Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L9373/2023/1
Licence holder	Coburn Resources Pty Ltd
ACN	165 036 537
Registered business address	Level 9, 216 St Georges Terrace PERTH WA 6000
DWER file number	DER2022/000583
Duration	28/04/2023 to 27/04/2043
Date of issue	28/04/2023
Date of amendment	19/11/2024
Premises details	Coburn Mineral Sands Project Coburn Road, MEADOW WA 6532 Legal description - Mining tenements M 09/103, M 09/104, M 09/105, M 09/106, M 09/111, M 09/112 and part of tenement M 09/102 As defined by the premises map in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed design capacity**
Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed	23.4 million tonnes per annual period
Category 52: Electric power generation: premises (other than premises within category 53 or an emergency or standby power generating plant) on which electrical power is generated using a fuel	20 MW
Category 85: Sewage facility	75 m^3 per day
Category 85B: Water desalination plant: premises at which salt is extracted from water if wastewater is discharged onto land or into waters (other than marine waters)	0.62 GL per annual period
Category 89: Putrescible landfill site	2,700 tonnes per annual period

This amended licence is granted to the licence holder, subject to the attached conditions, on 19 November 2024, by:

Christine Pustkuchen
Digitally signed by Christine Pustkuchen
Date: 2024.11.19 09:33:34 +08'00'

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

Licence history

Date	Reference number	Summary of changes
28/04/2023	L9373/2023/1	Licence granted.
21/05/2024	L9373/2023/1	Licence amended to include categories 8, 52 and 85B.
19/11/2024	L9373/2023/1	Licence amended to include West Pit Extended Integrated Waste Landform Containment Facility onto the licence

Interpretation

In this licence:

(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 licence:

(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 licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

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

Infrastructure and equipment

1. The licence holder must ensure that the infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirements set out in Table 1.

Table 1: Infrastructure and equipment requirements

	Infrastructure and equipment	Operational requirements	Infrastructure location
Wastewater Treatment Plant			
1.	Aluminium sulphate tank and dosing system	(a) Sufficient volume of aluminium sulphate solution must be maintained to achieve an average influent dosage rate of 10 L/d; and (b) Aluminium sulphate must be stored in a manner that prevents chemical degradation prior to use.	WWTP as shown in Schedule 1, Figure 1
2.	Primary treatment tanks: – Anaerobic Tank 1; – Anaerobic Tank 2; and – Anaerobic Tank 3.	(a) Sludge level and volume within each tank must be determined at least bi-monthly; and (b) Zabel filters within Anaerobic Tank 3 must be inspected and cleaned at least bi-monthly to ensure that: (i) excess sludge build up does not occur around the filters; and (ii) sludge is prevented from bypassing the filters and entering downstream system components.	WWTP as shown in Schedule 1, Figure 1
3.	Flow balance tanks: – Emergency Storage Tank 1; and – Emergency Storage Tank 2.	(a) Level sensors and pumps must be maintained within Emergency Storage Tank 2.	WWTP as shown in Schedule 1, Figure 1
4.	Secondary treatment tanks: – Aerobic Tank 1; – Aerobic Tank 2; – Aerobic Tank 3; – Aerobic Tank 4; and – Aerobic Tank 5.	(a) Spray nozzles must be inspected for blockages at least bi-monthly and cleaned where required.	WWTP as shown in Schedule 1, Figure 1

	Infrastructure and equipment	Operational requirements	Infrastructure location
5.	Splitter pump station	(a) Level sensors, pumps and associated telemetry systems must be maintained so that: (i) 80% of effluent flows are recirculated to Anaerobic Tank 1; and (ii) high level alarms and pump systems are activated to prevent containment loss.	WWTP as shown in Schedule 1, Figure 1
6.	Irrigation storage tanks: – Irrigation Tank 1; and – Irrigation Tank 2.	(a) Level sensors and associated telemetry systems must be maintained within Irrigation Tank 2 to ensure that: (i) treated wastewater is continually output to the chlorine disinfection system if levels within the tank are above 10%; and (ii) high level alarms and connecting pump systems are activated to prevent containment loss.	WWTP as shown in Schedule 1, Figure 1
7.	Chlorine disinfection system	(a) Sufficient volume of sodium hypochlorite must be maintained to ensure continual chlorine dosing occurs during operation; and (b) Sodium hypochlorite must be stored in a manner that prevents chemical degradation prior to use.	WWTP as shown in Schedule 1, Figure 1
8.	Final discharge pump	(a) Pump activation levels must be set to achieve a chlorine contact time of at least 30 minutes within Irrigation Tank 2.	WWTP as shown in Schedule 1, Figure 1
9.	Spray field	(a) Must be fenced to exclude stock and public access to the irrigation area; (b) Livestock must not be permitted to graze the irrigation area; (c) Vegetative cover must be maintained over the irrigation area; (d) Sprinklers must be maintained to ensure no blockages and allow even and effective spray production; (e) Sprinklers must have a minimum spray radius of 15 metres; and (f) Fencing, pipelines and sprinklers must be inspected for blockages, leaks or maintenance requirements at least fortnightly.	Spray field as shown in Schedule 1, Figure 1

	Infrastructure and equipment	Operational requirements	Infrastructure location
10.	Filter clean-down station	(a) A high-pressure hose that provides sufficient water pressure to rinse and clean the zabel filters must be provided; and (b) Hardstand, bunding and drainage to containment must be maintained to prevent the release of washwater and solids to the environment.	WWTP as shown in Schedule 1, Figure 1
Putrescible Landfill Site			
11.	Landfill cell	(a) The size of the uncovered dumping area within the cell or tipping area must be kept to a minimum and no greater than 30 m in length and 2 m in height above ground level.	Landfill Facility as shown in Schedule 1, Figure 1
12.	Fencing, site security and firebreaks	(a) 1.8 m high chain linked fencing must be erected and maintained to: (i) prevent unauthorised access; and (ii) provide an effective barrier to cattle, horses and other stock; (b) Any entrance gates to the landfill must be securely locked when the landfill is unattended; (c) Regular inspections must be undertaken of all security measures and damage repaired within 7 calendar days of identification; and (d) A firebreak of at least 3 m must be maintained around the boundary fencing of the putrescible landfill.	Landfill Facility as shown in Schedule 1, Figure 1
Processing facilities			
13.	Wet Concentrator Plant (WCP)	NA	Labelled “Wet Concentrator Plant Location A” within M09/103, as shown in Schedule 1, Figure 1
14.	WCP process water and settlement ponds	(a) Maintained with a 1.0 mm HDPE liner (b) Maintained with a 300 mm freeboard (c) Undertake daily freeboard inspections	Location labelled “Wet Concentrator Plant Location A” within M09/103 as shown in Schedule 1, Figure 1

	Infrastructure and equipment	Operational requirements	Infrastructure location
15.	Mineral Separation Plan (MSP)	NA	Within M09/105 as shown in Schedule 1, Figure 1
16.	MSP process water pond	(a) Maintained with a 1.0 mm HDPE liner (b) Maintained with a 300 mm freeboard (c) Undertake daily freeboard inspections	Within M09/105 as shown in Schedule 1, Figure 1
17.	Pipelines containing ore, overburden, tailings, process water or saline water	(a) Constructed with: (i) Automatic cut-outs in the event of a pipe failure; or (ii) Secondary containment sufficient to contain any spill for a period equal to the time between routing inspections; or (iii) Telemetry and flow meters to allow the detection of leaks and failures. (b) Undertake daily inspections for visual integrity	Within the disturbance area outlined in green in Schedule 1, Figure 2
18.	Cyclone stackers	NA	Within mine voids
Site services and mining equipment			
19.	Reverse osmosis desalination plant	(a) Effluent to be discharged to lined process water pond only	Within M09/105 as shown in Schedule 1, Figure 1
20.	9 x 2 MW gas generator units	NA	Within M09/105 as shown in Schedule 1, Figure 1
21.	LNG facility with 3 x 368kL storage tanks	NA	Within M09/105 as shown in Schedule 1, Figure 1
22.	Diesel storage 1 x 110kL tank and 3 x 66kL tanks	(a) Hydrocarbons to be stored within bunding (b) Spill kits to be available (c) Undertake routing inspections for visual integrity	Within M09/105 MSP area as shown in Schedule 1, Figure 1

	Infrastructure and equipment	Operational requirements	Infrastructure location
23.	Grasshopper conveyors	(a) Undertake daily inspections for visible dust	Within the disturbance area outlined in green in Schedule 1, Figure 2
Tailings and process water management infrastructure			
24.	Solar Drying Ponds	(a) Operated with a maximum operating pond level with 500 mm freeboard plus capacity for a 1:100 year 72 hour rainfall event (b) Height of embankment walls not to exceed 5.5 m (c) Decant ponds to be maintained with a 0.5 mm HDPE lining (d) Decant water to be pumped back to the WCP process water pond, WCP settlement pond or the MSP process water pond (e) Not to exceed 40 hectares in area (f) Undertake daily freeboard inspections	Within M09/102 located only within the red area shown in Schedule 1, Figure 3.
25.	In-pit Settlement Ponds	(a) Must be located entirely within mined out voids (b) Must be constructed on top of deposited tailings material (c) Pond level to be maintained at least 500 mm below the lowest height of the pit crest	Only within mined out voids within mining tenements M09/102 and M09/103
26.	Mine voids where tailings or process water is being discharged	(a) A freeboard of at least 500 mm below the lowest height of the pit crest to be maintained	
27.	West Pit Extended Integrated Waste Landform Containment Facility	(a) A freeboard of at least 1.25 m below the lowest height of the embankment crest to be maintained. (b) Inspections to be carried out at least 4 times per day when operating to check for freeboard, seepage and visual integrity. (c) Decant return pumping capacity of at least 1,220m^3 per hour to be maintained at all times (d) The decant pond operating size must not exceed 20% of the available beach area	Within M09/102, as shown in Schedule 1, Figure 6

2. Mining only permitted within mining tenements M09/102 and M09/103 and not to exceed green shaded area of map in Schedule 1, Figure 2.

3. The licence holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 2.

Table 2: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring wells Stage 2: VMB2D-R, and MMB108 to MMB129	<u>Well design and construction:</u> Designed and constructed in accordance with *Minimum Construction Requirements for Water Bores in Australia*. Well 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, wells must be nested, and the perched features individually screened.	As depicted in Schedule 1, Figure 4. Note: bores must be located within the green shaded area of map in Schedule 1, Figure 2 or the 100 m buffer zone around the Shark Bay World Heritage Property.	Stage 2 wells must be constructed, developed (purged), and determined to be operational prior to the commencement of mining in tenement M09/103 to the west of the WCP.
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring wells. 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>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with *Minimum Construction Requirements for Water Bores in Australia*. 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>Well development:</u> All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		
	<u>Installation survey:</u> the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	<u>Well network map:</u> a well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network		

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

Note 1: refer to Section 8 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on well screen depth and length.

4. The licence holder must, within 60 calendar days of the last monitoring well identified in condition 3 being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 3.

Construction requirements

5. The licence holder must construct the infrastructure listed in Table 3, in accordance with;

(a) the corresponding design and construction requirement; and

(b) at the corresponding infrastructure location;

as set out in Table 3.

Table 3: Design and construction requirements

Item	Infrastructure	Design and construction requirements	Infrastructure location
1.	West Pit Extended Integrated Waste Landform Containment Facility (IWLCF) – starter embankment	a) Embankment to be constructed to a maximum height of RL 96m b) Constructed as specified in Figures 6 and 9 of Schedule 1 c) Downstream embankment to be constructed with a 1V:3H slope d) Constructed with a minimum 10m crest width e) Decant return system to have a minimum 1,220m^3 per hour pumping capacity installed	Within M09/102 as shown in Schedule 1, Figure 6
2.	West Pit Extended IWLCF – Stage 1 embankment raise	a) Embankment to be constructed to a maximum height of RL 102m b) Constructed as specified in Figures 7 and 9 of Schedule 1 c) Constructed via a downstream raise d) Downstream embankment to be constructed with a 1V:3H slope e) Constructed with a minimum 10m crest width	Within M09/102 as shown in Schedule 1, Figure 7
3.	West Pit Extended IWLCF – Stage 2 embankment raise	a) Embankment to be constructed to a maximum height of RL 107m b) Layout as specified in Figures 8 and 9 of Schedule 1 c) Constructed via a downstream raise d) Downstream embankment to be constructed with a 1V:3H slope e) Constructed with a minimum 10m crest width	Within M09/102 as shown in Schedule 1, Figure 8

4.	Solar drying pond Cell 6	a) Engineered embankments to be constructed to a maximum height of RL 103.5m b) Layout as specified in Figure 5 of Schedule 1 c) Downstream embankment to be constructed with a 1V:2H slope d) Constructed with a minimum 10m crest width e) Base of the facility to be sloped to the north, to a depth of RL 98.5m f) Decant water directed to the high-density polyethylene (HDPE)-lined decant sump	Within GDP19 area as shown in Schedule 1, Figure 3

6. The licence holder must within 30 calendar days of an item of infrastructure required by condition 5 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 5; and

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

7. The Environmental Compliance Report required by condition 6, must include as a minimum the following:

(a) certification by an engineer that the items of infrastructure or component(s) thereof, as specified in condition 5, have been constructed in accordance with the relevant requirements specified in condition 5;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 5;

(c) photographic evidence of the installation of the infrastructure; and

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

8. The licence holder may only use the discharge points outlined in condition 19 when they relate to an item of infrastructure identified in condition 5, after the Environmental Compliance Report for that item of infrastructure, as required by conditions 6 and 7, has been submitted by the licence holder to the CEO.

Waste acceptance

9. The licence holder must only accept onto the WWTP and Putrescible Landfill Facility as listed in Table 4 a waste of a type that:

(a) does not exceed the rate at which that waste is received; and

(b) meets the relevant acceptance specification,

as set out in Table 4.

Table 4: Waste acceptance criteria

Waste type	Rate at which waste is received	Acceptance specification
Sewage	75 m^3 per day	(a) Accepted via sewerage inflow into Anaerobic Tank 1; and (b) Must not be accepted into the Putrescible Landfill Facility.
Inert Waste Type 1	2,700 tonnes per annual period	(a) Must not be accepted into the WWTP.
Inert Waste Type 2		
Putrescible waste		
Dried grit and screenings		(a) Must be solid when accepted into the Putrescible Landfill Facility; and (b) Must not be accepted into the WWTP once dried.
Dried sewage sludge		

Waste processing and operations

10. The licence holder must ensure that the waste types specified in Table 5 are only subjected to the corresponding processes, subject to the corresponding process limits and/or specifications.

Table 5: Waste processing

Waste type		Processes	Process limits and/or specifications
1.	Sewage	Physical, chemical and biological treatment	(a) No more than 75 m^3 per day shall be treated through the WWTP.
2.	Grit and screenings	Temporary storage prior to removal offsite or landfilling	(a) Once removed from the WWTP the waste must be stored in an impermeable receptacle or container located on a hardstand area; and (b) Must be: (i) dried prior to landfilling; or (ii) removed from the premises by a licensed controlled waste carrier.
	Sewage sludge		

Waste type		Processes	Process limits and/or specifications
3.	Treated wastewater	Disinfection and disposal via irrigation	(a) Must have a chlorine contact time of at least 30 minutes prior to irrigation; (b) Only disinfected, treated wastewater from Irrigation Tank 2 shall be irrigated; (c) Irrigation generated runoff, spray drift or discharge must not occur beyond the boundary of the spray field; (d) Irrigation must not occur on land that is waterlogged; (e) Irrigation must not be undertaken immediately prior to, during or after a rainfall event; and (f) Wastewater must be evenly distributed over the irrigation area so that no ponding or pooling occurs.
4.	Inert Waste Type 1	Receipt, handling and disposal via landfilling	(a) Must not be landfilled within 3 m from the edge of the boundary fencing surrounding the putrescible landfill; and (b) Chemically treated timber and pallets must not be landfilled.
	Inert Waste Type 2		
	Putrescible waste		

11. The licence holder must ensure that:

(a) cover is applied and maintained on landfilled waste in accordance with the cover material and cover requirements in Table 6; and

(b) sufficient stockpiles of cover are stored and readily available on the premises at all times such that there is enough cover material for the tipping area to be covered at least twice.

Table 6: Cover requirements

Cover material	Cover requirements
Dense, inert and incombustible material	(a) Must be totally covered so that no waste is left exposed; and (b) Must be covered at least weekly.

Emissions and discharges

12. The licence holder must:

(a) immediately recover, or remove and dispose of, spills of sewage, treatment chemicals, fuel, or other environmentally hazardous materials, whether inside or outside an engineered containment system; and

(b) ensure that all material used for the recovery, removal, and/or disposal of spills is stored in an impermeable container prior to disposal at an appropriately authorised facility.

13. The licence holder must prevent stormwater run-off becoming contaminated by the activities and operations undertaken at the premises so that:

(a) it is diverted from areas of the premises where it may become contaminated; and

(b) water that may be contaminated is diverted into a sump, or otherwise retained within the premises.

14. The licence holder must ensure that no visible dust escapes from the putrescible landfill area.

15. The licence holder must ensure that:

(a) waste does not get washed, or blown, outside the putrescible landfill; and

(b) waste that has been washed, or blown, away from the tipping area of the putrescible landfill is returned to the tipping area at least once in each month.

16. The licence holder must ensure that there are appropriate procedures in force at the premises so that:

(a) any unauthorised fire at the putrescible landfill is promptly extinguished; and

(b) alarm and warning procedures are in place.

17. The licence holder must ensure that any unauthorised fire on the premises is extinguished.

18. The licence holder must ensure that treated sewage is only discharged to the specified discharge point in accordance with the limits specified in Table 7.

Table 7: Treated wastewater discharge limits

Emission	Discharge point	Parameter	Concentration limit	Loading limit
Treated sewage	20 x sprinklers located within the spray field	Total nitrogen	-	180 kg/ha/yr
		Total phosphorus	-	20 kg/ha/yr
		BOD	-	30 kg/ha/day
		TSS	30 mg/L	-
		pH	6.5 – 8.5	-
		Residual free chlorine	0.2 – 2 mg/L	-
		E. coli	1,000 CFU or MPN /100mL	-

19. The licence holder must ensure that the emissions specified in Table 8, are discharged only from the corresponding discharge points and only at the corresponding discharge point location(s).

Table 8: Authorised discharge points

Emission	Discharge point	Discharge point location
Tailings	Piped or deposited using cyclone stackers into mining voids	Only within mined out voids within mining tenements M09/102 and M09/103
	West Pit Extended Integrated Waste Landform Containment Facility	As depicted in Figure 6, 7 and 8 in Schedule 1
Process water (including high slimes process water and decant return water)	WCP settling pond WCP process water pond	At the Wet Concentrator Plant
	MSP process water pond	At the Mineral Separation Plant
	Solar Drying Ponds	Within M09/102 located only within the red area shown in Schedule 1, Figure 3.
	In-pit settlement ponds	Only within mined out voids within mining tenements M09/102 and M09/103
Reverse osmosis plant effluent	WCP or MSP process water pond	At the Wet Concentrator Plant or Mineral Separation Plant
Stack emissions, including CO, NO_x, SO_x and particulate matter	LNG gas generator units	Within M09/105 as shown in Schedule 1, Figure 1

Monitoring

Process monitoring

20. The licence holder must record the total amount of waste inputs and outputs at the premises, for each waste type listed in Table 9, in the corresponding unit, and for each corresponding time period, as set out in Table 9.

Table 9: Waste inputs and outputs monitoring

Inputs/Outputs	Waste type	Unit	Frequency	Averaging period
Inputs to the WWTP	Sewage	m^3/day and kL	Continuous via a flow metering device	Monthly
Inputs to the Putrescible Landfill Facility	Inert Waste Type 1	tonnes	Monthly	Yearly
	Inert Waste Type 2			
	Putrescible waste			
	Dried sewage sludge			
	Dried grit and screenings			
Secondary outputs from the WWTP	Grit and screenings			
	Sewage sludge			

Inputs/Outputs	Waste type	Unit	Frequency	Averaging period
Effluent outputs to the spray field	Treated sewage	m^3/day and kL	Continuous via a flow metering device	Monthly

21. The licence holder must undertake process monitoring in accordance with the specifications of Table 10.

Table 10: Process monitoring

Process description	Parameter	Units	Frequency
Processing of ore	Volume of ore processed	m^3	Monthly
	Volume of HMC produced	m^3	Monthly
Tailings deposition	Volume and location of tailings deposition	m^3	Monthly
	Estimate of volume of water in tailings	m^3	Monthly
	Volume of decant water recovered from each IWLCF	m^3	Monthly
	Estimate of the volume of seepage from tailings	m^3	Monthly
Evaporation[1]	Volume of water evaporated from IWLCFs and SDPs	m^3	Monthly
Process water discharge	Volume of process water discharged to SDPs	m^3	Monthly
	Volume of process water discharged in-pit settlement ponds	m^3	Monthly
Process water returned to the processing plant	Volume of process water returned to the processing plant	m^3	Monthly
	Total dissolved solids	mg/L	Quarterly

Note 1: Evaporation rate to be calculated in accordance with methods described in Condition 40 from 2025

Discharge point monitoring

22. The licence holder must monitor emissions of treated wastewater in accordance with the requirements specified in Table 11.

Table 11: Emissions and discharge monitoring

Monitoring location	Parameter	Unit	Frequency	Sampling method
WWTP Treated Effluent Sampling Point	pH[1]	-	Monthly	Spot sample, in accordance with AS/NZS 5667.1 and AS/NZS 5667.10
	EC[1]	µS/cm		
	TDS	mg/L		

Monitoring location	Parameter	Unit	Frequency	Sampling method
	BOD			
	NH_4-N			
	NO_x-N			
	TN			
	TP			
	Al			
	Residual free chlorine[1]	mg/L		
	E. coli	CFU or MPN /100mL		

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

Ambient groundwater monitoring

23. The licence holder shall undertake the monitoring in Table 12 according to the specifications in that table.

Table 12: Monitoring of ambient groundwater

Monitoring location	Parameter	Unit	Frequency	Sampling method
Groundwater monitoring wells MMB1, MMB2s/d, MMB3, MMB4s/d, MMB5, MMB6s/d, MMB7, MMB8s/d, MMB9, MMB10R, MMB11, MMB12, MMB14, MMB17s/i/d, MMB19, MMB20, MMB21R, MMB22, MMB23s/d, MMB24s/d, MMB25, MMB26s/d, MMB27, MMB28, MMB29, MMB30, MMB31, MMB32, MMB100, MMB101s/d, MMB102, MMB103, MMB104, MMB105s/d, MMB106, MMB107, MMB110d, MMB127d. MMB20R (when constructed). Groundwater monitoring wells (once constructed) Stage 2: VMB2D-R and MMB108 to MMB129	Standing water levels	mbgl	Monthly	In accordance with AS/NZS 5667.1 and AS/NZS 5667.10
	pH[1]	-	Quarterly	
	EC[1]	µS/cm	Quarterly	
	TDS	mg/L	Quarterly	
	Total Alkalinity, Total Hardness, Cl, CO_3/HCO_3, SO_4, NO_3, NO_2, Na, K, Ca, Mg, Fe, SiO_2, Al, Mn, As, Cd, Co, Cu, Ni, Pb, Se and Zn.	mg/L	Annually	
	Radium-226 Radium-228	Bq/L		

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

24. The licence holder must ensure the parameters listed in Table 13 do not exceed the corresponding limits at the corresponding locations when monitored in accordance with condition 23.

Table 13: Ambient groundwater level limits

Monitoring location	Parameter	Limit
Northern boundary: MMB9, MMB14, MMB17, MMB20, MMB20R Eastern boundary: MMB29, MMB30, MMB101, MMB103, MMB105, MMB106	Standing water level	5 mbgl

25. The licence holder must, in the event of a monitoring location in Table 13 exceeding the corresponding limit specified:

(a) Submit a groundwater management plan, outlining actions to be taken to reduce the groundwater standing water level, to the CEO within 1 month of the exceedance occurring; and

(b) Implement the groundwater management plan within 3 months of submission of the plan as required by 25(a)

General

26. The licence holder must ensure that all sample analysis undertaken pursuant to conditions 22, 23 and 36 is performed by a holder of a current accreditation from NATA for the methods of analysis relevant to the corresponding parameter.

27. The licence holder must ensure that monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months.

28. The licence holder must ensure that all monitoring equipment used to comply with conditions 20, 22 and 23 is operated and calibrated in accordance with the manufacturer's specifications or the *Rights in Water and Irrigation (Approved Meters) Order 2009*.

Records and reporting

Records

29. The licence holder must record the following information in relation to complaints received by the licence 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 licence holder to investigate or respond to any complaint.

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

(a) the calculation of fees payable in respect of this licence;

(b) any maintenance of infrastructure that is performed in the course of complying with conditions 1 and 10 of this licence;

(c) monitoring programs undertaken in accordance with conditions 20,21, 22, 23 and 36 of this licence;

(d) complaints received under condition 299 of this licence; and

(e) activities performed during extended commissioning conducted in accordance with condition 35 of this licence.

31. The books specified under condition 30 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 licence holder for the duration of the licence; and

(d) be available to be produced to an inspector or the CEO as required.

Reporting

32. The licence holder must:

(a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and

(b) prepare and submit to the CEO an Annual Audit Compliance Report in the approved form by 1 March each year.

33. The licence holder must submit to the CEO by no later than 1 March of each annual period, an Annual Environmental Report for that annual period for the conditions listed in Table 14, and which provides information in accordance with the corresponding requirement set out in Table 14.

Table 14: Environmental report requirements

Condition	Requirement[1]
1 and 10	(a) A summary of inspections and maintenance performed to address the requirements of Table 1 and 5.
9, 10 and 1818	(a) A summary of the waste inputs and outputs at the premises presented in table format.
21	(a) Tabulated and/or graphical summary of the process monitoring data
22	(a) volume (in m^3 or kL) of treated sewage applied daily to each irrigation area, and monthly cumulative volumes; (b) A tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis; (c) monthly and annual loadings of nitrogen, phosphorus and BOD applied to the spray field, including an explanation of the basis for determining loading rates; (d) an interpretive summary and assessment of results against previous monitoring results and relevant limits within the licence; and (e) trend graphs to provide a graphical representation of historical results and to support the interpretive summary
23	(a) A tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis; (b) an interpretive summary and assessment of results against previous monitoring results and relevant limits within the licence; (c) trend graphs to provide a graphical representation of historical results and to support the interpretive summary; and (d) standing water levels across the mining area for the final quarter of the annual period to be provided graphically in a contour map format, overlaying a recent aerial photograph, with contours measured in metres below ground level (mbgl).
24	(a) a discussion of any exceedances of any limit that occurred during the annual period, and any action taken.

Condition	Requirement[1]
29	(a) A summary of complaints received, and any action taken to investigate or respond to any complaint.
-	(a) A summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period, including any actions taken.

Note 1: General guidance on report presentation can be found in the department's *Guideline: Assessment and management of contaminated sites*.

Notifications

34. The licence holder must ensure that the parameters listed in Table 15 are notified to the CEO in accordance with the notification requirements of Table 15.

Table 15: Notification requirements

Parameter	Notification requirement	Format or form
Any: (a) unauthorised fire on the premises; or (b) accident, malfunction or emergency which could result in the discharge of fire-fighting washwater or other wastes.	Immediately	To the Pollution Watch hotline, via: (a) pollutionwatch@dwer.wa.gov.au; and (b) 1300 784 782.
	Within 14 days	A report on the fire containing: (a) details of the date, time and location of the fire; (b) the time the location of the fire was declared safe by the Fire Control Officer for the premises; and (c) the cause, or suspected cause, of the fire.

Specified actions

Extended commissioning

35. The licence holder must complete extended commissioning activities for the WWTP operational element listed in Table 16 in accordance with:

(a) the corresponding commissioning requirements specified in Table 16; and

(b) the corresponding authorised commissioning duration specified in Table 16.

Table 16: Extended commissioning duration

Operational element	Commissioning requirements	Authorised commissioning duration
WWTP	(a) The licence holder must undertake continual process optimisation and improvements to treatment operations so that the treated wastewater discharge limits specified in condition 18 are achieved continually over a four week period prior to the end of the authorised commissioning duration; (b) The licence holder must install monitoring equipment and/or develop a suitable method for monitoring sludge levels and volumes within the primary treatment tanks specified in Table 1; (c) The licence holder must inspect all tanks located downstream of the primary treatment tanks specified in Table 1 for the presence of sludge and/or other solids, and remove this material where identified;	Commencing at the grant of this licence and for a period not exceeding 180 calendar days in aggregate
WWTP (cont.)	(d) The licence holder must install a zabel filter clean-down station with the following specifications: (i) A high-pressure hose that provides sufficient water pressure to rinse and clean the zabel filters; (ii) Hardstand and bunding to prevent surface runoff of washwater; and (iii) Drainage of washwater to an intermediate bulk container or other containment receptacle that prevents the release to the environment of emissions that may arise from the washwater.	Commencing at the grant of this licence and for a period not exceeding 180 calendar days in aggregate

36. The licence holder must monitor emissions during extended commissioning in accordance with Table 17.

Table 17: Emissions and discharge monitoring during extended commissioning

Monitoring location	Parameter	Unit	Frequency	Sampling method
WWTP Treated Effluent Sampling Point	pH[1]	-	Weekly	Spot sample, in accordance with AS/NZS 5667.1 and AS/NZS 5667.10
	EC[1]	µS/cm		
	TDS	mg/L		
	BOD			
	NH_4-N			
	NO_x-N			
	TN			
	TP			
	Al			

Monitoring location	Parameter	Unit	Frequency	Sampling method
	Residual free chlorine[1]	mg/L		
	E. coli	CFU or MPN /100mL		

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

37. The licence holder must ensure that monitoring performed in accordance with condition 36 is undertaken in each weekly period such that there are at least 4 days in between the days on which samples are taken in successive weeks.

38. The licence holder must submit to the CEO an Extended Commissioning Report for the WWTP within 30 calendar days of the completion date of extended commissioning specified in Table 16.

39. The licence holder must ensure the Extended Commissioning Report required by condition 38 of this licence includes the following:

(a) a summary of the extended commissioning activities undertaken, including timeframes and volume of sewage processed;

(b) the point-source emissions monitoring results recorded in accordance with condition 36;

(c) a summary of the environmental performance of the WWTP infrastructure, which at minimum includes records detailing the:

(i) process optimisation and improvements undertaken during extended commissioning of the WWTP;

(ii) actions taken to address the commissioning requirements listed in Table 16; and

(iii) evidence to confirm that the commissioning requirements listed in Table 16 were undertaken;

(d) a review of the licence holder's performance and compliance against the conditions of this licence with particular regard to the discharge limits in condition 18; and

(e) where they have not been met, measures proposed to meet the manufacturer's design specifications and the discharge limits in condition 18 of this licence, together with timeframes for implementing the proposed measures inclusive of additional approval requirements that may be required.

40. The licence holder must provide a report to the CEO on each item of Table 18 and its corresponding requirements within the timeframe specified in Table 18.

Table 18: Specified actions

Item	Specified action requirements	Timeframe
1	Prior to construction of the starter embankment of the West Pit Extended IWLCF commencing, a qualified geotechnical engineer must assess the integrity of the embankments of the existing West Pit IWLCF and provide a report to the CEO detailing any defects, cracking, slumping, seepage and erosion of the embankments. The report must also detail any unplanned discharges that have occurred from	The assessment must be conducted prior to the construction of the West Pit Extended IWLCF. Report to be submitted to the CEO with the Environmental Compliance Report required

Item	Specified action requirements	Timeframe
	the containment facility.	by condition 6 for Item 1 of Table 3, condition 5.
2	Install groundwater monitoring bore MMB20R on the northern perimeter of the development envelope about equal distance between monitoring bores MMB20 and MMB24 and provide a bore construction report to the CEO. • The bore must be installed in accordance with the requirements of Condition 3, Table 2. • The bore construction report must demonstrate evidence of compliance with the requirements of Condition 3, Table 2.	Bore installation prior to 31 March 2025 Report to be submitted to the CEO within 30 days of the monitoring bore being constructed.
3	Install an on-site weather station for the purpose of measuring site specific temperature, rainfall, evaporation and wind data, suitable to be used to refine a site-wide water balance and provide a compliance report to the CEO. • The weather station must be sited in compliance with AS/NZS 3580.1 • The weather station must be operated in compliance with AS/NZS 3580.14 • The compliance report must include a map showing the location of the installed weather station • The compliance report must demonstrate evidence of compliance with the above requirements	Weather station installed prior to 1 March 2025. Report to be submitted to the CEO within 30 days of completing the installation works.
4	Conduct an investigation to determine site-specific evaporation estimates from the solar drying ponds, Integrated Waste Landform Containment Facilities and any other relevant facilities at the premises and provide a report to the CEO. The report must detail the methodology used to determine the site-specific evaporation estimates and should consider using the methods described in *McJannet et al. (2022)*.	Investigation to be completed prior to 1 April 2025. Report to be submitted to the CEO within 60 days of the investigation being completed.
5	Conduct a geophysical investigation of the upper soil profile to determine whether soluble salts are accumulating in the upper part of the vadose zone near the IWLCFs and SDPs, and provide a report to the CEO outlining the findings of the investigation. The investigation should include: (a) at least 6 radial transects of about 200m from each IWLCF to determine whether high salt levels are present near the roots of local vegetation; and (b) the use of suitable geophysical techniques, such as electrical resistivity tomography (ERT) (which is recommended), however other resistivity and electromagnetic methods could also be considered.	Investigation to be completed prior to 1 July 2025. Report to be submitted to the CEO within 60 days of the investigation being completed.

Definitions

In this licence, the terms in Table 19 have the meanings defined.

Table 19: Definitions

Term	Definition
µS/cm	microsiemens per centimetre
ACN	Australian Company Number
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 January until 31 December of the same year.
AS/NZS 5667.1	means the Australian Standard *AS/NZS 5667.11 Water quality - Sampling - Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.10	means the Australian Standard *AS/NZS 5667.11 Water quality - Sampling - Guidance on sampling of waste waters*
AS/NZS 3580.1	Means the Australian Standard *AS/NZS 3580.1 - Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method*
AS/NZS 3580.14	Means the Australian Standard *AS/NZS 3580.14 – Methods for sampling and analysis of ambient air, Part 14: Meteorological monitoring for ambient air quality monitoring applications*
BOD	biological oxygen demand
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
CFU or MPN / 100mL	colony forming units or most probable number per 100 millilitres
chemically treated timber and pallets	means timber and/or pallets treated with compounds such as copper chrome arsenate (CCA), high temperature creosote (HTC), pigment emulsified creosote (PEC) and light organic solvent preservative (LSOP).
CO	Carbon monoxide

Term	Definition
condition	a condition to which this licence is subject under section 62 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
discharge	has the same meaning given to that term under the EP Act.
dried	means does not contain, or is not comprised of: (a) any free liquids; and (b) any liquids that are capable of being release when the waste is transported.
E. coli	*Escherichia coli*
emission	has the same meaning given to that term under the EP Act.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	Environmental Protection Regulations 1987 (WA)
extended commissioning	means the sequence of process improvements and activities undertaken to achieve steady state operation at the intended design specifications for final treated effluent quality from the wastewater treatment plant
Extended Commissioning Report	means a report on the extended commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure has been constructed and/or installed in accordance with the licence
Fire Control Officer	means a person who has such qualifications in fire fighting or fire control as are approved, appointed to that position by the licence holder
Guideline: Assessment and management of contaminated sites	means the document titled *Guideline: Assessment and management of contaminated sites* published by the department
HDPE	high-density polyethylene
Inert Waste Type 1	has the same meaning given to that term in the Landfill Definitions
Inert Waste Type 2	has the same meaning given to that term in the Landfill Definitions
IWLCF	Integrated Waste Landform Containment Facility
kg/ha/day	kilograms per hectare per day
kg/ha/yr	kilograms per hectare per year

Term	Definition
Landfill Definitions	means the document titled *Landfill Waste Classification and Waste Definitions 1996*, as amended from time to time
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
m	metre
mg/L	milligrams per litre
mbgl	meters below ground level
MSP	Mineral Separation Plant
NATA	National Association of Testing Authorities
NH_4-N	ammonium as nitrogen
NO_x-N	nitrate and nitrite as nitrogen
putrescible waste	has the same meaning given to that term in the Landfill Definitions
premises	refers to the premises to which this licence applies, as specified at the front of this licence and the boundary coordinates specified in Figure 1 in Schedule 1 to this licence.
prescribed premises	has the same meaning given to that term under the EP Act.
process water	water used in the processing plant, tailings decant return water, solar drying pond return water, in-pit settlement pond water and high slimes water.
SDP	solar drying pond
SO_x	Sulfur oxides
solid	has the same meaning given to that term in the Landfill Definitions
TDS	total dissolved solids
tipping area	means the area of the putrescible landfill where waste is currently being deposited
TN	total nitrogen
TP	total phosphorus
TSS	total suspended solids
waste	has the same meaning given to that term under the EP Act.

Term	Definition
WCP	Wet Concentrator Plant
WWTP	wastewater treatment plant

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below.

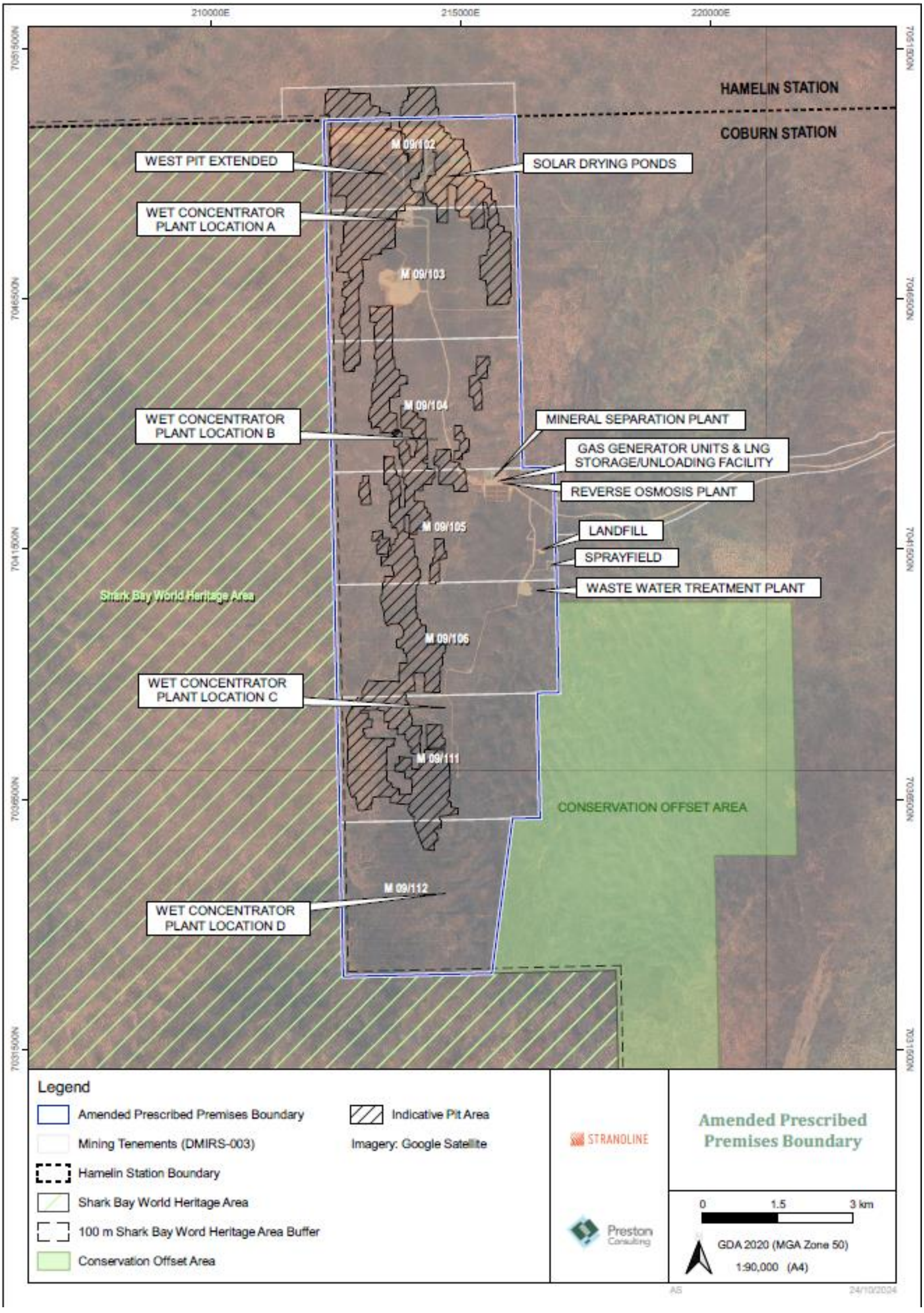


Figure 1: Map of the boundary of the prescribed premises and general site layout

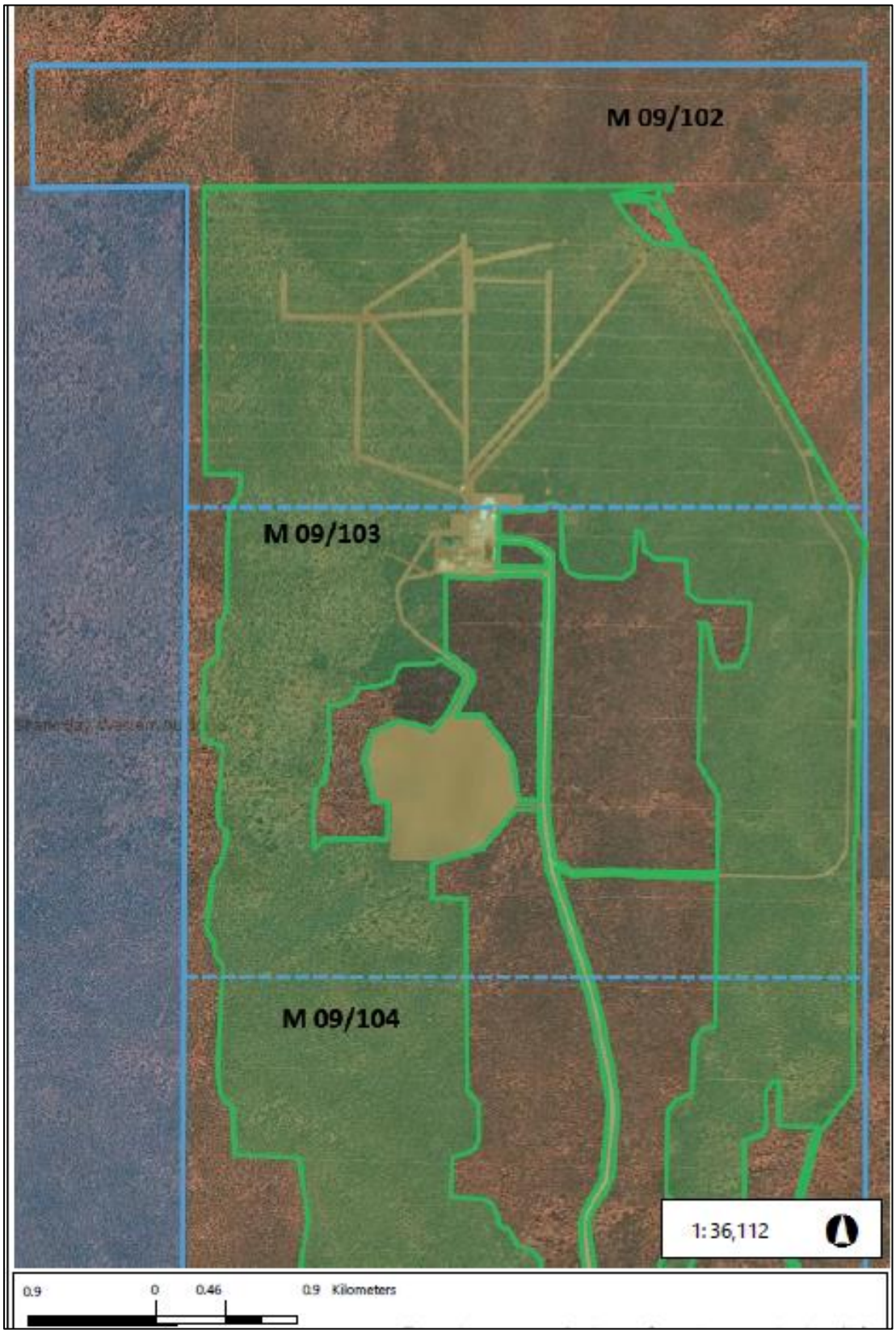


Figure 2: Green shaded area showing maximum extent of mining footprint in M09/102 and M09/103

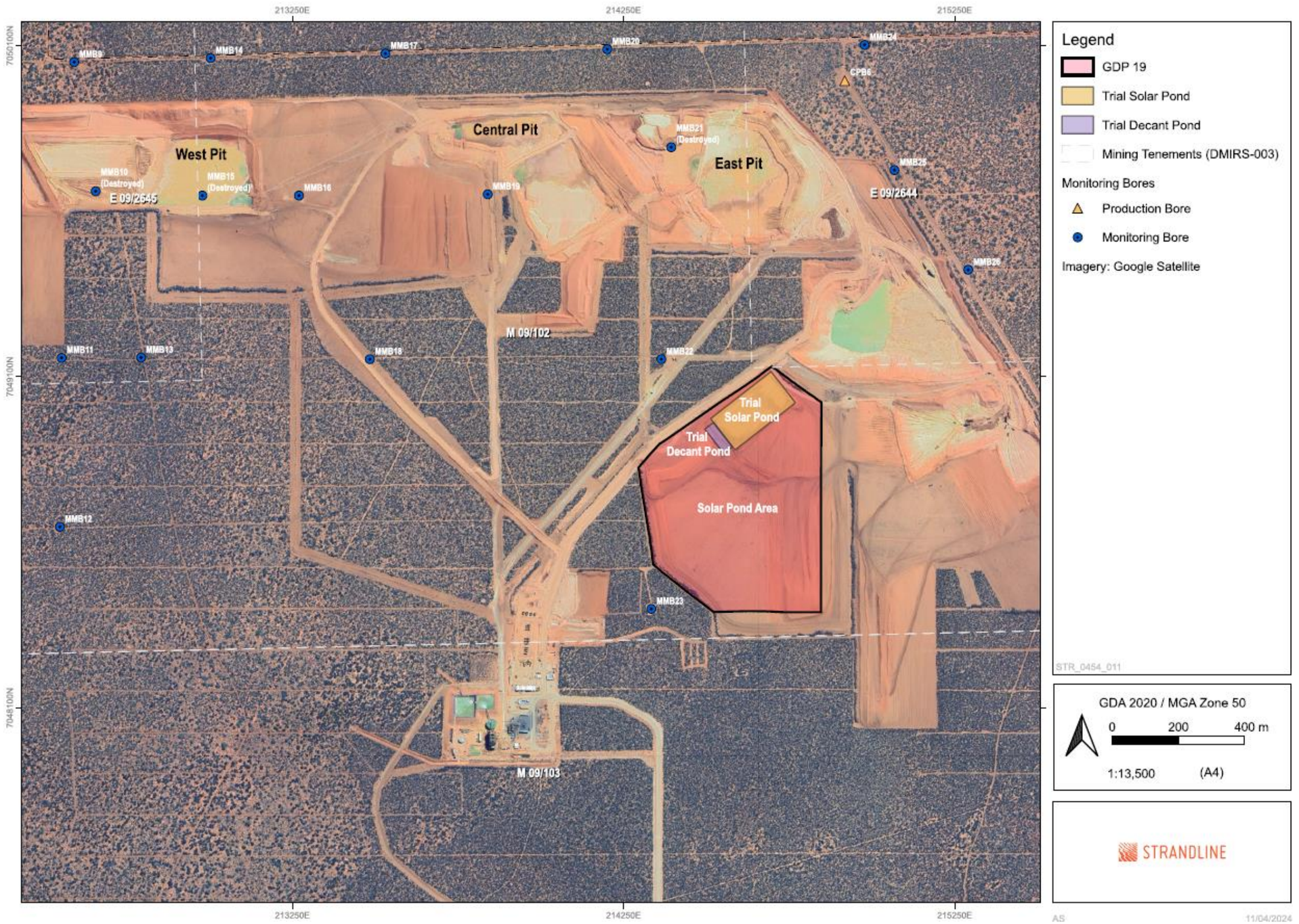


Figure 3: Location of Solar Drying Ponds (SDPs) in red

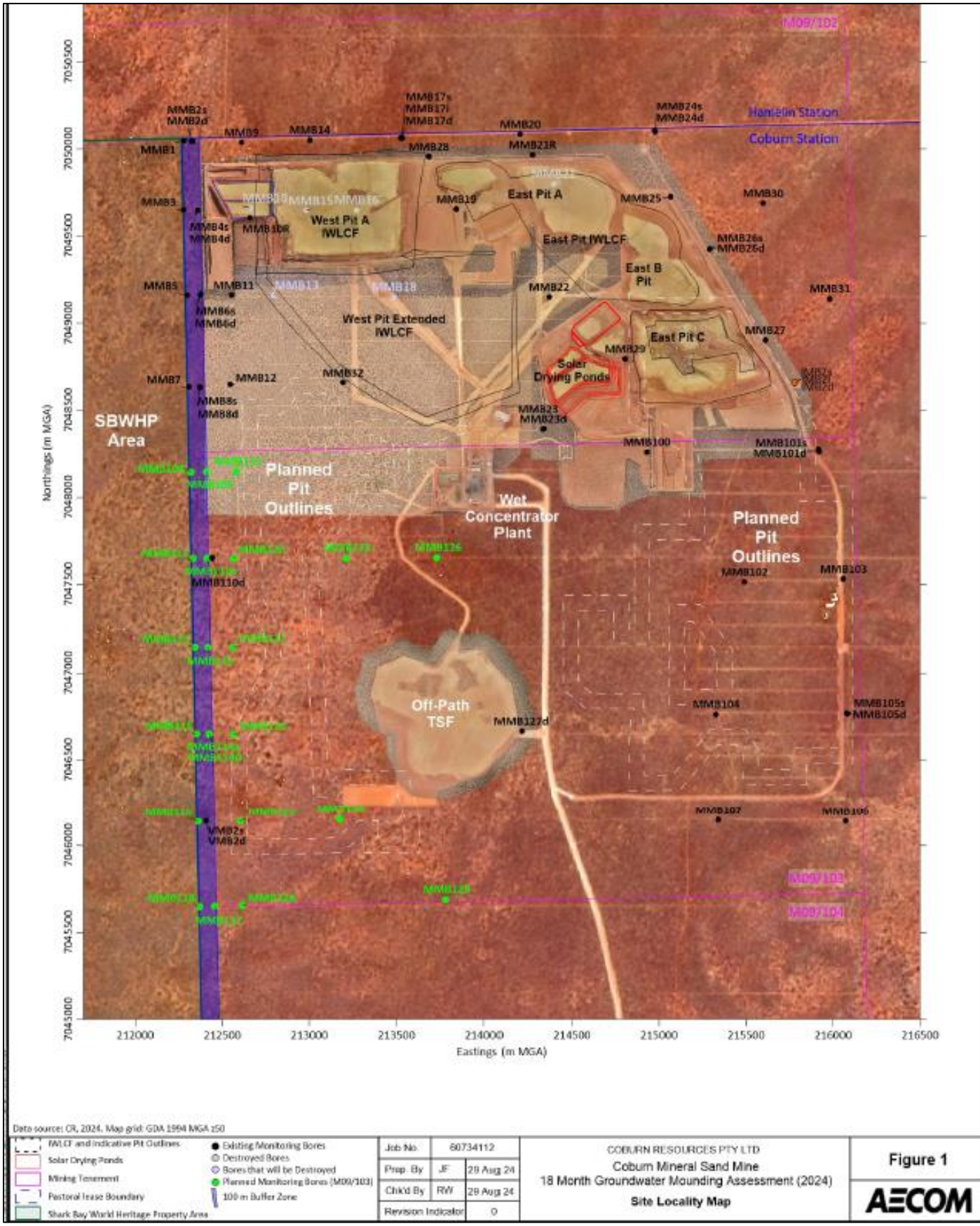
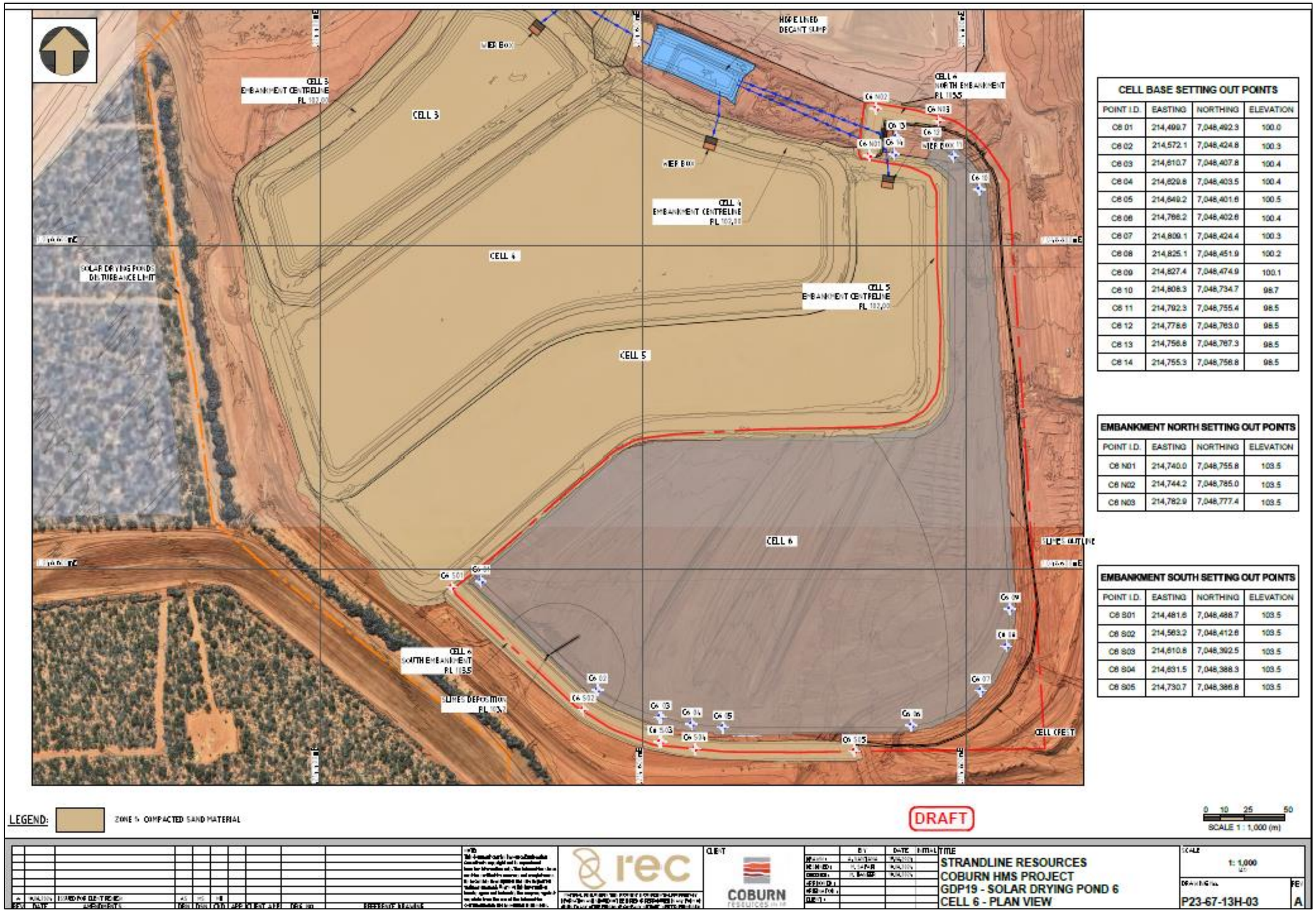


Figure 4: Existing (black) and proposed (green) groundwater monitoring network



CELL BASE SETTING OUT POINTS

POINT I.D.	EASTING	NORTHING	ELEVATION
C6 01	214,499.7	7,048,492.3	100.0
C6 02	214,572.1	7,048,424.8	100.3
C6 03	214,610.7	7,048,407.8	100.4
C6 04	214,629.8	7,048,403.5	100.4
C6 05	214,649.2	7,048,401.6	100.5
C6 06	214,766.2	7,048,402.6	100.4
C6 07	214,809.1	7,048,424.4	100.3
C6 08	214,825.1	7,048,451.9	100.2
C6 09	214,827.4	7,048,474.9	100.1
C6 10	214,808.3	7,048,734.7	98.7
C6 11	214,792.3	7,048,755.4	98.5
C6 12	214,778.6	7,048,763.0	98.5
C6 13	214,756.8	7,048,767.3	98.5
C6 14	214,755.3	7,048,756.8	98.5

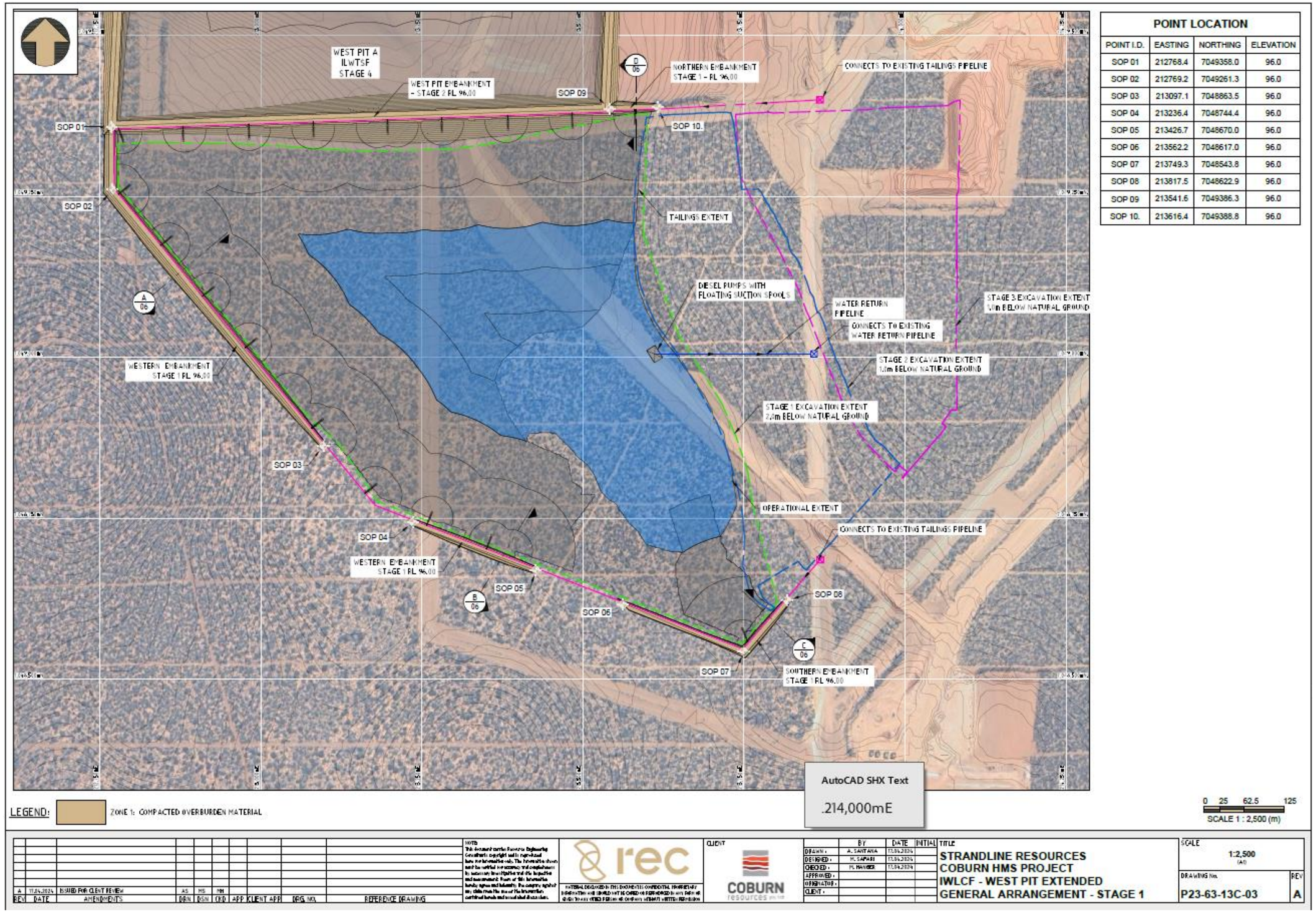
EMBANKMENT NORTH SETTING OUT POINTS

POINT I.D.	EASTING	NORTHING	ELEVATION
C6 N01	214,740.0	7,048,755.8	103.5
C6 N02	214,744.2	7,048,785.0	103.5
C6 N03	214,782.9	7,048,777.4	103.5

EMBANKMENT SOUTH SETTING OUT POINTS

POINT I.D.	EASTING	NORTHING	ELEVATION
C6 S01	214,481.6	7,048,488.7	103.5
C6 S02	214,563.2	7,048,412.6	103.5
C6 S03	214,610.8	7,048,392.5	103.5
C6 S04	214,631.5	7,048,388.3	103.5
C6 S05	214,730.7	7,048,386.8	103.5

Figure 5: Location and extent of Solar Drying Pond Cell 6



POINT LOCATION			
POINT I.D.	EASTING	NORTHING	ELEVATION
SOP 01	212768.4	7049358.0	96.0
SOP 02	212769.2	7049261.3	96.0
SOP 03	213097.1	7048863.5	96.0
SOP 04	213236.4	7048744.4	96.0
SOP 05	213426.7	7048670.0	96.0
SOP 06	213562.2	7048617.0	96.0
SOP 07	213749.3	7048543.8	96.0
SOP 08	213817.5	7048622.9	96.0
SOP 09	213541.6	7049386.3	96.0
SOP 10.	213616.4	7049388.8	96.0

Figure 6: West Pit Extended IWLCF starter embankment design

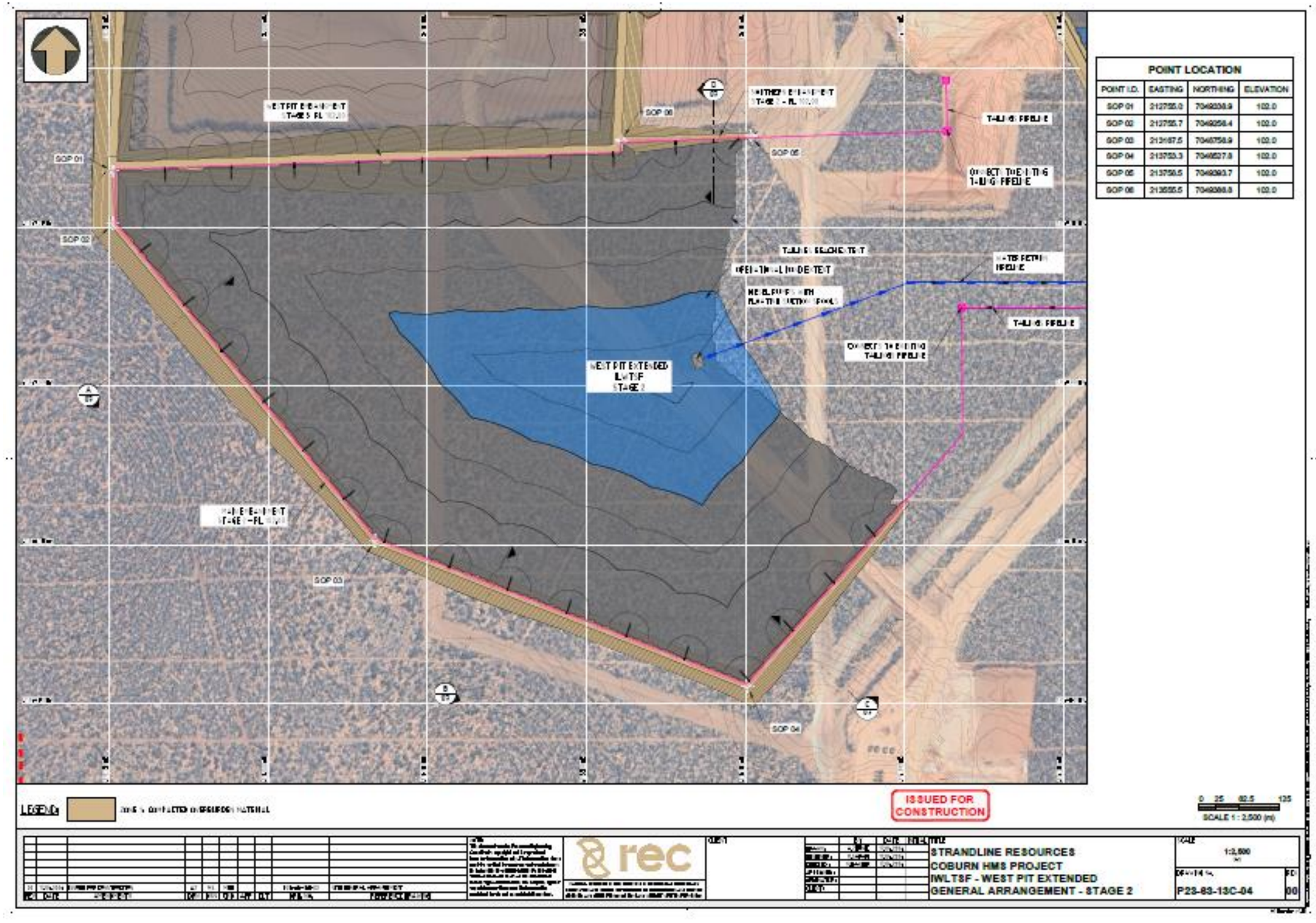
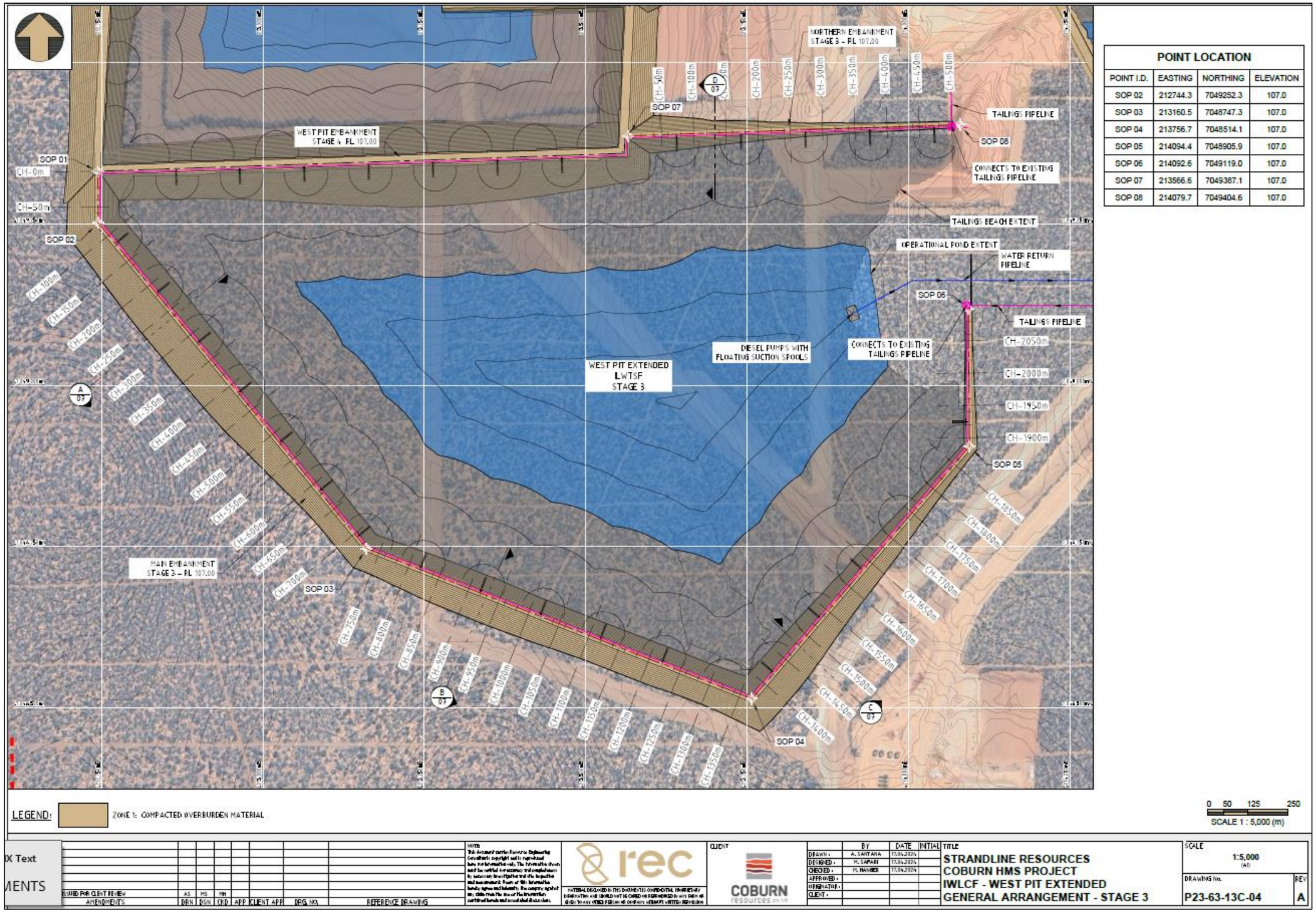


Figure 7: West Pit Extended IWLCF Stage 1 embankment design



POINT LOCATION			
POINT I.D.	EASTING	NORTHING	ELEVATION
SOP 02	212744.3	7049252.3	107.0
SOP 03	213160.5	7048747.3	107.0
SOP 04	213756.7	7048514.1	107.0
SOP 05	214094.4	7048905.9	107.0
SOP 06	214092.6	7049119.0	107.0
SOP 07	213566.6	7049387.1	107.0
SOP 08	214079.7	7049404.6	107.0

Figure 8: West Pit Extended IWLCF Stage 2 embankment design

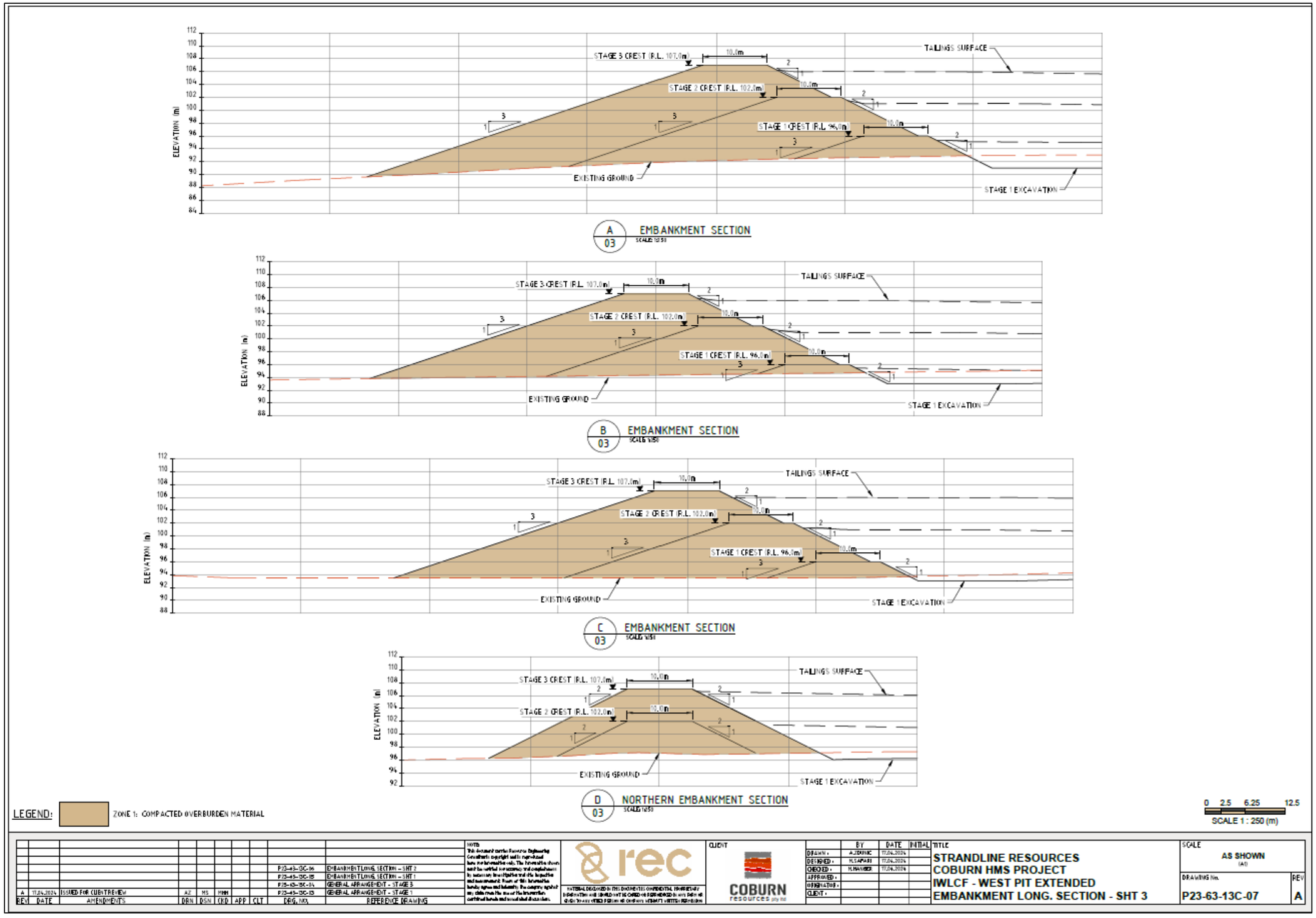


Figure 9: West Pit Extended IWLCF embankment cross-sections

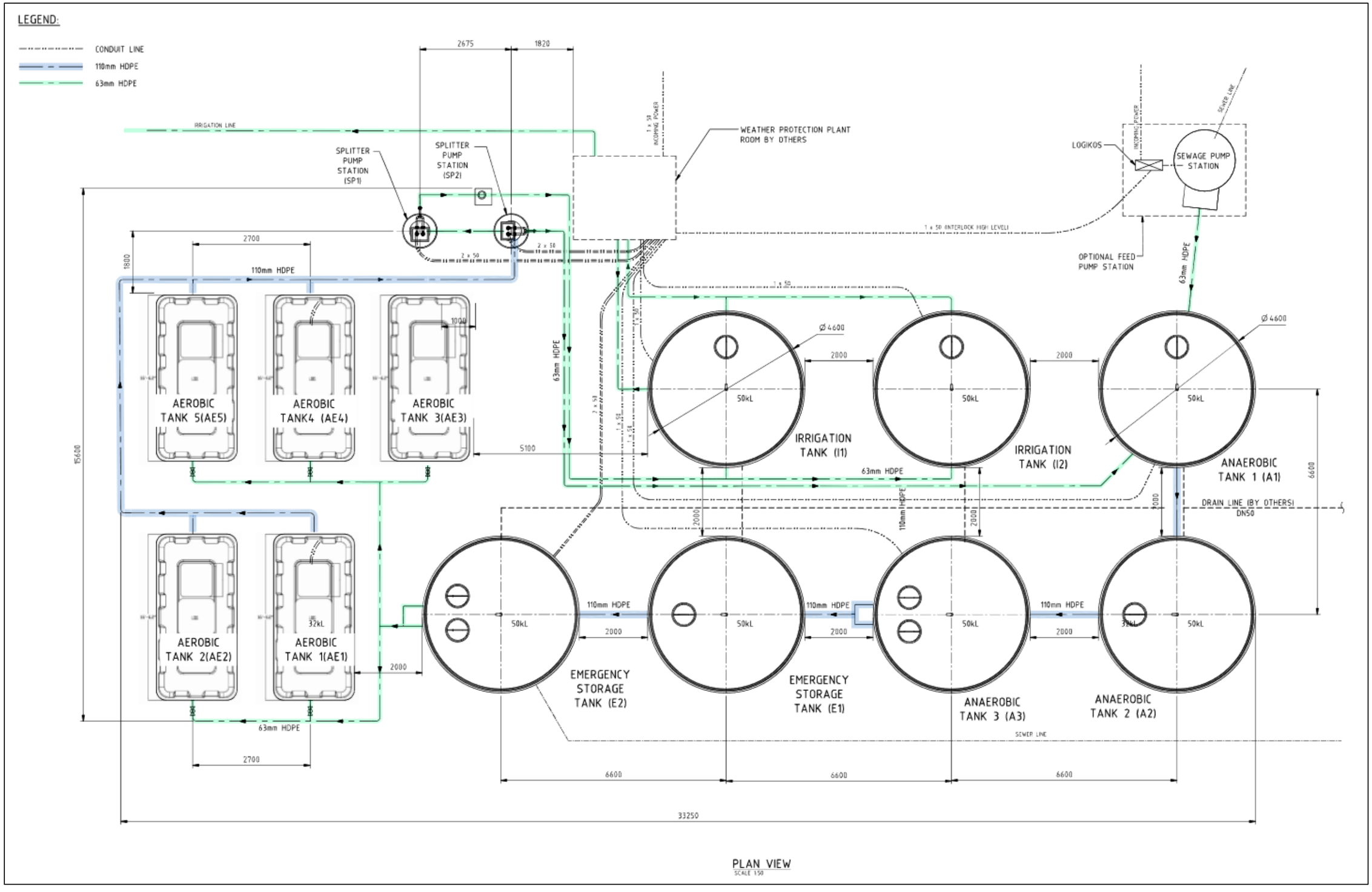


Figure 5: WWTP arrangement

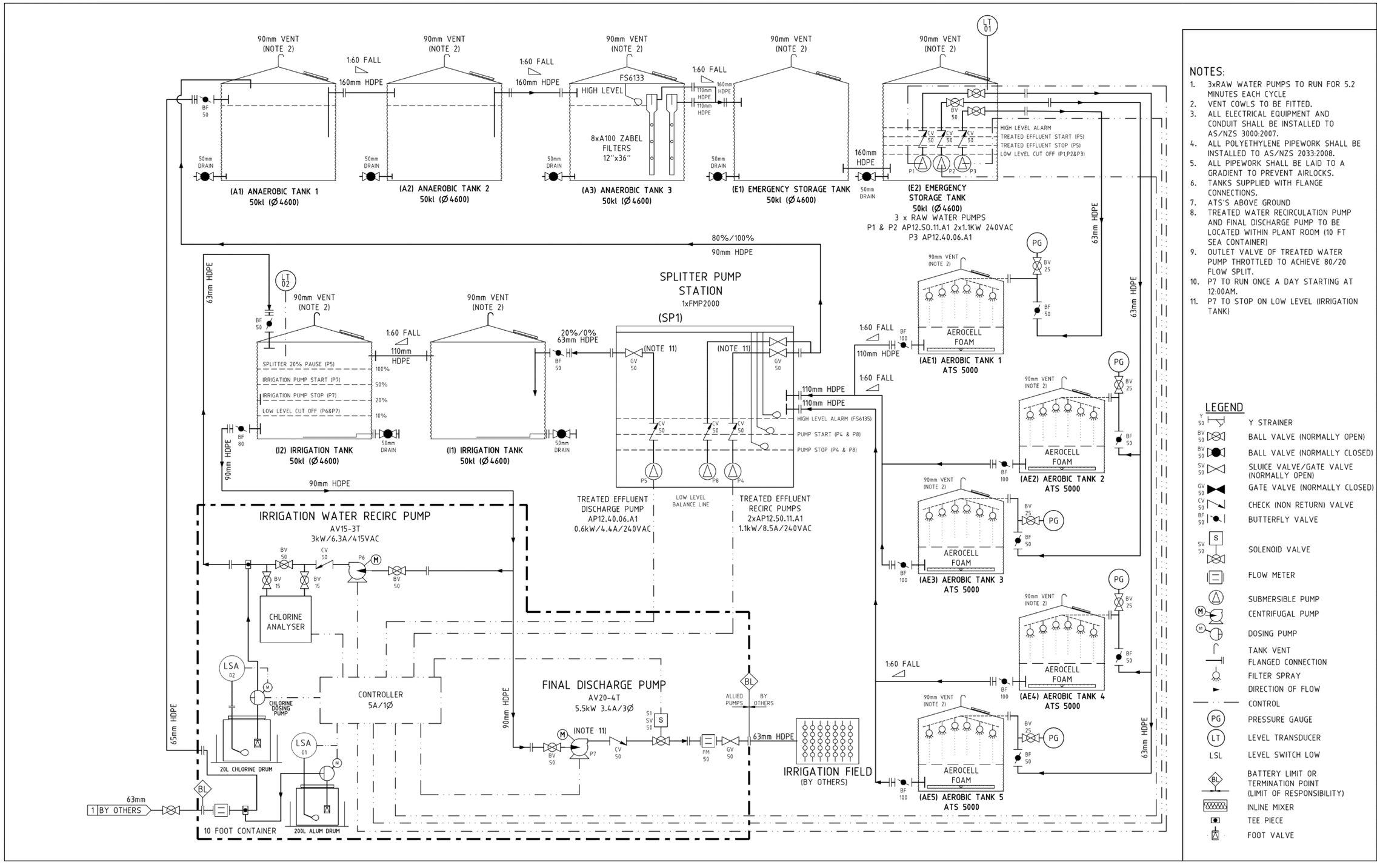


Figure 6: WWTP piping and instrumentation layout