TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project LOWES - PRINCE GEORGE

Basin # 1 Location PRINCE GEORGE COUNTY, VA

Total area draining to basin: 14.61 acres.

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

   67 cu. yds. x 14.61 acres = 979 cu. yds.

2. Available basin volume = 979 cu. yds. at elevation 35.15'. (From storage - elevation curve) **(USE 35.57')**

3. Excavate 0 cu. yds. to obtain required volume*.

   * Elevation corresponding to required volume = invert of the dewatering orifice.

4. Available volume before cleanout required.

   33 cu. yds. x 14.61 acres = 482 cu. yds.

5. Elevation corresponding to cleanout level = 34.57'.

   (From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level = 0.58 ft. (Min. = 1.0 ft.) **(USE 1')**

Dry Storage:

7. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

   67 cu. yds. x 14.61 acres = 979 cu. yds.

8. Total available basin volume at crest of riser* = 1958 cu. yds. at elevation 36.15'. (From Storage - Elevation Curve)

   * Minimum = 134 cu. yds./acre of total drainage area.

9. Diameter of dewatering orifice = 8.7 in.

10. Diameter of flexible tubing = 10.7 in. (diameter of dewatering orifice plus 2 inches).

Preliminary Design Elevations

11. Crest of Riser = 36.15'

    Top of Dam = 39.00'

    Design High Water = 37.20'

    Upstream Toe of Dam = 34.00'

Basin Shape

12. Length of Flow / Effective Width — L / We = 320.00' / 50.00' = 6.4

    If > 2, baffles are not required X

    If < 2, baffles are required _____

Runoff

13. Q_2 = 30.36 cfs (From Chapter 5)

14. Q_{25} = 80.64 cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2$ = 30.36 cfs. (riser and barrel)

    Without emergency spillway, required spillway capacity $Q_p = Q_{25}$ = 80.64 cfs. (riser and barrel)

16. With emergency spillway:

    Assumed available head (h) = 1 ft. (Using Q_2)

    h = Crest of Emergency Spillway Elevation - Crest of Riser Elevation

    Without emergency spillway:

    Assumed available head (h) = N/A ft. (Using Q_{25})

    h = Design High Water Elevation - Crest of Riser Elevation

17. Riser diameter (D_r) = 36 in. Actual head (h) = 1 ft.

    (From Plate 3.14-8.)

    Note: Avoid orifice flow conditions.

18. Barrel length (l) = 60 ft.

    Head (H) on barrel through embankment = 0.7 ft.

    (From Plate 3.14-7).

19. Barrel diameter = 30 in.

    (From Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).

20. Trash rack and anti-vortex device

    Diameter = 54 inches.

    Height = 17 inches.

    (From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity $Q_e = Q_{25} - Q_p$ = 54.2 cfs.

22. Bottom width (b) = 20 ft.; the slope of the exit channel (s) = 0.02 ft./foot; and the minimum length of the exit channel (x) = 60 ft. (From Table 3.14-C).

Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = 2 ft.

    Slope of upstream face of embankment (Z) = 3 :1.

    Slope of principal spillway barrel (S_b) = 1.5 %

    Length of barrel in saturated zone (L_s) = 17 ft.

24. Number of collars required = 1 dimensions = 5' X 5'

    (from Plate 3.14-12).

Final Design Elevations

25. Top of Dam = 39.00'

    Design High Water = 37.22'

    Emergency Spillway Crest = 37.15'

    Principal Spillway Crest = 36.15'

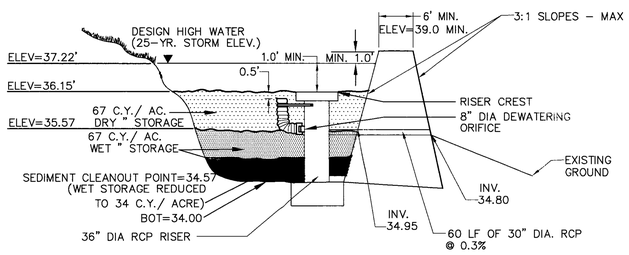
    Dewatering Orifice Invert = 35.57'

    Cleanout Elevation = 34.57'

    Elevation of Upstream Toe of Dam or Excavated Bottom of "Wet Storage Area" (if excavation was performed) = 34.00'

1 TEMPORARAY SEDIMENT BASIN CALCULATIONS

SCALE: N.T.S.



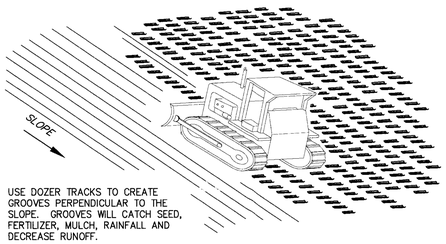
DESIGN ELEVATIONS

SOURCE: VA. DSWC **PLATE. 3.14-2**

NOTE:
RISER MAY BE INSTALLED AS A 36" CMP WITH PROVISIONS FOR RETENTION BASIN OPENINGS AND FINAL TOP ELEVATION AT CONTRACTORS DISCRETION.

2 RISER DETAIL

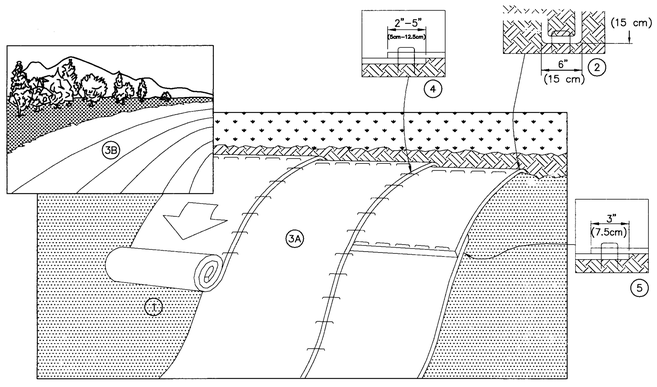
SCALE: N.T.S.



USE DOZER TRACKS TO CREATE GROOVES PERPENDICULAR TO THE SLOPE. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF.

3 TRACKING DETAIL

SCALE: N.T.S.



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF THE BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH THE APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON TEH PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIAMTE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAT BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

4 EROSION CONTROL BLANKET (SLOPE STABLIZATION) DETAIL

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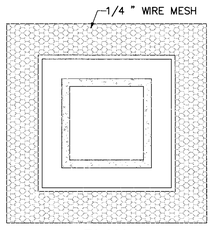
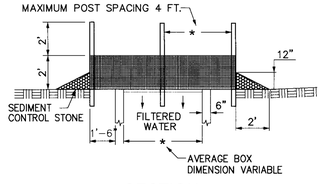


PLAN

MULTI-DIRECTIONAL FLOW

REFERENCE
SECTION 02020
OF LOWE'S DIVISION 2
STANDARD SITE SPECIFICATIONS AND
PROJECT SPECIAL PROVISIONS



SECTION

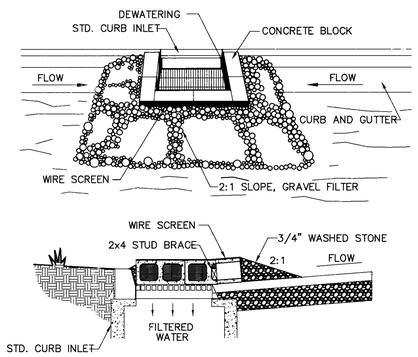
MULTI-DIRECTIONAL FLOW

NOTE:

1. SEDIMENT CONTROL STONE SHALL BE 3/4" WASHED STONE.
2. WIRE MESH SHALL BE HARDWARE CLOTH 23 GAUGE MIN. AND SHALL HAVE 1/4 INCH MESH OPENINGS.
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
4. STEEL POST SHALL BE 5 FT. IN HEIGHT, BE INSTALLED 1.5 FT. DEEP MINIMUM, AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
5. WOOD POST SHALL BE 6 FT. IN HEIGHT, BE INSTALLED TO 1.5 FT. DEEP MINIMUM, AND BE 3 INCHES IN DIAMETER.
6. POST SPACING SHALL BE A MAXIMUM OF 4 FT.

5 INLET PROTECTION DETAIL

SCALE: N.T.S.

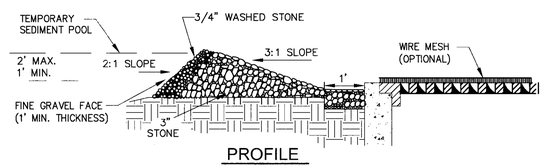


NOTES:

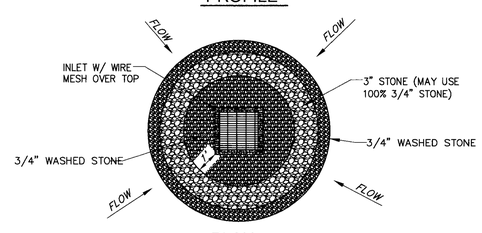
1. TWO CONCRETE BLOCKS SHALL BE PLACED ON THEIR SIDES ABUTTING THE CURB AT THEIR SIDE OF THE INLET OPENING. A 2"X4" STUD SHALL BE CUT AND PLACED THROUGH THE OUTER HOLES OF THE SPACER BLOCKS TO BRACE THE FRONT BLOCKS. FRONT BLOCKS ARE PLACED ON THEIR SIDES ACROSS THE INLET AND ABUTTING THE SPACER BLOCKS.
2. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2" OPENINGS SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE BLOCKS TO PREVENT FILTER STONE FROM BEING WASHED THROUGH HOLES IN THE BLOCK.
3. 3/4" WASHED STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK.
4. CHECK DEVICE AFTER EACH RAIN. REPLACE WASHED STONE IF IT CLOGS WITH SEDIMENT.
5. APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE INLET

6 BLOCK AND GRAVEL CURB INLET PROTECTION DETAIL

SCALE: N.T.S.



PROFILE



PLAN

7 GRAVEL DROP INLET PROTECTION (GRAVEL DONUT) DETAIL

SCALE: N.T.S.

REVISIONS

DATE	DESCRIPTION
12-14-07	County Comments

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LOWE'S

EROSION & SEDIMENT CONTROL NOTES & DETAILS

LOWE'S OF PRINCE GEORGE, VA
117 K SUPER WIDE
PRINCE GEORGE, VA

PROJECT No: 16984 | DRAWN BY: CAA | CHECKED BY: ISH

ORIGINAL ISSUE DATE: 11-05-07
PERMIT SET ISSUE DATE: 12-14-07
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:

C-108.2

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