

APPENDIX L

BP33 Underground Mine Erosion and Sediment Control Plan

(WRM, 2025)



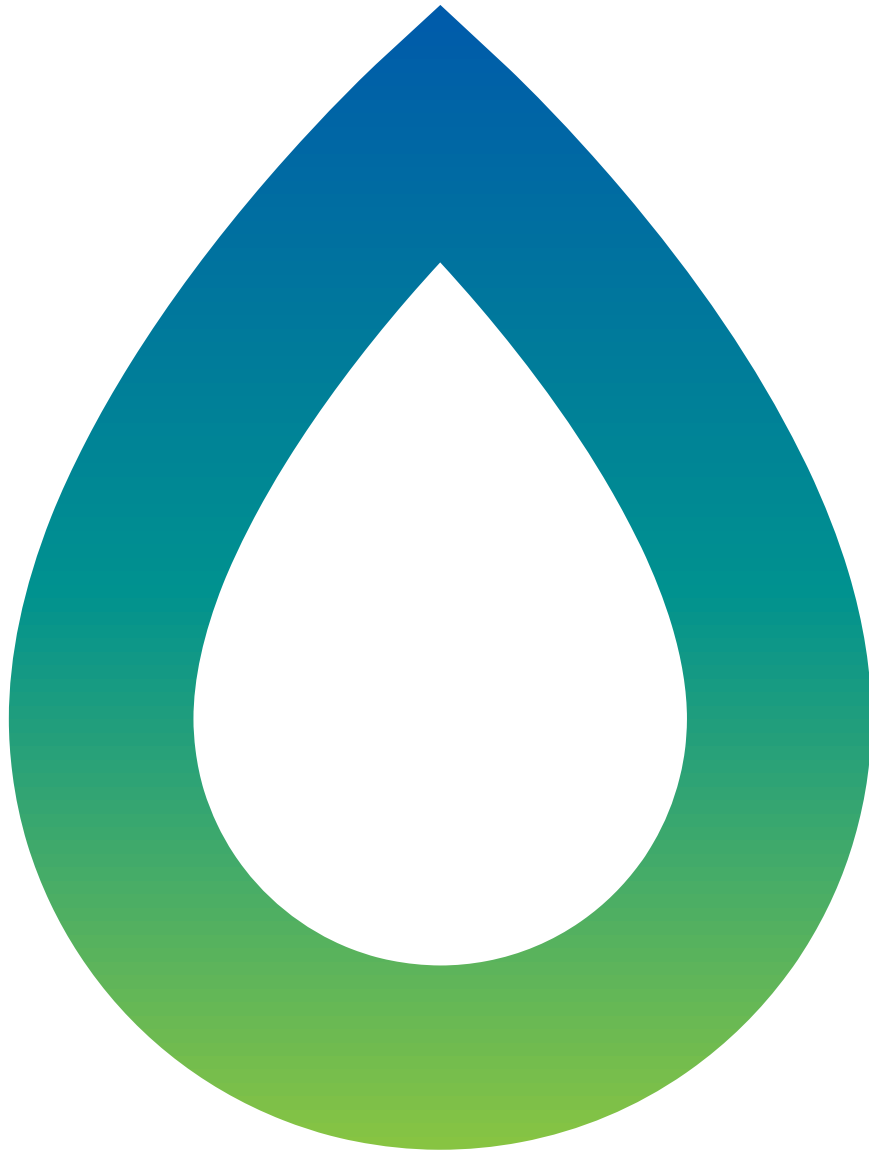
BP33 UNDERGROUND MINE

Erosion and Sediment Control Plan

Lithium Developments Pty Ltd

12 December 2025

1727-28-D



DETAILS

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Client Lithium Developments Pty Ltd

THIS REVISION

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1 INTRODUCTION

1.1 OVERVIEW

BP33 Underground (BP33) is an underground lithium mine operated by Lithium Developments Grants NT (LD) in the Northern Territory. The mine is located approximately 30 km southwest of Darwin.

The targeted ore body is a near-vertical pegmatite intrusion, rich in the lithium-bearing mineral spodumene. The ore body is mined via an underground mine using sublevel open stope (SLOS) with pillar support and drill and blast methods. The ore will be hauled from BP33 to be processed at Grants facilities, to produce a concentrate for transport via road to Darwin Port for export. Waste rock from the box cut and underground are placed in onsite Waste Rock Dumps (WRDs). The BP33 mine life is expected to last between 11 to 12 years.

The BP33 site layout, including all major surface water infrastructure elements required during operations, is shown in Figure 1.1.

1.2 PURPOSE OF REPORT

The purpose of this report is to provide the proposed drainage plan for the life of the mine (LOM) and erosion and sediment control plan (ESCP) for activities associated with the development and operations of the Project.

1.3 SCOPE

This report details the following:

- Identification of disturbed catchment areas;
- Discussion regarding the three key aspects of Erosion and Sediment Control (drainage, erosion and sediment control) and methods to manage each aspect;
- Indicative locations of proposed drainage, erosion and sediment control measures for the life of the project;
- Monitoring and emergency reporting requirements; and
- Inspection requirements for the ESC system.

To minimise the impact of the construction on the external environment, this ESCP shall be implemented.

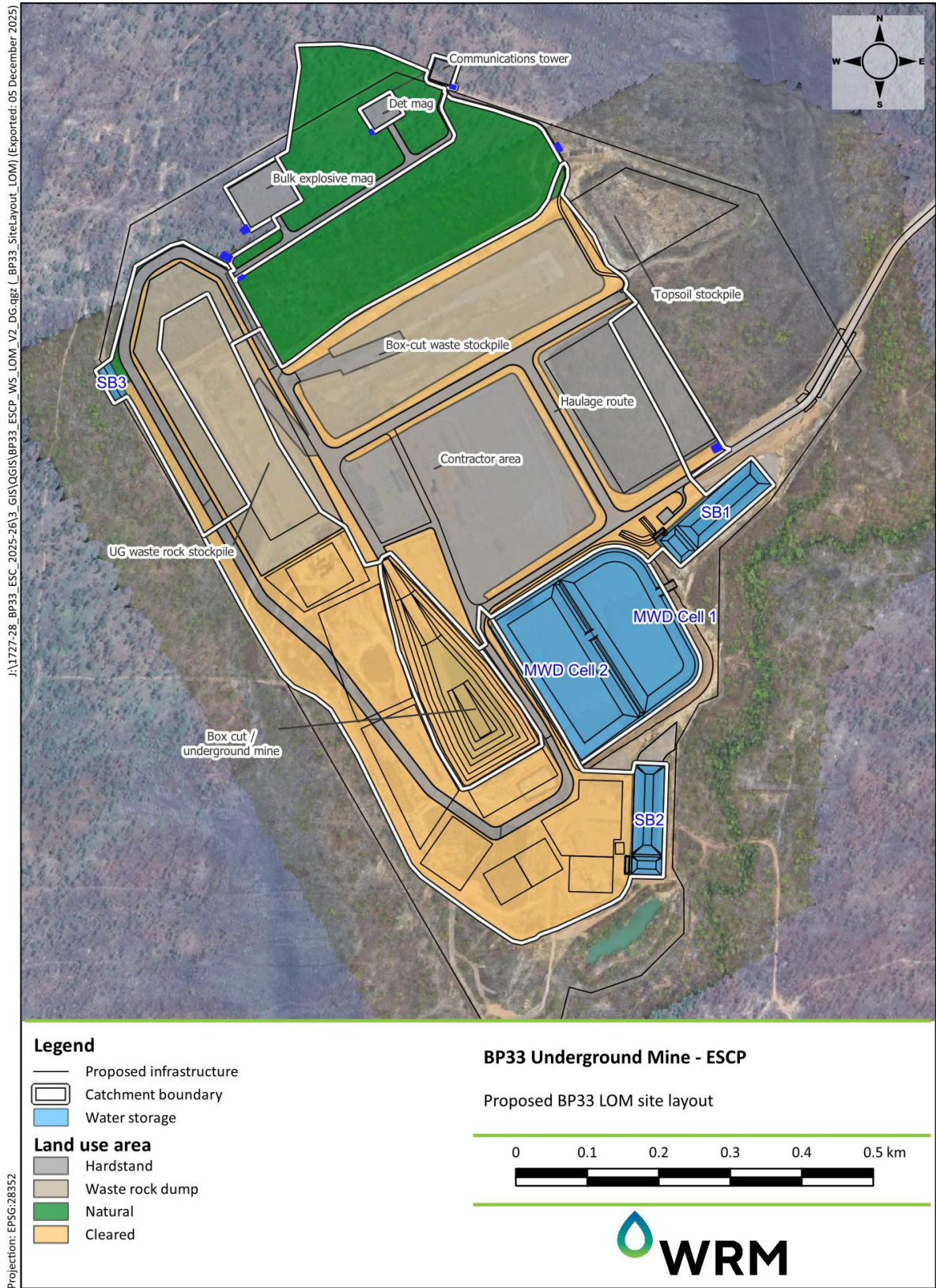


Figure 1.1 BP33 mine and water management system layout

2 EXISTING ENVIRONMENT AND SITE CONFIGURATION

2.1 REGIONAL DRAINAGE CHARACTERISTICS

BP33 is located within the Finnis River sub-basin of the greater Timor Sea Basin. The Finnis River sub-basin consists of several major streams that discharge into the Timor Sea, as shown in Figure 2.1.

Figure 2.2 also shows the surrounding catchments of the BP33 area. The BP33 area is not located within a named watercourse catchment and would drain into the Bynoe Harbour, via an unnamed tributary of the Charlotte River. Carrawara Creek is located approximately 17 km northwest of BP33 and Charlotte River is located approximately 3 km to the southwest of BP33.

The catchments surrounding BP33 are predominately undisturbed, with some rural residential areas and road infrastructure. Mangroves cover much of the coastal shoreline in the vicinity of BP33.

2.2 LOCAL DRAINAGE NETWORK

The site topography generally falls to the south, towards a natural stream (Drainage Line BP1) that runs from Observation Hill Dam to a confluence with the Charlotte River to the west. The western portion of the site grades towards the northwest (Overland flow path), along the project extent. Runoff from a small catchment may have potential to enter the northern portion of the site and is intended to be diverted around the project works.

Figure 2.2 shows the local drainage features within the vicinity of BP33. Drainage features that cross the BP33 area eventually drain to the Timor Sea. The main tributary that drains through the BP33 area is Drainage Line BP1.

2.2.1 Drainage Line BP1

Drainage Line BP1 has a catchment area of approximately 298 ha and 365 ha to the BPUS SW1 and BPDS SW2 monitoring locations respectively. Of this catchment area, approximately 94 ha is upstream of OHD. The catchment is mostly natural with some grassed areas that were cleared by preliminary exploration activities. The channel is poorly defined, particularly in the upper section of the reach. The channel banks are vegetated with grasses, shrubs and small trees.

2.2.2 Unnamed tributary of the Charlotte River

Drainage Line BP1 discharges into a tributary of the Charlotte River, which has a catchment area of approximately 3,193 ha to the BPDS SW6 monitoring location. The tributary discharges into the tidally affected section of the Charlotte River.

2.2.3 Drainage Line BP2

Drainage Line BP2 has a catchment area of approximately 53.5 ha to the BPDS SW3 monitoring location and 217 ha to the confluence of the drainage line along BPDS SW3 and Drainage Line BP2. Drainage Line BP2 would discharge into the tidally affected section of the Charlotte River.

2.2.4 Overland flow path

The overland flow path to the southwest of the site has a catchment area of approximately 52 ha to the BPDS SW8 monitoring location. The overland flow path would discharge into the Unnamed Tributary of the Charlotte, slightly downstream of the BPDS SW6 monitoring location.

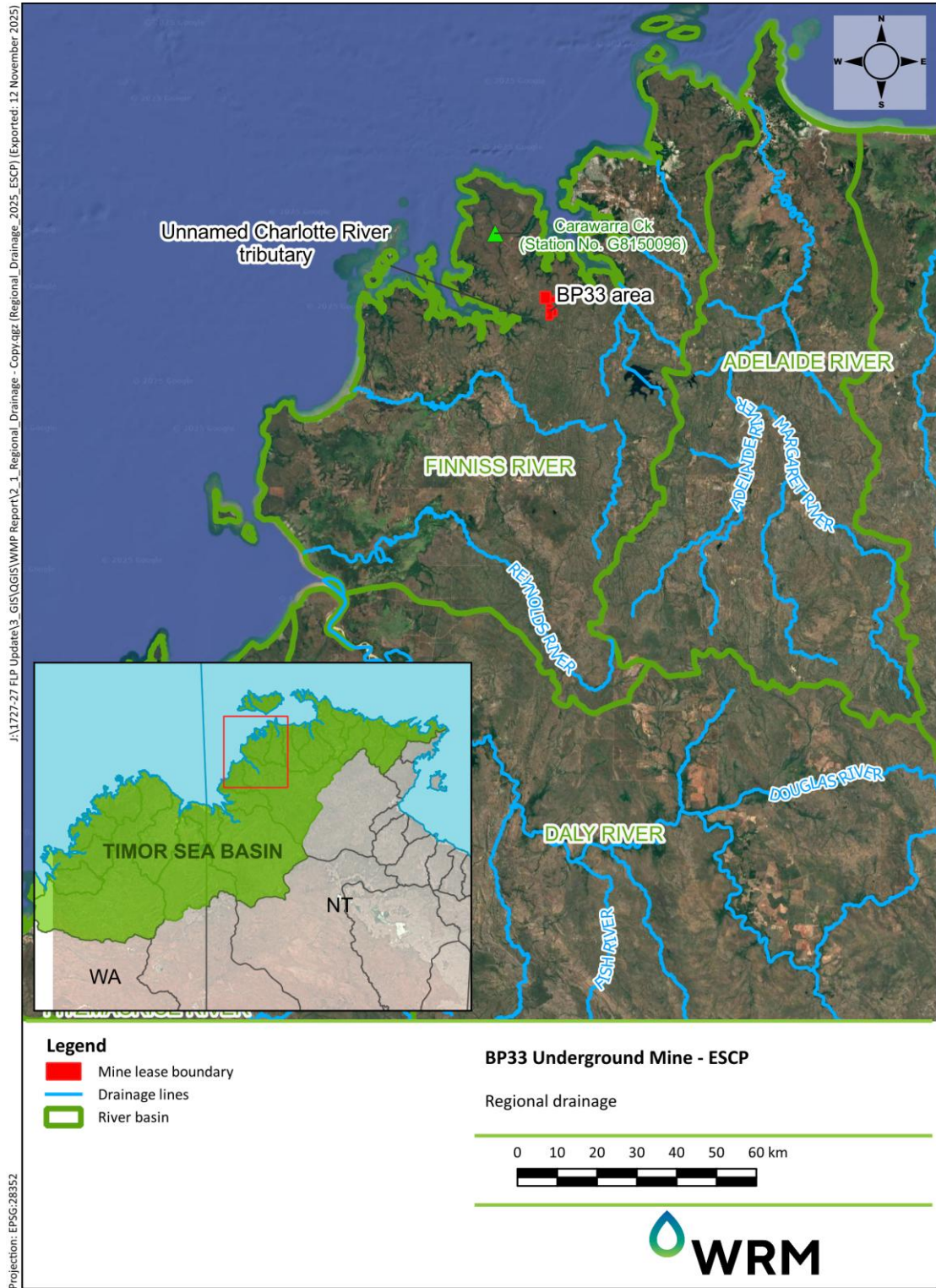


Figure 2.1 Regional drainage

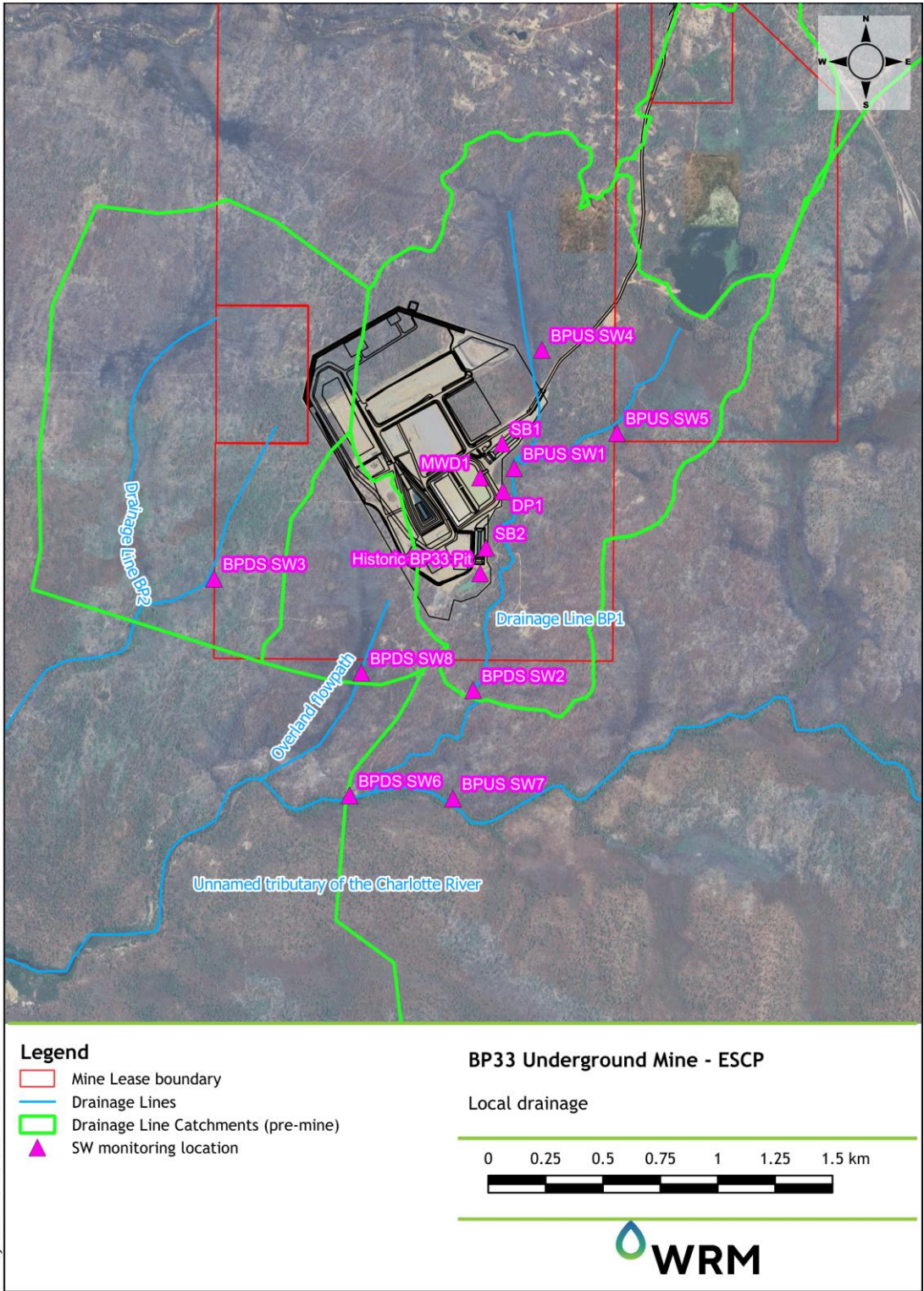


Figure 2.2 Local drainage

2.3 RAINFALL

The average monthly rainfalls at BP33 exhibit distinct wet (November to March) and dry (April to October) seasons during the year, with a dry season low of 1.2 mm in July to a wet season high of 3917 mm in January. The wet season average monthly rainfalls (133 mm to 392 mm) are significantly higher than the equivalent dry season monthly rainfalls (1.2 mm to 57.3 mm). The recorded mean annual rainfall at the Project over the period 1889 to 2024 is approximately 1,530 mm.

Table 2.1 shows the mean monthly and annual SILO Data Drill rainfall at BP33 based on the available 136 years of data. Figure 2.3 shows the statistical variation of monthly rainfall at BP33.

Table 2.1 SILO Data Drill mean monthly rainfall.

Month	Mean Monthly Rainfall (mm)
January	391.7
February	319.4
March	272.6
April	83.8
May	9.7
June	2.3
July	1.2
August	1.3
September	14.3
October	57.3
November	133.2
December	243.4
Annual	1,530.3

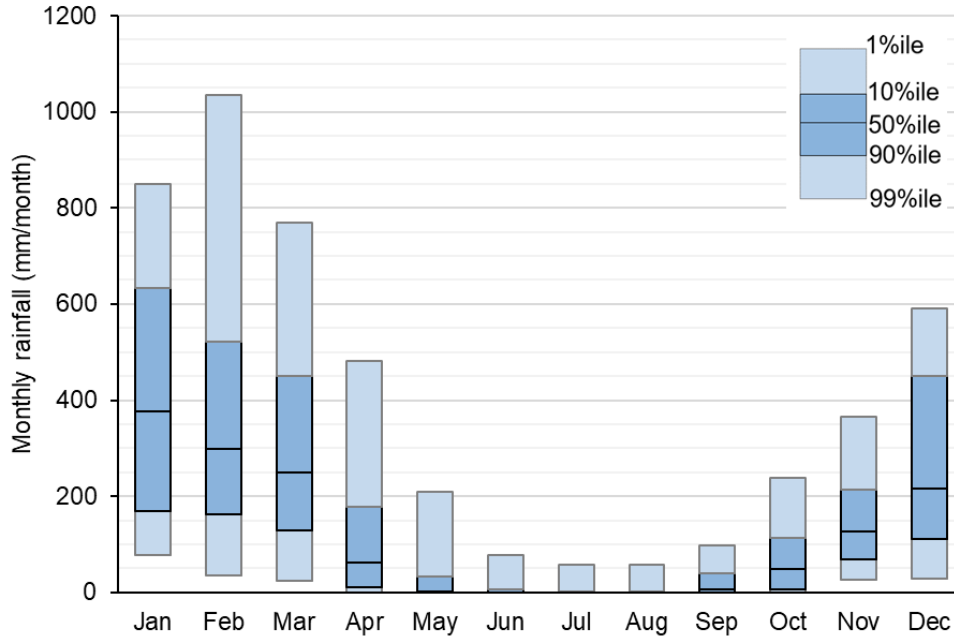


Figure 2.3 Monthly rainfall at BP33 from 135 years of SILO Data Drill rainfall data

2.4 SOILS TYPES

2.4.1 Land units

Landform class, land units and associated landform and soil descriptions for the project area, are shown in Table 2.2. The distribution of the land units in the vicinity of the BP33 area is shown in Figure 2.4. Much of the disturbance area comprises rudosol soils associated with land unit 2a1, with small areas of hydrosols associated with land units 6b/5b1 (drainage systems), and 5a (alluvial plains).

Land unit mapping shows the project area has a Nil (Class 1) risk of Acid Sulfate Soils which correlates with the Land Systems of the Northern Part of the Northern Territory which shows there is no potential acid sulfate soils within the project area.

Table 2.2 Land units and soils within the mineral lease boundary (EcOz, 2019)

Landform Class	Land Unit	Landform	Soil Description
Rises	2a1	Low rises and associated upper slopes. Gradient 0.5-4 %. Extensive surface gravels.	Rudosols. Gravelly lithosols, usually shallow with some moderately deep occurrences. Loamy sand or sandy loam surface to sandy clay loam subsoil. 20-40 % gravels in surface, 30-60 % gravels in subsoil. Well drained.
Plains	6b/5b1	Broad drainage floors and creek margins. Gradient < 1.5 %.	Hydrosols Shallow to moderately deep siliceous and earthy sands, minor sandy massive earths. Coarse textured sands to sandy loams. 0-10 % gravel in surface, 5-40 % gravel in subsoil. Well drained.

Landform Class	Land Unit	Landform	Soil Description
Alluvial plains	5a	Narrow alluvial plains within upland terrain. Gradient < 1.0 %.	Hydrosols. Hardsetting apedal mottled yellow duplex soils. Fine sandy loam or loam overlaying light clay to medium clay subsoil Minor subsoil ferruginous gravels. Imperfectly drained.

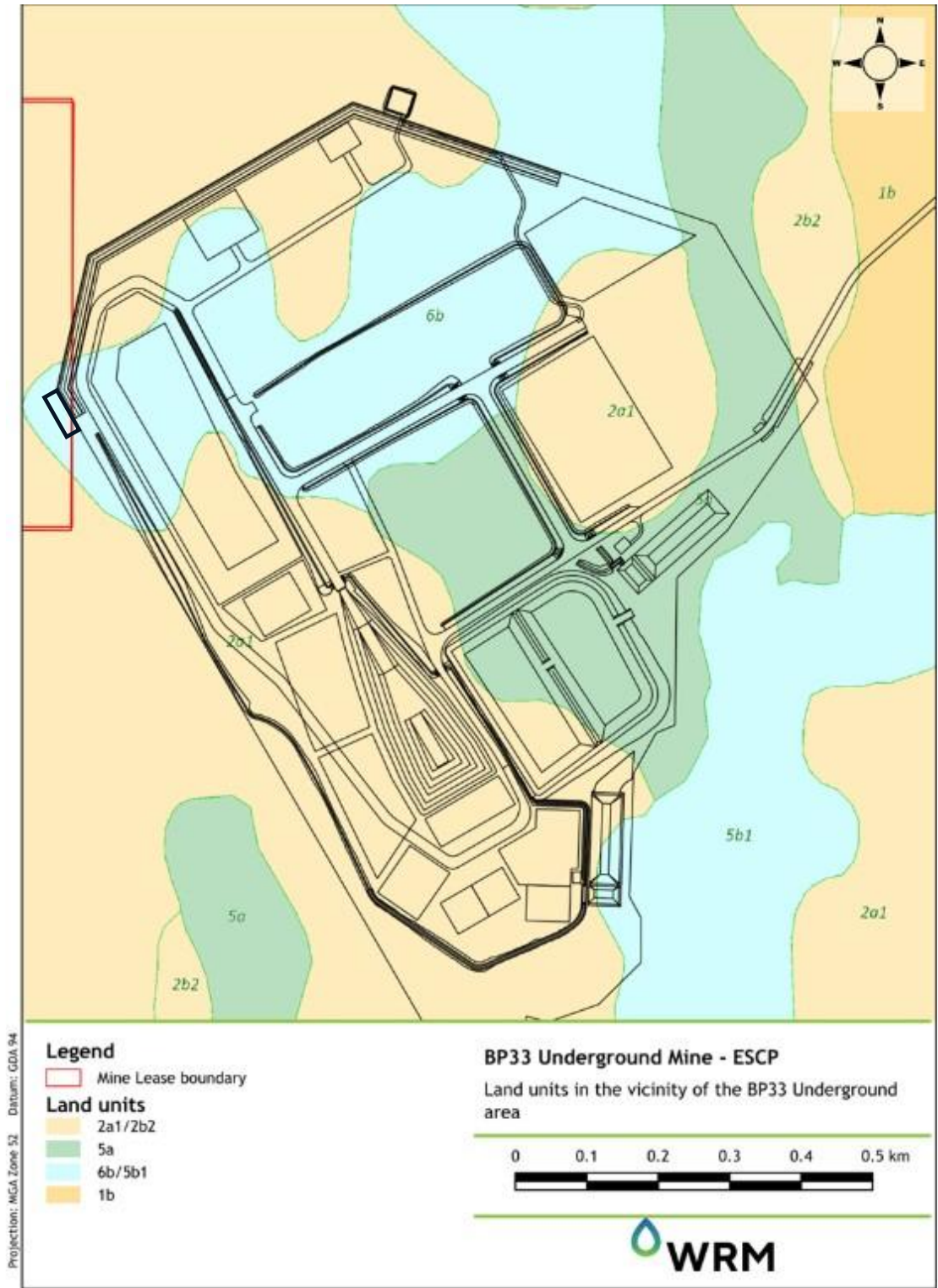


Figure 2.4 Distribution of identified land units

2.4.2 Soil characteristics

A number of soil types have been identified onsite for ESC purposes, based on observation from LD personnel including:



- Topsoil;
- Subsoil;
- In-situ laterite (coffee rock);
- In-situ phyllite;
- Zone 1 construction material; and
- Zone 3 construction material.

The observed soil types are summarised in Table 2.3. LD intend to undertake further soil testing in order to better understand the prevalence of the identified soils, as well as the specific physico-chemical properties.

Table 2.3 Observed soil characteristics on site


Type	Description/location	Characteristics/general erosive potential
Topsoil	Upper layer of soil containing organic matter.	<p>Soil textures: sandy-loams, sandy-clay-loams and gravelly-sands (clay content <20%)</p> <p>The results of soil characterisation assessment (EGi, 2020) for site soils indicate the following:</p> <ul style="list-style-type: none"> • Soil is generally non-dispersive, but given the low organic matter level and sandy texture the soil likely has poor structure and limited water-holding capacity, and therefore could be susceptible to erosion under wet conditions. • CECs are low, indicating soils have low water holding capacity and are readily leached of nutrients • ECs were generally on the low end of the typical range for soil. Exchangeable sodium vales were negligible, and soils can be considered non-sodic. • Majority of site soils are sodic, predisposing them to hard setting when dry and potential erosion when wet.



Type	Description/location	Characteristics/general erosive potential	
Subsoil	Layer of soil below the topsoil.	<p>Similar to topsoil.</p> <p>Site personnel have observed these soils to be dispersive and slaky once exposed to the weather.</p>	
In-situ laterite (coffee rock)	<p>Rocky substrate characterised by red colouration. The rock is dispersed with clayey soils, a product of laterite weathering. This substrate is generally located below the subsoil.</p>	<p>In-situ laterite itself is relatively stable, however the clayey soils typically surrounding the rock is dispersive and may compromise the stability of the substrate.</p>	

Type	Description/location	Characteristics/general erosive potential
In-situ phyllite	Rocky substrate composed of flake-shaped mica minerals in parallel alignment.	In-situ phyllite is considered to be generally stable.
Unconsolidated overburden stockpiles	Generally a combination of soil from the site that have been disturbed and lumped in a single location. These stockpiles are generally poorly compacted.	The unconsolidated stockpiles are susceptible to rilling and slumping, particularly due to the dispersive nature of the substrate.



Type	Description/location	Characteristics/general erosive potential	
Zone 1 construction material – batter	Laterite substrate that has been worked into a construction material. These soils would generally be compacted to a degree.	The stability of this material would generally depend on the degree on compaction. When left exposed, this material is considered dispersive and exposed areas should be stabilised, covered and/or suitably ameliorated prior to placement.	
Zone 3 construction material	Gravel-like substrate used for construction purposes.	The erosion potential of this material is low, however some particle movement may be observed during large events.	<i>No photograph available</i>



3 MANAGEMENT OF EROSION, DRAINAGE AND SEDIMENT CONTROL

3.1 OVERVIEW

The purpose of this report is to provide a set of best practice site management procedures to control the severity and extent of soil erosion and sediment transport for the planned project.

Clearing of the site and the construction of ESCs will comply with the IECA 2025 guidelines. Due consideration should be given to stripped topsoil being retained and reused onsite, disturbed areas and rehabilitation of the site. The construction contractor will be responsible for the implementation, inspection, repair and modification of the controls.

The climate in the vicinity of the site is characterised by distinct wet and dry seasons. During the wet season from November to April, construction activities at the site may be impacted by storm events and site conditions constraining vehicle access. Therefore, it is recommended to undertake construction works, erosion and sediment control measures and initial re-vegetation prior to the wet season. This will significantly lower the risk of erosion and sediment transport as well as impacts to the flow regime.

3.2 MANAGEMENT CONTROL MEASURES

This ESCP is intended to assist in the management, reduction and mitigation of erosion and consequent sediment transport within and from the construction activities.

Preventing unacceptable levels of sediment from leaving the site and entering the receiving waters is one of the most important functions of ESC. As per IECA (2025), this ESCP adopts the three cornerstones of ESC as follows:

- **Erosion control** – prevention or minimisation of soil erosion (from dispersive, non-dispersive or competent material) caused by rain drop impact and exacerbated overland flow on disturbed surfaces.
- **Drainage control** – prevention or reduction of soil erosion caused by concentrated flows and appropriate management and separation of the movement of clean and dirty water through the area of concern.
- **Sediment control** – trapping or retention of sediment either moving along the land surface, contained within runoff (i.e. from up-slope erosion) or from windborne particles.

Erosion control and sediment control are two very different activities. Erosion control measures concentrate on preventing, or at least minimising, soil erosion. Sediment control measures concentrate on trapping sediment displaced by up-slope soil erosion. In general, the most efficient and cost-effective way of minimising sedimentation is to minimise the extent, duration and severity of soil erosion. In addition, best practice sediment control measures cannot, on their own, be relied upon to provide adequate environmental protection.

3.3 PRINCIPLES OF EROSION AND SEDIMENT CONTROL

The principles of effective erosion and sediment control for the proposed clearing activity on site are based on the following (from Chapter 1.3 of IECA, 2025):

- Appropriately integrate the development into the site;
- Integrate erosion and sediment control issues into site and construction planning;
- Develop effective and flexible erosion and sediment control (ESC) plans based on anticipated soil, weather and construction conditions;

- Minimise the extent and duration of soil disturbance;
- Control water movement through the site;
- Minimise soil erosion;
- Promptly stabilise disturbed areas;
- Maximise sediment retention on site;
- Maintain all ESC measures in proper working order at all times; and
- Monitor the site and adjust ESC practices to maintain the required performance standard.

3.4 EROSION RISK

3.4.1 Revised Universal Soil Loss Equation

For the purpose of catchment planning, topsoil, spoil and disturbance areas are to be classified based on estimated annual soil loss due to erosion. The estimated soil loss rate shall be calculated using the Revised Universal Soil Loss Equation (RUSLE).

The RUSLE method of estimating annual soil loss due to erosion is documented in IECA (2025). The annual soil loss due to erosion is calculated as:

$$A = R \times K \times LS \times C \times P$$

Where:

A = annual soil loss due to erosion (t/ha/yr)

R = rainfall erosivity factor

K = soil erodibility factor

LS = topographic factor derived from slope length and slope gradient

C = cover and management factor

P = erosion control practice factor

The rainfall erosivity factor **R** is a function of the 2 year Average Recurrence Interval (ARI) 6 hour design rainfall intensity for the site being assessed.

The soil erodibility factor **K** “should be determined from laboratory analysis of soil data wherever practical” (IECA, 2025).

The topographic factor **LS** is derived from the catchment slope length and slope gradient.

The cover and management factor **C** and erosion control practice factor **P** will be assigned on a case-by-case basis. Assuming 0% grass cover (i.e. default construction conditions) **C** should be set to 1.0. The cover and management factor may be reduced once vegetations becomes established with values of 0.45, 0.22 and 0.10 for grass coverage of 20%, 40% and 60% respectively (IECA, 2025). The default construction phase **P** should be 1.3 (compacted and smooth).

Further guidance on these parameters can be found in IECA (2025).

3.4.2 Rainfall erosivity

The erosion risk rating is determined from monthly rainfalls for the site based on SILO long term rainfall monthly averages. The erosion risk ratings are expected to be high to extreme during the wet season (November – April) and very low during the dry season (May – October).

Table 3.1 Monthly erosion risk rating

Month	Average monthly rainfall (mm)	Average monthly rainfall erosivity ^a	Erosion Risk Rating
January	392	4,158	Extreme
February	319	3,019	Extreme
March	273	2,831	Extreme
April	83.8	688	High
May	9.7	117	Very Low
June	2.3	0	Very Low
July	1.2	0	Very Low
August	1.3	52	Very Low
September	14.3	91	Low
October	57.3	539	High
November	133	1,254	High
December	243	2,542	Extreme

Note ^a: An annual erosivity factor of 15,291 was adopted based on information derived and provided by the NT government. The site is located relatively close to Humpty Doo, thus the published R-factor vales for that location were used (Topo, 2024)

3.5 MANAGEMENT OF EROSION AND SEDIMENT CONTROL

Section 4 to 6 lists the management measures to be implemented to maintain the current environmental values onsite.

3.6 CONTINGENCIES

During construction, the Contractor shall allocate sufficient resources (personnel, plant, equipment and materials) to the site and store on-site, at suitable locations and at all times sufficient quantities of materials to immediately attend to any non-conformance.

Corrective actions may be agreed upon, dependent upon the severity of non-conformance and/or emergency and parameter involved, between the Contractor, Site Manager, and relevant authority.

4 EROSION CONTROL MEASURES

4.1 OVERVIEW

Soil erosion is the process through which the effects of wind, water or physical action displace soil particles causing them to be transported. This section outlines the measures to be taken during construction to minimise erosion and downstream sedimentation.

Clearing of groundcover and vegetation will be undertaken where necessary and is to be restricted to identified areas only. Stabilisation measures in cleared areas will be implemented as required until revegetation works can commence to limit soil erosion.

Where possible, site clearing should be staged to minimise the extent and duration of spoil exposure before revegetation works can commence. The type of soil stabilisation measures that will be implemented will depend on the type and location of the disturbance.

Revegetation works such as plant selection, soil amelioration (if required following onsite investigation or identified by the Rehabilitation Management Plan) and planting techniques will be undertaken in accordance with the approved Riparian Rehabilitation Plan, which should be prepared and approved prior to the commencement of any vegetation clearing.

Additional stabilisation will be implemented in areas where disturbance will occur over extended periods or where there is an elevated erosion risk. Elevated erosion risks include works not considered in this ESCP, works during high rainfall periods, works on steep slopes and works within sensitive environments. Works that have an elevated erosion risk must be completed as quickly as possible to minimise the risk of potential environmental harm.

4.2 EXPOSED SOILS

4.2.1 Topsoil management

Topsoils will be stripped and stockpiled prior to heavy machinery use for construction works and stockpiled for later rehabilitation works. Following topsoil spreading and ripping, revegetation should be undertaken.

4.2.2 Subsoil management

Mudstone and siltstone subsoils are expected to be dispersive. Disturbance of subsoils should therefore be kept to a minimum where possible and ESC measures should ensure topsoil remains in-situ to minimise subsoil exposure. Runoff from exposed subsoils that collects in the sediment management structures may require treatment with a flocculant or coagulant to achieve the regulatory requirements.

To control erosion from exposed subsoils, gypsum can be added during earthworks and subsoils are to be demarcated and stockpiled separately to topsoils.

4.2.3 Laterite and phyllite management

No active management of in-situ laterite and phyllite materials is generally required. However, laterite may be worked to produce Zone 1 construction material.

4.2.4 Soil stockpile

Subsoil stockpiles would be capped by topsoils, to limit the exposure of subsoil to the elements. Handling of stockpile material should be restricted to dry periods only to promote growth and limit soil compaction.

Based on the soil properties identified at the site, the following topsoil stockpiling methods are recommended (EcOz, 2018):

- Stockpiles should be less than 1.5 m high and be contoured and positioned in a manner that encourages water drainage and discourages erosion.
- If the stockpiles require grass cover, they should be ripped and seeded with a quick establishment pasture, to limit erosion and maintain a viable seed bank. This should be done if the period of stockpiling is greater than one growing season or six months. Topsoil should ideally be stockpiled for the minimum time possible.
- Stockpiles should be monitored for weeds and control measures implemented as appropriate.
- Where soil has been stockpiled for extended periods, soil testing is recommended before use for rehabilitation purposes. If required, additional fertilizers and soil ameliorants should be applied.

4.2.5 Dispersive soil management

Where dispersive soils are encountered, Emerson Class testing should be undertaken to confirm the dispersive nature of the soils.

The following actions in dispersive soil should be avoided wherever possible:

- Expose dispersive subsoils to rain;
- Allow water to pond on dispersive soils;
- Stockpile or spread untreated dispersive soils; and
- Concentrate stormwater in drainage lines containing dispersive soils.

Exposed dispersive soils are highly erodible even at low flow velocities and therefore must be managed using a combination of the following:

- Identification and avoidance where possible by using alternative drainage techniques such as drainage bunds rather than cutting channels;
- Minimise the amount of time land is exposed;
- Discharge stormwater and runoff into relatively erosion resistant areas;
- Treatment with gypsum if required (note that the application of chemical treatments including gypsum should avoid harmful changes to pH levels, particularly within 20 m from the top of bank of a waterway. The mechanical application of chemical amelioration should also be avoided in areas intended for tree/vegetation retention); and
- Cover exposed dispersive soils with stable topsoil (at least 200mm deep) and/or use geotextile barriers followed by revegetation.

4.2.6 In-situ material

In areas where in-situ soils have been exposed, it is recommended that controls are employed to reduce the erosion risk in these areas. The relevant erosion control techniques are as follows:

- Contour banks / surface roughening to prevent concentration of sheet flows into channels. This would maintain a low velocity and hence limit the erosion risk. The contour banks should be located across the target area, perpendicular to the direction of flow (see [\[Surface Roughening Design Fact Sheet\]](#) & [\[Surface Roughening \(SR-01\) Drawing\]](#)).
- Mulch filter berms to filter sediment laden generated on the exposed in-situ soils areas. Mulch filter berms should be located along the bottom edge of the exposed area (see [\[Mulch Filter Berms Design Fact Sheet\]](#) & [\[Mulch Filter Berms \(MB-01\) Drawing\]](#)).

4.2.7 Construction materials

Construction materials that may require erosion protection include fill pads, road surfaces, batter and dump side slopes. Note that prior to installation of erosion controls, exposed dispersive materials should be buried with 200 mm of non-dispersive material and/or geotextile barriers, and/or ameliorated prior to placement of erosion control measures.

A list of appropriate erosion control measures to be implemented is given in Table 4.1, categorised according to the relevant magnitude of the slope. Drainage controls should be implemented upslope of the slope to direct runoff to designated drop structures/drainage controls to traverse down the slope in a controlled manner.

Figure 7.1 also shows the proposed locations for the application of soil binders on the batter slopes. Applying soil binders at the proposed locations would prevent the erosion of exposed soils on site and improve the structural stability of the batters.

Table 4.1 Erosion control measures on slopes

Flat land (Flatter than 1 in 10)	Mild slopes (1 in 10 to 1 in 4)	Steep slopes (Steeper than 1 in 4)
Includes: fill pads, road surfaces	Includes: batters (pads, roads, dams and drains)	Includes: Dump side slopes
Gravelling ¹	Soil binders ⁶	Soil binders ⁶
Mulching ²	Mulching ²	Revegetation ³
Revegetation ³	Revegetation ³	Rock mulching ⁵
Contouring/roughening ⁴	Rock mulching ⁵	

¹ [Gravelling Design Fact Sheet], [Gravelling (Gravel-01) Drawing]

² [Light Mulch Design Fact Sheet] & [Heavy Mulch Design Fact Sheet], [Mulching (Light) (M-01) Drawing] & [Mulching (Heavy) (MH-01) Drawing]

³ [Revegetation Design Fact Sheet], [Revegetation – General (R-01) Drawing]

⁴ [Surface Roughening Design Fact Sheet], [Surface Roughening (SR-01) Drawing]

⁵ [Rock Mulching Design Fact Sheet], [Rock Mulching (MR-01) Drawing]

⁶ [Soil Binder Design Fact Sheet] & <https://vitalindustries.com.au/erosion-control/>

4.2.8 Stockpiles

Stockpiles should be placed away from the pathway of concentrated or overland flow. Mulch filter bunds and/or sediment fencing will be installed downslope of stockpiles. Flow diversions should be installed upslope of stockpiles. Note that mulch bunds and sediment fencing has not been shown on the plans as it is unknown where stockpiles will be located. This should be determined prior to construction.

Mulch filter berm and sediment fence design, construction and maintenance shall be in accordance with IECA best practice.

5 DRAINAGE CONTROL MEASURES

5.1 OVERVIEW

This section outlines the measures to be taken when constructing drainage channels at BP33 to minimise erosion and downstream sedimentation.

5.2 OPEN DRAIN AND BUND

Open drains should typically contain the following features identified below and shown in Figure 5.1 (see [Diversion Channels Design Fact Sheet]):

- Trapezoidal channel;
- Bank batters of between 1V:2H and 1V:7H;
- Channel batters at least 1V:2H, but preferably 1V:4H;
- Where necessary rock check dams will be used to maintain specified channel grades;
- Channel grades should not exceed 5%;
- Bank bottom widths will vary depending on the adopted bank batters;
- Diversion banks will be constructed to appropriate engineering standards.
- The channel outlet (level spreader) will be flared out to a minimum width of 1.5 x channel base width. Ground slopes below the channel outlet shall be less than or equal to the channel grade; and
- Stable grass cover to be maintained in the bed and banks of the channel and below the channel outlets (as much as possible).

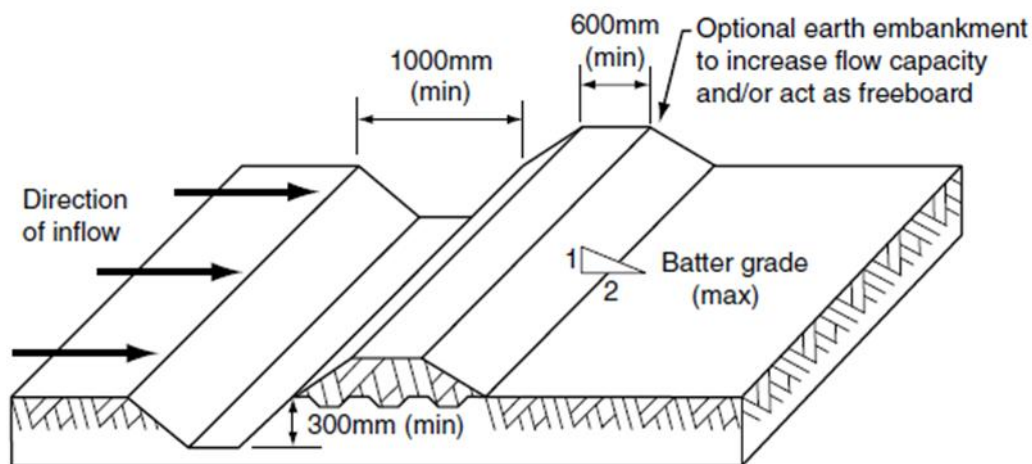


Figure 5.1 Typical drainage configuration - channel (IECA, 2008)

5.2.1 Channel lining

Table 5.1 presents a summary of the typical lining types for open channel drains.

Table 5.1 Scour protection and lining types for open drains

Technique	Typical use
Soil binders ¹	<ul style="list-style-type: none"> • Temporary protection of low to medium velocity open drains (not suitable for high velocity chutes). • Soil binders form a cohesive membrane or protective crust. This surface reduces windblown dust generation and reduces the erosive effects of rain impacts.
Geofabric lining or plastic lining ²	<ul style="list-style-type: none"> • See Table 5.5.
Grass lining ³	<ul style="list-style-type: none"> • Permanent protection of low to medium velocity open drains (not suitable for high velocity chutes). • Requires suitable growing medium (topsoil) and time to establish.
Rock lining ⁴	<ul style="list-style-type: none"> • See Table 5.5.

¹ [Soil Binders Design Fact Sheet] & <https://vitalindustries.com.au/erosion-control/>

² [Chutes Part 2: Synthetic Linings Design Fact Sheet]

³ [Catch Drains Part 3: Grass-lined Design Fact Sheet]

⁴ [Rock Linings Design Fact Sheet], [Chutes Part 5: Rock Linings Design Fact Sheet]

The velocity limit for a drain depends on its gradient and the channel material. Channel material needs to be taken into consideration for erosion/scour resistance and roughness (Mannings ‘n’), which has an impact on velocity. Table 5.2 shows the typical velocity limits for different drainage material.

Table 5.2 Velocity limits for drain material types (IECA, 2008)

Material types	Velocity limit (m/s)
Sandy/dispersive soil/spoil	0.3
Non-dispersive soil/spoil	0.7
70% grass cover	1.3
100% Grass cover	1.7
Erosion control blankets	1.5
Erosion control mesh/rock check dams	1.7
Rock armour (D ₅₀ = 200 mm)	2.0
Rock armour (D ₅₀ = 300 mm)	2.5
Rock armour (D ₅₀ = 400 mm)	3.5

Excessive flow velocities can cause channel erosion, usually along the invert of the drain, which can then lead to bank slumping and widening of the channel. The flow velocity can be reduced by either:

- reducing the depth of flow (increasing the width of the channel);
- reducing the bed slope;
- reducing the peak discharge (reducing catchment area); and/or
- increasing channel roughness.

If the channel width, depth or gradient cannot be altered, then there are two options for controlling erosion as follows:

- reduce the flow velocity through the placement of rock check dams; and/or
- increase the effective scour resistance in the channel through the placement of an effective channel liner (e.g. rock armour).

5.2.2 Drain velocity control structures

A list of appropriate check dam velocity control structures is given in Table 5.3. Figure 5.2 shows a typical rock check dam configuration. The locations that velocity control structure may be required for the proposed structures around site are presented in Figure 7.1. Fibre rolls/coir logs have generally been recommended, due to the availability of these materials, however any of the velocity control structures presented in Table 5.3 would serve a similar purpose.

Table 5.3 Velocity control structures for channels and drains

Technique	Typical use
Fibre roll/coir log ^{1,2,4}	<ul style="list-style-type: none"> • Biodegradable logs • Used in wide shallow drains where logs can be successfully anchored down. • Used in locations where it is desirable to integrate into the vegetation, such as vegetated channels. • Minor sediment trap.
Rock check dams ^{3,4}	<ul style="list-style-type: none"> • Used in drains with a depth exceeding 0.5 m and a gradient less than 5%. • Minor sediment trap.
Recessed rock check dams ⁴	<ul style="list-style-type: none"> • Used in wide, high velocity, shallow channels where sandbag check dams would likely wash away. • Recessed into the soil to maintain hydraulic capacity in the channel. • Minor sediment trap.
Sandbag check dams ⁴	<ul style="list-style-type: none"> • Used in shallow drains with a depth less than 50 mm and gradient less than 5%. • These check dams are small and less likely to divert water out of the drain. • Minor sediment trap.
Triangular ditch check ⁴	<ul style="list-style-type: none"> • Commercially available, reusable product. • Commonly used to stabilise newly formed table drains. • Used in drains with less than 5% gradient. • Minor sediment trap.
Soil binders ⁵	<ul style="list-style-type: none"> • Temporary protection of low to medium velocity chutes and channels. • Soil binders form a cohesive membrane or protective crust. This surface reduces windblow dust generation and reduces the erosive effects of rain impact

¹ [Fibre Rolls (FR-01) Drawing]

² [Geo Logs (Coir Logs) Design Fact Sheet], [Geo Logs (Coir Logs) (Log-01) Drawing]

³ [Check Dams Design Fact Sheet], [Check Dams (RCD-01) Drawing]

⁴ <https://www.catchmentsandcreeks.com.au/docs/CDT-1.pdf>

⁵ [Soil Binders Design Fact Sheet] & <https://vitalindustries.com.au/erosion-control/>

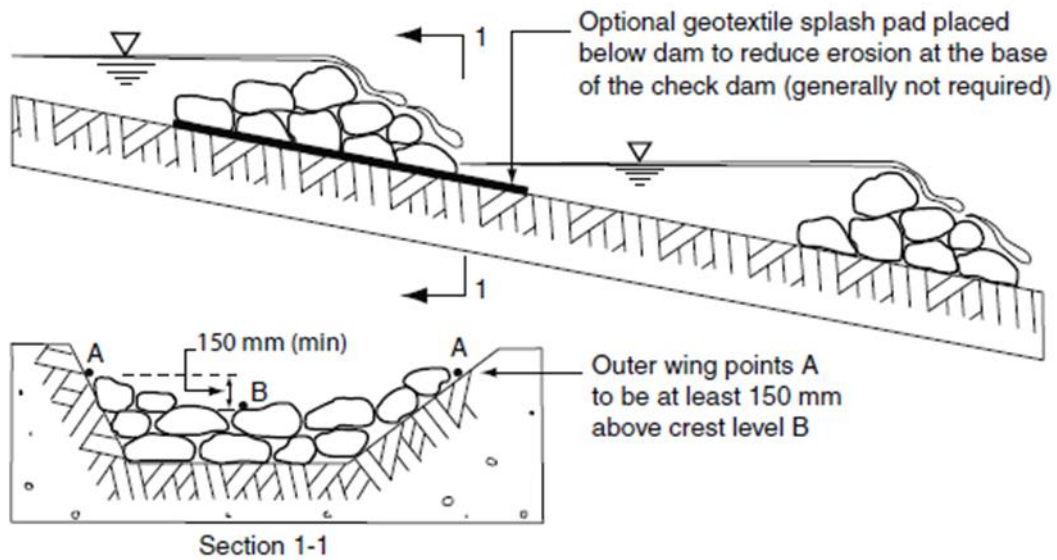


Figure 5.2 Typical rock check dam configuration (IECA, 2008)

The recommended spacing for in drain velocity controls would depend on the size of the control and the slope of the drain. The maximum velocity control spacing can be calculated by dividing the height of the structure by the longitudinal slope of the drain. For example, Table 5.4 presents the maximum spacing requirements for a 200 mm high coir log for a range of longitudinal drain slopes.

Table 5.4 Standard spacing requirement for 200 mm diameter fibre roll/coir log

Longitudinal slope	Maximum spacing required
0.1%	200 m
0.5%	40 m
1.0%	20 m
2.0%	10 m
3.0%	6.7 m
4.0%	5 m

5.3 DROP STRUCTURES

Drop structures (usually rock chutes) are proposed at various locations of the WRD. The drop structures will have a longitudinal slope ranging from 5% to 25% 1V:4H (for pad batter slope). A fact sheet relating to the installation of these structures can be found under the following link: [\[Rock Linings Design Fact Sheet\]](#). Table 5.5 presents a summary of the typical lining types for chutes.

Figure 5.3 shows the typical components of a rock lined drop structure, which have been conceptually sized for the drop structures. The following features should be included in the construction:

- Rock should have a d_{50} (the mean rock size for which 50% of rocks are smaller) that is sized in accordance with Landcom (2004) and IECA (2008). The maximum rock size should be no greater than $1.5 \times d_{50}$. The rock should be hard, angular and weathering resistant.
- Drain and contour bank approaches (including the bund/safety berm) within 4 m of the drop structure entrance should be rock lined up to 1 m from the drain invert to limit erosion as water flows from the drain into the drop structure.
- The rocks in the drop structure should be “keyed” in with a 0.5 m deep, 0.65 m cut-off trench at the toe.
- The rock should be underlaid by BIDM A39 geofabric or approved equivalent.

Energy dissipators/erosion protection should be provided at the top and bottom of drop structures prior to entering the downstream drainage network.

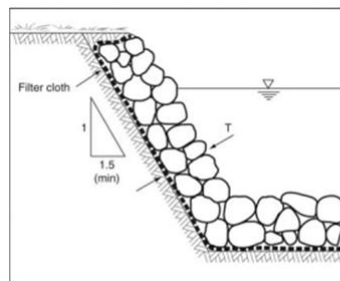
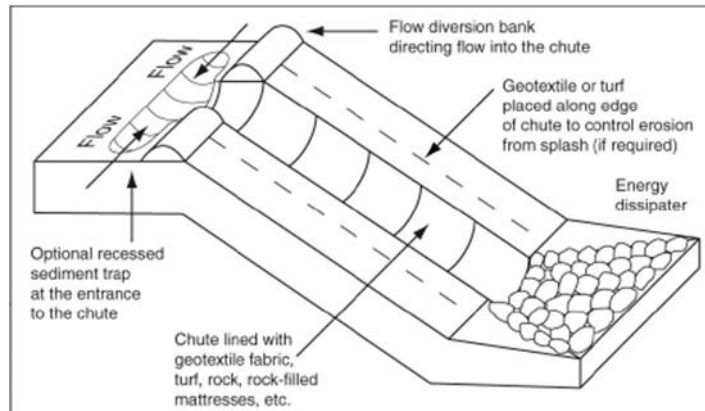


Figure 10 – Rock placement (without vegetation) on non-dispersive soil

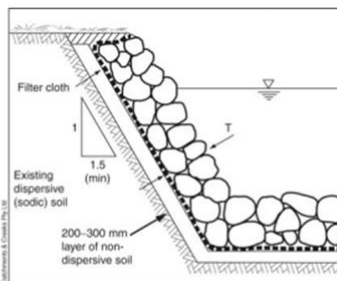


Figure 11 – Rock placement (without vegetation) on dispersive soil

Figure 5.3 Typical components in a drop structure (IECA, 2008)

Table 5.5 Scour protection and lining types for chutes

Technique	Typical use
Geofabric lining or plastic lining ¹	<ul style="list-style-type: none"> Permanent protection of medium to high velocity chutes and open drains. Upper edge of flexible linings must be well secured (buried and pinned) in an anchor trench. Porous fabrics must only be used on non-dispersive soil.
Hard armouring ²	<ul style="list-style-type: none"> Hard armouring systems include corrugated sheet metal, reinforced concrete and shotcrete.
Rock mattresses ³	<ul style="list-style-type: none"> Suitable high velocity chutes and spillways.
Rock lining ⁴	<ul style="list-style-type: none"> High velocity drainage channels. Drainage chutes. Drainage junctions. Sediment basin inlets. Sediment basin spillways.

¹ [Chutes Part 2: Synthetic linings Design Fact Sheet]

² [Hard Armouring Design Fact Sheet]

³ [Chutes Part 4: Rock Mattress Linings Design Fact Sheet]

⁴ [Chutes Part 5: Rock Linings Design Fact Sheet]

5.4

5.4 TEMPORARY ROAD AND CULVERT CROSSING

Temporary crossings are proposed at a number of locations around the site. The following general principles should be followed in the design of drainage controls for crossings:

- Culvert designs should always consider the effects of debris blockages and potential erosive forces caused by overtopping flows. Ideally, culverts should have a flow capacity at least equal to the normal channel capacity of the watercourse when the water level is just below the crest of the culvert deck.
- Where possible, crossings of streams should be constructed at right angles to the flow and in locations where the channel is straight and has well defined banks.
- Crossings should be covered with a non-erodible material such as rock or gravel and the upstream and downstream batters should be armoured with rock to control erosion caused by overtopping flows.
- Refer to [\[Temporary Watercourse Crossing: Fords Design Fact Sheet\]](#) and [\[Temporary Watercourse Crossing: Culverts Design Fact Sheet\]](#) for further information.

Figure 5.4 shows a typical watercourse crossing configuration.

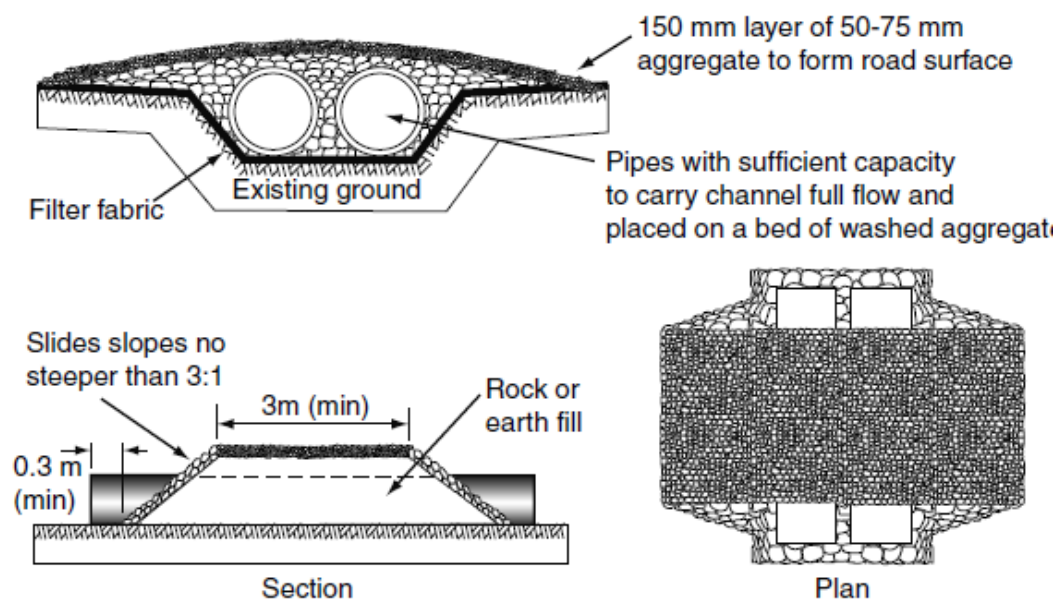


Figure 5.4 Typical watercourse crossing configuration - culverts (IECA, 2008)

6 SEDIMENT CONTROL MEASURES

6.1 OVERVIEW

The primary function of sediment control measures is to trap the coarser sediment fraction. Sediment basins and some filtration systems used during dewatering operations are possibly the only sediment control techniques that have any significant ability to trap finer sediment particles such as silts or clays. Due to the difficulty of trapping these finer sediments, priority should be given to the use of effective erosion control measures wherever practical.

6.2 SEDIMENT BASINS

Primary control of sediment will be via sediment basins, designed and constructed in accordance with the Best practice Erosion and Sediment Control guidelines (IECA, 2025).

The sediment basin volumes have been constructed and were based on the following design standards and methodology for Option 2B “Type B” High Efficiency Sediment (HES) basins (IECA, 2025):

- Total sediment basin volume = settling zone volume + sediment storage volume as shown in Figure 6.1. The sediment storage volume is the portion of the basin storage volume that progressively fills with sediment until the basin is de-silted.
- The settling zone minimum surface area is based on:
 - the recommended design storm of 0.5 times the peak 1 year ARI discharge;
 - the design settling coefficient based on Jar Testing of the anticipated chemically treated sediment floc;
 - The effective depth of the settling zone (the maximum water depth above the sediment storage zone); and
 - the minimum depth that the sediment floc should settle before the floc reaches the outlet overflow weir (minimum 0.6 m).
- Solids storage volume = 30% of settling zone volume.

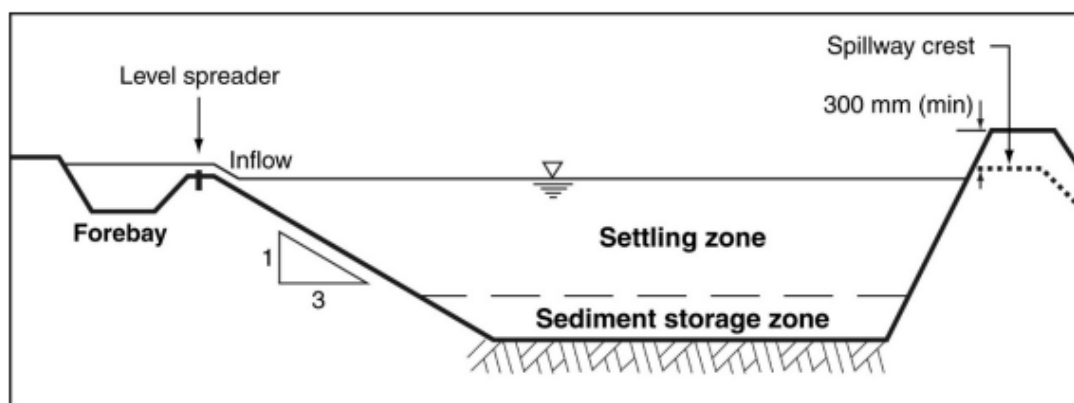


Figure 6.1 Typical Type B HES basin cross-section (Source: IECA, 2025)

6.3 SUPPLEMENTARY SEDIMENT CONTROL

Supplementary sediment controls are used in areas where the sediment producing catchment is small or the potential for producing sediment laden runoff is low. A list of appropriate supplementary sediment control techniques is given in Table 6.1.

These supplementary sediment control techniques may be applied to the WRDs, however they are more likely to be suitable to be implemented to assist with sediment control from the haul roads and topsoil stockpiles.

Table 6.1 Summary of supplementary sediment control techniques

Technique	Typical use
Rock filter dam ¹	<ul style="list-style-type: none"> • Locations where there is sufficient room to construct a relatively large rock embankment. • The incorporation of a filter cloth is the preferred construction technique if the removal of fine grained sediment is critical (high maintenance)
Check dam sediment trap ²	<ul style="list-style-type: none"> • Supplementary sediment trap in minor concentrated flow areas. • Trapping sediments in table drains and minor drainage lines. • Check dams may be constructed of rock, sand bags or compost filled socks.
Buffer zones/grass filter strips ³	<ul style="list-style-type: none"> • Mostly suited to sandy soils. • Can provide some degree of turbidity control while the buffer zone remains unsaturated.
Sediment fence ⁴	<ul style="list-style-type: none"> • Supplementary device for sheet flow for minor catchment areas. • Suitable for all soil types. • Require maintenance after every runoff event.

¹ [Rock Filter Dams Design Fact Sheet]

² [Check Dam Sediment Traps Design Fact Sheet]

³ [Buffer Zones Design Fact Sheet]

⁴ [Sediment Fence Design Fact Sheet]

7 BP33 EROSION AND SEDIMENT CONTROL PLAN

7.1 PROPOSED ESC PLAN

Figure 7.1 presents the proposed zones for erosion and sediment control measures and includes consideration for the proposed drainage measures. The erosion and sediment control zones represent similar areas that would require similar erosion management techniques. The BP33 site layout was initially based on the conceptual life of mine plan provided by NeuPlan on 29 September 2025 in the following drawing file, “RF034_BP33 LOM layout_A_250929.dwg”.

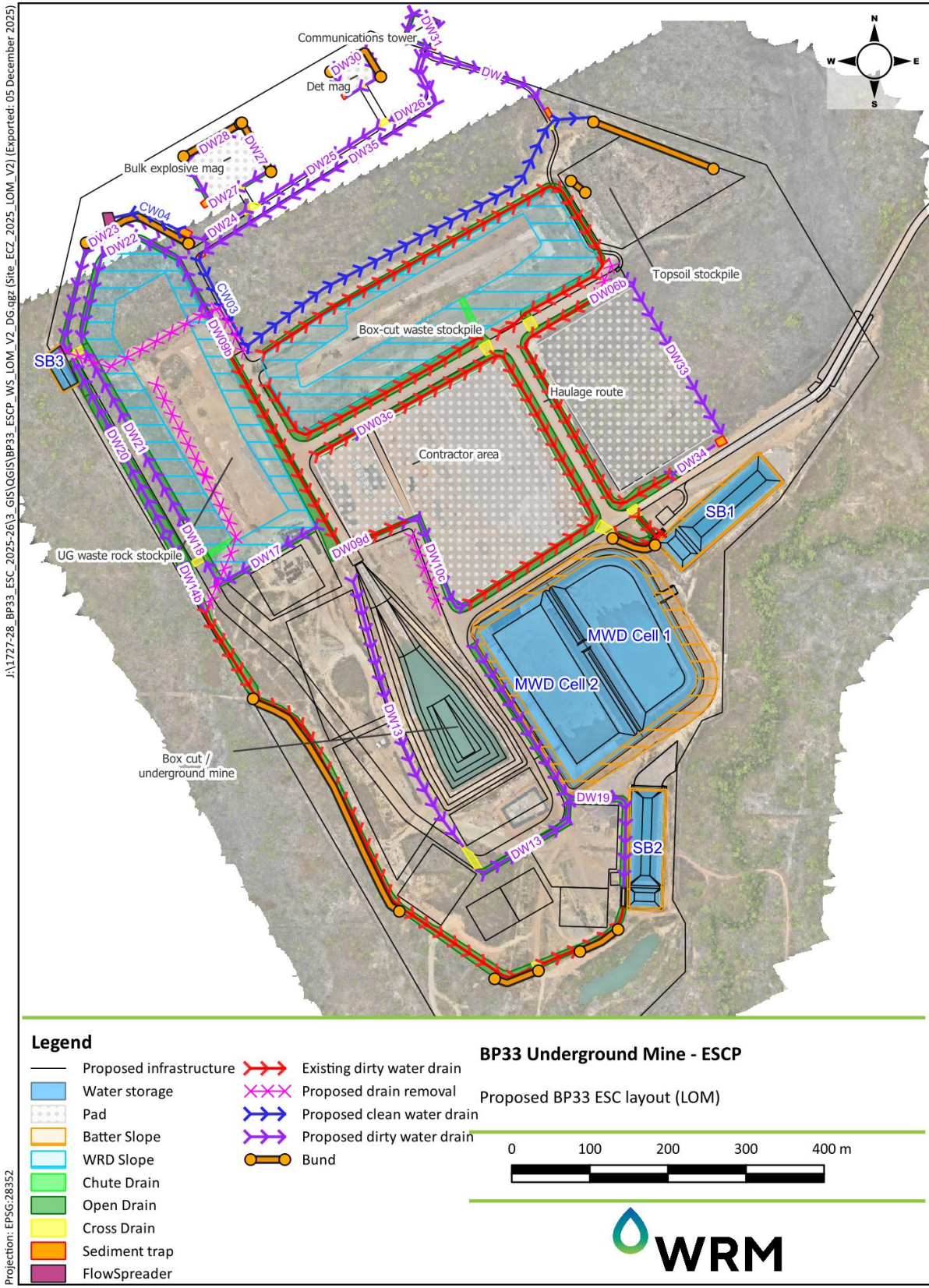
The following erosion and sediment control zone types have been identified for each zone:

- **Erosion control – exposed soils:**
 - **In-situ:** refers to cleared areas where in-situ soils are exposed;
 - **Fill pad:** refers to bulk earthworks consisting of compacted Zone 1 and Zone 3 materials (less than 1V:10H grade).
 - **Batter Slope:** refers to a constructed batters (generally 1V:10H to 1V:4H grade), which may form part of roads, drains or dam walls;
 - **WRD side slopes** (generally greater than 1V:4H grade); and
 - **Stockpile:** refers to unconsolidated stockpiles (e.g., topsoil, overburden, etc.);
- **Drainage control:**
 - **Drop structures:** refers to concentrated water flowpaths that are likely to experience high velocities (say >2 m/s) with longitudinal gradients of greater than 5%;
 - **Open drains:** refer refers to concentrated water flowpaths that are likely to experience low to moderate velocities (say <2 m/s) with longitudinal gradients of less than 5%;
 - **Cross Drain:** refers to cross drainage structures (including inlets and outlets) such as culverts;
- **Sediment control:**
 - Areas downstream of erosion risk areas which may require sediment management.
 - Two ‘Type B’ High Efficiency Sediment (HES) Basins which have already been constructed on site (SB1 and SB2).
 - The design standards and methodology described in Section 6.2 were used to size the sediment basins (SB1 and SB2) on site. The sediment basins were sized by Topo (2024).
 - A ‘Type D’ sediment basin, which will be constructed to manage runoff from the UG waste rock stockpile (SB3).
 - The BP33 sediment basins were constructed with a slightly bigger volume than the design capacity. Table 7.1 shows the design catchment areas, the total design volume, the constructed volume, the maximum allowed catchment area (which does not impact the efficiency of the sediment basin), and the planned catchment area to each sediment basin structure. Appendix A shows the sediment basin calculation and assumptions.
 - The planned catchment areas to the sediment basins do not impact the design capacity of the constructed sediment basins.

Table 7.1 Current catchments areas to water storages

Dam name	Design catchment (ha)	Total design volume (ML)	Constructed volume (ML)	Maximum allowed catchment area (ha)	Life of Mine catchment area (ha)
SB1	19.7	10.3	13.0	25.0	22.9
SB2	16.7	8.72	10.6	20.0	17.1
SB3	6.6	4.4	-*	6.6	3.7

* SB3 is proposed, not yet constructed.



Projection: EPSG:28352
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Figure 7.1 Proposed erosion control zones (LOM)

7.2 ESC CATCHMENTS

Figure 7.2 to Figure 7.4 shows the locations of the proposed drainage configuration which includes a combination of clean water drains, sediment water drains, bunds and low level crossings for each of the water storages.

7.2.1 SB1 catchment

- The proposed drainage for the SB1 catchment is presented in Figure 7.2.
- The catchment area to SB1 is made up of the infrastructure pads from the contractor area, the box-cut waste rock dump to the north.
- The catchment area draining to SB1 would be 23 ha, which is 17% larger than the design ESC catchment of 19.7 ha but smaller than the allowable as-constructed sediment catchment of 25 ha. Hence, SB1 has sufficient capacity to manage the larger catchment area.
- The surface of the northern box-cut waste rock dump should be shaped to direct runoff to a central location to a batter chute. The batter chute should direct runoff from the top of the dump to the surrounding dirty water drains. The batter chute should be rock-lined, and the edges of the box-cut waste rock dump should be bunded. Locations of the batter chute are indicative only.
- In addition to the indicative drains on site, it is recommended to enforce the open drains in high velocity areas with either rock protection or other alternatives listed in Table 5.1. Key drains include:
 - Drains around the box-cut waste rock stockpile to the north, which include DW01 (a and b) and DW02;
 - Drains around the contractor area, which include DW03 (a,b,c), DW04, DW10a; and
 - At the inlet and outlets at cross drainage infrastructure.

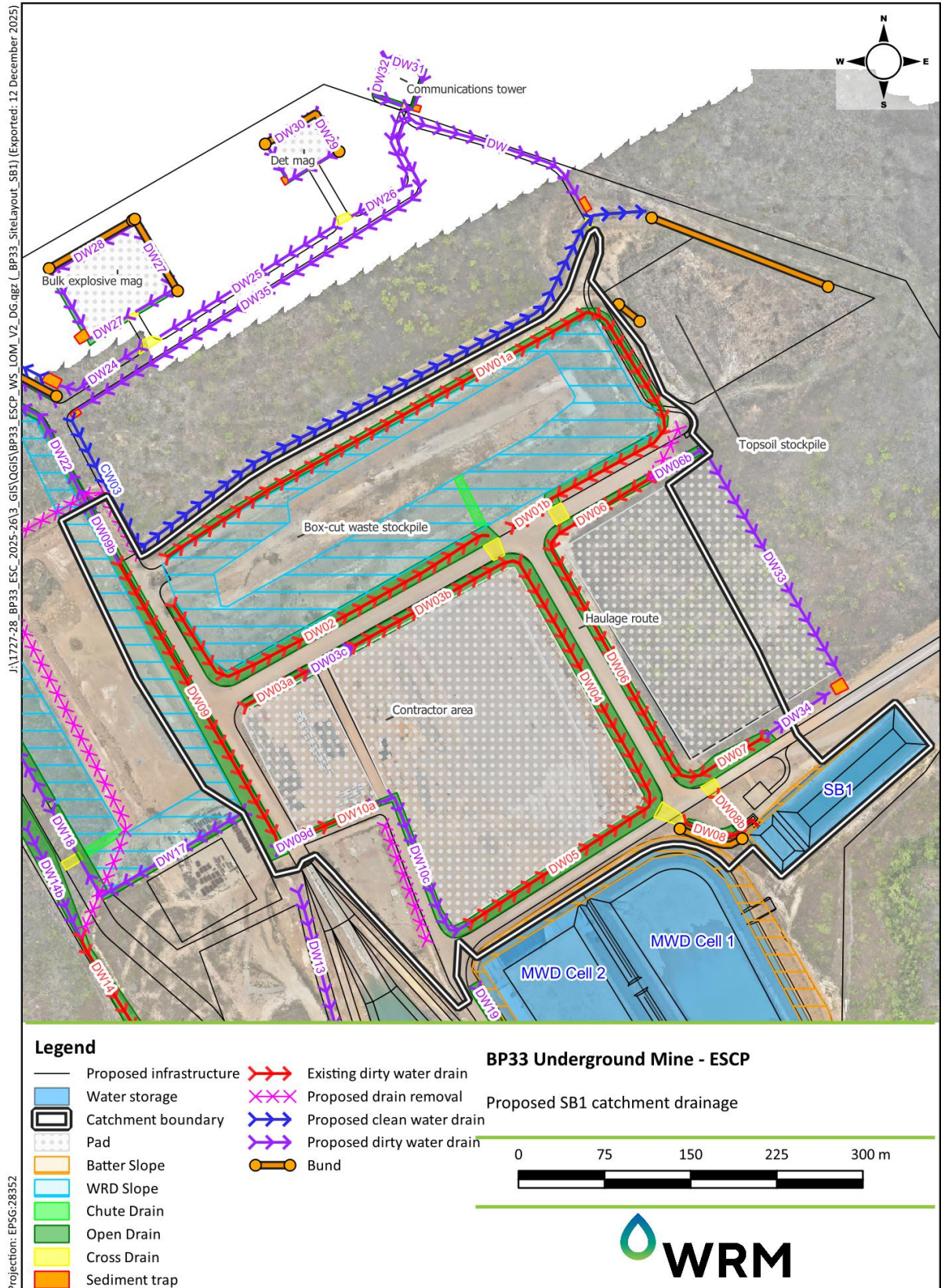


Figure 7.2 Proposed LOM SB1 drainage configuration

7.2.2 SB2 catchment

- The proposed drainage for the SB2 catchment is presented in Figure 7.3.
- The catchment area to SB2 is made up of the underground waste rock dump area to the west, and the laydown areas located on the western and southern side of the site.
- The catchment area draining to SB2 would be 17.9 ha, which is approximately 7% larger than the design ESC catchment of 16.7 ha but smaller than the allowable as-constructed sediment catchment of 20 ha. Hence, SB2 has sufficient capacity to manage the larger catchment area.
- The surface of the western underground waste rock dump should be shaped to direct runoff to a central location to a batter chute. The batter chute should direct runoff from the top of the dump to the surrounding dirty water drains. The batter chute should be rock-lined, and the edges of the underground waste rock dump should be bunded. Locations of the batter chute are indicative only.
- It is also proposed to install bunds on the outer edges of the perimeter drains (DW14) to prevent any discharges external to the site.

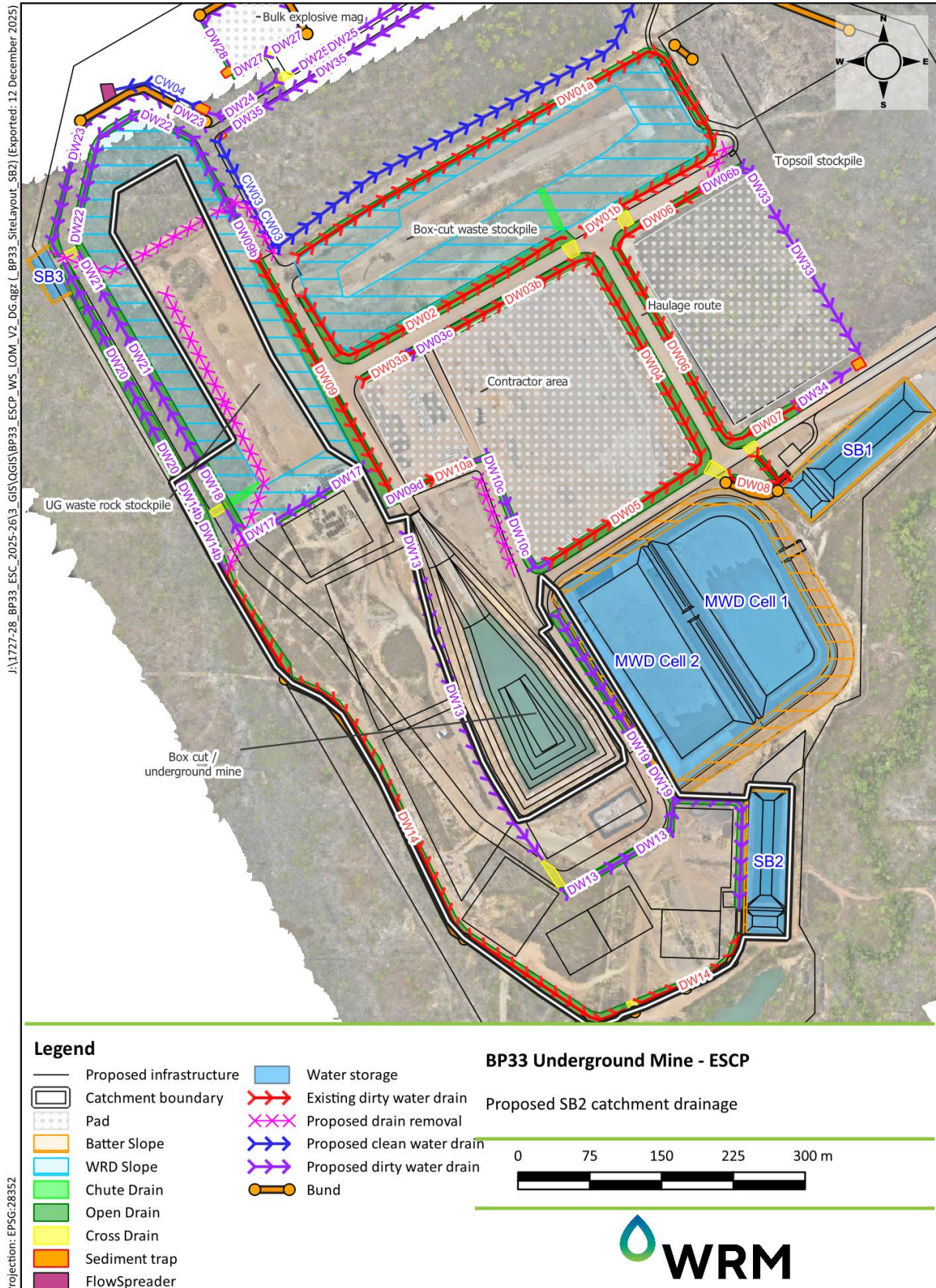


Figure 7.3 Proposed LOM SB2 drainage configuration

7.2.3 SB3 catchment

- The proposed drainage for the SB3 catchment is presented in Figure 7.4.
- The catchment area to SB3 is made up of the underground waste rock dump area to the west.
- The catchment area draining to SB3 during the operational phase would be 6.6 ha which includes the underground waste rock stockpile.
- The proposed sediment basin SB3 is Type D sediment basin with approximately 3.9 ML of water storage.
- Table 7.1 shows the proposed design capacity of the sediment basin (SB3). Appendix A shows the calculations of basin size.
- In addition to the indicative drains on site, it is recommended to enforce the open drains in high velocity areas with either rock protection or other alternatives listed in Table 5.1. Key drains include:
 - Drains around the waste rock stockpile to the north, which include DW22 and DW23;
 - Drains around the haul road, which include DW20 and DW21; and
 - At the inlet and outlets at cross drainage infrastructure.

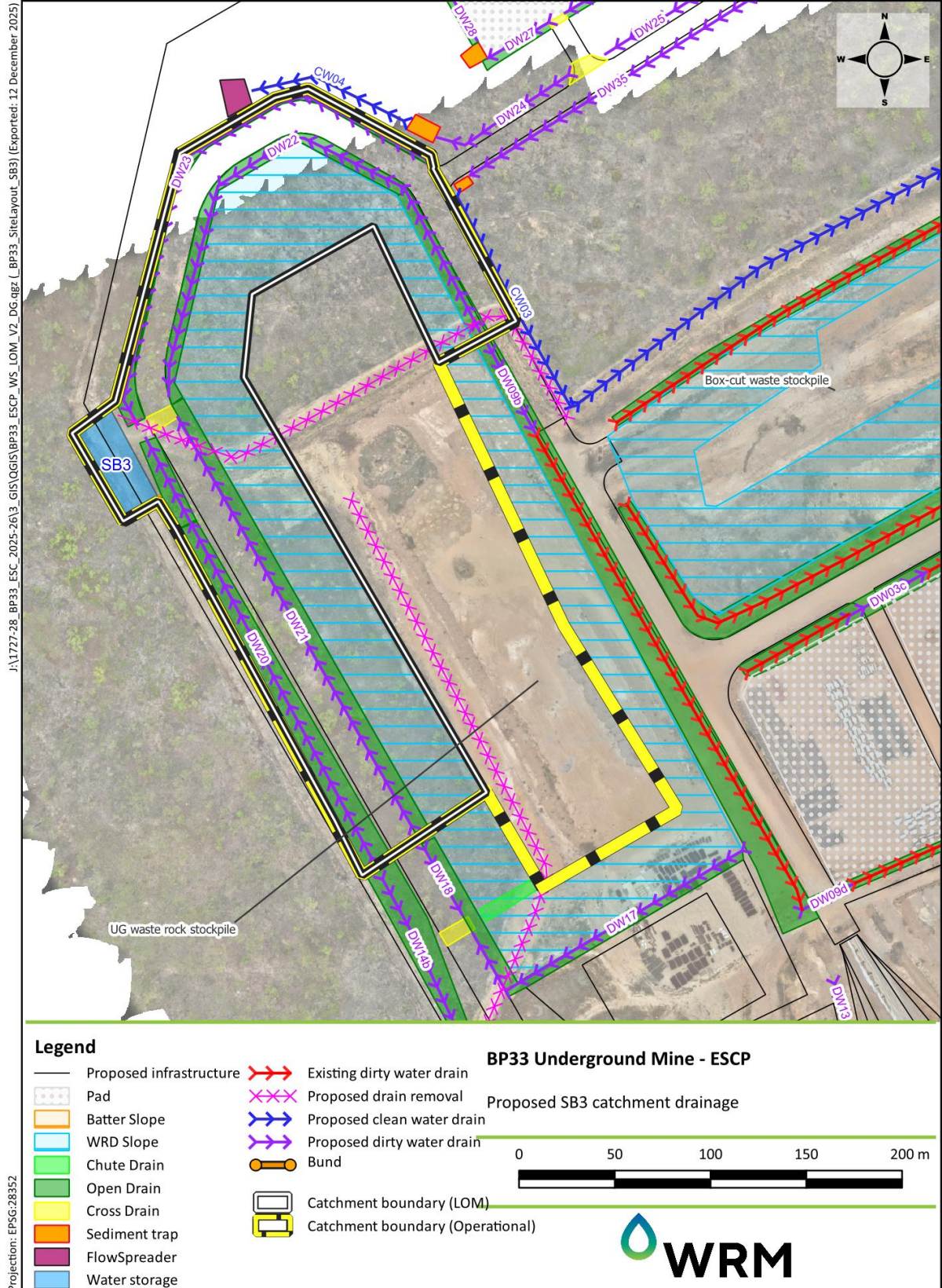


Figure 7.4 Proposed LOM SB3 drainage configuration

7.3 CLEAN CATCHMENT DRAINAGE

It is proposed that a clean water diversion drain is located on the northern side of the site to divert the upstream clean water catchment around the proposed bulk explosive and detonation magazines

7.4 BOX CUT DRAINAGE

It is recommended to reduce the catchment around the box cut area by constructing bunds around the box cut to prevent external catchment runoff from flowing into the box-cut. Infrastructure such as culverts and drains should be revised around the box-cut ramp to prevent internal spills to the box-cut.

8 MONITORING AND MAINTENANCE

8.1 INSPECTIONS

Inspections of ESC and mine water structures identified shall be conducted on an event basis (after a rain event of a certain depth and duration, detailed in Section 8.2) and routinely throughout the year.

Details of the inspection shall be recorded in the Inspection Proforma for each ESC catchment (an example is shown in Table 8.1).

The following shall be recorded:

- a. Water quality (at least pH, EC and turbidity);
- b. Sediment storage volume;
- c. All drainage and ESC structures for signs of erosion/scour that require maintenance;
- d. Occurrences of excessive sediment deposition (whether on-lease or off-lease); and
- e. Recommended maintenance actions.

To assist monitoring and maintenance, the sediment storage volume shall be clearly marked on each dam.

Table 8.1 Example inspection proforma

Inspection Proforma						
Date:		Time:		Name/Department:		
Catchment ID:		Mining Area:		Description:		
				Catchment Type:		
Previous Inspection Date:			Report Number:			
Outstanding actions					Action required (Y/N)	
1. Erosion Controls						
Asset ID		Condition at inspection			Action required (Y/N)	
2. Drainage Controls						
Asset ID		Condition at inspection			Action required (Y/N)	
3. Sediment Controls						
Asset ID		Desilting required?	Maintenance required?	Comment		
4. QW Controls						
Asset ID		Desilting required?	Maintenance required?	pH	EC	Turbidity
5. Actions						
Asset ID		Action			Due Date	
6. Additional controls required						
Control type			Detail actions required			
7. Comments						

8.2 INSPECTION FREQUENCY

Table 8.2 defines the rainfall events that would trigger a non-routine inspection. Non-routine inspections should occur within a week of the rain event trigger, subject to the availability of safe access. Table 8.3 shows the minimum frequency of routine inspections

Event and routine inspections taking place during periods of runoff inducing rainfall must check:

- all drainage, erosion and sediment control measures;
- occurrences of excessive sediment deposition (whether on-site or off-site); and
- all site discharge points.

Site inspections immediately prior to anticipated runoff inducing events must check:

- sediment basin dosing and dewatering equipment;
- all drainage, erosion and sediment control measures; and
- all temporary flow diversion and drainage works.

Site inspections immediately following runoff producing rainfall must check:

- treatment and dewatering requirements of sediment basins;
- sediment deposition within sediment basins and requirements for its removal;
- all drainage, erosion and sediment control measures;
- occurrences of excessive sediment deposition (whether on-site or off-site);
- occurrences of construction materials, litter or sediment placed, deposited, washed or blown from the site, including deposition by vehicular movements; and
- occurrences of excessive erosion, sedimentation, or mud generation around the site office, car park and/or material storage area.

Table 8.2 Event based monitoring trigger

Catchment risk rating	Trigger for inspection	
	Rainfall (mm)	Average inspection frequency
Drains and supplementary ESCs	70 mm over 5 days	6 times per wet season
Sediment basins and Mine water dams	105 mm over 24 hours	Once per wet season

Table 8.3 Routine monitoring frequency

Control type	Minimum frequency
Erosion	Pre-wet season inspections (prior to start of November)
Drainage, sediment basins	Pre and post (prior to end of May) wet season inspections

8.3 MAINTENANCE

Maintenance that is identified by an inspection will be carried out in a timely manner. Examples of deficiencies that will trigger maintenance activities include, but are not limited to:

- a. Damage/scouring to ESC and Mine Water structures;

- b. Sediment deposition in excess of the sediment storage volume;
- c. Damage/deterioration of access tracks or the ability to inspect/monitor, or maintain and/or operate area/infrastructure/equipment;
- d. Spill, contaminated or waste materials accumulated/deposited in ESC structures or their associated catchment areas; and
- e. Outlet controls of spillways and discharge points.

All maintenance requirements shall be actioned prior to the next wet season (start of November).

8.4 SEDIMENT DAM WATER MONITORING

Monitoring of sediment dams shall be in accordance with the WMP.

8.5 RECEIVING WATERS

In the event of a release or discharge from a Mine Water dam, water quality monitoring shall occur in accordance with the WMP.

8.6 EVENT INVESTIGATION AND RESPONSE

In the event of emergencies, exceptions or incidents, all reasonable actions must be taken to minimise potential or actual environmental harm.

Investigation and reporting of events must occur as per the WMP, MMP, the MM Act.

9 REFERENCES

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APPENDIX A SEDIMENT BASIN CALCULATIONS

Table A.1 Catchment area, batter slope, L:W ratio and settling depth of the sediment basins

Basin ID	Catchment area (ha)	Batters (1 in X)	L:W ratio	Settling depth D _s (m)
SB1 (Design)	19.7	3	3	2.8
SB2 (Design)	16.7	3	3	2.8
SB1 (As-con)	25	3	3	2.8
SB2 (As-con)	20	3	3	2.8
SB3 (Design)	6.63	3	3	2.1

Table A.2 Settling volume calculation Type B sediment basin

Basin ID	Time of conc. (min)	Rainfall depth for 1 EY, I ₁ (mm/hr)	0.5xQ _{1EY} (m ³ /s)	Lab settle rate (m/hr)	Floc. settle depth, D _f (m)	Minimum Surface area A _s (m ²)	Actual Settling volume, V _s (m ³)
SB1 (Design)	20	90	1.65	0.6	0.6	2,821	7,900
SB2 (Design)	20	90	1.399	0.6	0.6	2,392	6,697
SB1 (As-con)	20	90	2.094	0.6	0.6	3,580	10,025
SB2 (As-con)	20	90	1.675	0.6	0.6	2,864	8,020

Table A.3 Sediment storage volume calculation

Basin ID	Sed storage option?	RUSLE soil loss (t/yr)	Clean out frequency (month)	Min sed. Storage volume (m ³)	Approx required storage depth (m)
SB1 (Design)	RUSLE	5,910	6	2,370	1.1
SB2 (Design)	RUSLE	5,010	6	2,009	1.1
SB1 (As-con)	RUSLE	7,500	6	3,007	1.1
SB2 (As-con)	RUSLE	6,000	6	2,406	1.1
SB3 (Design)	RUSLE	1,989	6	796	0.7

Table A.4 Approximate dimension of sediment basin

Basin ID	Approx length at spillway (m)	Approx width at spillway (m)	Approx depth at spillway (m)	Settling volume (m3)	Min sed. Storage volume (m ³)	Total volume at spillway (m3)
SB1 (Design)	117.2	39.1	3.9	7,900	2,370	10,269
SB2 (Design)	109.9	36.6	3.9	6,697	2,009	8,706
SB1 (As-con)	128.8	42.9	3.9	10,025	3,007	13,032
SB2 (As-con)	117.9	39.3	3.9	8,020	2,406	10,426
SB3 (Design)	85	28.3	2.8	3,054	796	3,850



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