



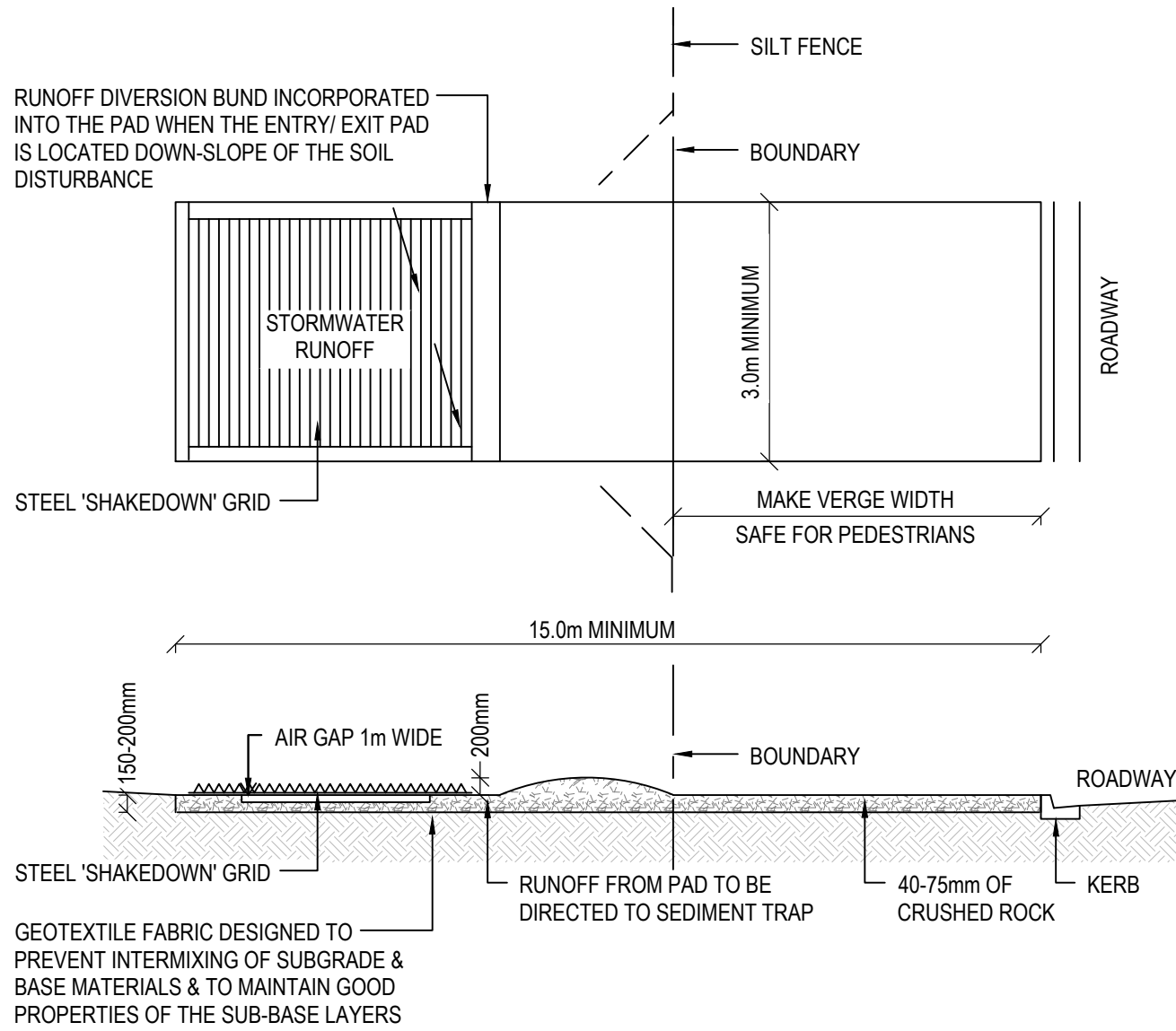
WETLANDS EROSION & SEDIMENT CONTROL PLAN
SCALE 1:500 (A1)

EROSION AND SEDIMENTATION METHODOLOGY

- STAGE 1:
- CONSTRUCT TEMPORARY ROCK DAMS.
 - ROCK AND CONCRETE OUTLET AREA TO BE CLEARED QUICKLY AND IN DRY WEATHER ONLY.
 - BATTERS TO BE STABILISED.
 - ROCK AND CONCRETE AREAS CONSTRUCTED.
- STAGE 2:
- EXCAVATE WITHIN WETLANDS AREA DURING DRY WEATHER ONLY.
 - INSTALL ROCK BUNDS AND PATHS.
 - INSTALL CONCRETE AND GRAVEL TRACKS.
 - TEMPORARILY STABILISE BATTERS WITH JUTE MAT.
 - PLANT OUT THE WETLANDS AREA.
- STAGE 3:
- CONSTRUCT THE PITS, WEIR AND ASSOCIATED DRAINAGE WORKS.

EROSION AND SEDIMENTATION CONTROL NOTES

1. CONTRACTOR TO NOMINATE SITE REPRESENTATIVE TO BE RESPONSIBLE FOR THE IMPLEMENTATION AND UP KEEP OF THE SILTATION AND EROSION MANAGEMENT CONTROL PLAN.
2. CONSTRUCTION OF ALL SEDIMENT MANAGEMENT DEVICES SHALL BE COMPLETED AND EFFECTIVE PRIOR TO:
 - STRIPPING OF TOPSOIL AND GRASS
 - BULK EARTHWORKS
 - SERVICE INSTALLATION
3. WHERE THE CONTRACTOR IS REQUIRED TO SLASH EXISTING VEGETATION, THE SLASHED HEIGHT SHALL BE AT LEAST 75mm, SO THAT THE STUBS CAN ASSIST IN PREVENTING EROSION.
4. ENSURE NO RUN OFF OR SEDIMENT DISCHARGES TO STREET OR ADJOINING PROPERTIES.
5. SHOULD THE SUPERINTENDENT, OR COUNCIL'S DESIGNATED REPRESENTATIVE, REQUEST THE CONTRACTOR TO IMPLEMENT AN EROSION AND SEDIMENT CONTROL MEASURE, THE CONTRACTOR SHALL IMPLEMENT IT WITHIN 24 HOURS.
6. BOTH TEMPORARY AND PERMANENT SEDIMENT MANAGEMENT DEVICES SHALL BE MAINTAINED. AT A SUITABLE LEVEL/CONDITION THROUGHOUT CONSTRUCTION.
7. IF EROSION AND SEDIMENT CONTROL DEVICES HAVE BEEN FOUND TO BE DEFICIENT OR FAILED IN SERVICE, DUE TO UNFORESEEN CIRCUMSTANCES, CORRECTIVE ACTION IS TO BE UNDERTAKEN IMMEDIATELY WHICH MAY INCLUDE AMENDMENTS/ADDITIONS TO THE ORIGINAL APPROVED EROSION CONTROL PLANS. SUCH ADDITIONS OR AMENDMENTS ARE TO BE APPROVED BY RELEVANT LICENSING AND COMPLIANCE OFFICER.
8. THE CONTRACTOR SHALL PROVIDE ONE VEHICLE ACCESS POINT TO SERVE THE SITE. ITS LOCATION, AND THE ASSOCIATED EROSION AND SEDIMENT CONTROL MEASURES, SHALL BE AS AGREED WITH COUNCIL'S DESIGNATED REPRESENTATIVE. THE PURPOSE OF THE ACCESS POINT AND CONTROL MEASURES IS TO MINIMIZE THE AMOUNT OF SEDIMENT TAKEN OFF SITE BY VEHICLE TYRES.
9. THE CONTRACTOR SHALL PROVIDE INLET PROTECTION TO ANY EXISTING GULLIES DIRECTLY DOWNSTREAM OF THE SITE OF WORKS.
10. THE CONTRACTOR SHALL REHABILITATE ANY DISTURBED AREAS IN ACCORDANCE WITH THE REHABILITATION MANAGEMENT PLAN PREPARED BY ICUBED CONSULTING (DRAWINGS 17-209-V100 AND V101), PRIOR TO ON MAINTENANCE INSPECTION.
11. ALL REMAINING BATTERS AND DISTURBED AREAS SHALL BE GRASS SEEDDED WITHIN 7 DAYS OF FINAL TRIMMING AND ESTABLISHMENT OF 70 PERCENT GROUND COVER WITHIN 30 CALENDAR DAYS.



SHAKEDOWN DETAIL

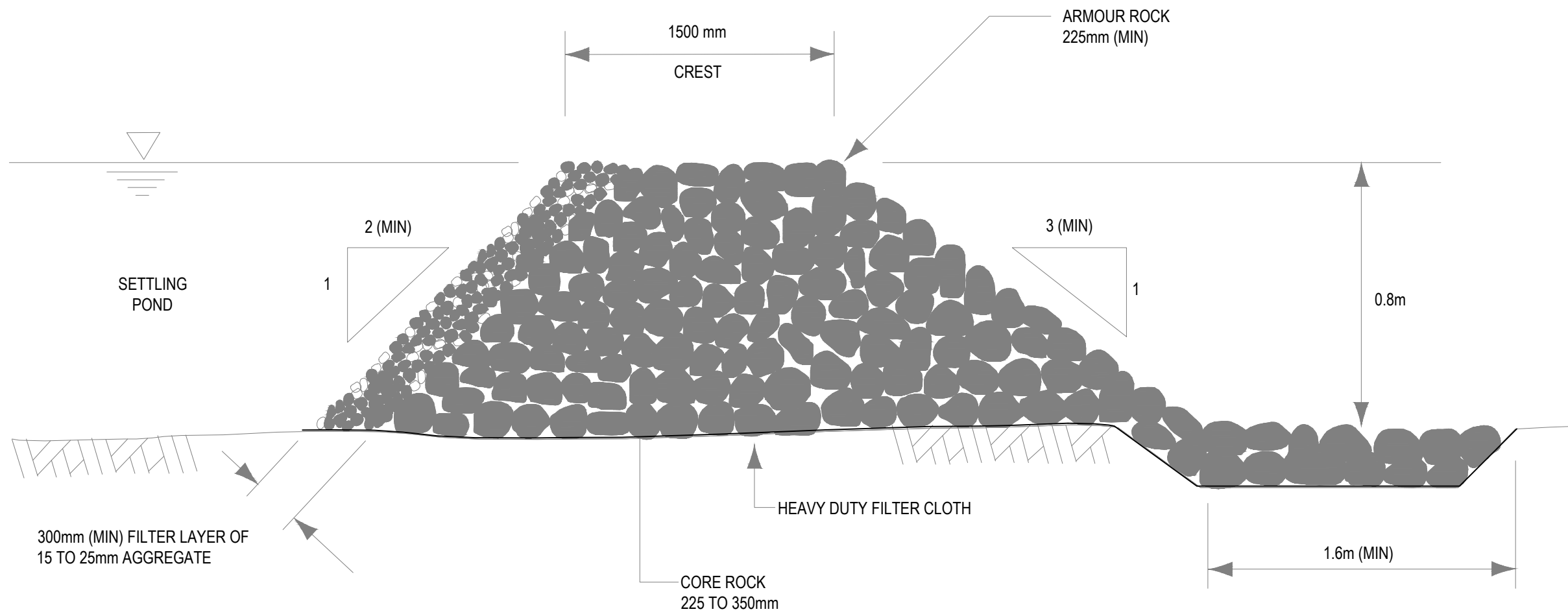
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WARNING
NO GUARANTEE IS GIVEN THAT SERVICES SHOWN ARE COMPLETE AND CORRECT. CONTRACTOR SHALL VERIFY EXACT POSITION OF SERVICES ON SITE BY HAND DIGGING OR OTHER NON DESTRUCTIVE MEANS PRIOR TO CONSTRUCTION AND SHALL MAINTAIN AND PROTECT THE SAME FOR THE DURATION OF THE CONTRACT.

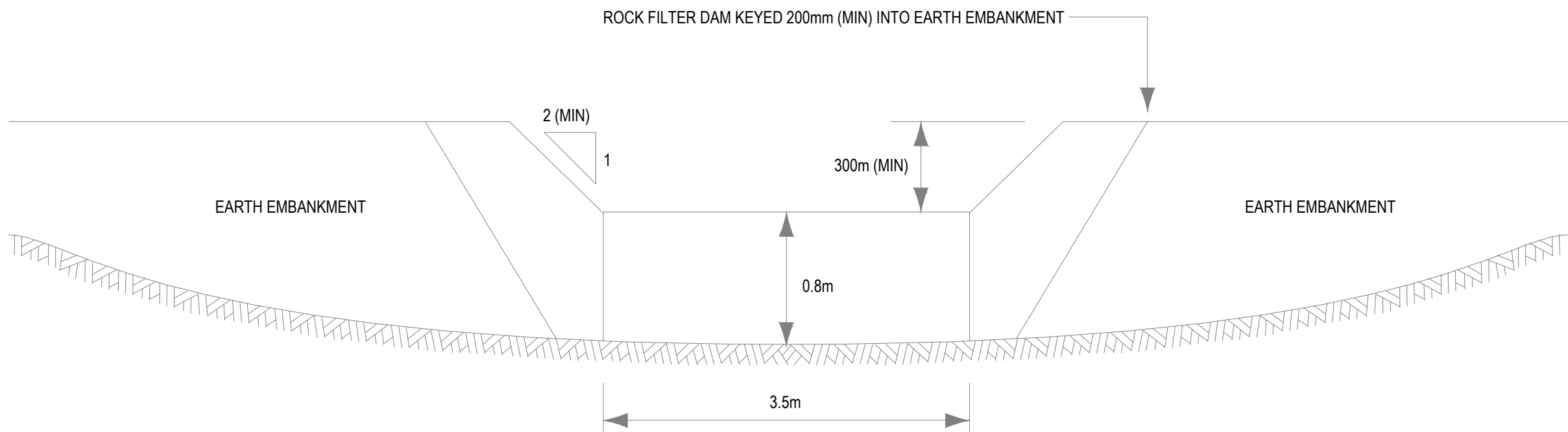
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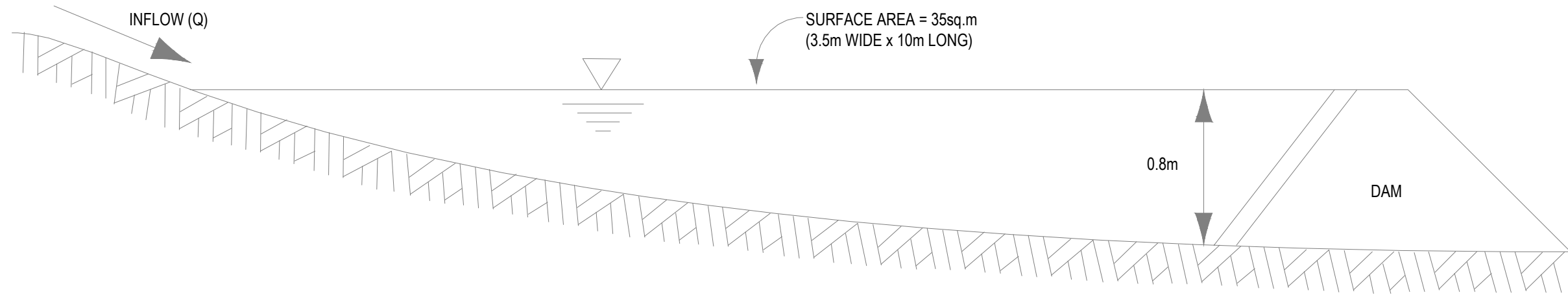
				Consulting Engineer:		Engineers Certification:		Project		Status	
				 i³ consulting pty ltd engineering consultants innovation, ingenuity, inspiration L2 39 Sherwood Rd Toowong, Qld 4066 www.icubed.com.au ABN 89 106 675 156 p 07 3870 8888		Travis Smith MIE Aust. CPEng. RPEQ 16400  Signature: Date: <u>10 / 12 / 2019</u>		PROPOSED SUBDIVISION AT 86-160 CHRISTENSEN ROAD SOUTH, STAPYLTON for BURNSIDE DEVELOPMENTS P/L & YELLOWSTONE INVESTMENTS P/L		FOR APPROVAL	
								Title		Project No.	
								WETLANDS EROSION & SEDIMENT CONTROL PLAN		17-209	
										Dwg. No.	
										C101-03	
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ROCK FILTER DAM WITH AGGREGATE FILTER



TYPICAL PROFILE OF ROCK FILTER DAM



SETTLING POND

MATERIALS

PRIMARY CORE ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, WITH MEAN SIZE AS SPECIFIED IN THE APPROVED PLAN, BUT NOT LESS THAN 225mm, OR GREATER THAN 350mm.

ARMOUR ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, WITH MEAN SIZE AS SPECIFIED IN THE APPROVED PLAN, BUT NOT LESS THAN 225mm.

AGGREGATE FILTER: 15 TO 25mm CLEAN AGGREGATE.

GEOTEXTILE FILTER FABRIC: HEAVY-DUTY NON-WOVEN, NEEDLE-PUNCHED FILTER FABRIC, MINIMUM 'BIDIM' A34 OR EQUIVALENT.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND CONSTRUCTION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE FOUNDATION AREA OF THE ROCK FILTER DAM OF WOODY VEGETATION AND ORGANIC MATTER. DELAY CLEARING THE UP-SLOPE POND AREA UNTIL THE DAM IS FORMED AND IS ABLE TO ACT AS A SUITABLE SEDIMENT TRAP. OTHERWISE AN ALTERNATIVE TEMPORARY DOWNSTREAM SEDIMENT TRAP MAY BE REQUIRED DURING CONSTRUCTION OF THE ROCK FILTER DAM.

3. IF SPECIFIED ON THE PLANS, EXCAVATE A CUT-OFF TRENCH ALONG THE CENTRE-LINE OF THE DAM AND EARTH ABUTMENTS (IF ANY).

4. COVER THE FOUNDATION AREA AND CUT-OFF TRENCH WITH HEAVY-DUTY FILTER FABRIC BEFORE BACKFILLING WITH THE CORE ROCK. OVERLAP ADJOINING FABRIC SHEETS A MINIMUM OF 600mm.

5. CONSTRUCT THE ASSOCIATED EARTH ABUTMENT (IF ANY). ALL CUT AND FILL SLOPES SHOULD BE 2:1(H:V) OR FLATTER. THE DOWNSTREAM FACE OF EARTH ABUTMENTS SHOULD BE 3:1(H:V) OR FLATTER. EARTH ABUTMENTS SHOULD BE CONSTRUCTED OF WELL-COMPACTED, EROSION RESISTANT SOIL THAT IS FREE OF VEGETATION AND ROOTS. OVERFILL EARTH ABUTMENTS 150mm TO ALLOW FOR SETTLEMENT.

6. PLACE THE CORE ROCK FOR THE ROCK FILTER DAM. ENSURE THE UPSTREAM FACE IS 2:1(H:V) OR FLATTER, AND THE DOWNSTREAM FACE IS 3:1(H:V) OR FLATTER.

7. ENSURE THE ROCK IS MACHINE PLACED WITH THE SMALLER ROCKS WORKED INTO THE VOIDS OF THE LARGER ROCKS.

8. IF SPECIFIED, CONSTRUCT THE SPILLWAY SECTION USING THE SPECIFIED ARMOUR ROCK. THE SPILLWAY SHOULD HAVE A MINIMUM PROFILE DEPTH OF 300mm. THE SPILLWAY WEIR CREST MUST BE LEVEL ACROSS ITS FULL WIDTH. THE MAXIMUM LONGITUDINAL SLOPE OF THE ROCK SPILLWAY SHOULD BE 3:1(H:V). THE MINIMUM THICKNESS OF ARMOUR ROCK PROTECTION SHOULD BE 500mm, OR TWICE THE NOMINAL ROCK SIZE, WHICHEVER IS THE GREATER.

9. ENSURE THE SPILLWAY OUTLET SECTION EXTENDS DOWNSTREAM PAST THE TOE OF THE FORMED EMBANKMENT UNTIL STABLE CONDITIONS ARE REACHED, OR A DISTANCE EQUAL TO THE HEIGHT OF THE DAM, WHICHEVER IS THE GREATER. THE EDGES OF THE SPILLWAY SHOULD BE LEFT FLUSH WITH THE SURROUNDING GROUND.

10. INSTALL THE SPECIFIED FILTER (AGGREGATE AND/OR FILTER CLOTH) ON THE UPSTREAM FACE OF THE ROCK FILTER DAM.

11. IF FILTER CLOTH IS USED, THEN:
(i) EXTEND THE FABRIC OVER THE CREST OF THE ROCK FILTER DAM INTO THE SPILLWAY CHUTE;
(ii) CONSIDER THE PLACEMENT OF SEVERAL LAYERS OF OVERLAPPING FABRIC, THUS ALLOWING EACH LAYER TO BE REMOVED INDIVIDUALLY ONCE THE FABRIC BECOMES BLOCKED WITH SEDIMENT.

12. CLEAR THE SETTling POND AREA OF WOODY VEGETATION AND ORGANIC MATTER TO THE DIMENSIONS SPECIFIED WITHIN THE PLANS.

13. WHERE NECESSARY, EXCAVATE THE UPSTREAM SETTling POND AND/OR SEDIMENT STORAGE PIT IN ACCORDANCE WITH THE APPROVED PLANS. EXCAVATED PITS TYPICALLY HAVE SIDE SLOPES OF 2:1(H:V) OR FLATTER UNLESS STEEPER SLOPES ARE KNOWN TO BE STABLE.

14. STABILISE ANY ASSOCIATED EARTH EMBANKMENTS IMMEDIATELY AFTER CONSTRUCTION THROUGH APPROPRIATE COMPACTION, VEGETATION AND/OR EROSION CONTROL MATTING.

15. ESTABLISH ALL NECESSARY UP-SLOPE DRAINAGE CONTROL MEASURES TO ENSURE THAT SEDIMENT-LADEN RUNOFF IS APPROPRIATELY DIRECTED INTO THE SEDIMENT TRAP.

16. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.

MAINTENANCE

1. CHECK ALL ROCK FILTER DAMS AFTER EACH RUNOFF EVENT AND MAKE REPAIRS IMMEDIATELY.

2. INSPECT ALL ROCK AND EARTH EMBANKMENTS FOR UNDERCUTTING OR UNDESIRABLE SEEPAGE FLOWS.

3. IDEALLY, ROCK FILTER DAMS SHOULD DISCHARGE (FROM FULL) OVER NO LESS THAN 8 HOURS. IF DRAINAGE IS TOO RAPID, THEN ADDITIONAL FILTER AGGREGATE MAYBE REQUIRED TO ACHIEVE OPTIMUM HYDRAULIC PERFORMANCE.

4. IF FLOW THROUGH THE STRUCTURE IS REDUCED TO AN UNACCEPTABLE LEVEL, THE UPSTREAM FILTER MEDIUM (AGGREGATE OR FILTER CLOTH) SHOULD BE REMOVED AND REPLACED.

5. IF A GREATER DEGREE OF WATER TREATMENT (FILTRATION) IS REQUIRED, EXTRA GEOTEXTILE FILTER FABRIC SHOULD BE PLACED OVER THE UPSTREAM FACE OF THE STRUCTURE.

6. CHECK THE STRUCTURE AND DOWNSTREAM CHANNEL BANKS FOR DAMAGE FROM OVERTOPPING FLOWS. MAKE REPAIRS AS NECESSARY.

7. IMMEDIATELY REPLACE ANY ROCK DISPLACED FROM THE SPILLWAY.

8. REMOVE SEDIMENT AND RESTORE ORIGINAL SEDIMENT STORAGE VOLUME WHEN COLLECTED SEDIMENT EXCEEDS 10% OF THE SPECIFIED STORAGE VOLUME.

9. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

2. ALL WATER AND SEDIMENT SHOULD BE REMOVED FROM THE SETTling POND PRIOR TO THE DAM'S REMOVAL. DISPOSE OF SEDIMENT AND WATER IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

3. BRING THE DISTURBED AREA TO A PROPER GRADE, THEN SMOOTH, COMPACT AND STABILISE AND/OR REVEGETATE AS REQUIRED TO MINIMISE THE EROSION HAZARD.

BASED ON IECA STANDARD DRAWING SD-RFD-1 & 2

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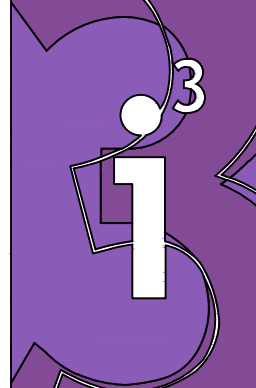


FOR APPROVAL

Drawn	Date	Chkd	Date
K.J.L.	09.12.19	T.J.S.	09.12.19
Design	Date	Apprd	Date
T.J.S.	09.12.19		
Scale	A1	Certif	Date
AS SHOWN			
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		Rev.	A

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Project
PROPOSED SUBDIVISION AT
86-160 CHRISTENSEN ROAD
SOUTH, STAPYLTON
for
BURNSIDE DEVELOPMENTS P/L &
YELLOWSTONE INVESTMENTS P/L

Title
WETLANDS EROSION & SEDIMENT
CONTROL DETAILS