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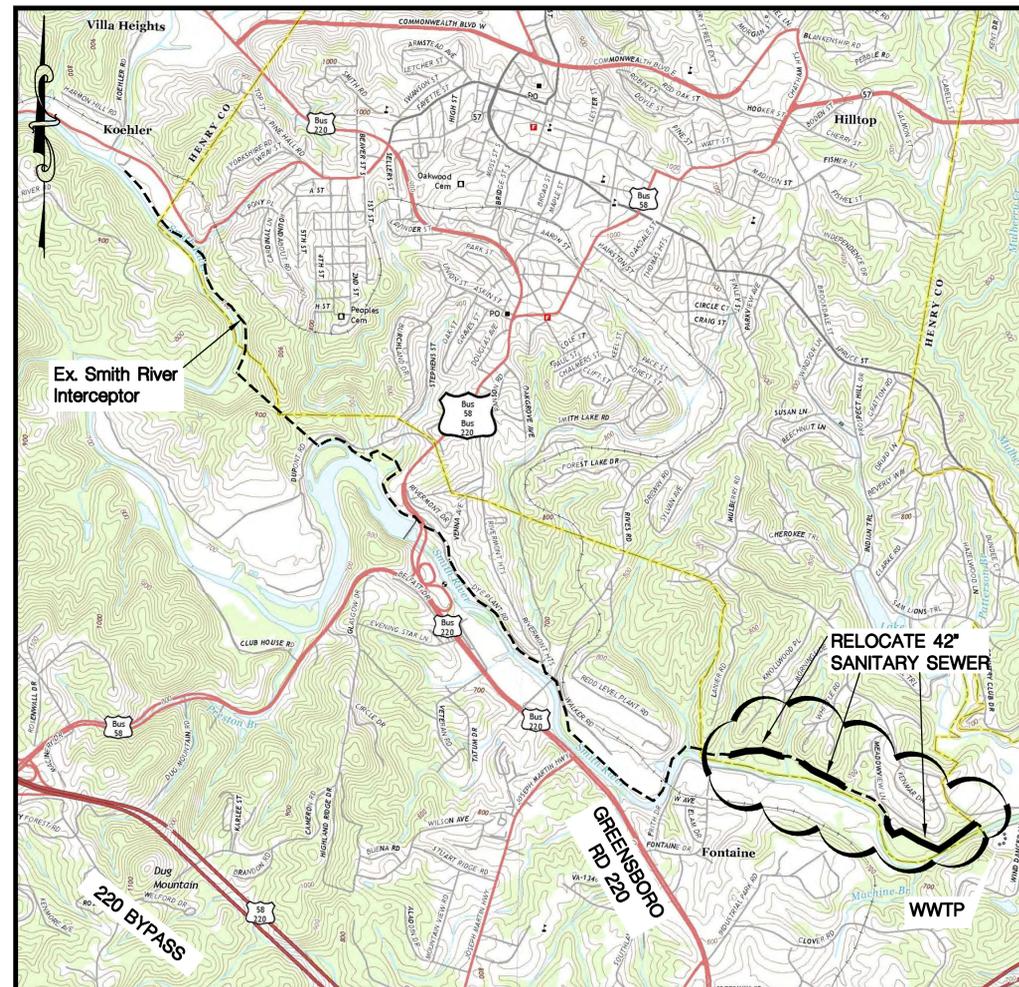
- S1 STRUCTURAL DETAILS

# Smith River Interceptor

## CMP Rehabilitation

### City of Martinsville, Virginia

# Contract II



Vicinity Map

SCALE: N.T.S.

### Contacts:

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SUBMITTAL	
<input type="checkbox"/>	PRELIMINARY
<input type="checkbox"/>	APPROVAL
<input checked="" type="checkbox"/>	BIDDING
<input type="checkbox"/>	CONSTRUCTION
<input type="checkbox"/>	REVISION
<input type="checkbox"/>	RECORD
SET NUMBER	



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 551 Piney Forest Road  
 Danville, VA 24540  
 Phone: 434.797.4487  
 Fax: 434.797.4341

Smith River Interceptor  
 CMP Rehabilitation  
 City of Martinsville  
 Contract II



KEY PLAN

SCALE

AS NOTED


No.	DATE	BY	Description
REVISIONS			

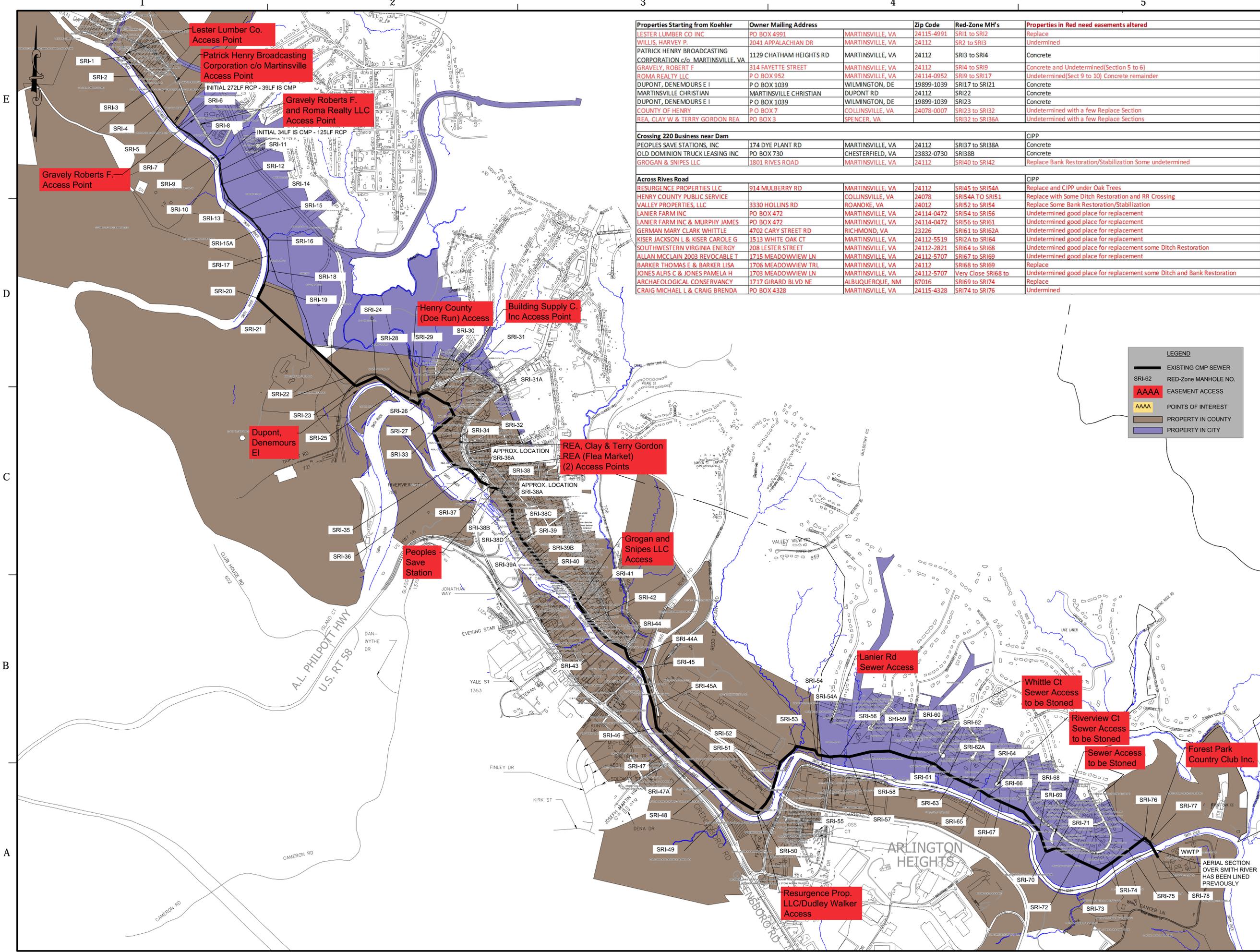
COVER SHEET

PROJECT NO. 50078733

T1

SHEET NO. OF





Properties Starting From Koehler	Owner Mailing Address	Zip Code	Red-Zone MH's	Properties in Red need easements altered
LESTER LUMBER CO INC	PO BOX 4991	MARTINSVILLE, VA 24115-4991	SRI1 to SRI2	Replace
WILLIS, HARVEY P.	2041 APPALACHIAN DR	MARTINSVILLE, VA 24112	SR2 to SRI3	Undetermined
PATRICK HENRY BROADCASTING CORPORATION c/o	1129 CHATHAM HEIGHTS RD	MARTINSVILLE, VA 24112	SRI3 to SRI4	Concrete
GRAVELLY, ROBERT F	314 FAYETTE STREET	MARTINSVILLE, VA 24112	SRI4 to SRI9	Concrete and Undetermined(Section 5 to 6)
ROMA REALTY LLC	P O BOX 952	MARTINSVILLE, VA 24114-0952	SRI9 to SRI17	Undetermined(Sect 9 to 10) Concrete remainder
DUPONT, DENE MOURS E I	P O BOX 1039	WILMINGTON, DE 19899-1039	SRI17 to SRI21	Concrete
MARTINSVILLE CHRISTIAN	DUPONT RD	MARTINSVILLE, VA 24112	SRI22	Concrete
DUPONT, DENE MOURS E I	P O BOX 1039	WILMINGTON, DE 19899-1039	SRI23	Concrete
COUNTY OF HENRY	P O BOX 7	COLLINSVILLE, VA 24078-0007	SRI23 to SRI32	Undetermined with a few Replace Section
REA, CLAY W & TERRY GORDON REA	PO BOX 3	SPENCER, VA	SRI32 to SRI36A	Undetermined with a few Replace Sections
<b>Crossing 220 Business near Dam</b>				CIPP
PEOPLES SAVE STATIONS, INC	174 DYE PLANT RD	MARTINSVILLE, VA 24112	SRI37 to SRI38A	Concrete
OLD DOMINION TRUCK LEASING INC	PO BOX 730	CHESTERFIELD, VA 23832-0730	SRI38B	Concrete
GROGAN & SNIPES LLC	1801 RIVES ROAD	MARTINSVILLE, VA 24112	SRI40 to SRI42	Replace Bank Restoration/Stabilization Some undetermined
<b>Across Rives Road</b>				CIPP
RESURGENCE PROPERTIES LLC	914 MULBERRY RD	MARTINSVILLE, VA 24112	SRI45 to SRI54A	Replace and CIPP under Oak Trees
HENRY COUNTY PUBLIC SERVICE		COLLINSVILLE, VA 24078	SRI54A TO SRI51	Replace with Some Ditch Restoration and RR Crossing
VALLEY PROPERTIES, LLC	3330 HOLLINS RD	ROANOKE, VA 24012	SRI52 to SRI54	Replace Some Bank Restoration/Stabilization
LANIER FARM INC	PO BOX 472	MARTINSVILLE, VA 24114-0472	SRI54 to SRI56	Undetermined good place for replacement
LANIER FARM INC & MURPHY JAMES	PO BOX 472	MARTINSVILLE, VA 24114-0472	SRI56 to SRI61	Undetermined good place for replacement
GERMAN MARY CLARK WHITTLE	4702 CARY STREET RD	RICHMOND, VA 23226	SRI61 to SRI62A	Undetermined good place for replacement
KISER JACKSON L & KISER CAROLE G	1513 WHITE OAK CT	MARTINSVILLE, VA 24112-5519	SRI2A to SRI64	Undetermined good place for replacement
SOUTHWESTERN VIRGINIA ENERGY	208 LESTER STREET	MARTINSVILLE, VA 24112-2821	SRI64 to SRI68	Undetermined good place for replacement some Ditch Restoration
ALLAN MCCLAIN 2003 REVOCABLE T	1715 MEADOWVIEW LN	MARTINSVILLE, VA 24112-5707	SRI67 to SRI69	Undetermined good place for replacement
BARKER THOMAS E & BARKER LISA	1706 MEADOWVIEW TRL	MARTINSVILLE, VA 24112	SRI68 to SRI69	Replace
JONES ALFIS C & JONES PAMELA H	1703 MEADOWVIEW LN	MARTINSVILLE, VA 24112-5707	Very Close SRI68 to	Undetermined good place for replacement some Ditch and Bank Restoration
ARCHAEOLOGICAL CONSERVANCY	1717 GIRARD BLVD NE	ALBUQUERQUE, NM 87016	SRI69 to SRI74	Replace
CRAIG MICHAEL L & CRAIG BRENDA	PO BOX 4328	MARTINSVILLE, VA 24115-4328	SRI74 to SRI76	Undetermined

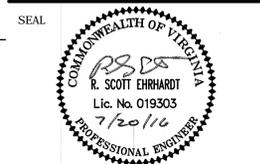
**LEGEND**

- EXISTING CMP SEWER
- SRI-62 RED-ZONE MANHOLE NO.
- AAAA EASEMENT ACCESS
- AAAA POINTS OF INTEREST
- PROPERTY IN COUNTY
- PROPERTY IN CITY

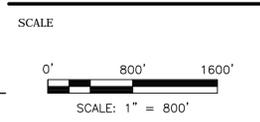


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Smith River Interceptor  
CMP Rehabilitation  
City of Martinsville  
Contract II



KEY PLAN



No.	DATE	BY	Description

REVISIONS

DRAWN BY: MWC  
APPROVED BY: RSE  
CHECKED BY: JAP  
DATE: July, 2016

Smith River Interceptor SS Access Easement Location Map

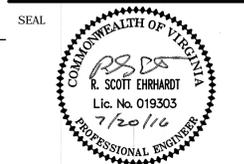
PROJECT NO. 50078733

T3

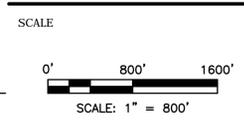
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**Smith River Interceptor  
CMP Rehabilitation  
City of Martinsville  
Contract II**



KEY PLAN



No.	DATE	BY	Description
REVISIONS			

DRAWN BY: MWC  
APPROVED BY: RSE  
CHECKED BY: JAP  
DATE: July, 2016

**Contract II  
Overall  
Location  
Map**

PROJECT NO. 50078733

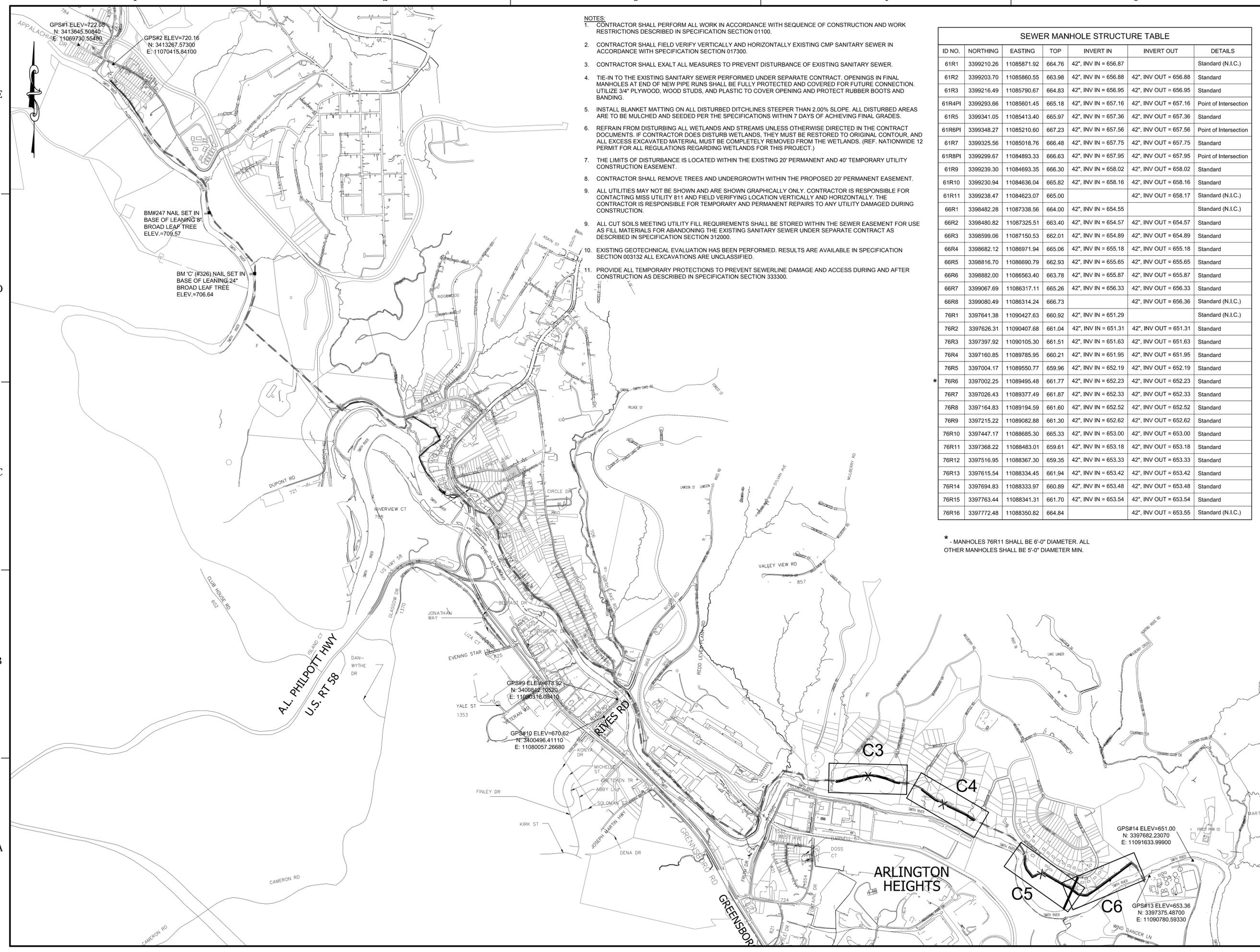
**C1**

SHEET NO. OF

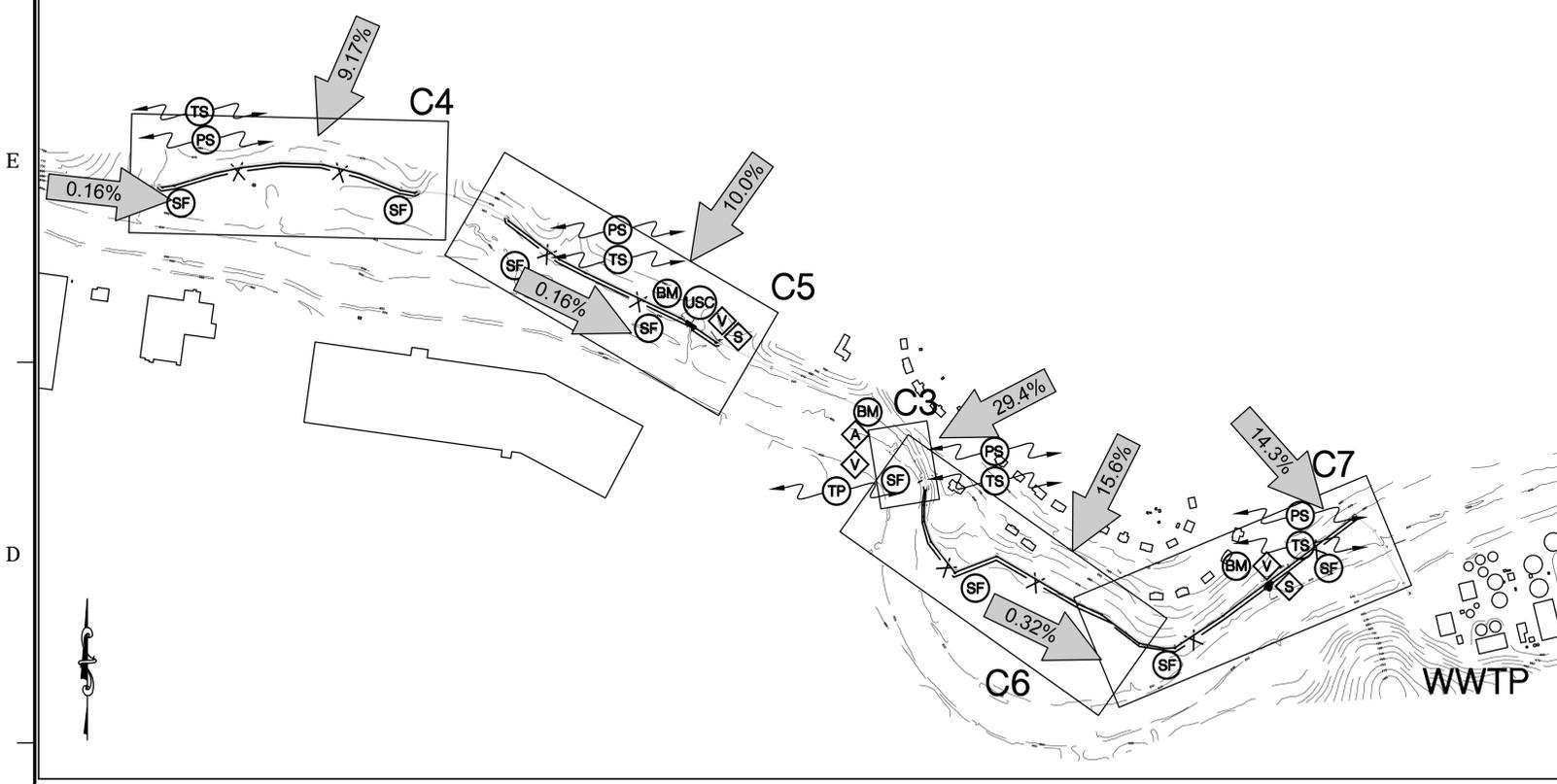
SEWER MANHOLE STRUCTURE TABLE						
ID NO.	NORTHING	EASTING	TOP	INVERT IN	INVERT OUT	DETAILS
61R1	3399210.26	11085871.92	664.76	42", INV IN = 656.87		Standard (N.I.C.)
61R2	3399203.70	11085860.55	663.98	42", INV IN = 656.88	42", INV OUT = 656.88	Standard
61R3	3399216.49	11085790.67	664.83	42", INV IN = 656.95	42", INV OUT = 656.95	Standard
61R4PI	3399293.66	11085601.45	665.18	42", INV IN = 657.16	42", INV OUT = 657.16	Point of Intersection
61R5	3399341.05	11085413.40	665.97	42", INV IN = 657.36	42", INV OUT = 657.36	Standard
61R6PI	3399348.27	11085210.60	667.23	42", INV IN = 657.56	42", INV OUT = 657.56	Point of Intersection
61R7	3399325.56	11085018.76	666.48	42", INV IN = 657.75	42", INV OUT = 657.75	Standard
61R8PI	3399299.67	11084893.33	666.63	42", INV IN = 657.95	42", INV OUT = 657.95	Point of Intersection
61R9	3399239.30	11084693.35	666.30	42", INV IN = 658.02	42", INV OUT = 658.02	Standard
61R10	3399230.94	11084636.04	665.82	42", INV IN = 658.16	42", INV OUT = 658.16	Standard
61R11	3399238.47	11084623.07	665.00		42", INV OUT = 658.17	Standard (N.I.C.)
66R1	3398482.28	11087338.56	664.00	42", INV IN = 654.55		Standard (N.I.C.)
66R2	3398480.82	11087325.51	663.40	42", INV IN = 654.57	42", INV OUT = 654.57	Standard
66R3	3398599.06	11087150.53	662.01	42", INV IN = 654.89	42", INV OUT = 654.89	Standard
66R4	3398682.12	11086971.94	665.06	42", INV IN = 655.18	42", INV OUT = 655.18	Standard
66R5	3398816.70	11086690.79	662.93	42", INV IN = 655.65	42", INV OUT = 655.65	Standard
66R6	3398882.00	11086563.40	663.78	42", INV IN = 655.87	42", INV OUT = 655.87	Standard
66R7	3399067.69	11086317.11	665.26	42", INV IN = 656.33	42", INV OUT = 656.33	Standard
66R8	3399080.49	11086314.24	666.73		42", INV OUT = 656.36	Standard (N.I.C.)
76R1	3397641.38	11090427.63	660.92	42", INV IN = 651.29		Standard (N.I.C.)
76R2	3397626.31	11090407.68	661.04	42", INV IN = 651.31	42", INV OUT = 651.31	Standard
76R3	3397397.92	11090105.30	661.51	42", INV IN = 651.63	42", INV OUT = 651.63	Standard
76R4	3397160.85	11089785.95	660.21	42", INV IN = 651.95	42", INV OUT = 651.95	Standard
76R5	3397004.17	11089550.77	659.96	42", INV IN = 652.19	42", INV OUT = 652.19	Standard
* 76R6	3397002.25	11089495.48	661.77	42", INV IN = 652.23	42", INV OUT = 652.23	Standard
76R7	3397026.43	11089377.49	661.87	42", INV IN = 652.33	42", INV OUT = 652.33	Standard
76R8	3397164.83	11089194.59	661.60	42", INV IN = 652.52	42", INV OUT = 652.52	Standard
76R9	3397215.22	11089082.88	661.30	42", INV IN = 652.62	42", INV OUT = 652.62	Standard
76R10	3397447.17	11088685.30	665.33	42", INV IN = 653.00	42", INV OUT = 653.00	Standard
76R11	3397368.22	11088483.01	659.61	42", INV IN = 653.18	42", INV OUT = 653.18	Standard
76R12	3397516.95	11088367.30	659.35	42", INV IN = 653.33	42", INV OUT = 653.33	Standard
76R13	3397615.54	11088334.45	661.94	42", INV IN = 653.42	42", INV OUT = 653.42	Standard
76R14	3397694.83	11088333.97	660.89	42", INV IN = 653.48	42", INV OUT = 653.48	Standard
76R15	3397763.44	11088341.31	661.70	42", INV IN = 653.54	42", INV OUT = 653.54	Standard
76R16	3397772.48	11088350.82	664.84		42", INV OUT = 653.55	Standard (N.I.C.)

\* - MANHOLES 76R11 SHALL BE 6'-0" DIAMETER. ALL OTHER MANHOLES SHALL BE 5'-0" DIAMETER MIN.

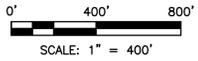
- NOTES:**
- CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH SEQUENCE OF CONSTRUCTION AND WORK RESTRICTIONS DESCRIBED IN SPECIFICATION SECTION 01100.
  - CONTRACTOR SHALL FIELD VERIFY VERTICALLY AND HORIZONTALLY EXISTING CMP SANITARY SEWER IN ACCORDANCE WITH SPECIFICATION SECTION 017300.
  - CONTRACTOR SHALL EXALT ALL MEASURES TO PREVENT DISTURBANCE OF EXISTING SANITARY SEWER.
  - TIE-IN TO THE EXISTING SANITARY SEWER PERFORMED UNDER SEPARATE CONTRACT. OPENINGS IN FINAL MANHOLES AT END OF NEW PIPE RUNS SHALL BE FULLY PROTECTED AND COVERED FOR FUTURE CONNECTION. UTILIZE 3/4" PLYWOOD, WOOD STUDS, AND PLASTIC TO COVER OPENING AND PROTECT RUBBER BOOTS AND BANDING.
  - INSTALL BLANKET MATTING ON ALL DISTURBED DITCHLINES STEEPER THAN 2.00% SLOPE. ALL DISTURBED AREAS ARE TO BE MULCHED AND SEEDED PER THE SPECIFICATIONS WITHIN 7 DAYS OF ACHIEVING FINAL GRADES.
  - REFRAIN FROM DISTURBING ALL WETLANDS AND STREAMS UNLESS OTHERWISE DIRECTED IN THE CONTRACT DOCUMENTS. IF CONTRACTOR DOES DISTURB WETLANDS, THEY MUST BE RESTORED TO ORIGINAL CONTOUR, AND ALL EXCESS EXCAVATED MATERIAL MUST BE COMPLETELY REMOVED FROM THE WETLANDS. (REF. NATIONWIDE 12 PERMIT FOR ALL REGULATIONS REGARDING WETLANDS FOR THIS PROJECT.)
  - THE LIMITS OF DISTURBANCE IS LOCATED WITHIN THE EXISTING 20' PERMANENT AND 40' TEMPORARY UTILITY CONSTRUCTION EASEMENT.
  - CONTRACTOR SHALL REMOVE TREES AND UNDERGROWTH WITHIN THE PROPOSED 20' PERMANENT EASEMENT.
  - ALL UTILITIES MAY NOT BE SHOWN AND ARE SHOWN GRAPHICALLY ONLY. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY 811 AND FIELD VERIFYING LOCATION VERTICALLY AND HORIZONTALLY. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY AND PERMANENT REPAIRS TO ANY UTILITY DAMAGED DURING CONSTRUCTION.
  - ALL CUT SOILS MEETING UTILITY FILL REQUIREMENTS SHALL BE STORED WITHIN THE SEWER EASEMENT FOR USE AS FILL MATERIALS FOR ABANDONING THE EXISTING SANITARY SEWER UNDER SEPARATE CONTRACT AS DESCRIBED IN SPECIFICATION SECTION 312000.
  - EXISTING GEOTECHNICAL EVALUATION HAS BEEN PERFORMED. RESULTS ARE AVAILABLE IN SPECIFICATION SECTION 003132 ALL EXCAVATIONS ARE UNCLASSIFIED.
  - PROVIDE ALL TEMPORARY PROTECTIONS TO PREVENT SEWERLINE DAMAGE AND ACCESS DURING AND AFTER CONSTRUCTION AS DESCRIBED IN SPECIFICATION SECTION 333300.



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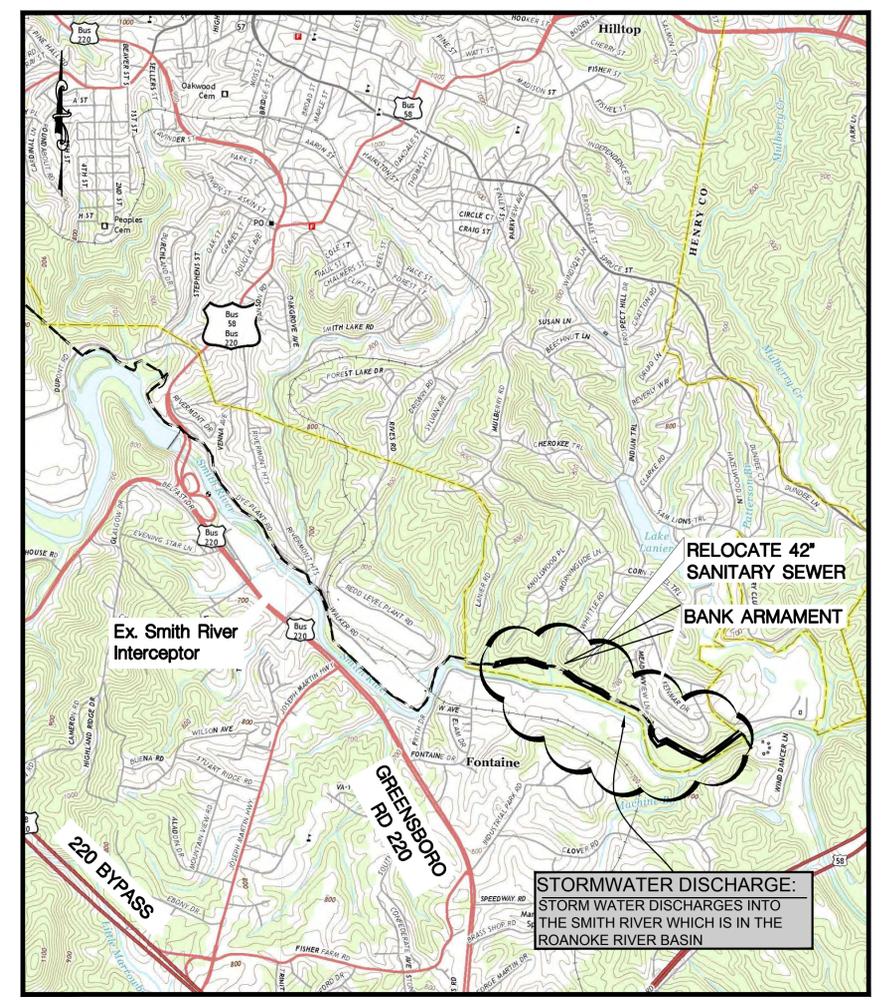
OVERALL SITE LAYOUT



VA E&S Minimum Standards

- 1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
3.A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
b. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCRUSTMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
13. WHEN A LIVE WATERCOURSE MUST BE CROSSING BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
c. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
d. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
f. APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.
17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICLE TRACKING ONTO THE PAVED SURFACE, WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE VESCP AUTHORITY. TRAPPING THE SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE

- STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS.
a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
i. THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
ii. (A) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.
(B) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
(C) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
i. IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS; OR
ii. IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES.
iii. DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
iv. PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
g. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PILE, SYSTEM, OR TO A DETENTION FACILITY.
j. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
l. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO:
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, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:55 OF THE ACT.
m. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH § 62.1-44.15:48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMF) REGULATIONS.
n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN § 62.1-44.15:24-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMF) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.



USGS VICINITY MAP SCALE: 1"=2000'

DEQ - Guidance Memo No. 15-2003
1. The requirement for the preparation and implementation of a site specific stormwater management plan has been waived in accordance with the Virginia Stormwater Management Regulations (9VAC 25-870-et seq) and further clarification in DEQ Guidance Memo No. 15- 2003 (enclosed) based on the project meeting the following requirements:

- a. The project does not significantly alter the predevelopment runoff characteristics of the land surface after the completion of construction and final stabilization;
b. The project is managed so that less than one (1) acre of land disturbance occurs on a daily basis;
c. The disturbed land where work has been completed is adequately stabilized on a daily basis;
d. The environment is protected from erosion and sedimentation damage associated with the land-disturbing activity;
e. The owner and/or construction activity operator designs, installs, implements, and maintains pollution prevention measures to:
i. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters;
ii. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on-site to precipitation and to stormwater;
iii. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures;
iv. Prohibit the discharge of wastewater from the washout of concrete;
v. Prohibit the discharge of wastewater from the washout and cleanup of stucco, paint, form release oils, curing compounds, and other construction materials; and
vi. Prohibit the discharge of fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
f. The owner and/or construction activity operator provides reasonable assurance to DEQ or the local VSMF Authority that all of the above conditions will be satisfied. This may be accomplished by incorporating these conditions into an erosion and sediment control plan developed for the project.

EROSION & SEDIMENT CONTROL NOTES:

THE FOLLOWING SEQUENCE OF CONSTRUCTION SHALL BE ADHERED TO BY THE CONTRACTOR AT ALL TIMES:

- 1. OBTAIN ALL PERMITS AND POST ALL REQUIRED BONDS.
2. CONTRACTOR SHALL KEEP & MAINTAIN A COPY OF THE VIRGINIA EROSION & SEDIMENT CONTROL HAND-BOOK, LATEST EDITION ON-SITE AT ALL TIMES.
3. INSTALL PERIMETER SILT FENCE AND TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT. TEMPORARY EROSION CONTROL MEASURES MUST BE INSTALLED PRIOR TO ALL LAND DISTURBING ACTIVITIES.
4. CONTRACTOR SHALL SEED AND MULCH ALL DITCHES <2% SLOPE. ALL DITCHES GREATER THAN 2% SLOPE SHALL BE LINED W/ BLANKET MATTING.
5. ALL SPECIFIC LOCATIONS FOR SILT FENCE ARE NOT SHOWN ON THE APPROVED PLANS. THE NEED FOR ADDITIONAL E&S CONTROL MEASURES IS TO BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER AND THE EROSION CONTROL DIRECTOR.
6. INSTALL BLANKET MATTING AND RIP-RAP IN DITCHES PER DETAIL.
7. TEMPORARY SEEDING SHALL OCCUR AS CONSTRUCTION PROGRESSES. NO SECTION OF DISTURBANCE LONGER THAN 1000' SHALL BE LEFT UNSEEDED. TEMPORARY SEEDING SHALL COMPLY W/ THE NPDES PERMIT ON THIS SHT.
8. REMOVE EROSION AND SEDIMENT CONTROL MEASURES UPON SITE STABILIZATION.
9. CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE MEASURES UNTIL THE SITE IS STABILIZED.
10. ALL DENUED AREAS SHALL BE SHAPED TO PROMOTE POSITIVE DRAINAGE.

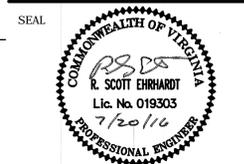
AREA OF LAND DISTURBANCE = 2.38± (ACRES)

E&S LEGEND
--- LIMITS OF DISTURBANCE
(CE) TEMPORARY STONE CONSTRUCTION ENTRANCE, VA STD. 3.02
(TS) TEMPORARY SEEDING, VA E&S STD. 3.31
(PS) PERMANENT SEEDING, VA E&S STD. 3.32
(TP) TREE PROTECTION, VA E&S STD. 3.38
(S) STRUCTURAL STREAMBANK STABILIZATION, VA E&S STD. 3.23
(V) VEGETATIVE STREAMBANK STABILIZATION, VA E&S STD. 3.22
(BM) SOIL STABILIZATION BLANKETS & MATTING, VA E&S STD. 3.36
(SF) SILT FENCE, VA E&S STD. 3.05 -- XX --
(CIP) CULVERT INLET PROTECTION, VA E&S STD. 3.08
0.0% DRAINAGE FLOW ARROW w/ APPROXIMATE SLOPE



Dewberry Engineers Inc.
551 Piney Forest Road
Dumfries, VA 24540
Phone: 434.797.4487
Fax: 434.797.4341

Smith River Interceptor
CMP Rehabilitation
City of Martinsville
Contract II



KEY PLAN

SCALE

AS NOTED

Table with columns: No., DATE, BY, Description. Includes a REVISIONS section.

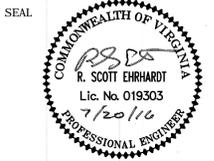
DRAWN BY: MWC MWC
APPROVED BY: RSE RSE
CHECKED BY: FRJ JAP
DATE: July, 2016

OVERALL EROSION AND SEDIMENT CONTROL PLAN

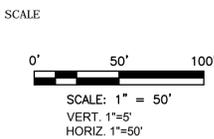
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**Smith River Interceptor  
CMP Rehabilitation  
City of Martinsville  
Contract II**



KEY PLAN



No.	DATE	BY	Description

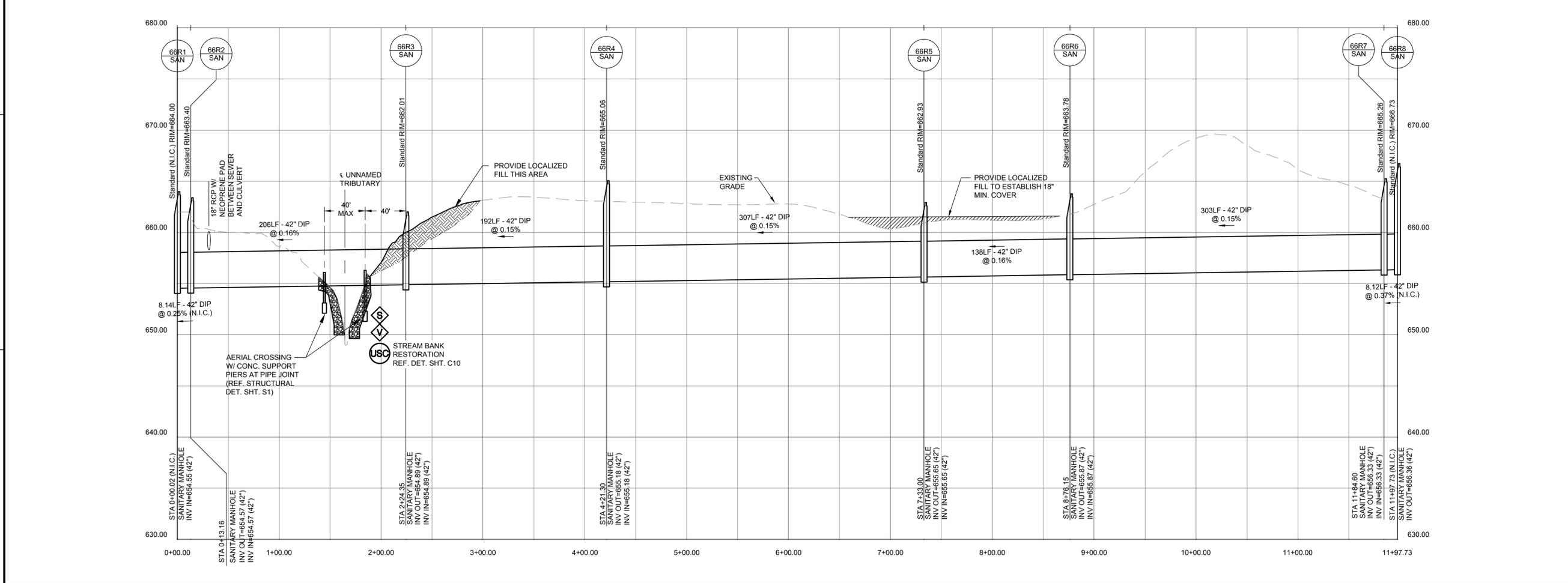
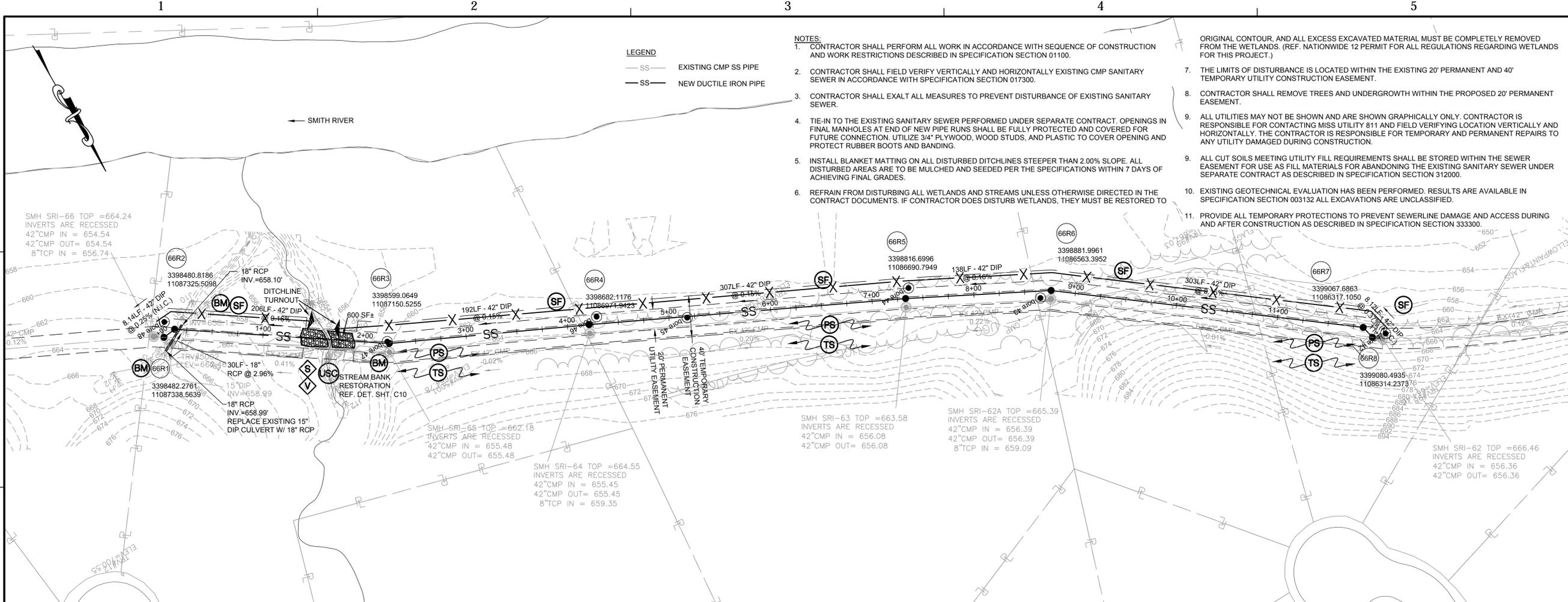
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DRAWN BY MWC
APPROVED BY RSE
CHECKED BY JAP
DATE July, 2016

TITLE  
**Sanitary Sewer  
Relocation  
66R-1 - 66R-8**

PROJECT NO. 50078733

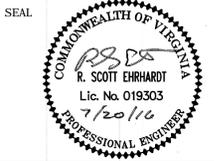
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SHEET NO. OF



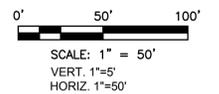
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Smith River Interceptor  
CMP Rehabilitation  
City of Martinsville  
Contract II



KEY PLAN

SCALE



No.	DATE	BY	Description
REVISIONS			
			MWC
			RSE
			JAP
			July, 2016

TITLE  
**Sanitary Sewer  
Relocation  
74R-1 - 74R-6**

PROJECT NO. 50078733

**C5**

SHEET NO. OF

NOTES:

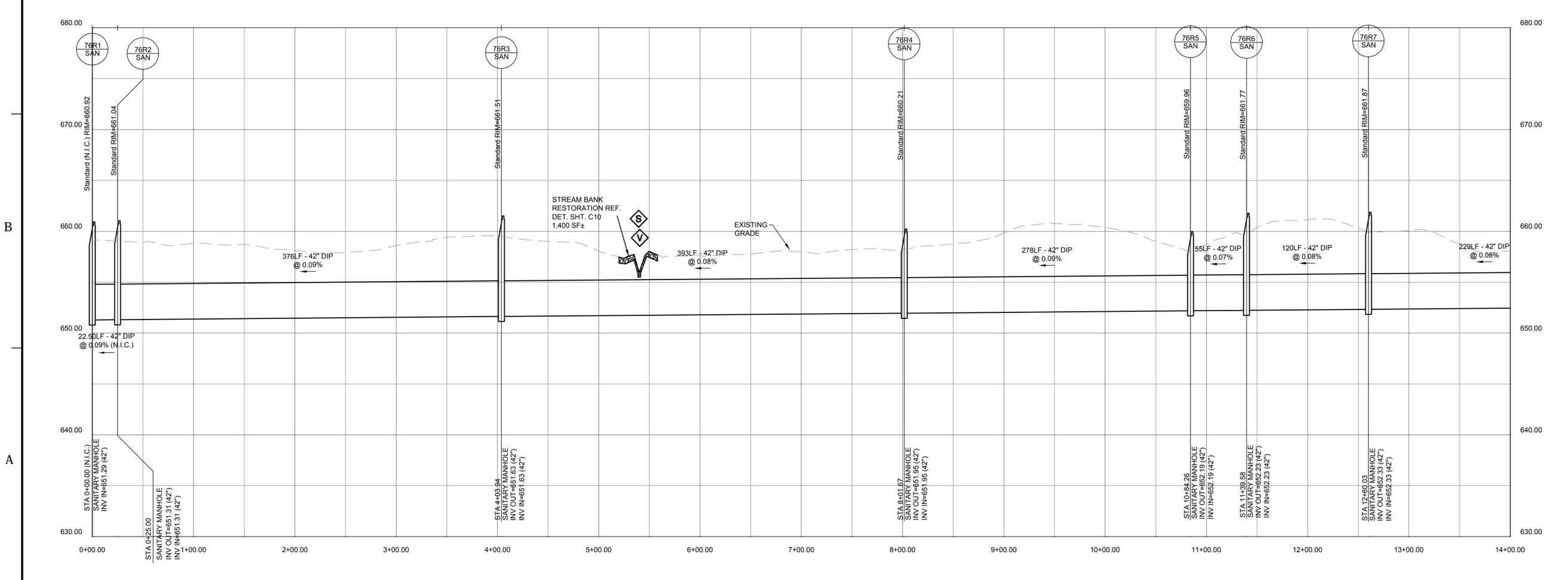
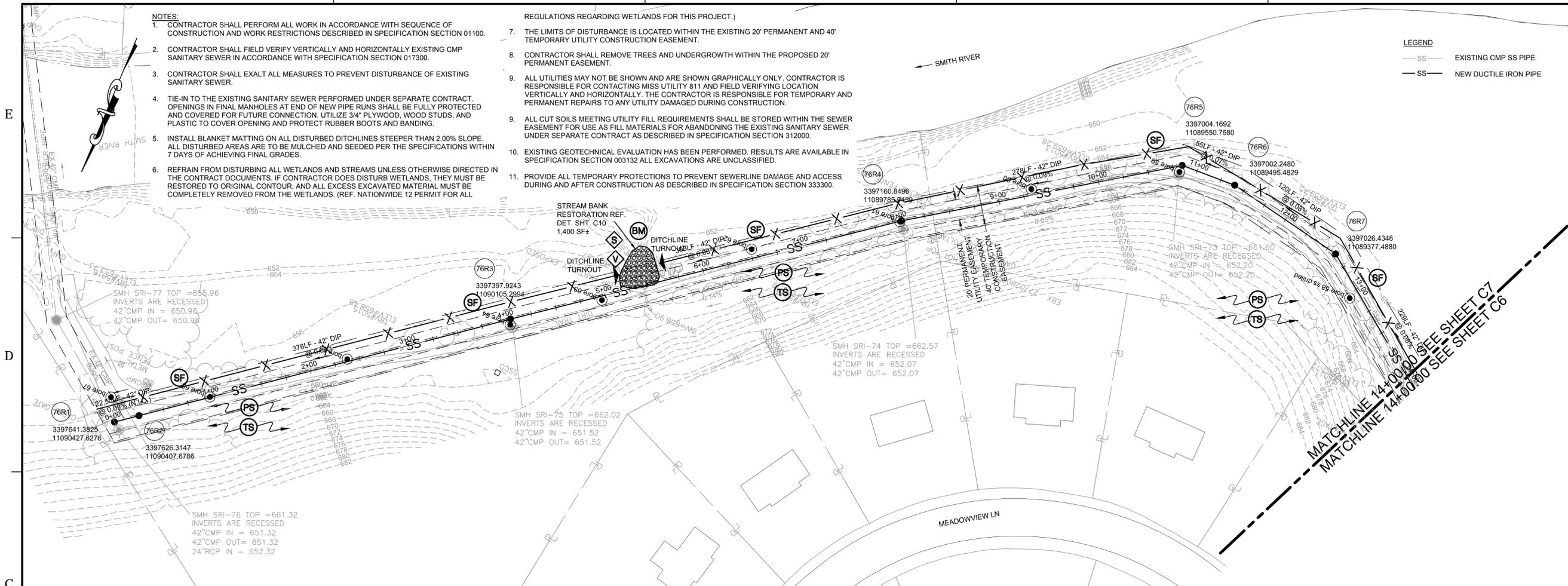
- CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH SEQUENCE OF CONSTRUCTION AND WORK RESTRICTIONS DESCRIBED IN SPECIFICATION SECTION 01100.
- CONTRACTOR SHALL FIELD VERIFY VERTICALLY AND HORIZONTALLY EXISTING CMP SANITARY SEWER IN ACCORDANCE WITH SPECIFICATION SECTION 017300.
- CONTRACTOR SHALL EXALT ALL MEASURES TO PREVENT DISTURBANCE OF EXISTING SANITARY SEWER.
- TIE-IN TO THE EXISTING SANITARY SEWER PERFORMED UNDER SEPARATE CONTRACT. OPENINGS IN FINAL MANHOLES AT END OF NEW PIPE RUNS SHALL BE FULLY PROTECTED AND COVERED FOR FUTURE CONNECTION. UTILIZE 3/4" PLYWOOD, WOOD STUDS, AND PLASTIC TO COVER OPENING AND PROTECT RUBBER BOOTS AND BANDING.
- INSTALL BLANKET MATTING ON ALL DISTURBED DITCHLINES STEEPER THAN 2.00% SLOPE. ALL DISTURBED AREAS ARE TO BE MULCHED AND SEEDED PER THE SPECIFICATIONS WITHIN 7 DAYS OF ACHIEVING FINAL GRADES.
- REFRAIN FROM DISTURBING ALL WETLANDS AND STREAMS UNLESS OTHERWISE DIRECTED IN THE CONTRACT DOCUMENTS. IF CONTRACTOR DOES DISTURB WETLANDS, THEY MUST BE RESTORED TO ORIGINAL CONTOUR, AND ALL EXCESS EXCAVATED MATERIAL MUST BE COMPLETELY REMOVED FROM THE WETLANDS. (REF. NATIONWIDE 12 PERMIT FOR ALL

REGULATIONS REGARDING WETLANDS FOR THIS PROJECT.)

- THE LIMITS OF DISTURBANCE IS LOCATED WITHIN THE EXISTING 20' PERMANENT AND 40' TEMPORARY UTILITY CONSTRUCTION EASEMENT.
- CONTRACTOR SHALL REMOVE TREES AND UNDERGROWTH WITHIN THE PROPOSED 20' PERMANENT EASEMENT.
- ALL UTILITIES MAY NOT BE SHOWN AND ARE SHOWN GRAPHICALLY ONLY. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY 811 AND FIELD VERIFYING LOCATION VERTICALLY AND HORIZONTALLY. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY AND PERMANENT REPAIRS TO ANY UTILITY DAMAGED DURING CONSTRUCTION.
- ALL CUT SOILS MEETING UTILITY FILL REQUIREMENTS SHALL BE STORED WITHIN THE SEWER EASEMENT FOR USE AS FILL MATERIALS FOR ABANDONING THE EXISTING SANITARY SEWER UNDER SEPARATE CONTRACT AS DESCRIBED IN SPECIFICATION SECTION 312000.
- EXISTING GEOTECHNICAL EVALUATION HAS BEEN PERFORMED. RESULTS ARE AVAILABLE IN SPECIFICATION SECTION 003132 ALL EXCAVATIONS ARE UNCLASSIFIED.
- PROVIDE ALL TEMPORARY PROTECTIONS TO PREVENT SEWERLINE DAMAGE AND ACCESS DURING AND AFTER CONSTRUCTION AS DESCRIBED IN SPECIFICATION SECTION 333300.

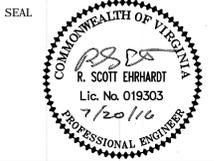
LEGEND

- SS EXISTING CMP SS PIPE
- SS NEW DUCTILE IRON PIPE

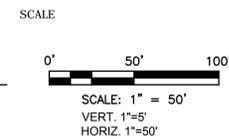


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**Smith River Interceptor  
CMP Rehabilitation  
City of Martinsville  
Contract I**



KEY PLAN



No.	DATE	BY	Description
REVISIONS			

DRAWN BY: MWC  
APPROVED BY: RSE  
CHECKED BY: JAP  
DATE: July, 2016

TITLE  
**Sanitary Sewer  
Relocation  
76R-5 - 76R-13**

PROJECT NO. 50078733

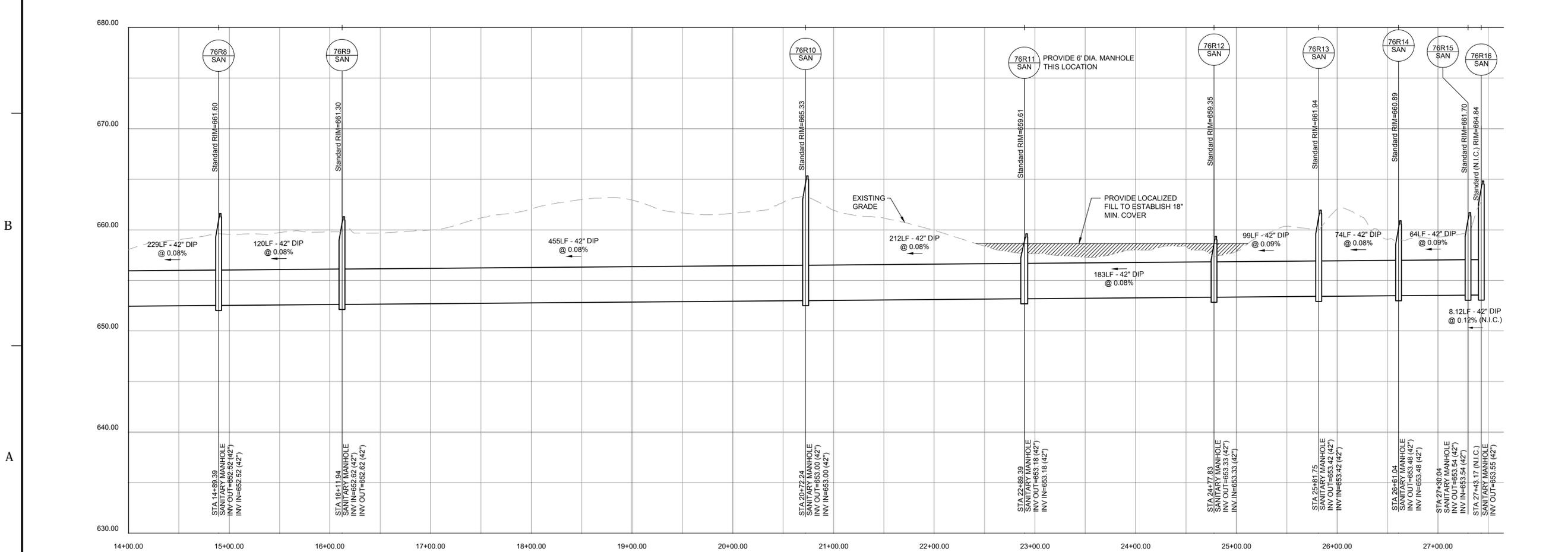
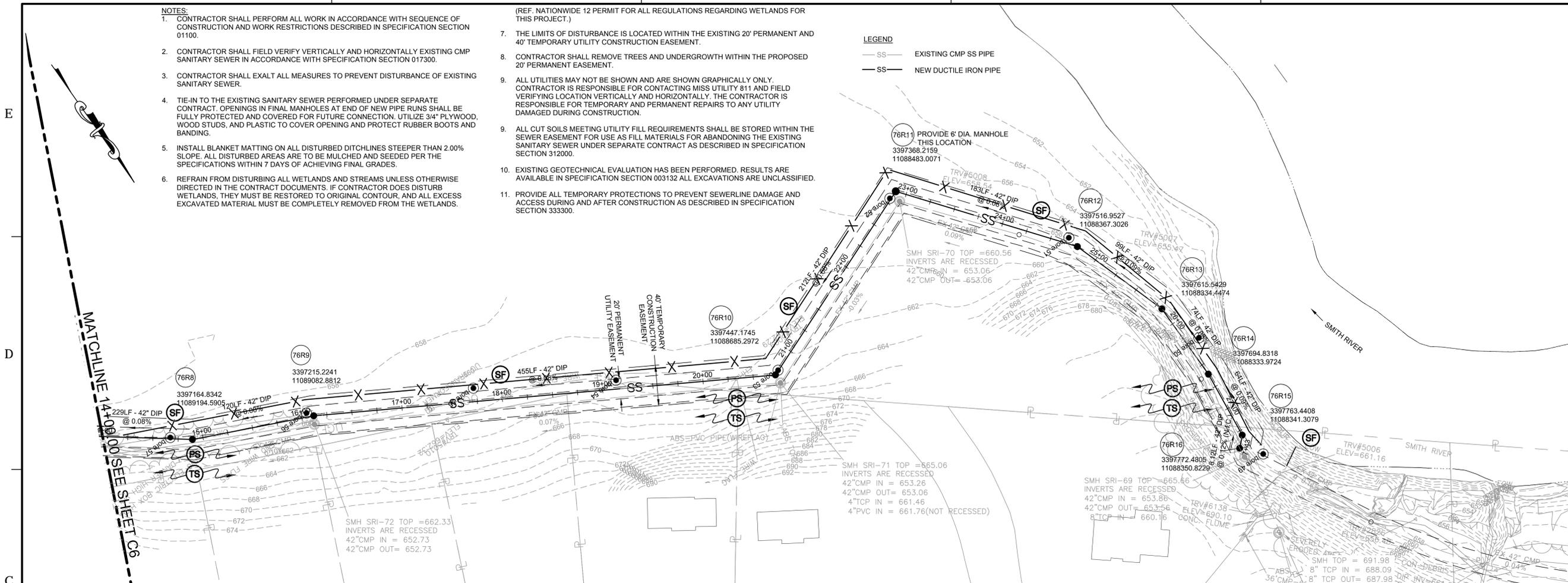
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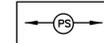
- NOTES:**
- CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH SEQUENCE OF CONSTRUCTION AND WORK RESTRICTIONS DESCRIBED IN SPECIFICATION SECTION 01100.
  - CONTRACTOR SHALL FIELD VERIFY VERTICALLY AND HORIZONTALLY EXISTING CMP SANITARY SEWER IN ACCORDANCE WITH SPECIFICATION SECTION 017300.
  - CONTRACTOR SHALL EXALT ALL MEASURES TO PREVENT DISTURBANCE OF EXISTING SANITARY SEWER.
  - TIE-IN TO THE EXISTING SANITARY SEWER PERFORMED UNDER SEPARATE CONTRACT. OPENINGS IN FINAL MANHOLES AT END OF NEW PIPE RUNS SHALL BE FULLY PROTECTED AND COVERED FOR FUTURE CONNECTION. UTILIZE 3/4" PLYWOOD, WOOD STUDS, AND PLASTIC TO COVER OPENING AND PROTECT RUBBER BOOTS AND BANDING.
  - INSTALL BLANKET MATTING ON ALL DISTURBED DITCHLINES STEEPER THAN 2.00% SLOPE. ALL DISTURBED AREAS ARE TO BE MULCHED AND SEEDED PER THE SPECIFICATIONS WITHIN 7 DAYS OF ACHIEVING FINAL GRADES.
  - REFRAIN FROM DISTURBING ALL WETLANDS AND STREAMS UNLESS OTHERWISE DIRECTED IN THE CONTRACT DOCUMENTS. IF CONTRACTOR DOES DISTURB WETLANDS, THEY MUST BE RESTORED TO ORIGINAL CONTOUR, AND ALL EXCESS EXCAVATED MATERIAL MUST BE COMPLETELY REMOVED FROM THE WETLANDS.
- (REF. NATIONWIDE 12 PERMIT FOR ALL REGULATIONS REGARDING WETLANDS FOR THIS PROJECT.)
- THE LIMITS OF DISTURBANCE IS LOCATED WITHIN THE EXISTING 20' PERMANENT AND 40' TEMPORARY UTILITY CONSTRUCTION EASEMENT.
  - CONTRACTOR SHALL REMOVE TREES AND UNDERGROWTH WITHIN THE PROPOSED 20' PERMANENT EASEMENT.
  - ALL UTILITIES MAY NOT BE SHOWN AND ARE SHOWN GRAPHICALLY ONLY. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY 811 AND FIELD VERIFYING LOCATION VERTICALLY AND HORIZONTALLY. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY AND PERMANENT REPAIRS TO ANY UTILITY DAMAGED DURING CONSTRUCTION.
  - ALL CUT SOILS MEETING UTILITY FILL REQUIREMENTS SHALL BE STORED WITHIN THE SEWER EASEMENT FOR USE AS FILL MATERIALS FOR ABANDONING THE EXISTING SANITARY SEWER UNDER SEPARATE CONTRACT AS DESCRIBED IN SPECIFICATION SECTION 312000.
  - EXISTING GEOTECHNICAL EVALUATION HAS BEEN PERFORMED. RESULTS ARE AVAILABLE IN SPECIFICATION SECTION 003132 ALL EXCAVATIONS ARE UNCLASSIFIED.
  - PROVIDE ALL TEMPORARY PROTECTIONS TO PREVENT SEWERLINE DAMAGE AND ACCESS DURING AND AFTER CONSTRUCTION AS DESCRIBED IN SPECIFICATION SECTION 333300.

- LEGEND**
- SS — EXISTING CMP SS PIPE
  - SS — NEW DUCTILE IRON PIPE



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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 ECONOMICALLY 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. ALL OF THESE USES - RESIDENTIAL, INDUSTRIAL, COMMERCIAL, RECREATIONAL - CAN BE SEPARATED INTO TWO MAJOR CATEGORIES: HIGH-MAINTENANCE AND LOW MAINTENANCE.

HIGH-MAINTENANCE AREAS WILL BE MOWED FREQUENTLY, LIMED AND FERTILIZED REGULARLY, AND WILL EITHER RECEIVE INTENSE USE (AS ATHLETICS) OR REQUIRE MAINTENANCE TO AN AESTHETIC STANDARD (HOME LAWNS). GRASSES USED FOR THESE SITUATIONS MUST BE FINE-LEAVED AND ATTRACTIVE IN APPEARANCE, ABLE TO FORM TIGHT SOIL, AND BE LONG-LIVED PERENNIALS. THEY MUST BE WELL-ADAPTED TO THE GEOGRAPHIC AREA WHERE THEY ARE PLANTED, BECAUSE CONSTANT MOWING PUTS TURF UNDER GREAT STRESS. SITES WHERE HIGH-MAINTENANCE VEGETATIVE COVER IS DESIRABLE INCLUDE HOMES, INDUSTRIAL PARKS, SCHOOLS, CHURCHES, ATHLETIC PLAYING SURFACES AS WELL AS SOME RECREATIONAL AREAS.

LOW-MAINTENANCE AREAS WILL BE MOWED INFREQUENTLY OR NOT AT ALL; AND FERTILIZER MAY NOT BE APPLIED ON A REGULAR BASIS. THE AREAS WILL NOT BE SUBJECTED TO INTENSE USE, NOR REQUIRED TO HAVE A UNIFORM APPEARANCE. THESE PLANTS MUST BE ABLE TO PERSEVERE WITH LITTLE MAINTENANCE OVER LONG PERIODS OF TIME, GRASS AND LEGUME MIXTURES ARE FAVORED FOR THESE SITES BECAUSE LEGUMES ARE CAPABLE OF FIXING NITROGEN FROM THE AIR FOR THEIR OWN USE AND THE USE OF NITROGEN FIXING BACTERIA PREPARED FOR THE SITE. THESE ARE BETTER ABLE TO WITHSTAND ADVERSE CONDITIONS, SITES WHICH WOULD BE SUITABLE FOR LOW-MAINTENANCE VEGETATION INCLUDE STEEP SLOPES, STREAM OR CHANNEL BANKS, SOME COMMERCIAL PROPERTIES, AND UTILITY TURF AREAS SUCH AS CROWDWEATH.

TABLE 3.32-D SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

Table with 2 columns: Category (e.g., Commercial or Residential, High-Maintenance Lawn) and Seeding Rate (e.g., 175-200 lbs./ac., 200-250 lbs./ac.).

SEED QUALITY CRITERIA

- SEVENTY-FIVE PERCENT OF THE TOTAL REQUIREMENTS SHOULD BE APPLIED BETWEEN SEPTEMBER 1 AND DECEMBER 31. THE BALANCE SHOULD BE APPLIED PER 1000 FT. SHOULD NOT BE APPLIED AT ANY ONE TIME.
WARM SEASON GRASSES: APPLY 4-5 LBS. NITROGEN (N) BETWEEN MAY 1 AND AUGUST 15th PER 1000 FT. PER YEAR.
PHOSPHORUS (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 AND THE IMPACT ON GROUNDWATER.

STD & SPEC 3.02 TEMPORARY STONE CONSTRUCTION ENTRANCE

CONSTRUCTION ENTRANCE

CONSTRUCTION SPECIFICATIONS

THE AREA OF THE ENTRANCE MUST BE EXCAVATED A MINIMUM OF 3 INCHES AND MUST BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBSTRUCTIBLE MATERIAL. THE FILTER FABRIC UNDERLAYER WILL THEN BE PLACED THE FULL WIDTH AND LENGTH OF THE ENTRANCE.

FOLLOWING THE INSTALLATION OF THE FILTER CLOTH, THE STONE SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. IF WASH RACKS ARE USED, THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF CONSTRUCTION SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE THROUGH CULVERTS SHALL BE PROVIDED AS REQUIRED. IF SUCH CONVEYANCE IS IMPOSSIBLE, THE CONSTRUCTION OF A 'MOUNTABLE' BERM WITH 5:1 SLOPES WILL BE PERMITTED.

THE FILTER CLOTH UTILIZED SHALL BE A WOVEN OR NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMER FILAMENTS OR YARNS OF POLYESTER, THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, BE MILDLY AND ROT RESISTANT, AND CONFORM TO THE PHYSICAL PROPERTIES NOTED IN TABLE 3.02-A.

MAINTENANCE

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT, ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

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 VA OR BY A REPUTABLE COMMERCIAL LABORATORY. INFORMATION CONCERNING THE STATE SOIL TESTING LABORATORY IS AVAILABLE FROM COUNTY EXTENSION AGENTS.

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

LIME

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

NOTE: AN AGRICULTURAL GRADE OF LIMESTONE SHOULD ALWAYS BE USED.

FERTILIZER

- MIXED GRASSES & LEGUMES: 100 LBS./ACRE 10-20-10 OR EQUIVALENT NUTRIENTS (23 LBS./1000 FT. )
LEGUME STANDS ONLY: 1000 LBS./ACRE 9-20-10 (23 LBS./1000 FT. ) IS PREFERRED; HOWEVER, 1000 LBS./ACRE OF 10-20-10 OR EQUIVALENT MAY BE USED.
GRASS STANDS ONLY: 1000 LBS./ACRE 10-20-10 OR EQUIVALENTS, (23 LBS./1000 FT. )

OTHER FERTILIZER FORMULATIONS, INCLUDING SLOW-RELEASE SOURCES OF NITROGEN (PREFERRED FOR A WATER QUALITY STANDPOINT), MAY BE USED PROVIDED THEY CAN SUPPLY THE SAME AMOUNTS AND PROPORTIONS OF PLANT NUTRIENTS.

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, OR ON ADVERSE SITES. WATER APPLICATION RATES SHOULD BE CONTROLLED TO PREVENT EXCESSIVE RUNOFF. INADEQUATE AMOUNTS OF WATER MAY BE MORE HARMFUL THAN NO WATER.

RE-SEEDING: INSPECT SEEDING AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RE-SEEDINGS WITH 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 AND QUANTITIES OF LIME AND FERTILIZER. THE SOIL MUST BE TESTED TO DETERMINE IF ACIDITY OR NUTRIENT IMBALANCES ARE RESPONSIBLE. RE-ESTABLISH THE STAND FOLLOWING SEEDING PREPARATION AND SEEDING RECOMMENDATIONS.

FERTILIZATION: COOL SEASON GRASSES SHOULD BE FERTILIZED 90 DAYS AFTER PLANTING TO INSURE PROPER STAND AND DENSITY. WARM SEASON FERTILIZATION SHOULD BE 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) 1 LB. PHOSPHORUS (P) 2 LBS. POTASH (K) PER 1000 FT. PER YEAR
WARM SEASON GRASSES: APPLY 4-5 LBS. NITROGEN (N) BETWEEN MAY 1 AND AUGUST 15th PER 1000 FT. PER YEAR.

PHOSPHORUS (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 AND THE IMPACT ON GROUNDWATER.

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 THAT EMPLOYS A REGISTERED SEED TECHNOLOGIST OR BY A STATE SEED LAB.
c. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN TWELVE (12) MONTHS.
d. INCULCANT - THE INCULCANT ADDED TO LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED FOR THE SPECIES. INCULCANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER, TWICE THE SUPPLIER'S RECOMMENDED RATE OF INCULCANT WILL BE USED ON DRY SEEDINGS; FIVE TIMES THE RECOMMENDED RATE IF HYDROSEEDING.
e. THE QUALITY OF THE SEED USED SHALL BE SHOWN ON THE BAG TAGS TO CONFORM TO THE GUIDELINES IN TABLE 3.32-E (VA EROSION AND SEDIMENT CONTROL HANDBOOK).

STD & SPEC 3.05 SILT FENCE

CONSTRUCTION SPECIFICATIONS

MATERIALS

- 1. SYNTHETIC FILTER FABRIC SHALL BE A PREVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS NOTED IN TABLE 3.05-B.
2. SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND SHALL PROVIDE A MINIMUM OF SIX MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0° F TO 120° F.
3. IF WOODEN STAKES ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A DIAMETER OF 2 INCHES WHEN OAK IS USED AND 4 INCHES WHEN PINE IS USED. WOODEN STAKES MUST HAVE A MINIMUM LENGTH OF 3 FEET.
4. IF STEEL POSTS (STANDARD 1/4" OR 1/2" SECTION) ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5 FEET.
5. WIRE FENCE REINFORCEMENT FOR SILT FENCES USING STANDARD-STRENGTH FILTER CLOTH SHALL BE A MINIMUM OF 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6 INCHES.

INSTALLATION

- 1. THE HEIGHT OF A SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE THE ORIGINAL ELEVATION.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SPliced TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4-INCHES WIDE AND 4-INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE BARRIER.
4. WHEN WIRE SUPPORT IS USED, STANDARD-STRENGTH FILTER CLOTH MAY BE USED. POSTS FOR THIS TYPE OF INSTALLATION SHALL BE PLACED A MAXIMUM OF 10-FOOT APART (SEE PLATE 3.05-D). THE FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE TRENCH USING HEAVY DUTY WIRE STAPLES AT LEAST ONE END OF THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. ABOVE A MINIMUM OF TWO INCHES AND SHALL NOT EXTEND MORE THAN 34-INCHES ABOVE THE ORIGINAL GROUND SURFACE. THE STANDARD-STRENGTH FABRIC SHALL BE STAPLED OR WIRDED TO THE WIRE FENCE, AND STAPLES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

- 5. WHEN WIRE SUPPORT IS NOT USED, EXTRA-STRENGTH FILTER CLOTH SHALL BE USED. POSTS FOR THIS TYPE OF FABRIC SHALL BE PLACED A MAXIMUM OF 6-FOOT APART (SEE PLATE 3.05-D). THE FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE TRENCH USING ONE INCH LONG (MINIMUM) HEAVY-DUTY WIRE STAPLES OR THE WIRES AND EIGHT INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. THIS METHOD OF INSTALLATION HAS BEEN FOUND TO BE MORE COMPLEX THAN #4.
6. IF A SILT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, THE BARRIER MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE (SEE PLATE 3.05-D). EXTRA-STRENGTH FILTER FABRIC SHALL BE USED FOR THIS APPLICATION WITH A MAXIMUM 3-FOOT SPACING OF POSTS. ALL OTHER INSTALLATION REQUIREMENTS NOTED IN #4 APPLY.
7. THE 4-INCH BY 4-INCH TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC OR WIRE BARRIER. THE WIRE BARRIER SHALL BE STAPLED OR WIRDED TO THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

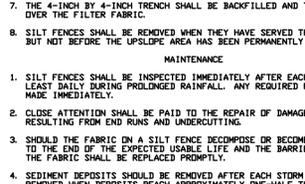
MAINTENANCE

- 1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDING.

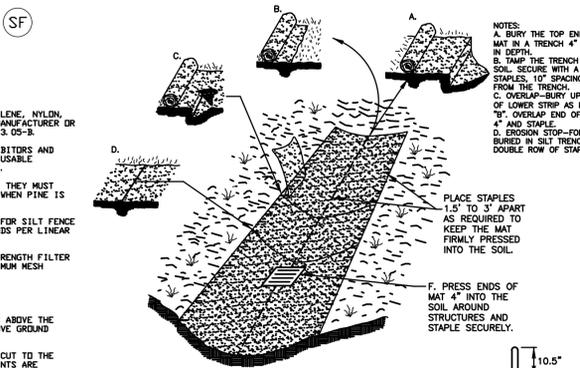
TABLE 3.05-B PHYSICAL PROPERTIES OF FILTER FABRIC IN SILT FENCE

Table with 3 columns: Physical Property, Test, Requirements. Includes filtering efficiency, tensile strength, flow rate, ultraviolet radiation stability, etc.

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



SOURCE: VA DORC PLATE 3.05-2



DETAIL FOR STABILIZING CHANNEL WITH EXCELSIOR MAT

STD & SPEC 3.31 TEMPORARY SEEDING

PURPOSES

- 1. TO REDUCE EROSION AND SEDIMENTATION BY STABILIZING DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS.
2. TO REDUCE DAMAGE FROM SEDIMENT AND RUNOFF TO DOWNSTREAM OR OFF-SITE AREAS, AND TO PROVIDE PROTECTION TO BARE SOILS EXPOSED DURING CONSTRUCTION UNTIL PERMANENT VEGETATION OR OTHER EROSION CONTROL MEASURES CAN BE ESTABLISHED.

SPECIFICATIONS

PRIOR TO SEEDING, INSTALL NECESSARY EROSION CONTROL PRACTICES SUCH AS DICES, MATINGS, AND BASINS.

PLANT SELECTION

SELECT PLANTS APPROPRIATE TO THE SEASON AND SITE CONDITIONS FROM TABLE 3.31-B AND 3.31-C. NOTE THAT TABLE 3.31-B PRESENTS PLANTS WHICH CAN BE USED WITHOUT EXTENSIVE EVALUATION OF SITE CONDITIONS; TABLE 3.31-C PRESENTS MORE IN-DEPTH INFORMATION ON THE PLANT MATERIALS.

SEEDING PREPARATION

TO CONTROL EROSION ON BARE SOIL SURFACES, PLANTS MUST BE ABLE TO GERMINATE AND GROW. SEEDING PREPARATION IS ESSENTIAL.

- 1. LIMING - AN EVALUATION SHOULD BE CONDUCTED TO DETERMINE IF LIME IS NECESSARY FOR TEMPORARY SEEDING. IN MOST SOILS, IT TAKES UP TO 6 MONTHS FOR pH ADJUSTMENTS TO OCCUR FOLLOWING THE APPLICATION OF LIME. THEREFORE, IT MAY BE DIFFICULT TO JUSTIFY THE COST OF LIMING A TEMPORARY SITE, ESPECIALLY WHEN THE SOIL WILL LATER BE MOVED AND REGRADED. THE FOLLOWING TABLE MAY BE USED TO DETERMINE THE ACTUAL NEED ALONG WITH SUGGESTED APPLICATION RATES.
2. FERTILIZER SHALL BE APPLIED AS 600 LBS./ACRE OF 10-20-10 (14 LBS./1,000 SQ. FT.) OR EQUIVALENT NUTRIENTS. LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF THE SOIL IF POSSIBLE.
3. SURFACE ROUGHENING - IF THE AREA HAS BEEN RECENTLY LIMED OR DISTURBED, NO FURTHER ROUGHENING IS REQUIRED WHEN THE AREA IS COMPACTED, CRUSTED, OR HARDENED. THE SOIL SURFACE SHALL BE LOOSENEED BY DISCING, BAKING, HARROWING, OR OTHER ACCEPTABLE MEANS (SEE SURFACE ROUGHENING, STD. & SPEC. 3.29).

SEEDING

SEED SHALL BE EVENLY APPLIED WITH A BROADCAST SEEDER, DRILL, CULTIPACKER SEEDER OR HYDRASEEDER. SMALL GRAINS SHALL BE PLANTED NO MORE THAN ONE INCH DEEP. GRASSES AND LEGUMES SHALL BE PLANTED WITH NO LESS THAN 1/4" SOIL COVER.

MULCHING

1. SEEDINGS MADE IN FALL FOR WINTER COVER AND BURNING HOT AND WET SUMMER MONTHS SHALL BE MULCHED ACCORDING TO MULCHING, STD. & SPEC. 3.25 EXCEPT THAT HYDROMULCHES (FIBER MULCH) WILL NOT BE CONSIDERED ADEQUATE. STRAW MULCH SHOULD BE USED DURING THESE PERIODS.
2. TEMPORARY SEEDINGS MADE UNDER FAVORABLE SOIL AND SITE CONDITIONS DURING OPTIMUM SPRING AND FALL SEEDING DATES MAY NOT REQUIRE MULCH.

RE-SEEDING

AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION WILL BE RESEED AS SOON AS SUCH AREAS ARE IDENTIFIED.

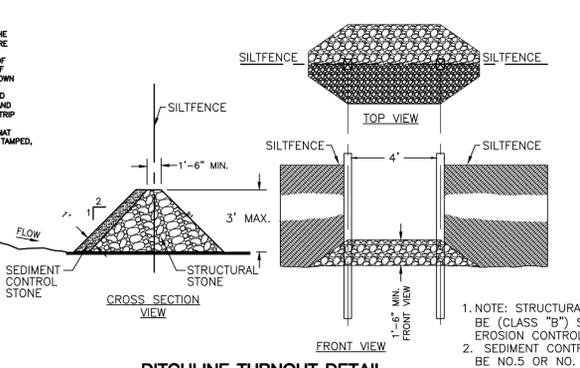
TABLE 3.31-B ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS 'QUICK REFERENCE FOR ALL REGIONS'

Table with 3 columns: Planting Dates, Species, Rate (lbs./acre). Lists species like Annual Ryegrass, Cereal Rye, German Millet, etc.

TABLE 3.31-C TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES

Table with 4 columns: Species, Seeding Rate (1000 ft.²), North, South. Lists species like Oats, Ryegrass, Rye, etc.

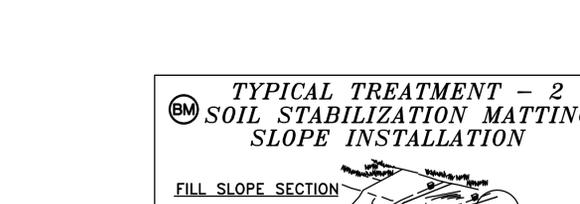
a. NORTHERN PIEDMONT AND MOUNTAIN REGION. SEE PLATES 3.22-1 AND 3.22-2.
b. SOUTHERN PIEDMONT AND COASTAL PLAIN.
c. MAY BE USED AS A COVER CROP WITH SPRING SEEDING.
d. MAY BE USED AS A COVER CROP FOR FALL SEEDING.
x MAY BE PLANTED BETWEEN THESE DATES.
- MAY NOT BE PLANTED BETWEEN THESE DATES.



TYPICAL TREATMENT - 2 SOIL STABILIZATION MATTING SLOPE INSTALLATION

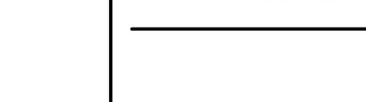
TABLE 3.36-5 SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE: 3.36-5

TYPICAL ORIENTATION OF TREATMENT - 1 (SOIL STABILIZATION BLANKET)



SOURCE: ADAPTED FROM LUDLOW PRODUCTS BROCHURE PLATE: 3.36-1

Smith River Interceptor CMP Rehabilitation City of Martinsville Contract II



KEY PLAN SCALE AS NOTED

NO. DATE BY DESCRIPTION REVISIONS

DRAWN BY MWC MWC APPROVED BY RSE RSE CHECKED BY JAP JAP DATE July, 2016

TITLE EROSION AND SEDIMENT CONTROL DETAILS PROJECT NO. 5060078738

SHEET NO. C8 OF

# STREAM RESTORATION PLANTING SPECIES LIST

Plants for this list have been selected based on tolerance to deposition, flooding, drought and salt; having a high habitat value; native; local; endemic; indigenous; and having a fibrous and networking root pattern. Selection of species for planting configuration must take into account wetland indicator status.

SEEDING SCHEDULE ALONG STREAM BANK (ALL AREAS)				
SCIENTIFIC NAME	COMMON NAME	LAYER	PLANT SIZE	DISTRIBUTION
<b>PERMANENT EROSION SEEDING</b>				
<i>Panicum virgatum</i>	SWITCHGRASS	HERB	SEED	BROADCAST MIX
<i>Juncus effusus</i>	SOFT RUSH	HERB	SEED	BROADCAST MIX
<i>Elymus virginicus</i>	VIRGINIA WILD RYE	HERB	SEED	BROADCAST MIX
<b>TEMPORARY EROSION SEEDING</b>				
<i>Lolium multiflorum</i>	ANNUAL RYGRASS	HERB	SEED	BROADCAST MIX
<i>Setaria italica</i>	GERMAN MILLET	HERB	SEED	BROADCAST MIX

\*EACH OF THE SPECIES LISTED FOR PERMANENT SEEDING MUST BE INCLUDED IN THE MIX IF A SPECIES IS NOT AVAILABLE. THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR AN ALTERNATIVE SPECIES.

### GENERAL CONSTRUCTION NOTES:

1. GRADING OF THE STREAM BANK SHALL BE CONDUCTED ABOVE THE NORMAL FLOW ELEVATION, WHICH ASSURES NO DISTURBANCE AT OR BENEATH WATER LEVEL.
2. ANY DEPOSITION OF EXCAVATED MATERIALS IN UPLAND AREAS AND ALL EARTHWORK OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO PREVENT THE EROSION OF THESE MATERIALS AND PRECLUDE THEIR ENTRY INTO STATE WATERS. RESTORED STREAMS SHALL BE PROTECTED FROM SEDIMENTATION FROM DISTURBED BANKS BY THE INSTALLATION OF SILT FENCING OR TEMPORARY EARTHEN BERMS WITH ROCK CHECK OUTLETS ALONG THE TOE OF THE BANK SLOPE ABOVE NORMAL WATER FLOW LEVEL. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE IN PLACE PRIOR TO CLEARING AND GRADING AND SHALL BE MAINTAINED IN GOOD WORKING ORDER TO MINIMIZE IMPACTS TO STATE WATERS IN ACCORDANCE WITH THE CURRENT EDITION OF THE "VIRGINIA EROSION AND SEDIMENTATION HANDBOOK. BANKS SHALL BE IMMEDIATELY STABILIZED PER PLANTING REQUIREMENTS AND SPECIFICATIONS INDICATED ON THESE PLANS.
3. STREAM BANKS TO BE RESTORED SHALL BE GRADED AS SHOWN ON PLANS.
4. EXCAVATION EQUIPMENT WILL AVOID WORKING WITHIN THE STREAM. WHEN THE NEED IS UNAVOIDABLE, DIVERSION DIKES, PORTABLE DAMS AND PUMPS WILL BE UTILIZED. NO EXCAVATION EQUIPMENT WILL BE ALLOWED TO OPERATE WITHIN A FLOWING (LIVE) STREAM.

### GENERAL PLANTING NOTES:

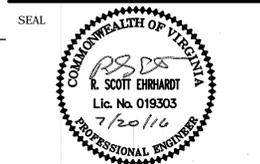
- INTRODUCTION
1. THE GOAL OF THE PLANTING PLAN IS TO STABILIZE THE STREAM BANK.
  2. TEMPORARY SEEDING AND MATTING OF DISTURBED AREAS SHALL BE REQUIRED TO PROVIDE SEDIMENT AND EROSION CONTROL PURPOSES AND FOR THE BENEFIT OF HABITAT.
  3. PERMANENT SEEDING SHALL BE ESTABLISHED BY PLANTING THE SELECTED SEED MIX DESCRIBED IN PERMANENT SEEDING MIXTURE PROVIDED HEREIN. IF ANY SPECIES, ON THE PERMANENT SEEDING MIXTURE IS NOT AVAILABLE, CONTACT THE CONSTRUCTION MANAGER FOR SUBSTITUTE SPECIES. THE SEEDING SHALL BE COVERED WITH COIR MATTING BELOW BANKFULL AND STRAW MULCH, OR APPROVED REPLACEMENT, ABOVE BANKFULL TO THE LIMITS OF DISTURBANCE. MULCH IS TO BE SPREAD BY HAND, BLOWER, OR OTHER SUITABLE EQUIPMENT AND ANCHORED INTO THE TOPSOIL WITH POLY DURING BLOWING, OR BY DISCING. BARE ROOT SEEDLINGS, LIVE STAKES OR PLUGS WILL BE PLANTED AFTER THE TEMPORARY SEED MIXTURE HAS BEEN APPLIED.
  4. TREES, SHRUBS, LIVE STAKES, BARE ROOT SEEDLINGS AND PLUGS SHALL BE PLANTED IN A MANNER TO ENSURE THEIR SURVIVAL. CONTRACTOR SHALL PLANT INTACT ROOTS, PLANT AT PROPER DEPTH, PROVIDE PROPER BACKFILLING, AND PROVIDE WATERING.
  5. PLANT MATERIALS SHALL BE STORED IN A MANNER TO PREVENT DESICCATION OF THE ROOT SYSTEM. PROTECT PLANTS AT ALL TIMES FROM SUN AND DRYING WINDS. PLANTS THAT CAN NOT BE PLANTED IMMEDIATELY SHALL BE KEPT IN THE SHADE AND WELL WATERED. PLANTS NOT PLANTED WITHIN TWO DAYS SHALL BE PROVIDED WITH ADEQUATE IRRIGATION AND ON-SITE PROTECTION FROM THE ELEMENTS.
  6. PLANTS SHALL NOT BE HANDLED BY THE STEMS DURING TRANSPORT TO PLANTING SITE OR DURING PLANTING.
  7. IF AN EROSION CONTROL BLANKET IS PRESENT, A CIRCULAR OPENING SHALL BE CUT IN THE BLANKET PRIOR TO EXCAVATION OF THE PIT.
  8. NON-BIODEGRADABLE MATERIAL SURROUNDING THE EARTHEN BALL OF THE PLAN SHALL BE REMOVED PRIOR TO BACKFILLING OF THE PIT.
  9. TO SET THE PLANTS, PREPARE ALIGNMENT OF INDIVIDUAL TREE SAPPLINGS PLUMB AND STRAIGHT AND PROVIDE ALLOWANCE FOR SETTLEMENT.
  10. BACKFILL THE PLANTING HOLES WITH IN-SITU SOIL MATERIALS REMOVED FOR PLANTING.
  11. AFTER BACKFILLING, WATER TO THE POINT OF SOIL SATURATION AND TAMP TO COMPACT THE BACKFILL MIXTURE. ADD EXISTING SOIL TO BRING THE FINAL GRADE IN THE PLANTING HOLE TO THE SURROUNDING SOIL SURFACE. RAKE THE UNUSED SOIL OUTSIDE THE PLANTING HOLES, TAKING CARE NOT TO MOUND THE SOIL OR TO SIGNIFICANTLY ALTER THE EXISTING GRADES.
  12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING 80% SURVIVABILITY THROUGH THE FIRST YEAR AFTER CONSTRUCTION. AS-BUILT, VEGETATIVE MONITORING AND GEOMORPHOLOGICAL MONITORING WILL BE COMPLETED WITHIN 60 DAYS AFTER CONSTRUCTION COMPLETION.
  13. TREES, SHRUBS AND LIVE STAKE PLANTING IS TO OCCUR BETWEEN NOVEMBER 15 AND MARCH 15, DURING DORMANCY. LIVE STAKES SHOULD ONLY BE USED WITHIN THE AREA WHERE ADEQUATE DRAINAGE AND SOIL SATURATION WILL INDUCE ADEQUATE ROOT GROWTH. LIVE STAKES SHALL HAVE A MINIMUM DIAMETER OF 1/2 INCHES AND A MINIMUM OF LENGTH 24 INCHES. SOAK THE STAKE FOR 24 HOURS. CUT ENDS AT A 45° ANGLE PRIOR TO INSTALLATION. DRIVE STAKE INTO THE GROUND TO 3/4 OF ITS LENGTH, AT A 45° IN THE DOWNSTREAM DIRECTION.
  14. THE SUPPLIER OF ALL SEEDS AND/OR VEGETATION SHALL CERTIFY THAT THE ORIGIN OF THE SEEDS FROM WHICH THE PLANTS OR SEEDS WERE PRODUCED IS FROM HARDINESS ZONES 7A AND 7B, EAST OF TENNESSEE, AND AS DIRECTED BY THE SPECIAL PROVISIONS.
  15. ALL PLANTS SHALL BE CONSERVATION GRADE, FIRST CLASS REPRESENTATIVES OF THEIR SPECIES, NURSERY GROWN ACCORDING TO GOOD HORTICULTURE PRACTICES AND GROWN IN A CLIMATE SIMILAR TO THE PROJECT AREA. PLANTS SHALL BE VIGOROUS, HEALTHY AND FREE OF DISEASE, INSECTIVOROUS PESTS, DECAY, INJURIES AND ALL FORMS OF OBJECTIONABLE DISFIGUREMENTS. TRUNKS AND BRANCHES SHALL BE FREE OF CUTS AND ABRASIONS. PLANTS SHALL CONFORM TO ALL ASPECTS OF THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1) FOR CONSERVATION GRADE PLANT MATERIAL. TREES AND SHRUBS SHALL BE PLANTED ON 10 FT CENTERS. LIVE STAKES SHALL BE PLANTED IN GROUPS WHERE PLANS SHOW ON 4 FT CENTERS.

A COMBINATION OF BARE ROOT AND PLUG PLANTS SHOULD BE PLANTED IN CONJUNCTION WITH THE APPLIED WETLAND VARIETY SEED MIX IN ORDER TO CREATE A NATURALIZED STREAM BANK AND TO ESTABLISH ADEQUATE VEGETATIVE COVER TO PREVENT SLOUGHING AND EROSION OF THE BANK.

16. THE SELECTED WETLAND SEED MIX SHALL BE SURFACE SOWN AT THE RATE OF 150 LBS/ACRE TO ALL DISTURBED AREAS ALONG THE EASEMENT.
17. ALL BARE ROOT SEEDLINGS OR PLUGS SHALL BE PLANTED IN SUCH A MANNER AS TO ENSURE THEIR SURVIVAL. THIS SHALL INCLUDE THE PLANTING OF INTACT ROOTS, PLANTING AT PROPER DEPTH, PROPER BACKFILLING AND WATERING.
18. IN AREAS WHERE THE RESTORATION DESIGN REQUIRES SLOPES TO BE CUT BACK AND GRADED, SLOPES SHALL BE SCARIFIED APPROXIMATELY 4 TO 6 INCHES BELOW THE SURFACE PRIOR TO PLANTING. BIODEGRADABLE EROSION CONTROL MAT SHALL BE USED IN ALL AREAS. AN OPENING SHALL BE CUT IN THE MAT FOR EACH PLANTING PRIOR TO INSTALLATION. BARE ROOT SEEDLINGS OR PLUGS SHALL BE PLANTED AND THE ENTIRE AREA SHALL BE TOP DRESSED WITH A WETLAND SEED MIX.
19. BARE ROOT SEEDLINGS OR PEAT POTS THAT ARE TO BE SELECTED FROM THE PLANTING SPECIES LIST ON THIS SHEET SHALL BE PLANTED IN MONOSPECIFIC GROUPS USING A 2-FOOT ON CENTER SPACING WITHIN THE GROUP TO A MAXIMUM NUMBER OF 50 PLANTS PER GROUP. THE PLANTS TO BE LOCATED NEAREST TO THE BANKFULL ELEVATION SHOULD BE FACULTATIVE WET (FCW).
20. BARE ROOT/PLUG PLANTS DIMENSIONS ARE MAXIMUMS. PLANTINGS SHALL BE RANDOM.

**Dewberry**  
 Dewberry Engineers Inc.  
 551 Piney Forest Road  
 Danville, VA 24540  
 Phone: 434.797.4487  
 Fax: 434.797.4341

Smith River Interceptor  
 CMP Rehabilitation  
 City of Martinsville  
 Contract II



KEY PLAN

SCALE

AS NOTED

No.	DATE	BY	Description

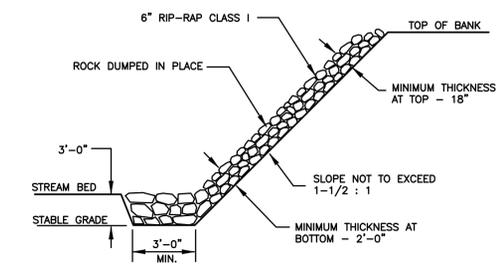
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DRAWN BY: MWC  
 APPROVED BY: RSE  
 CHECKED BY: JAP  
 DATE: July, 2016

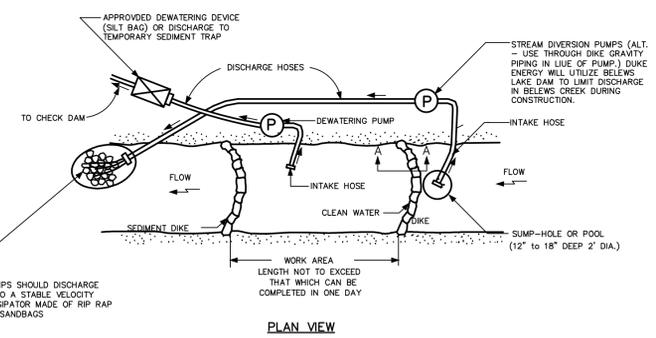
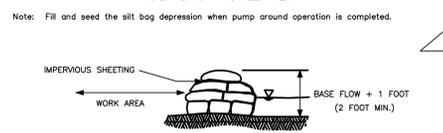
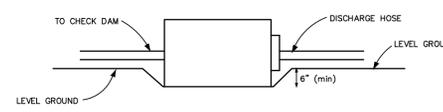
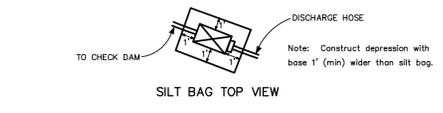
## STREAM RESTORATION DETAILS

PROJECT NO. 50078733

SHEET NO. C9 OF



**S RIP-RAP PLACEMENT DETAIL**  
 NOT TO SCALE

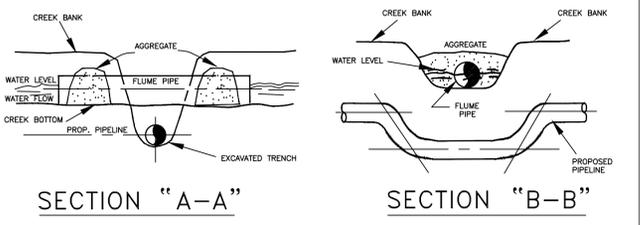
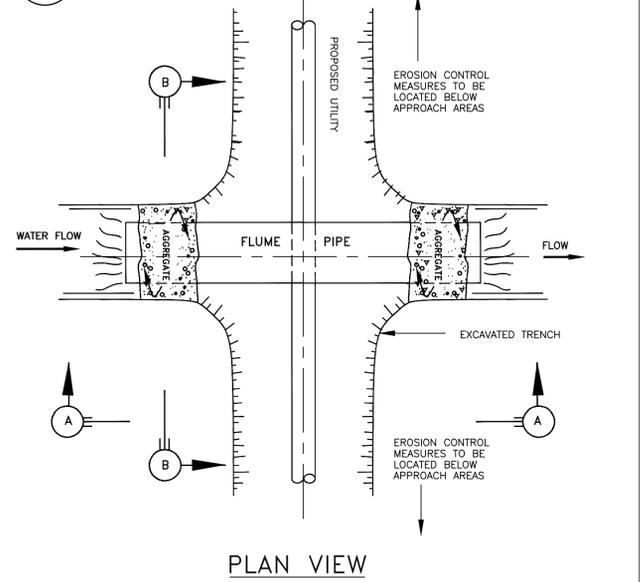


NOTE: ESTIMATED MINIMUM PUMP SIZE NEEDED FOR BASE FLOW IS 2" PUMP. CONTRACTOR IS RESPONSIBLE FOR SIZING PUMP AND MAINTAINING WORK "IN THE DRY".

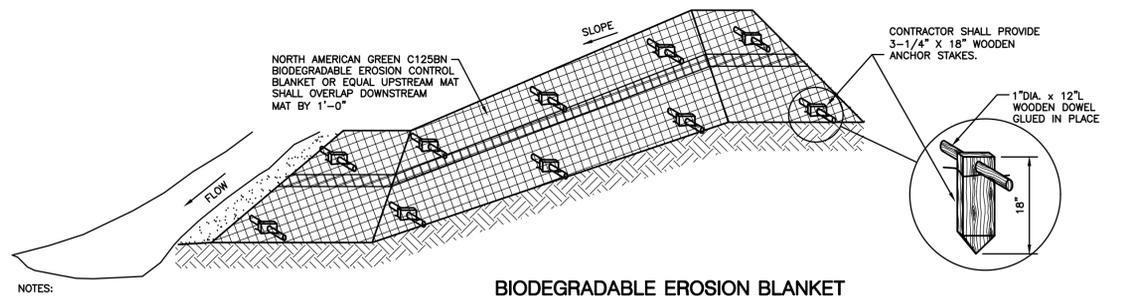
### USC TEMPORARY PUMP AROUND

N.T.S.

### USC FLUME PIPE CROSSING



SOURCE: Va. DSWC PLATE. 3.25-3



NOTES:  
 1. BRING THE MATERIAL TO THE STREAM BANKS EDGE BEFORE TERMINATING THE INSTALLATION. TURN THE END UNDER \*\* AND STAKE AT 12" INTERVALS.  
 2. CONTRACTOR SHALL SEED BEFORE EROSION CONTROL BLANKET IS PUT IN PLACE

### BIODEGRADABLE EROSION BLANKET INSTALLATION DETAIL

N.T.S.

## S STREAM RESTORATION DETAILS

P:\50078733\CAD\Civil\Contract II\2016.03.30 - Details\_CII.dwg, 7/21/2016 9:13:34 AM, mcollins  
 4/11/2016 1:58:52 PM

Typical Traffic Control Work Beyond the Shoulder Operation (Figure TTC-1.1) NOTES

Guidance:

- 1. The minimum distance between the sign and work vehicle should be 1300'-1500' on Limited Access highways, and on all other roadways 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limited is 45 mph or less.

Option:

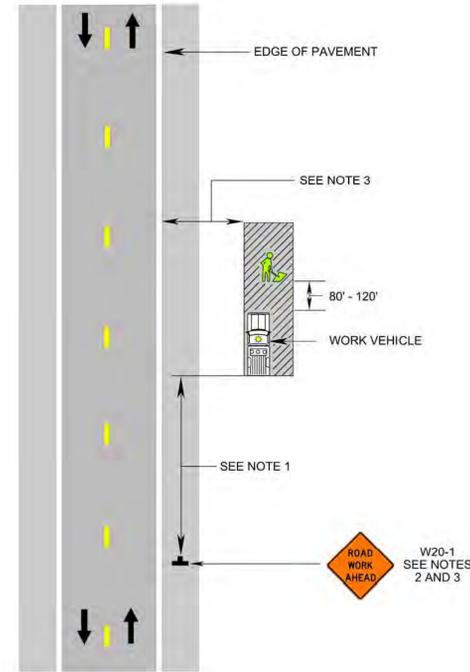
- 2. The ROAD WORK AHEAD (W20-1) sign may be replaced with other appropriate signs such as the SHOULDER WORK (W21-5) sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.
3. The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 4 feet behind vertical curb (Standard CG-2 and CG-6) on urban roadways, or outside of the clear zone for all other roadways. For clear zone values see Page A-4 of Appendix A.
4. For short-term, short duration or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or oscillating lights is used.

Standard:

- 5. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.
6. If the work space is in the median of a divided highway, an advance warning sign shall also be placed on the left side of the directional roadway.

1: Revision 1 - 4/1/2015

Work Beyond the Shoulder Operation (Figure TTC-1.1)



TRANSPORTATION MANAGEMENT PLAN NOTES

- 1. THIS TRANSPORTATION MANAGEMENT PLAN (TMP) IS PREPARED FOR THE CITY OF MARTINSVILLE - SMITH RIVER INTERCEPTOR CMP REHABILITATION PROJECT. IT IS NOT THE INTENT OF THIS PLAN TO INCLUDE EVERY DETAIL WHICH MUST BE CONSIDERED FOR TRAFFIC CONTROL DURING CONSTRUCTION OF EACH WORK ZONE, BUT TO PROVIDE THE GENERAL GUIDELINES THAT THE CONTRACTOR SHALL FOLLOW WHEN DEVELOPING THE TMP FOR VDOT APPROVAL. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR SAFE TRAVEL AROUND WORK ZONES IN ACCORDANCE WITH ALL VDOT REQUIREMENTS. THE ENGINEER DOES NOT ASSUME ANY RESPONSIBILITY FOR THE TRAFFIC CONTROL MEASURES THAT ARE IMPLEMENTED DURING PROJECT CONSTRUCTION.
2. THE WORK AREAS THAT REQUIRE TRAFFIC MANAGEMENT ARE SHOWN ON THE PROJECT AREA MAP ON THIS SHEET. OTHER ROADWAYS MAY BE AFFECTED DUE TO MATERIAL STAGING, TRANSPORTATION OF MATERIALS, LINE TESTING, UNFORSEEN FIELD CONDITIONS, ETC., AND SHALL BE CONSIDERED FOR WORK AREA PROTECTION AND TRAFFIC MANAGEMENT TECHNIQUES AS REQUIRED. VARIOUS TEMPORARY TRAFFIC CONTROL DETAILS FROM THE 2011 VIRGINIA WORK AREA PROTECTION MANUAL, REVISION 1 ARE SHOWN ON THIS SHEET. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE WHICH DETAILS APPLY FOR EACH SPECIFIC WORK CONDITION. ADDITIONAL DETAILS MAY BE REQUIRED PRIOR TO CONSTRUCTION BY VDOT.
3. THE CONTRACTOR SHALL CONTACT VDOT IN WRITING WITH A WORK SCHEDULE TWO (2) WEEKS PRIOR TO CONSTRUCTION. VDOT WILL DETERMINE IF POLICE PATROL IS NECESSARY FOR TRAFFIC CONTROL.
4. THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION WITH VDOT.
5. SIGN SPACING MAY ONLY BE ADJUSTED FOR FIELD CONDITIONS IF AUTHORIZED BY VDOT.
6. ALL PAVEMENT MARKINGS CONFLICTING WITH TRAFFIC PATTERNS SHALL BE REMOVED AND RESTRIPE AS NECESSARY. PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
7. WHEN WORK IS NOT BEING PERFORMED, MATERIALS AND PARKED EQUIPMENT SHALL NOT INTERFERE WITH TRAFFIC.
8. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL, REVISION 1 AND AS DIRECTED BY VDOT. WORK SHALL COMPLY WITH ALL REGULATIONS PROVIDED IN THE LAND USE PERMIT.
9. SAFE ACCESS TO ALL EXISTING PUBLIC ROADWAYS SHALL BE MAINTAINED AT ALL TIMES.
10. WORK HOURS SHALL BE APPROVED BY VDOT PRIOR TO CONSTRUCTION. CONSTRUCTION WORK AFTER DARK IS NOT ANTICIPATED FOR THE PROJECT. HOWEVER, SHOULD CONSTRUCTION CONTINUE AFTER DARK, FLOODLIGHTS SHALL BE UTILIZED WHERE EXISTING LIGHT IS NOT ADEQUATE. THE FLOODLIGHT SHALL NOT CREATE A DISTRACTING GLARE TO DRIVERS.
11. ALL FLAGGERS SHALL BE STATE CERTIFIED AND HAVE THEIR CERTIFICATION CARD IN THEIR POSSESSION WHEN PERFORMING FLAGGING DUTIES.
12. CHANNELLING DEVICES SUCH AS CONES SHALL BE UTILIZED WHERE REQUIRED AND FOLLOW THE WORK AREA PROTECTION MANUAL, REVISION 1 GUIDELINES.
13. ALL EXISTING ROADWAY SIGNAGE SHALL BE MAINTAINED DURING THE LIFE OF THE PROJECT.
14. THIS PROJECT IS CLASSIFIED AS TYPE A, CATEGORY 1.

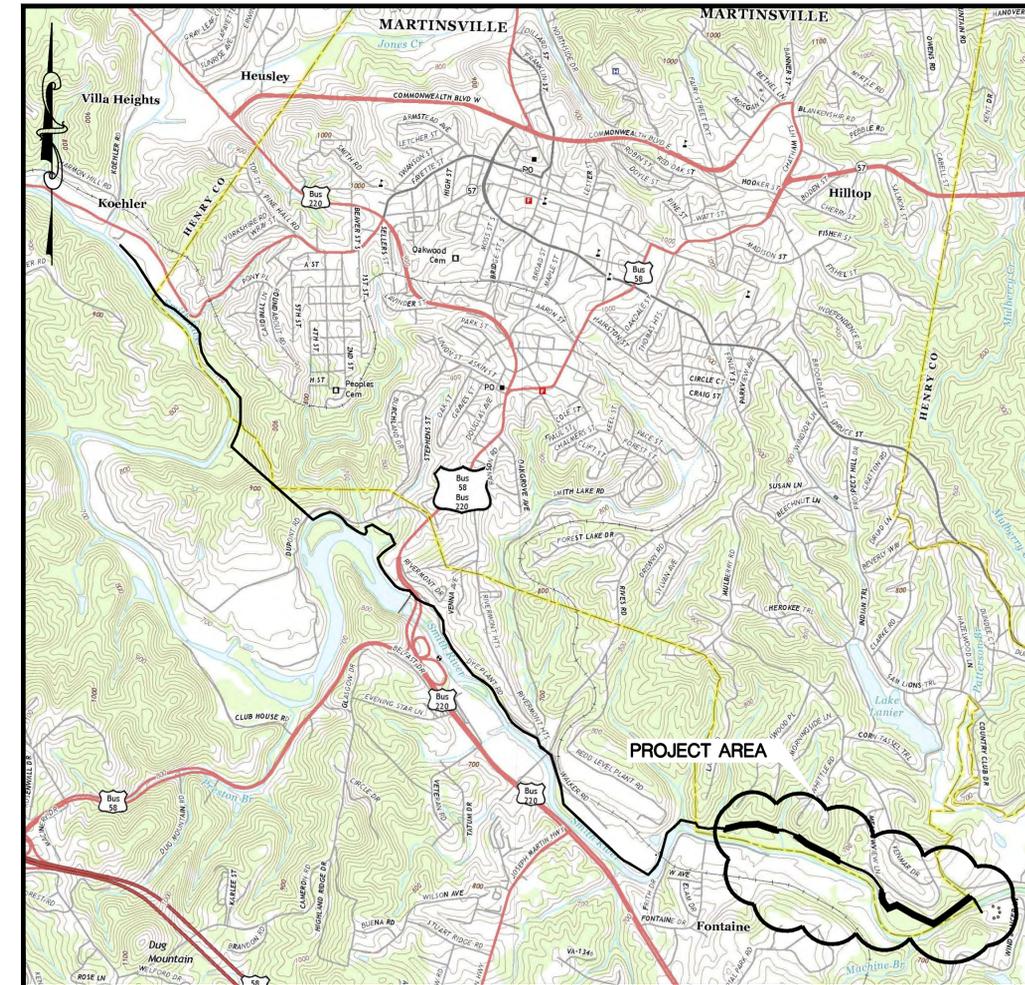
PUBLIC COMMUNICATION PLAN

VDOT Contact: Jim Keene - 276-627-1509

Traffic Operation Center: 540-375-0170 or 1-800-367-7623

Local Contact: City of Martinsville: 276-403-5182
City of Martinsville Fire and EMS: 276-403-5325
City of Martinsville Sheriff's Office: 276-403-5151
Henry County: 276-634-4601
Henry County Sheriff's Office: 276-656-4200
Henry County EMS: 276-634-4660

State Police Contact: Virginia State Police Division 6 Headquarters: 540-375-9500
Virginia State Police Area 42 Office: 276-632-3060



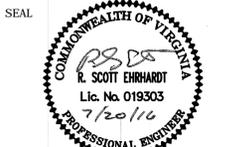
Vicinity Map

SCALE: N.T.S.



Dewberry Engineers Inc.
551 Piney Forest Road
Dumfries, VA 24540
Phone: 434.797.4487
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Smith River Interceptor
CMP Rehabilitation
City of Martinsville
Contract II



KEY PLAN

SCALE

AS NOTED

Table with 4 columns: No., DATE, BY, Description. Includes a REVISIONS section.

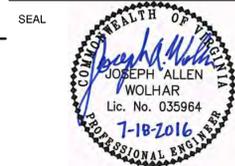
DRAWN BY: MWC
APPROVED BY: RSE
CHECKED BY: JAP
DATE: July, 2016
TITLE:

Transportation Management Plan

PROJECT NO. 50078733

C10

SHEET NO. OF



KEY PLAN

SCALE

No.	DATE	BY	Description
REVISIONS			

DRAWN BY MKM

APPROVED BY JAW

CHECKED BY JAW

DATE July, 2016

TITLE

**STRUCTURAL DETAILS**

PROJECT NO. 50078733

**S1**

SHEET NO.

**AERIAL SEWER CROSSING SUPPORT PIER NOTES**

**DESIGN:**

- THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS, SPECIFICATIONS, AND GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
- STRUCTURAL DESIGN OF THE CONCRETE FOUNDATION SUPPORTING AERIAL SEWER CROSSINGS CONFORMS TO THE REQUIREMENTS OF THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE, 2012 EDITION.

**FOUNDATIONS:**

- AERIAL SEWER CROSSING SUPPORT PIER FOUNDATION DESIGN IS BASED ON AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 2,000 PSF. CONTRACTOR SHALL VERIFY ADEQUATE SOIL BEARING PRESSURE AT FOOTING EXCAVATION WITH GEOTECHNICAL ENGINEER PRIOR TO PLACING FOOTINGS.
- ENGINEER IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD CONTRARY TO THOSE ASSUMED FOR DESIGN.
- ALL COMPACTED FILL, EXCAVATIONS, AND SUBGRADES SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE COMMONWEALTH OF VIRGINIA (OR A QUALIFIED GEOTECHNICAL TECHNICIAN WORKING UNDER THE DIRECT SUPERVISION OF A REGISTERED ENGINEER) TO VERIFY SPECIFIED GEOTECHNICAL CONFORMANCE REQUIREMENTS. CONTRACTOR SHALL COORDINATE TESTING WITH OWNER AS DECLARED IN THE CONTRACT DOCUMENTS.
- CARE SHALL BE EXERCISED DURING EXCAVATION FOR FOUNDATIONS SO THAT AS LITTLE DISTURBANCE AS POSSIBLE OCCURS AT THE FOUNDATION LEVEL. LOOSE OR SOFT SOILS SHALL BE CAREFULLY CLEANED FROM THE BOTTOM OF THE EXCAVATIONS BEFORE PLACING CONCRETE. ACTUAL FOUNDATION SUBGRADES SHALL BE OBSERVED DURING CONSTRUCTION BY THE GEOTECHNICAL ENGINEER TO EVALUATE WHETHER SUITABILITY OF SUBGRADE SOILS.
- FOUNDATION SUBGRADES REQUIRING UNDERCUT SHALL BE FILLED FROM THE ELEVATION OF UNDERCUT TO THE ORIGINAL DESIGN SUBGRADE ELEVATION WITH LEAN CONCRETE, MINIMUM 200 PSI FLOWABLE FILL.
- WHENEVER POSSIBLE, FOUNDATION CONCRETE SHALL BE PLACED IMMEDIATELY AFTER EXCAVATION SO THAT ACCUMULATION OF WATER IN THE EXCAVATION OR DRYING OF FOUNDATION SOILS CAN BE AVOIDED.
- CONTRACTOR SHALL CONTROL SITE GROUNDWATER AND/OR SURFACE WATER BY ALL MEANS NECESSARY TO MAINTAIN A WATER LEVEL ONE FOOT BELOW SLAB SUBGRADE SO AS TO NOT DAMAGE FOUNDATION EXCAVATIONS.
- ANY SUBGRADE SOILS WHICH HAVE BEEN WEAKENED DUE TO SATURATION OR DISTURBANCE SHALL BE RECOMPACTED OR REMOVED AND REPLACED WITH STRUCTURAL FILL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. CONCRETE STRUCTURES SHALL BE CONSTRUCTED IN AN EXPEDIENT MANNER ONCE EXCAVATIONS ARE MADE TO AVOID WEATHER DAMAGE.
- ALL EXCAVATIONS SHALL CONFORM TO APPLICABLE OSHA REGULATIONS.

**REINFORCED CONCRETE:**

- UNLESS NOTED OTHERWISE, ALL CONCRETE WORK, DETAILING, FABRICATION, AND PLACING OF REINFORCING AND CONCRETE SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
  - A. ACI 301, ACI 315, AND ACI 318.
  - B. CRSI RECOMMENDED PRACTICE OF PLACING REINFORCING BARS.
  - C. ACI 306 AND ACI 305 FOR COLD AND HOT WEATHER CONCRETING, RESPECTIVELY.

- ALL CONCRETE SHALL BE NORMAL WEIGHT WITH A MAXIMUM UNIT WEIGHT OF 150 POUNDS PER CUBIC FOOT AND SHALL HAVE A MIN. 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
- PROVIDE A 3/4" CHAMFER AT ALL EXPOSED CONCRETE CORNERS.

- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, AND SHALL BE GRADE 60 U.N.O.

- REINFORCING BAR LAP SPLICES AND HOOK DIMENSIONS SHALL BE AS REQUIRED PER THE LAP SCHEDULE ON THIS SHEET UNLESS NOTED OTHERWISE.

**STRUCTURAL STEEL:**

- UNLESS NOTED OTHERWISE, DESIGN, DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE AISC "MANUAL OF STEEL CONSTRUCTION", NINTH EDITION AND THE AISC CODE OF STANDARD PRACTICE.

- ALL WELDING SHALL BE DONE BY WELDERS CURRENTLY CERTIFIED BY THE AMERICAN WELDING SOCIETY (AWS) AS HAVING PASSED AWS QUALIFICATION TESTS FOR THE TYPE OF WELDING THEY ARE TO PERFORM. ALL WELDERS SHALL USE E70XX ELECTRODES AND SHALL CONFORM TO AWS STANDARDS.

- ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED U.N.O.

**REBAR SPLICE AND HOOK SCHEDULE**

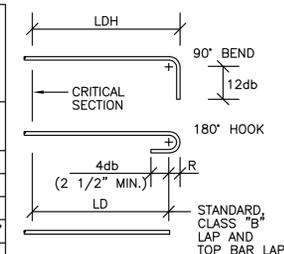
**REBAR SPLICE AND HOOK DIMENSIONS IN REINF. CONCRETE**  
F'c = 4,000 PSI

ASTM BAR SIZE	LD	CLASS B LAP	TOP BAR LAP	LDH
3	12"	12"	16"	7 1/2"
4	12"	15"	20"	9 1/2"
5	15"	19"	24"	12"
6	17"	23"	29"	14 1/2"
7	25"	33"	43"	17"
8	29"	37"	49"	19"
9	38"	50"	64"	21 1/2"

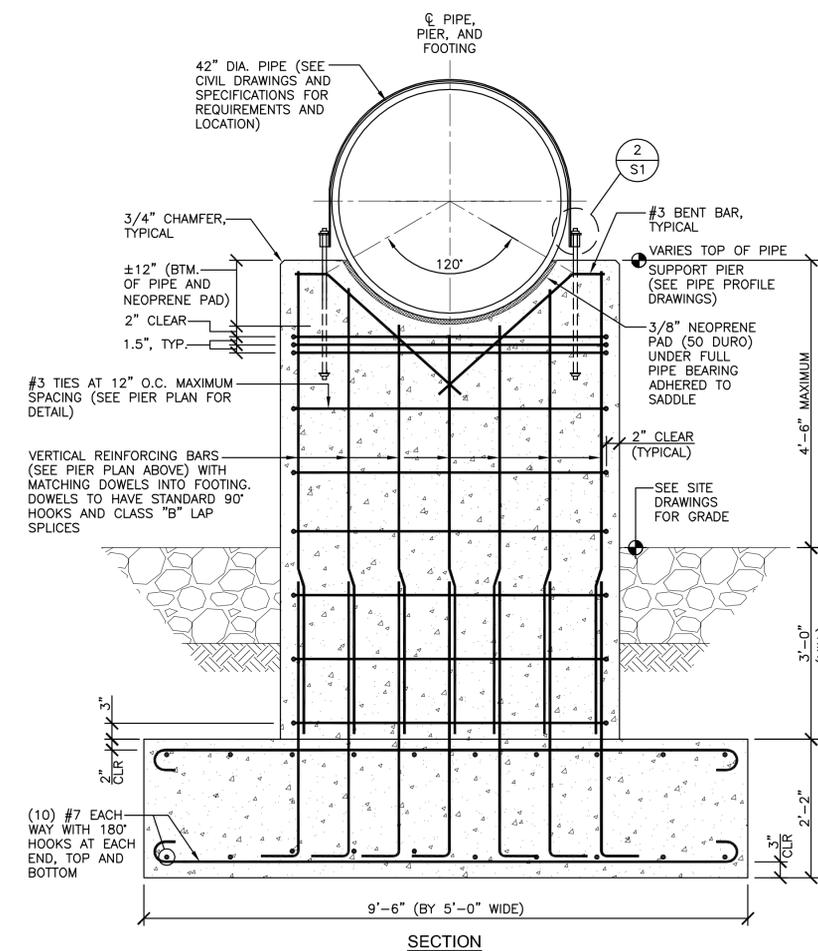
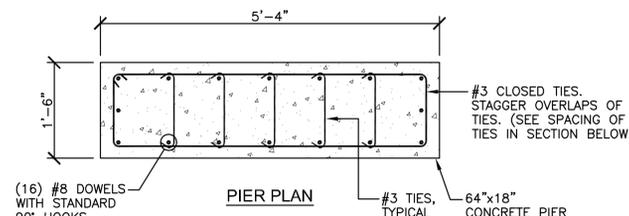
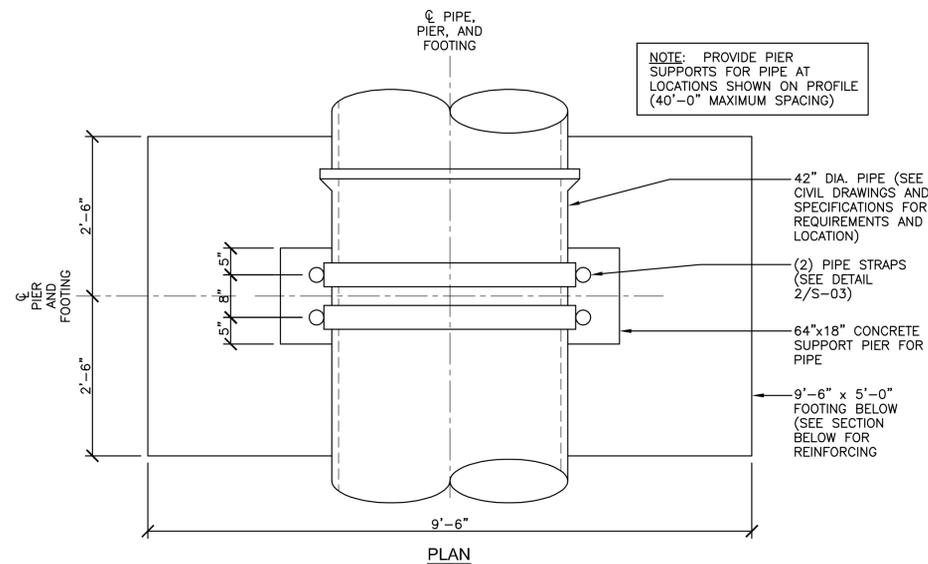
**NOTES:**

TOP BAR - DEFINED AS A BAR LOCATED SUCH THAT 12 IN. OR MORE OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE SPLICE.

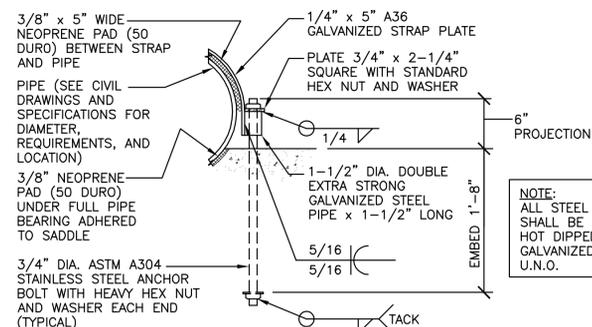
MINIMUM OUTSIDE RADIUS OF BEND, R, SHALL BE 4db.



LD - STANDARD DEVELOPMENT LENGTH OF BAR  
LDH - STANDARD DEVELOPMENT LENGTH OF HOOK  
F'c - SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE  
db - BAR DIAMETER PER ASTM



**1 PIPE SUPPORT DETAIL**  
SCALE: 3/4" = 1'-0"



**2 PIPE STRAP DETAIL**  
SCALE: NOT TO SCALE