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MEMORANDUM

Date	19 November 2024
Attention	Claire Jones
Company	EcOz
WRM ref.	2255-01-D4
Subject	Lei Lithium Project – Preliminary Surface Water Assessment

Dear Claire,

1 INTRODUCTION

Lithium Plus Minerals Ltd propose to develop an underground lithium mine (Lei Lithium Project), located on the Cox Peninsula in the Northern Territory, approximately 30 km south of Darwin within ML(A) 33874, accessed via Fog Bay Road. The life of mine is estimated to be 7 years, with a total resource recovery of approximately 3.09 million tonnes of spodumene, as direct shipping ore from the Darwin Port to overseas.

Key surface features include the development of a boxcut to construct a portal and decline, temporary surface waste dumps, run of mine pad, crushing and screening areas, and water storages, including a raw water dam, mine water dams and sediment dams.

WRM has completed a preliminary surface water assessment to:

- identify site constraints due to flooding; and
- provide a preliminary indication of the site water balance, including water volumes required for operations.

An overview of the methodology and results of the preliminary surface water assessment are provided in the following sections.

2 DRAINAGE NETWORK

The location of the Lei Lithium Project (the Project) is shown Figure 2.1. The Project is within the Charlotte River catchment which drains to Bynoe Harbour.

The catchment of the Charlotte River to Fog Bay Road, shown in shown Figure 2.1, is 59 km^2. The Charlotte River channel flows along the southwest corner of the mining lease.

The mining lease area is drained by several minor tributaries of the Charlotte River that drain southwest directly to the river channel, or northwest towards another larger Charlotte River tributary. Local drainage on the site is characterised by low ridges with flat, poorly-defined drainage paths.

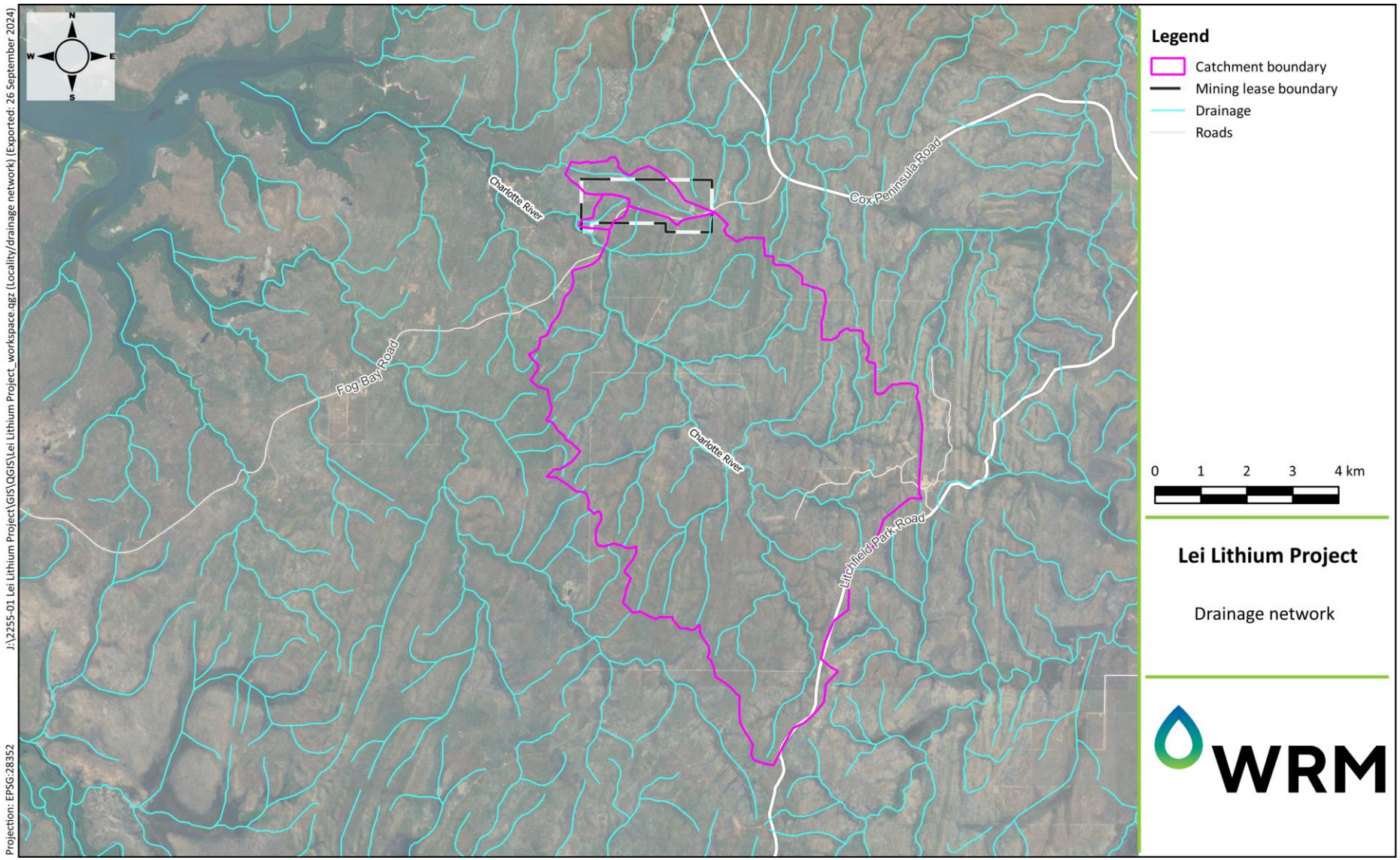

Figure 2.1 Locality and drainage network

3 FLOODING

The TUFLOW two-dimensional flood model was used to undertake a preliminary assessment of flood inundation of the mine lease area for existing conditions.

The model included a short reach of the Charotte River channel, as well as the local overland flow paths through the mining lease.

Flows along the Charotte River were estimated using the Regional Flood Frequency Estimation Model (https://rffe-2021.wmawater.com.au/) which indicated a peak flood discharge of 400 m^3/s for a 1% annual exceedance probability (AEP) flood event. This flow was adopted as a constant inflow rate for modelling of the Charlotte River.

Local stormwater runoff was simulated using the direct-rainfall function of TUFLOW which applies rainfall directly to the surface of the modelled area, allowing the two-dimensional model to determine flow directions, depths and velocities.

The available topographical data for the area of interest consisted of 1 m contours which were converted to a digital elevation model (DEM). The resulting DEM does not provide a high-resolution representation of ground levels and therefore the TUFLOW model results should be used for high-level planning only and not for detailed design.

The modelled flood extent and depth for the 1% AEP event under existing conditions is shown in Figure 4.1. The model results show that flooding in the Charlotte River has minimal impact within the mine lease area. Shallow inundation occurs in low-lying areas within the mining lease. To support infrastructure design, an updated assessment will be required when better topographical data is available.

4 PROPOSED SITE LAYOUT

The proposed site layout is shown in Figure 4.2. Key components of surface water management infrastructure are:

- A Raw Water Dam (180 ML) to collect local stormwater runoff from the eastern portion of the lease area.
- Mine Water Dam 1 (100 ML) which collects runoff from the ROM pad, ore handling areas and the workshop area.
- Mine Water Dam 2 (10 ML) which collects runoff from the waste dump areas.
- Sediment Dam 1 (10 ML) which collects runoff from disturbed areas in the southwestern portion of the lease area.

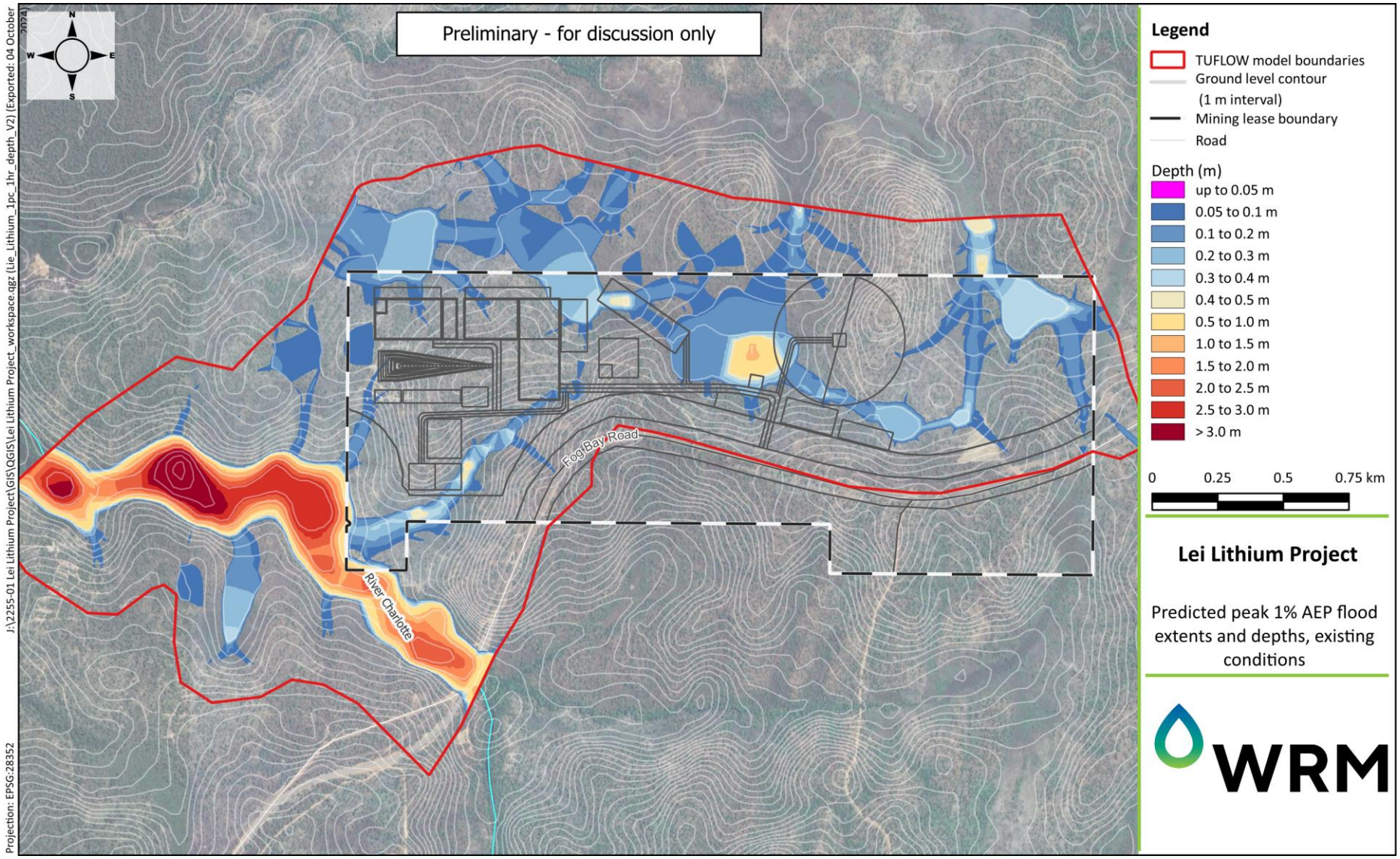

Figure 4.1 Preliminary TUFLOW model flood extent and depths, 1% AEP - Existing conditions

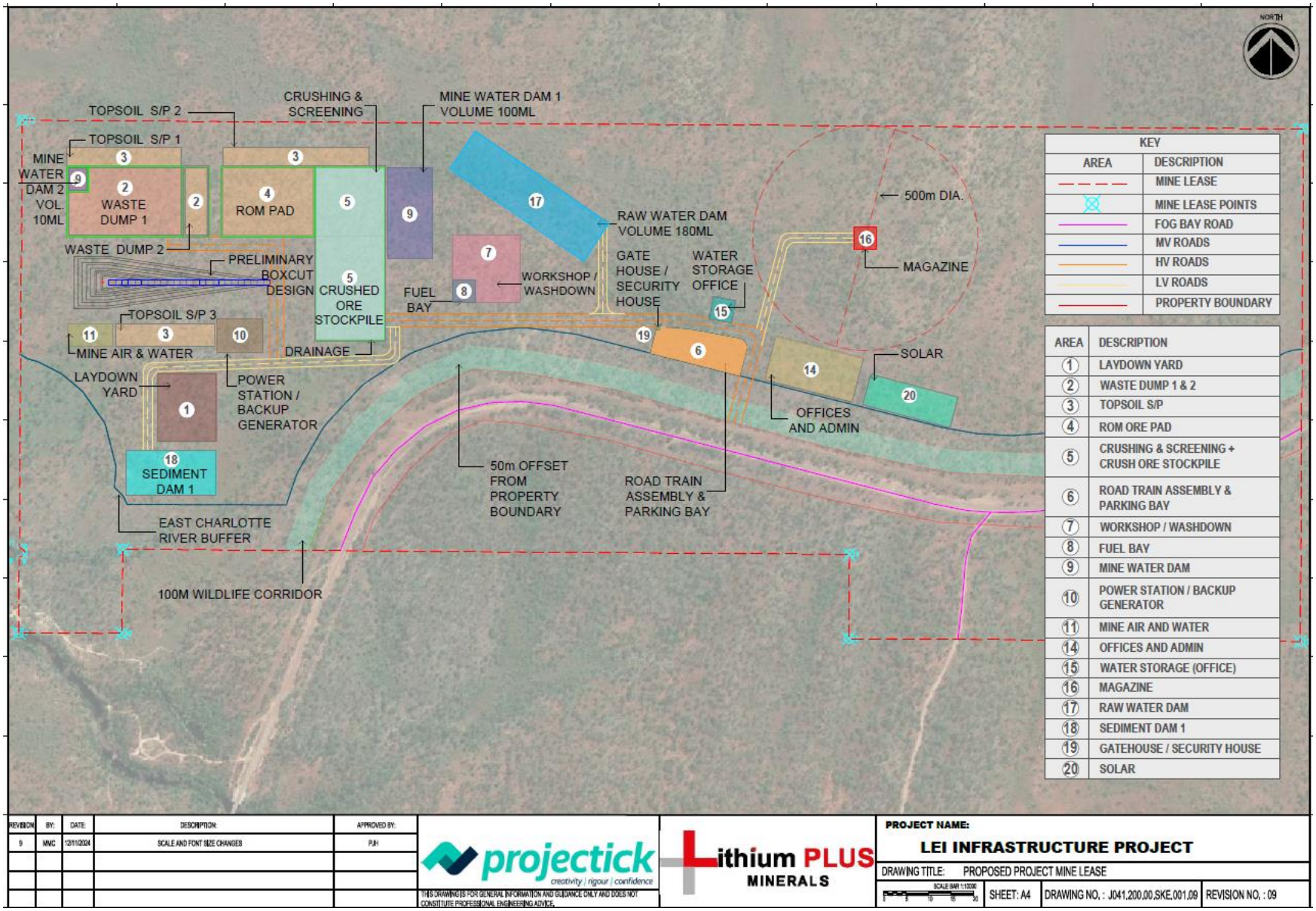

Figure 4.2 Site layout

5 PRELIMINARY SITE WATER BALANCE ASSESSMENT

5.1 OVERVIEW

A preliminary assessment of the site water balance was undertaken using the GOLDSIM software to model the site water management system (WMS).

Long-term daily rainfall and evaporation data for the area was extracted from the SILO DataDrill service (https://www.longpaddock.qld.gov.au/silo/). The site water balance was simulated using multiple climate sequences extracted from the historical climate data to assess the performance of the site water management system under the full range of historical climatic conditions.

5.2 SITE WATER MANAGEMENT SYSTEM

Figure 5.1 shows approximate catchment areas draining to the proposed site storages. Summary details of proposed storages are provided in Table 5.1.

Table 5.1 Site storages

Dam	Catchment area (ha)	Catchment landuse	Dam surface area (ha)	FSL Volume (ML)	Min/Max operating volume (ML)
SD1	15	Hardstand/ Undisturbed	2.0	10	-
MWD2	12	Waste Rock Dumps/ Undisturbed	0.2	10	-
MWD1	19	Hardstand/ Undisturbed	2.0	100	10/95
RWD	79	Undisturbed/ Hardstand	3.6	180	-

Figure 5.2 shows the schematic of the water management system. System operating rules are summarised as follows:

- Underground operations are dewatered to the MWD1.
- Surface water demands are taken from MWD1.
- Underground water demands are taken from RWD (with backup supply from MWD1 if RWD is empty).
- SD1 and MWD2 are dewatered to MWD1 if MWD1 is below its maximum operating volume (MaxOV).
- Pump transfer rate of 4 ML/d for all pumped transfers, except transferring from MWD2 to MWD1 which is 10 ML/d.
- Controlled release from MWD1 to Charlotte River at 10 ML/d when MWD1 volume exceeds MaxOV.
- All dams collect surface runoff from their contributing catchments and lose water through evaporation.

5.3 WATER SOURCES AND DEMANDS

Table 5.2 shows a summary of water demands and sources for the Project. Surface runoff volume is calculated using the AWBM runoff model, based on the adopted parameters in Table 5.3.

A groundwater flow of 0 ML/d has been adopted for the preliminary assessment.

Based on observations during monitoring bore construction at the Lei Project, the monitoring wells yielded an airlift flow rate of around 1 L/s or lower. However, in well LG4, a fracture zone was intersected, increasing the flow rate to 2-3 L/s (CDM Smith 2024). An additional scenario has been modelled with a flow rate of approximately 3 L/s (0.25 ML/d) as the upper potential flow rate for the purpose of preliminary dam sizing.

Table 5.2 Water sources and demands

Source/Demand	Description	Duration	Volume
Demand	Construction Yr 1 dry season only	6 months dry season	300 ML
Demand	Operations 150 ML/a (surface) + 132 ML/a (underground)	Year 2 onwards	282 ML/a
Source	Catchment runoff	Life of project	Varies
Source	Groundwater inflow to underground	Year 2 onwards	0 adopted

Table 5.3 Adopted AWBM parameters

Parameter	Undisturbed	Hardstand	WRD	Box cut/ Cleared
C1 (mm)	50	2	50	6
C2 (mm)	100	10	150	25
C3 (mm)	200	30	200	100
A1	0.1	0.33	0.133	0.133
A2	0.2	0.33	0.433	0.433
A3	0.7	0.33	0.433	0.433
BFI	0	0	0	0
Kbase	0	0	0	0
Ksurf	0	0	0	0

Figure 5.1 Site catchments and storages

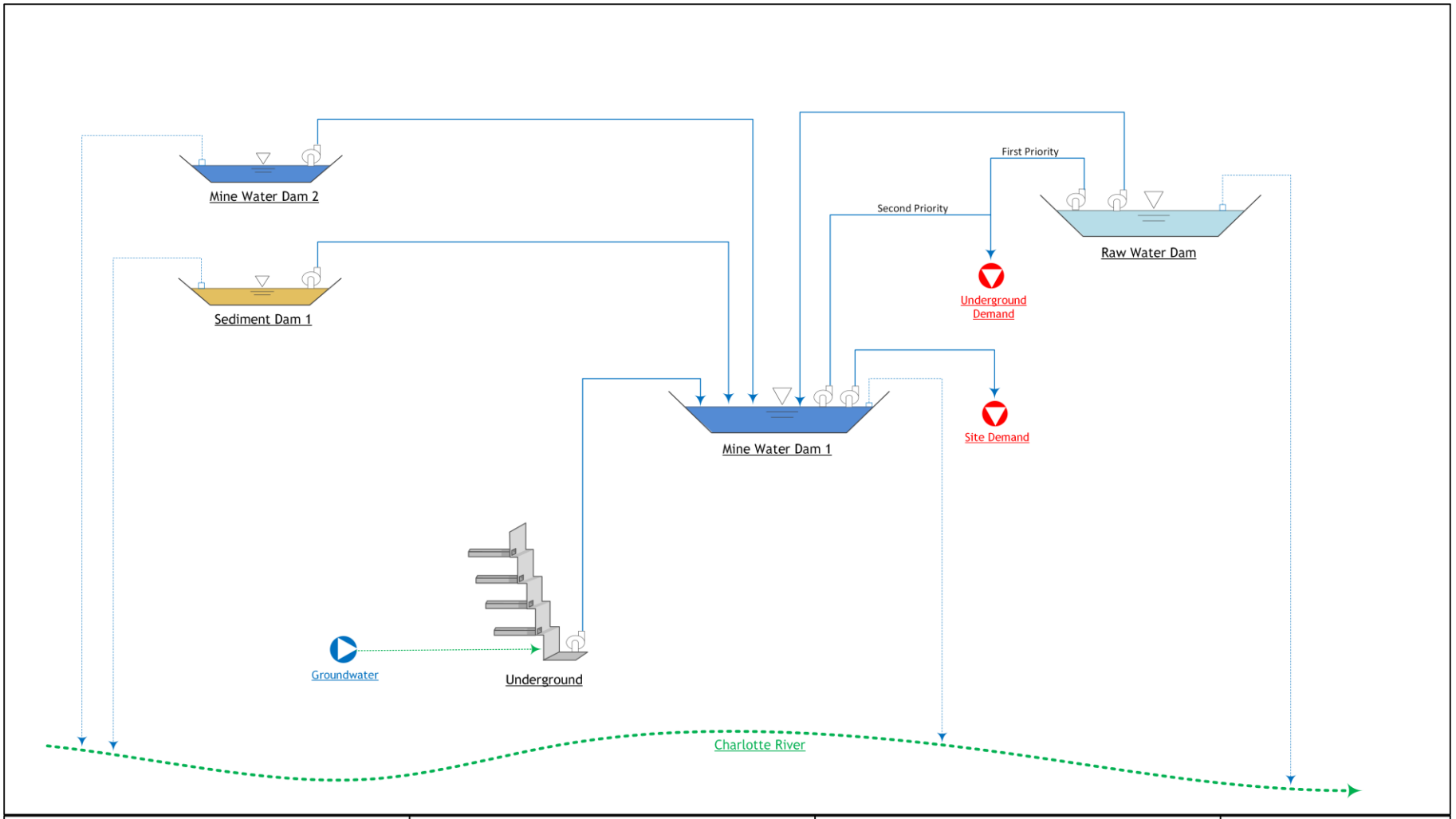

Figure 5.2 Water management system schematic

5.4 WATER BALANCE RESULTS

Summary results of the water balance assessment are shown in Table 5.4, based on a representative year of operations (excluding construction period). Results are shown for the median of the modelled climate sequences (50%ile) and the 10%ile which represents dry conditions (90% of years will be wetter than the 10%ile).

The model results show:

- Median annual inflow to the WMS of about 752 ML, comprising stormwater runoff and direct rainfall on dams.
- The RWD overflows for median conditions (242 ML).
- To prevent uncontrolled overflows from the mine water dams, controlled releases of mine water from MWD1 are required under median conditions (117 ML), but not dry (10%ile) conditions.
- All demands are met by captured site runoff under median conditions. A small shortfall in meeting demands (27 ML) occurs under dry conditions. However, any net groundwater inflow would reduce this shortfall.

Overall, the model results show that the proposed water management infrastructure is capable of supplying site demands under average conditions based on collection of stormwater runoff from within the mining lease area.

Table 5.4 Site water balance annual summary – zero groundwater inflow

	Parameter	10%ile Dry	50%ile Median
Inflows (ML/yr)	GW inflow	0	0
	Rainfall runoff	287	680
	Direct rainfall on dams	40	72
Outflows (ML/yr)	Total evaporation	84	99
	MWD overflows (MWD1+MWD2)	0	0
	SD overflows (SD1)	0	12
	RWD overflows	0	242
	Total controlled release	0	117
	Total UG demand supplied	118	132
	Total surface demand supplied	136	149
Shortfall (ML/yr)	Shortfall in total demand	27	0

5.5 IMPACT OF GROUNDWATER INFLOWS

Table 5.5 shows the site water balance with a net groundwater inflow of approximately 3 L/s (0.25 ML/d or 91 ML/yr). Groundwater inflow of this magnitude improves the reliability of site water supply during dry conditions with minimal demand shortfall (2 ML/yr) in 10%ile dry conditions. Groundwater inflows slightly increase controlled release volumes (by 25 ML/yr in median conditions) due to higher average dam inventories

Table 5.5 Site water balance annual summary with groundwater inflow of 0.25 ML/d

	Parameter	10%ile Dry	50%ile Median
Inflows (ML/yr)	GW inflow	91	91
	Rainfall runoff	281	673
	Direct rainfall on dams	49	74
Outflows (ML/yr)	Total evaporation	95	102
	MWD overflows (MWD1+MWD2)	0	0
	SD overflows (SD1)	0	13
	RWD overflows	0	241
	Total controlled release	18	142
	Total UG demand supplied	131	132
	Total surface demand supplied	149	149
Shortfall (ML/yr)	Shortfall in total demand	2	0

6 CONCLUSIONS

The results of the preliminary surface water assessment for the Lei Lithium Project show:

- Flooding in the Charolotte River has minimal impact within the mine lease area. Shallow inundation occurs in low-lying areas within the mining lease. To support infrastructure design, an updated assessment will be required when better topographical data is available.
- The proposed water management infrastructure is capable of supplying site demands under median conditions based on collection of stormwater runoff from within the mining lease area. Options to supplement water demands in the dry season should be considered such as:
  - A Surface Water Extraction Licence from existing nearby water storages and/or waterways;
  - Consider groundwater extraction and bores; and/or
  - Yield additional water from catchment runoff from within the mine lease.
- Groundwater inflows to the underground workings will increase the reliability of site water supply. Net groundwater inflow of approximately 3 L/s (0.25 ML/d) should ensure that the site water management system can supply site demands in 10%ile dry conditions.

Please do not hesitate to contact me if you have any queries.

Regards,

Julian Orth

Senior Principal Engineer