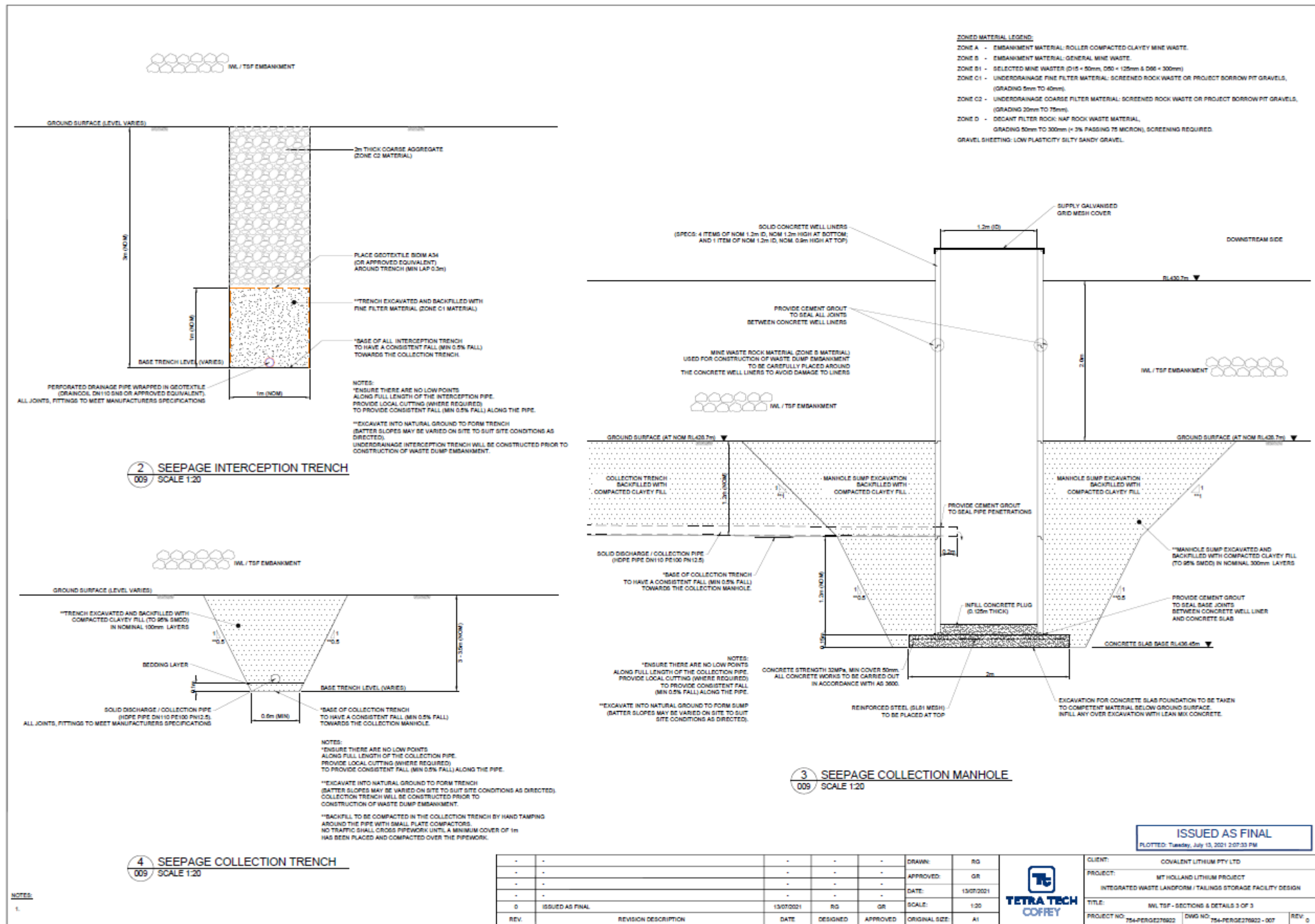


Figure 6: IWL/TSF seepage collection infrastructure

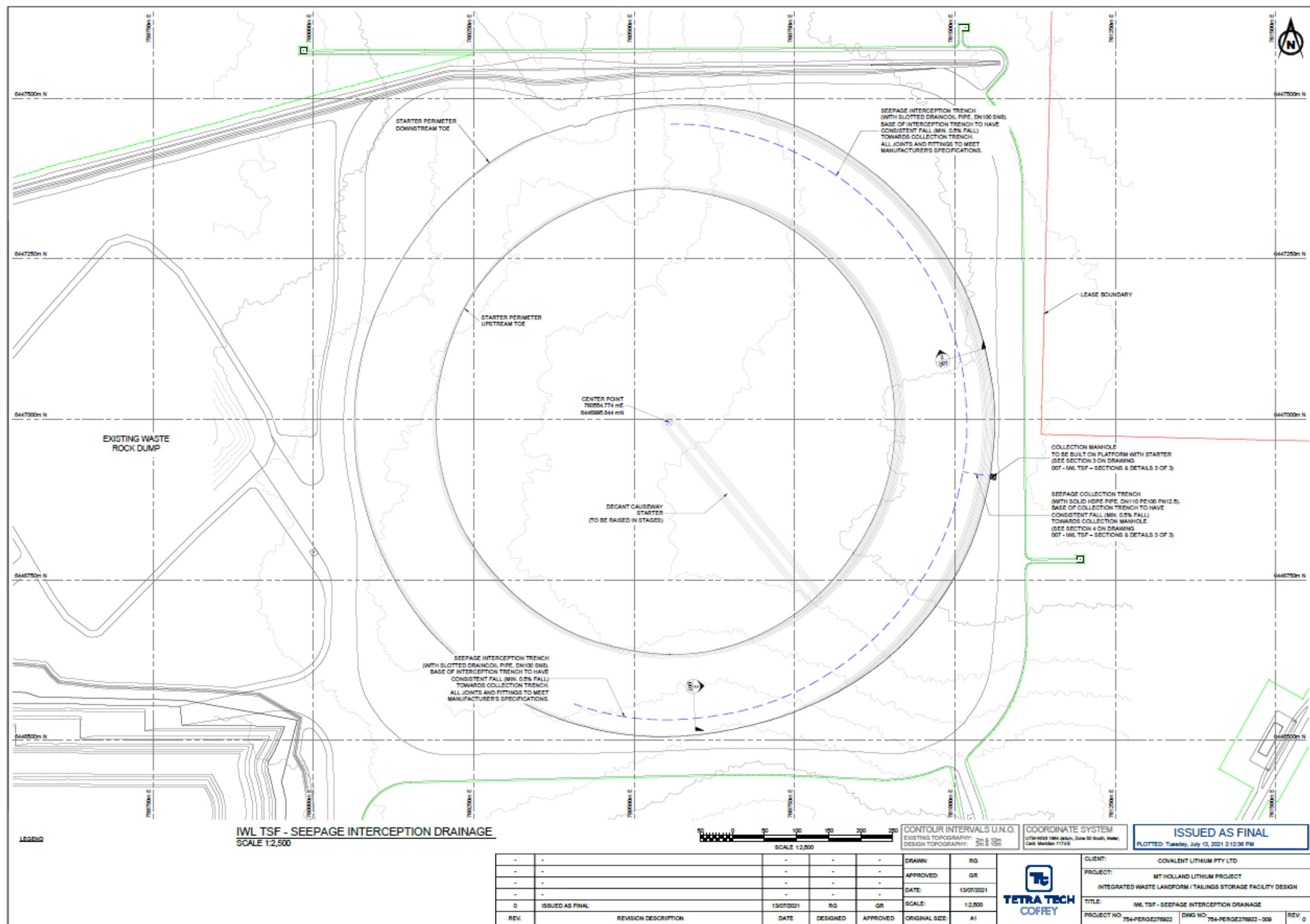


Figure 7: IWL/TSF seepage interception drainage

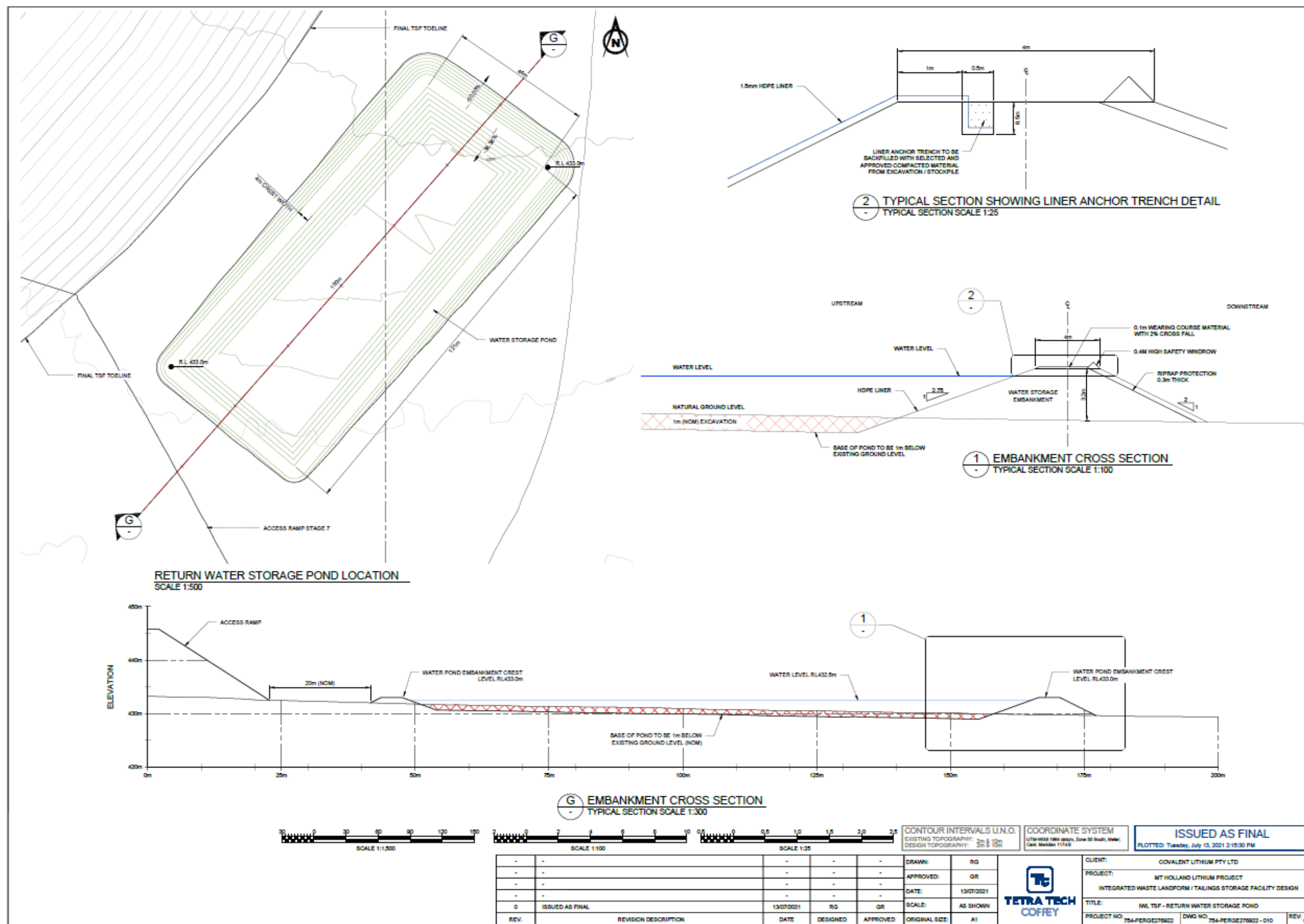


Figure 8: Return water storage pond

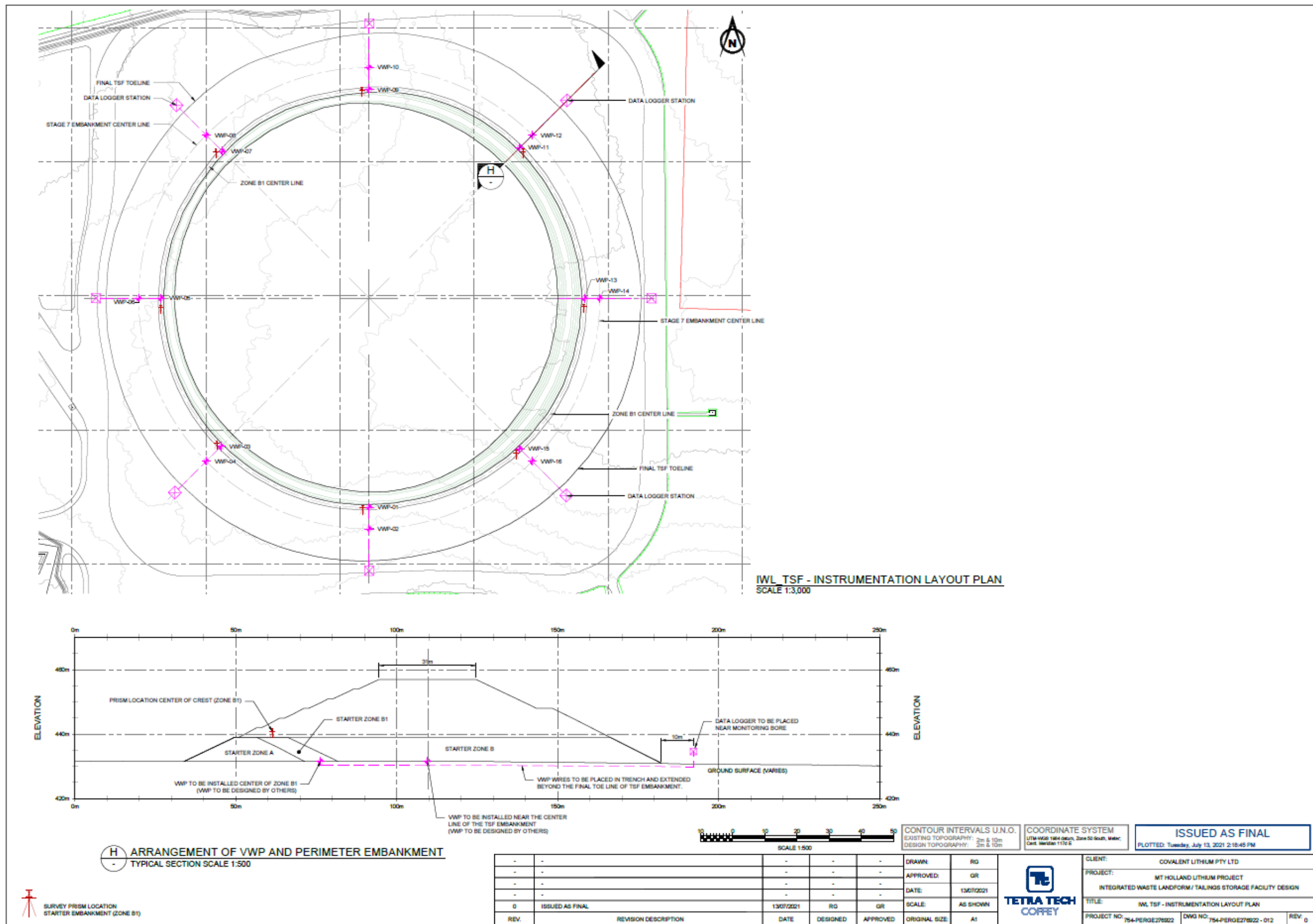


Figure 9: IWL/TSF instrumentation layout plan