

MATERIALS

FILTER TUBE: MANUFACTURED FROM A NON-WOVEN GEOTEXTILE REINFORCED WITH A UV-STABILISED, WOVEN FABRIC OR POLY-PROPYLENE MESH. THE GEOTEXTILE FABRIC SHOULD BE EITHER POLYESTER OR POLYPROPYLENE. PROPERTIES (AS3706) MINIMUM WIDE STRIP TENSILE STRENGTH OF 20kN/m IN BOTH DIRECTIONS; PORE SIZE EOS LESS THAN 160MICRONS, O95 LESS THAN 90MICRONS; MINIMUM MASS OF 300GSM (MINIMUM 'BIDIM' A44 OR EQUIVALENT).

RIBBED PIPE (USED WITH EARTH BANKS): RIBBED, PVC OR SIMILAR PIPE.

EARTH EMBANKMENT: NON-DISPERSIVE (EMERSON'S AGGREGATE CLASS 6, 7 OR 8) CLEAN EARTH FILL, FREE OF ORGANIC DEBRIS AND WITH SUFFICIENT CLAY CONTENT TO PREVENT THE THROUGH-FLOW OF WATER.

AGGREGATE: 15 TO 25mm CRUSHED ROCK.

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH. MINIMUM 'BIDIM' A34 OR EQUIVALENT IF USED ON NON-POROUS EMBANKMENTS, OR EQUIVALENT TO THE FILTER TUBE FABRIC IF USED ON POROUS EMBANKMENTS (MINIMUM 'BIDIM' A44 OR EQUIVALENT).

INSTALLATION

1. PRIOR TO COMMENCING ANY WORKS, OBTAIN ALL NECESSARY APPROVALS AND PERMITS REQUIRED TO CONDUCT THE NECESSARY WORKS INCLUDING PERMITS FOR THE DISTURBANCE OF RIPARIAN AND AQUATIC VEGETATION, AND THE CONSTRUCTION OF ALL PERMANENT OR TEMPORARY INSTREAM BARRIERS AND INSTREAM SEDIMENT CONTROL MEASURES.

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

3. IF THERE IS FLOW WITHIN THE WATERCOURSE OR DRAINAGE CHANNEL AT THE TIME OF CONSTRUCTION OF THE EMBANKMENT, THEN INSTALL APPROPRIATE

DOWNSTREAM SEDIMENT CONTROL DEVICES AND/OR FLOW DIVERSION SYSTEMS PRIOR TO CONSTRUCTION OF THE EMBANKMENT. SUCH MEASURES SHOULD ONLY BE INSTALLED IF CONSIDERED APPROPRIATE FOR THE LOCAL CONDITIONS, AND ONLY IF THEIR INSTALLATION IS JUDGED TO PROVIDE A NET OVERALL ENVIRONMENTAL BENEFIT.

4. TO THE MAXIMUM DEGREE PRACTICAL, CONSTRUCTION ACTIVITIES AND EQUIPMENT SHALL NOT OPERATE WITHIN OPEN FLOWING WATERS.

5. WHERE PRACTICABLE, DIVERT ALL SURFACE WATER RUNOFF FROM THE ADJACENT CONSTRUCTION SITE INTO STABLE, UNDISTURBED, VEGETATED AREAS ADJOINING THE WATERCOURSE SO AS TO MINIMISE THE DIRECT DISCHARGE OF SEDIMENT-LADEN WATER INTO FLOWING CHANNEL WATERS.

6. ENSURE CLEARING AND EXCAVATION OF ACCESS PATHS AND THE BANKS AND BED OF THE WATERCOURSE ARE LIMITED TO THE MINIMUM PRACTICABLE.

7. IF FLOW DIVERSION SYSTEMS CANNOT BE INSTALLED, THEN CONDUCT BANK EXCAVATIONS BY PULLING THE SOIL AWAY FROM THE CHANNEL.

8. IF DISPERSIBLE, HIGHLY UNSTABLE, OR HIGHLY EROSION SOILS ARE EXPOSED, THEN PRIORITY SHALL BE GIVEN TO THE PROMPT STABILISATION OF ALL SUCH AREAS.

9. CLEAR THE LOCATION FOR THE FILTER TUBE'S SUPPORT EMBANKMENT; CLEARING ONLY WHAT IS NEEDED TO PROVIDE ACCESS AND TO INSTALL THE EMBANKMENT.

10. REMOVE ANY CLEARED ORGANIC MATTER AND DEBRIS FROM THE DISTURBANCE AREA AND DISPOSE OF IT PROPERLY. DO NOT USE ORGANIC MATTER OR DEBRIS TO BUILD THE EMBANKMENT.

11. TO ASSIST IN THE EVENTUAL REMOVAL OF ALL MATERIALS USED IN THE CONSTRUCTION OF THE EMBANKMENT, A PROTECTIVE LAYER OF GEOTEXTILE FABRIC (PREFERABLY IN THE FORM OF A SINGLE SHEET) SHALL BE PLACED OVER THE CHANNEL PRIOR TO INSTALLATION OF THE EMBANKMENT. IF MORE THAN ONE SHEET OF FABRIC IS REQUIRED, OVERLAP THE

FABRIC BY AT LEAST 600mm. THE FABRIC SHOULD EXTEND UPSTREAM A SUFFICIENT DISTANT TO ALLOW THIS MATERIAL TO EVENTUALLY BE WRAPPED OVER THE FINISHED EMBANKMENT, THUS FULLY ENCLOSING THE EMBANKMENT.

12. CONSTRUCT THE EMBANKMENT OUT OF THE MATERIAL SPECIFIED WITHIN THE APPROVED PLANS OR AS DIRECTED. EARTH EMBANKMENTS SHALL BE SUITABLY COMPACTED DURING THEIR PLACEMENT. INSTALL AND ANCHOR THE SPECIFIED NUMBER OF RIBBED PIPE SECTIONS THROUGH THE EMBANKMENT AS APPROPRIATE DURING INSTALLATION OF THE EMBANKMENT.

13. IF THE EMBANKMENT IS TO BE CONSTRUCT WITH COMPACTED FILL, THE SIDES OF THE EMBANKMENT MUST BE NO STEEPER THAN A 2:1 (H:V) SLOPE. FIRMLY HAND-STAMP (COMPACT) THE SOIL AROUND THE RIBBED PIPE.

14. COVER THE UPSTREAM END OF THE RIBBED PIPE/S WITH A SUITABLE COARSE MESH SUCH AS SHADE CLOTH OR WIRE MESH, NOT SEDIMENT FENCE FABRIC OR FILTER CLOTH.

15. LAY THE FILTER TUBE/S LENGTH-WISE DOWN THE CHANNEL AND SECURELY ATTACH THE TUBES TO THE RIBBED PIPE/S.

16. AFTER COMPLETION OF THE EMBANKMENT, STRETCH THE UPSTREAM SECTION OF THE FILTER CLOTH UP OVER THE CREST OF THE EMBANKMENT AND SECURE (PIN) TO FORM A SPILLWAY.

17. WHERE NECESSARY, PLACE ROCK OVER THE FILTER CLOTH TO PROVIDE ADDITIONAL PROTECTION TO PROTECT THE EMBANKMENT FROM OVERTOPPING FLOOD FLOWS.

MAINTENANCE

1. INSPECT THE EMBANKMENT AND FILTER TUBES PRIOR TO FORECAST RAINFALL, AFTER SIGNIFICANT RUNOFF PRODUCING RAINFALL, OR OTHERWISE ON A DAILY BASIS.

2. ENSURE THAT EMBANKMENT IS STABLE AND UNDAMAGED.

3. IN SOME CIRCUMSTANCES, FLOW THROUGH THE FILTER TUBES MAY BE TEMPORARILY IMPROVED BY BRUSHING THE TUBES WITH A STIFF-BRISTLE BROOM ON A DAILY BASIS.

4. DISPOSE OF ANY EXCESSIVE ACCUMULATIONS OF SEDIMENT OR DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

5. REPAIR ANY PLACES IN THE EMBANKMENT THAT HAVE WEAKENED OR THAT HAVE BEEN SUBJECTED TO DAMAGE FROM INFLOWS OR OVERTOPPING WATER.

REMOVAL

1. THE EMBANKMENT AND FILTER TUBES ARE TO BE REMOVED AS SOON AS POSSIBLE AFTER THEY ARE NO LONGER NEEDED.

2. IF EXCESSIVE SEDIMENT OR DEBRIS HAS COLLECTED UPSTREAM OF THE EMBANKMENT REMOVE IT BEFORE THE EMBANKMENT IS REMOVED AND DISPOSE OF SUCH MATERIAL PROPERLY.

3. IF THERE IS FLOW WITHIN THE WATERCOURSE OR DRAINAGE CHANNEL AT THE TIME OF REMOVAL OF THE FILTER TUBES AND EMBANKMENT, THEN INSTALL APPROPRIATE INSTREAM SEDIMENT CONTROL DEVICES AND/OR FLOW DIVERSION SYSTEMS PRIOR TO REMOVAL OF THE DEVICE. SUCH MEASURES SHOULD ONLY BE INSTALLED IF CONSIDERED APPROPRIATE FOR THE LOCAL CONDITIONS, AND ONLY IF THEIR INSTALLATION IS JUDGED TO PROVIDE A NET OVERALL ENVIRONMENTAL BENEFIT.

4. REMOVE ALL MATERIALS USED TO FORM THE EMBANKMENT INCLUDING THE GEOTEXTILE FABRIC AND DISPOSE OF IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

5. RESTORE THE WATERCOURSE CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILISE AND/OR REVEGETATE ALL DISTURBED AREAS.

Drawn:	Date:		
GMW	May-10	Filter Tube Barrier (Instream)	FTB-02