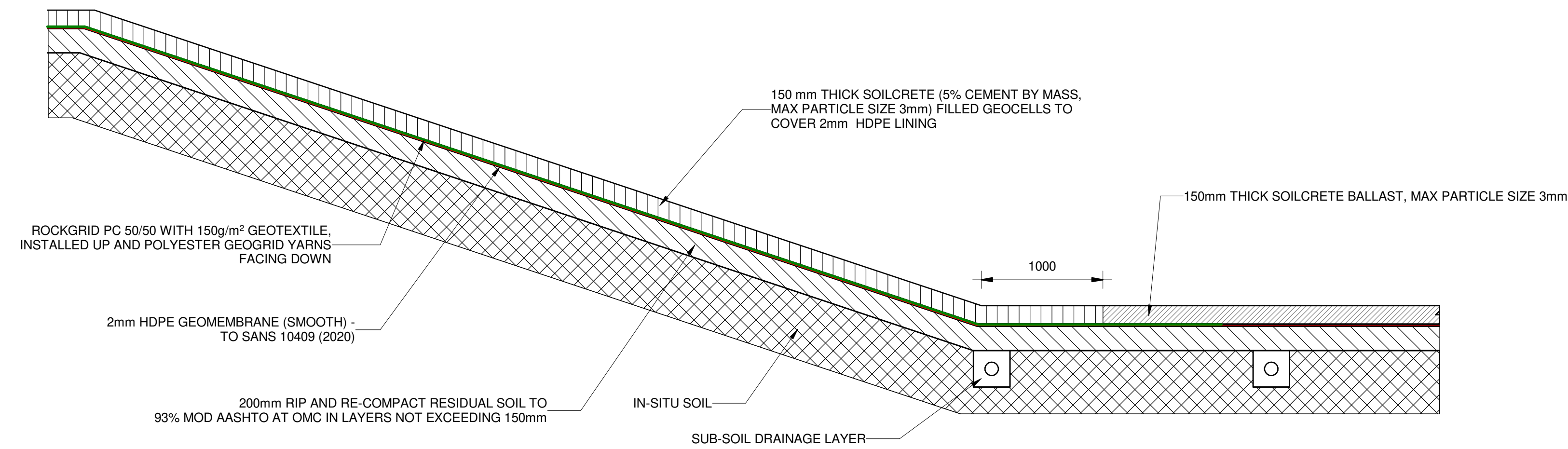
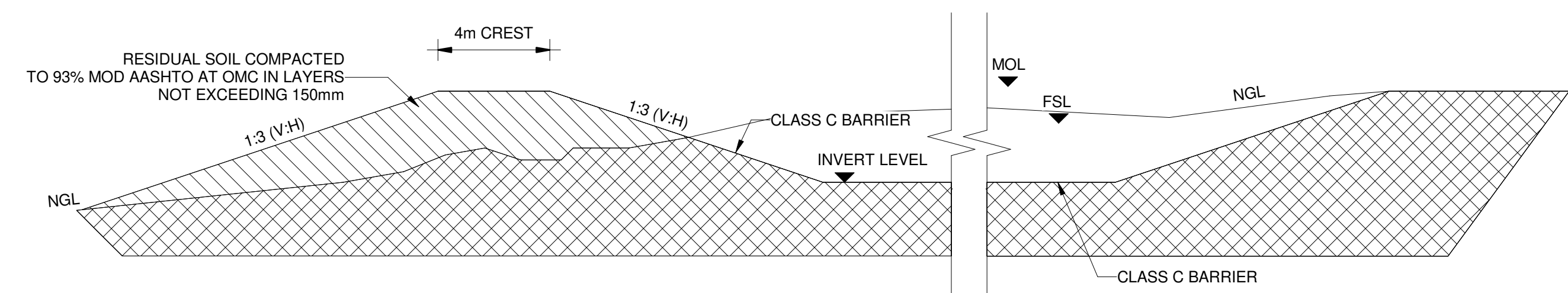


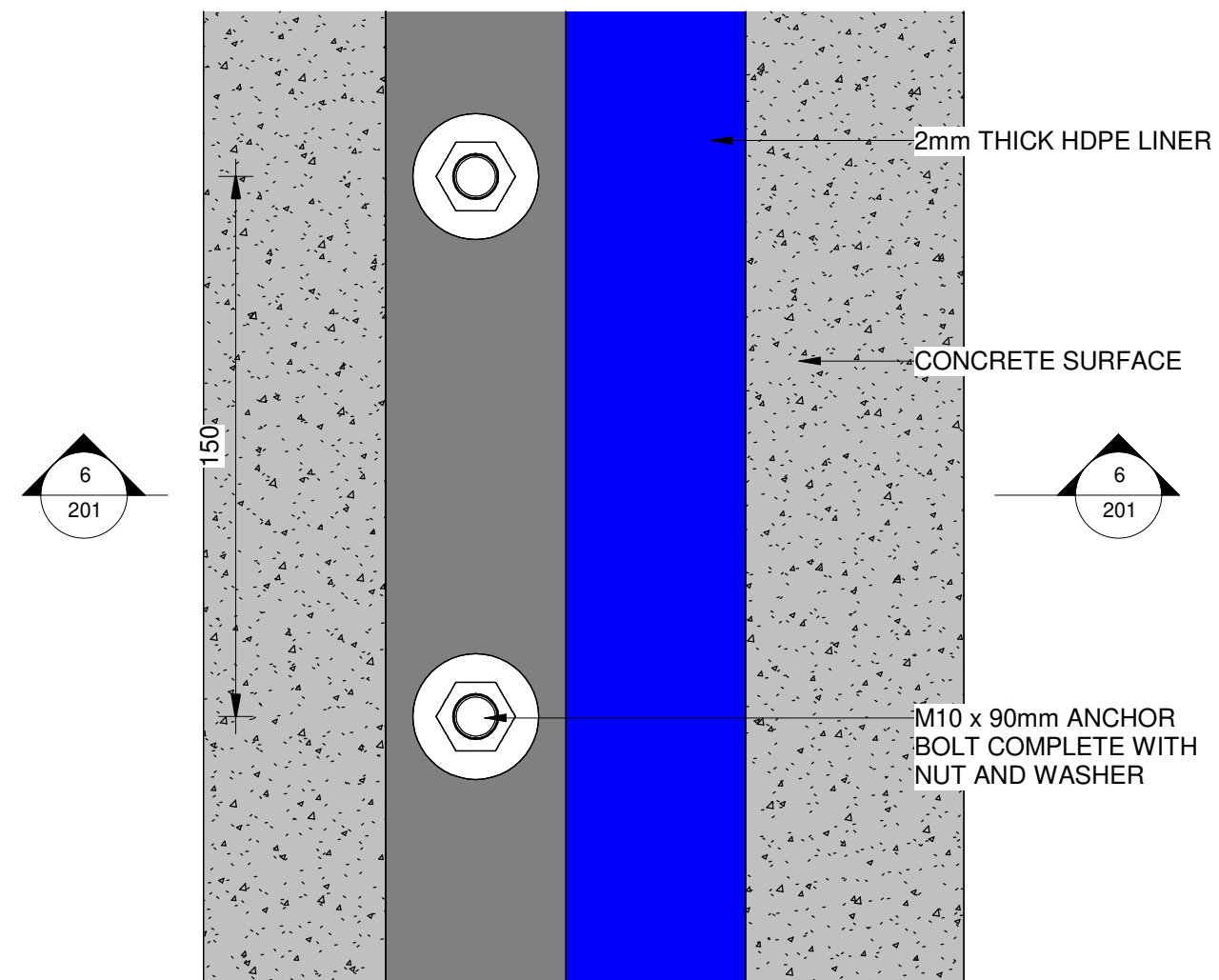
4 ISOMETRIC VIEW - DAM LINING
1 : 2



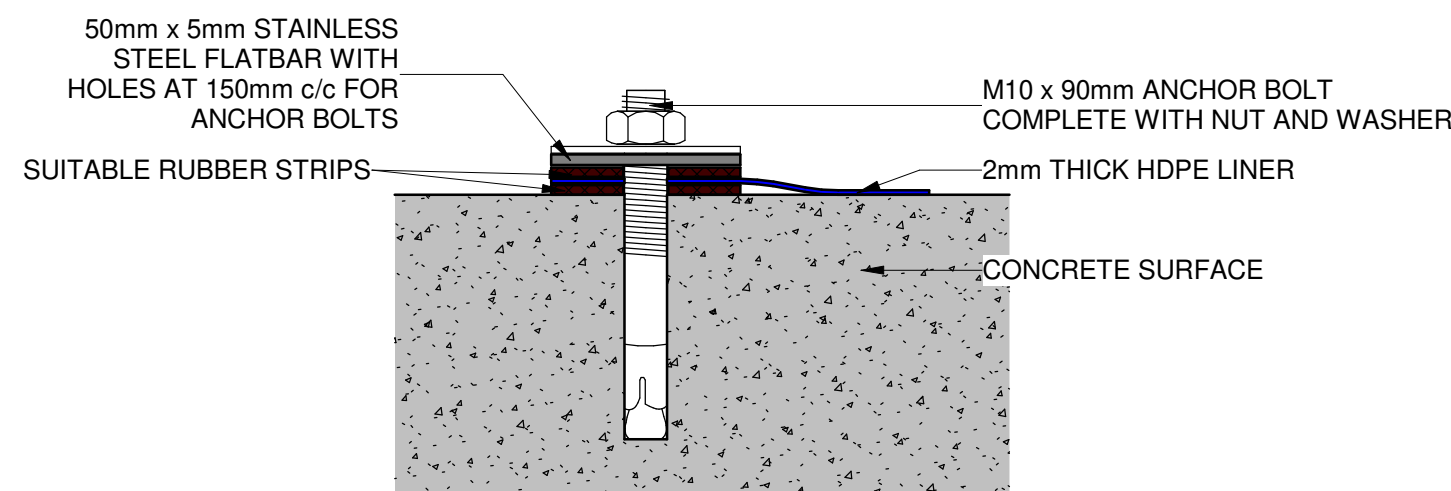
2 CLASS C DAM LINING DETAIL - EMBANKMENT
1 : 30



1 TYPICAL SECTION THROUGH EMBANKMENT
1 : 200



3 LINER TO CONCRETE FIXING PLAN VIEW
1 : 2



6 LINER TO CONCRETE FIXING SECTION
1 : 2

EMBANKMENT CONSTRUCTION SPECIFICATIONS

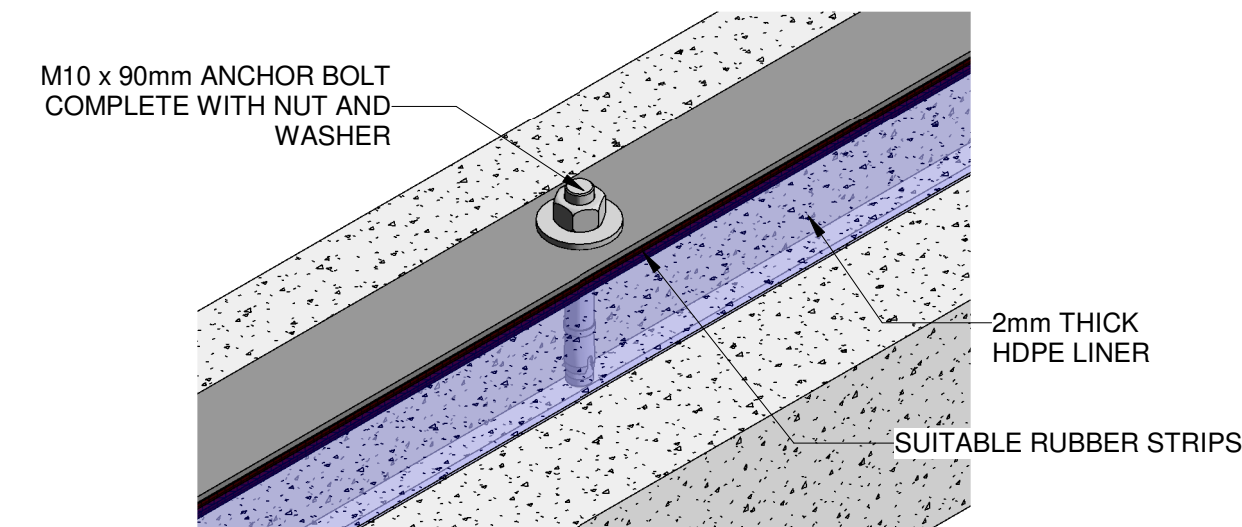
1. STRIP TOPSOIL 150mm TO 300mm FOR ENTIRE FOOTPRINT OF RWD AND STOCKPILE AS PER MINE REQUIREMENT FOR STOCKPILING AND TOP SOIL MAINTENANCE
2. EXCAVATE MATERIALS TO RESIDUAL SOIL OCCURRING AT A DEPTH OF 0.4m TO 2m
3. RIP AND COMPACT IN-SITU MATERIAL BELOW EMBANKMENTS TO 93% OF MOD AASHTO DENSITY
4. CONSTRUCT EMBANKMENT WITH RESIDUAL SOIL MATERIAL FROM EXCAVATIONS AND COMPACT TO 93% MOD AASHTO DENSITY AT OMC IN LAYERS NOT EXCEEDING 150mm.

CLASS C BARRIER PROTECTION AND SURFACE PREPARATION

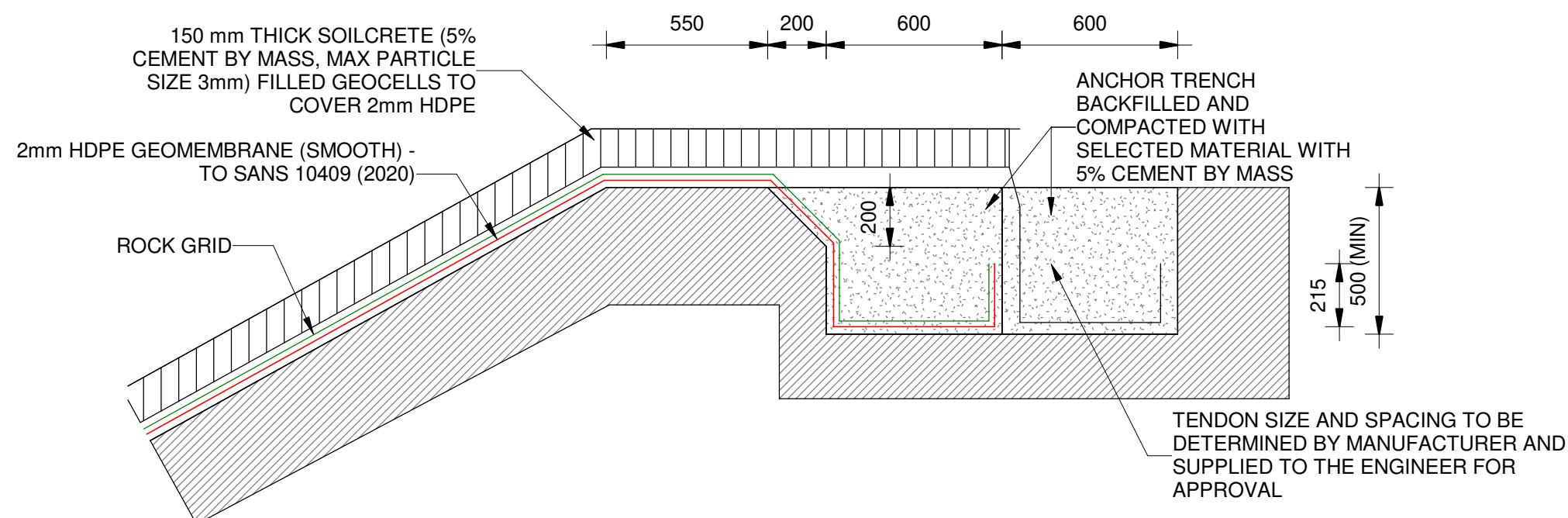
1. EXCAVATE RWD TO 300mm BELOW FINAL INVERT LAYER
2. EXCAVATE SUBSOIL DRAINAGE TRENCHES TO INSTALL SUB-SURFACE DRAINAGE PIPES. SUPPLY AND PLACE GEO-FABRIC (230g/m² NON-WOVEN NEEDLE PUNCHED GEOTEXTILE) IN SUB-SURFACE DRAINS AND BELOW FLOORS. PLACE 28mm AGGREGATE ON TRENCH FLOOR TO FORM PIPE BEDDING. SUPPLY, LAY AND BED 110mm DIAMETER HDPE SLOTTED SUB-SURFACE DRAINAGE PIPES. SUPPLY AND PLACE 19mm CRUSHED STONE IN SUBSOIL DRAIN.
3. FOUNDING SOIL TO COMPLY TO SANS 10409(2020) RECEIVING FACE OF REWORKED MATERIAL
4. SUPPLY AND INSTALL 2mm HDPE GEOMEMBRANE TO SANS 10409(2020) BY SPECIALIST SUPPLIER (TO BE APPROVED BY ENGINEER) TO DAM FLOOR AND EMBANKMENTS
5. SUPPLY AND INSTALL ROCKGRID BY SPECIALIST SUPPLIER (TO BE APPROVED BY ENGINEER) TO DAM FLOOR AND EMBANKMENTS
6. ANCHOR LINER IN TRENCH 1300mm WIDE AND 500mm DEEP ON TOP OF EMBANKMENT AS SHOWN ON DRAWING.
7. ELL SURVEY TO BE PERFORMED FOR COVERED GEOMEMBRANE BY MEANS OF DIPOLE TESING ACCORDING TO ASTM D7007.

T-LOCK NOTE

1. INSTALL "T-LOCK" TO MANUFACTURES SPECIFICATIONS



5 LINER TO CONCRETE FIXING ISOMETRIC



7 ANCHOR TRENCH DETAIL
1 : 20

NOT FOR CONSTRUCTION

REVISIONS

Rev	Date	Description	By
a	18/06/2025	ISSUED FOR CONCEPT	D.S

PROJECT STATUS

CONCEPT DRAWING	APPROVAL DRAWING	TENDER DRAWING	APPROVED CONSTRUCTION DRAWING	AS BUILT DRAWING
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Design By	Date
R. I R	18/06/2025
Design Checked	Date
D.S	18/06/2025

Approval	Name:	Prof Reg Nr:
For Client:	Signature:	Date:
For Consulting Engineers:	D. SMITH Name:	Prof Reg Nr:
	Signature:	18/06/2025 Date:

Consultant	ECO ELEMENTUM (PTY) LTD 472 Botterklapper Street Block @ Nature Block B Die Wilgers, Pretoria East 0184 TEL: +27 (012) 8070383
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Client	HARMONY GOLD MINING COMPANY PTY (LTD) PO Box 2 Randfontein 1760 South Africa
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Client Drawing Number

Project
HARMONY GOLD MINING - MPONENG
LOWER COMPARTMENT TSF

Drawing Title
TSF
RETURN WATER DAM
LINER DETAILS

Paper Size	Sheet	Project No	Scale	Revision
A1	1 of 1	23-2486-5	AS SHOWN	a

Consulting Engineer's Drawing Number
23-2486-WMF-5-201