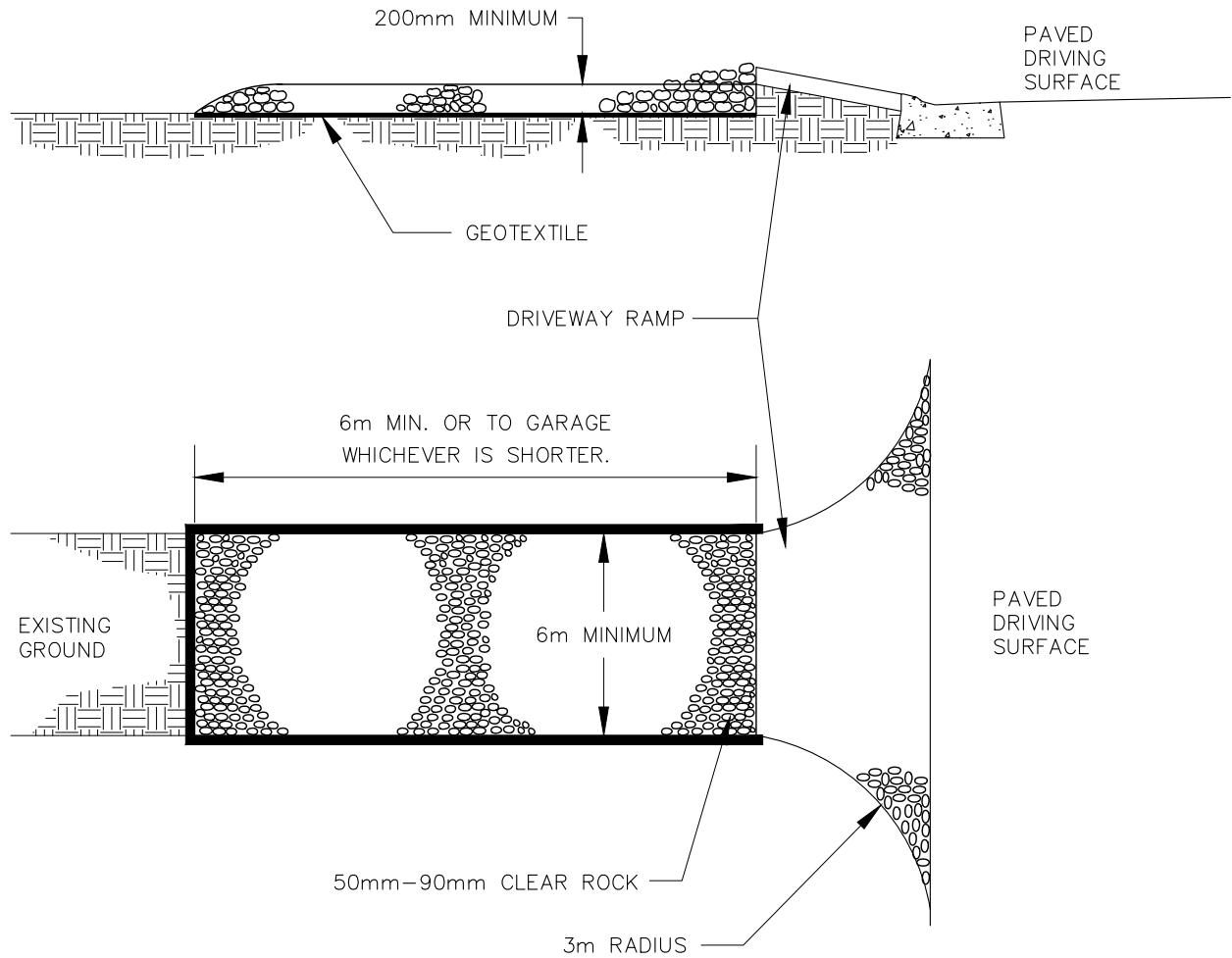


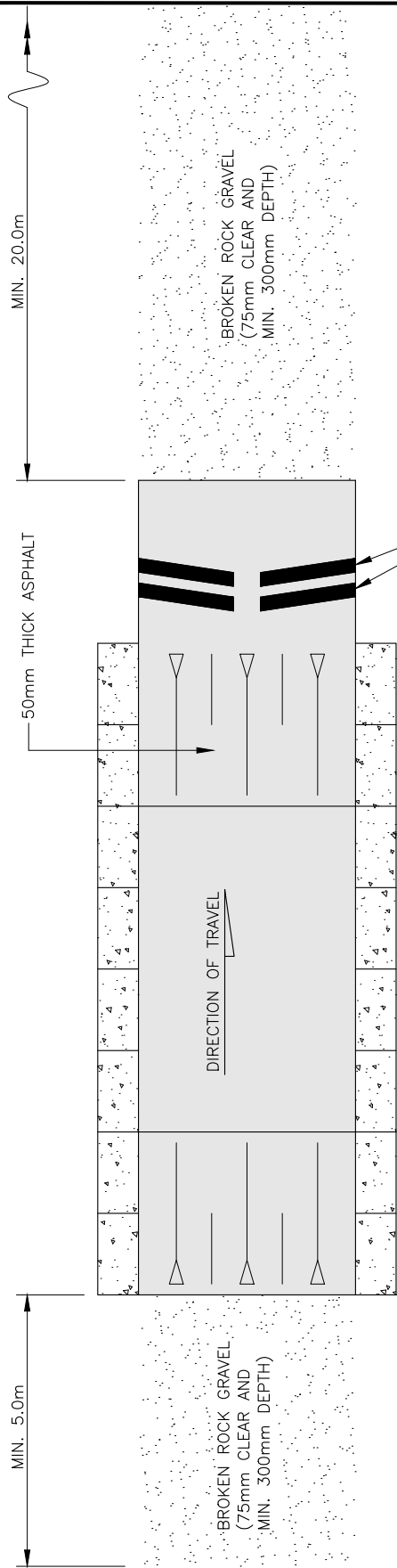
## NOTES:

1. PURPOSE IS TO PROVIDE A STABILIZED WORKSITE ENTRANCE/EXIT AND REDUCE THE AMOUNT OF SEDIMENT TRANSPORTED OFF-SITE BY VEHICLES AND EQUIPMENT.
2. EFFECTIVENESS OF THIS MEASURE INCREASES SUBSTANTIALLY WHEN A WHEEL WASH IS CONSTRUCTED IN CONJUNCTION WITH IT.
3. IF THE PAD SLOPES TOWARD A PUBLIC ROAD AND THE PAD GRADE IS  $\geq 2\%$ , CONSTRUCT A LOW DIVERSION BERM TO PREVENT RUNOFF FROM THE PAD FROM WASHING ONTO THE ROAD.
4. PAD SHALL BE REMOVED AND REPLACED WHEN SOIL IS EVIDENT ON THE SURFACE OF THE PAD OR AS DIRECTED BY THE EROSION AND SEDIMENT CONTROL SUPERVISOR.

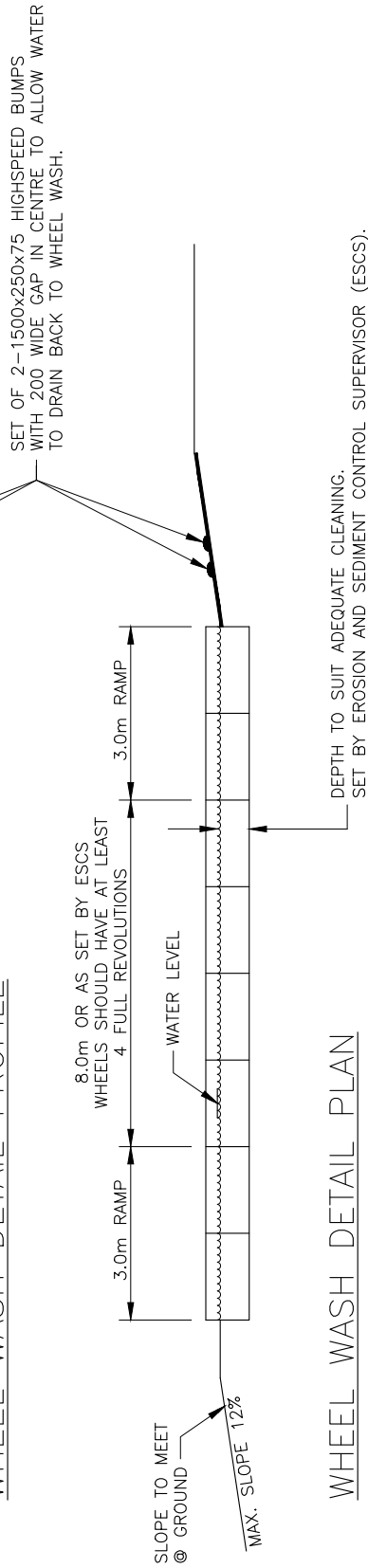
SECTIONPLAN

## NOTES:

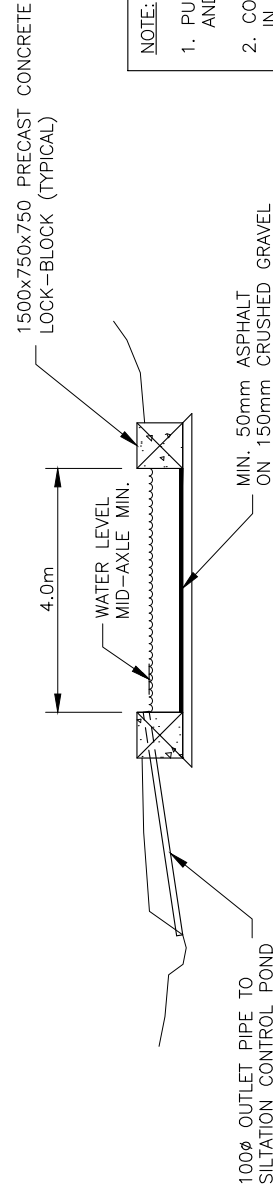
1. PURPOSE IS TO PROVIDE A LOCATION FOR VEHICLES TO PARK.
2. PAD SHALL BE INSTALLED BEFORE CONSTRUCTION ACTIVITIES BEGIN.
3. PAD SHALL BE REMOVED AND REPLACED WHEN SOIL IS EVIDENT ON THE SURFACE OF THE PAD.
4. PAD SHALL BE INSTALLED THROUGH PLANTING STRIP AS REQUIRED.
5. PAD THICKNESS SHALL BE INCREASED IF SOIL CONDITIONS DICTATE.
6. ACCESS PAD FOR USE OF VEHICLES ONLY. NO BUILDING MATERIALS, GRAVEL, TOPSOIL, OR OTHER MATERIALS SHALL BE STORED OR POSITIONED HERE.
7. SWEEP THE STREETS REGULARLY TO REMOVE ANY SEDIMENT TRACKED OFF-SITE.



WHEEL WASH DETAIL PROFILE



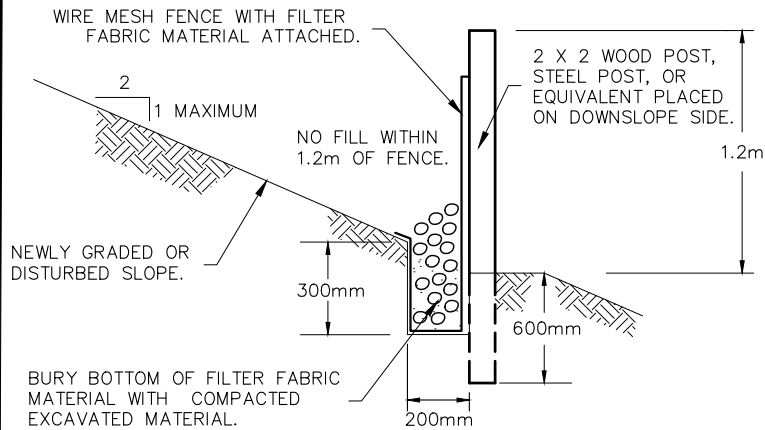
WHEEL WASH DETAIL PLAN



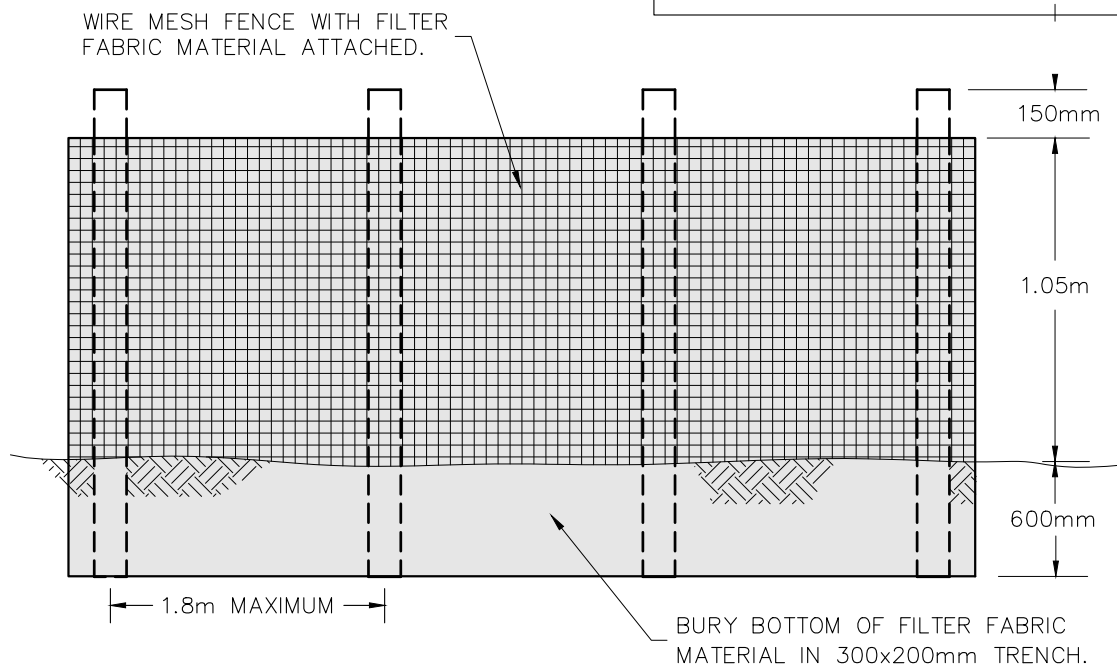
WHEEL WASH DETAIL CROSS SECTION

NOTE:

1. PURPOSE IS TO REMOVE SEDIMENT FROM VEHICLES AND EQUIPMENT PRIOR TO THEM LEAVING THE SITE.
2. CONTRACTOR TO MAINTAIN MIN. OF 0.5m WATER IN WHEEL WASH AT ALL TIMES, AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO PROVIDE PROPER CLEANING OF TRUCKS



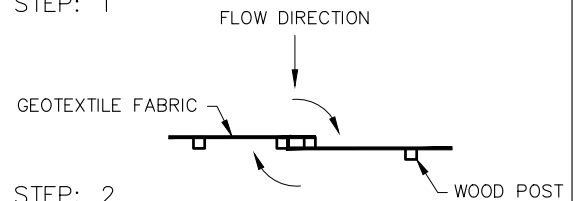
TYPICAL CROSS SECTION



ELEVATION

## JOINT OVERLAPPING DETAIL:

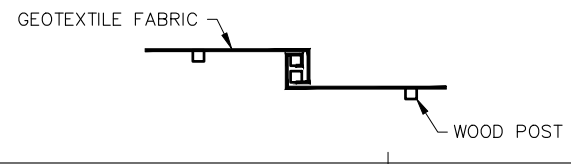
STEP: 1



STEP: 2

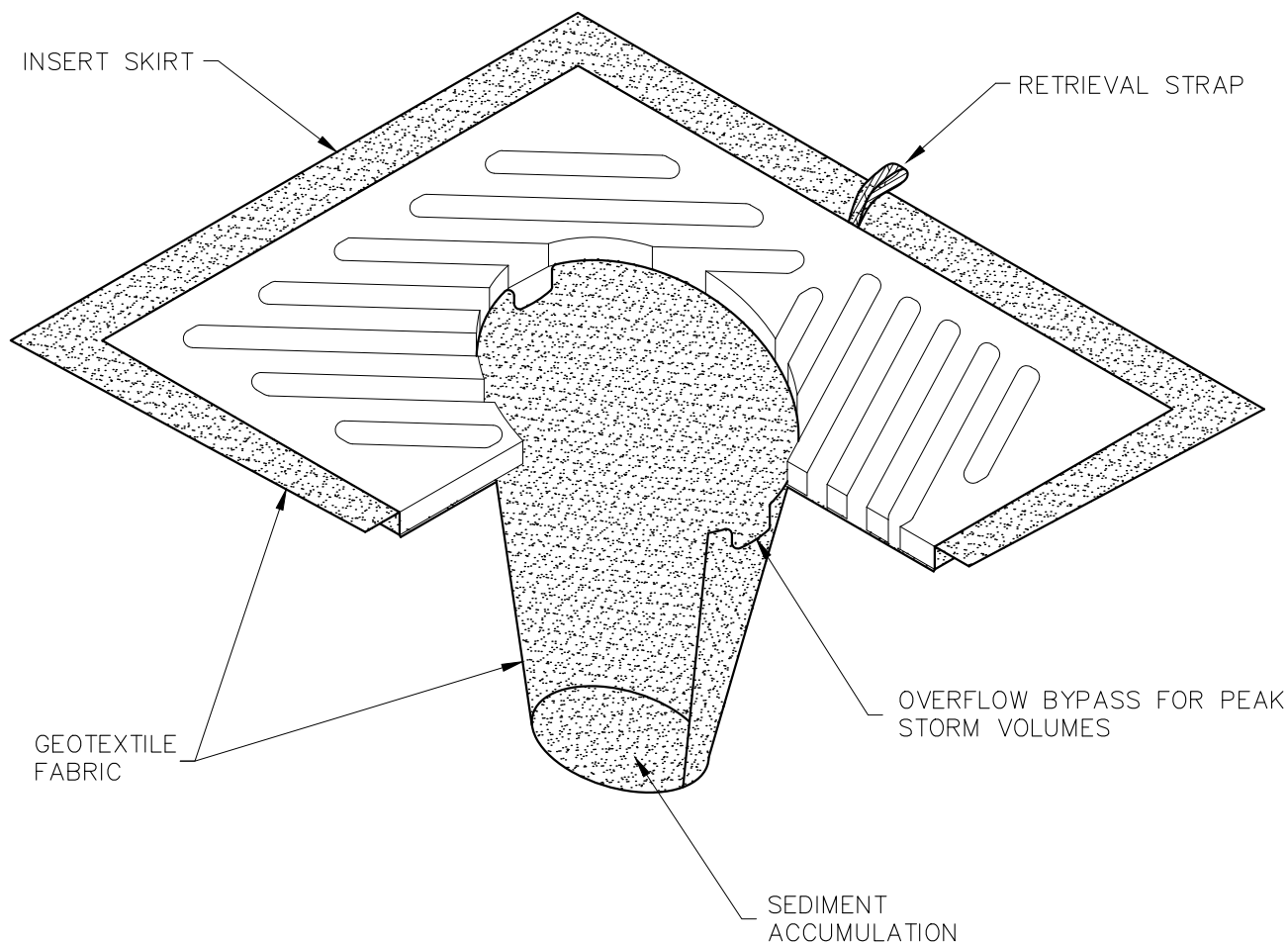


STEP: 3



## NOTES:

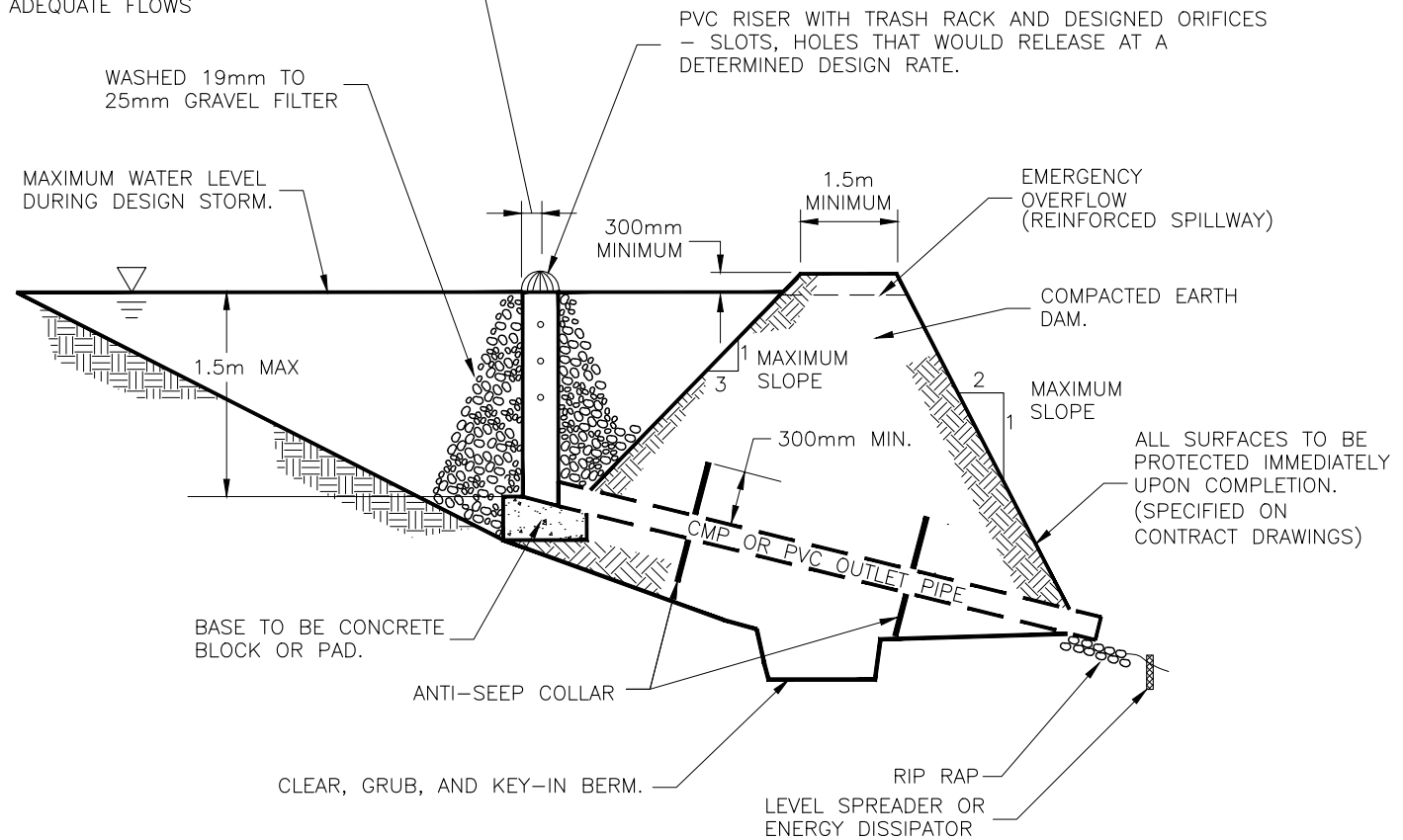
1. PURPOSE IS TO INTERCEPT AND RETAIN TRANSPORTED SEDIMENT BY DISSIPATING ENERGY OF WATER FLOW AND CAUSING SEDIMENT TO SETTLE OUT.
2. INSTALL THE FENCE ALONG SLOPE CONTOURS.
3. TERMINATION POINTS SHOULD EXTEND UPHILL ONE FULL SECTION TO PREVENT WATER FROM RUNNING AROUND THE ENDS.
4. FENCE SHALL NOT BE INSTALLED ON SLOPES STEEPER THAN 2:1.
5. JOINTS IN FILTER FABRIC SHALL BE SEALED BY OVERLAPPING AND ROTATING THE TWO ENDS TOGETHER.
6. REMOVE SEDIMENT WHEN IT REACHES 1/3 FENCE HEIGHT.



#### NOTES

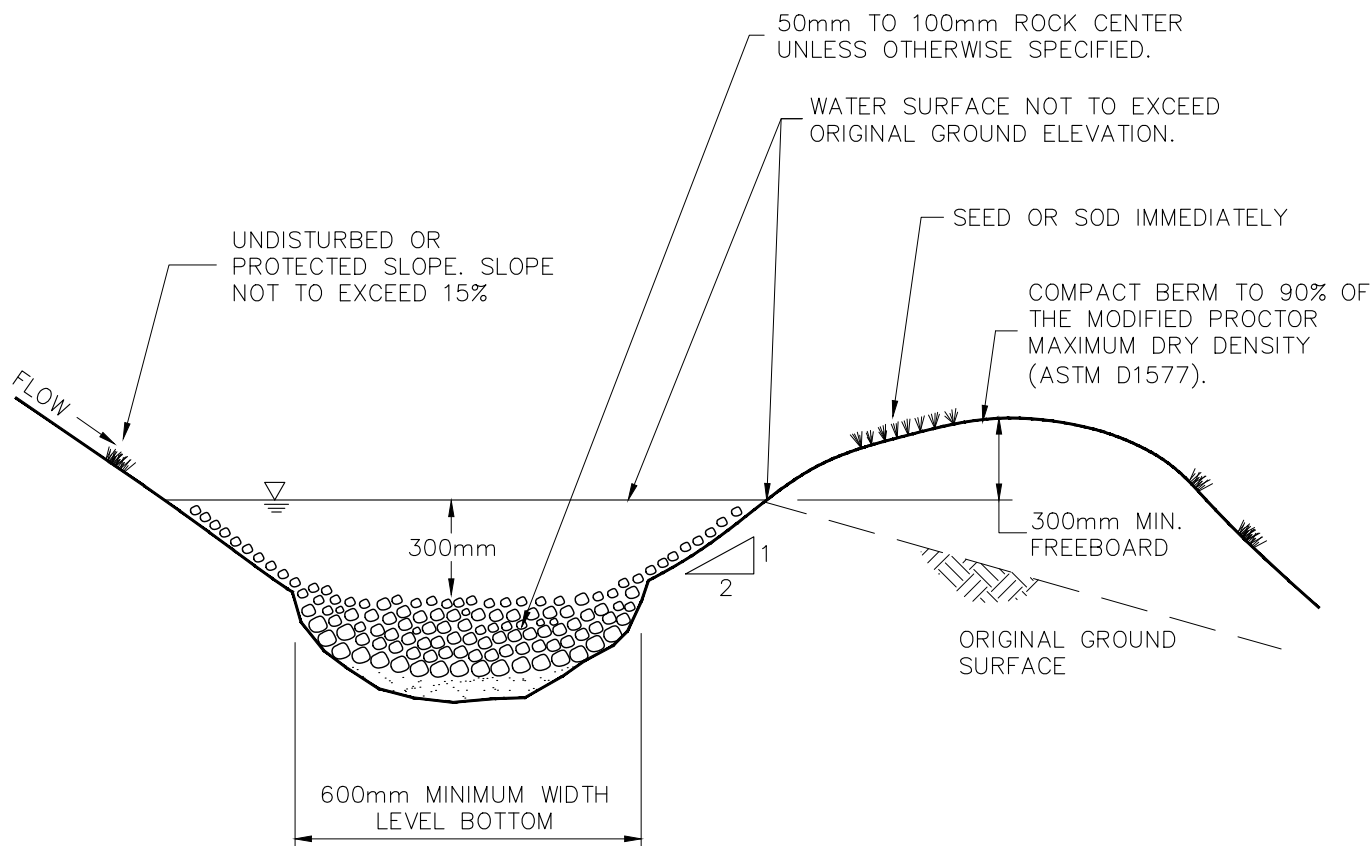
1. PURPOSE IS TO CATCH SEDIMENT SO THAT IT DOESN'T ENTER THE STORM SYSTEM.
2. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
3. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL .
4. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN OR REPLACE AS NEEDED.
5. SEDIMENT SHALL BE DISPOSED OF WHERE IT CANNOT BE RE-INTRODUCED TO THE SYSTEM.

MIN. 600mm RADIUS  
WIRE MESH/CHICKEN WIRE BASKET.  
FILL WITH 15mm PEA GRAVEL RE & RE  
PEA GRAVEL AS NECESSARY TO SUSTAIN  
ADEQUATE FLOWS



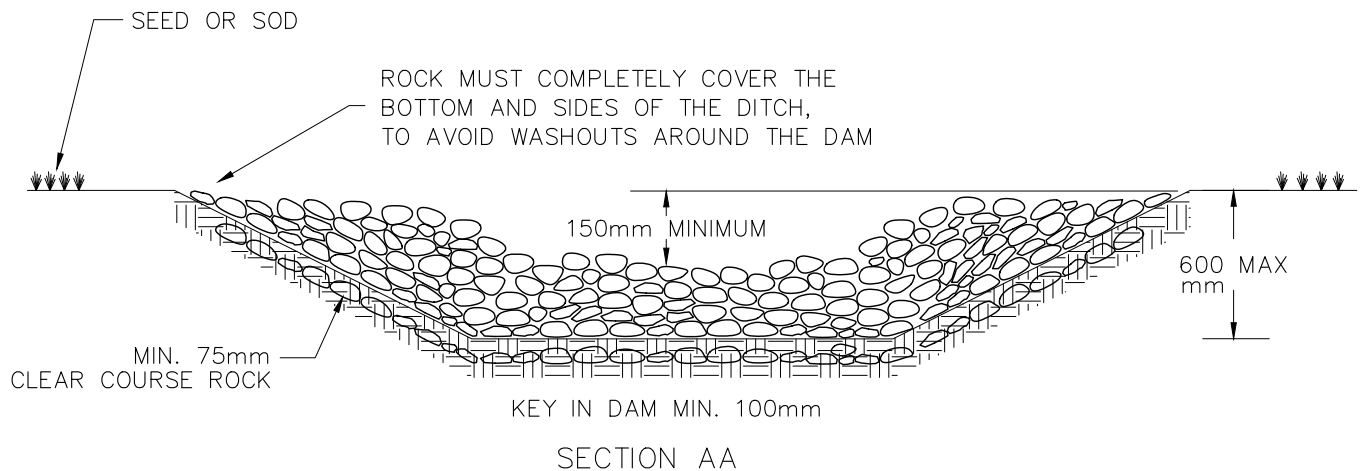
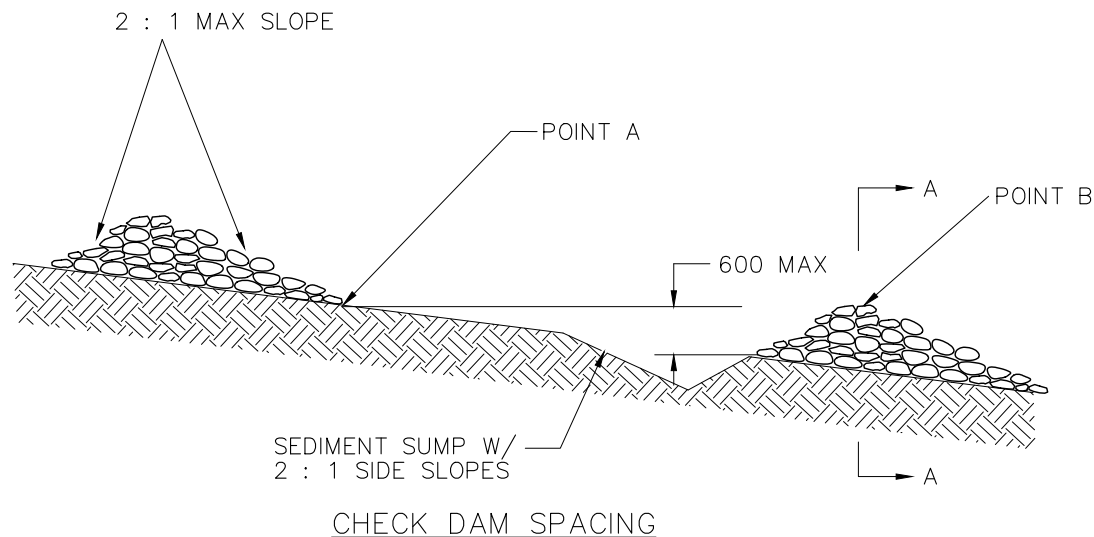
#### NOTES:

- PURPOSE IS TO TRAP AND RETAIN SEDIMENT.
- PONDS SHOULD NOT BE RELIED UPON TO REMOVE ALL SEDIMENT, AS THEY ARE NOT EFFECTIVE AT REMOVING PARTICLES SMALLER THAN FINE SILTS.
- POND WATER VOLUME SHALL BE DETERMINED IN ACCORDANCE WITH DFO'S LAND DEVELOPEMENT GUIDELINES.
- POND LENGTH SHALL BE 6 TIMES GREATER THAN THE WIDTH AND SHOULD INCORPORATE BAFFLES.
- THE DESIGN STORM SHALL BE THE 10-YR, 24-HR STORM EVENT.
- WASHED GRAVEL FILTER MAY BE HELD IN PLACE WITH WIRE MESH.
- TEMPORARY SEDIMENT POND MUST NOT BE CONNECTED DIRECTLY TO PERMANENT FACILITIES UNLESS APPROVED BY THE EROSION AND SEDIMENT CONTROL SUPERVISOR.
- THE SIDES OF THE POND MUST BE STABILIZED TO PREVENT EROSION.
- SEDIMENT SHALL BE REMOVED WHEN IT FILLS HALF THE POND.



## NOTES:

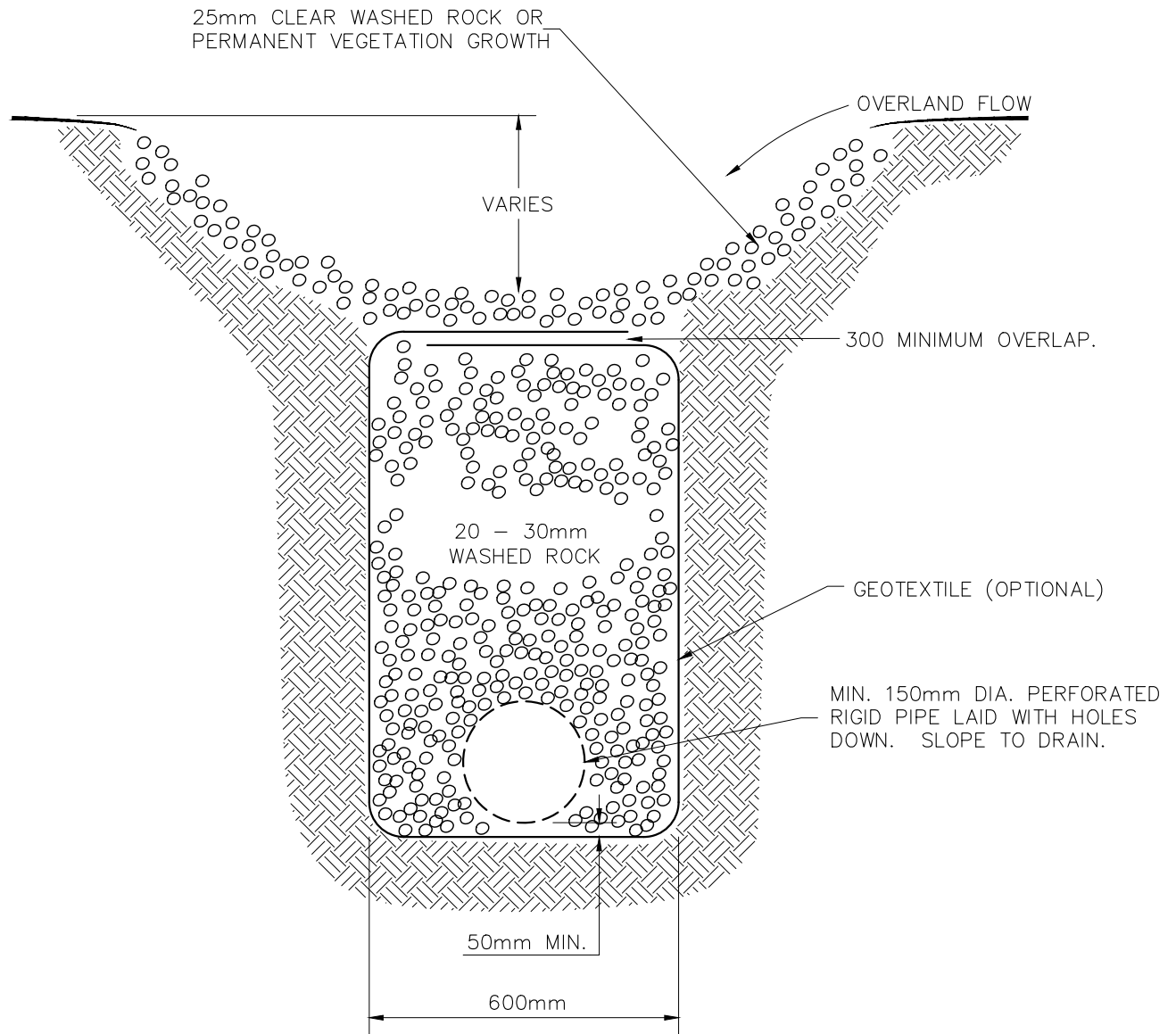
1. PURPOSE IS TO COLLECT AND DIRECT RUNOFF WITHIN AND THROUGH THE SITE.
2. SWALE SHOULD HAVE A WIDE FLAT BOTTOM AND LOW GRADIENT TO MINIMIZE VELOCITY.
3. ARMOUR THE SWALE WITH ROCK, ROLLED EROSION CONTROL PRODUCTS, POLY SHEETING OR TURF IF THE GRADIENT IS  $>2\%$ , IF HIGH VELOCITIES OR FLOW ARE EXPECTED, AND/OR NATIVE MATERIALS ARE HIGHLY ERODIBLE.
4. CHECK DAMS SHOULD BE INSTALLED AS PER DETAIL ES-EC-10
5. DIMENSIONS: 300mm MIN. DEPTH (D) BY 600mm MIN. BOTTOM WIDTH.
6. SWALE GRADES SHOULD NOT EXCEED 5%. SIDE SLOPES SHOULD BE 2:1 OR LESS.
7. OUTLET SHALL CONSIST OF RIPRAP DISCHARGING TO STABILIZED OUTLET, SEDIMENT POND OR LEVEL SPREADER.
8. IF DESIGNED AS A PERMANENT DRAINAGE FEATURE, MAY BE USED IN COMBINATION WITH INTERCEPTOR DRAIN. (SEE DETAIL ES-EC-9)



## NOTES :

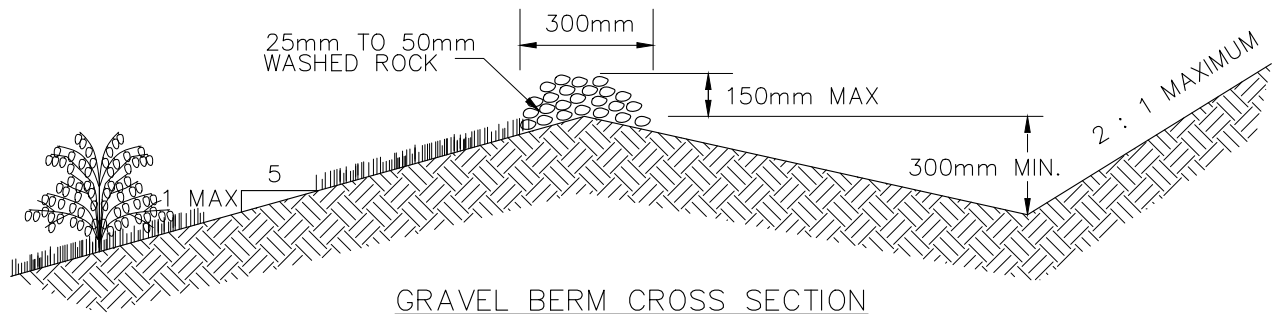
1. PURPOSE IS TO CREATE SMALL CONTAINMENT SYSTEMS UPSLOPE OF THE CHECK DAM BARRIERS IN ORDER TO CAPTURE SEDIMENT AND REDUCE RUNOFF VELOCITIES IN UNVEGETATED DRAINAGE CHANNELS.
2. SHALL BE SPACED SO THAT THE TOP OF EACH DOWNSTREAM STRUCTURE IS LEVEL WITH THE TOE/BOTTOM OF THE UPSTREAM STRUCTURE (I.E. POINT A AND POINT B ARE OF EQUAL ELEVATION). MAXIMUM SPACING IS 15 METRES BETWEEN CHECK DAMS.
3. THE CHANNEL BETWEEN THE CHECK DAMS SHALL BE PROTECTED FROM EROSION BY SEEDING OR INSTALLING ROLLED EROSION CONTROL PRODUCTS.
4. A 300mm DEEP SUMP SHALL BE PROVIDED IMMEDIATELY UPSTREAM OF CHECK DAM. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT ACCUMULATION REACHES  $1/3$  OF THE BARRIER HEIGHT.
5. ANY SEDIMENT DEPOSITION OF MORE THAN  $1/3$  THE HEIGHT OF THE CHECK DAM SHALL BE REMOVED AND DISPOSED OF IN A LOCATION WHERE IT WON'T BE ERODED.
6. THE CHANNEL SHALL BE EXAMINED FOR SIGNS OF SCOURING AND EROSION OF THE BED AND BANKS. IF SCOURING OR EROSION HAS OCCURED, AFFECTED AREAS SHALL BE PROTECTED BY RIP-RAP, AN EROSION CONTROL BLANKET, OR SOD.
7. CHECK DAMS CAN BE MADE FROM ROCK, WATTLES, SANDBAGS, OR MANUFACTURED GEOSYNTHETICS. SILT FENCES AND HAY BALES ARE NOT RECOMMENDED DUE TO THEIR HISTORY OF FAILURE AND INEFFECTIVENESS.



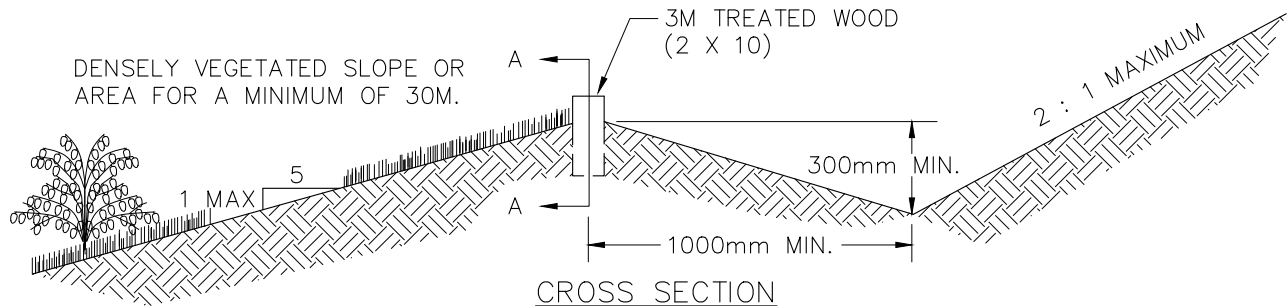


NOTES:

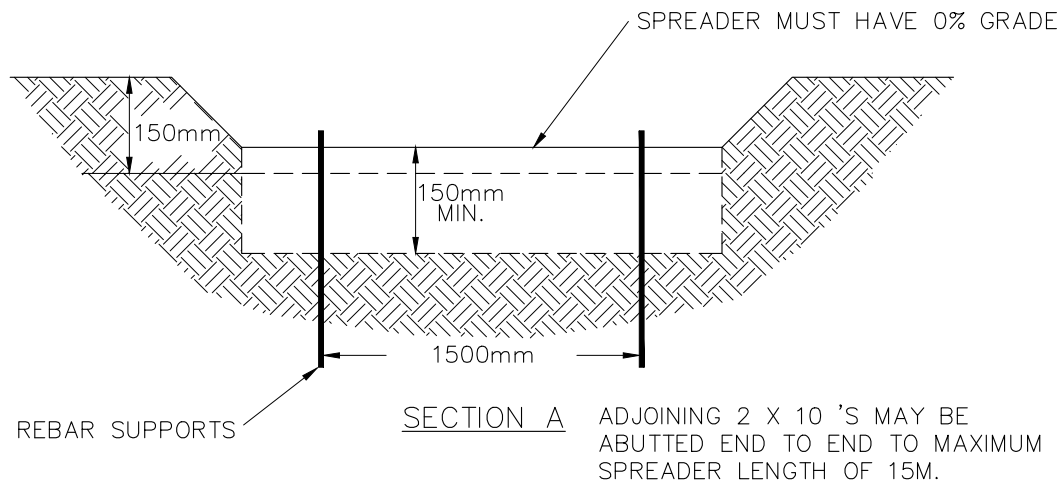
1. OVERLAP AT LEAST 300mm OF GEOTEXTILE FOR FILTRATION OF FINES.
2. OUTLET TO SEDIMENT TRAP, POND, SWALE, OR STABLE VEGETATED AREA.
3. MINIMUM SLOPE OF DRAIN PIPE IS 0.5%.



GRAVEL BERM CROSS SECTION



CROSS SECTION

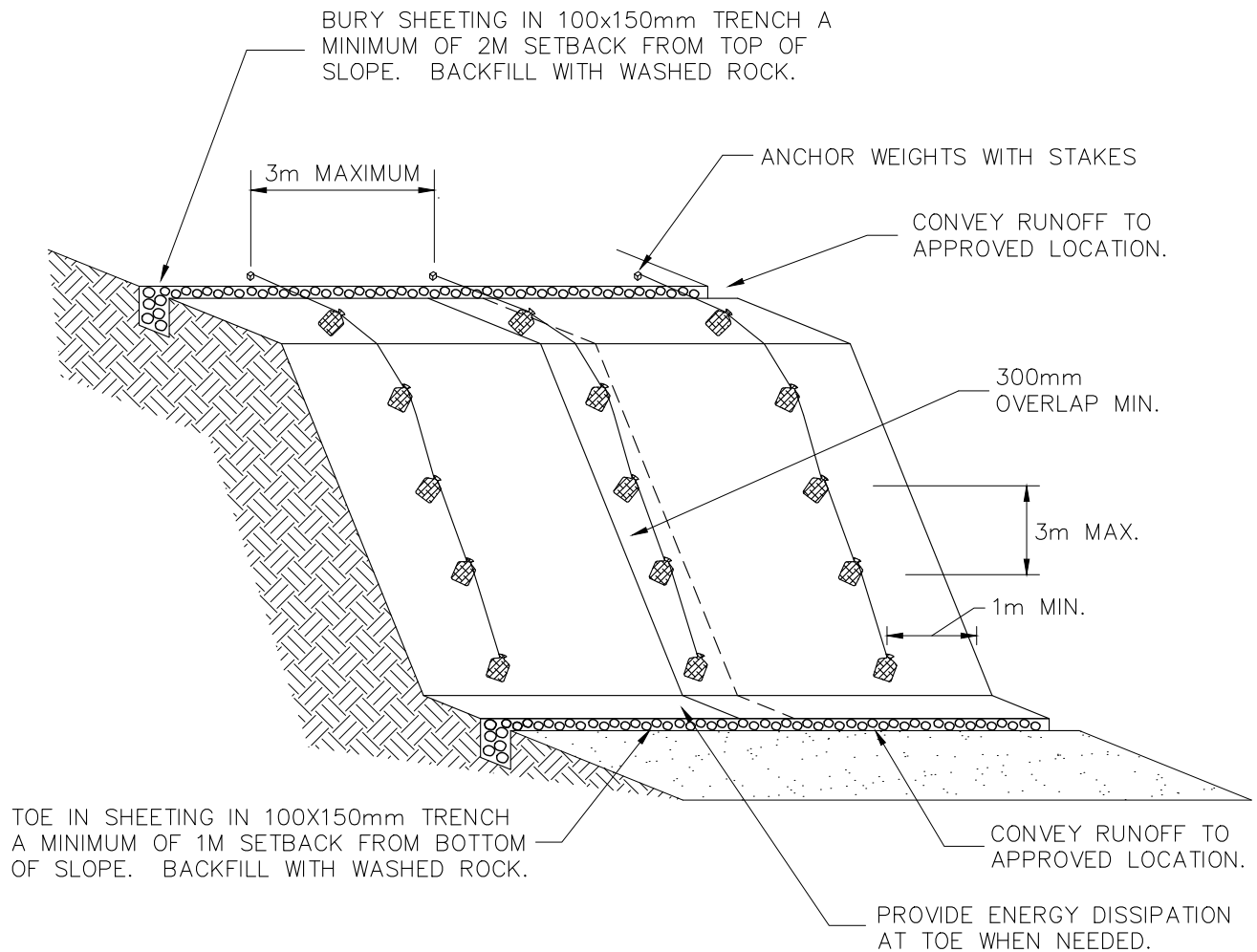


SECTION A

ADJOINING 2 X 10 'S MAY BE  
ABUTTED END TO END TO MAXIMUM  
SPREADER LENGTH OF 15M.

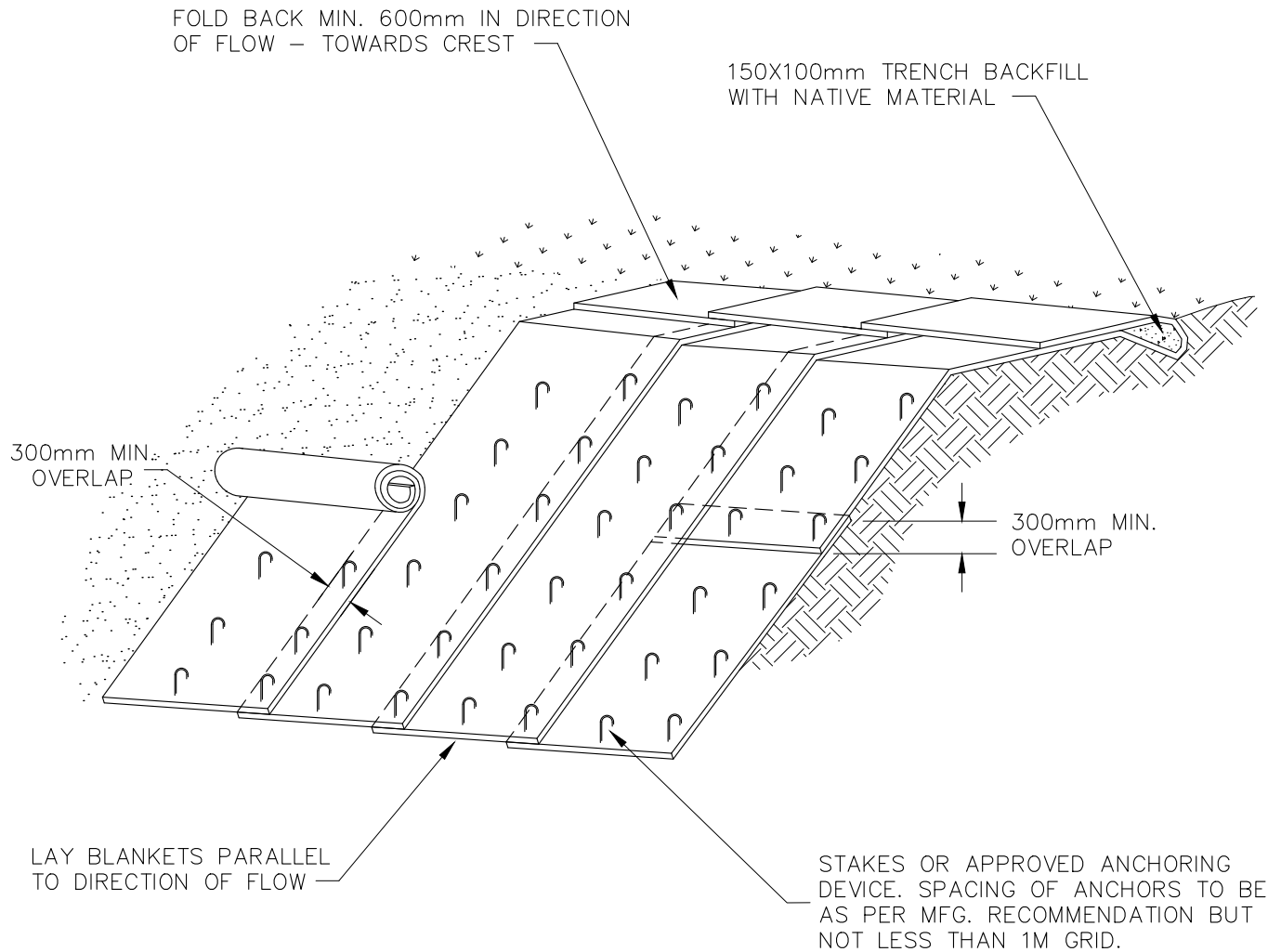
## NOTES:

1. PURPOSE IS TO CONVERT CONCENTRATED RUNOFF TO SHEET FLOW AND RELEASE IT ONTO UNDISTURBED AREAS WITH EXISTING VEGETATION, FOR THE PURPOSE OF INCREASING INFILTRATION AND DECREASING RUNOFF VOLUME.
2. THE SLOPE LEADING TO THE SPREADER SHOULD BE LESS THAN 1% FOR AT LEAST 7M IMMEDIATELY UPSTREAM IN ORDER TO HAVE SLOW VELOCITIES IN THE SPREADER.
3. CONSTRUCT ONLY ON NATURAL SOIL, NOT ON FILL MATERIALS.
4. ONLY MEANT FOR SMALL VOLUMES.
5. ANY DAMAGE TO THE SPREADER SHALL BE IMMEDIATELY REPAIRED.
6. THE DOWNSLOPE AREA SHALL BE CHECKED FOR SIGNS OF EROSION AND TO VERIFY THAT THE SPREADER IS NOT CREATING A POINT DISCHARGE. ANY ERODED AREAS SHALL BE IMMEDIATELY STABILIZED.



## NOTES:

1. PURPOSE IS TO PROTECT HILLSIDE FROM EROSION BY CONVEYING RUNOFF TO AN APPROVED LOCATION.
2. TIRES, SANDBAGS, OR EQUIVALENT MAY BE USED TO WEIGHT PLASTIC SHEETING.
3. SEAMS BETWEEN SHEETS MUST OVERLAP A MINIMUM OF 1M AND BE WEIGHTED OR TAPED.
4. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 6 MIL.
5. DUE TO RAPID RUNOFF CAUSED BY PLASTIC SHEETING, THIS METHOD SHALL NOT BE USED UPSLOPE OF AREAS THAT MIGHT BE ADVERSELY IMPACTED BY CONCENTRATED RUNOFF.
6. CONSTRUCT BERM OR SWALE AT TOP OF SLOPE TO CONVEY UPSLOPE WATER TO A STABILIZED POINT OF CONVEYANCE (I.E. TEMPORARY SLOPE DRAIN).
7. CONSTRUCT DITCH AT BASE OF SLOPE FOR DISCHARGE TO APPROVED LOCATION.
8. AN ALTERNATIVE TO PLASTIC COVERS ARE ROLLED EROSION CONTROL PRODUCTS.



NOTES:

1. PURPOSE IS TO DECREASE EROSION AND INCREASE POTENTIAL FOR SUCCESSFUL VEGETATION ESTABLISHMENT.
2. ROLLED EROSION CONTROL PRODUCT MATERIALS INCLUDE STRAW, COCONUT WOOD, EXCELSIOR & JUTE.
3. SLOPE SURFACE SHALL BE MADE SMOOTH PRIOR TO PLACEMENT OF BLANKET (I.E. REMOVE LARGE ROCKS, TWIGS OR ROOTS.)
4. DO NOT STRETCH BLANKETS TIGHT. ROLL FROM THE BOTTOM OF THE SLOPE TO THE TOP, ALLOWING BLANKET TO BE IN DIRECT CONTACT WITH THE EXPOSED SOIL.
5. ADEQUATE STAPLING OR STAKING IS A MAJOR FACTOR IN SUCCESSFUL INSTALLATION.
6. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

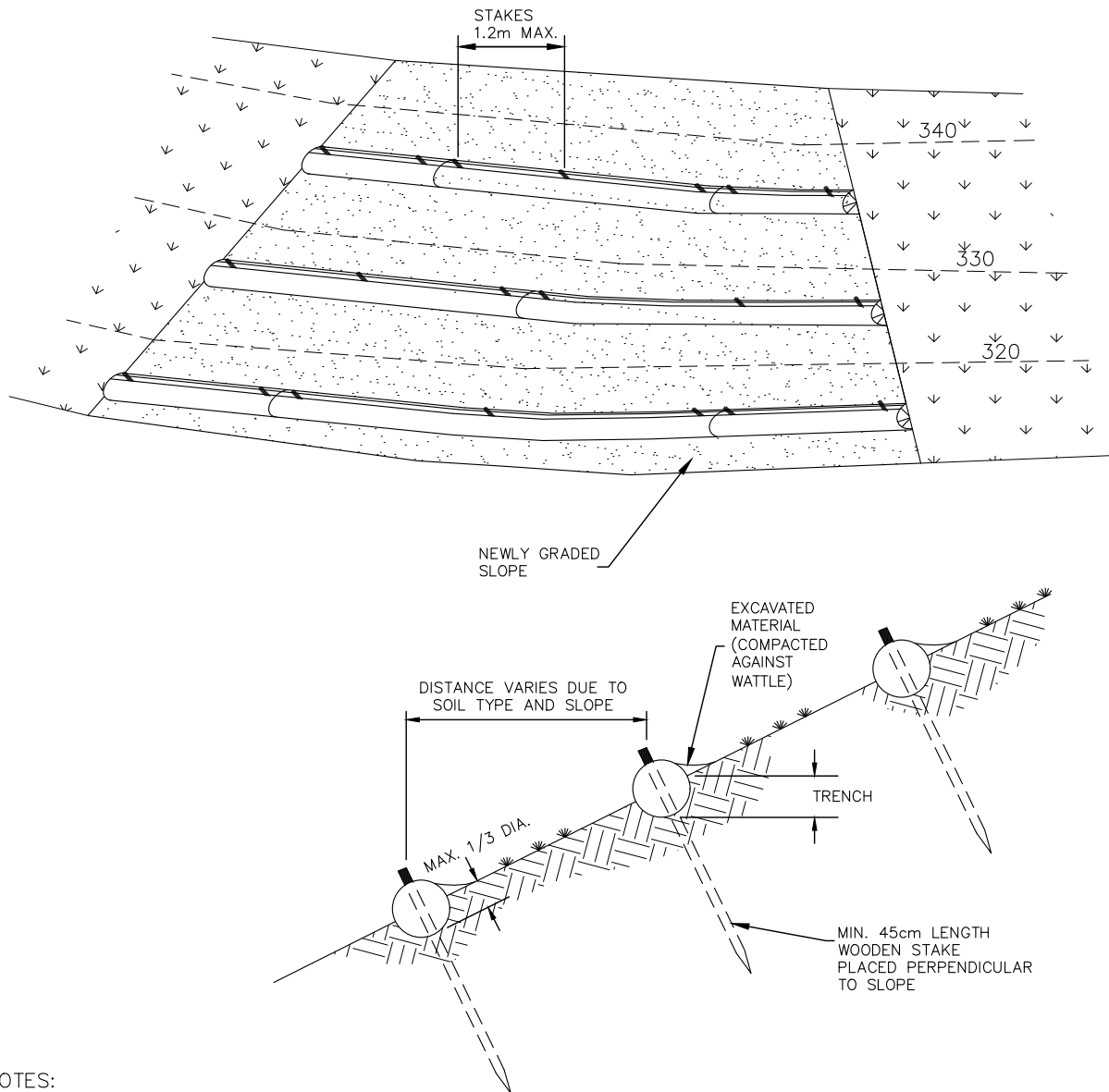


SCALE: N/A  
PLOT DATE: 22Aug15

DRAWING:  
ES - EC - 12

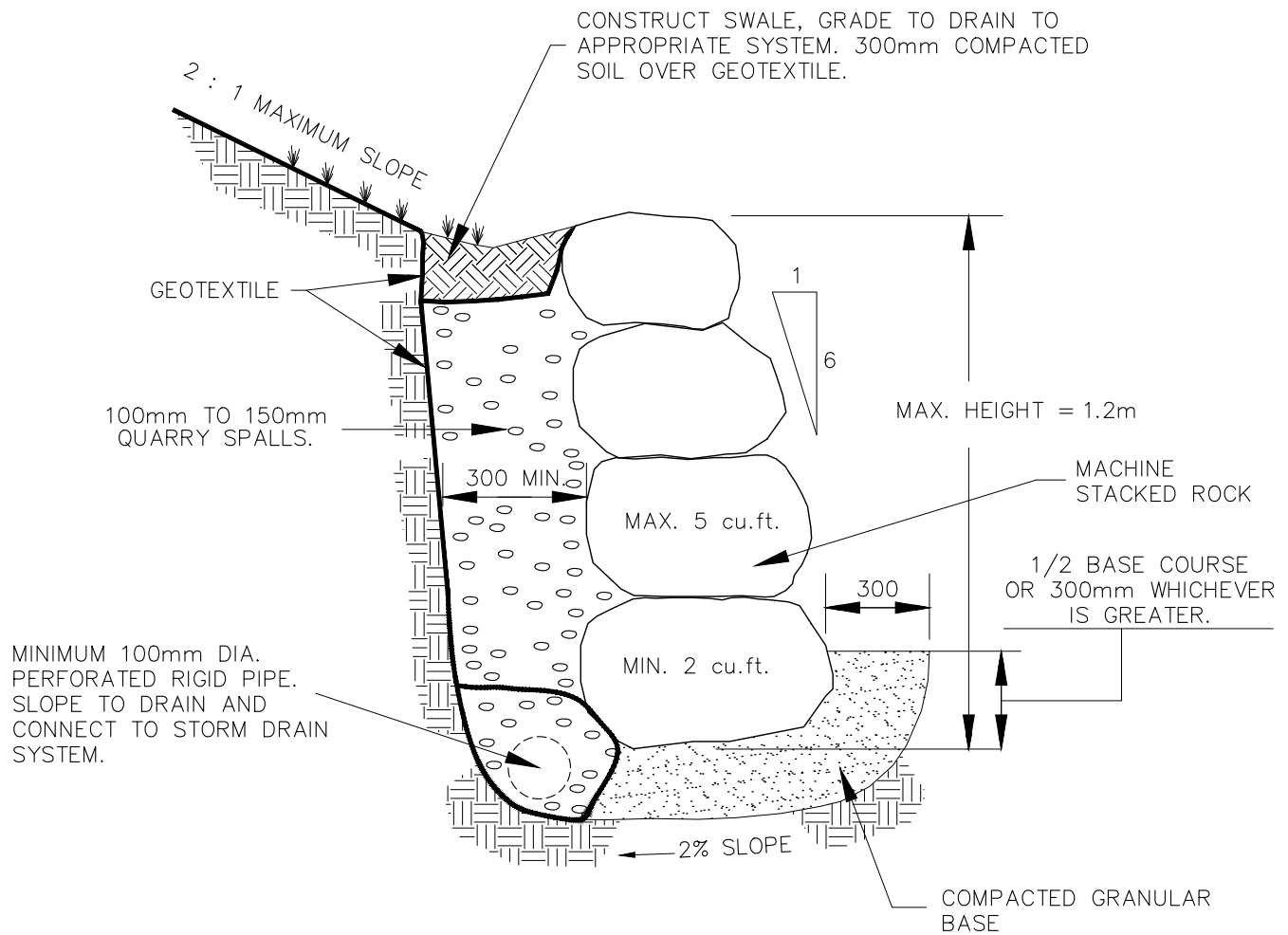
ROLLED EROSION CONTROL  
PRODUCTS

DRAWING  
NO.  
1



## NOTES:

1. PURPOSE IS TO SHORTEN SLOPE LENGTH, THEREBY REDUCING VELOCITY OF RUNOFF WATER AND TRAPPING ERODED SOIL.
2. ROLLS SHALL BE ALIGNED PARALLEL TO ELEVATION CONTOURS WITHIN A TRENCH HALF DIAMETER OF THE ROLL, NO GAPS SHOULD EXIST BETWEEN THE SOIL AND WATTLE.
3. PLACE HYDROSEED, MULCH OR STRAW ON SLOPE FOR ADDITIONAL EROSION CONTROL.
4. WHEN INSTALLING RUNNING LENGTHS OF WATTLES, BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST. DO NOT OVERLAP THE ENDS.
5. STAKE WATTLES 15cm FROM WATTLE ENDS, WITH STAKE ANGLED TOWARD THE ADJACENT WATTLE. ALSO STAKE ON 1.2m CENTERS. LEAVE 3-5cm OF STAKE EXPOSED ABOVE THE WATTLE.
6. IF THE GROUND IS HARD, A METAL ROD CAN BE USED TO "PRE-DRILL" A HOLE INTO THE SOIL FOR THE WOODEN STAKE.
7. REMOVE SEDIMENT DEPOSITED UPSLOPE OF THE WATTLE ONCE IT REACHES  $\frac{1}{3}$  OF THE WATTLE'S HEIGHT ABOVE THE GROUND SURFACE.



## NOTES:

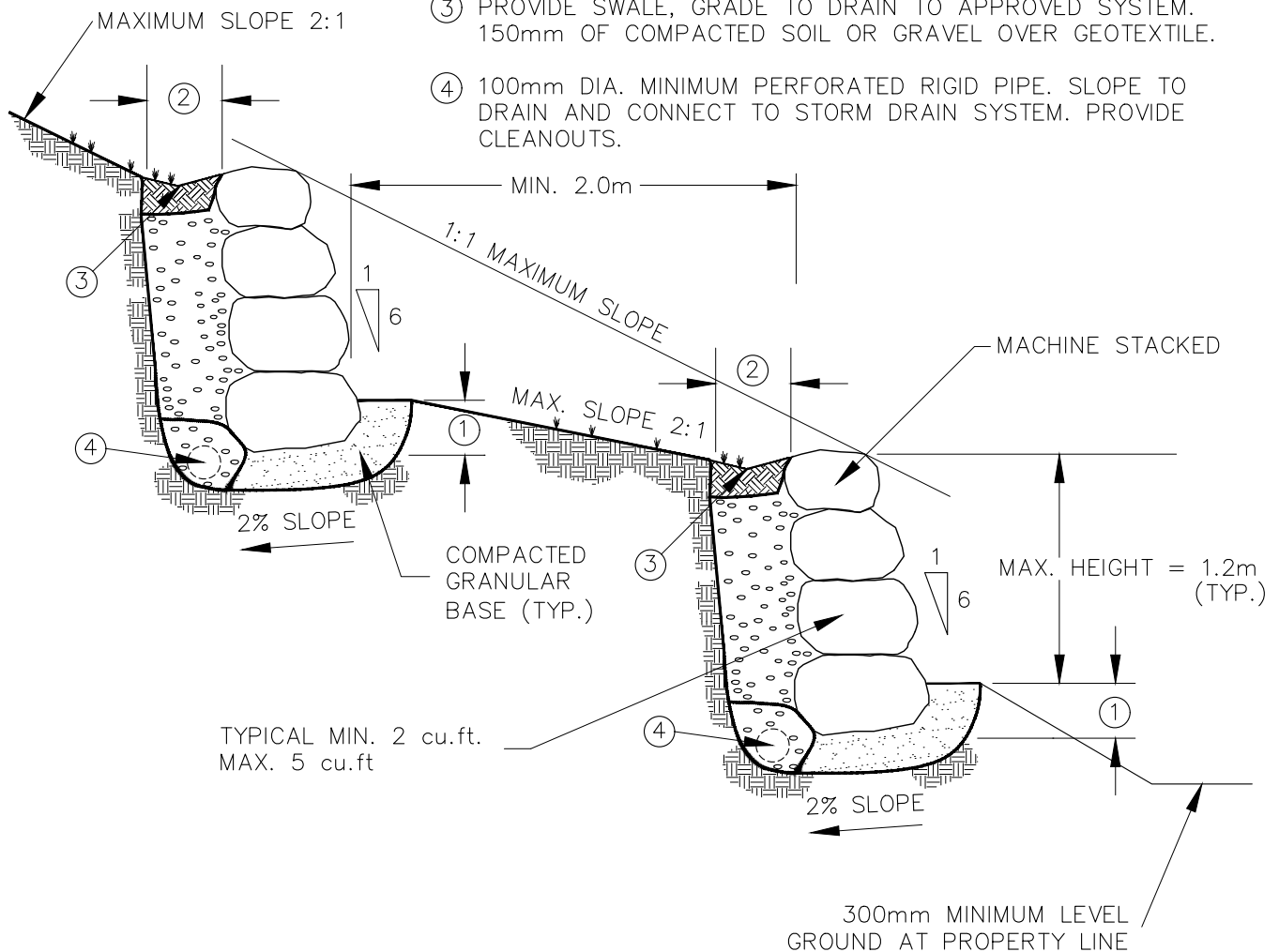
1. QUARRY SPALLS AND CRUSHED ROCK SHALL BE PLACED DIRECTLY FROM TRUCK OR OTHER SUITABLE CONTAINER IN ORDER TO MAINTAIN CLEAN BACKFILL.
2. ALL ROCKERIES OVER 1m IN HEIGHT ARE CONSIDERED A STRUCTURE AND MUST BE LOCATED OUTSIDE OF ALL SETBACK LINES.
3. OPENINGS SHALL BE CHINKED WITH QUARRY SPALLS.
4. ROCKERIES GREATER THAN 1.2m IN HEIGHT SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER AND REQUIRE B1/B2 & SCHEDULE C PRIOR TO FINAL ACCEPTANCE.

① HEIGHT =  $\frac{1}{2}$  BASE COURSE OR 300mm, WHICHEVER IS GREATER.

② 300mm MIN SPACE BETWEEN ROCKS AND EXCAVATION, BACKFILL WITH 100 TO 150mm QUARRY SPALLS.

③ PROVIDE SWALE, GRADE TO DRAIN TO APPROVED SYSTEM. 150mm OF COMPACTED SOIL OR GRAVEL OVER GEOTEXTILE.

④ 100mm DIA. MINIMUM PERFORATED RIGID PIPE. SLOPE TO DRAIN AND CONNECT TO STORM DRAIN SYSTEM. PROVIDE CLEANOUTS.



#### NOTES:

1. CALL FOR INSPECTION PRIOR TO BASE COURSE BEING PLACED FOR VERIFICATION OF ROCKERY HEIGHT, FOUNDATION MATERIAL, AND ROCK SIZE.
2. QUARRY SPALLS SHALL BE PLACED DIRECTLY FROM TRUCK OR OTHER SUITABLE CONTAINER IN ORDER TO MAINTAIN CLEAN BACKFILL.
3. ALL ROCKERIES OVER 1m IN HEIGHT ARE CONSIDERED A STRUCTURE AND MUST BE LOCATED OUTSIDE OF ALL SETBACK LINES.
4. OPENINGS SHALL BE CHINKED WITH QUARRY SPALLS.
5. ROCKERIES GREATER THAN 1.2m IN HEIGHT SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.

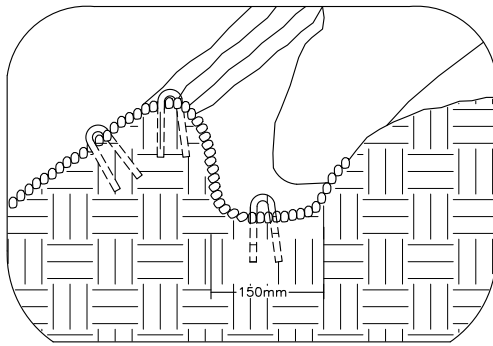


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PLOT DATE: 22Aug15

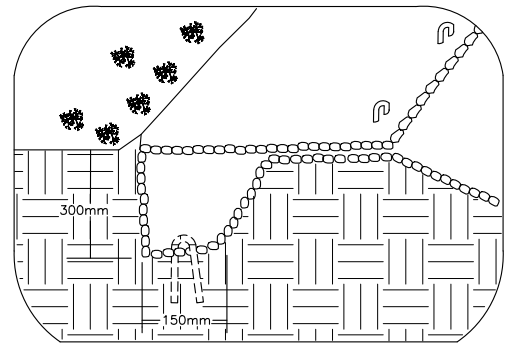
DRAWING:  
ES - EC - 15

TIERED ROCKERIES  
(MAX. HEIGHT 1.2m)

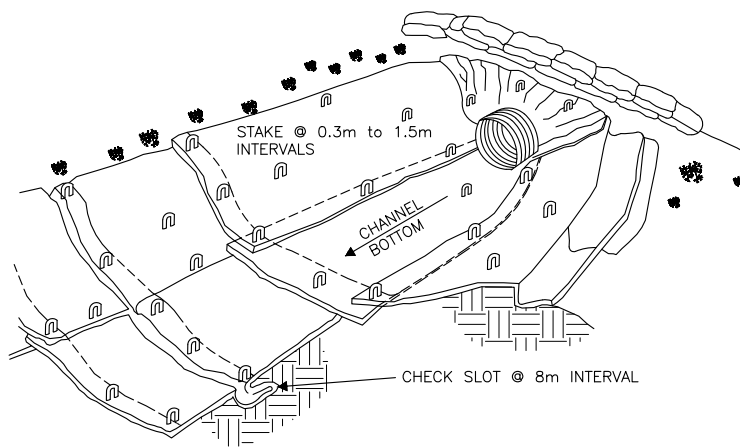
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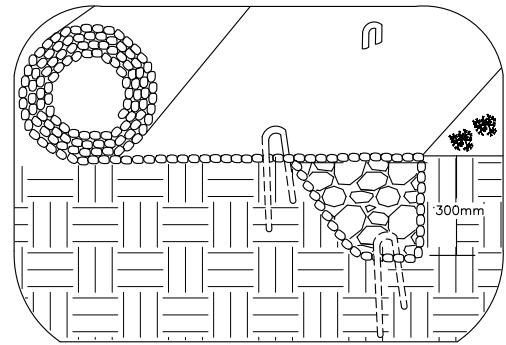
LONGITUDINAL ANCHOR TRENCH



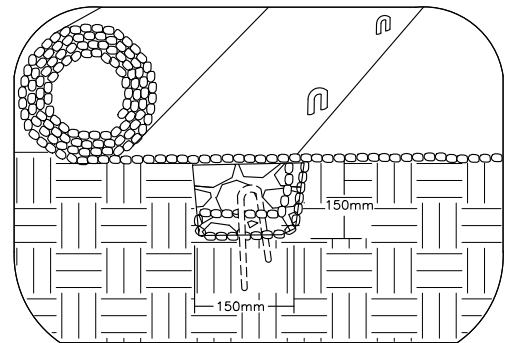
TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH



ISOMETRIC VIEW



INITIAL CHANNEL ANCHOR TRENCH

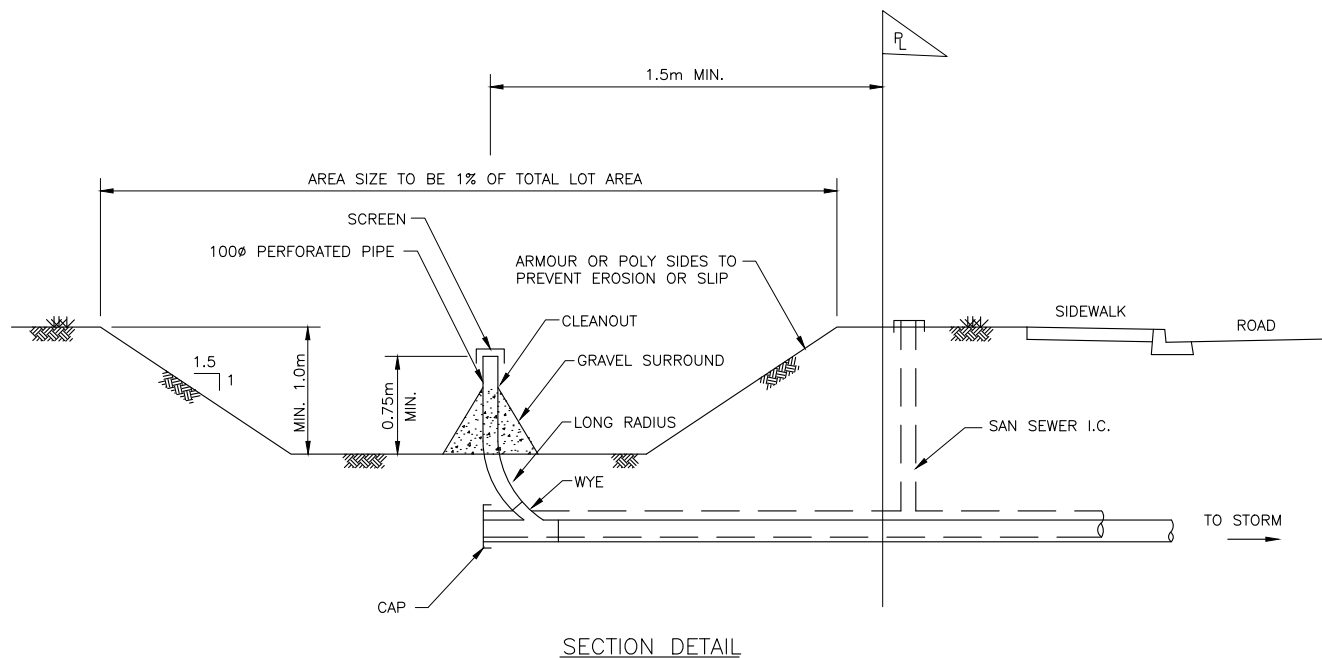


INTERMITTENT CHECK SLOT

## NOTES:

1. PURPOSE IS TO PREVENT EROSION OF THE EXPOSED SOILS IN THE CHANNEL.
2. SHOULD BE INSTALLED IN CONJUNCTION WITH ESTABLISHING A DENSE VEGETATION COVER IN THE CHANNEL.
3. SUCCESSFUL INSTALLATION REQUIRES SITE PREPARATION TO ENSURE CLOSE CONTACT BETWEEN THE BLANKET/MAT & CHANNEL.
4. ANCHOR TRENCHES AND CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
5. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.
6. INSPECTION & MAINTENANCE SHOULD OCCUR REGULARLY UNTIL VIGOROUS VEGETATION GROWTH IS ESTABLISHED.





## NOTE:

1. PURPOSE IS TO TRAP & RETAIN SEDIMENT.
2. SHOULD NOT BE RELIED UPON TO REMOVE ALL SEDIMENT, AS THEY ARE NOT EFFECTIVE AT REMOVING PARTICLES SMALLER THAN MEDIUM SILTS.
3. TRAP SHOULD BE CONSTRUCTED PRIOR TO THE DISTURBANCE OF SOILS ONSITE.
4. THE SIDES OF THE TRAP MUST BE STABILIZED TO PREVENT EROSION.
5. REMOVE SEDIMENT FROM THE TRAP ON A REGULAR BASIS TO ENSURE THAT AT NO TIME THE TRAP'S CAPACITY IS REDUCED BY MORE THAN HALF. SEDIMENT REMOVED MUST BE DISPOSED OF IN AN AREA WHERE IT WILL NOT BE ERODED.
6. WHEN THE TRAP IS NO LONGER REQUIRED, THE TRAP SHOULD BE DEWATERED TO A VEGETATED AREA & THE EXCAVATION INFILLED.

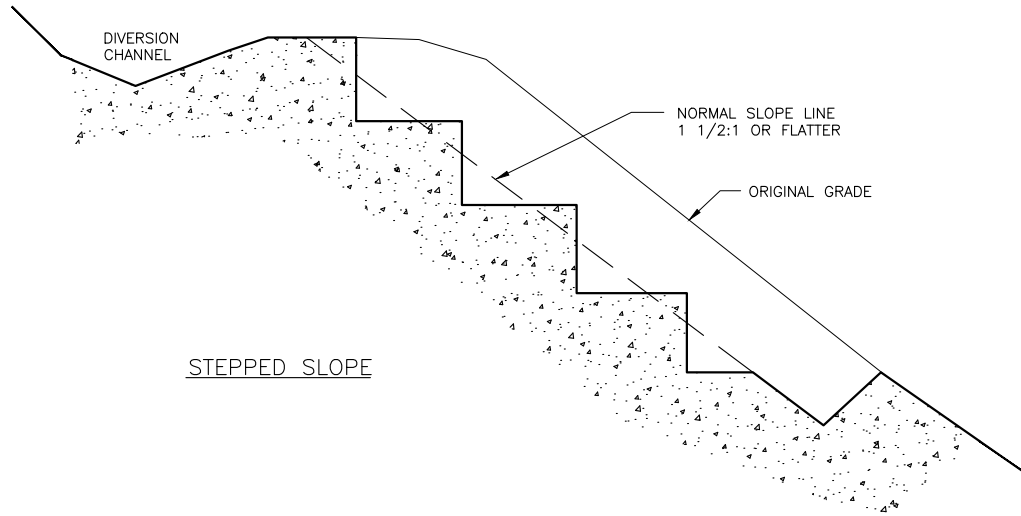


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PLOT DATE: 22Aug15

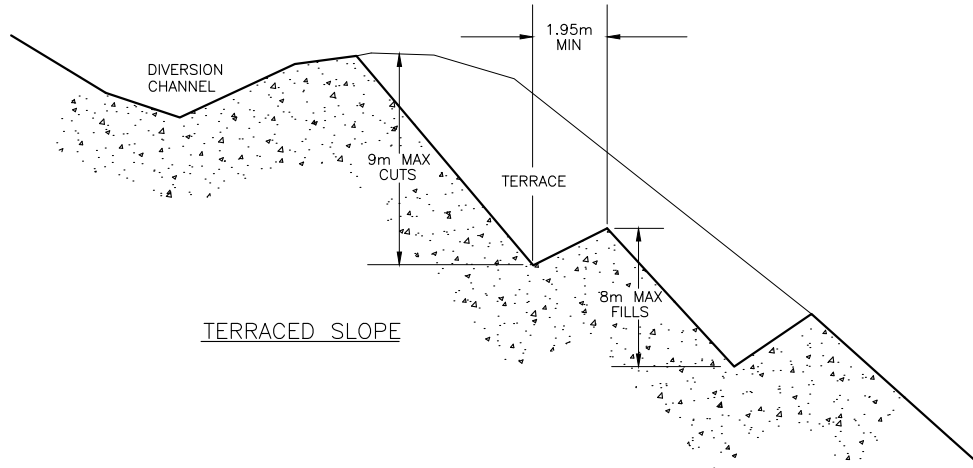
DRAWING:  
ES - EC - 17

SINGLE FAMILY RESIDENTAL  
SEDIMENT TRAP

DRAWING  
NO.  
1



STEPPED SLOPE



TERRACED SLOPE

NOTES:

1. PURPOSE IS TO CREATE STEPS/TERRACES RUNNING PARALLEL TO THE SLOPE CONTOUR IN ORDER TO, REDUCE RUNOFF VELOCITY, INCREASE INFILTRATION, TRAP SEDIMENT & ENCOURAGE VEGETATION GROWTH
2. THIS MEASURE IS LIMITED TO AREAS WITH MEDIUM TO HIGHLY COHESIVE SOILS.
3. TO BE USED FOR SLOPES STEEPER THAN 3:1.
4. NOT RECOMMENDED FOR SLOPES RECEIVING LIMITED DISTURBANCE, SINCE THIS MEASURE COMPACTS SOIL WHICH INHIBITS VEGETATION GROWTH & DECREASES INFILTRATION.
5. THIS MEASURE IS TO BE UNDERTAKEN IN CONJUNCTION WITH OTHER MEASURES SUCH AS SEEDING, PLANTING, & MULCHING.

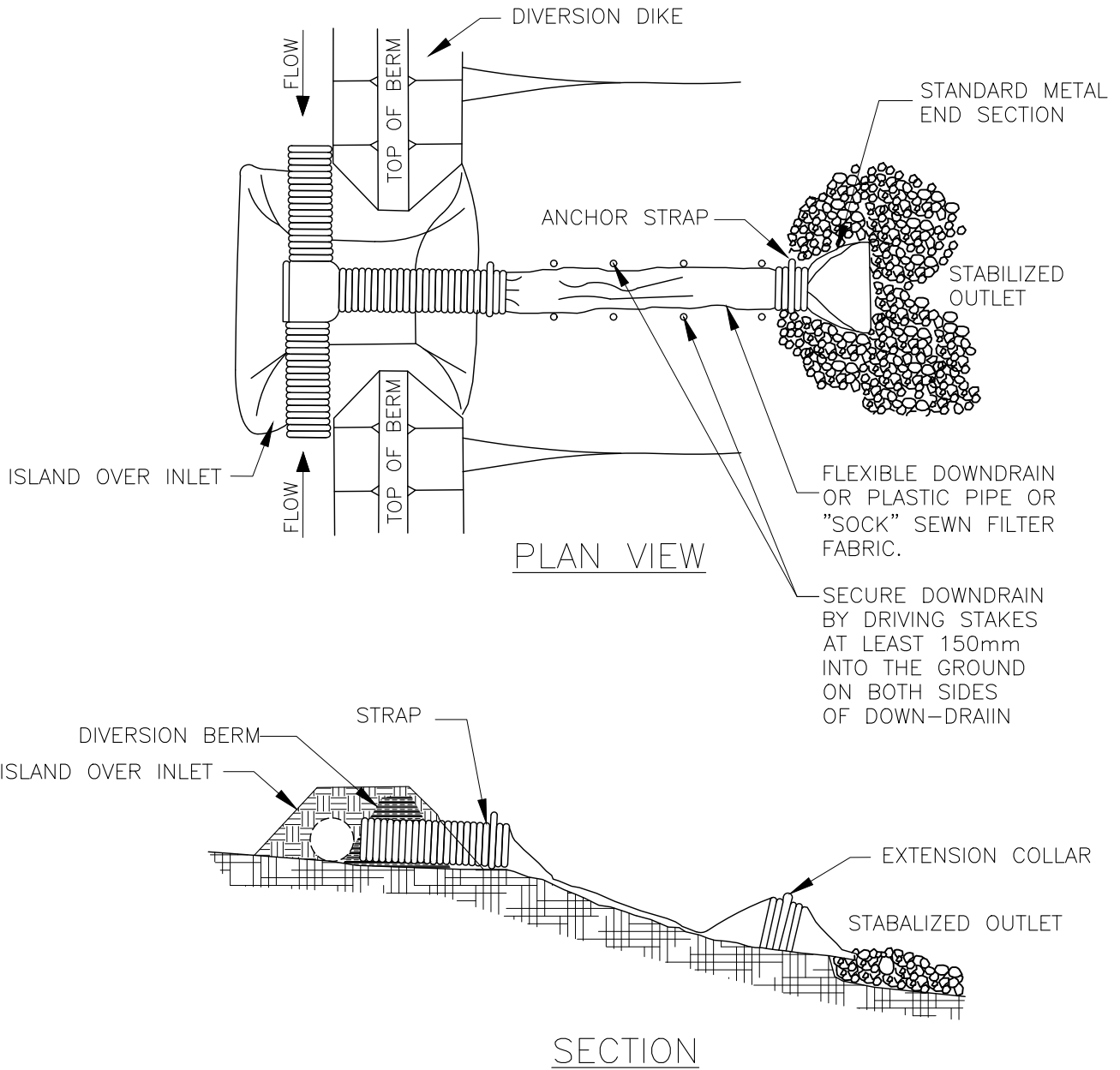


SCALE: N/A  
PLOT DATE: 22Aug15

DRAWING:  
ES - EC - 18

STEPPED OR  
TERRACED SLOPE

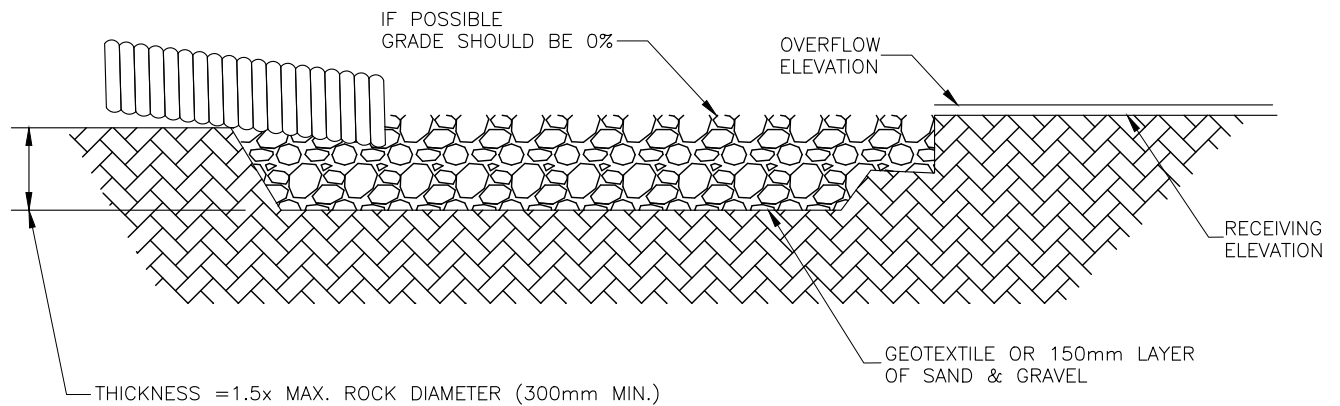
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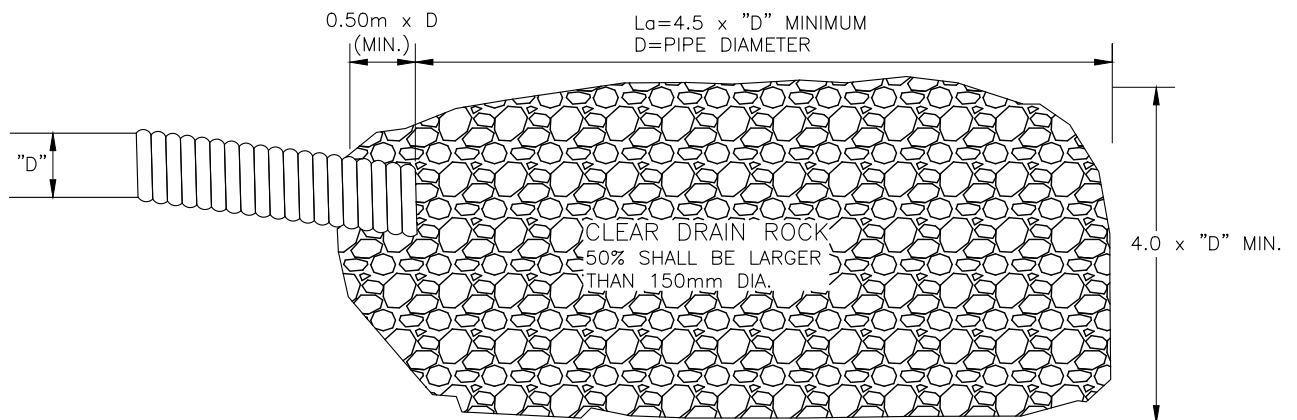
## NOTES:

1. PURPOSE IS TO CARRY CONCENTRATED RUNOFF FROM THE TOP OF SLOPE TO THE TOE OF SLOPE IN ORDER TO PREVENT HILLSIDE EROSION.
2. CONSTRUCT A DIVERSION BERM AT THE TOP OF SLOPE TO FORCE WATER INTO THE INLET.
3. THE DIVERSION BERM SHALL BE AT LEAST TWICE THE HEIGHT OF THE DOWNDRAIN.
4. THE OUTLET SHALL BE STABILIZED TO PREVENT EROSION.

## SECTION

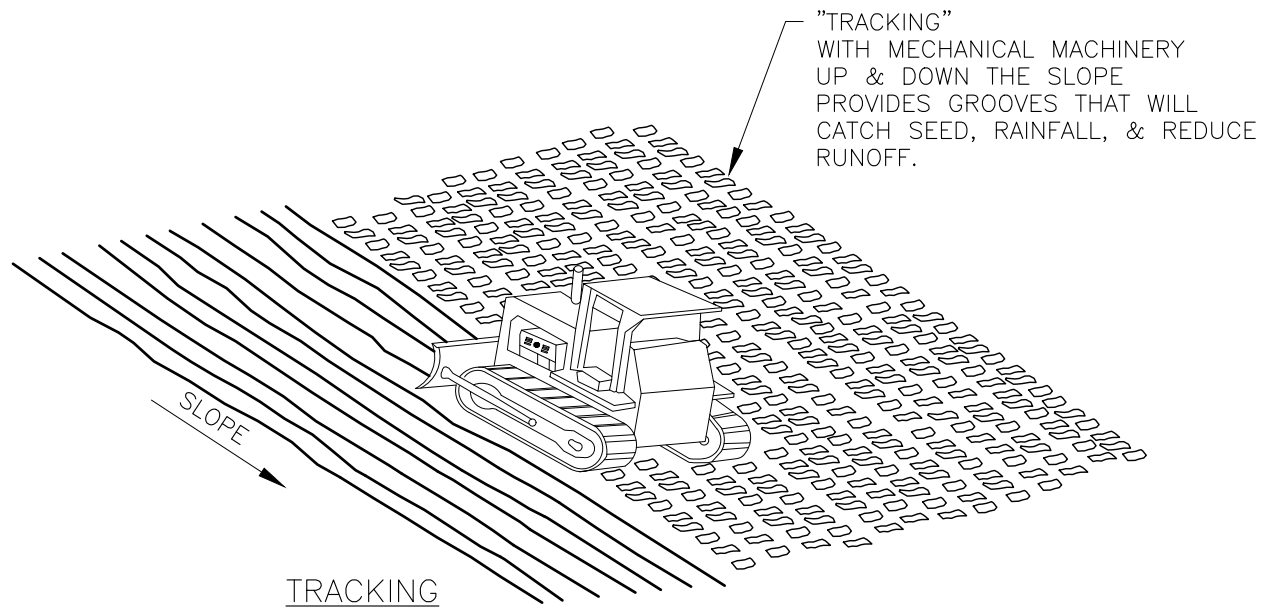


## PLAN

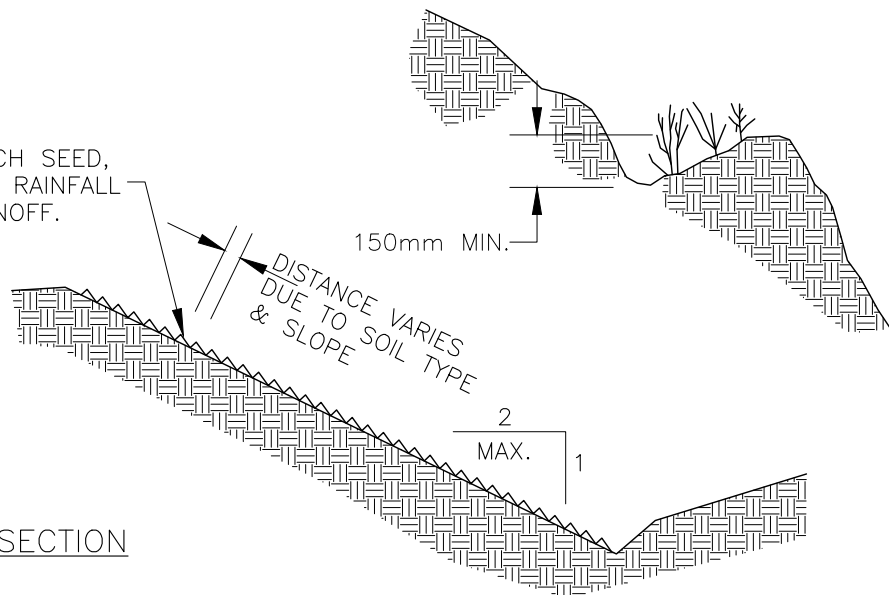


## NOTES:

1. PURPOSE IS TO PREVENT EROSION AT THE OUTLET OF A CHANNEL OR PIPE BY DECREASING THE VELOCITY & ENERGY OF FLOWING WATER.
2. " $L_a$ " = LENGTH OF APRON. DISTANCE " $L_a$ " SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
3. APRON SHALL BE SET AT ZERO GRADE AND ALIGNED STRAIGHT.
4. ADEQUATE ROCK SIZE MUST BE USED TO ENSURE ROCKS ARE NOT DISPLACED BY HIGH VELOCITY FLOWS.



GROOVES WILL CATCH SEED,  
FERTILIZER, MULCH, RAINFALL  
AND DECREASE RUNOFF.



## NOTES:

1. PURPOSE IS TO CREATE GROOVES/SERRATIONS RUNNING PARALLEL TO THE SLOPE CONTOUR IN ORDER TO REDUCE RUNOFF VELOCITY, INCREASE INFILTRATION, TRAP SEDIMENT & ENCOURAGE VEGETATION GROWTH.
2. GROOVES/SERATIONS CAN BE CREATED BY WALKING A MACHINE UP AND DOWN THE SLOPE OR BY ANY OTHER ALTERNATIVE METHOD OF ROUGHENING THE SURFACE MATERIALS.
3. THIS MEASURE IS LIMITED TO AREAS WITH MEDIUM TO HIGHLY COHESIVE SOILS
4. TO BE USED FOR SLOPES LESS THAN 2:1
5. NOT RECOMMENDED FOR SLOPES RECEIVING LIMITED DISTURBANCE, SINCE THIS MEASURE COMPACTS SOIL WHICH INHIBITS VEGETATION GROWTH & DECREASES INFILTRATION. & MULCHING.
6. THIS MEASURE IS TO BE UNDERTAKEN IN CONJUNCTION WITH OTHER MEASURES SUCH AS SEEDING, PLANTING, & MULCHING.