

STD & SPEC 3.32

PERMANENT SEEDING

DEFINITION

THE ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER ON DISTURBED AREAS BY PLANTING SEED.

PURPOSES

- 1. TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS.
2. TO PERMANENTLY STABILIZE DISTURBED AREAS IN A MANNER THAT IS ECONOMICAL, ADAPTABLE TO SITE CONDITIONS, AND ALLOWS SELECTION OF THE MOST APPROPRIATE PLANT MATERIALS.
3. TO IMPROVE WILDLIFE HABITAT.
4. TO ENHANCE NATURAL BEAUTY.

CONDITIONS WHERE PRACTICE APPLIES

- 1. DISTURBED AREAS WHERE PERMANENT, LONG-LIVED VEGETATIVE COVER IS NEEDED TO STABILIZE THE SOIL.
2. ROUGH-GRADED AREAS WHICH WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE.

LAND USE: A PRIME CONSIDERATION IN SELECTING WHICH PLANTS TO ESTABLISH IS THE INTENDED USE OF THE LAND...

HIGH-MAINTENANCE AREAS WILL BE MOWED FREQUENTLY, LIMED AND FERTILIZED REGULARLY, AND WILL EITHER RECEIVE INTENSE USE (E.G., ATHLETICS) OR REQUIRE MAINTENANCE TO AN AESTHETIC STANDARD (HOME LAWNS)...

LOW-MAINTENANCE AREAS WILL BE MOWED INFREQUENTLY OR NOT AT ALL; AND FERTILIZER MAY NOT BE APPLIED ON A REGULAR BASIS...

TABLE 3.32-D SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

Table with 2 columns: Seeding Mixture Name and Rate (LBS./AC.). Includes categories like Commercial or Residential, High-maintenance Lawn, General Slope, and Low-maintenance Slope.

* USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW: FEBRUARY 16TH THROUGH APRIL... MAY 1ST THROUGH AUGUST 15TH... AUGUST 16TH THROUGH OCTOBER... NOVEMBER THROUGH FEBRUARY 15TH.

** SUBSTITUTE SERICEA LESPEDEZA FOR CROWNVECH EAST OF FARMVILLE, VA. (MAY THROUGH SEPTEMBER USE HULLED SERICEA, ALL OTHER PERIODS, USE UNHULLED SERICEA)...

LIME AND FERTILIZER

LIME AND FERTILIZER NEEDS SHOULD BE DETERMINED BY SOIL TESTS. SOIL TESTS MAY BE PERFORMED BY THE COOPERATIVE EXTENSION SERVICE SOIL TESTING LABORATORY AT VPI & SU...

UNDER UNUSUAL CONDITIONS WHERE IT IS NOT POSSIBLE TO OBTAIN A SOIL TEST, THE FOLLOWING SOIL AMENDMENTS WILL BE APPLIED:

LIME

PIEDMONT AND APPALACHIAN REGION: 2 TONS/ACRE PULVERIZED AGRICULTURAL GRADE LIMESTONE (90 LBS./1000 FT.)

FERTILIZER

MIXED GRASSES & LEGUMES: 100 LBS./ACRE 10-20-10 OR EQUIVALENT NUTRIENTS (23 LBS./1000 FT.). LEGUME STANDS ONLY: 1000 LBS./ACRE 5-20-10 (23 LBS./1000 FT.) IS PREFERRED...

MAINTENANCE OF NEW SEEDING

IN GENERAL, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL IT HAS BEEN MAINTAINED FOR ONE FULL YEAR AFTER PLANTING.

IRRIGATION: NEW SEEDINGS SHOULD BE SUPPLIED WITH ADEQUATE MOISTURE. SUPPLY WATER AS NEEDED, ESPECIALLY LATE IN THE SEASON, IN ABNORMALLY HOT OR DRY WEATHER...

RE-SEEDING: INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RE-SEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

a. IF VEGETATIVE COVER IS INADEQUATE TO PREVENT RILL EROSION, OVER-SEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS. b. IF A STAND HAS LESS THAN 40% COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS...

FERTILIZATION: COOL SEASON GRASSES SHOULD BEGIN TO BE FERTILIZED 90 DAYS AFTER PLANTING TO ENSURE PROPER STAND AND DENSITY. WARM SEASON FERTILIZATION SHOULD BEGIN AT 30 DAYS AFTER PLANTING.

APPLY MAINTENANCE LEVELS OF FERTILIZER AS DETERMINED BY SOIL TEST. IN THE ABSENCE OF A SOIL TEST, FERTILIZATION SHOULD BE AS FOLLOWS:

- COOL SEASON GRASSES: 4 LBS. NITROGEN (N) PER 1000 FT2 PER YEAR. 1 LB. PHOSPHORUS (P) PER 1000 FT2 PER YEAR. 2 LBS. POTASH (K) PER 1000 FT2 PER YEAR.

SEVENTY-FIVE PERCENT OF THE TOTAL REQUIREMENTS SHOULD BE APPLIED BETWEEN SEPTEMBER 1 AND DECEMBER 31st. THE BALANCE SHOULD BE APPLIED DURING THE REMAINDER OF THE YEAR...

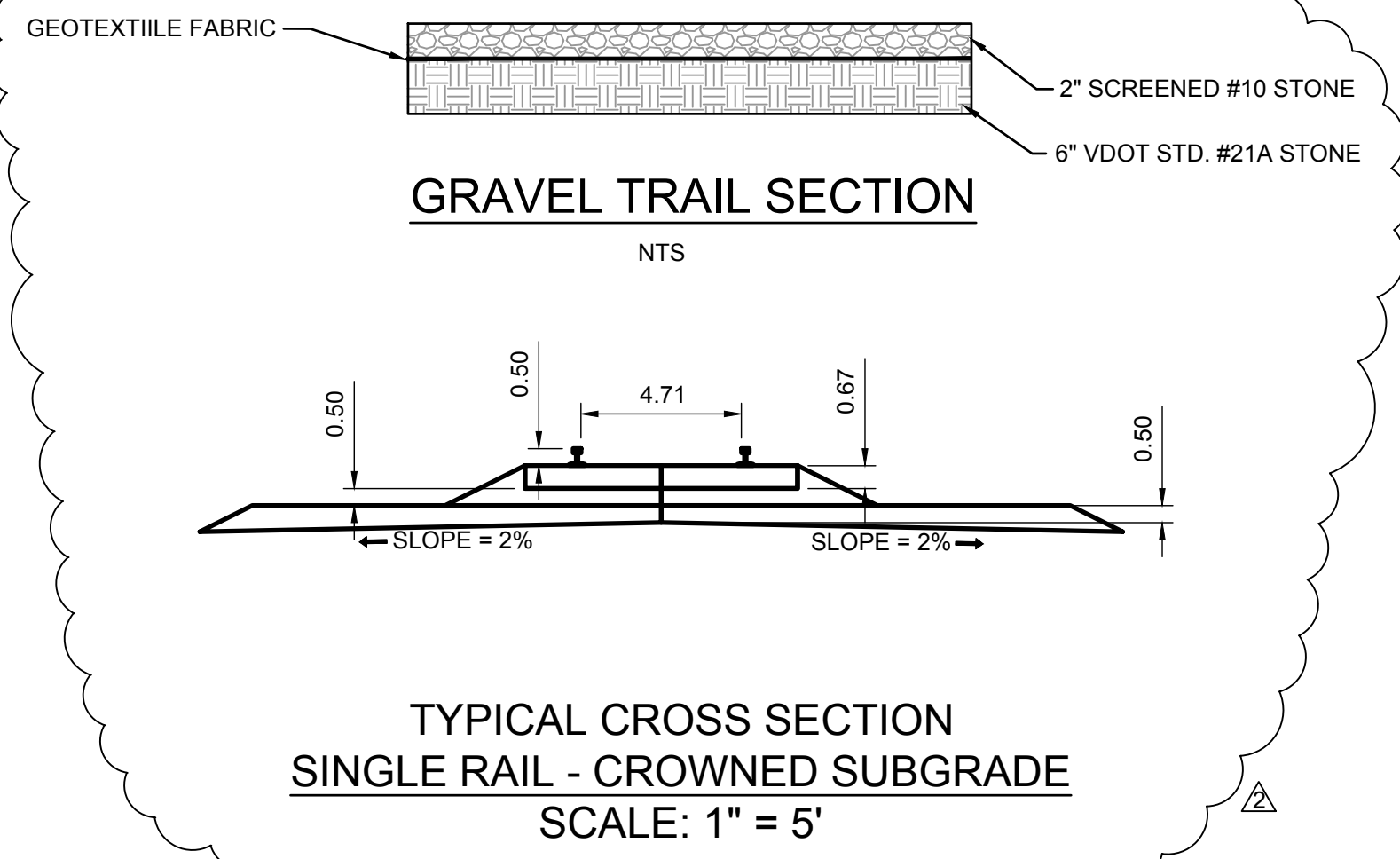
WARM SEASON GRASSES: APPLY 4-5 LBS. NITROGEN (N) BETWEEN MAY 1 AND AUGUST 15th PER 1000 FT2 PER YEAR.

PHOSPHOROUS (P) AND POTASH (K) SHOULD ONLY BE APPLIED ACCORDING TO SOIL TEST. NOTE: THE USE OF SLOW-RELEASE FERTILIZER FORMULATIONS FOR MAINTENANCE OF TURF IS ENCOURAGED TO REDUCE THE NUMBER OF APPLICATIONS...

SEED QUALITY CRITERIA

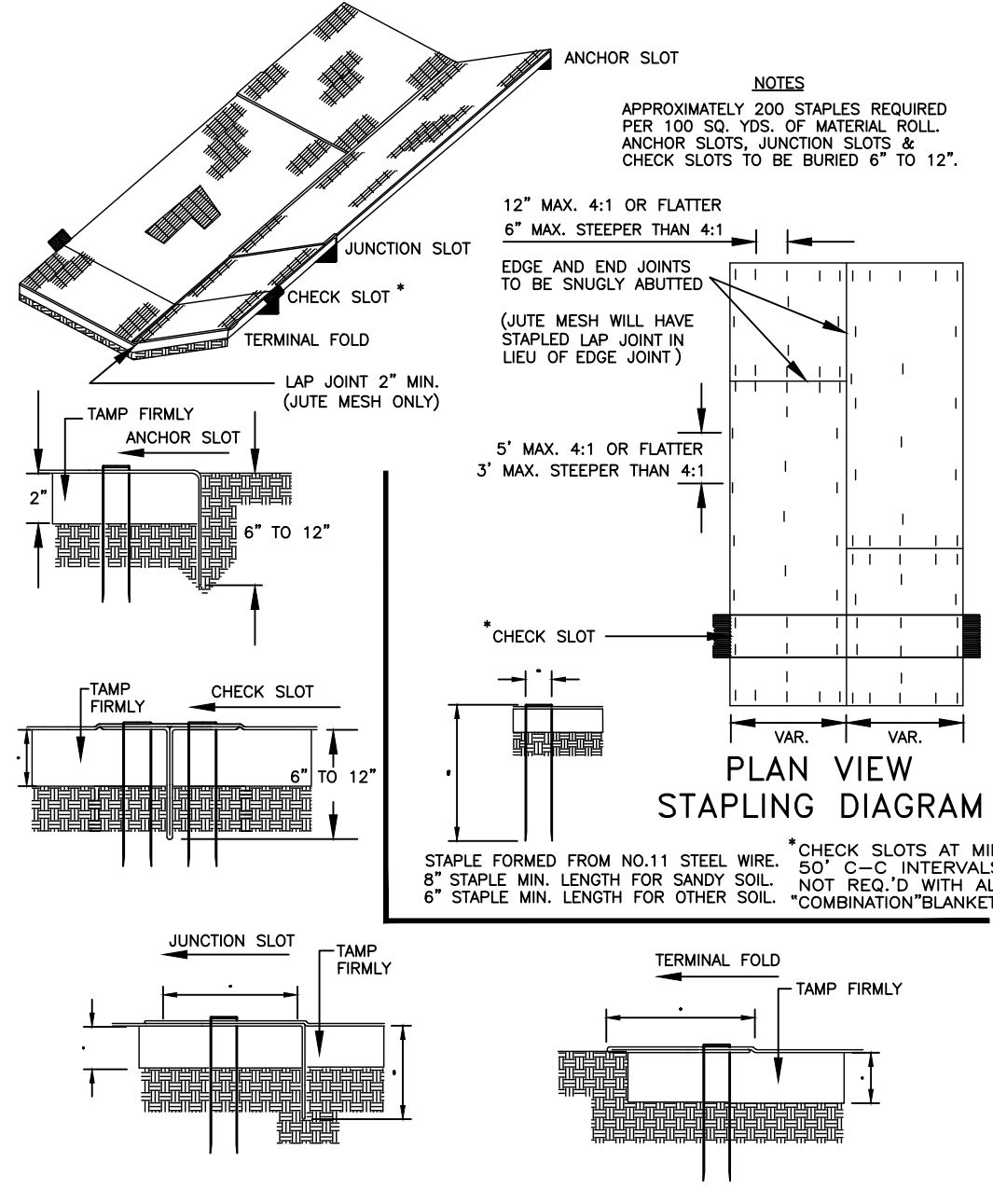
WHERE CERTIFIED SEED IS NOT AVAILABLE, THE MINIMUM REQUIREMENTS FOR GRASS AND LEGUME SEED USED IN VEGETATIVE ESTABLISHMENT ARE AS FOLLOWS:

- a. ALL TAGS ON CONTAINERS OF SEED SHALL BE LABELED TO MEET THE REQUIREMENTS OF THE STATE SEED LAW. b. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY... c. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN TWELVE (12) MONTHS. d. INOCULANT - THE INOCULANT ADDED TO LEGUME SEED...



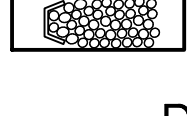
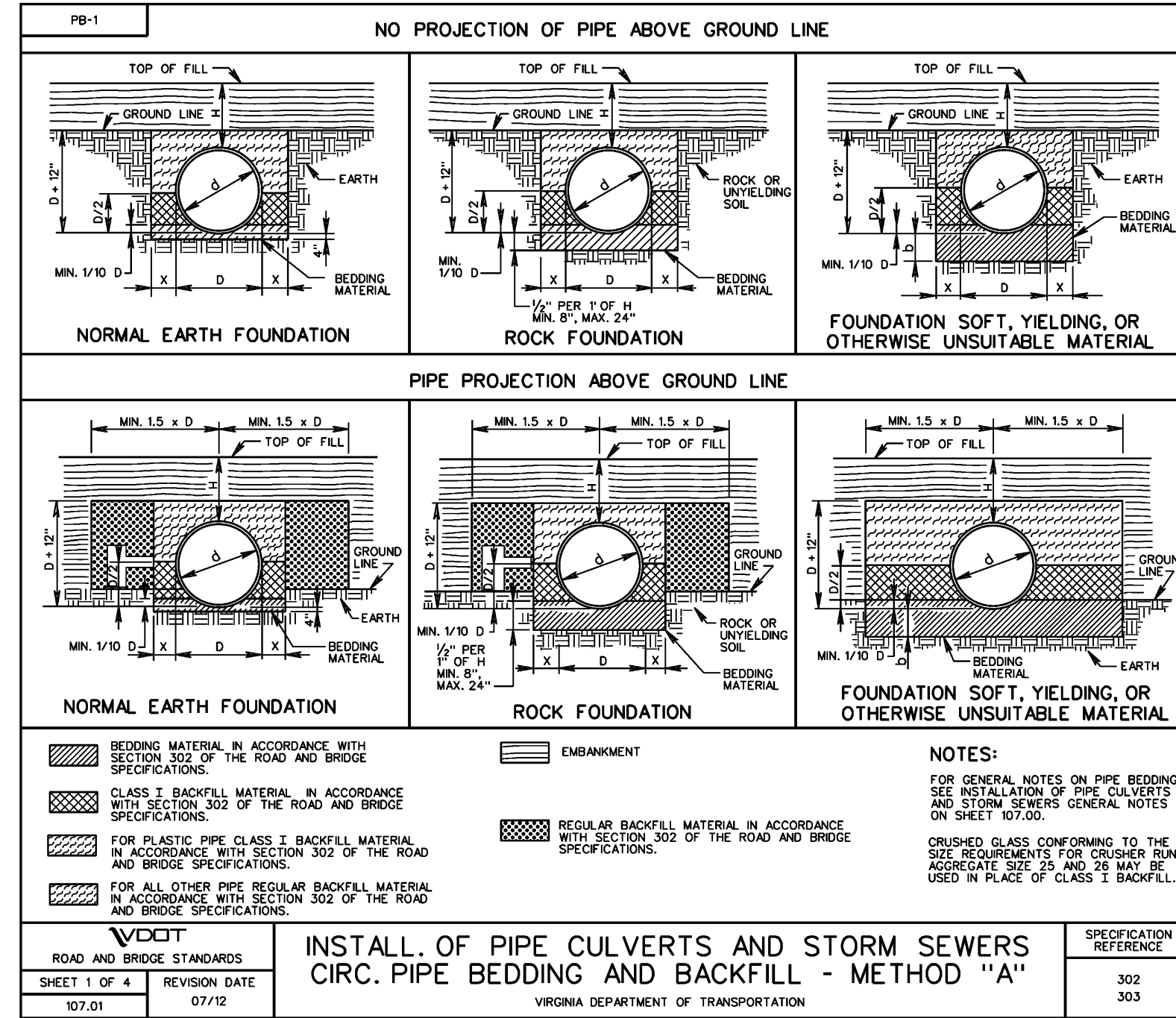
TYPICAL CROSS SECTION SINGLE RAIL - CROWNED SUBGRADE SCALE: 1" = 5'

TYPICAL TREATMENT - 1 (SOIL STABILIZATION BLANKET) INSTALLATION CRITERIA



SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE: 3.35-2

2016 ROAD & BRIDGE STANDARDS



OUTLET PROTECTION



DESIGN CRITERIA

THE DESIGN OF STRUCTURALLY LINED APRONS AT THE OUTLETS OF PIPES AND PAVED CHANNEL SECTIONS APPLIES TO THE IMMEDIATE AREA OR REACH BELOW THE PIPE OR CHANNEL AND DOES NOT APPLY TO CONTINUOUS ROCK LININGS OF CHANNELS OR STREAMS...

PIPE OUTLETS

- 1. TAILWATER DEPTH: THE DEPTH OF TAILWATER IMMEDIATELY BELOW THE PIPE OUTLET MUST BE DETERMINED FOR THE DESIGN CAPACITY OF THE PIPE. MANNING'S EQUATION MAY BE USED TO DETERMINE TAILWATER DEPTH... 2. APRON LENGTH: THE APRON LENGTH SHALL BE DETERMINED FROM THE CURVES ACCORDING TO THE TAILWATER CONDITION... 3. APRON WIDTH: WHEN THE PIPE DISCHARGES DIRECTLY INTO A WELL-DEFINED CHANNEL, THE APRON SHALL EXTEND ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS...

IF THE PIPE DISCHARGES ONTO A FLAT AREA WITH NO DEFINED CHANNEL, THE WIDTH OF THE APRON SHALL BE DETERMINED AS FOLLOWS: A. THE UPSTREAM END OF THE APRON, ADJACENT TO THE PIPE, SHALL HAVE A WIDTH THREE TIMES THE DIAMETER OF THE OUTLET PIPE.

B. FOR A MINIMUM TAILWATER CONDITION, THE DOWNSTREAM END OF THE APRON SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS THE LENGTH OF THE APRON.

C. FOR A MAXIMUM TAILWATER CONDITION, THE DOWNSTREAM END SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS 0.4 TIMES THE LENGTH OF THE APRON.

4. BOTTOM GRADE: THE APRON SHALL BE CONSTRUCTED WITH NO SLOPE ALONG ITS LENGTH (0.0% GRADE). THE INVERT ELEVATION OF THE DOWNSTREAM END OF THE APRON SHALL BE EQUAL TO THE ELEVATION OF THE INVERT OF THE RECEIVING CHANNEL...

5. SIDE SLOPES: IF THE PIPE DISCHARGES INTO A WELL DEFINED CHANNEL, THE SIDE SLOPES OF THE CHANNEL SHALL NOT BE STEEPER THAN 2:1 (HORIZONTAL: VERTICAL).

6. ALIGNMENT: THE APRON SHALL BE LOCATED SO THERE ARE NOT BENDS IN THE HORIZONTAL ALIGNMENT.

7. MATERIALS: THE APRON MAY BE LINED WITH RIPRAP, GROUTED RIPRAP, CONCRETE, OR GABION BASKETS. THE MEDIAN SIZED STONE FOR RIPRAP SHALL BE DETERMINED FROM THE CURVES IN APPENDIX 3.18-A (PLATES 3.18-3 AND 3.18-4) ACCORDING TO THE TAILWATER CONDITION...

8. FILTER CLOTH: IN ALL CASES, FILTER CLOTH SHALL BE PLACED BETWEEN THE RIPRAP AND THE UNDERLYING SOIL TO PREVENT SOIL MOVEMENT INTO AND THROUGH THE RIPRAP. THE MATERIAL MUST MEET OR EXCEED THE PHYSICAL PROPERTIES FOR FILTER CLOTH FOUND IN STD. & SPEC. 3.19, RIPRAP. SEE PLATE 3.18-1 FOR ORIENTATION DETAILS.

PAVED CHANNEL OUTLETS

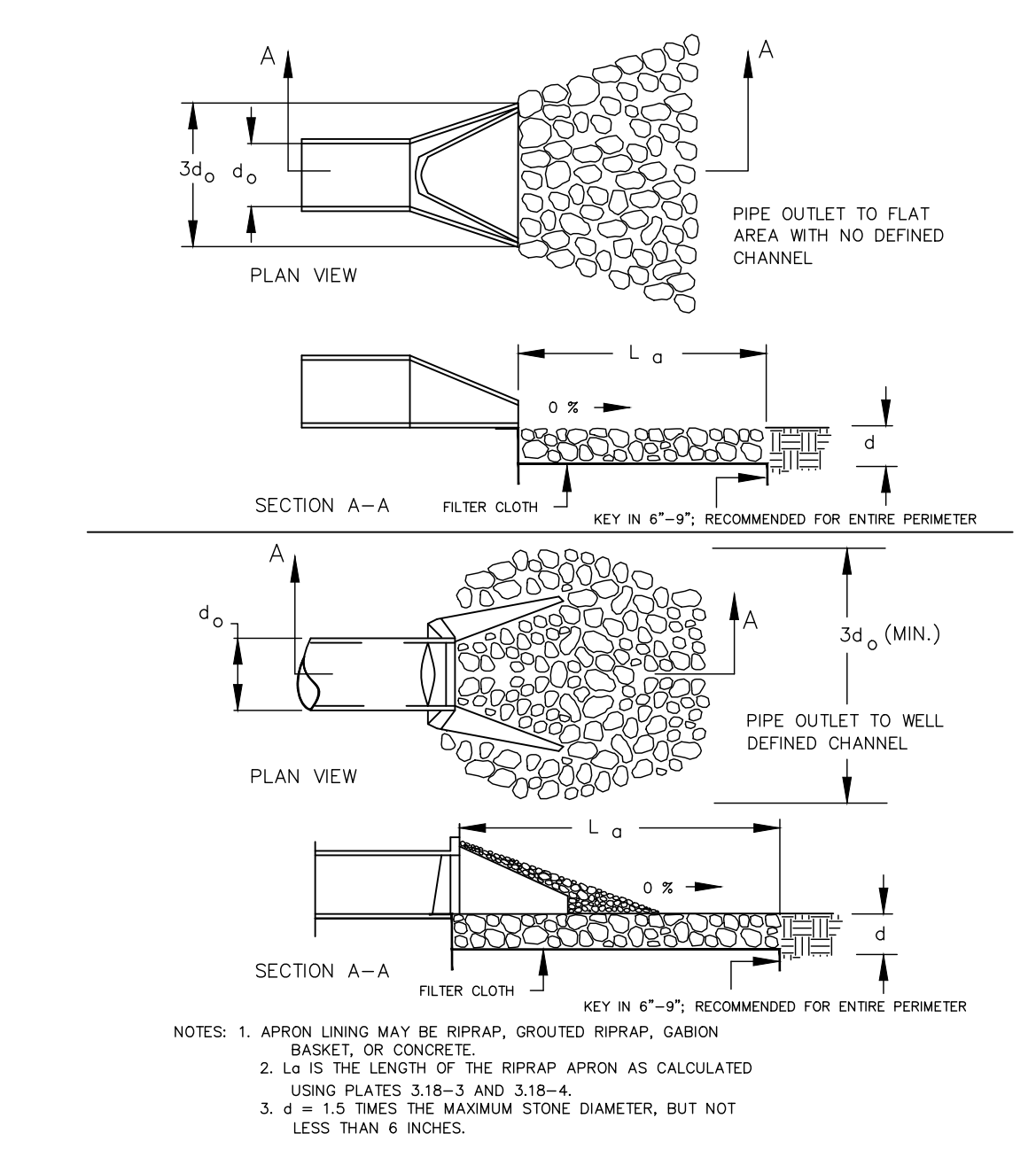
- 1. THE FLOW VELOCITY AT THE OUTLET OF PAVED CHANNELS FLOWING AT DESIGN CAPACITY MUST NOT EXCEED THE PERMISSIBLE VELOCITY OF THE RECEIVING CHANNEL (SEE TABLES 3.18-A AND 3.18-B).

2. THE END OF THE PAVED CHANNEL SHALL MERGE SMOOTHLY WITH THE RECEIVING CHANNEL SECTION. THERE SHALL BE NO OVERFALL AT THE END OF THE PAVED SECTION. WHERE THE BOTTOM WIDTH OF THE PAVED CHANNEL IS NARROWER THAN THE BOTTOM WIDTH OF THE RECEIVING CHANNEL, A TRANSITION SECTION SHALL BE PROVIDED...

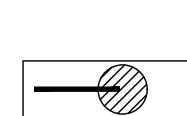
F = V / sqrt(gd) WHERE: F = FROUDE NUMBER, V = VELOCITY AT BEGINNING OF TRANSITION (FT./SEC.), d = DEPTH OF FLOW AT BEGINNING OF TRANSITION (FT.), g = 32.2 FT./SEC.

3. BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT AT THE TRANSITION ARE NOT ALLOWED UNLESS THE FROUDE NUMBER (F) IS 1.0 OR LESS, OR THE SECTION IS SPECIFICALLY DESIGNED FOR TURBULENT FLOW.

PIPE OUTLET CONDITIONS



SOURCE: VA. DSWC PLATE 3.18-1



CULVERT



INLET PROTECTION

GENERAL GUIDELINES (ALL TYPES)

- 1. THE INLET PROTECTION DEVICE SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENT AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. 2. THE INLET PROTECTION DEVICES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT ANY RESULANT PONDING OF STORMWATER WILL NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES. 3. DESIGN CRITERIA MORE SPECIFIC TO EACH PARTICULAR INLET PROTECTION DEVICE WILL BE FOUND IN PLATES 3.08-1 THROUGH 3.08-2.

CONSTRUCTION SPECIFICATIONS

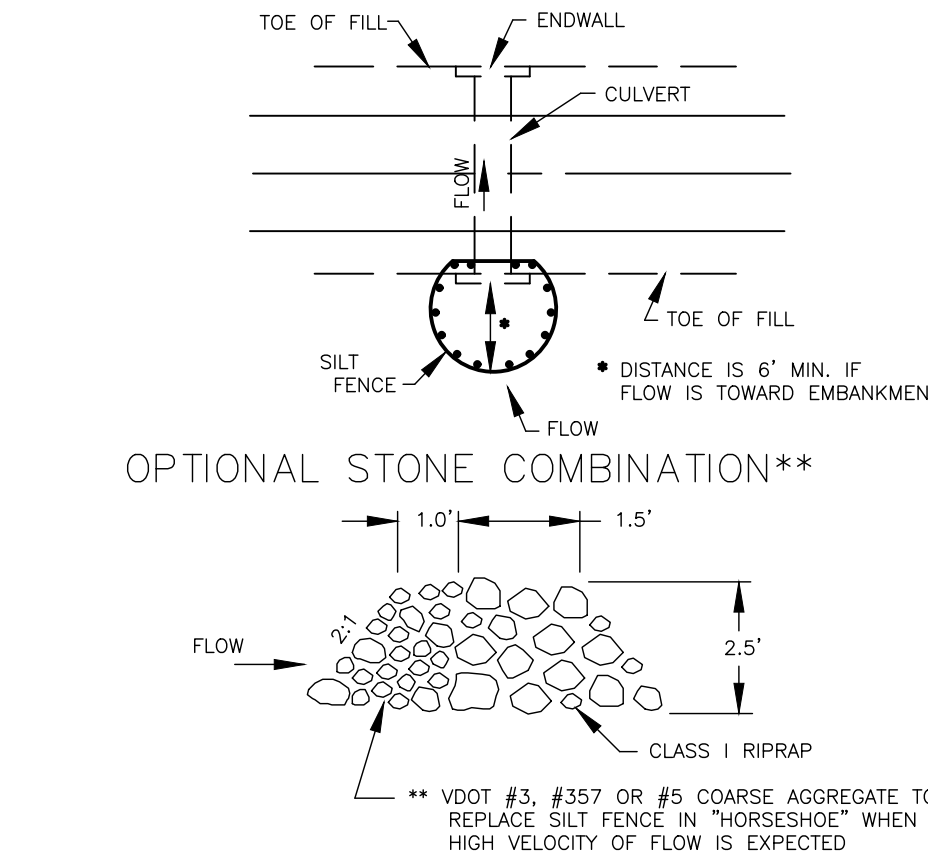
- 1. SILT FENCE CULVERT INLET PROTECTION: A. THE HEIGHT OF THE SILT FENCE (IN FRONT OF THE CULVERT OPENING) SHALL BE A MINIMUM OF 16 INCHES AND SHALL NOT EXCEED 34 INCHES. B. EXTRA STRENGTH FILTER FABRIC WITH A MAXIMUM SPACING OF STAKES OF 3 FEET SHALL BE USED TO CONSTRUCT THE MEASURE. C. THE PLACEMENT OF SILT FENCE SHOULD BE APPROXIMATELY 6 FEET FROM THE CULVERT IN THE DIRECTION OF INCOMING FLOW, CREATING A "HORSESHOE" SHAPE AS SHOWN IN PLATE 3.08-1. D. IF SILT FENCE CANNOT BE INSTALLED PROPERLY OR THE FLOW AND/OR VELOCITY OF FLOW TO THE CULVERT PROTECTION IS EXCESSIVE AND MAY BREACH THE STRUCTURE, THE STONE COMBINATION NOTED IN PLATE 3.08-1 SHOULD BE UTILIZED.

- 2. CULVERT SEDIMENT TRAP: A. GEOMETRY OF THE DESIGN WILL BE A "HORSESHOE" SHAPE AROUND THE CULVERT INLET (SEE PLATE 3.08-2). B. THE TOE OF RIPRAP (COMPOSING THE SEDIMENT FILTER DAM) SHALL BE NO CLOSER THAN 24" FROM THE CULVERT OPENING IN ORDER TO PROVIDE AN ACCEPTABLE EMERGENCY OUTLET FOR FLOWS FROM LARGER STORM EVENTS. C. ALL OTHER CONSTRUCTION SPECIFICATIONS FOUND WITHIN STD. & SPEC. 3.13, TEMPORARY SEDIMENT TRAP, ALSO APPLY TO THIS PRACTICE. D. THE PROPER INSTALLATION OF THE CULVERT INLET SEDIMENT TRAP IS A Viable SUBSTITUTE FOR THE INSTALLATION OF THE TEMPORARY SEDIMENT TRAP.

MAINTENANCE

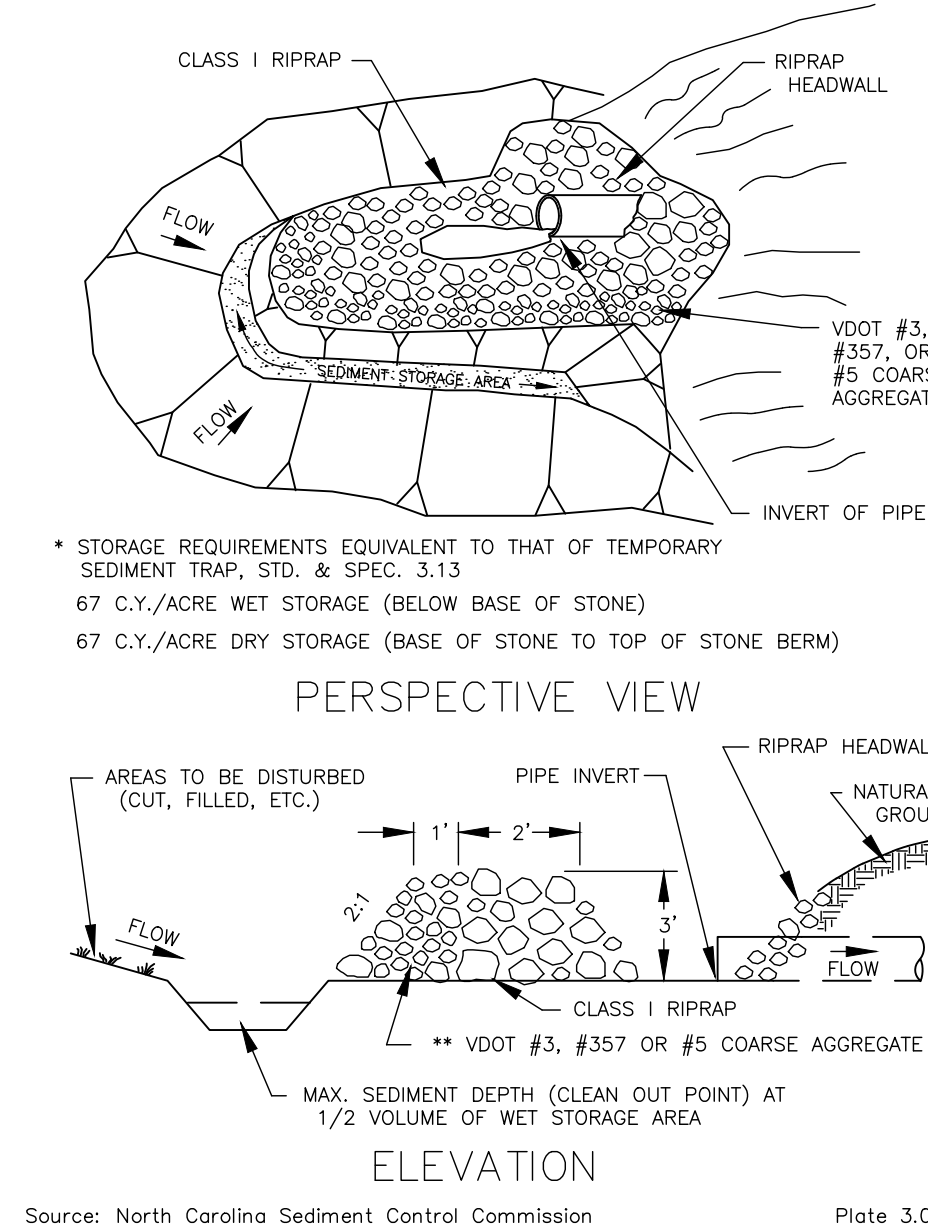
- 1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. 2. AGGREGATE SHALL BE REPLACED OR CLEANED WHEN INSPECTION REVEALS THAT CLOGGED VENTS ARE CAUSING PONDING PROBLEMS WHICH INTERFERE WITH ON-SITE CONSTRUCTION. 3. SEDIMENT SHALL BE REMOVED AND THE IMPOUNDMENT RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. 4. TEMPORARY STRUCTURES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

SILT FENCE CULVERT INLET PROTECTION



SOURCE: ADAPTED FROM VDOT STANDARD SHEETS AND VA. DSWC PLATE 3.08-1

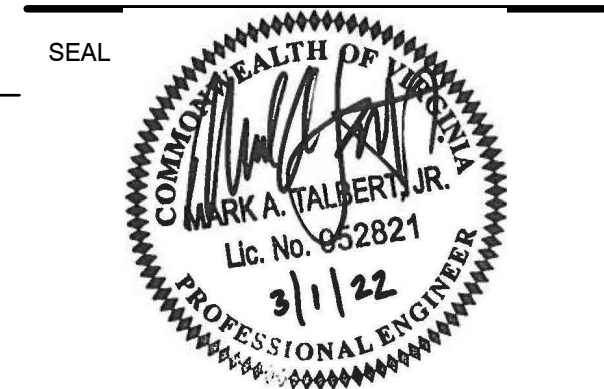
CULVERT INLET SEDIMENT TRAP



SOURCE: NORTH CAROLINA SEDIMENT CONTROL COMMISSION PLATE 3.08-2

Dewberry Engineers Inc. 551 Piney Forest Road Danville, VA 24040 Phone: 434.797.4497 Fax: 434.797.4341

RINGGOLD RAIL RESTORATION PITTSBURGH COUNTY RINGGOLD, VIRGINIA 24086



KEY PLAN

SCALE

Table with 3 columns: No., DATE, BY, Description. Includes entries for JSS ADDENDUM 2 and JSS MISC. REVISIONS.

DRAWN BY: JDE/JSS

APPROVED BY: MAT

CHECKED BY:

DATE: 08/26/2021

TITLE:

EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NO. 50106038

C200

SHEET NO.