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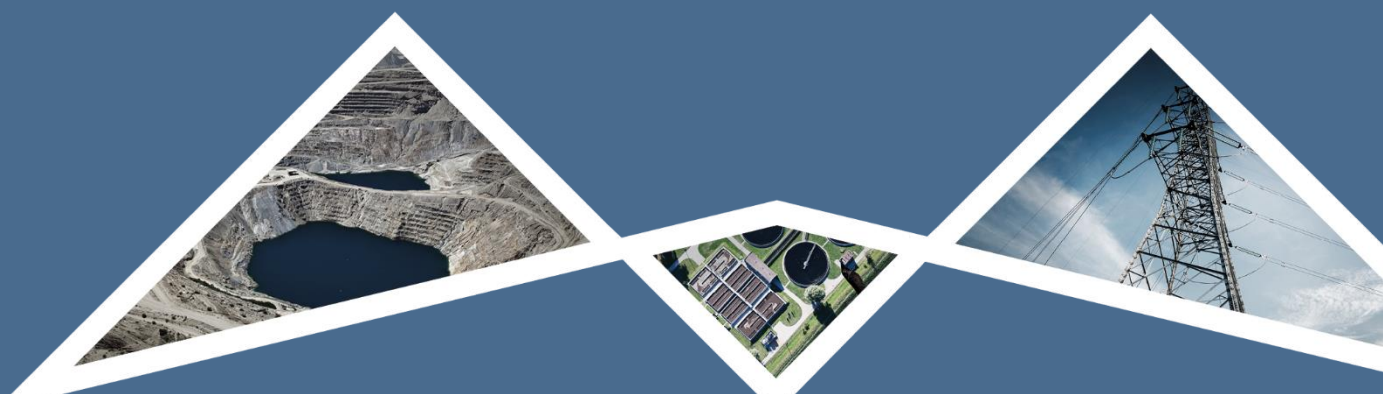
T 011 789 7170 E info@eims.co.za W www.eims.co.za

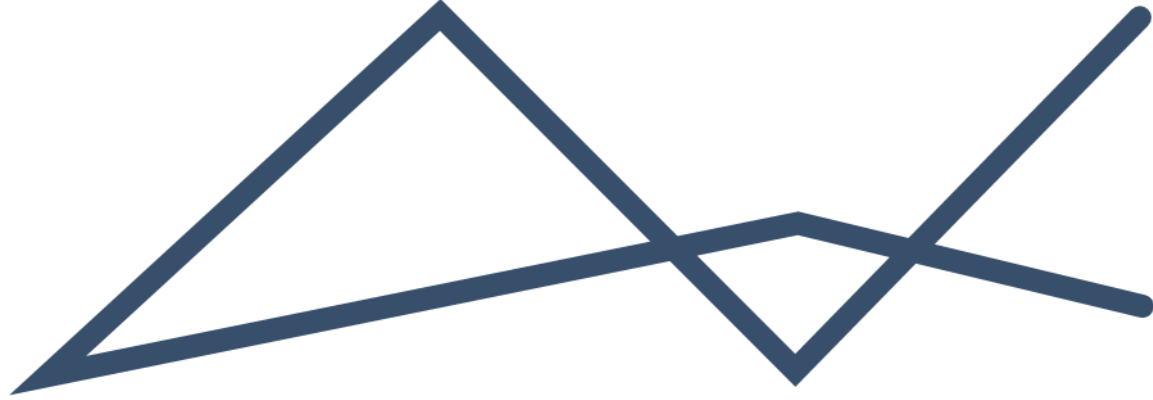
AMENDMENT TO THE APPROVED ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE INCLUSION OF THE KANGALA NEW COAL CO-DISPOSAL FACILITY

KANGALA COLLIERY

EMPr REF: MP 30/5/1/2/2/429 MR

DATE: MAY 2021





DOCUMENT DETAILS

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DOCUMENT CONTROL

	NAME	SIGNATURE	DATE
COMPILED:	Brian Whitfield		2021/06/04
CHECKED:	Liam Whitlow		2021/06/04
AUTHORIZED:	Liam Whitlow		2021/06/04

REVISION AND AMENDMENTS

REVISION DATE:	REV #	DESCRIPTION
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List of Addendums

Addendum 1: Approved EMPr (MP 30/5/2/2/ 429MR; December 2014)



1 INTRODUCTION

Universal Coal Development 1 (Pty) Ltd (UCD1) has an approved Mining Right (MR) (Ref No: MP 30/5/1/2/2/429 MR) and Environmental Management Programme (EMPR), in terms of the Minerals and Petroleum Resources Development Act (Act 28 of 2002, as amended) (MPRDA), for the mining of coal at Kangala Colliery. In addition, UCD1 has recently received an Environmental Authorisation for the adjacent Eloff Colliery Extension Project (MP 30/5/1/2/3/2/1 (10169) EM) in which the coal from this mining operation will be processed at the existing Kangala Colliery plant. Environmental Impact Management Services (Pty) Ltd (EIMS) was appointed by UCD1 to prepare and submit a Waste Management Licence (WML) application on their behalf for a proposed new coal co-disposal discard facility.

As a result of the additional volume of coal to be processed on Kangala, the existing coal co-disposal facility will reach capacity in the near future (monthly discard is ~67,700 Tons per month). As such, a new coal co-disposal discard facility is required that will accommodate the expansion of the mining into the neighbouring Eloff block mines. The facility will be taking approximately 14Mt of both coarse discard and slurry from the Kangala plant. The proposed area within which the new coal co-disposal facility would be constructed, is within the existing approved mining right boundary and located on a historically disturbed section of land (Figure 1 and Figure 2).

2 PROPOSED FACILITY LOCATION AND DESIGN

The proposal is to construct the facility in 2 phases as shown in Figure 3 and Figure 4. The final fill model is shown in Figure 5. The Design Report for the facility is included in the associated EIA Report. The typical dimensions and details of the discard facility are as follows:

- Total area of ~50 hectares and constructed with 2 compartments comprising of phase 1 in the east (~30 hectares) and phase 2 in the west (~20 hectares).
- The total vertical height of the facility will be 43.5m above nominal ground level.
- The Class C compliant barrier system will include (but not limited to):
 - A compacted clay liner;
 - A subsurface drainage system (HDPE pipes) will be installed and will comprise of a typical herringbone drainage with a central pipe leading into a manhole on the outside of the facility;
 - The geomembrane used on the barrier system will comply with SANS 1526 for High Density Polyethylene (HDPE);
 - Liner protection consisting of silty sand; and
 - A stormwater management system to manage dirty water from the facility.

Final capping and rehabilitation of the facility was investigated as part of the WML application and the design report is included in the associated EIA Report.

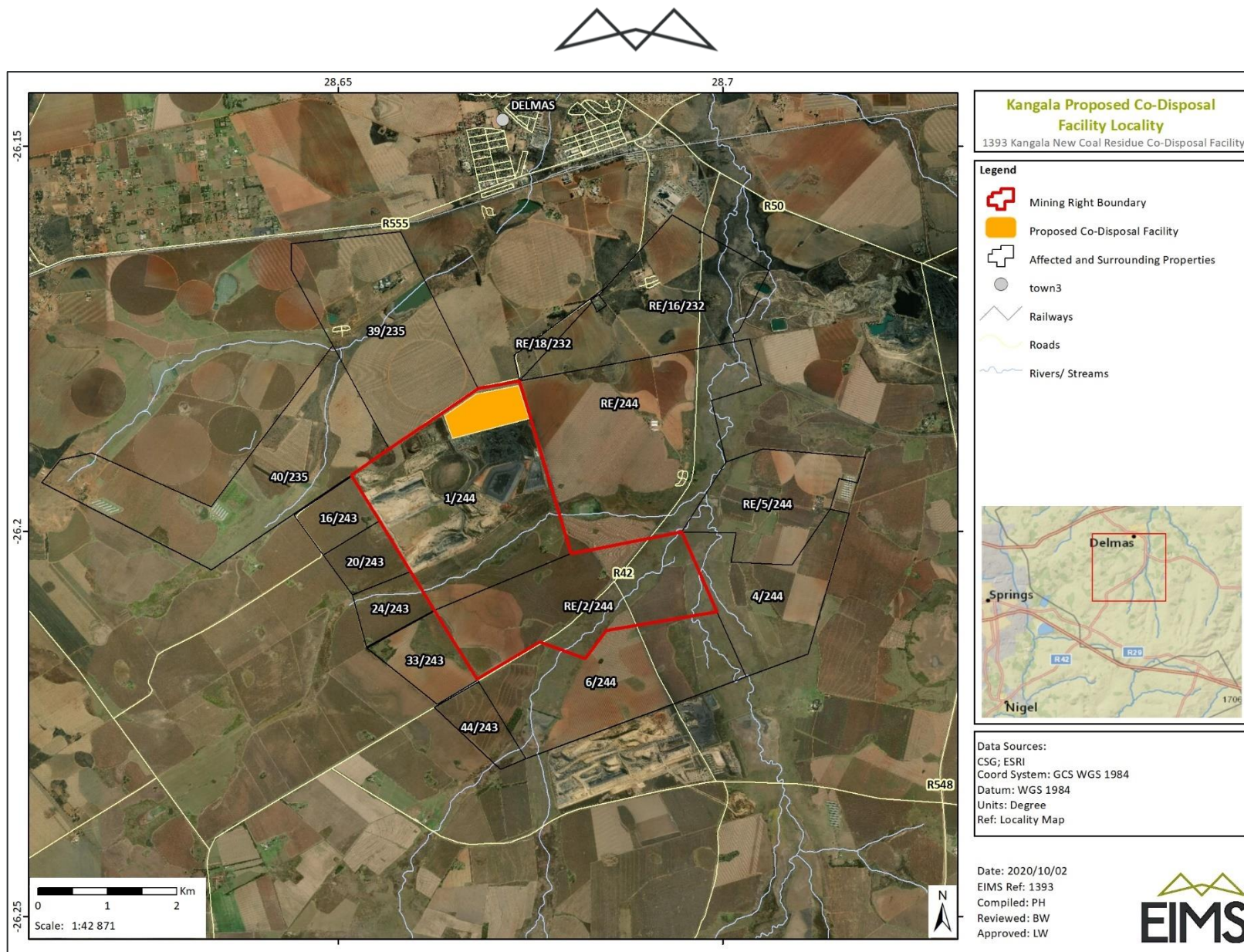


Figure 1: Aerial imagery locality map indicating the existing Kangala Colliery MR boundary and the proposed new co-disposal facility.

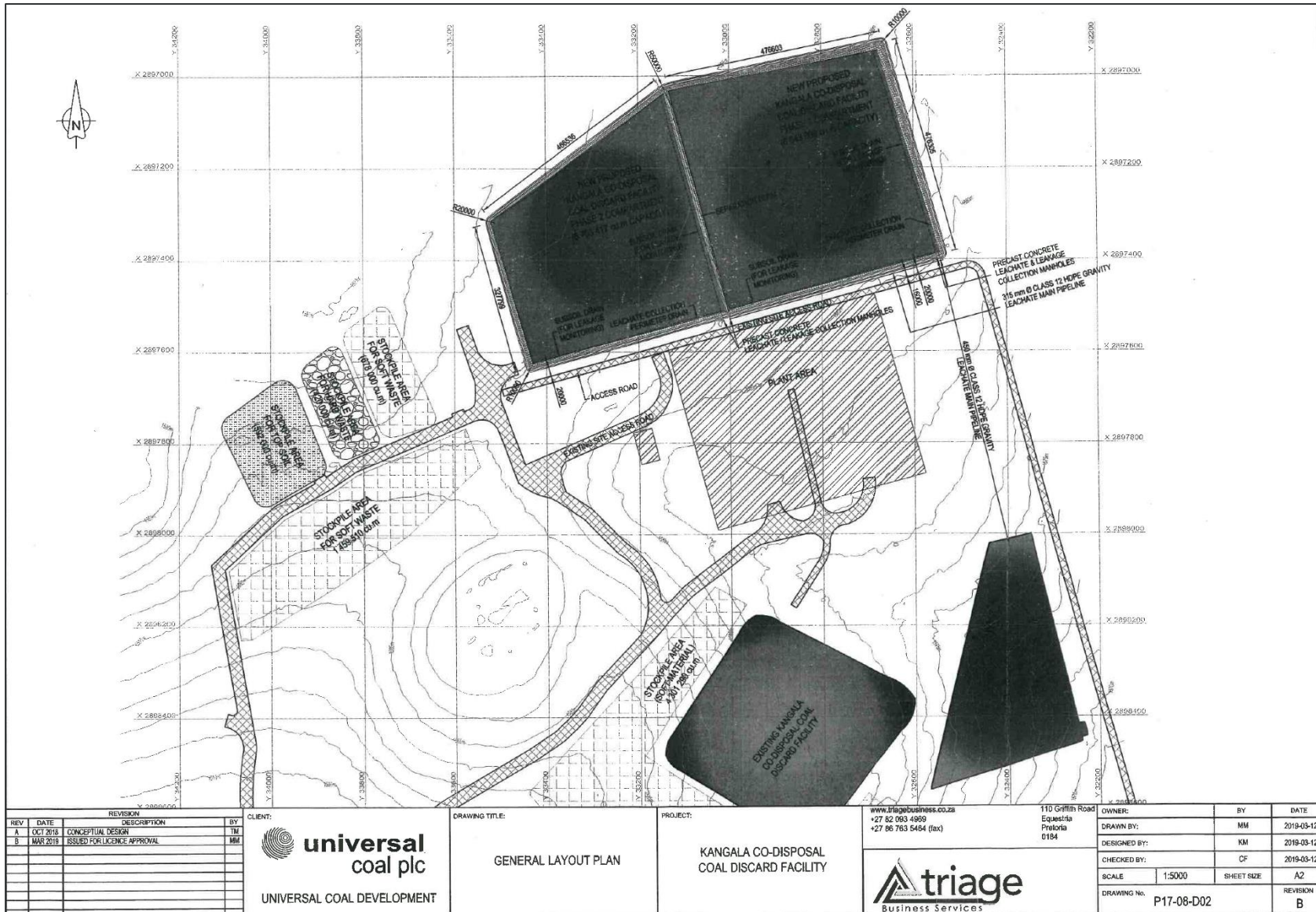


Figure 2: General layout plan showing location of the proposed new discard facility on Kangala Colliery.

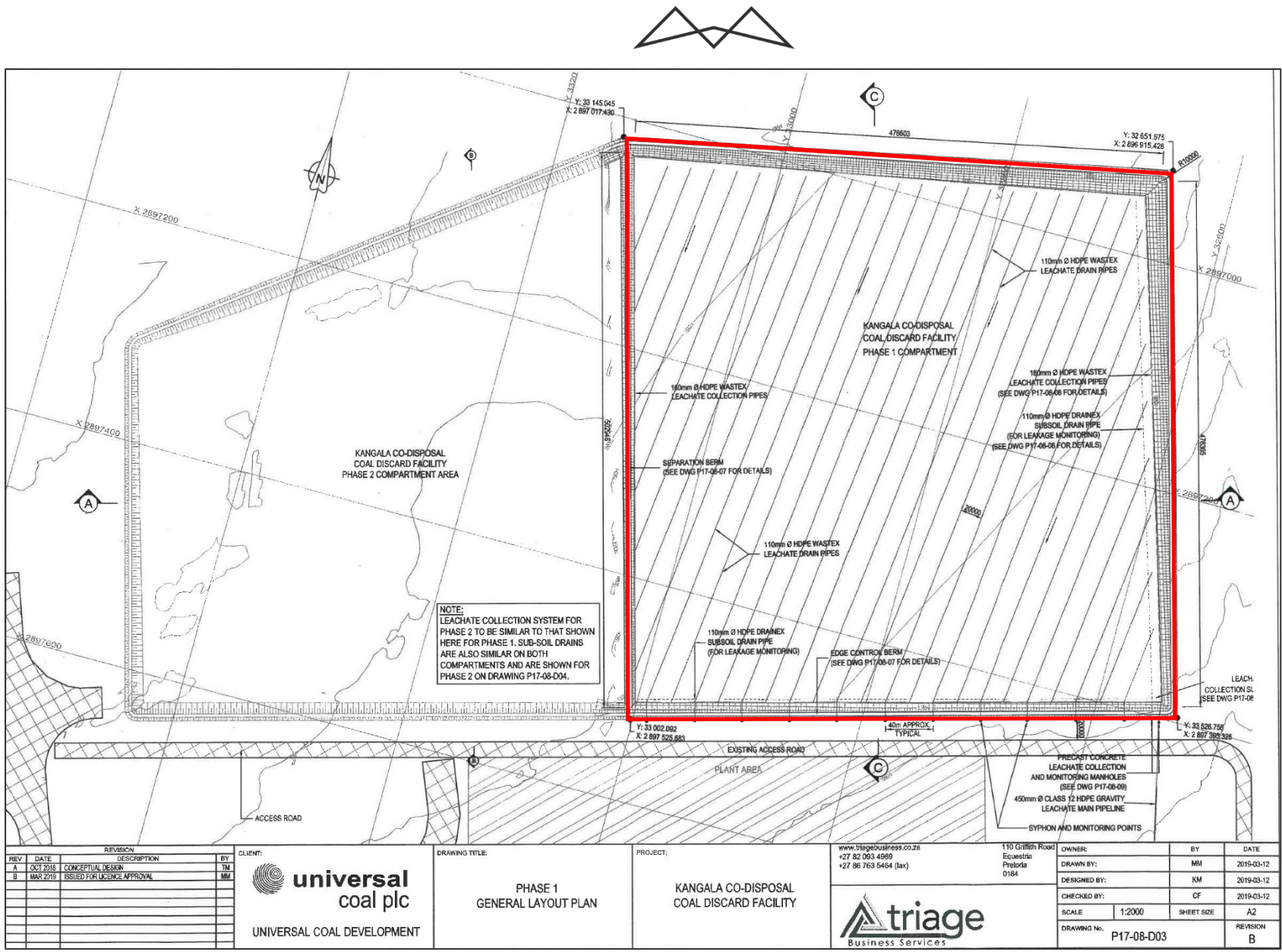


Figure 3: General layout plan showing phase 1 in red outline.

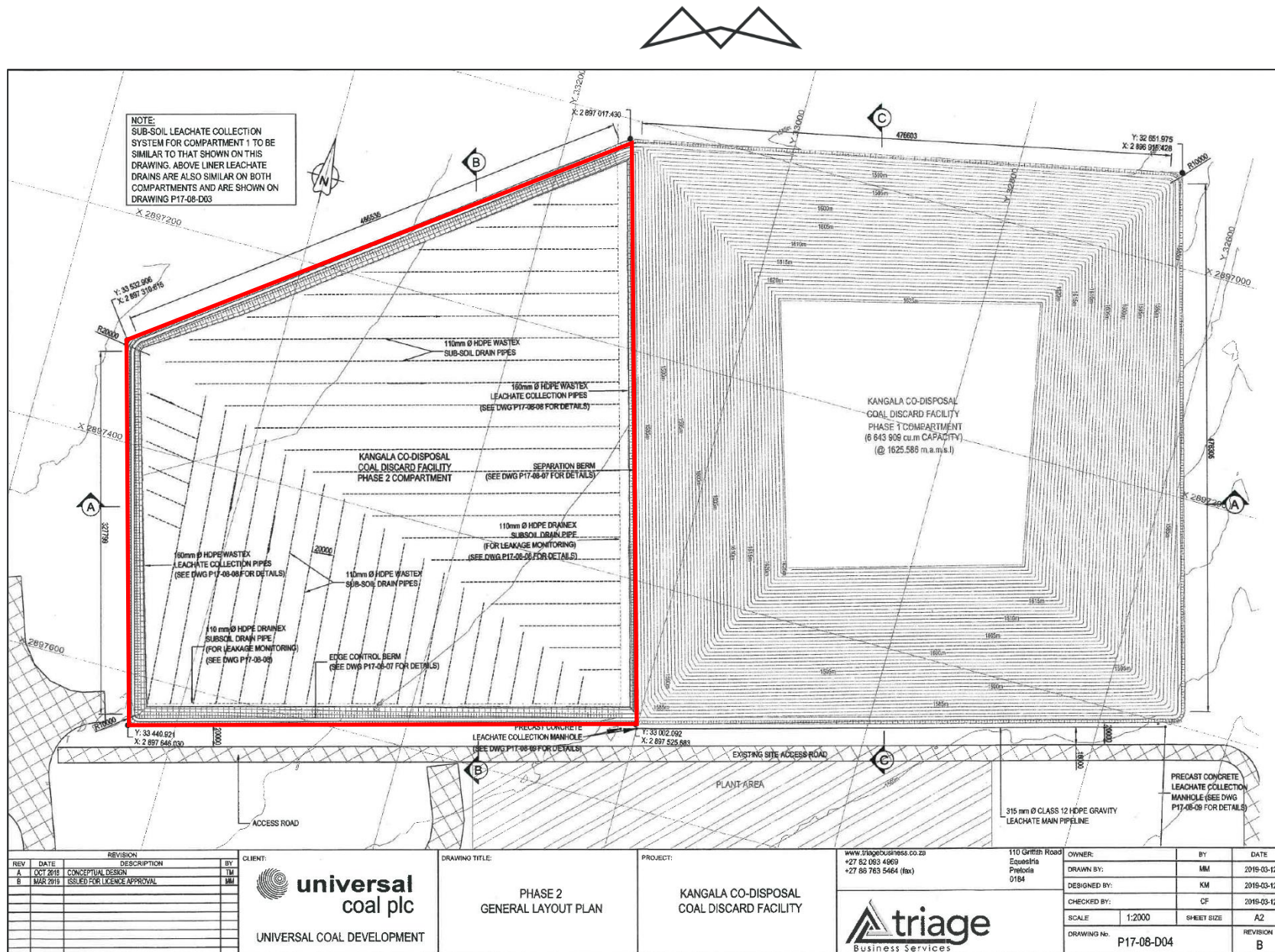


Figure 4: General layout plan showing phase 2 in red outline.

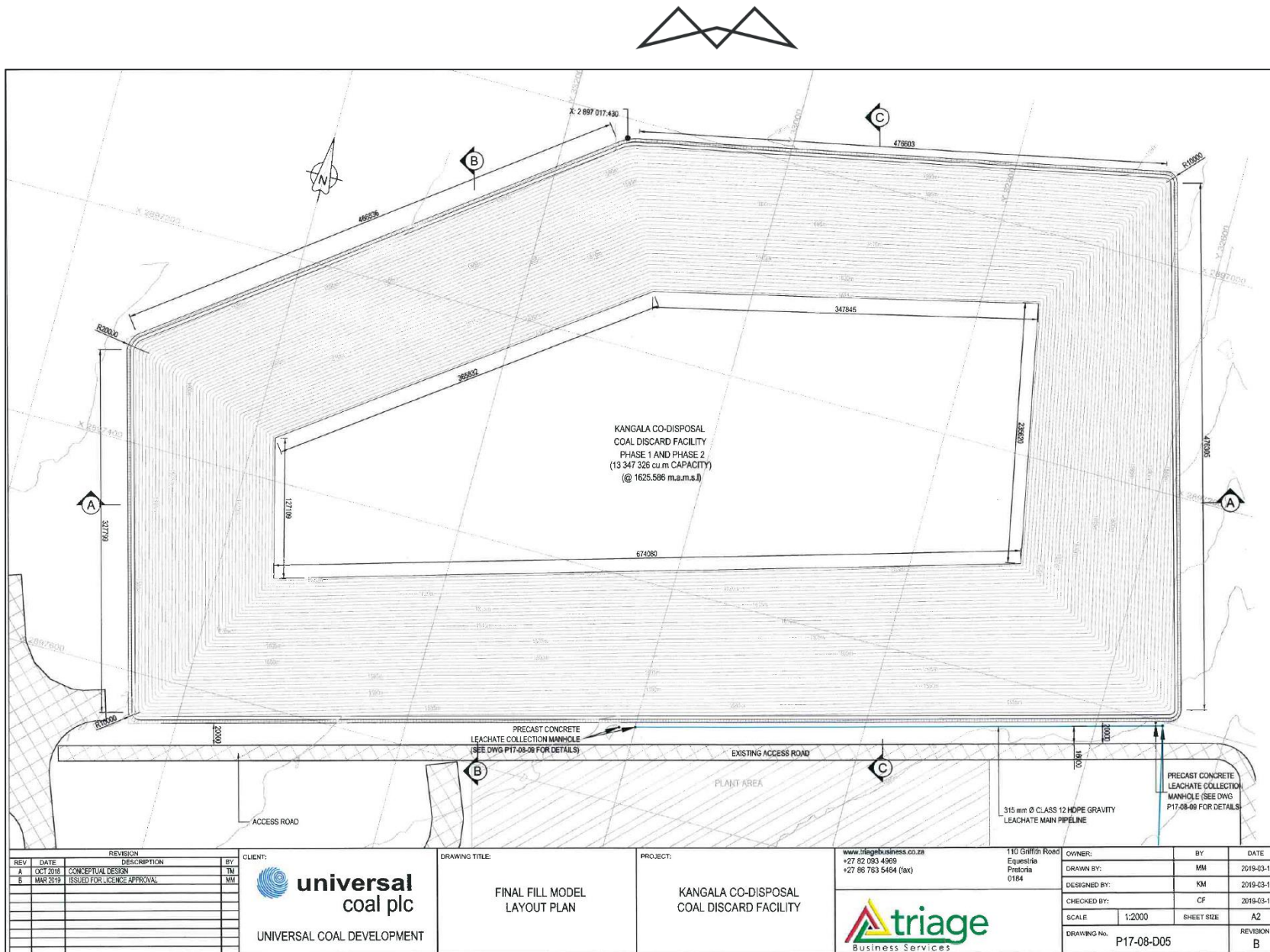


Figure 5: General layout plan showing the final fill model (phase 1 and phase 2 complete).



3 ADDITIONAL EMPR MANAGEMENT ACTIONS

The existing approved EMPr was prepared by Digby Wells Environmental in 2014 (refer to Addendum 1) and the EMPr contains management actions relevant to the existing Kangala operation. Where relevant these management actions also apply to the proposed co-disposal facility. As the approved EMPr was prepared by a separate EAP, EIMS shall not edit the original document but instead propose an addendum to the approved EMPr as part of the WML. This will result in an integrated EMPr and Waste Management Plan which shall be binding on the holder of the Mining Right and WML.

Based on the EIA and specialist studies undertaken for the WML, specific additional management objectives and management actions are required for the proposed co-disposal facility in addition to the approved EMPr and are presented in Table 1 below. These additional management objectives and management actions must be read in conjunction with the approved EMPr for compliance and auditing purposes.



Table 1: Amendment / addendum to the approved EMPr relating specifically to the new co-disposal facility.

Impact	Management Objectives	Management Actions	Monitoring Frequency	Monitoring Responsibility
Erosion due to stormwater runoff	To design, install and monitor storm water management infrastructure to prevent erosion of the side slopes.	<ul style="list-style-type: none"> Prior to construction, topsoils must be removed from the development footprint and stockpiled no higher than 2m for use in the rehabilitation of the side slopes. The Kangala closure plan topsoil balances must be updated to include the soil requirements for the co-disposal rehabilitation. 	Weekly	EHS Manager
		<ul style="list-style-type: none"> To assist with the erosion of the rehabilitated landform during storm events, cut-off drain channels must be implemented along the slopes of the landform every 20m. Stormwater infrastructure must be inspected regularly to identify erosion concerns which should be repaired immediately if noted. 	Monthly	EHS Manager
Spontaneous combustion	Prevent oxidation of carbonaceous material which has the potential to spontaneously combust.	<ul style="list-style-type: none"> The coal coarse and fine material will need to be sufficiently compacted to form a tight bond between material and water, releasing all oxygen from the facility which will ensure that spontaneous combustion of the material will not be possible. 	Monthly	EHS Manager
		<ul style="list-style-type: none"> Adequate cover materials must be installed, and security fencing must be installed around the facility to prevent unauthorised access. Ongoing monitoring and maintenance must be undertaken to prevent and/or manage erosion 	Monthly	EHS Manager
Degradation of surrounding surface water quality	Prevent uncontained stormwater runoff from the facility into the surrounding natural environment.	<ul style="list-style-type: none"> The installation and maintenance of adequate stormwater management infrastructure must be undertaken to prevent polluted water from entering the surrounding natural environment. 	Monthly	EHS Manager
		<ul style="list-style-type: none"> All polluted water captured within the stormwater infrastructure must be directed to the existing pollution control dam. 	Monthly	EHS Manager
		<ul style="list-style-type: none"> Post-closure monitoring and management of the stormwater infrastructure must be undertaken at least monthly to ensure that erosion is identified and rehabilitated timeously. 	Monthly	EHS Manager
	Containment of polluted leachate.	<ul style="list-style-type: none"> Installation of Class C compliant barrier system with subsurface drainage system. 	Once off during construction	Resident Engineer



Impact	Management Objectives	Management Actions	Monitoring Frequency	Monitoring Responsibility
Pollution of groundwater resources		<ul style="list-style-type: none"> Groundwater monitoring boreholes should be drilled up gradient and down-gradient (to the north) of the proposed discard facility and baseline water qualities recorded for future comparison. The boreholes should be both shallow (12m) and deep (80m) boreholes to monitor the shallow (Karoo) and deep (Dolomite) aquifer. 	Once off prior to construction	Resident Engineer
		<ul style="list-style-type: none"> Should contamination be identified in the discard facility monitoring boreholes (i.e. exceedance from baseline water quality), seepage capturing boreholes must be installed to prevent further migration of groundwater to the north. 	Monthly	EHS Manager
Decline in air quality	Prevent cumulative impact on surrounding ambient air quality.	<ul style="list-style-type: none"> Implementation and monitoring of design mitigation measures including but not limited to maintaining adequate vegetation on side slopes. 	Monthly	EHS Manager
		<ul style="list-style-type: none"> Frequent water sprays (> 2 litres/m²/hr) on the in-pit roads to ensure a control efficiency of at least 75% and chemical suppressants on the unpaved haul roads to ensure a control efficiency of more than 90%. 	Daily	EHS Manager
		<ul style="list-style-type: none"> Temporary wind breaks to be installed onto the topsoil stockpile (30% control efficiency) and vegetation cover to be established on the dormant areas and side slopes (40% control efficiency) (NPI, 2011). 	Monthly	EHS Manager
		<ul style="list-style-type: none"> To ensure the impacts on the surrounding environment and human health remain acceptable throughout the Life of Mine (LoM), 3 dustfall units are recommended to be added to the existing dustfall monitoring network. Should dustfall at the Delmas residential receptor (EL-003) exceed the NDCR, it is recommended that a 3-month PM10 sampling campaign be undertaken to assess whether a permanent PM10 sampler should be installed. 	Monthly	EHS Manager
		<ul style="list-style-type: none"> Ensure successful rehabilitation (vegetative cover) of the final co-disposal facility. 	Monthly	EHS Manager
Visual impact	To limit the change of landscape character and associated impact on sensitive visual receptors.	<ul style="list-style-type: none"> Flattening and grassing of side slopes must be undertaken if possible. This is likely to marginally reduce impacts and should also reduce the extent of maintenance that is required in the long term to prevent the risk of erosion. 	Monthly	EHS Manager





Addendum 1: Approved EMPr (MP 30/5/2/2/ 429MR; December 2014)