Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W3043/2025/1
Works approval holder	Saturn Metals Limited
ACN	619 488 498
Registered business address	9 Havelock Street WEST PERTH WA 6005
DWER file number	INS-0003043
Duration	6/11/2025 to 6/11/2028
Date of issue	6/11/2025
Premises details	Apollo Hill Pilot Project Goldfields Hwy, LEONORA WA 6438 Mining tenements: M31/486, M39/296, L31/93, L39/284 As defined by the premises map in Schedule 1, Figure 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	1,200,000 tonnes per year
Category 6: Mine dewatering	300,000 tonnes per year
Category 7: Vat or in situ leaching of metal	1,200,000 tonnes per year

This works approval is granted to the works approval holder, subject to the attached conditions, on 6 November 2025, by:

Christine Pustkuchen
Digitally signed by Christine Pustkuchen
Date: 2025.11.06 16:29:07 +08'00'

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

Works approval history

Date	Reference number	Summary of changes
6/11/2025	W3043/2025/1	Works approval granted (APP-0027536)

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 (critical containment infrastructure)

1. The works approval holder must:

(a) construct the critical containment infrastructure;

(b) in accordance with the corresponding design and construction requirements;

(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.	Heap Leaching facility	*General:* (a) To be located on mining tenement M31/486 (b) To be designed to contain stormwater resulting from a 1 in 100-year average return interval (ARI) rainfall event (c) Heap leach pad dimensions to be approximately 312 m long by 369 metres wide (d) Heap leach pad to be constructed on a compacted foundation sloping towards the east (e) Density and material classification testing for construction to be recorded including material selection and compaction results (f) Heap leach pad to be surrounded by a 1.5 m high and 5 m wide berm constructed in accordance with Figure 8 of Schedule 2 (g) Heap leach base construction to comprise of: i. Compacted foundation: natural ground to be scarified and recompacted. Fill material to be moisture conditioned and placed in levelled layers ii. Compacted subsoil base: to be placed below the liner and to comprise of a 300 mm low permeability clay graded smooth iii. 1.5 mm double sided texture HDPE layer above the compacted subsoil	Schedule 1, Figures 2, 3, 4, 5 and 6

	Infrastructure	Design and construction requirements	Infrastructure location
		base as per the arrangement in Figure 5 of Schedule 1 iv. Liner protection (cushion) layer: to comprise 300 mm of fine-grained material with low gravel content v. Anchor trenches and liner to be constructed and secured in accordance with Figure 8 and Figure 9 of Schedule 2 (h) All prepared surfaces to be surveyed and inspected by the earthworks manager, QA/QC team and liner specialist. (i) Heap leach pad to comprise of 5 discrete cells each approximately 283 m long and 69 m wide, separated by divider berms (j) Facility to be surrounded by individual berms constructed in accordance with Figure 9 of Schedule 2 (k) 300 mm nominal slotted ADS-N12 (primary solution) pipes or similar, to be fitted along each cell above the cushion layer and topped with a drainage layer (free draining gravel). Primary solution pipes to be spaced at an approximate interval of 20 m. Pipeline specification shown in Figure 11 of Schedule 2 (l) Primary solution pipes to be connected to DN300 SDR 13.6 PE100 solid HDPE collector solution pipes (or similar) (m) Collector pipes to be attached to automated launder boxes on launder box footings (n) Primary solution, collector pipes and launder boxes to be constructed in accordance with Figure 10 of Schedule 2 (o) A lined spillway to be constructed on each individual heap leach pad cell. Lined spillway to lead to the stormwater channel *Lining material specifications:* (p) HDPE liner material to have the following minimum requirements: i. Shear strength: 525 N/25 mm ii. Shear elongation at break: 50% iii. Peel separation: 25% iv. Pell strength at hot wedge seams:	

	Infrastructure	Design and construction requirements	Infrastructure location
		398N/25 mm and v. Peel strength at extrusion fillet seams: 340 N/25 Membrane welding material to be supplied by the liner manufacturer and to be identical to the liner membrane *Lining installation requirement:* (q) A visual inspection of each roll to occur prior to installation of the liner to identify tears, punctures, abrasions, cracks, indentations and thin spots or other faults in the liner material. Roll to be discarded if faults are identified (r) Liner panels to overlap by a minimum of 100mm prior to heat welding or mechanical joining (s) Weld testing for the HDPE membrane to be undertaken in accordance with Table 8 of Schedule 3	
	Pregnant liquor solution (PLS) pond	(a) Constructed below ground level using non-acid forming material (NAF) (b) Pond design to be undertaken in accordance with Figure 12 and Figure 13 of Schedule 2 (c) Pond capacity to be approximately 11,000 cubic metres (d) Designed to have a minimum freeboard of 0.3m (e) Designed to overflow into the Intermediate Liquor Solution (ILS) Pond (f) Pond lining to comprise of a hypernet contained between a top and a bottom layer of 1.5 mm double sided texture HDPE lining. Lining bottom layer to be installed over a 200 mm compacted and smooth sub-base (g) Lining structure to be designed in accordance with the specifications of Figure 14 of Schedule 2 (h) All prepared surfaces to be surveyed and inspected by the earthworks manager, QA/QC team and liner specialist (i) Leak Collection and recovery system (LCRS) to consist of a geonet layer installed between the two HDPE liner layers to gravity feed a collection sump (j) LCRS and underdrainage system to be designed in accordance with Figure 13	Schedule 1, Figures 2, 3, 4, 5 and 6 labelled as *Pregnant solution pond* and *Pilot pregnant leachate solution (PLS) pond*

	Infrastructure	Design and construction requirements	Infrastructure location
		and Figure 15 of Schedule 2 *Lining material specifications:* (k) HDPE liner material to have the following minimum requirements: i. Shear strength: 525 N/25 mm ii. Shear elongation at break: 50% iii. Peel separation: 25% iv. Pell strength at hot wedge seams: 398N/25 mm and v. Peel strength at extrusion fillet seams: 340 N/25 (l) Membrane welding material to be supplied by the liner manufacturer and to be identical to the liner membrane *Lining installation requirement:* (m) A visual inspection of each roll to occur prior to installation of the liner to identify tears, punctures, abrasions, cracks, indentations and thin sports or other faults in the liner material. Roll to be discarded if faults are identified (n) Liner panels to overlap by a minimum of 100mm prior to heat wielding or mechanical joining (o) Weld testing for the HDPE membrane to be undertaken in accordance with Table 8 of Schedule 3	
	ILS Pond	(a) Constructed below ground level using NAF material (b) Pond design to be undertaken in accordance with Figure 12 and Figure 13 of Schedule 2 (c) Pond capacity to be approximately 11,000 cubic metres (d) Designed to have a minimum freeboard of 0.3m (e) Designed to overflow into the Stormwater (SW) Pond (f) Pond lining to comprise of a hypernet contained between a top and a bottom layer of 1.5 mm doubled sided texture HDPE lining. Lining bottom layer to be installed over a 200 mm compacted and smooth sub-base (g) Lining structure to be designed in accordance with the specifications of	Schedule 1, Figures 2, 3, 4, 5 and 6 labelled as *Intermediate solution pond* and *Pilot intermediate leachate solution (ILS) pond*

	Infrastructure	Design and construction requirements	Infrastructure location
		Figure 14 of Schedule 2 (h) All prepared surfaces to be surveyed and inspected by the earthworks manager, QA/QC team and liner specialist (i) LCRS to consist of a geonet layer installed between the two HDPE liner layers to gravity feed a collection sump (j) LCRS and underdrainage system to be designed in accordance with Figure 13 and Figure 15 of Schedule 2 *Lining material specifications:* (k) HDPE liner material to have the following minimum requirements: i. Shear strength: 525 N/25 mm ii. Shear elongation at break: 50% iii. Peel separation: 25% iv. Pell strength at hot wedge seams: 398N/25 mm and v. Peel strength at extrusion fillet seams: 340 N/25 (l) Membrane welding material to be supplied by the liner manufacturer and to be identical to the liner membrane *Lining installation requirement:* (m) A visual inspection of each roll to occur prior to installation of the liner to identify tears, punctures, abrasions, cracks, indentations and thin sports or other faults in the liner material. Roll to be discarded if faults are identified (n) Liner panels to overlap by a minimum of 100 mm prior to heat wielding or mechanical joining (o) Weld testing for the HDPE membrane to be undertaken in accordance with Table 8 in Schedule 3	
	Stormwater (SW) Pond	(a) Constructed below ground level using NAF material (b) Pond design to be undertaken in accordance with Figure 12 of Schedule 2 (c) Pond capacity to be approximately 32,000 cubic metres (d) Designed to have a minimum freeboard of 0.3m	Schedule 1, Figures 2, 3, 4, 5 and 6 labelled as *Stormwater pond* and *Pilot stormwater pond (SWP)*

	Infrastructure	Design and construction requirements	Infrastructure location
		(e) Designed to discharge into a lined emergency spillway channel constructed in accordance with the specifications of Figure 14 of Schedule 2 (f) Pond lining to comprise of a 1.5 mm HDPE liner overlying a 200 mm compacted liner sub-base (g) Pond liner system to be designed in accordance with the specifications of Figure 14 of Schedule 2 (h) All prepared surfaces to be surveyed and inspected by the earthworks manager, QA/QC team and liner specialist (i) Pond to incorporate a LCRS and an underdrainage system designed in accordance with Figure 13and Figure 15 of Schedule 2 *Lining material specifications:* (j) HDPE liner material to have the following minimum requirements: i. Shear strength: 525 N/25 mm ii. Shear elongation at break: 50% iii. Peel separation: 25% iv. Pell strength at hot wedge seams: 398N/25 mm and v. Peel strength at extrusion fillet seams: 340 N/25 (k) Membrane welding material to be supplied by the liner manufacturer and to be identical to the liner membrane *Lining installation requirement:* (l) A visual inspection of each roll to occur prior to installation of the liner to identify tears, punctures, abrasions, cracks, indentations and thin sports or other faults in the liner material. If faults are identified, roll is to be discarded. (m) Liner panels to overlap by a minimum of 100mm prior to heat wielding or mechanical joining (n) Weld testing for the HDPE membrane shall be undertaken in accordance with Table 8 of Schedule 3	

Infrastructure and equipment (non - critical containment infrastructure)

2. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction / installation requirements; and

(c) at the corresponding infrastructure location

as set out in Table 2.

Table 2: Design and construction / installation requirements

Item	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Crushing screening and agglomeration plant	(a) To be mobilised and assembled on a compacted hardstand within mining tenement M31/486 (b) To consist of: i. Static grizzly ii. Vibrating grizzly feeder iii. Primary Crusher iv. Secondary cone crusher v. Double decking sizing screen vi. High pressure grinding rolls vii. Conveyors (including high pressure grinding rolls feed conveyor) viii. Agglomerator with flake breaker and automated sampler ix. Silos and feeder x. Tripper xi. Mobile stacker (c) All components to be installed in accordance with the manufacturer's specification (d) Dust suppression sprays to be installed at crushing, transfer and discharge points	Schedule 1, Figure 2, labelled as *Crushing plant and* Schedule 1, Figure 6 showing the main components location
	Premises stormwater management infrastructure (general)	(a) Stormwater management infrastructure to be installed to divert clean stormwater around construction and operational areas and to capture and retain potentially contaminated and contaminated stormwater. (b) Diversion channel to be sufficiently sized to allow for a 1 in 10-year ARI storm event.	Schedule 1, Figure 2
2.	Gold recovery circuit / chemical	(a) To consist of:	Schedule 1, Figure 2, labelled as *Plant*

Item	Infrastructure	Design and construction / installation requirements	Infrastructure location
	storage	i. Carbon in column trains, each comprising of 6 up flow carbon contactors ii. Vibrating screen iii. Stripped carbon hopper iv. Bunded storage tanks v. Stripped carbon vessels (b) To be constructed on a compacted hard stand within mining tenement M31/486 (c) Facility to be bunded and to have at least sufficient capacity to contain the volume of the largest vessel failure	*Laydown* and Schedule 1, Figure 6
3.	Pipeline transporting mine water from Open Pit 1 and Open Pit 2 to the PLS and ILS ponds. Pipelines transporting process water to / from the heap leach facility, the PLS, ILS ponds and gold recovery circuit.	(a) All pipelines required to meet the following standards: i. AS/NZS 2033:3008: Installation of polyethylene pipe systems ii. AS/NZS 4129:2008: Fittings for polyethylene (PE) pipes for pressure applications iii. AS/NZS 4130:2009 Polyethylene (PE) pipes for pressure applications; and iv. AS/NZS 4131:2010: Polyethylene (PE) compounds for pressure pipes and fittings (b) All pipelines to be: i. Equipped with telemetry systems and pressure sensors to allow the detection of leaks and failures; and/or ii. Equipped with automatic cut-outs to overcome a pipe failure; and iii. Installed with secondary containment (v-drains and scour pits) sufficient to contain spill for a period equal to the time between routine inspections.	Schedule 1, Figure 6 and Schedule 1, Figure 7. Open Pit 1 and 2 labelled as *PP Pit 1* and *PP Pit 2*

3. The works approval holder must design, construct, and install groundwater monitoring bores in accordance with the requirements specified in Table 3.

Table 3: Infrastructure requirements – groundwater monitoring bores

Infrastructure	Design, construction, and installation requirements	Monitoring bore location(s)	Timeframe
Groundwater monitoring bores: GBH-01, GBH-02, GBH-03, GBH-04	<u>Bore design and construction:</u> Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores*. Bore screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, bores must be nested, and the perched features individually screened.	As depicted in Schedule 1, Figure 3.	Must be constructed, developed (purged), and determined to be operational prior to the commencement of time limited operations of condition 10
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring bore*s. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. 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 *ASTM D5092/D5092M-16*. 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		

Infrastructure	Design, construction, and installation requirements	Monitoring bore location(s)	Timeframe
	and their respective identification numbers.		

Note 1: refer to Section 8.2 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on bore screen depth and length.

4. The works approval holder must take all practicable measures to prevent stormwater runoff from becoming contaminated by the construction activities undertaken at the premises.

Compliance reporting

5. The works approval holder must within 30 calendar days of the Critical Containment Infrastructure identified by condition 1 being constructed:

(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

6. The Critical Containment Infrastructure Report required by condition 5 must include as a minimum the following:

(a) certification by a suitably qualified civil or geotechnical engineer that each item of critical containment infrastructure or component thereof, as specified in condition 1, has been built and installed in accordance with the requirements specified in condition 1;

(a) 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;

(b) photographic evidence of the installation of the infrastructure;

(c) a signature by a person authorised to represent the works approval holder with the printed name and the position of that person

7. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 2 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 2; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

8. The Environmental Compliance Report required by condition 7 must include as a minimum the following:

(a) certification by a suitably qualified engineer that the items of infrastructure or component(s) thereof, as specified in condition 2, have been constructed in accordance with the relevant requirements specified in condition 2;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 2; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

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

Time limited operations phase

Commencement and duration

10. The works approval holder may only commence time limited operations for an item of critical containment infrastructure identified in condition 1:

(a) where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 5 meets the requirements of that condition; or

(b) where at least 45 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 5 has been submitted to the CEO.

11. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 2 where the Environmental Compliance Report as required by condition 7 has been submitted by the works approval holder for that item of infrastructure.

12. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 1 and 2:

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 10 or 11 for that item of infrastructure; or

(b) until such time as a licence 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 12 (a).

Time limited operations requirements

13. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 1 and Table 2, 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	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Heap Leach facility	(a) 1.5 mm double sided HDPE liner to be maintained throughout the heap leaching pad and associated infrastructure (b) Ore irrigation to be undertaken through drippers (c) Solution to be irrigated at a rate of approximately 10 L / m^2 / hour (d) Ore stacking to occur in two distinct lifts each with a nominal height of approximately 8 m	Schedule 1, Figure 2, 3, 4, 5 and 6

Item	Site infrastructure and equipment	Operational requirement	Infrastructure location
		(e) First lift to comprise of stacked ore in 5 discrete cells and second lift of stacked ore in one cell (f) Watercart to be used to minimise dust emissions during the stacking of ore	
2.	PLS pond	(a) Minimum freeboard of at least 0.3 m to be maintained (b) To contain mine water from the dewatering of Open Pit 1 and Open Pit 2 and the solution from the process circuit	Schedule 1, Figure 2, 3, 4, 5 and 6
3.	ILS pond	(a) Minimum freeboard of at least 0.3 m to be maintained (b) To contain mine water from the dewatering of the Open Pit 1 and Open Pit 2, the solution from the process circuit and any overflow from the PLS pond	Schedule 1, Figure 2, 3, 4, 5 and 6
4.	SW pond	(a) Minimum freeboard of at least 0.3 m to be maintained (b) To contain runoff from the heap leach pad and any incidental overflow from the ILS pond	Schedule 1, Figure 2, 3, 4, 5 and 6
5.	Crushing and screening and agglomeration plant	(a) All installed mist sprays to be maintained and operated during crushing and screening activities to minimise dust emissions (b) Dedicated water cart to be used to minimise dust emissions during operations (c) All stormwater management infrastructure to be maintained and to divert clean stormwater around operational areas (c) Potentially contaminated or contaminated stormwater to be captured and directed to the SW pond	Schedule 1, Figure 2, labelled as C*rushing plant (plant site)*
6.	Pipelines	(a) Mine water from Open Pit 1 and Open Pit 2 to be pumped to the PLS and ILS pond and dust suppression tanks. (b) Mine water for dust suppression purposes to be stored in bunded tanks (c) Dust suppression to only be undertaken within the processing area and on access roads (d) Volume of mine water from Open Pit 1 and Open Pit 2 to be used in dust suppression to be recorded	Schedule 1, Figure 6 and Schedule 1, Figure 7. Open Pit 1 and 2 labelled as *PP Pit 1* and *PP Pit 2.*

14. During time limited operations the works approval holder must:

(a) Undertake inspections as detailed in Table 5

(b) Where an inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequence as soon as practicable; and

(c) Maintain a record of the inspections undertaken.

Table 5: Infrastructure and equipment inspection program

Infrastructure and equipment	Type of inspection	Frequency of inspection
Crushing, screening and agglomeration plant	Visual to confirm that no excessive dust generation is occurring and that dust suppression sprays are operating effectively	Daily
Mine water pipelines	Visual to confirm integrity and secondary containment capacity	
Heap leach pad and associated infrastructure	Visual to confirm: (a) integrity of liner (b) ongoing solution volume within sumps to determine whether any leaks are occurring (c) any evidence of wildlife visitation	
Process ponds (PLS, ILS and SW)	Visual to confirm: (a) integrity of the liner (b) that the required freeboard capacity is available (c) any evidence of wildlife visitation	

15. Dust suppression activities using excess water from dewatering of Open Pit 1 and Open pit 2 must be conducted in a manner that minimises spray drift onto native vegetation.

Monitoring during time limited operations

16. The works approval holder must conduct groundwater monitoring program in accordance with the requirements specified in Table 6 and record the results of all monitoring activities conducted under that program.

17. The works approval holder must adhere to the field quality assurance and quality control procedures specified in Schedule 4 for the monitoring required by condition 19.

18. All sample analysis must be undertaken by laboratories with current NATA accreditation for the relevant parameters, unless otherwise specified in Table 6.

19. The licence holder must monitor groundwater for concentrations of the identified parameter(s) in accordance with Table 6.

Table 6: Ambient groundwater monitoring requirements

Monitoring bore location	Parameter	Unit	Frequency	Method
GBH-01, GBH-02, GBH-03, GBH-04	Standing water level[1]	m(AHD) and m(BGL)	Each monthly period	Spot sample, in accordance with AS/NZS 5667.11.
	pH[1]	pH units		
	Total Dissolved Solids[1]	mg /L		
	Electrical conductivity[1]	µS / cm	Quarterly	
	Aluminium	mg/L		
	Ammonium			
	Antimony			
	Arsenic			
	Barium			
	Beryllium			
	Bicarbonate			
	Boron			
	Cadmium			
	Calcium			
	Chloride			
	Chromium			
	Cobalt			
	Copper			
	Hydroxide			
	Iron			
	Lead			
	Magnesium			
	Manganese			
	Mercury			
	Molybdenum			
	Nickel			
	Nitrate			
	Potassium			
	Reactive Phosphorus			
	Selenium			
	Sodium			
	Strontium			
	Sulphate			
	Tin			

Monitoring bore location	Parameter	Unit	Frequency	Method
	Total Cyanide			
	Total Kjeldahl Nitrogen			
	Total Nitrogen			
	Total Phosphorus			
	Uranium			
	Vanadium			
	Zinc			

Note 1: In-field non-NATA accredited analysis permitted.

Compliance reporting

20. The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.

21. The works approval holder must ensure the report required by condition 20 includes the following:

(a) a summary of the time limited operations, including timeframes and amount of ore processed;

(b) a summary of groundwater monitoring results obtained during time limited operations under condition 19;

(c) a summary of the environmental performance of all infrastructure as constructed or installed; and

(d) where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures the works approval holder is intending to take to meet them, and what timeframes will be required to implement those measures.

Records and reporting (general)

22. 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.

23. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) any maintenance of infrastructure that is performed in the course of complying with 13;

(b) monitoring programmes undertaken in accordance with condition 19; and

(c) complaints received under condition 22.

24. The books specified under condition 23 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
Assessment of Site Contamination NEPM	means the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended from time to time.
AS1726	means the Australian Standard AS1762 *Geotechnical site investigations*, as amended from time to time.
AS/NZS 5667.11	means the Australian Standard *AS/NZS 5667.11 (R2016) Water quality – sampling – guidance on sampling groundwater*, as amended from time to time.
ASTM D5092/D5092M-16	means the ASTM international standard for *Standard practice for design and installation of groundwater monitoring bore*s (Designation: ASTM D5092/D5092M-16)*, as amended from time to time.
AS 2033	means the Australian Standard AS 2033 *Installation of polyethylene pipe systems,* as amended from time to time.
AS/NZS 4129	means the Australian and New Zealand Standard AS/NZS 4129:2008: Fittings for *Polyethylene (PE) pipes for pressure applications,* as amended from time to time.
AS/NZS 4130	means the Australian and New Zealand Standard AS/NZS 4130: *Polyethylene (PE) pipes for pressure applications,* as amended from time to time.
AS/NZS 4131	means the Australian and New Zealand Standard AS/NZS 4131:2010 *Polyethylene (PE) compounds for pressure pipes and fittings,* as amended from time to time.
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 *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
critical containment infrastructure	means the items of infrastructure listed in condition 3.

Term	Definition
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 *Public Sector Management Act 1994* 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.
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	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
HDPE	means high-density polyethylene.
m (AHD)	means metres using the Australian Height Datum as a benchmark.
m (bgl)	means metres below ground level.
monthly period	means a one-month period commencing from day 2 of a month until day 1of the immediately following month.
NAF	means non-acid forming in the context of acid mine drainage generation
NATA	means the National Association of Testing Authorities.
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.
six monthly period	means a six-month period commencing from 2 of January until 1 of the June and from the 2 of June until 1 January of the following year.
time limited operations	means the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
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

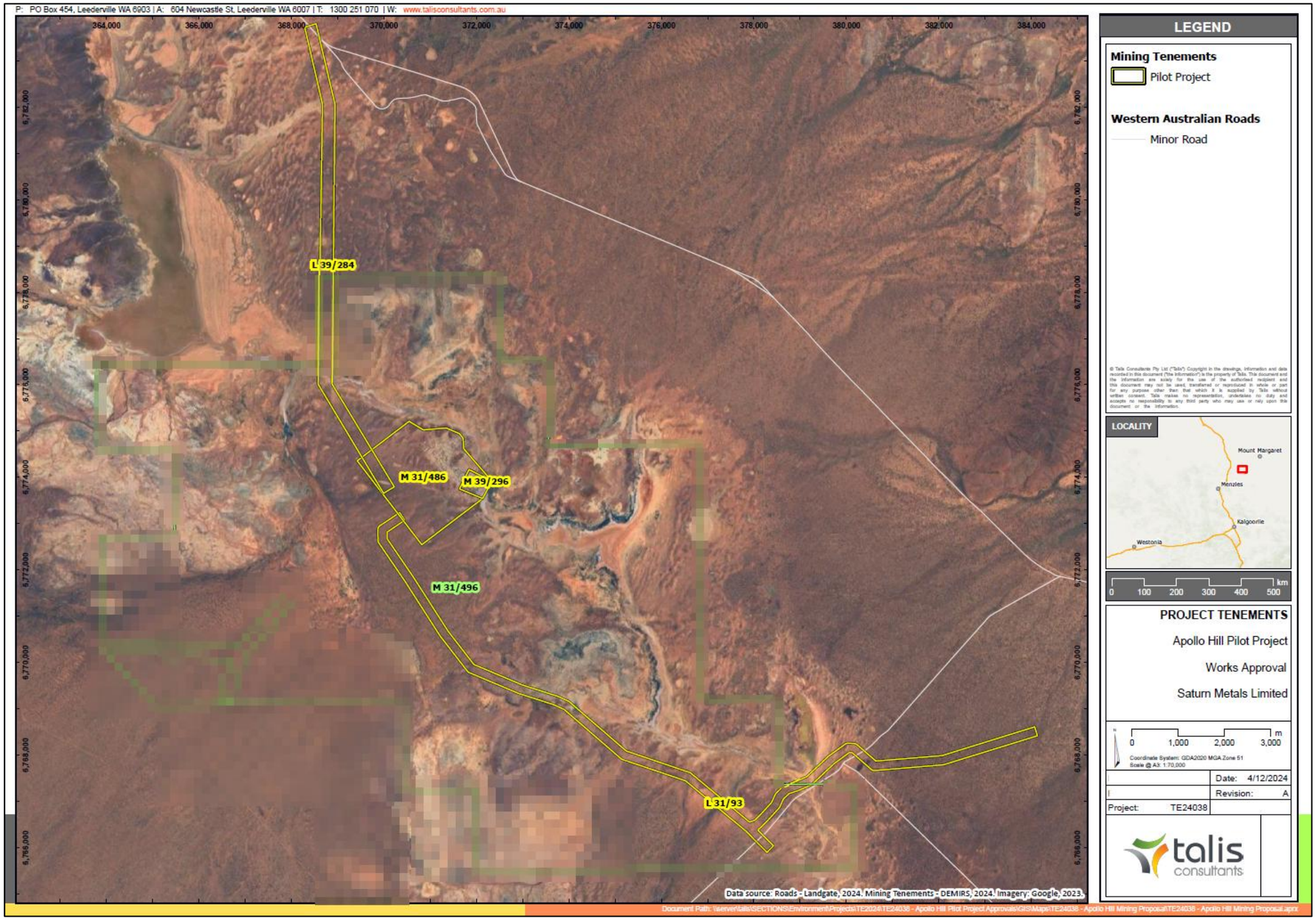


Figure 1: Prescribed premises boundary

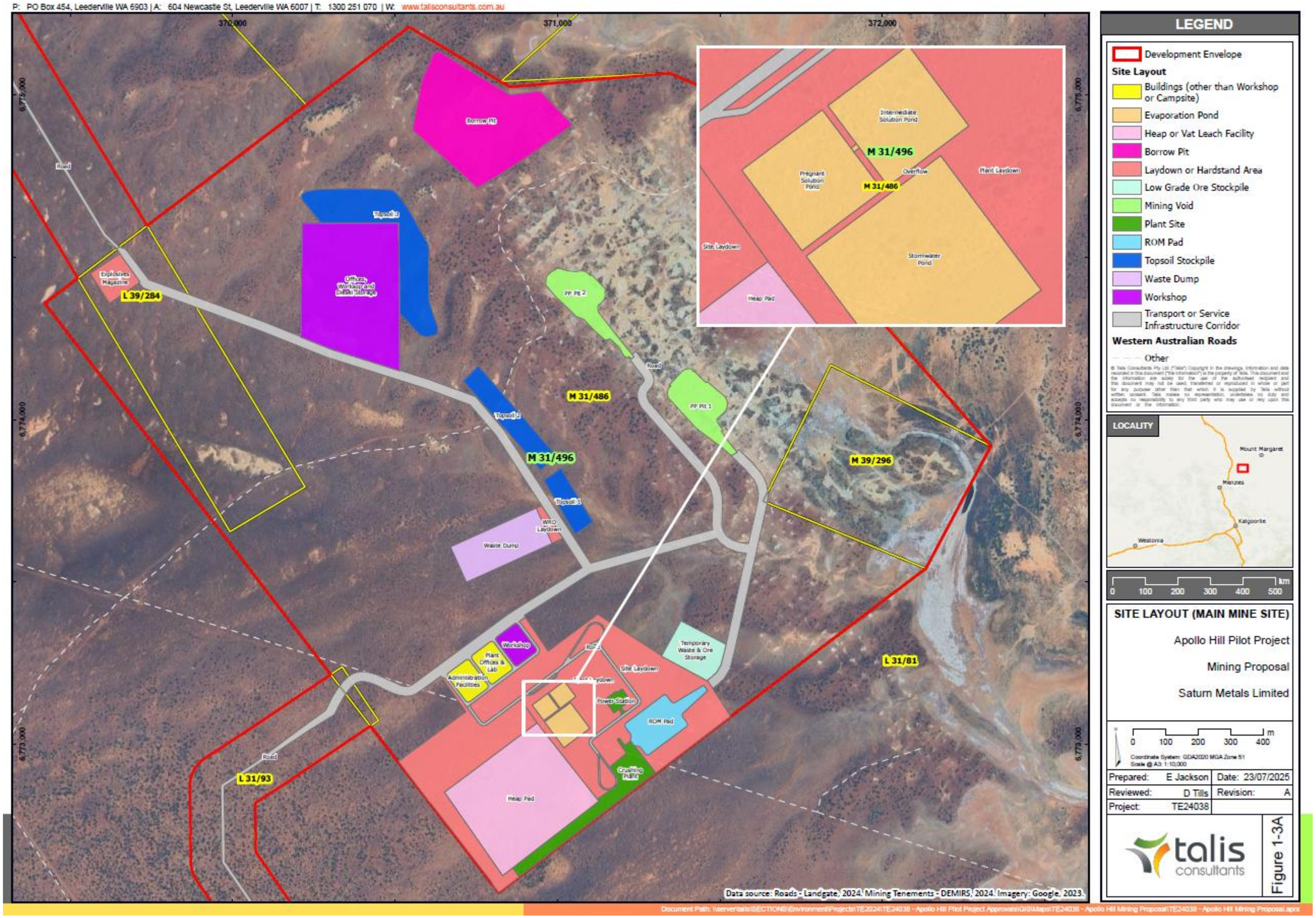


Figure 2: Infrastructure layout at the premises

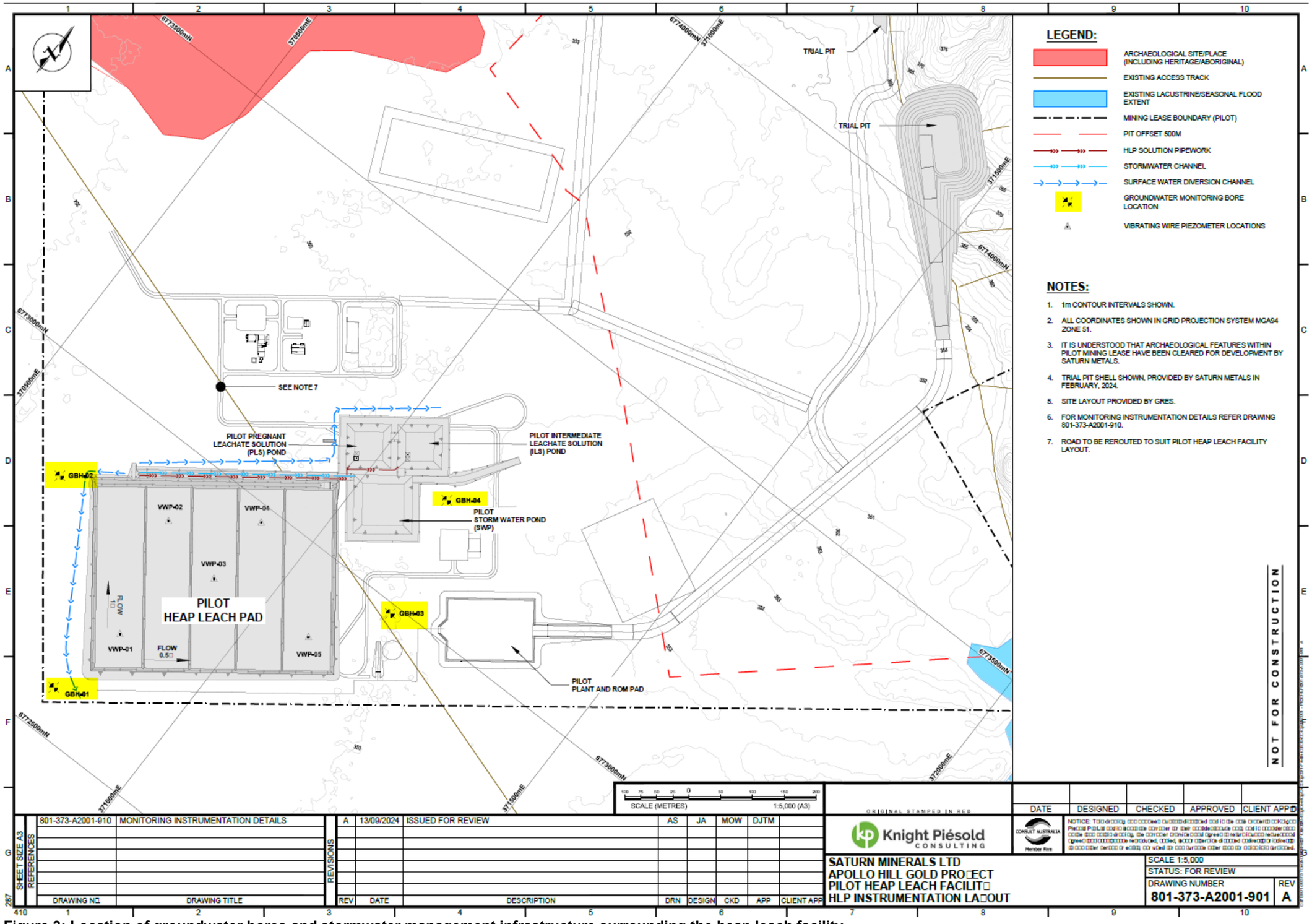


Figure 3: Location of groundwater bores and stormwater management infrastructure surrounding the heap leach facility

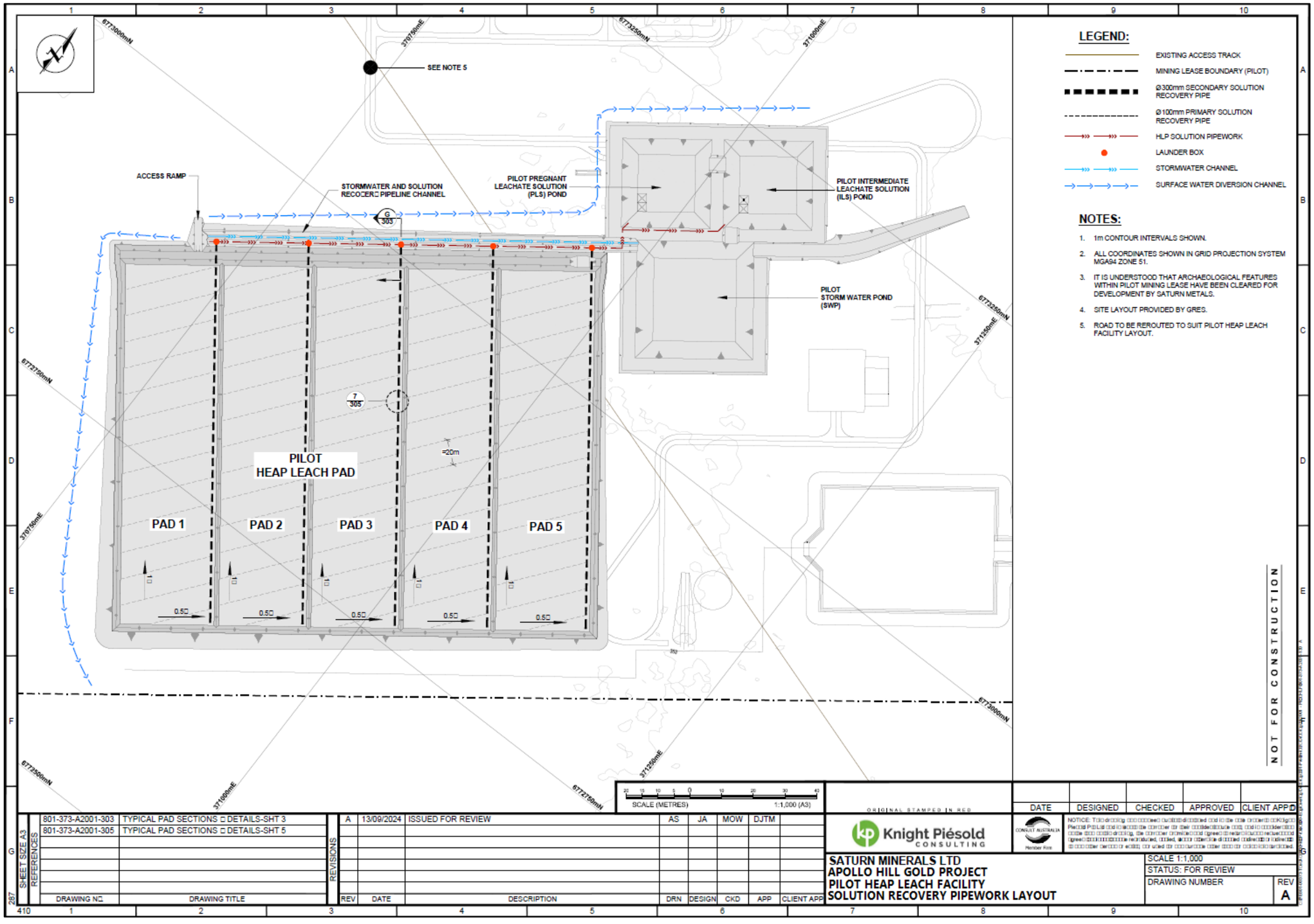


Figure 4: Heap leaching pad pipelines layout

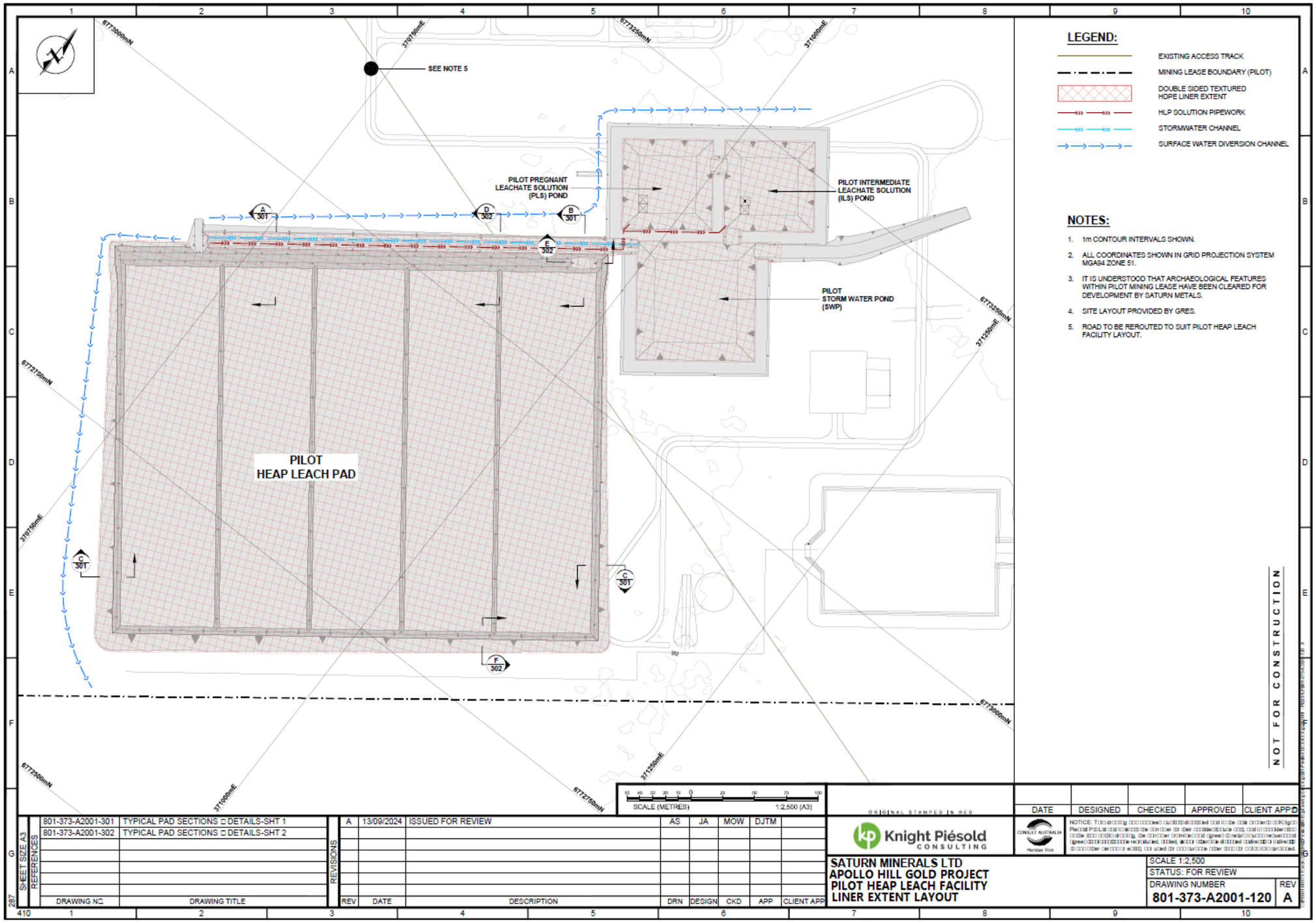


Figure 5: Extent of double-sided texture HDPE liner within the heap leaching facility

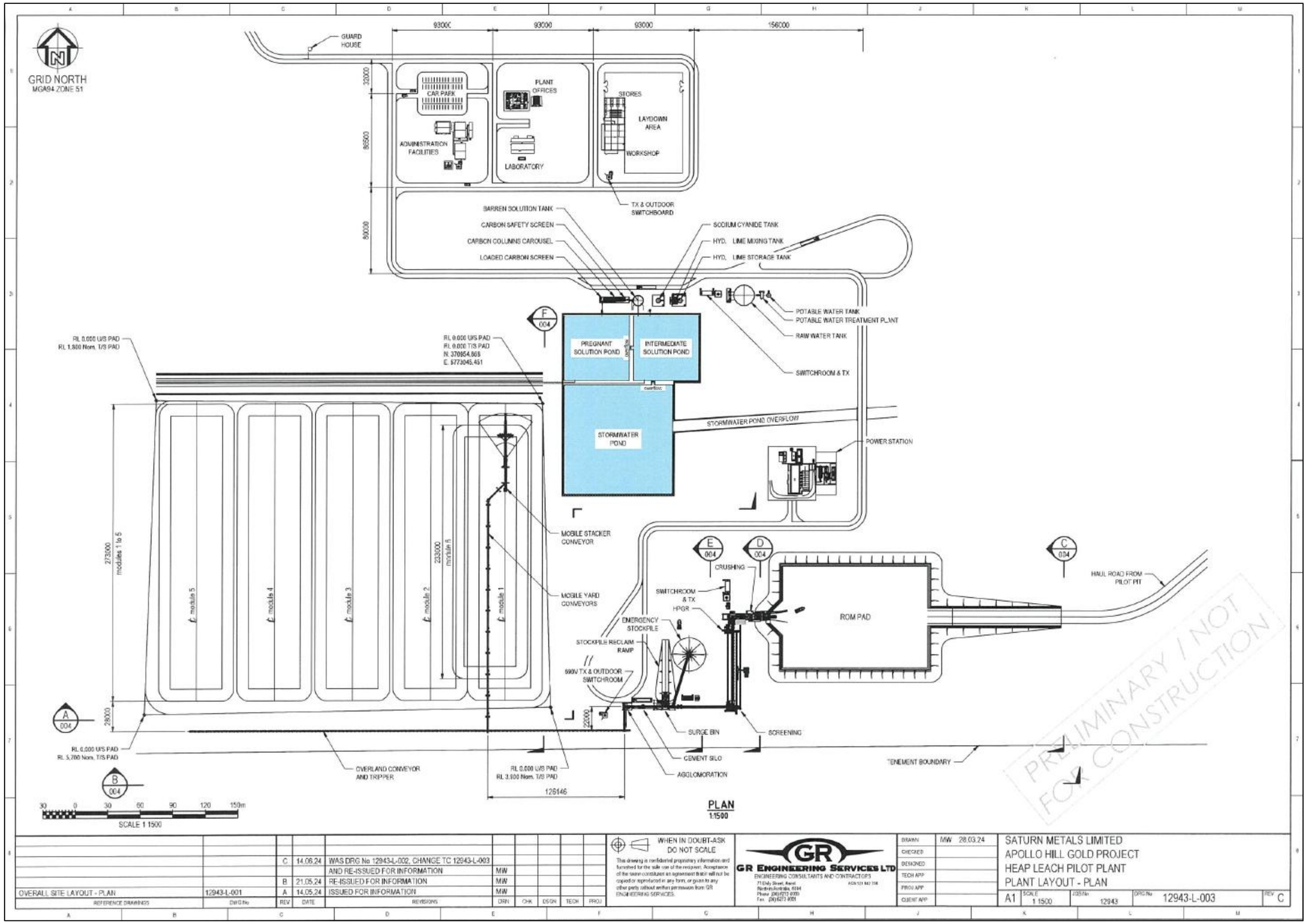


Figure 6: Detailed layout of the main operational area

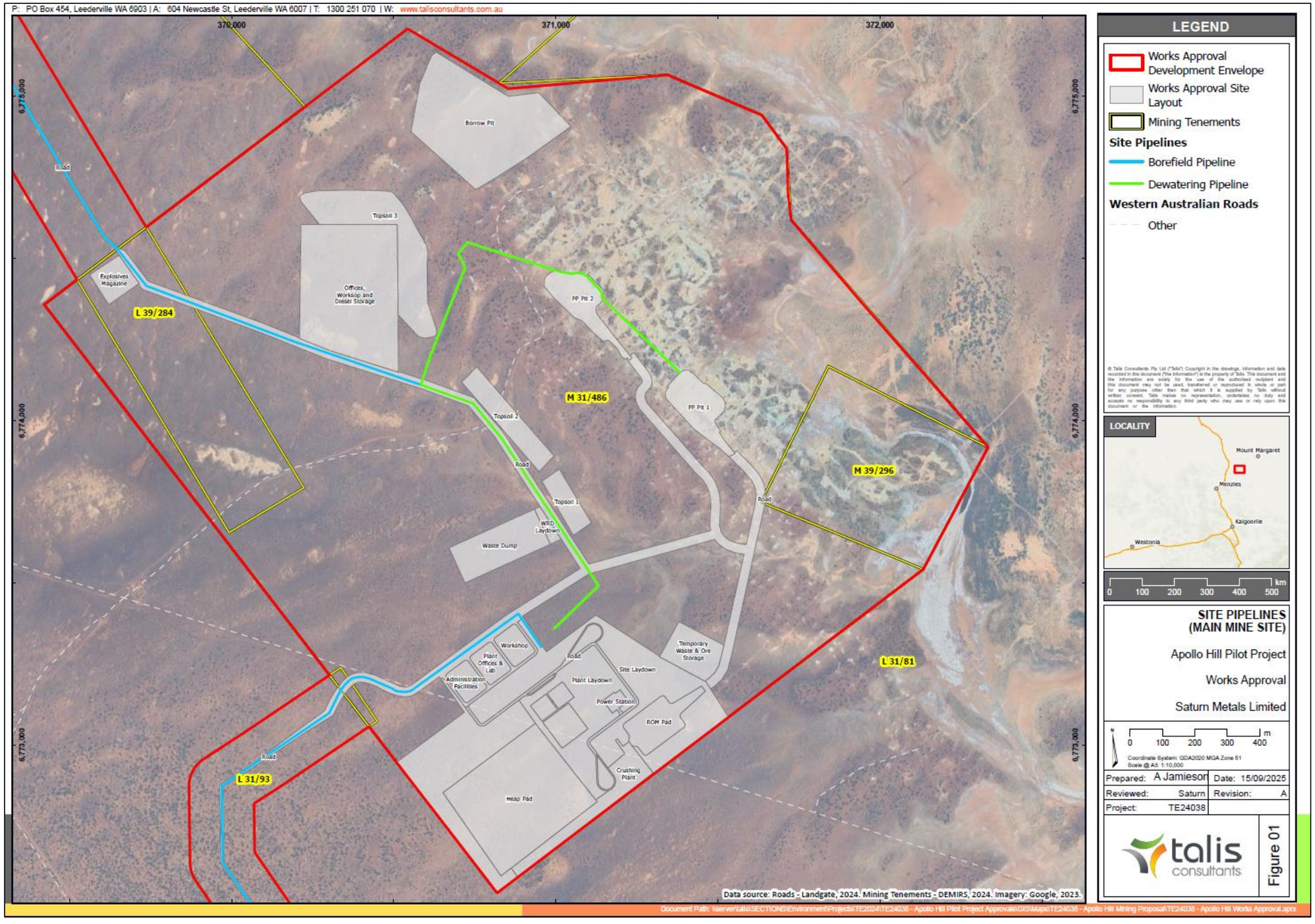
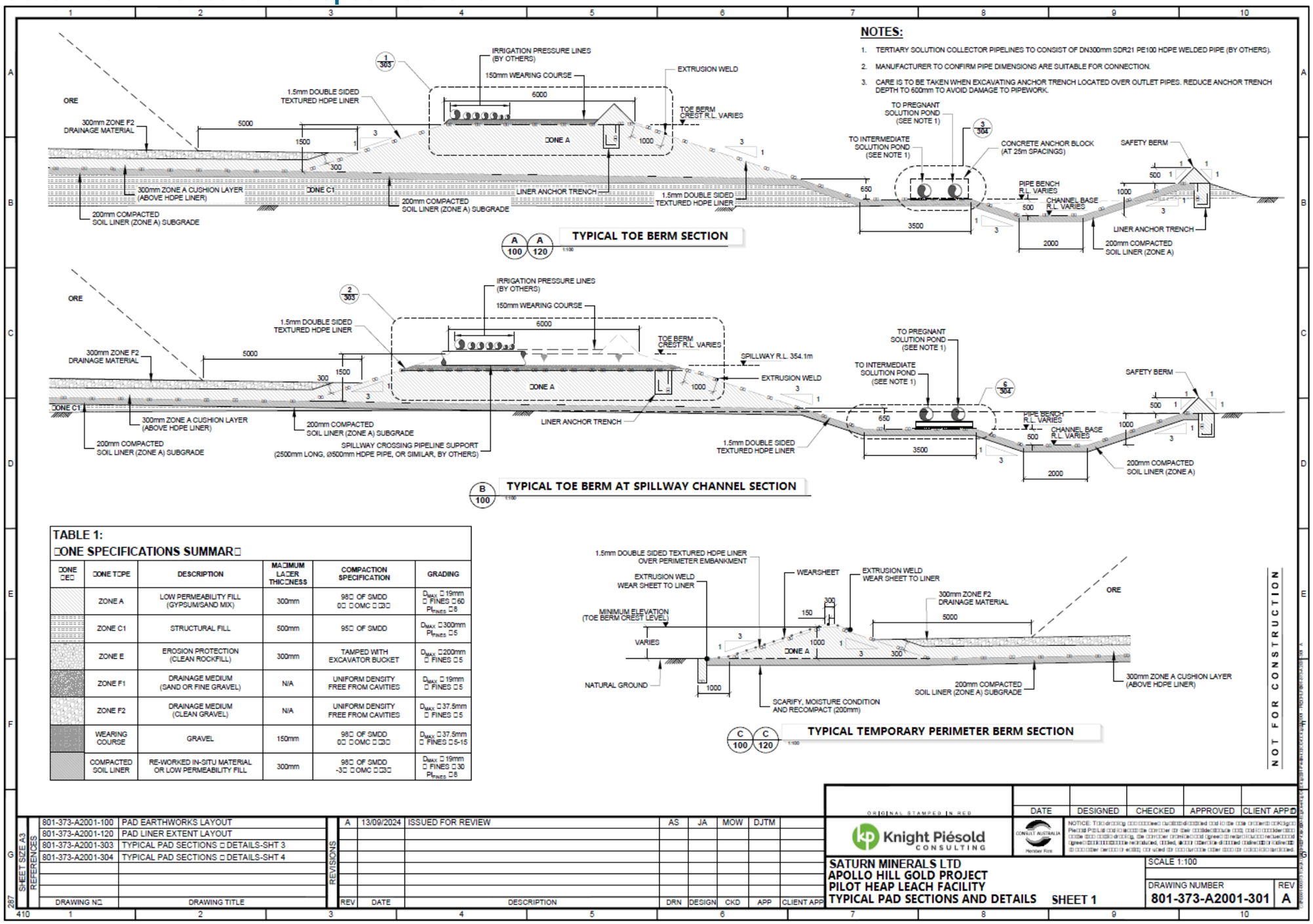


Figure 7: Dewater pipeline route from open pit 1 and pit 2 (PP Pit 1 and 2)

Schedule 2: Construction specifications



ZONE	ZONE TYPE	DESCRIPTION	MAXIMUM LAYER THICKNESS	COMPACTION SPECIFICATION	GRADING
	ZONE A	LOW PERMEABILITY FILL (GYPSUM/SAND MIX)	300mm	98% OF SMDD 0% OMC	D_{MAX} 19mm % FINES 60 PI_{FINES} 8
	ZONE C1	STRUCTURAL FILL	500mm	95% OF SMDD	D_{MAX} 300mm PI_{FINES} 5
	ZONE E	EROSION PROTECTION (CLEAN ROCKFILL)	300mm	TAMPED WITH EXCAVATOR BUCKET	D_{MAX} 200mm % FINES 5
	ZONE F1	DRAINAGE MEDIUM (SAND OR FINE GRAVEL)	N/A	UNIFORM DENSITY FREE FROM CAVITIES	D_{MAX} 19mm % FINES 5
	ZONE F2	DRAINAGE MEDIUM (CLEAN GRAVEL)	N/A	UNIFORM DENSITY FREE FROM CAVITIES	D_{MAX} 37.5mm % FINES 5
	WEARING COURSE	GRAVEL	150mm	98% OF SMDD 0% OMC	D_{MAX} 37.5mm % FINES 5-15
	COMPACTED SOIL LINER	RE-WORKED IN-SITU MATERIAL OR LOW PERMEABILITY FILL	300mm	98% OF SMDD -3% OMC	D_{MAX} 19mm % FINES 30 PI_{FINES} 8

REFERENCES	DRAWING NO	DRAWING TITLE
	801-373-A2001-100	PAD EARTHWORKS LAYOUT
	801-373-A2001-120	PAD LINER EXTENT LAYOUT
	801-373-A2001-303	TYPICAL PAD SECTIONS % DETAILS-SHT 3
	801-373-A2001-304	TYPICAL PAD SECTIONS % DETAILS-SHT 4

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	13/09/2024	ISSUED FOR REVIEW	AS	JA	MOW	DJTM	

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP
ORIGINAL STAMPED IN RED					

Knight Piésold CONSULTING

Figure 8: Heap leach pad and toe berm construction specifications

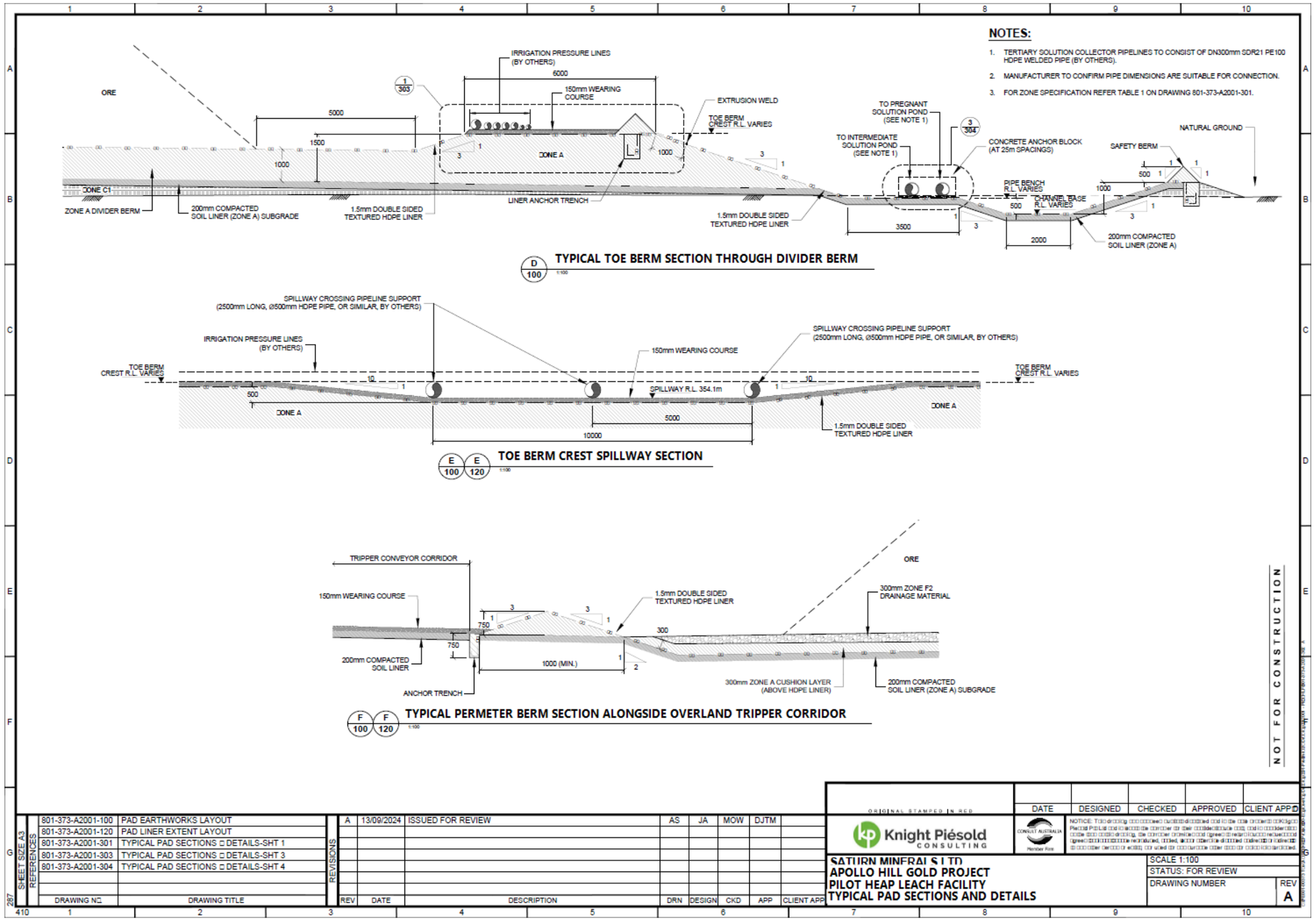


Figure 9: Toe berm construction specifications (2)

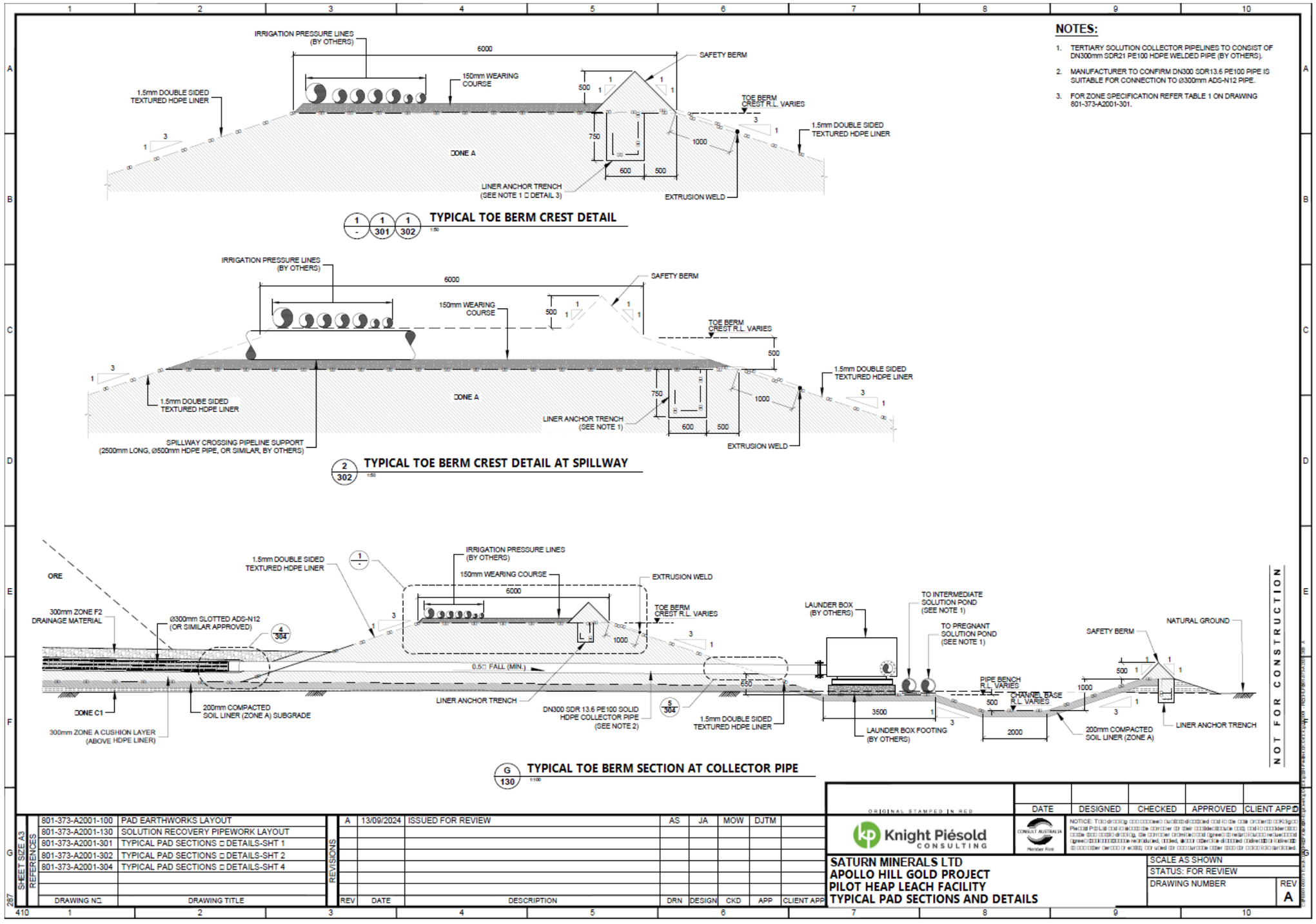


Figure 10: Toe berm, launder boxes, primary solution and collector pipes construction specifications

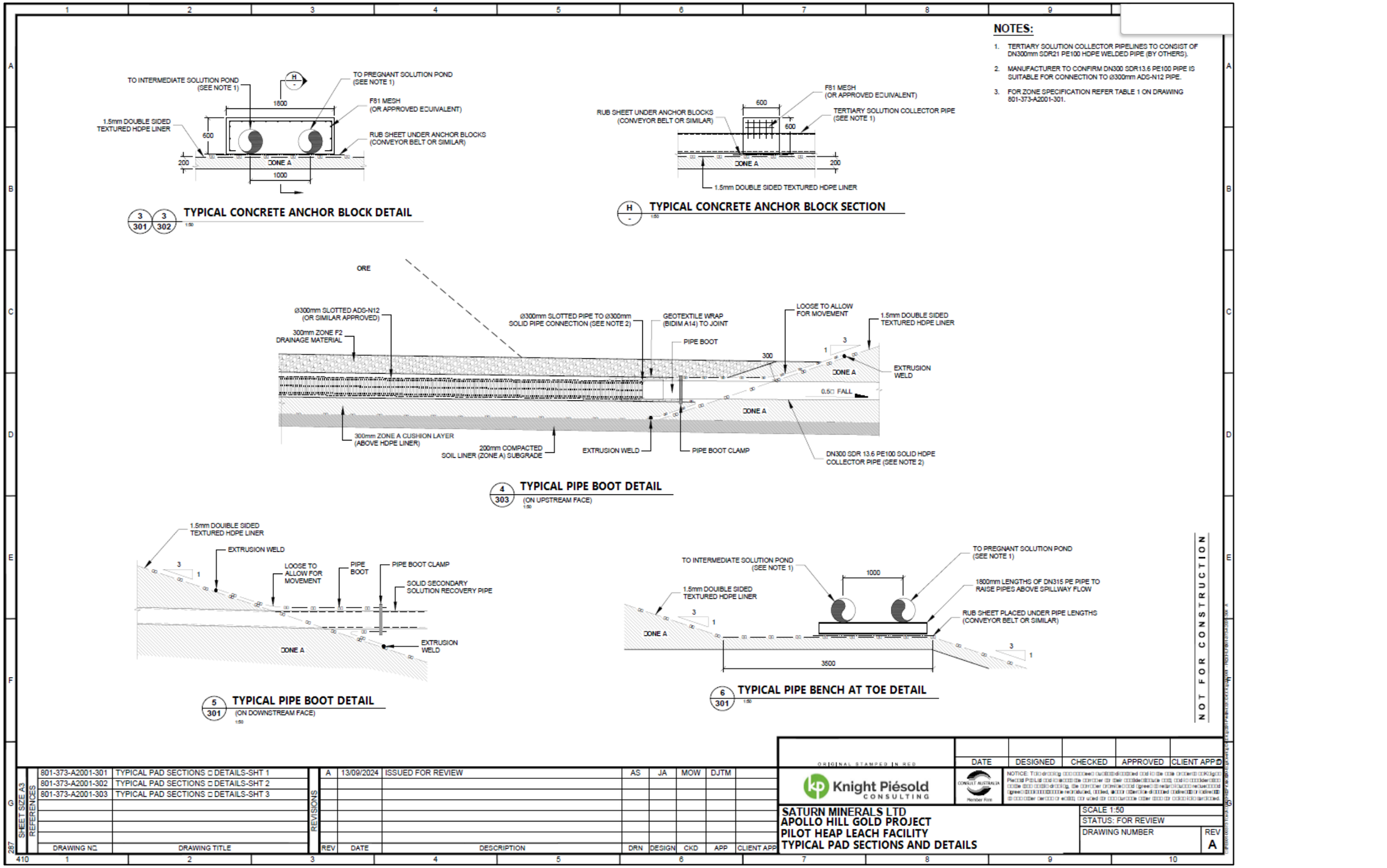


Figure 11: Drainage pipeline construction specification (heap leaching pad)

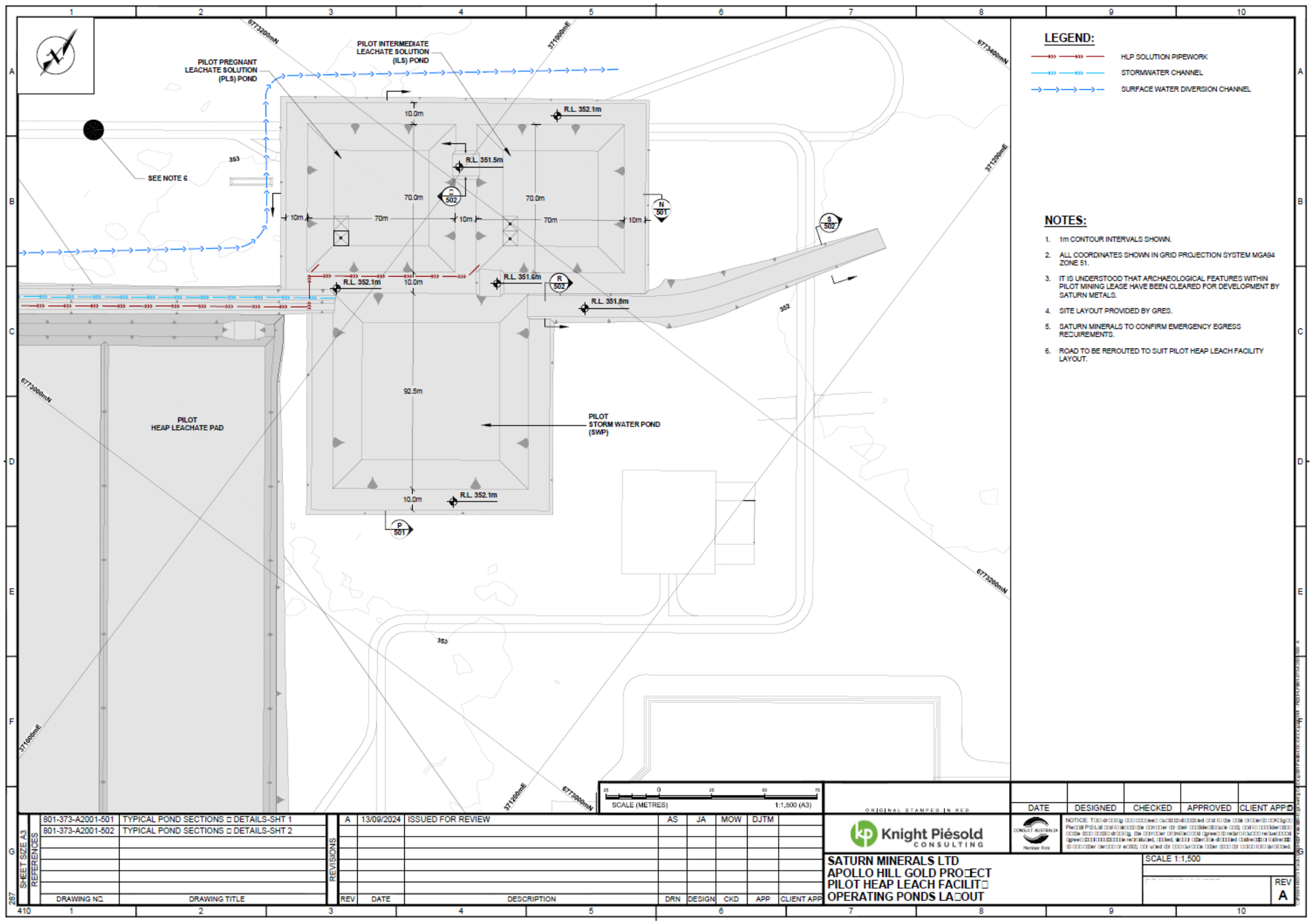


Figure 12: PLS, ILS and SW ponds specifications

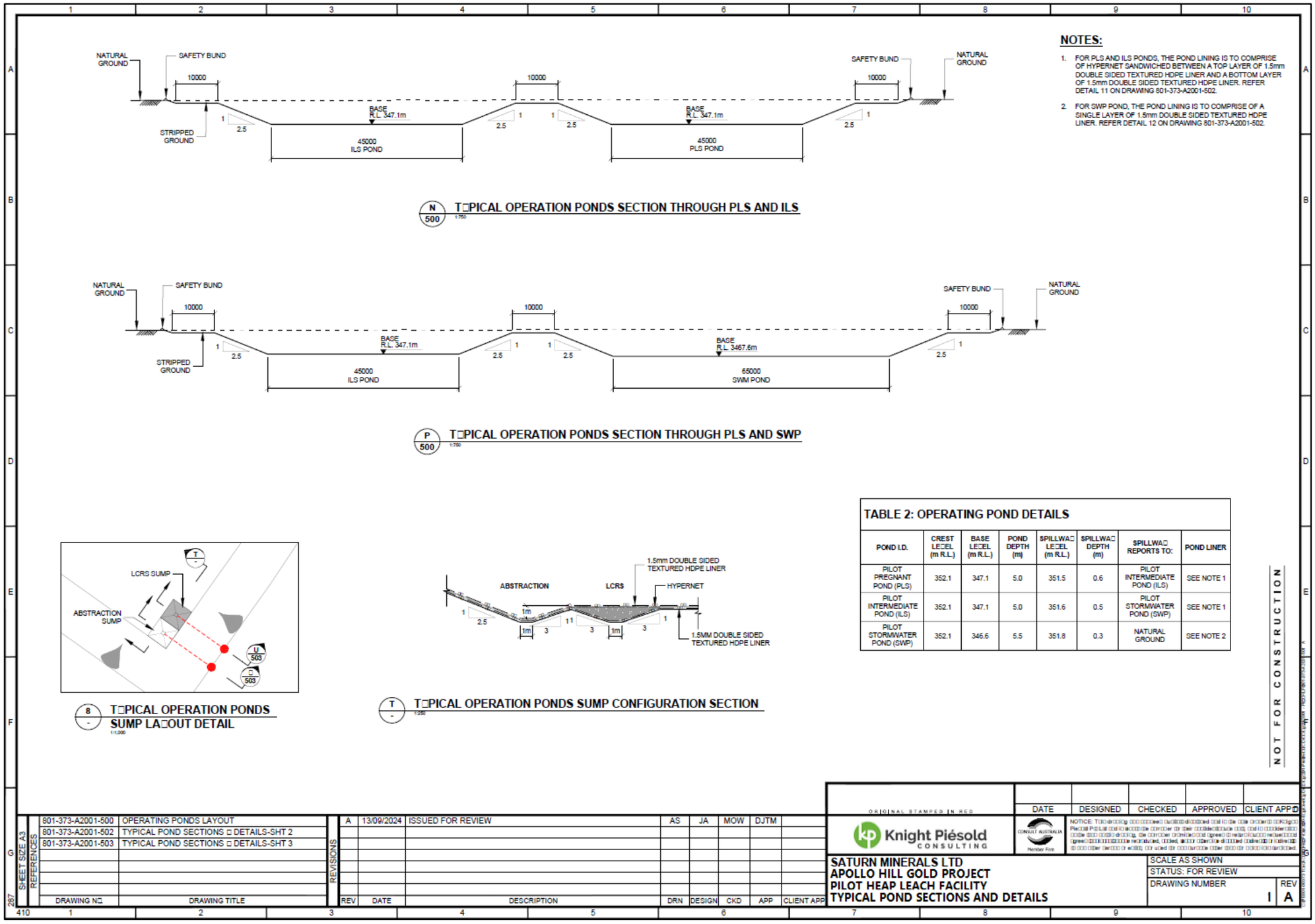


Figure 13: PLS, ILS and SW ponds design

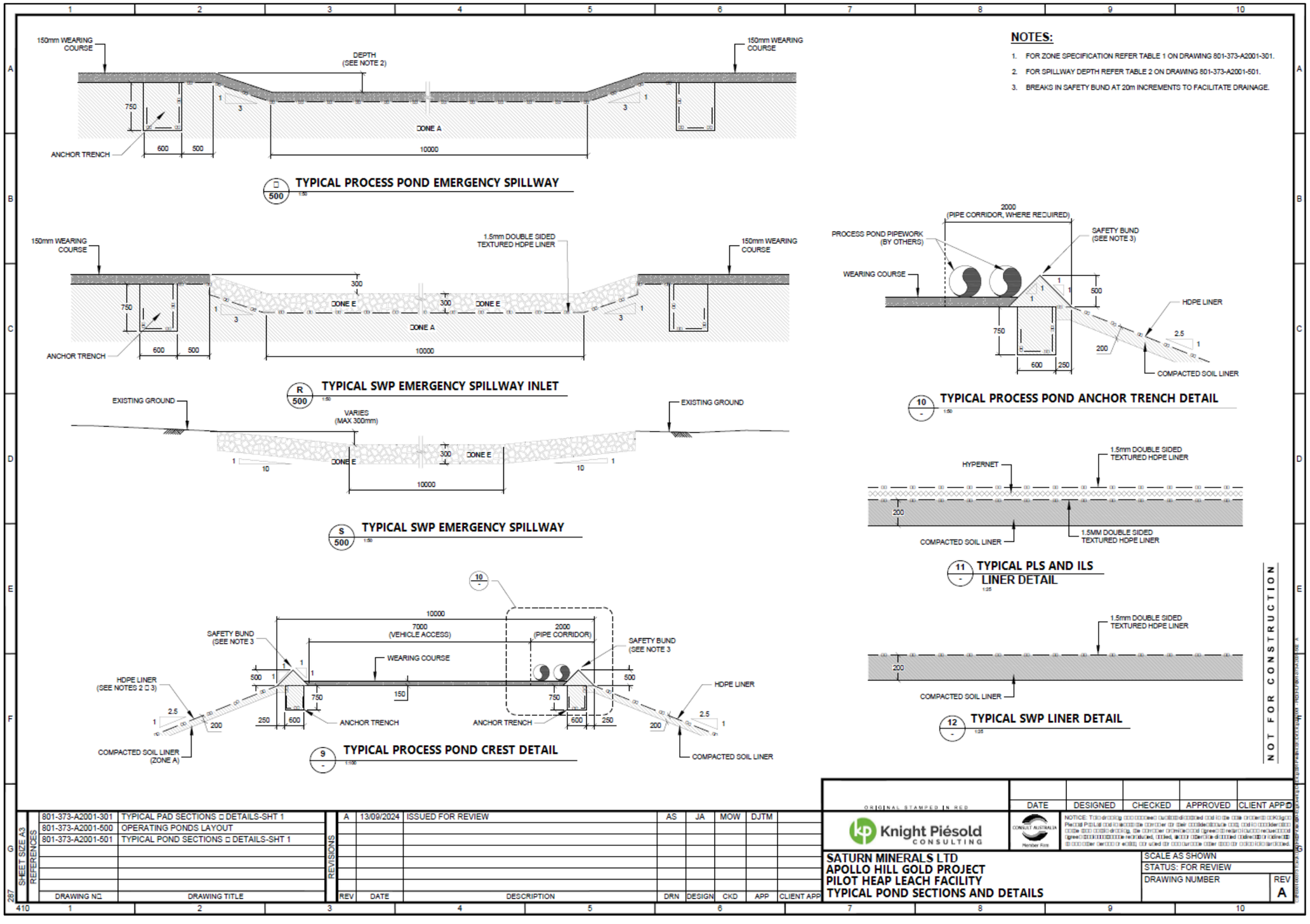


Figure 14: Emergency spillways, process pond anchor trench detail and pond liner details

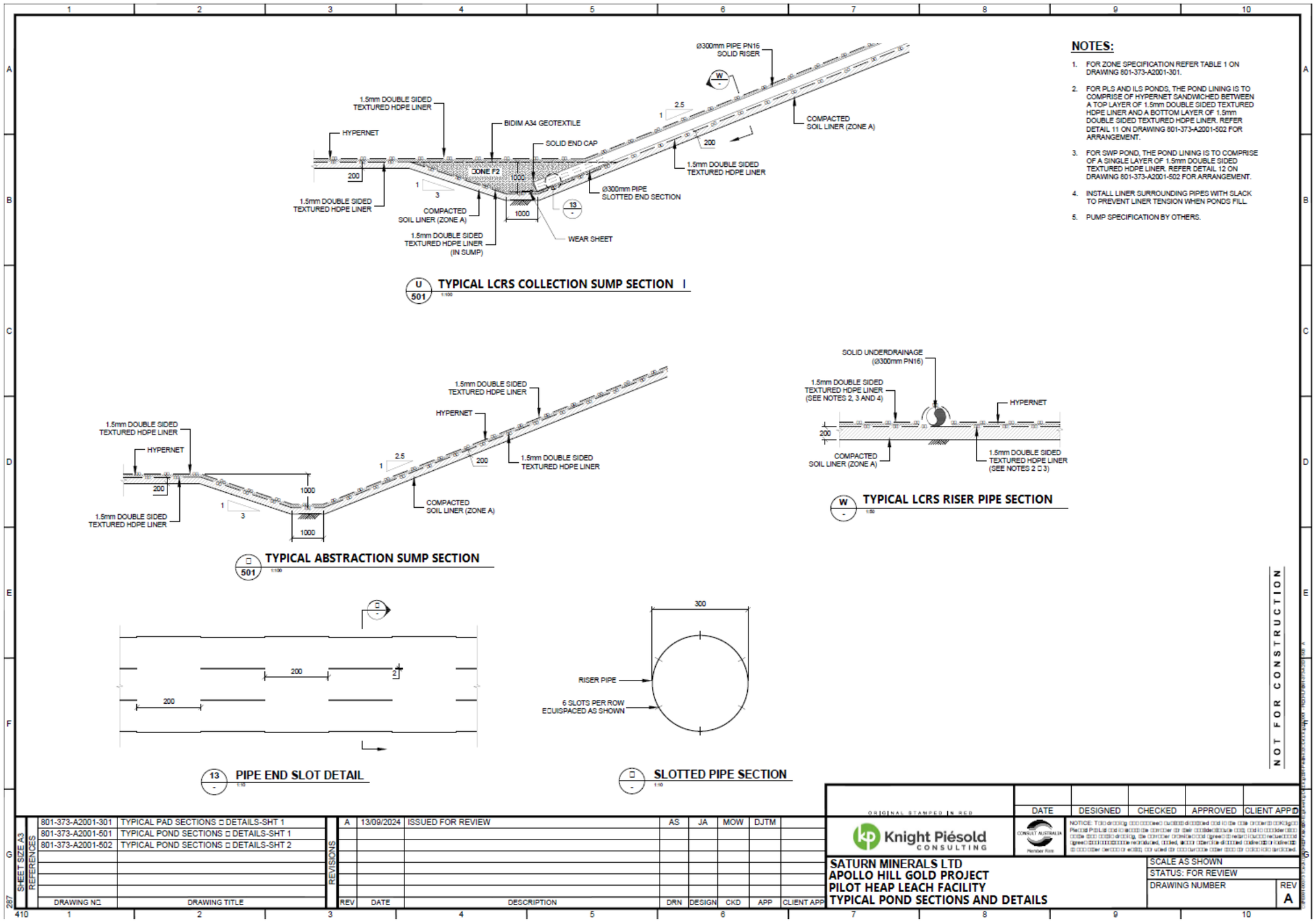


Figure 15: Underdrainage and LCR system

Schedule 3: Construction quality assurance testing

Table 8: HDPE liner quality assurance testing

Item	Property	Standards/methods	Frequency	Minimum value
Start-up test weld	Welding equipment	N/A	Start of works daily, whenever the welding equipment is shut-off for more than one hour, and after significant changes in weather conditions.	N/A
	Weld conditions		Test weld strips required whenever personnel or equipment are changed and/or wide temperature fluctuations are experienced. Minimum 1.5 m continuous seam.	
Destructive weld testing	On-site, hand tensiometer in peel and shear	ASTM D6392	Every 150 m (if fusion weld), Every 120 m (if extrusion weld)	Peel: 450 N/25mm Shear: 690 N/25mm
Non – destructive weld testing	Air pressure test	ASTM D5820	All seams over full length	Observed, validated and recorded by the consultant
	Vacuum box test	ASTM D5641		Presence / absence of bubbles

Schedule 4: Groundwater monitoring

Quality assurance and quality control requirements

The licence holder must adhere to the following field quality assurance and quality control procedures, as specified in Schedule B2 of the Assessment of Site Contamination NEPM, and must include as a minimum:

(a) decontamination procedures for the cleaning of tools and sampling equipment before sampling and between samples;

(b) field instrument calibration for instruments used on site;

(c) blind replicate samples and rinsate blanks must be collected in the field and sent to the primary laboratory to determine the precision of the field sampling and laboratory analytical program;

(d) completed field monitoring sheets / sampling logs for each sample collected, showing:

  (i) time of collection;

  (ii) location of collection;

  (iii) initials of sampler;

  (iv) sampling method;

  (v) field analysis results;

  (vi) duplicate type / location (if relevant); and

  (vii) site observations and weather conditions, and

(e) chain-of-custody documentation must be completed which details the following information:

  (i) site identification;

  (ii) the sampler;

  (iii) nature of the sample;

  (iv) collection time and date;

  (v) analyses to be performed;

  (vi) sample preservation method;

  (vii) departure time from site;

  (viii) dispatch courier(s); and

  (ix) arrival time at the laboratory.