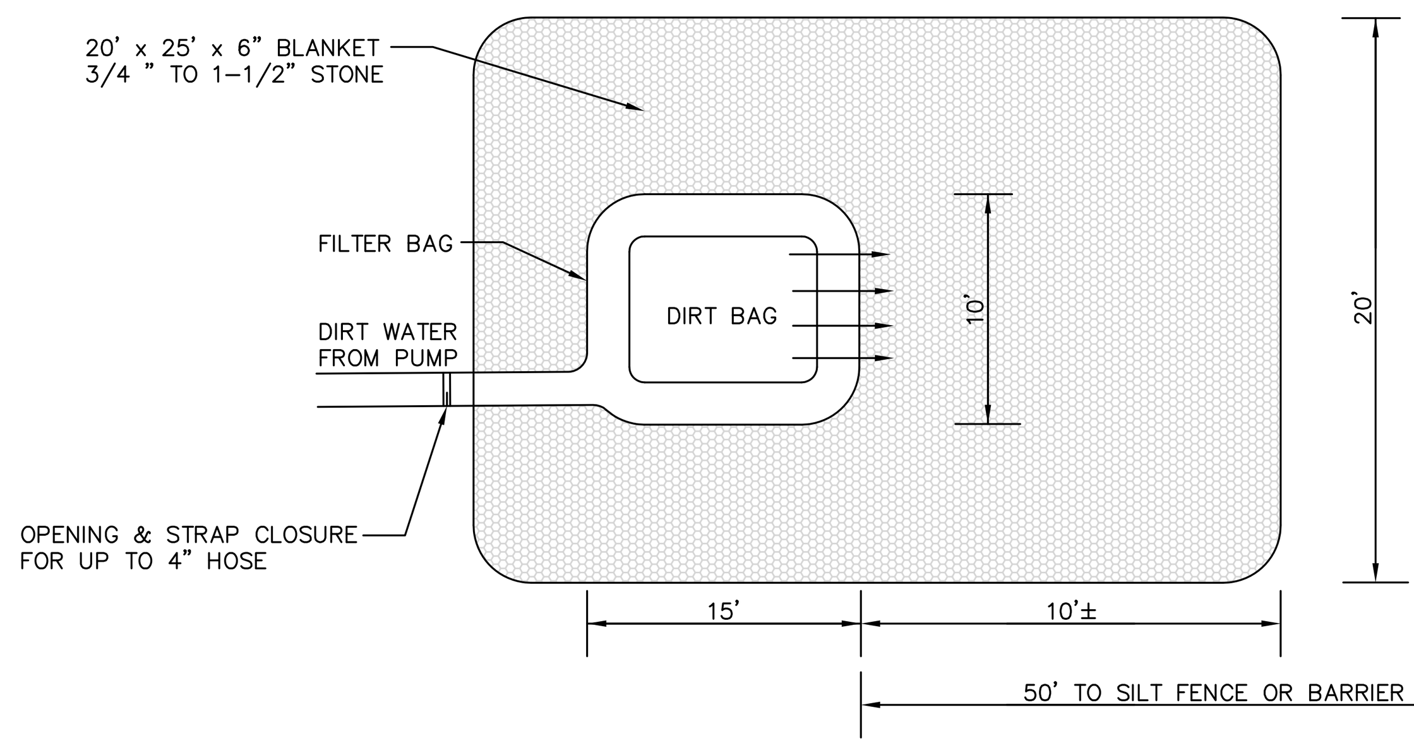
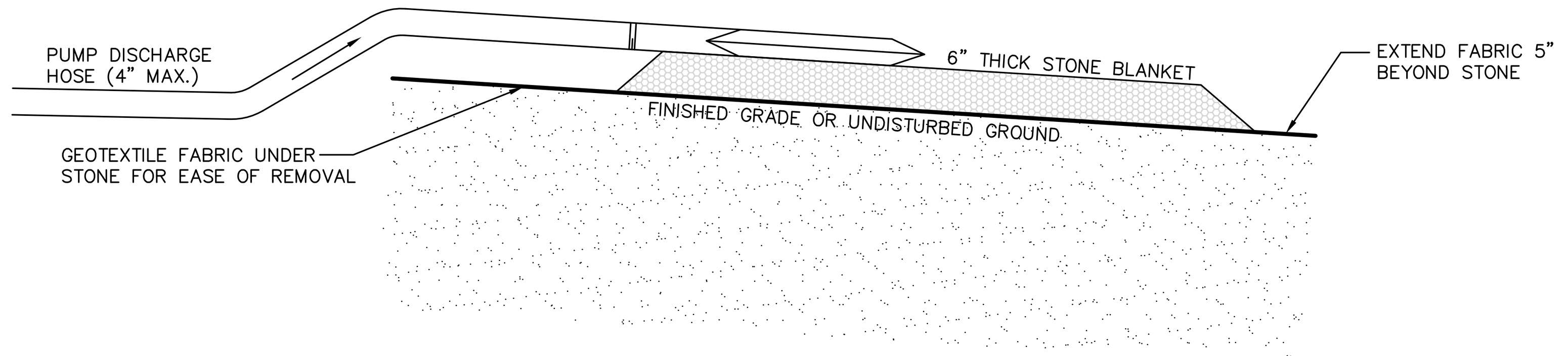


TOP VIEW



SIDE VIEW

NOTES:

1. DIRT BAG MATERIAL BASED ON PARTICLE SIZE IN DIRTY WATER, I.E. FOR COARSE PARTICLES A WOVEN MATERIAL; FOR SILTS/CLAYS A NON-WOVEN MATERIAL.
2. DO NOT OVER PRESSURIZE DIRT BAG OR USE BEYOND CAPACITY.
3. LOCATE DISCHARGE SITE ON FLAT UPLAND AREAS AS FAR AWAY AS POSSIBLE FROM STREAMS, WETLANDS, OTHER RESOURCES AND POINTS OF CONCENTRATED FLOW.
4. DOWN GRADIENT RECEIVING AREA MUST BE WELL VEGETATED OR OTHERWISE STABLE FROM EROSION, E.G. FOREST FLOOR OR COARSE GRAVEL/STONE.
5. DISCHARGE NOT PERMITTED WITHIN 25' OF A STREAM OR WETLAND. CONSULT DEP IF STRUCTURE MUST BE WITHIN 75' OF STREAM OR WATER BODY. SECONDARY CONTAINMENT MAY BE REQUIRED.

PUMPED DISCHARGE SEDIMENT CONTROL DEVICE ("DIRT BAG")

NTS

DEWATERING PROCEDURE:

SITE DEWATERING SHOULD BE COMPLETED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL – BMP SECTION G–3 (CONSTRUCTION DEWATERING) DATED MARCH 2003 AS SUMMARIZED BELOW:

CONSIDERATIONS:

1. THE DISCHARGE AREAS SHOULD BE CHOSEN WITH CAREFUL CONSIDERATION TO DOWN GRADIENT WATER RESOURCES AND THE LANDSCAPE ABILITY TO TREAT WATER FLOWS FROM THE DEWATERING PROCESS. A WOODED BUFFER IS BEST. ALL BUFFER REQUIREMENTS ARE FOUND IN THE VEGETATED BUFFER BMP SECTION. THE DISCHARGE SHOULD BE STOPPED IMMEDIATELY IF THE RECEIVING AREA IS SHOWING ANY SIGNS OF UNSTABILITY OR EROSION.
2. IF THE COLLECTED RUNOFF IS CONTAMINATED WITH OIL, GREASE OR OTHER PETROLEUM PRODUCTS, OIL/WATER SEPARATOR OR A FILTRATION MECHANISM MAY BE NECESSARY PRIOR TO THE DISCHARGE. ANOTHER METHOD OF DISPOSAL SUCH AS CONTAINMENT AND TRUCKING AWAY BY A MAINE DEP LICENSED TRANSPORTER WILL NEED TO BE IMPLEMENTED IF THE WATER HAS BEEN CONTAMINATED BY TOXIC AND HAZARDOUS MATERIALS.
3. ALL REQUIREMENTS OF STATE LAW AND PERMIT REQUIREMENTS OF LOCAL, STATE AND FEDERAL AGENCIES MUST BE MET.

SPECIFICATIONS:

DEWATERING EXCAVATED AREAS MUST BE IN TWO DISTINCT PHASES. THE REMOVAL OF THE COLLECTED WATER WITHIN THE EXCAVATION AND THE TREATMENT OF THE COLLECTED WATER.

PHYSICAL DEWATERING

THE REMOVAL OF WATER FROM THE EXCAVATED AREA CAN BE ACCOMPLISHED BY NUMEROUS METHODS. THE MOST COMMON OF THESE ARE: GRAVITY DRAIN THROUGH DAYLIGHT CHANNELS, MECHANICAL PUMPING, SIPHONING, AND USING THE BUCKET OF CONSTRUCTION EQUIPMENT TO SCOOP AND DUMP WATER FROM THE EXCAVATION.

1. CHANNELS DUG DISHARGING WATER FROM THE EXCAVATED AREA NEED TO BE STABLE. IF FLOW VELOCITIES CAUSE EROSION WITHIN THE CHANNEL THEN DITCH LINING SHOULD BE USED.
2. BUCKETED WATER SHOULD BE DISHARGED IN A STABLE MANNER TO THE SEDIMENT REMOVAL AREA. A SPLASH PAD OF RIPRAP UNDERLAIN WITH GEOTEXTILE MAY BE NECESSARY TO PREVENT SCOURING OF THE SOIL IN THE BASIN.
3. DEWATERING IN PERIODS OF INTENSE, HEAVY RAIN, WHEN THE INFILTRATIVE CAPACITY OF THE SOIL IS EXCEEDED, SHOULD BE AVOIDED.

SEDIMENT REMOVAL:

MANY METHODS OF SETTLING OR FILTERING SEDIMENT ARE AVAILABLE FOR THE CONTRACTOR TO CONSIDER:

1. FLOW TO THE SEDIMENT REMOVAL STRUCTURE MAY NOT EXCEED THE SEDIMENT REMOVAL STRUCTURE'S CAPACITY TO SETTLE AND FILTER FLOW OR THE STRUCTURE'S VOLUME CAPACITY.
2. SEDIMENT REMOVAL BASINS SHOULD DISCHARGE WHEREVER POSSIBLE TO A WELL–VEGETATED BUFFER THROUGH SHEET FLOW AND SHOULD MAXIMIZE THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA.
3. VARIOUS BASINS HAVE BEEN PROPOSED IN PAST PROJECTS:
   A. AN ENCLOSURE OF JERSEY BARRIERS WITH A LARGE PIECE OF SILT TAPE GEOTEXTILE.
   B. A TEMPORARY ENCLOSURE CONSTRUCTED WITH HAY BALES, SILT FENCE, OR BOTH. EROSION CONTROL MIX ALSO MAY BE INCORPORATED WITH SILT FENCE OR HAY BALES.
   C. DIRECT DISCHARGE TO A MANUFACTURED/PRE–MADE STRUCTURE SPECIFICALLY DESIGNED FOR SEDIMENT REMOVAL, LIKE SILT SAK, SILT BAG, OR OTHER SIMILAR PRODUCT.
   D. CONCRETE OR STEEL SETTLING CHAMBERED SYSTEMS FOR SEDIMENT REMOVAL.
   E. EXCAVATED OR BERMED SEDIMENTATION PONDS OR STRUCTURES. SIDE SLOPES NO GREATER THAN 2 TO 1, OR WITH A COMBINED INTERIOR AND EXTERIOR SLOPE OF NO GREATER THAN 5 TO 1. SEE THE SEDIMENT TRAP BMP SECTION.
   F. A STORMWATER DETENTION POND MAY BE USED AS A STILLING BASIN DURING CONSTRUCTION. HOWEVER, A SEDIMENT BARRIER NEEDS TO BE INSTALLED TO THE OUTLET STRUCTURE TO PREVENT THE DISCHARGE OF SEDIMENT. SEE THE SEDIMENT POND CONSTRUCTION BMP SECTION.

INSTALLATION REQUIREMENTS:

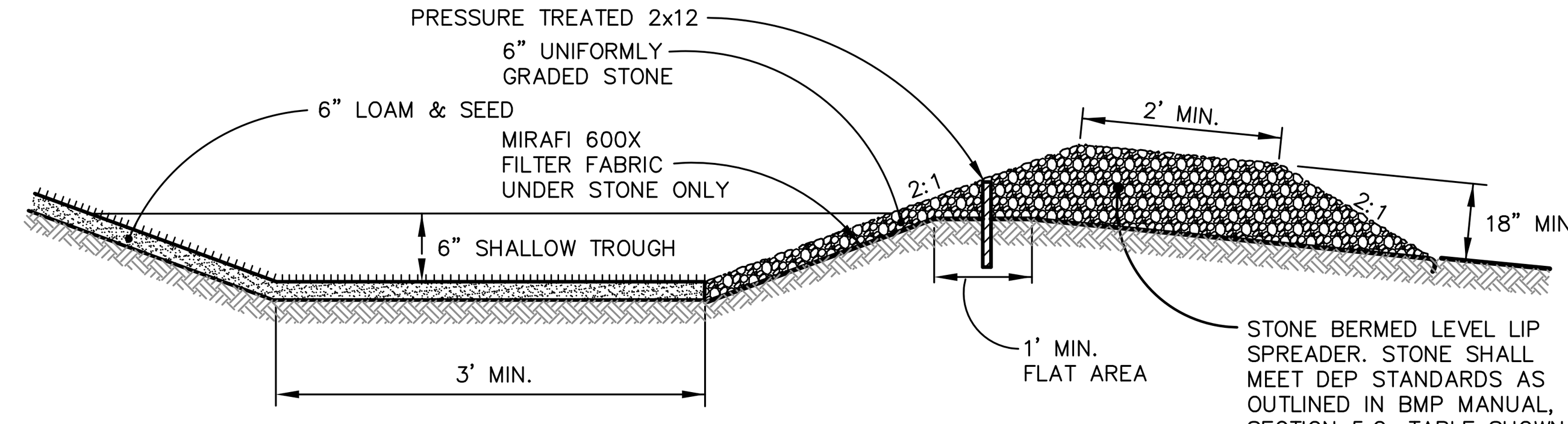
1. FOR TRENCH EXCAVATION, LIMIT THE TRENCH LENGTH TO 500 FEET AND PLACE THE EXCAVATED MATERIAL ON THE UP GRADIENT SIDE OF THE TRENCH.
2. INSTALL DIVERSION DITCHES OR BERMS TO MINIMIZE THE AMOUNT OF CLEAN STORMWATER RUNOFF ALLOWED INTO THE EXCAVATED AREA.
3. NEVER DISCHARGE TO AREAS THAT ARE BARE OR NEWLY VEGETATED.

MAINTENANCE:

DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE DEWATERING FACILITY SHOULD BE REVIEWED FREQUENTLY. SPECIAL ATTENTION SHOULD BE PAID TO THE BUFFER AREA FOR ANY SIGN OF EROSION AND CONCENTRATION OF FLOW THAT MAY COMPROMISE THE BUFFER AREA. OBSERVE WHERE POSSIBLE THE VISUAL QUALITY OF THE EFFLUENT AND DETERMINE IF ADDITIONAL TREATMENT CAN BE PROVIDED.

BERM STONE SIZE

SIEVE DISIGNATION METRIC	SIEVE DISIGNATION US CUSTOMARY	% BY WEIGHT PASSING SQUARE MESH SIEVES
300 MM	12"	100
150 MM	6"	84–100
75 MM	3"	68–83
25.4 MM	1"	42–55
4.75 MM	NO. 4	8–12



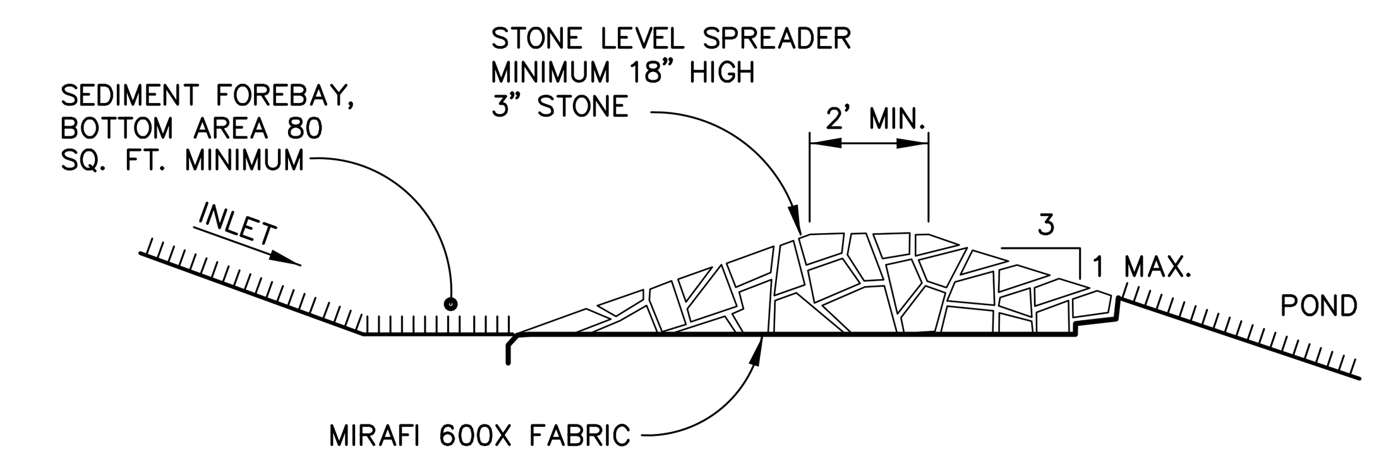
SECTION

CONSTRUCTION SPECIFICATIONS:

1. SPREADERS SHALL BE INSTALLED WITH A LEVEL INSTRUMENT. CONSTRUCT LEVEL LIP TO 0% GRADE TO ENSURE UNIFORM SHEET FLOWLEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL, NOT FILL.
2. SELECTED GEOTEXTILE FABRIC BASED ON UNDISTURBED SOILS (SANDS, SILTS, CLAYS, ETC.).
3. PLACE UNIFORMLY GRADED STONE (SEE TABLE 5-3).
4. THE INLET DITCH SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE ENTERING THE SPREADER.
5. STORM RUN-OFF CONVERTED TO SHEET FLOW ACROSS OUTLET APRON SHALL FLOW ONTO STABILIZED AREAS. AREAS. RUNOFF SHALL NOT BE RECONCENTRATED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
6. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED.
7. CONSTRUCTION OF LEVEL LIP SPREADER SHALL BE FROM UPHILL SIDE ONLY. LEVEL LIP AND AREA BELOW SPREADER SHALL BE AT EXISTING GRADES AND UNDISTURBED BY EARTHWORK OR EQUIPMENT EXCEPT AS NOTED ON PLAN.
8. CONSTRUCT SPREADER WITH LIP AT EXISTING ELEVATION AS SPECIFIED.
9. DOWN GRADIANT AND RECEIVING AREA MUST BE NATURALLY WELL VEGETATED.
10. DISCHARGE NOT PERMITTED WITHIN 25' OF A STREAM OR WETLAND, CONSULT DEP IF STRUCTURE MUST BE WITHIN 75' OF SSTREAM OR WATER BODY.

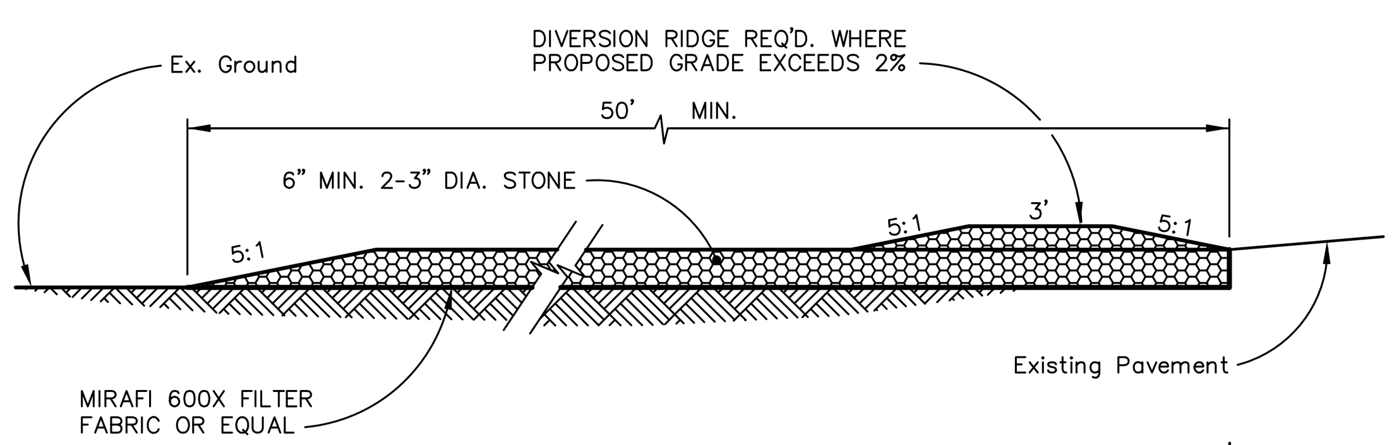
LEVEL LIP SPREADER

NTS

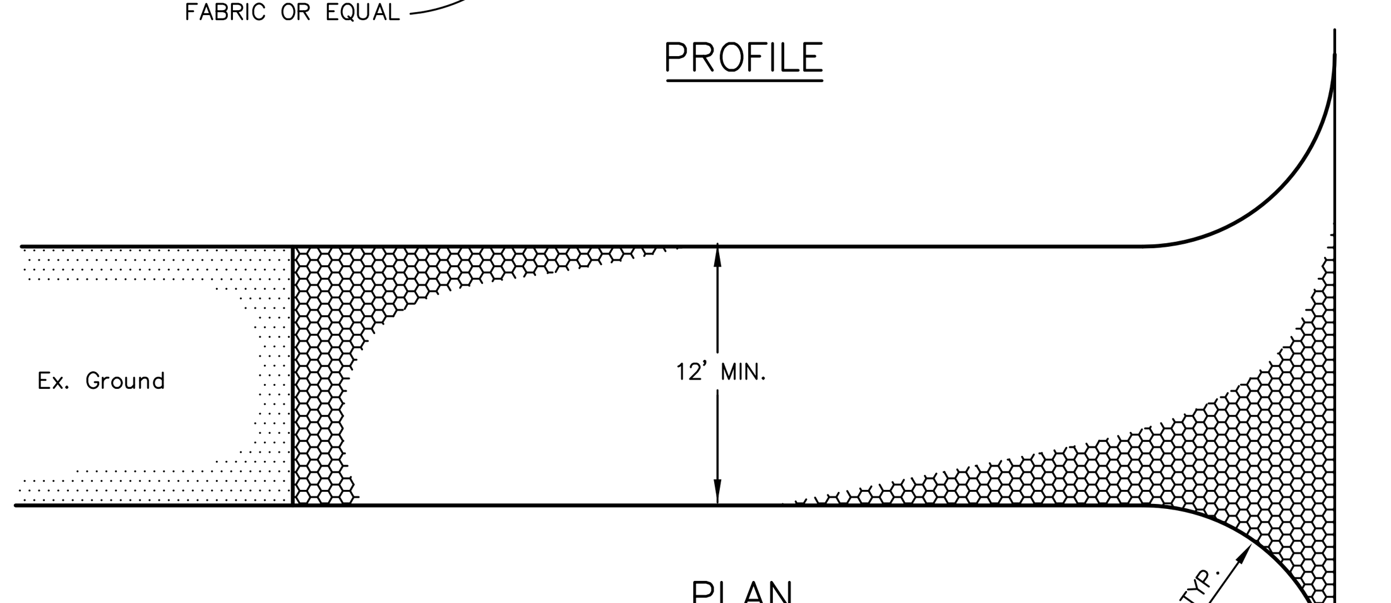


SEDIMENT FOREBAY

NTS



PROFILE



PLAN

NOTES:

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

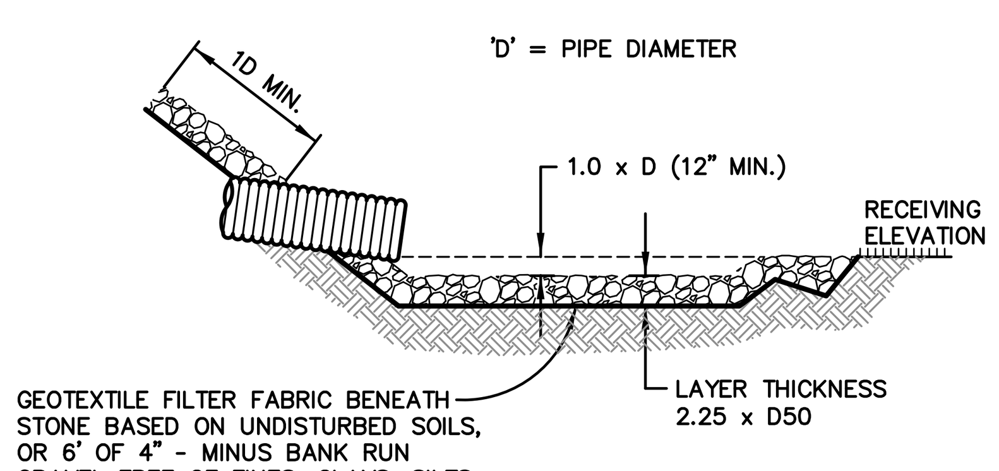
WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY.

WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

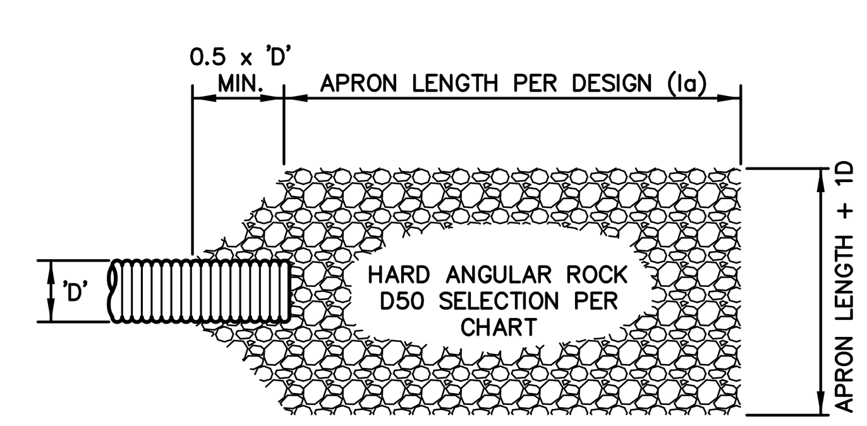
STABILIZED CONSTRUCTION ENTRANCE

NTS

'D' = PIPE DIAMETER



SECTION



PLAN

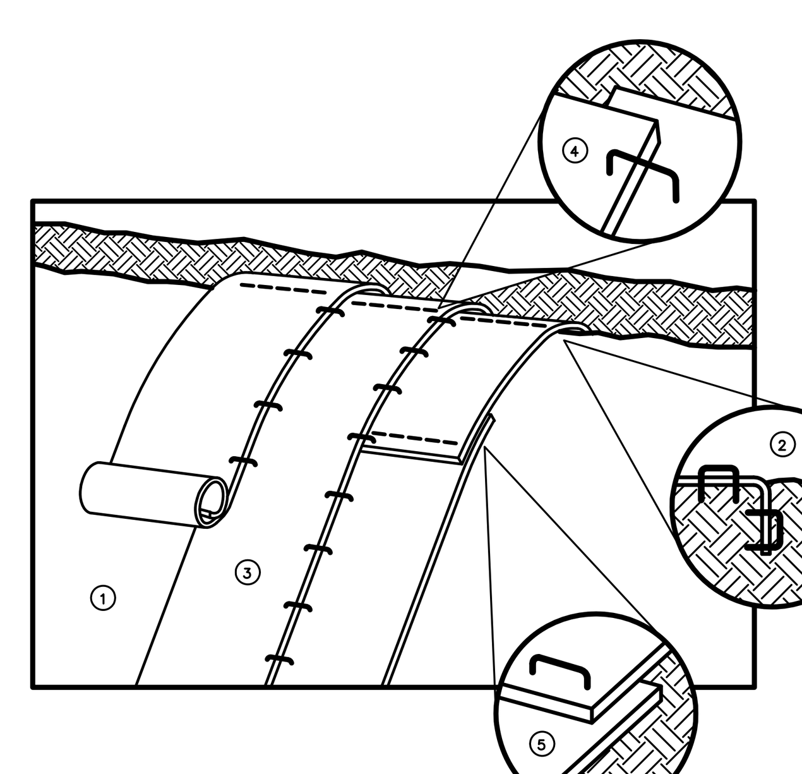
IN DEFINED CHANNELS, APRON SHALL EXTEND FULL WIDTH OF BOTTOM AND ONE FOOT ABOVE MAX. TAILWATER OR UP TO BANK FULL, WHICHEVER IS LESS.

PIPE OUTLET PROTECTION

NTS

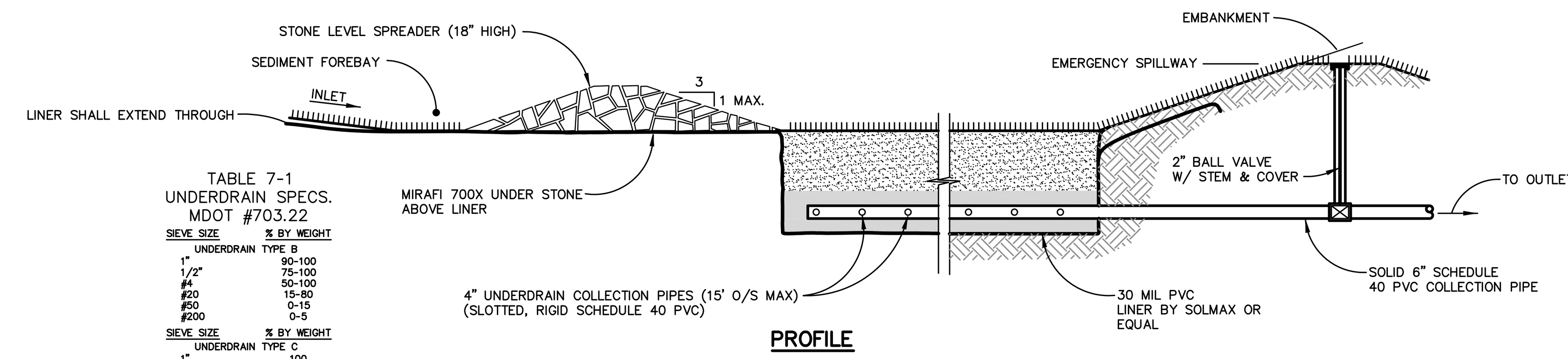
1. Prepare soil before installing blankets, including lime, fertilzer & seed.
2. Begin at top of slope by anchoring blanket in 6" x 6" trench. Backfill & compact trench after stapling.
3. Roll blankets down or horizontally across slope.
4. The edges of parallel blankets must be stapled with approx. 2" overlap.
5. When blankets must be spliced down the slope, place blankets end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart.

Slope Stabilization:
Erosion Control Blanket shall be in accordance with M.D.O.T. standard specifications, Section 6.13, Temporary Erosion Control Blankets and Extended Use Erosion Control Blankets.



Slope Stabilization Detail

N.T.S.



PROFILE

TABLE 7-1
UNDERDRAIN SPECS.
MDOT #703.22

SIEVE SIZE	% BY WEIGHT
UNDERDRAIN TYPE B	
1"	90-100
1/2"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5

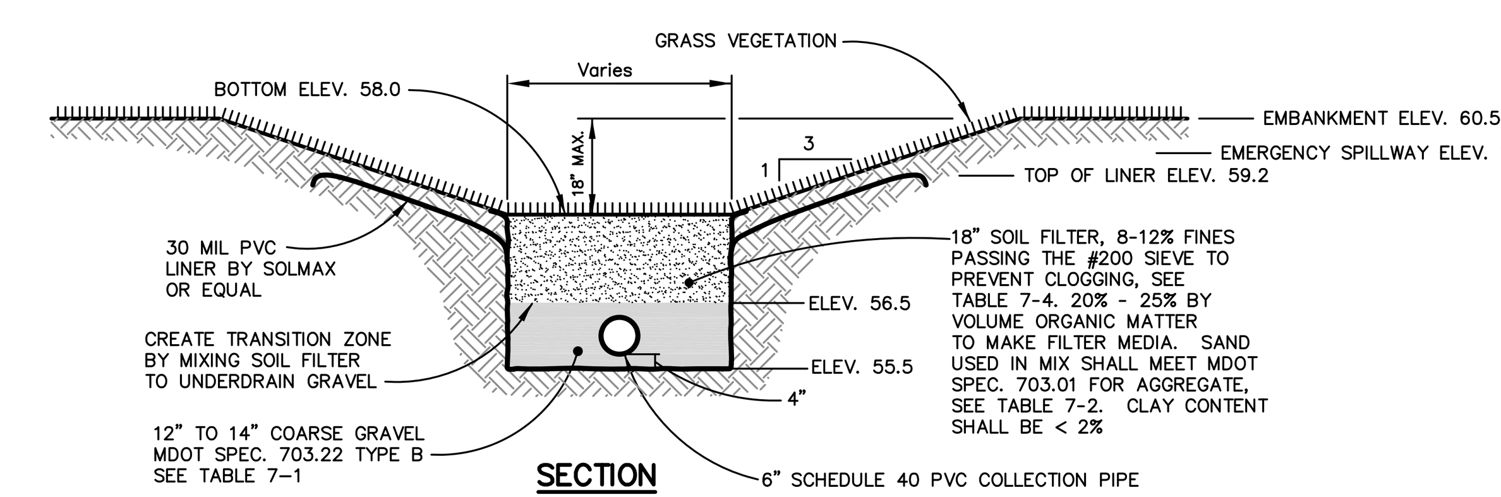
SIEVE SIZE	% BY WEIGHT
UNDERDRAIN TYPE C	
1"	100
3/4"	90-100
3/8"	0-75
#4	0-25
#10	0-5

TABLE 7-2
AGGREGATE SPECS.
MDOT #703.01

SIEVE SIZE	% BY WEIGHT
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#60	10-30
#100	2-10
#200	0-5

TABLE 7-4
COARSE LOAMY SAND SIEVE
ANALYSIS SPECIFICATION

SIEVE #	% PASSING BY WEIGHT
10	85-100
20	70-100
60	15-40
100	0-8



SECTION

GRASSED UNDERDRAIN SOIL FILTER

NTS

UNDERDRAINED FILTER BASINS

CONSTRUCTIONS SEQUENCE: THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED.

COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 90% AND 92% STANDARD PROCTOR. THE BED SHOULD BE INSTALLED IN AT LEAST 2 LIFTS OF 9 INCHES TO PREVENT POCKETS OF LOOSE MEDIA.

CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A MINIMUM:

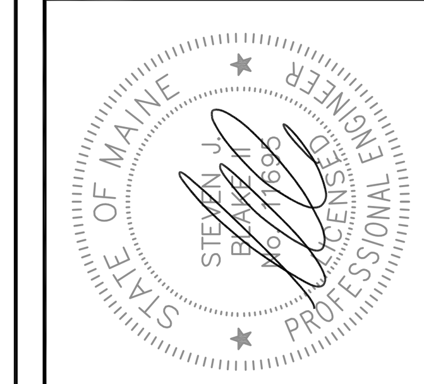
* AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED,
* AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA,
* AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
* AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS, AND
* ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
* TOWN OF WELLS WILL BE PROVIDED WITH INSPECTION DOCUMENTATION WITHIN ONE-WEEK OF THE COMPLETED INSPECTION AND APPROVAL OF INSTALLATION.

TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND TOWN OF WELLS FOR CONFIRMATION. THE CONTRACTOR SHALL:

* SELECT SAMPLES FOR SAMPLING OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE COMPOSITE OF THREE DIFFERENT LOCATION (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
* PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COURSE AGGREGATES 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL. THE RESULTING SOIL FILTER MEDIA MIXTURE MUST HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE, A CLAY CONTENT OF LESS THAN 2% (DETERMINED HYDROMETER GRAIN SIZE ANALYSIS) AND HAVE 10% DRY WEIGHT OF ORGANIC MATTER.
* PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90-92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.

REVISION

NO.	DATE	DESCRIPTION
1	1/15/19	Submitted Plan For Town Review
2	2/12/19	Revised per Town Comments
3	3/1/19	Revised per KK&W Water District Comments
4	3/14/19	Revised per KK&W Water District Comments
5	4/9/19	Revised per DEP Comments
6	4/23/19	Submit Final Plan to Town
7	4/24/19	Revised per MeDEP Comments



BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
28 State Street
Gorham, Maine 04038
Tel. (207) 839-2771
Fax (207) 839-8250

FOR
Preachers Aid Society Of New England
51 Charles Wesley Court
Wells, Maine

EROSION CONTROL AND UNDERDRAIN FILTER DETAILS

WESLEY BY THE SEA
PHASE III
HARRISSECKET ROAD
WELLS, MAINE

DESIGNED	DATE
W. Pelkey	Oct. 2018
DRAWN	SCALE
Dept.	As Noted
CHECKED	JOB. NO.
S. Blake	18118

SHEET
8