Erosion Control Narrative

PROJECT DESCRIPTION

The purpose of the project is to construct a new building and associated parking for manufacturing use consistent with the current zoning. The existing vacant commercial building will remain unchanged, while the existing house will be demolished to make room for the new building and stormwater management basin. These plans address the grading, erosion control, and stormwater management required for the entire development. The total disturbed area for the total improvements is approximately 1.20 acres. All areas not covered by gravel, buildings, or impervious pavement will be permanently seeded with grass or mulch & other vegetation.

EXISTING CONDITIONS

The project is being developed on several existing lots on Centre Ave between 18th & 19th streets consisting of 1.204 acres. The parcels were previously utilized as commercial and residential property years ago, but this redevelopment changes the use to industrial. The site generally drains via sheet and shallow concentrated flow to Centre Ave and ultimately to an existing curb inlet located across the street from the site. There are no roadside ditches, storm sewer, or drainage provisions on or adjacent to the site.

ADJACANT PROPERTY

Various parcels (zoned I-1) bound the subject property on the north, west, and east. The south is bounded by CENTRE AVE right-of-way.

OFFSITE AREAS

No offsite areas are required by the grading on this project. In the event that fill material is necessary from offsite sources, a borrow source erosion control plan shall be submitted for those areas under separate cover.

SOILS

The soils that will be disturbed by development construction primarily consist of loams and silt loams (NRCS 6C, 6D, and 53). The onsite soils that will be disturbed as part of this project belong to hydrologic soil group D according to NRCS data. The majority of the soils possess moderate to high erosion potential, slow infiltration rates, and are compatible with the anticipated vegetative cover to be established. For more information, please refer to additional soils data contained within the calculations package that was submitted with these plans.

STRUCTURAL PRACTICES

All structural and vegetative practices indicated on the plans shall be installed in accordance with the details and guidelines in the 1992 Virginia Erosion and Sediment Control Manual.

1. TEMPORARY CONSTRUCTION ENTRANCE - 3.02
   A new gravel entrance and gravel storage/parking area will be installed as shown on the plans. Install the temporary construction entrance during development, then convert it to a permanent entrance upon stabilization. During wet and muddy conditions, drivers of construction vehicles may be required to wash their wheels before entering City maintained roads.
2. SILT FENCE BARRIER - 3.05
   Silt fence barriers will be installed downslope of disturbed areas to filter sediment laden runoff from sheet flow.
3. CULVERT INLET PROTECTION- 3.08
   Inlet protection is to be installed at the inlet end of all culverts.
4. SEDIMENT BASIN - 3.14
   A sediment basin shall be constructed as shown on the plans to detain sediment-laden runoff from disturbed areas. refer to the discharge structure & embankment details and notes for further guidance.
5. OUTLET PROTECTION - 3.18
   Riprap outlet protection is to be placed at the discharge end of culvert pipes near the base of the detention basin.

VEGETATIVE PRACTICES

1. TEMPORARY SEEDING - 3.31
   All denuded areas, which are not to be fine graded within 14 days, shall be seeded with fast germinating temporary vegetation immediately following grading.
2. PERMANENT SEEDING - 3.32
   All final-graded areas where permanent cover is desired or rough-graded areas that will not be brought to final grade for a year or more shall be seeded with perennial vegetation within seven days. The site grassed areas along the road frontage & in front of the buildings will consist of high maintenance areas that will be mowed and fertilized frequently. The grassed areas along the western & northern slopes between the building and property lines will be maintained infrequently or not at all, and lime and fertilized only periodically. These areas will not be subjected to intense use, nor required to have a uniform appearance.
3. MULCHING - 3.35
   Mulch (straw or fiber) will be used on relatively flat areas and will be applied as the second step in the seeding operation at a rate of 2 tons per acre.
4. SOIL STABILIZATION BLANKETS & MATTING - 3.36
   Soil stabilization blankets (treatment 1- degradable) will be applied to all disturbed slopes steeper than 2.5:1 and on certain sections ditches and/or diversions to assist in establishing adequate ground cover.

MANAGEMENT STRATEGIES/SCHEDULING

1. Construction will be sequenced so that grading operations can begin and end as quickly as possible. The rough grading for the site improvements will be accomplished as indicated on the grading plan.
2. All erosion control & sediment trapping measures will be installed as a first step in grading and will be seeded and mulched immediately following installation.
3. Temporary seeding or other stabilization will follow immediately following grading.
4. The job superintendent shall be responsible for the installation and maintenance of all erosion & sediment control practices. After every rainfall event, the contractor shall inspect all erosion control measures. All damaged measures shall be repaired and sediment trapping devices cleaned out immediately following the inspection.
5. After achieving adequate stabilization, the temporary E&S controls will be cleaned out (by the contractor) and removed.
6. No more than 400 linear feet of open trench shall be excavated at any one time. Excavated material shall be placed on uphill side of trench. Trench effluent from dewatering systems must be filtered prior to discharge. Proper backfill and compaction is required in all earthwork and grading operations. Re-stabilize immediately.
7. Erosion & sediment control measures shall be removed and properly disposed of upon adequate stabilization of site.

CRITICAL AREAS

Critical erosion areas include the graded slopes along the western and northern boundaries as well as the earthen embankment of the detention basin. These areas shall be closely monitored to insure the seeding techniques are effective in establishing a permanent stabilized vegetative surface. Should conventional seeding techniques fail, then soil stabilization blankets may be required for adequate stabilization.

PERMANANT STABILIZATION

The site will be seeded with ordinary seeding techniques or hydro-seeding, using a mixture of annual rye and fescue grasses. All permanent seeding is to be covered with mulch to minimize the adverse effects of wind and rain on the seedbed. Seeding is to be done immediately upon completion of grading to minimize vulnerability to erosion.

STORMWATER RUNOFF CONSIDERATIONS

The runoff from a majority of the impervious areas on this project is being conveyed to the sediment/detention basin. Erosion and sediment control measures have been indicated around all conveyance infrastructure to minimize (or eliminate) the potential for sedimentation of adjacent properties. Subsequent to stabilization of the site, the erosion control measures will be removed and runoff will continue to be routed to the detention pond. At that time, the sediment basin structure shall be cleaned out and the discharge structure modified as shown in the attached details to enable the basin to effectively function as a detention basin. Portions of the runoff that are not captured and managed (portions of northwest and southeast boundary slope) are originating from stabilized grassed areas that currently flow offsite in identical unmodified fashion. The capacity of the detention basin was checked through calculations and determined to be adequate to accept and manage the peak flow from the developed areas. The primary outlet structure is shown on details on the plans. The volume within the basin combined with the outlet structure enables the 2yr and 10yr peak discharge rates to adequately pass through the discharge structures while significantly reducing their pre to post peak discharge rates. The peak discharge from the 10yr post development storm is reduced to a rate that is lower than the 2yr predevelopment conditions. The 100yr storm was also routed through the basin and determined not to overtop the embankment. Since the total disturbed area is greater than 1 acre, compliance with VSMP stormwater quality regulations applies, and a VSMP permit from the DEQ will be obtained. The water quality requirements of the VSMP are being met through the purchase of nutrient credits from a DEQ authorized provider within the limits of the site's hydraulic unit code. Please refer to the plans and calculations for additional information.

CALCULATIONS

Please refer to the hydrology and runoff calculations submitted with these plans.

SEQUENCE OF CONSTRUCTION

1) The contractor shall contact Adrian Gilbert (Roanoke City) a minimum of 5 business days in advance of the preconstruction meeting. The contractor, owner, engineer, and representatives from Roanoke City shall attend the preconstruction meeting. Any modifications or variations to the scope of the development (due to specific phasing or partial development) shown on the approved plans shall be noted in the field during this meeting.
2) Failure to follow the sequence of construction of the approved plan shall be considered a violation and will result in further enforcement, including, but not limited to stop work orders and civil penalties.
3) The contractor shall install the erosion and sediment control measures indicated on the approved plans as the first step in land disturbance operations.
4) The contractor shall develop the site in accordance with the approved design plans.
5) There must be specific steps in the sequence when the contractor shall notify City staff and engineer to be present for visual survey, photographic recordation, and physical survey (as needed) for each stormwater BMP. Surveyed volume and elevation information will be part of the as-built/record drawing to verify stormwater management areas.
6) The contractor shall contact City of Roanoke staff for a final site inspection. Any deficiencies noted during this inspection shall be rectified within a timely manner prior to receiving approval and subsequent release of bond.
7) For each permanent BMP, the sequence shall detail the steps taken to ensure adequate protection of the BMP throughout the construction sequence.
8) Once approved, the contractor shall remove temporary erosion and sediment control measures with the exception of the existing detention basin that shall be cleaned out (if necessary), reseeded and remain in place.

MINIMUM STANDARDS CHECKLIST

YES MS-1: Temporary and permanent stabilization of denuded areas (Permanent within 7 days for areas at final grade, Temporary for areas not to final for 30 days).
   a) Are practices shown on the plan? YES
   b) Are the limits of clearing and grading shown on the plan? YES
   c) Seed Specifications? YES
   d) Specified in Construction Sequence and Management Strategies Narrative? YES

N/A MS-2: Protection or stabilization of on-site and off-site stockpiles and borrow areas. (Onsite material to be reused-no offsite material required or wasted)

YES MS-3: Permanent Stabilization of denuded areas not otherwise stabilized. (Permanent seeding shown on plans)

YES MS-4: Install E&S Measures as first step in land-disturbing activity. (Called out in narrative)

YES MS-5: Earthen controls and structures stabilized immediately upon installation. (Called out in narrative)

YES MS-6: Sediment Traps (less than 3 acres drainage) and basins (greater than 3 acres of drainage).
   a)Are traps/basins properly sized? YES
   b)Are the details shown on the plans? YES
   c)Are the calculations included in the narrative or plan? YES

YES MS-7: Design and construction of cut and fill slopes to minimize erosion. (Steepest are 2:1. All slopes shall be seeded and mulched)

N/A MS-8: Concentrated flow down cut and fill must be in adequate channel, flume, or slope drain.

N/A MS-9: Slopes protected from seepage. (No groundwater problems noted)

YES MS-10: Storm sewer inlets must have adequate inlet protection.

YES MS-11: Outlet protection and channel lining is required prior to operation storm sewer system. (Outlet protection indicated at outfall of culverts)

N/A MS-12: Minimize impacts when working in and around live watercourse.
   a) DEQ and/or Army Corps of Engineers permits may be required.

N/A MS-13: Temporary vehicular stream crossings for more than 2 trips in 6 months. (No temporary crossings)

N/A MS-14: Other federal, state and local regulations must be met when working in live watercourses.

N/A MS-15: The bed and banks of disturbed watercourses must be stabilized immediately.

YES MS-16: Utility installations.
   a) No more than 500 feet of open trench at any one time.
   b) Excavated material shall be placed on uphill side of trench.
   c) Effluent of dewatering system must be filtered.
   d) Proper backfill and compaction.
   e) Re-stabilize immediately.

YES MS-17: Keep paved or public areas clean (Construction Entrances)

YES MS-18: Temporary measures should be removed with 30 days when no longer needed.
   a)Schedule for maintenance (Noted in narrative)

YES MS-19:
   ____ a. Downstream Analysis at Outfall of Open Channel and/or Pipe System
   ____ Evaluate a minimum of three downstream cross sections
   ____ Stage-Storage Rating Curve of natural channel (recommended)
   ____ b. Adequacy of all channels and pipes shall be verified accordingly:

   Total drainage area to point of analysis is 100 times greater than the contributing drainage area and;
   ____ 2a. 2year velocity and depth maintained within banks of natural channel
   or;
   ____ 2b. 2-year velocity and 10-year depth maintained within banks of manmade channel or;
   ____ 2c. Pipe systems must pass the 10-year storm and have adequate discharge channel.
   ✓ c. Channel inadequate:
   ____1.Improve the channel to meet design storms
   ____2.Improve pipe system to meet design storms
   YES 3.Site design that provides detention that meets design storm requirements
   ____4.Combination of measures approved by Variance
   ____1-year, 24-hour extended detention or
   ____Techniques that reduce flow velocities and volume
   ____Disconnection and Dispersion (Level Spreaders, Gravel Diaphragm, etc.)
   ____Retention measures (infiltration, ESD, Harvesting, etc.)
   ____Reduced impervious surfaces (Vegetated Roof, Permeable Surfaces, etc.)

YES d. Evidence of permission to make improvements (Drainage/Construction Easements and Agency Permits – Shown on plan)
YES e. Hydrologic analyses based on existing watershed and ultimate development
YES f. Plan sets forth maintenance requirements and responsible party
YES g. Detention outfall shall discharge to a channel and provide energy dissipaters (Energy dissipator at endwall and flow across road to existing Storm Sewer Inlet)
YES h. All on-site conveyances adequate (culverts, storm sewers, ditches)
N/A i. Increase flows that may cause erosion diverted to adequate outfall or channel
YES j. Stormwater runoff criteria applied to whole development
N/A k. All practices implemented to minimize impacts on the physical, chemical and biological integrity of rivers and streams of the state.
N/A l. Plans approved prior to July 2014, (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition
YES m.For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 10.1-561A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§ 10.1-603.2 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSMP) Permit Regulations.
YES n. Compliance with the water quantity minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

GENERAL EROSION & SEDIMENT CONTROL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50-30 AND ROANOKE CITY EROSION AND SEDIMENT CONTROL ORDINANCE.
2. THE APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING, AND ONE WEEK PRIOR TO FINAL INSPECTION.
3. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED AS FIRST STEP IN IN CLEARING OR GRADING.
4. A COPY OF THE EROSION & SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ONSITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO OFFSITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION & CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION & SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES & DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
8. DURING DEWATERING OPERATIONS (IF APPLICABLE), WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY & AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
10. FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL PLANS SUBMITTED TO CITY OF ROANOKE.

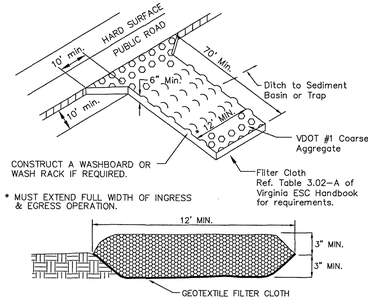
DETENTION BASIN INSPECTION & MAINTENANCE

INSPECTION:
1. THE DETENTION BASIN AND ITS COMPONENTS (EMBANKMENT, DISCHARGE DEVICE, OUTLET PIPE, PIPE OUTFALLS, ETC.) SHALL BE INSPECTED ANNUALLY TO ENSURE THAT THEY OPERATE IN THE MANNER ORIGINALLY INTENDED. INSPECTIONS SHOULD BE CONDUCTED BY A QUALIFIED INDIVIDUAL FOLLOWING THE CHECKLIST INCLUDED IN THE SWPPP. A COPY OF THE INSPECTION REPORT SHALL BE PROVIDED TO THE OWNER UPON COMPLETION OF THE INSPECTION.

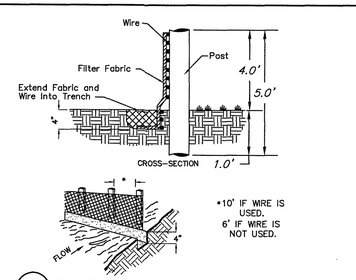
MAINTENANCE:
1. THE BASIN'S SIDE SLOPES, EMBANKMENT, AND EMERGENCY SPILLWAY SHOULD BE MOWED AT LEAST TWICE A YEAR TO DISCOURAGE WOODY GROWTH. MORE FREQUENT MOWING MAY BE NECESSARY IN RESIDENTIAL AREAS OR ALONG THE RIGHT-OF-WAY FOR AESTHETIC PURPOSES.
2. DEBRIS AND LITTER SHOULD BE REMOVED PERIODICALLY THROUGHOUT EACH YEAR TO PREVENT CLOGGING.
3. ACCUMULATED SEDIMENT IN THE BOTTOM OF THE BASIN WILL NEED TO BE REMOVED EVERY 5-10YRS. MORE FREQUENT CLEANING OF THE AREA AROUND THE DISCHARGE ORIFICE MAY BE REQUIRED. ANY PUMPING OF STANDING WATER OR DEWATERING OF SEDIMENT SHALL COMPLY WITH PROCEDURES LISTED IN THE VESCH, 1992 EDITION.
4. IN ADDITION TO THE AFORE MENTIONED ITEMS, ANY SUBSTANDARD ITEMS REQUIRING REPAIR AS NOTED IN THE BASIN INSPECTION REPORT CHECKLIST SHALL BE ADDRESSED WITHIN 30 DAYS OF THE INSPECTION.

EROSION + SEDIMENT CONTROL SYMBOL + SPEC. NO. LEGEND

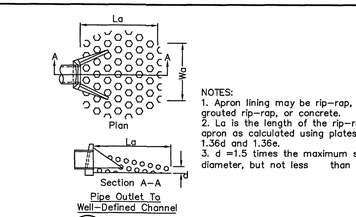
SPEC. NO.	STANDARD TITLE	KEY	SYMBOL
3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	CE	
3.05	SILT FENCE	SF	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.14	SEDIMENT BASIN	SB	SB
3.18	OUTLET PROTECTION	OP	
3.31	TEMPORARY SEEDING	TS	TS
3.32	PERMANENT SEEDING	PS	PS
3.35	MULCHING	MU	MU
3.36	SOIL STABILIZATION BLANKETS AND MATTING	B/M	



CE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



SF CONSTRUCTION OF SILT FENCE



NOTES:
1. Apron lining may be rip-rap, grouted rip-rap, or concrete.
2. La is the length of the rip-rap apron as calculated using plates 1.36d and 1.36e.
3. d =1.5 tines the maximum stone diameter, but not less than 6".

OP OUTLET PROTECTION

PLANTING DATES	SPECIES	RATE (LBS./ACRE)
SEPT.1-FEB.15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) AND CEREAL (WINTER) RYE (SECALE CEREALE)	50-100
FEB.16-APR.30	ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60-100
MAY1-AUG.31	GERMAN MILLET (SETARIA ITALICA)	50

REF: 1992 VESC HANDBOOK, TABLE 3.31-B

TS ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

TYPE A

15 OCTOBER TO 1 FEBRUARY
K-31 FESCUE @ 5 LB / 1000 SF
BORZY WINTER RYE @ 1/2 LB / 1000 SF

1 FEBRUARY TO 1 JUNE
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

1 JUNE TO 1 SEPTEMBER
K-31 FESCUE @ 5 LB / 1000 SF
GERMAN MILLET @ 1/2 LB / 1000 SF

1 SEPTEMBER TO 15 OCTOBER
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

TYPE B (SLOPES 3:1 OR STEEPER)

15 MARCH TO 1 MAY
CROWN VETCH @ 1/2 LB / 1000 SF
PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
RED TOP @ 1/8 LB / 1000 SF

15 AUGUST TO 1 OCTOBER
CROWN VETCH @ 1/2 LB / 1000 SF
PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
RED TOP @ 1/8 LB / 1000 SF

LIME: 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE
FERTILIZER: 5-20-10 @ 25 LB / 1000 SF
38-0-0 @ 7 LB / 1000 SF

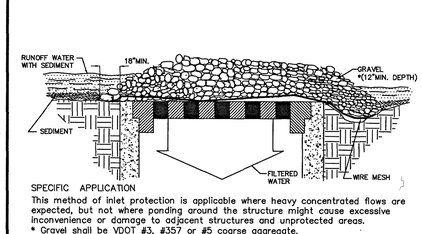
MULCH: SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

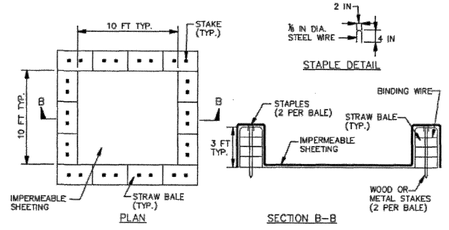
TOTAL AREA TO BE SEEDED= .40 AC.
TOTAL DISTURBED AREA= 1.2 AC.

PS PERMANENT SEEDING MIXTURE

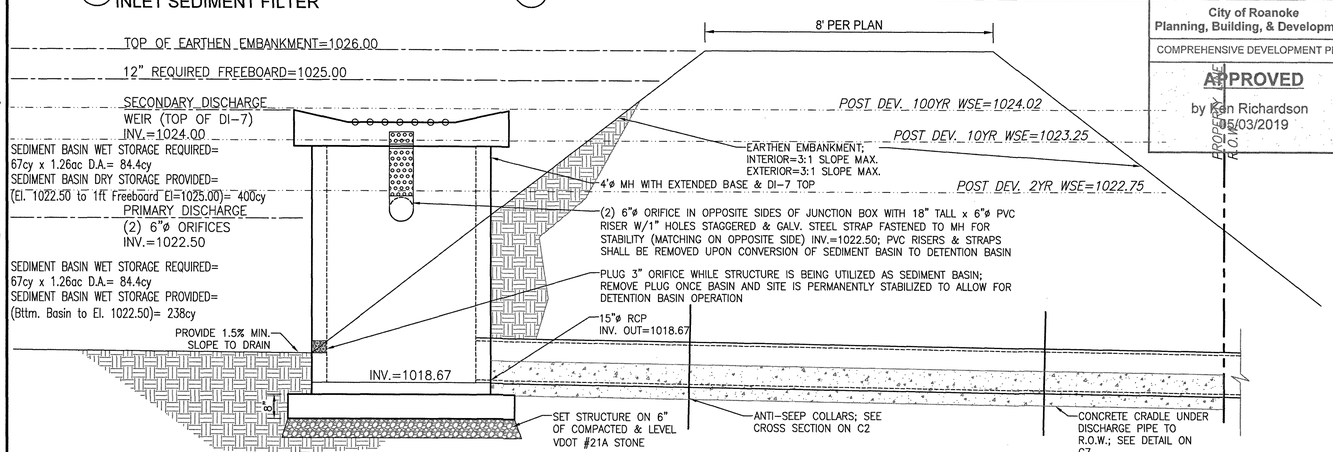


SPECIFIC APPLICATION
This method of inlet protection is applicable where heavy concentrated flows are expected, but not where ponding around the structure might cause excessive inconvenience or damage to adjacent structures and unprotected areas.
* Gravel shall be VDOT #3, #357 or #5 coarse aggregate.

IP GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER



CW CONCRETE WASHOUT STRUCTURE



SEDIMENT BASIN & DETENTION BASIN DISCHARGE STRUCTURE
NOT TO SCALE

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by Ryan Richardson
05/03/2019
EXPIRATION DATE
A.O.R.

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Lic. No. 032949
3-14-19
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COMMONWEALTH OF VIRGINIA

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Revisions By	Date

ESC NARRATIVE AND DETAILS

LOUDON PROPERTIES SITE REDEVELOPMENT
CENTRE AVE.
ROANOKE, VA

Scale: 1"=20'
Date: 3/14/19
Design By: SCG
CAD By: SCG
Checked By:
Project No.: 18003

Sheet No.
C5