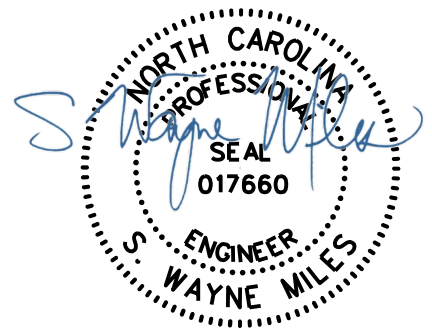


CITY OF RALEIGH

STANDARD DETAILS



STORMWATER

APPROVED NCDOT DETAILS

DETAIL NUMBER	DETAIL NAME
310.10	DRIVEWAY PIPE CONSTRUCTION USING NO SPECIAL END SECTIONS
838.01 - 838.80	ENDWALLS PER NCDOT
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.01	BRICK CATCH BASIN 12" THRU 54" PIPE
840.02	CONCRETE CATCH BASIN 12" THRU 54" PIPE
840.03	FRAME, GRATES AND HOOD
840.04	CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE
840.05	BRICK OPEN THROAT CATCH BASIN 12" THRU 48" PIPE
840.14	CONCRETE DROP INLET 12" THRU 30" PIPE
840.15	BRICK DROP INLET 12" THRU 30" PIPE
840.16	DROP INLET FRAME AND GRATE FOR USE WITH DWGS. 840.14 & 840.15
840.31	CONCRETE JUNCTION BOX 12" THRU 66" PIPE
840.32	BRICK JUNCTION BOX 12" THRU 66" PIPE
840.34	TRAFFIC BEARING JUNCTION BOX FOR PIPES 42" AND UNDER
840.45	PRECAST DRAINAGE STRUCTURE (SOLID ONLY)
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
840.51	BRICK MANHOLE 12" THRU 36" PIPE
840.52	PRECAST MANHOLE 4', 5' AND 6' DIAMETER 12" THRU 48" PIPE
840.53	PRECAST MANHOLE WITH MASONRY BASE 12" THRU 42" PIPE
840.54	MANHOLE FRAME AND COVER
840.55	MANHOLE FRAME AND COVER (FLUSH WITH SLAB FOR OPEN THROAT CATCH BASIN)
840.66	DRAINAGE STRUCTURE STEPS
840.71	CONCRETE AND BRICK PIPE PLUG
840.72	PIPE COLLAR
876.01	RIP RAP IN CHANNELS AND DITCHES
876.03	DRAINAGE DITCHES WITH CLASS "A" RIP RAP
876.04	DRAINAGE DITCHES WITH CLASS "B" RIP RAP

NOTES:

1. THIS TABLE DOES NOT NEED TO BE PLACED ON THE PLANS.
2. PLACE ANY APPLICABLE NCDOT DETAILS FROM THE TABLE ON THE PLANS.

CITY OF RALEIGH		
STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	APPROVED NCDOT DETAILS	
	SW-10.01.1	

APPROVED NCDOT DETAILS

DETAIL NUMBER	DETAIL NAME
CONVERSION	CONVERT BOX TO OTCB
CONVERSION	CONVERT BOX TO TB 2GI
CONVERSION	CONVERT BOX TO TBJB
CONVERSION	CONVERT CB DI OTCB OR 2GI TO JB
CONVERSION	CONVERT CB OR JB TO DI OR 2GI
CONVERSION	CONVERT DI OR CB TO TBJB WITH STEEL COVER
CONVERSION	CONVERT DI OR JB TO CB
CONVERSION	CONVERT OTCB TO CB

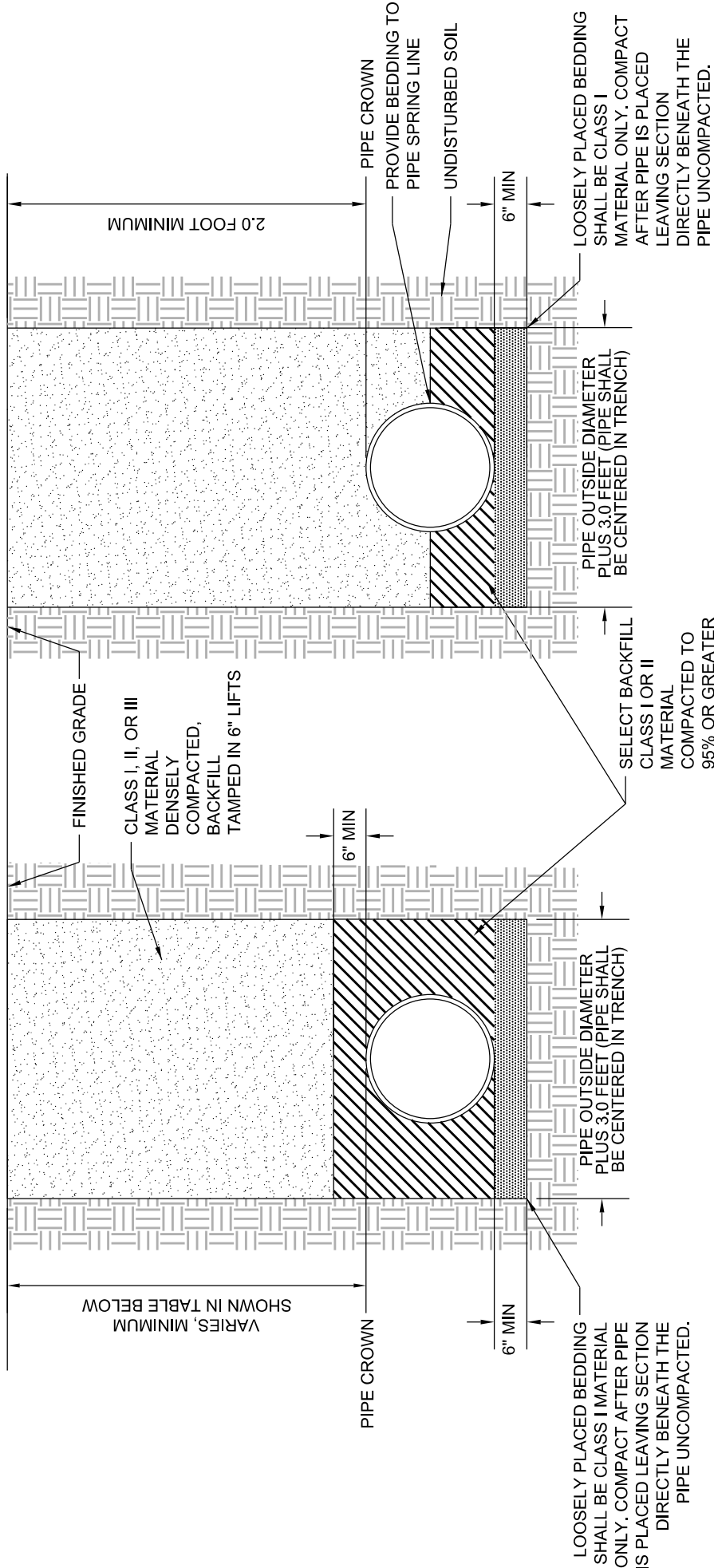
NOTES:

1. THIS TABLE DOES NOT NEED TO BE PLACED ON THE PLANS.
2. PLACE ANY APPLICABLE NCDOT DETAILS FROM THE TABLE ON THE PLANS.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	APPROVED NCDOT DETAILS	
SW-10.01.2		

TYPICAL SECTION A: HDPE AND PP

TYPICAL SECTION B: RCP



- GENERAL NOTES:**
- BACKFILL MATERIAL SHALL BE #57 STONE, #67 STONE, ASTM D2321 CLASS II MATERIAL, OR AASHTO A1 OR A3 MATERIAL.
 - MAXIMUM COVER REQUIREMENTS SHALL BE ESTABLISHED BY THE ENGINEER OF RECORD THROUGH ENGINEERING CALCULATIONS BASED UPON AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THE PIPE MATERIALS SPECIFIED ON THE PLANS.
 - MAXIMUM ALLOWABLE DIAMETER FOR HDPE AND PP IS 48".
 - IF WATER TABLE IS HIGHER THAN SUBGRADE OF TRENCH, STONE BACKFILL MATERIAL SHALL BE WRAPPED IN NCDOT TYPE 4A GEOTEXTILE.
 - IT IS THE RESPONSIBILITY OF THE ENGINEER TO CONFIRM THE STRUCTURAL DESIGN ASSUMPTIONS REGARDING THE FOUNDATION SUPPORT AND THAT THE ASSUMED GROUNDWATER CONDITIONS OF THE STRUCTURAL TRENCH SUPPORT WILL BE MET.

DIAMETER (in)	HIGH DENSITY POLYETHYLENE (HDPE) AND POLYPROPYLENE (PP) MIN COVER CROWN TO FINISHED GRADE (ft)
15	2.0
18	2.0
24	2.0
30	2.0
36	2.1
42	2.4
48	2.8

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 9/2024	NOT TO SCALE
BEDDING FOR STORMWATER PIPES		
SW-10.02		

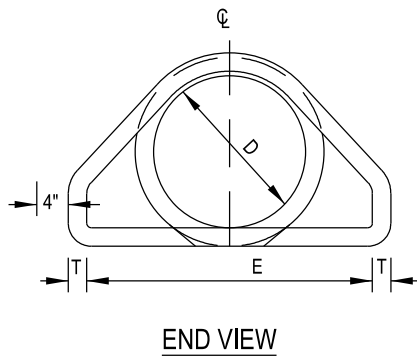
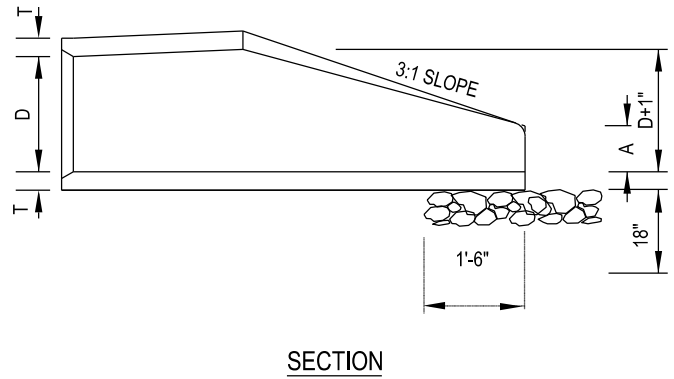
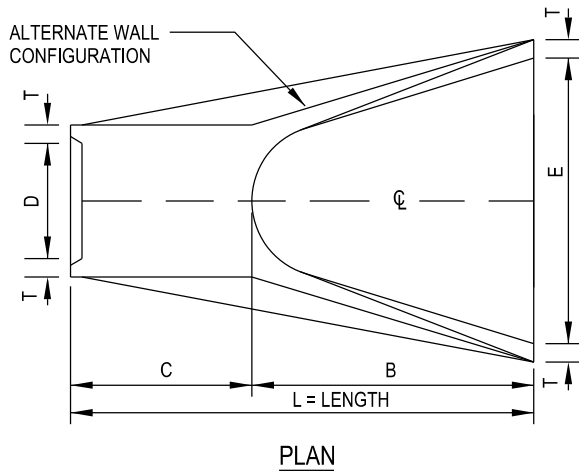
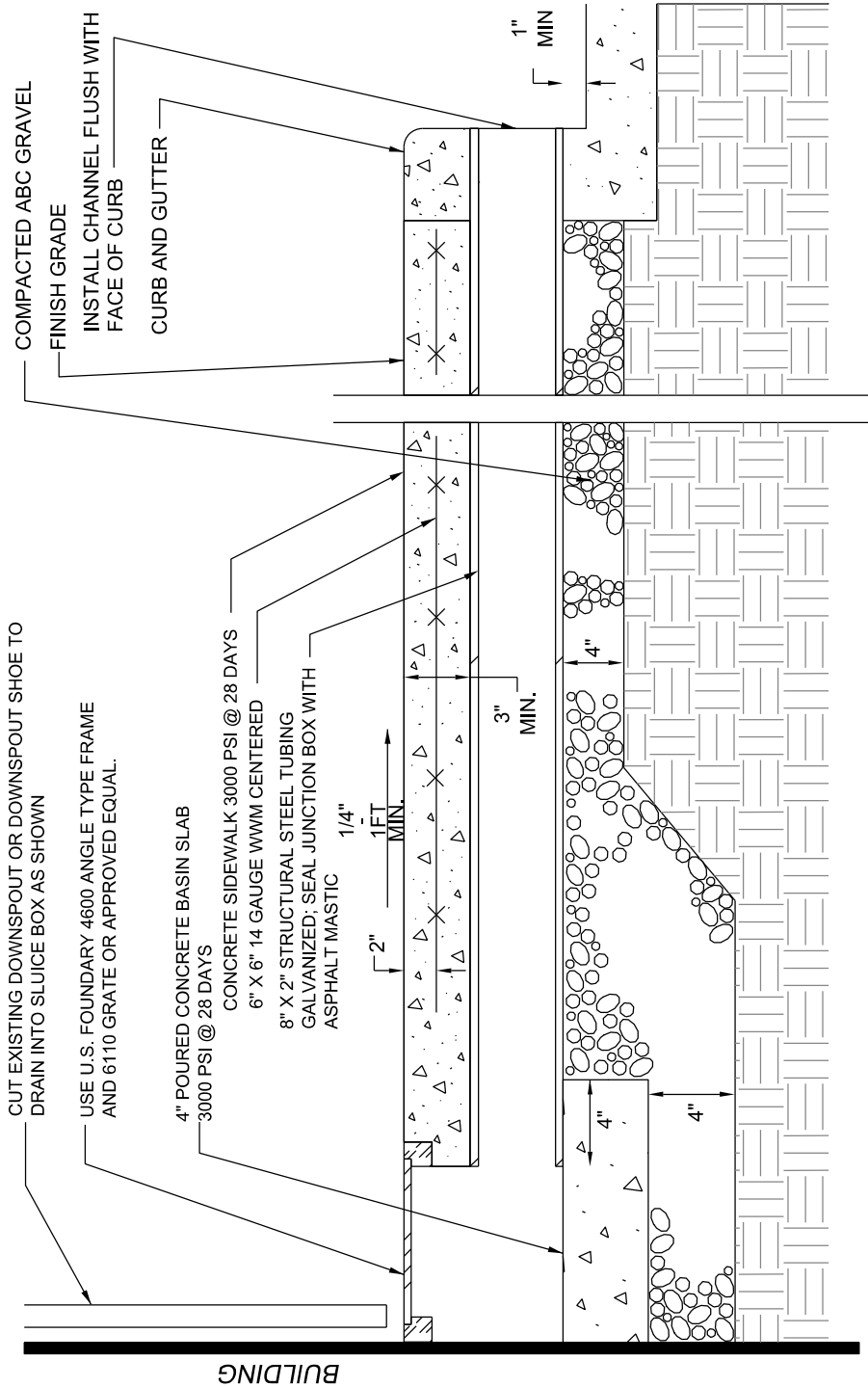


TABLE OF DIMENSIONS							
D	T	A	B	C	E	L	WT.
15"	2-1/4"	6"	2'-3"	3'-10"	2'-0"	6'-1"	730
18"	2-1/2"	9"	2'-3"	3'-10"	3'-0"	6'-1"	1190
24"	3"	10"	3'-8"	2'-6"	4'-0"	6'-2"	1770
30"	3-1/2"	1'-0"	4'-6"	1'-8"	5'-0"	6'-2"	2380

NOTES:

1. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIP OF LIKE DIAMETER PER AASHTO M170, TABLE 2, WALL B.
2. ALL CONCRETE TO BE 3600 P.S.I COMPRESSIVE STRENGTH.
3. PROVIDE TONGUE OR SPIGOT JOINT AT INLET END SECTION.
4. PROVIDE GROOVE OR BELL JOINT AT OUTLET END SECTION.
5. THE DIMENSIONS FOR END SECTIONS SHALL SUBSTANTIALLY AGREE WITH THE TABLE. MINOR VARIATIONS WILL BE PERMITTED BASED ON THE MANUFACTURER'S STANDARD FORMS AND TEMPLATES.
6. NOT TO BE USED IN NCDOT MAINTAINED ROW.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	FLARED END SECTION 15" THRU 30" PIPE	
SW-10.03		



CUT EXISTING DOWNSPOUT OR DOWNSPOUT SHOE TO DRAIN INTO SLUCE BOX AS SHOWN

USE U. S. FOUNDRY 4600 ANGLE TYPE FRAME AND 6110 GRATE OR APPROVED EQUAL.

4" POURED CONCRETE BASIN SLAB 3000 PSI @ 28 DAYS

CONCRETE SIDEWALK 3000 PSI @ 28 DAYS 6" X 6" 14 GAUGE WWM CENTERED

8" X 2" STRUCTURAL STEEL TUBING GALVANIZED; SEAL JUNCTION BOX WITH ASPHALT MASTIC 1/4"

1/4"

1 FT MIN.

2"

3" MIN.

4"

4"

4"

1" MIN.

COMPACTED ABC GRAVEL

FINISH GRADE

INSTALL CHANNEL FLUSH WITH FACE OF CURB

CURB AND GUTTER

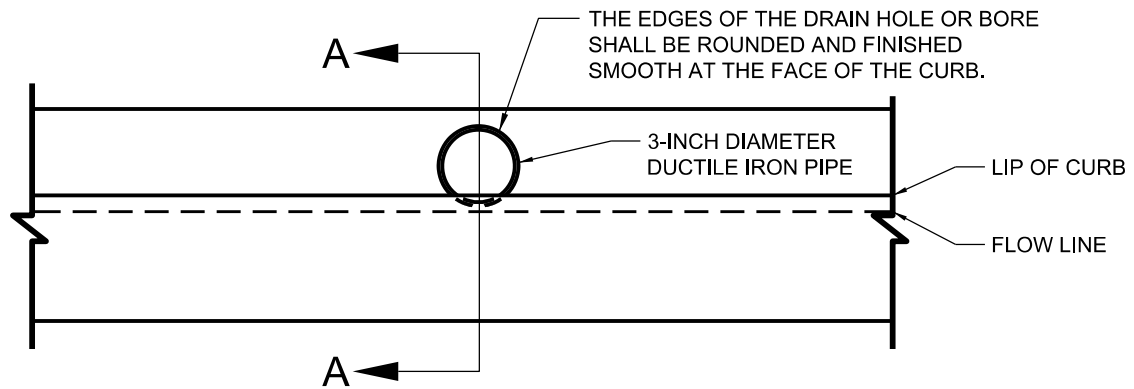
BUILDING

CITY OF RALEIGH
STANDARD DETAIL

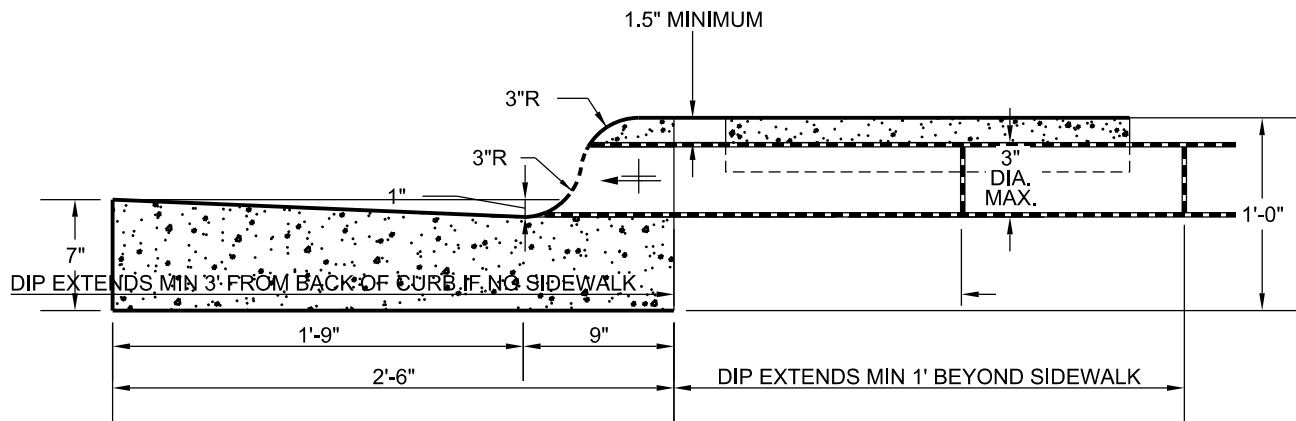
REVISIONS DATE: 9/2024 NOT TO SCALE

COMMERCIAL
CURB DRAIN DETAIL

SW-10.04



FRONT VIEW



SECTION A-A

GENERAL NOTES:

1. A RIGHT-OF-WAY PERMIT IS REQUIRED FOR ANY CONNECTION OF RESIDENTIAL DRAINAGE INTO THE RIGHT-OF-WAY
2. ALL STORMWATER PIPE DISCHARGE SHALL BE TIED INTO A STORMWATER SYSTEM STRUCTURE (JUNCTION, MANHOLE, INLET, ETC. SEE DRAIN CONNECTION TO STRUCTURE DETAIL SW-10.06). IF A DIRECT TIE IN IS NOT POSSIBLE DUE TO ELEVATION CONSTRAINTS, LOCATION CONSTRAINTS, UTILITY/PHYSICAL OBSTRUCTIONS OR OTHER REASON ACCEPTABLE TO THE CITY, A CURB-O-LET (OR EQUAL) MAY BE USED TO TIE INTO THE CURB LINE. IF CURB-O-LET CANNOT BE USED, RESIDENTIAL CURB BORE DETAIL MAY BE USED WITH APPROVAL BY THE CITY
3. WHEN SIDEWALK IS PRESENT, THE FULL SIDEWALK PANEL (FROM JOINT TO JOINT) MUST BE REPLACED WHEN INSTALLING DRAIN. BORING UNDER THE SIDEWALK IS NOT ALLOWED.
4. ALL CONCRETE USED SHALL BE 3000 PSI OR GREATER.
5. FUTURE MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY FROM WHICH THE DRAIN ORIGINATES

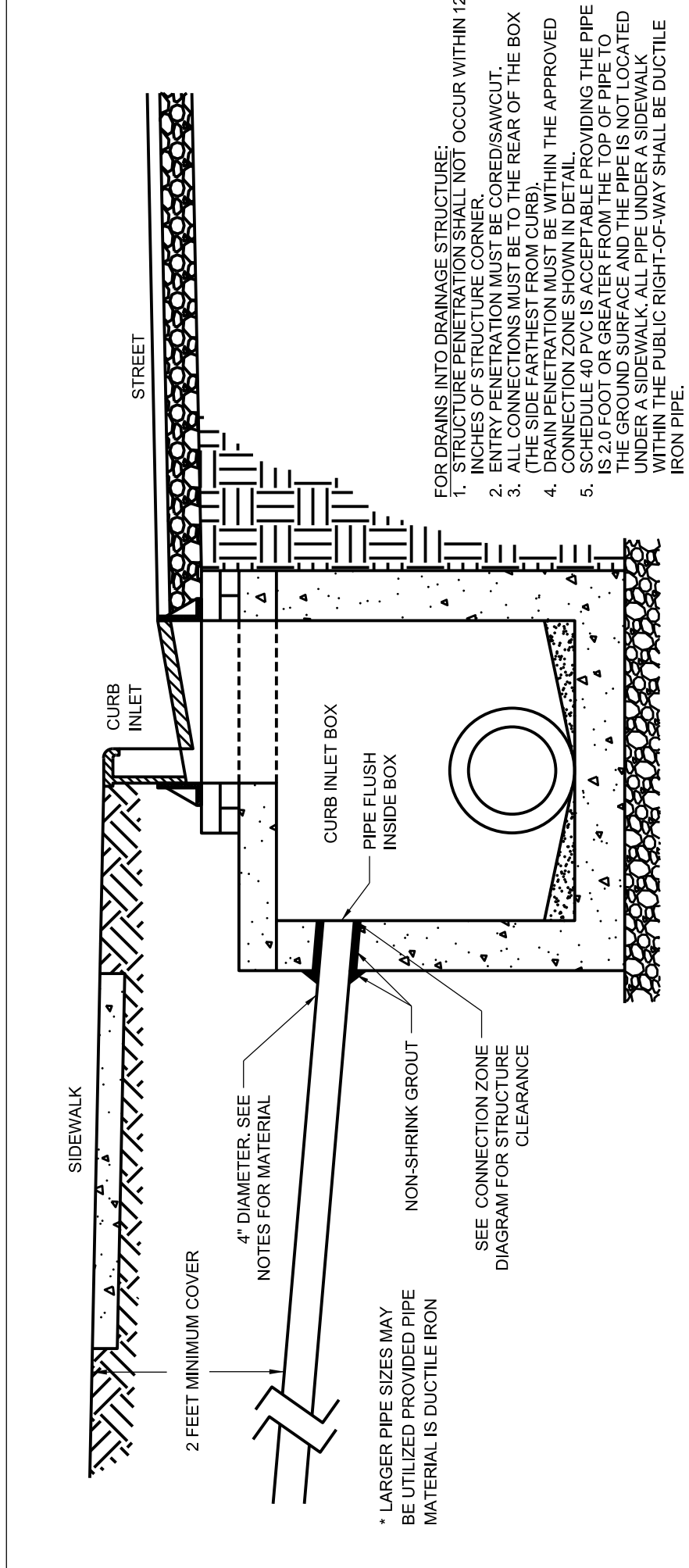
FOR CURB BORE:

1. ALL CURB BORES REQUIRE THE USE OF DUCTILE IRON PIPE A MINIMUM OF 3 FEET FROM THE CURB OR, FOR SIDEWALK LOCATIONS, THE DIP MUST EXTEND A MINIMUM OF 1 FOOT BEYOND THE CURB. SEE DETAIL.
2. PVC IS NOT ALLOWED IN CURB BORE CONNECTIONS.
3. CURB BORE CANNOT BE WITHIN 6 FEET OF A INTERSECTION RADIUS OR 12 INCHES OF CONSTRUCTION OR EXPANSION JOINTS.
4. ANY OVERBORE $\frac{1}{2}$ " OR LESS SHALL BE SEALED WITH CEMENTITIOUS GROUT OR CAULK. IF OVERBORE IS $\frac{1}{2}$ " OR GREATER THEN 3000 PSI CONCRETE FILLER IS REQUIRED.
5. DISCHARGE PIPE SHALL NOT EXTEND BEYOND OR PROTRUDE BEYOND THE CURB FACE.
6. MULTIPLE CURB BORES (DRAINS) IN THE CURB SHALL BE SEPARATED BY A MINIMUM OF 12 INCHES OF CURB.
7. ALL CURB BORES MUST USE A CONCRETE BORE NO GREATER THAN 4 INCHES.

FOR PREMANUFACTURED CURB DRAIN STRUCTURES:

1. PREMANUFACTURED CURB DRAIN STRUCTURE MAY BE USED IN LIEU OF CURB BORE TIE-IN WITH CITY APPROVAL.
2. PREMANUFACTURED CURB DRAIN STRUCTURE SHALL BE CURB-O-LET OR EQUAL.
3. PREMANUFACTURED CURB DRAIN SHALL BE INSTALLED IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. PREMANUFACTURED CURB DRAINS MAY BE INSTALLED SIDE BY SIDE IF NECESSARY.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		RESIDENTIAL CURB BORE
		SW-10.05



* LARGER PIPE SIZES MAY BE UTILIZED PROVIDED PIPE MATERIAL IS DUCTILE IRON

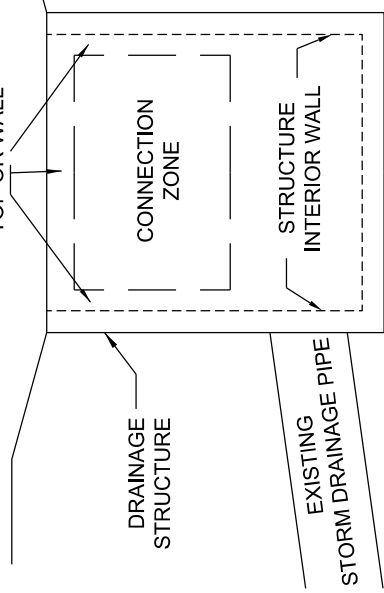
SEE CONNECTION ZONE DIAGRAM FOR STRUCTURE CLEARANCE

- FOR DRAINS INTO DRAINAGE STRUCTURE:
1. STRUCTURE PENETRATION SHALL NOT OCCUR WITHIN 12 INCHES OF STRUCTURE CORNER.
 2. ENTRY PENETRATIONS MUST BE CORED/SAWCUT.
 3. ALL CONNECTIONS MUST BE TO THE REAR OF THE BOX (THE SIDE FARTHEST FROM CURB).
 4. DRAIN PENETRATION MUST BE WITHIN THE APPROVED CONNECTION ZONE SHOWN IN DETAIL.
 5. SCHEDULE 40 PVC IS ACCEPTABLE PROVIDING THE PIPE IS 2.0 FOOT OR GREATER FROM THE TOP OF PIPE TO THE GROUND SURFACE AND THE PIPE IS NOT LOCATED UNDER A SIDEWALK. ALL PIPE UNDER A SIDEWALK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE DUCTILE IRON PIPE.

GENERAL NOTES:

1. A RIGHT-OF-WAY PERMIT IS REQUIRED FOR ANY CONNECTION OF RESIDENTIAL DRAINAGE INTO THE RIGHT-OF-WAY.
2. ALL STORMWATER PIPE DISCHARGES SHALL BE TIED INTO A STORMWATER SYSTEM STRUCTURE (JUNCTION, MANHOLE, INLET, ETC.) IF A DIRECT TIE IN IS NOT POSSIBLE DUE TO ELEVATION CONSTRAINTS, LOCATION CONSTRAINTS, UTILITY/PHYSICAL OBSTRUCTIONS OR OTHER REASON ACCEPTABLE TO THE CITY, A CURB-O-LET (OR EQUAL) MAY BE USED TO TIE INTO THE CURB LINE. IF CURB-O-LET CANNOT BE USED, CURB BORE DETAIL (SW-10.05) MAY BE USED WITH APPROVAL BY THE CITY.
3. WHEN SIDEWALK IS PRESENT, THE FULL SIDEWALK PANEL (FROM JOINT TO JOINT) MUST BE REPLACED WHEN INSTALLING DRAIN, BORING UNDER THE SIDEWALK IS NOT ALLOWED.
4. ALL CONCRETE USED SHALL BE 3000 PSI OR GREATER.
5. FUTURE MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY FROM WHICH THE DRAIN ORIGINATES.

CONNECTIONS SHALL HAVE MINIMUM 1\"/>



CONNECTION ZONE DIAGRAM

CITY OF RALEIGH	
STANDARD DETAIL	
REVISIONS	DATE: 9/2024 NOT TO SCALE
SMALL DRAIN CONNECTION TO DRAINAGE STRUCTURE	
SW-10.06	

APPROVED NCDEQ DETAILS FOR EROSION AND SEDIMENT CONTROL

DETAIL	SPECIAL NOTES
6.03 SURFACE ROUGHENING	
6.10 TEMPORARY SEEDING	
6.11 PERMANENT SEEDING	
6.14 MULCHING	
6.15 RIPRAP	
6.17 ROLLED EROSION CONTROL PRODUCTS	
6.18 COMPOST BLANKETS	
6.23 RIGHT-OF-WAY DIVERSIONS	
6.24 RIPARIAN AREA SEEDING (PIEDMONT)	ENSURE PIEDMONT DETAIL IS USED
6.30 GRASS-LINED CHANNELS	
6.31 RIPRAP AND PAVED CHANNELS	
6.32 TEMPORARY SLOPE DRAINS	
6.41 OUTLET STABILIZATION STRUCTURES	
6.50 EXCAVATED DROP INLET PROTECTION	
6.54 ROCK DOUGHNUT INLET PROTECTION	
6.55 ROCK PIPE INLET PROTECTION	
6.63 SEDIMENT BASIN WITH ROCK DAM	ONLY FOR DRAINAGE AREAS LESS THAN 1 AC
6.66 POROUS BAFFLES	
6.67 SILT SOCK (FOR CHECK DAM)	
6.67 SILT SOCK (FOR PERIMETER AND INLET PROTECTION)	
6.70 TEMPORARY STREAM CROSSING	
6.87 CHECK DAM (WITH WEIR)	OPTIONAL USE OF PAM
6.87 CHECK DAM WITHOUT WEIR	OPTIONAL USE OF PAM

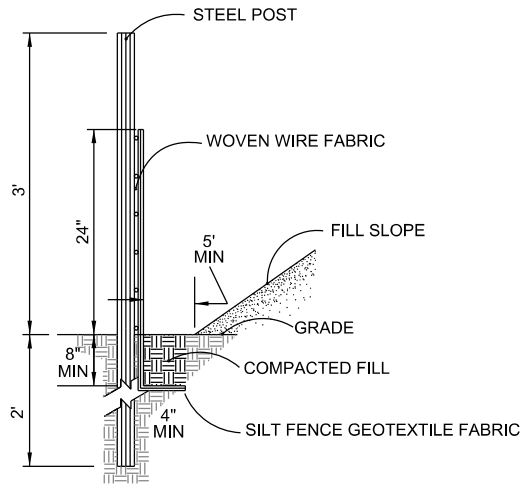
NOTES:

1. THIS TABLE DOES NOT NEED TO BE PLACED ON THE PLANS.
2. PLACE ANY APPLICABLE NCDEQ DETAILS FROM THE TABLE ON THE PLANS.

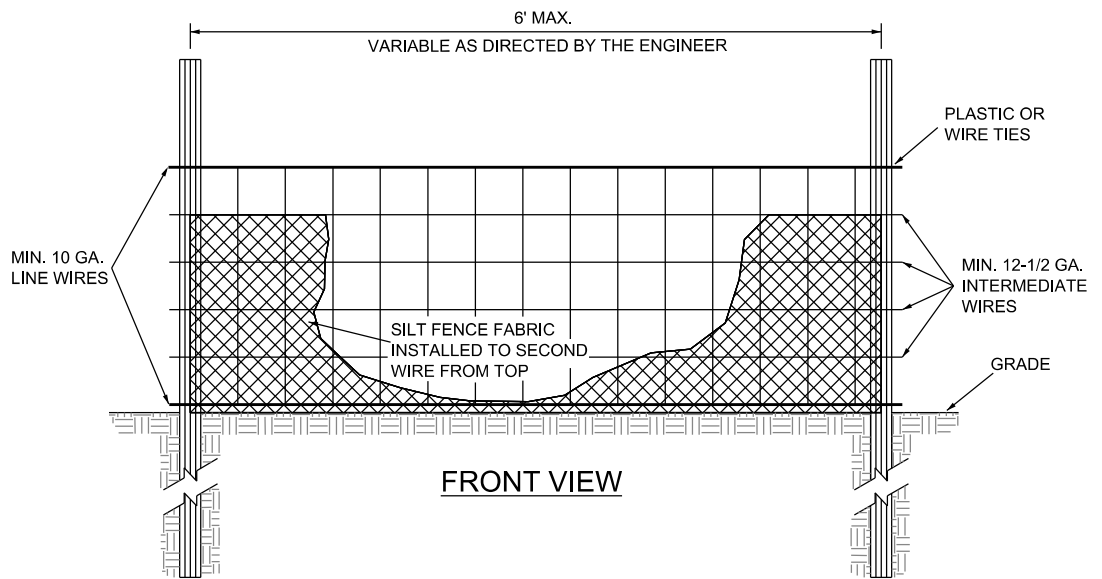
CITY OF RALEIGH	
STANDARD DETAIL	
<i>REVISIONS</i>	<i>DATE: 9/2024</i> <i>NOT TO SCALE</i>
	APPROVED NCDEQ DETAILS FOR EROSION CONTROL
SW-20.01	

INSTALLATION NOTES:

1. SEE NCDEQ SEDIMENT DESIGN MANUAL FOR CONSTRUCTION SPECIFICATIONS, WHERE PRACTICE APPLIES AND PLANNING CONSIDERATIONS.
2. FLOW SHALL NOT RUN PARALLEL WITH THE FENCE.
3. END OF SILT FENCE MUST BE TURNED UPHILL.
4. UV RESISTANCE GEOTEXTILE MUST BE USED.
5. NOT FOR USE IN AREAS OF CONCENTRATED FLOW.
6. THE TRENCH SHALL BE BACKFILLED, AND THE SOIL COMPACTED OVER THE GEOTEXTILE.
7. TO JOIN TWO ROLLS OF GEOTEXTILE, PLACE THE END STAKE FROM ONE ROLL OF SILT FENCE ON THE TOP OF THE END PIECE OF THE OTHER ROLL. ROTATE BOTH STAKES IN THE SAME DIRECTION, TOGETHER, AT LEAST 180 DEGREES TO FORM A TIGHT CONNECTION AND THEN DRIVE TWO STAKES, NOW STUCK TOGETHER, INTO THE GROUND.



SIDE VIEW

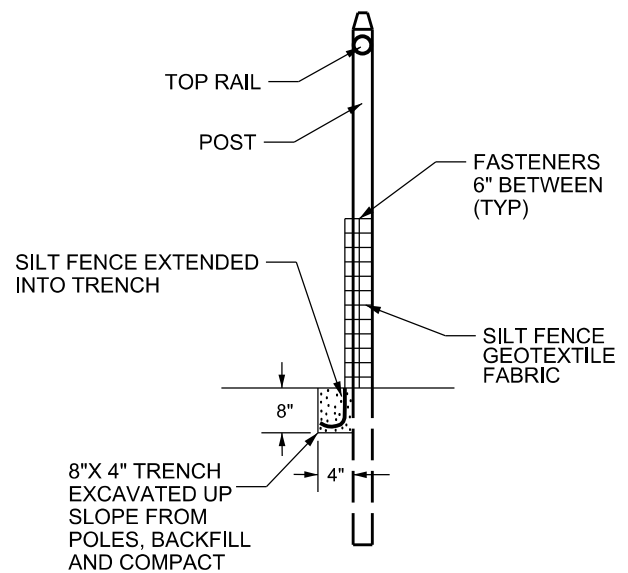
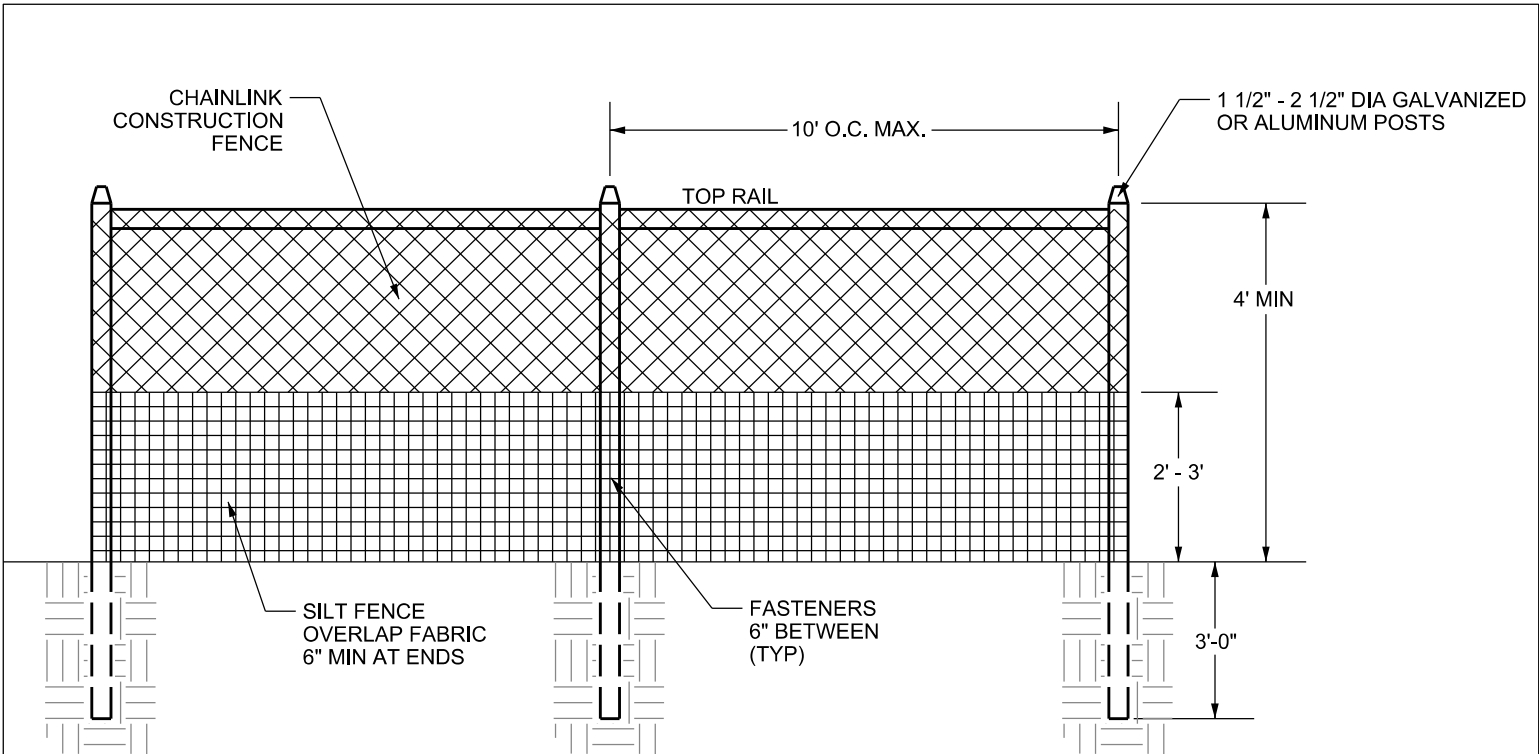


FRONT VIEW

MAINTENANCE NOTES:

1. SILT FENCE SHALL BE INSPECTED AT LEAST ONCE A WEEK, OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. SHOULD SILT FENCE UNDERMINE, REINSTALL SILT FENCE ENSURING THAT SILT FENCE IS TRENCHED IN, BACKFILLED AND COMPACTED.
4. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. WHEN REMOVING SEDIMENT AVOID UNDERMINING THE SILT FENCE AND ENSURE THAT GEOTEXTILE IS NOT DAMAGED. CLEAN OUT IS REQUIRED WHEN SILT FENCE IS AT 50% CAPACITY.
5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH EXISTING GRADE, PREPARED AND SEEDDED.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	STANDARD TEMPORARY (SEDIMENT/SILT) FENCE	
	SW-20.02	



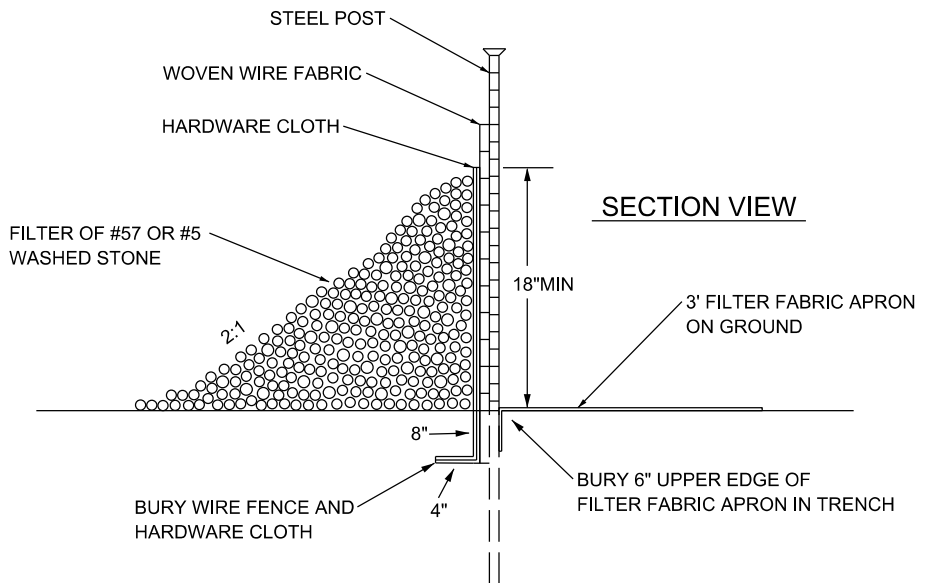
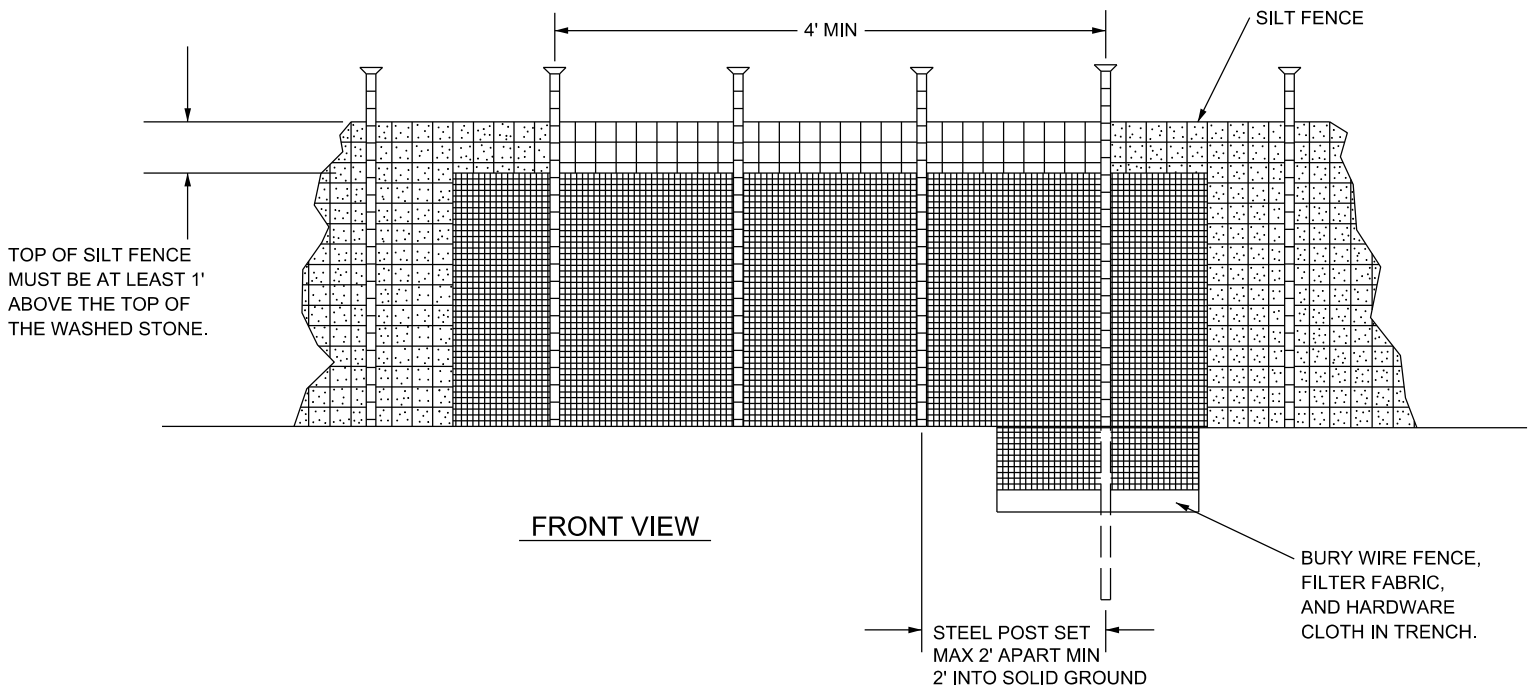
INSTALLATION NOTES:

1. SILT FENCE SHOULD BE A MINIMUM OF 5 FEET FROM THE TOE OF SLOPE.
2. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES HORIZONTALLY AT THE TOP AND MIDDLE (VERTICAL) SECTIONS.
3. WHEN TWO HORIZONTAL SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER.
2. FABRIC SHALL BE REPLACED PROMPTLY IF FOUND TO BE IN DISREPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED AFTER EACH STORM EVENT AND WHEN IT REACHES APPROXIMATELY 1/3 OF THE HEIGHT OF THE CHAIN-LINK FENCE.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	SUPER SILT FENCE	
	SW-20.03	



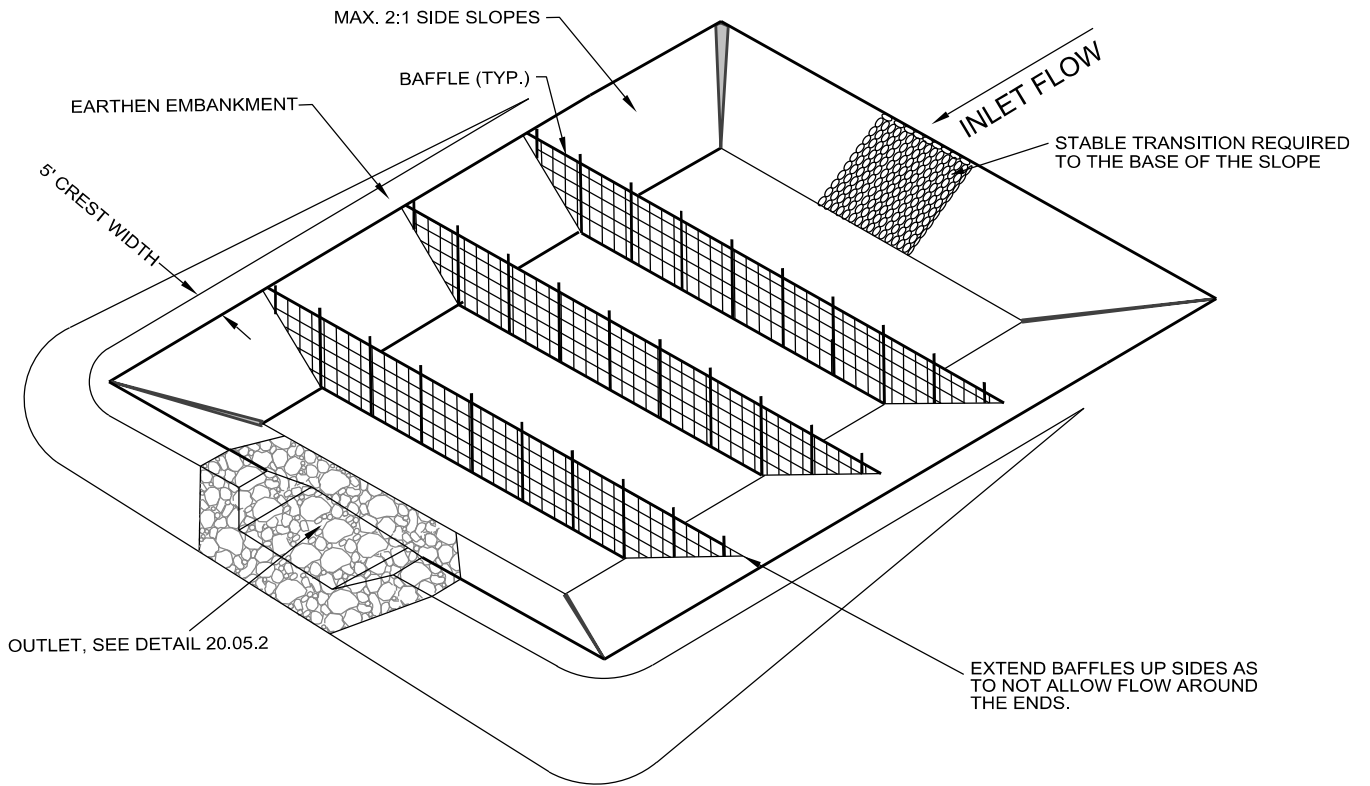
INSTALLATION NOTES:

1. HARDWARE CLOTH AND GRAVEL SHOULD OVERLAY THE SILT FENCE A MINIMUM OF 12 INCHES.
2. STONE OUTLETS SHOULD BE PLACED ON LOW ELEVATION AREAS OF SILT FENCE AND BASED ON FIELD CONDITIONS.

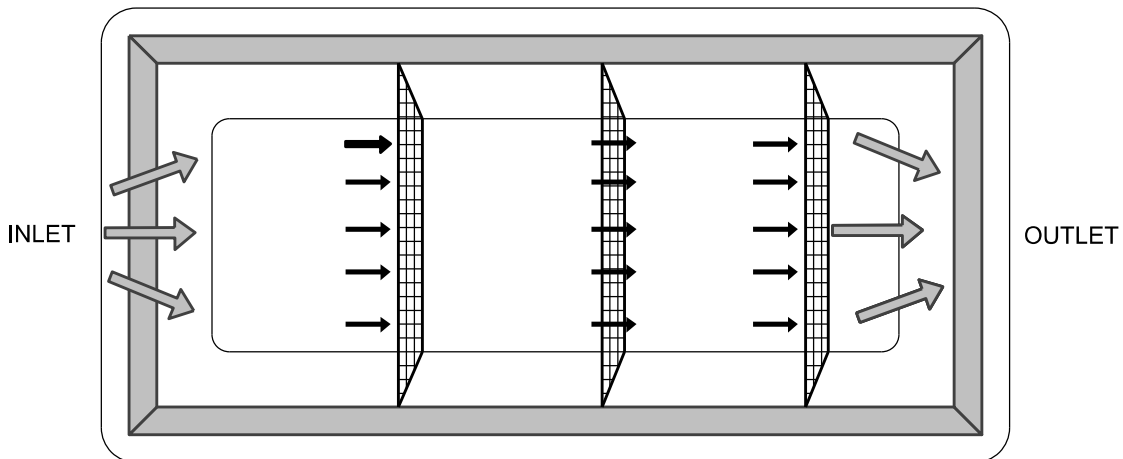
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. KEEP HARDWARE CLOTH FREE OF DEBRIS TO PROVIDE ADEQUATE FLOW.
3. FRESHEN STONE WHEN SEDIMENT ACCUMULATION EXCEEDS 6 INCHES.
4. REMOVE SEDIMENT AND REPLACE WITH NEW STONE WHEN HALF OF THE STONE OUTLET IS COVERED.
5. REPLACE STONE AS NEEDED TO FACILITATE DEWATERING.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		STANDARD SILT FENCE OUTLET
		SW-20.04



PERSPECTIVE VIEW



INSTALLATION NOTES:

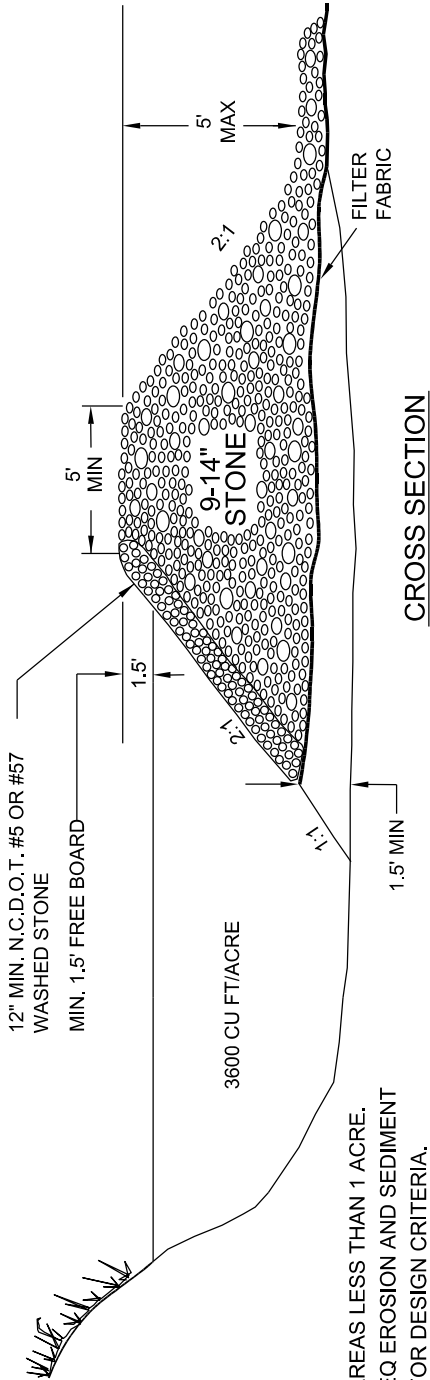
1. PRACTICE ONLY ALLOWED FOR DRAINAGE AREAS LESS THAN 1 ACRE.
2. REFER TO MOST RECENT VERSION OF NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR DESIGN CRITERIA.
3. A MINIMUM OF 3 POROUS BAFFLES BETWEEN INLET AND OUTLET REQUIRED INSTALLED PERPENDICULAR TO FLOW. TRAPS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES. EACH BAFFLE ZONE SHOULD COVER AN EQUAL AMOUNT OF BASIN SURFACE AREA.
4. LOCATE SEDIMENT INFLOW TO THE TRAP AWAY FROM THE DAM TO PREVENT SHORT CIRCUITS FROM INLETS TO OUTLETS.
5. AT A MINIMUM, SEED AND STRAW IS REQUIRED ON THE INTERIOR SIDE SLOPES OF THE TRAP PRIOR TO SITE INSPECTION APPROVAL.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER.
2. REPAIR/REPLACE BAFFLES WHEN THEY COLLAPSE, TEAR OR DECOMPOSE.
3. REMOVE SEDIMENT WHEN ANY CELL IS AT 50%.
4. IF DEWATERING TRAP IS NECESSARY, NOTIFY NCDEMLR AND THE CITY PRIOR TO DEWATERING AND PUMP TO SILT BAG PER SILT BAG FOR DEWATERING ACTIVITIES DETAIL SW-20.04
5. AFTER ALL THE DISTURBED AREA DRAINING TO THE TRAP HAS BEEN PERMANENTLY STABILIZED, REMOVE THE TRAP AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND AND STABILIZE.

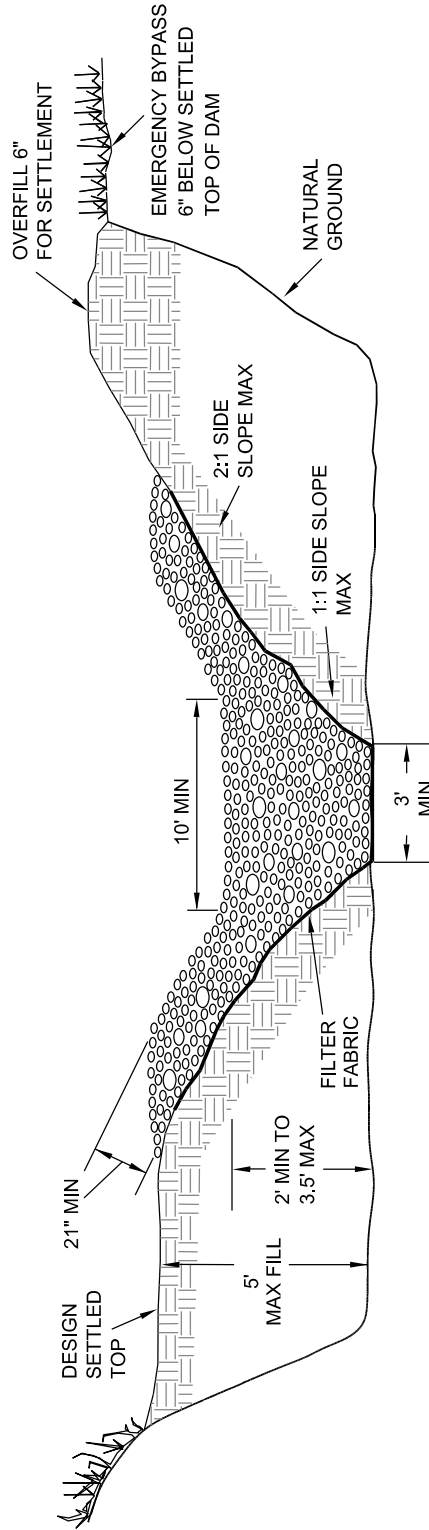
CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	TEMPORARY SEDIMENT TRAP	
	SW-20.05	

SEE 20.05 FOR BODY OF SEDIMENT TRAP



CROSS SECTION

- INSTALLATION NOTES:**
1. PRACTICE ONLY ALLOWED FOR DRAINAGE AREAS LESS THAN 1 ACRE.
 2. REFER TO MOST RECENT VERSION OF NCDOT EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR DESIGN CRITERIA.
 3. STRUCTURE LIFE LIMITED TO 2 YEARS.



PLAN VIEW

ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.

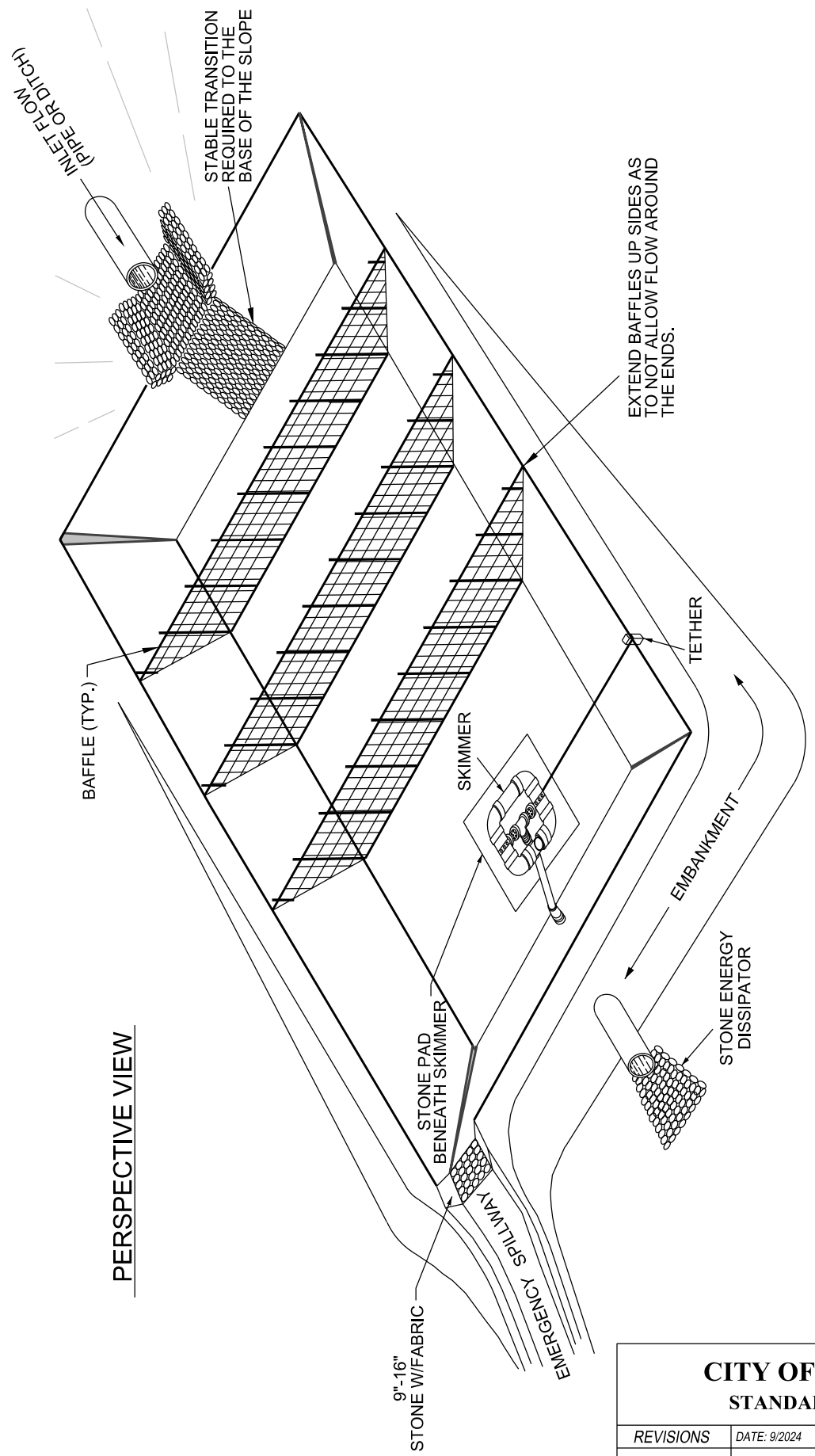
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER.
2. REMOVE SEDIMENT AND RESTORE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP.
3. PLACE THE SEDIMENT THAT IS REMOVED IN A DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.
4. CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING.
5. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT.
6. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE.

**CITY OF RALEIGH
STANDARD DETAIL**

REVISIONS	DATE: 9/2024	NOT TO SCALE
TEMPORARY SEDIMENT TRAP OUTLET DETAIL		
SW-20.06		

PERSPECTIVE VIEW



**CITY OF RALEIGH
STANDARD DETAIL**

REVISIONS	DATE: 9/2024	NOT TO SCALE
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SKIMMER SEDIMENT
BASIN

SW-20.07.1

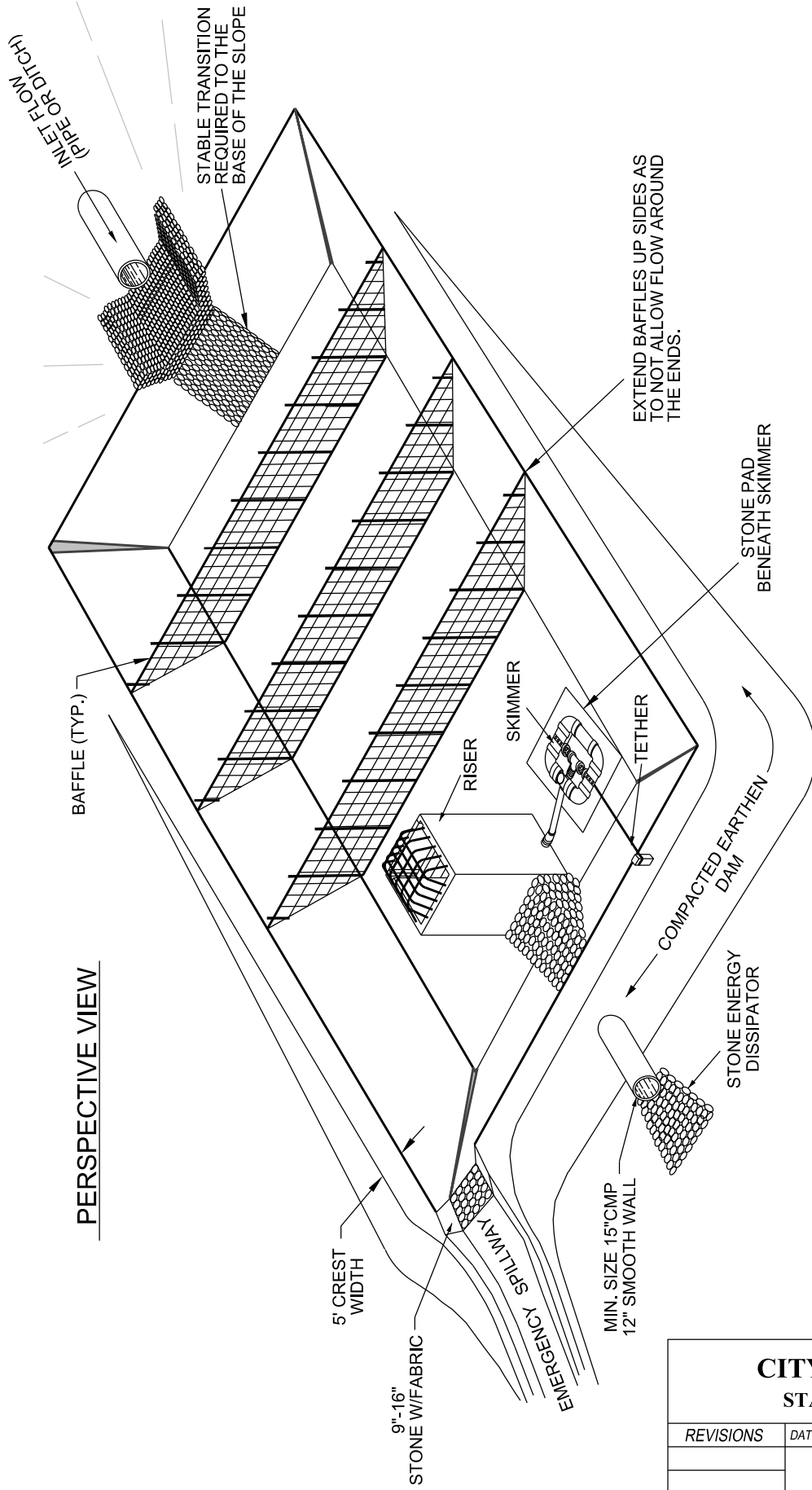
INSTALLATION NOTES:

1. REFER TO MOST RECENT VERSION OF NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR DESIGN CRITERIA.
2. LOCATE SEDIMENT INFLOW TO THE BASIN AWAY FROM THE DAM TO PREVENT SHORT CIRCUITS FROM INLETS TO OUTLETS.
3. A MINIMUM OF 3 POROUS BAFFLES BETWEEN INLET AND OUTLET REQUIRED INSTALLED PERPENDICULAR TO FLOW. BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES. EACH BAFFLE ZONE SHOULD COVER AN EQUAL AMOUNT OF BASIN SURFACE AREA.
4. POINTS OF ENTRANCE OF SURFACE RUNOFF INTO SEDIMENT BASIN MUST TRANSITION TO THE BASE OF THE SEDIMENT BASIN VIA STABLE TRANSITION (E.G., RIP RAP, SLOPE DRAIN, ETC.).
5. SAFETY FENCING (MIN. 3-FOOT HEIGHT) TO BE INSTALLED SURROUNDING THE BASIN.
6. COUPLE THE SKIMMER ARM DIRECTLY INTO THE EMBANKMENT 1 FOOT FROM THE BOTTOM OF THE BASIN.
7. BASINS MUST BE STABILIZED IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SEDIMENT SHALL BE REMOVED FROM EACH CHAMBER WHEN IT REACHES ONE-HALF THE DEPTH OF THE BAFFLE. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS. REINSTALL BAFFLES WHEN DAMAGED.
3. ENSURE THE SKIMMER IS NOT CLOGGED WITH TRASH OR DEBRIS. IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, REMOVE ORIFICE AND CLEAR DEBRIS WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH CLEAN WATER. BE SURE TO REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
4. CHECK THE EMBANKMENT, SPILLWAY, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT.
5. CHECK FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT.
6. IF DEWATERING SEDIMENT BASIN IS NECESSARY, NOTIFY NCDEMLR AND THE CITY PRIOR TO DEWATERING AND PUMP SILT BAG PER SILT BAG FOR DEWATERING ACTIVITIES DETAIL SW-20.04.
7. UNLESS CONVERSION TO PERMANENT DEVICE IS NECESSARY, AFTER ALL THE DISTURBED AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED, REMOVE THE BASIN HAS BEEN PERMANENTLY STABILIZED, REMOVE THE BASIN AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND AND STABILIZE.

CITY OF RALEIGH STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	SKIMMER SEDIMENT BASIN	
	SW-20.07.2	



PERSPECTIVE VIEW

**CITY OF RALEIGH
STANDARD DETAIL**

REVISIONS	DATE: 9/2024	NOT TO SCALE
RISER SEDIMENT BASIN		
SW-20.08.1		

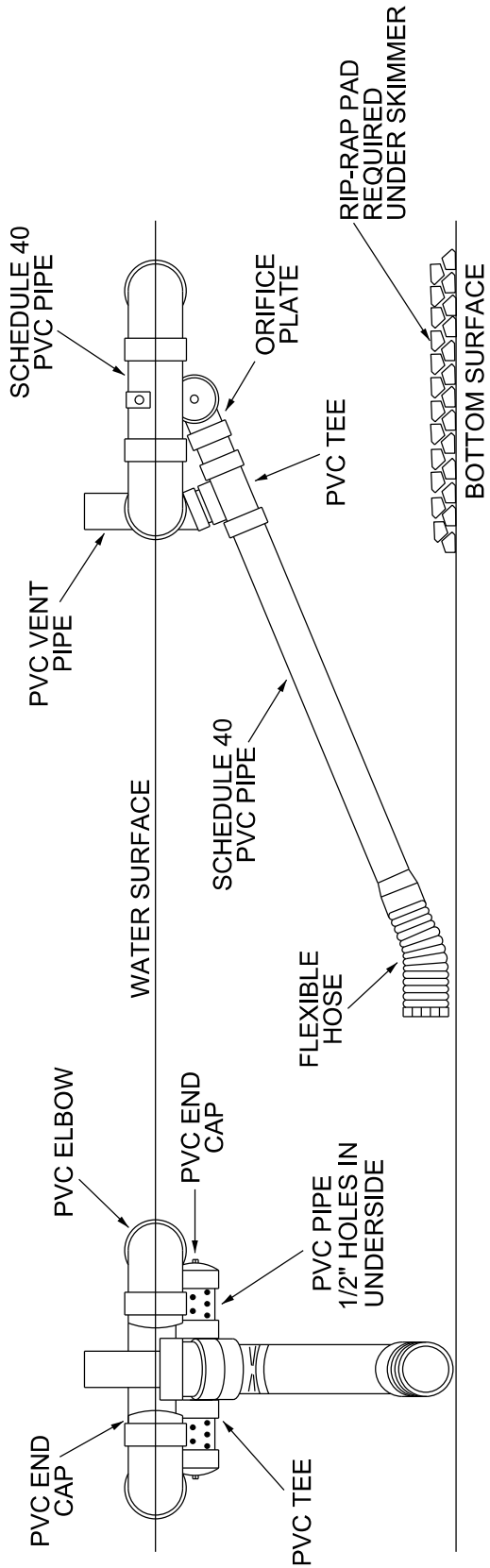
INSTALLATION NOTES:

1. REFER TO MOST RECENT VERSION OF NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR DESIGN CRITERIA.
2. LOCATE SEDIMENT INFLOW TO THE BASIN AWAY FROM THE DAM TO PREVENT SHORT CIRCUITS FROM INLETS TO OUTLETS.
3. A MINIMUM OF 3 POROUS BAFFLES BETWEEN INLET AND OUTLET REQUIRED INSTALLED PERPENDICULAR TO FLOW. BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES. EACH BAFFLE ZONE SHOULD COVER AN EQUAL AMOUNT OF BASIN SURFACE AREA.
4. POINTS OF ENTRANCE OF SURFACE RUNOFF INTO SEDIMENT BASIN MUST TRANSITION TO THE BASE OF THE SEDIMENT BASIN VIA STABLE TRANSITION (E.G., RIP RAP, SLOPE DRAIN, ETC.).
5. SAFETY FENCING (MIN. 3-FOOT HEIGHT) TO BE INSTALLED SURROUNDING THE BASIN.
6. SECURELY ATTACH THE RISER TO THE BARREL OR BARREL STUB TO MAKE A WATERTIGHT STRUCTURAL CONNECTION. ALL CONNECTIONS SHOULD BE MADE USING APPROVED WATERTIGHT ASSEMBLES.
7. THE ARM PIPE CONNECTING THE SKIMMER TO THE RISER SHALL HAVE A MINIMUM LENGTH OF 6 FEET
8. PLACE BARREL AND RISER ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL.
9. ANCHOR RISER IN PLACE BY CONCRETE OR OTHER SATISFACTORY MEANS TO PREVENT FLOATATION.
10. BASINS MUST BE STABILIZED IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.

MAINTENANCE NOTES:

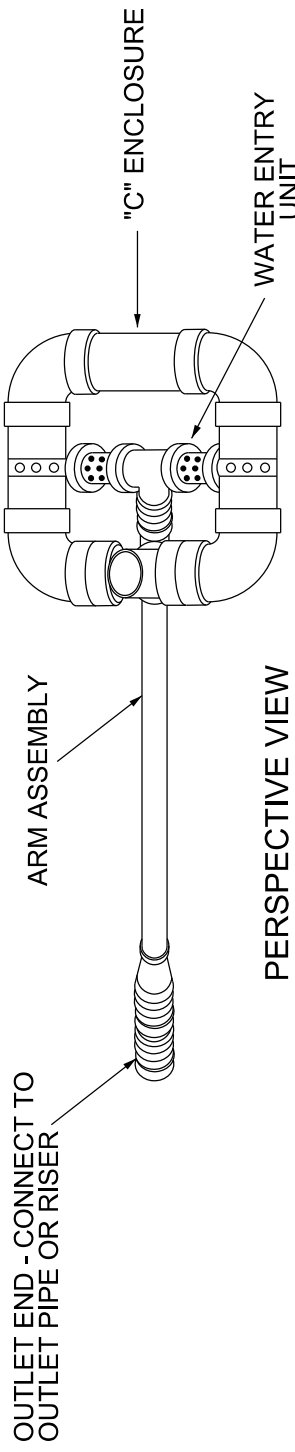
1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SEDIMENT SHALL BE REMOVED FROM EACH CHAMBER WHEN IT REACHES ONE-HALF THE DEPTH OF THE BAFFLE. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS. REINSTALL BAFFLES WHEN DAMAGED.
3. ENSURE THE SKIMMER IS NOT CLOGGED WITH TRASH OR DEBRIS. IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, REMOVE ORIFICE AND CLEAR DEBRIS WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH CLEAN WATER. BE SURE TO REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
4. CHECK THE EMBANKMENT, SPILLWAY, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT.
5. CHECK FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT.
6. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.
7. IF DEWATERING SEDIMENT BASIN IS NECESSARY, NOTIFY NCDEMLR AND THE CITY PRIOR TO DEWATERING AND PUMP SILT BAG PER SILT BAG FOR DEWATERING ACTIVITIES DETAIL SW-20.04.
8. UNLESS CONVERSION TO PERMANENT DEVICE IS NECESSARY, AFTER ALL THE DISTURBED AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED, REMOVE THE BASIN AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND AND STABILIZE.

CITY OF RALEIGH		
STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	RISER SEDIMENT BASIN	
	SW-20.08.2	



END VIEW

FRONT VIEW

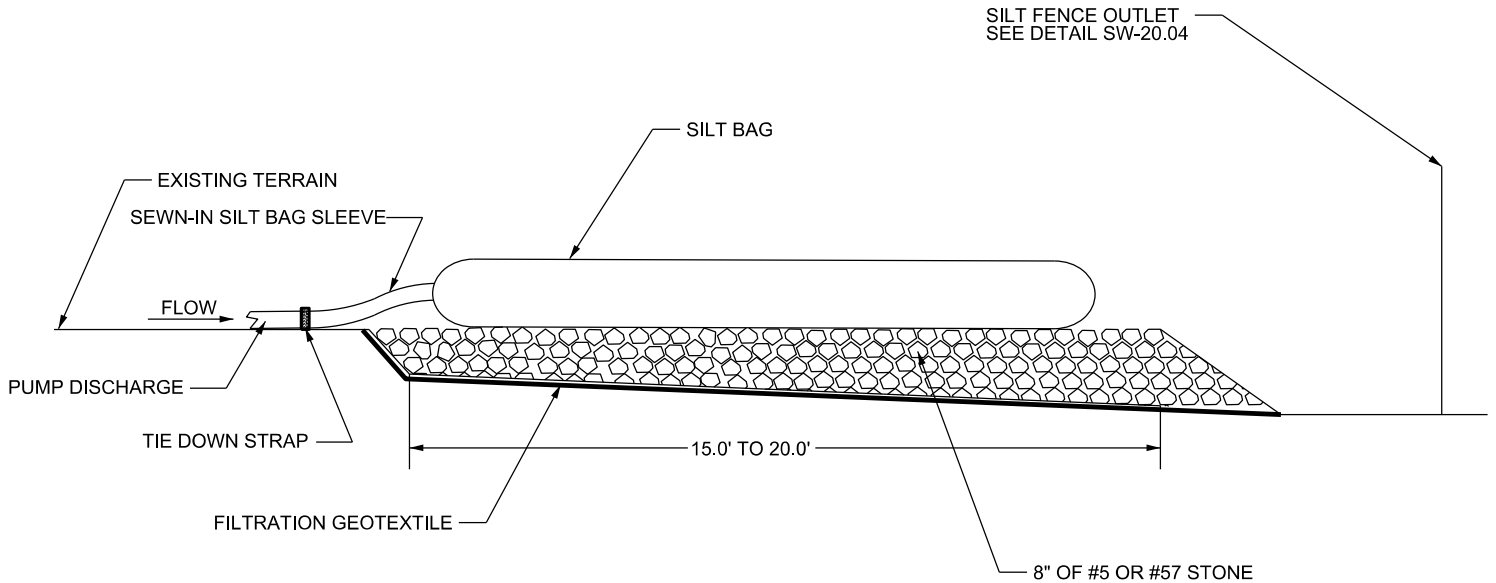


PERSPECTIVE VIEW

NOTE: SKIMMER TO BE TETHERED

- INSTALLATION NOTES:**
- SEE NCDEQ SEDIMENT DESIGN MANUAL FOR CONSTRUCTION SPECIFICATIONS, WHERE PRACTICE APPLIES AND PLANNING CONSIDERATIONS AND DESIGN CRITERIA.
 - ASSEMBLE THE SKIMMER FOLLOWING MANUFACTURER'S INSTRUCTIONS OR AS DESIGNED AND LAY ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE.
 - ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT.
 - IF NO RISER STRUCTURE IS TO BE USED, COUPLE THE SKIMMER ARM DIRECTLY INTO THE EMBANKMENT 1 FOOT FROM THE BOTTOM OF THE BASIN.
 - THE ARM PIPE CONNECTING THE SKIMMER TO THE RISER SHALL HAVE A MINIMUM LENGTH OF 6 FEET.
 - INSTALL RIP-RAP UNDER THE SKIMMER IN ORDER TO HELP PREVENT SKIMMER FROM BEING LODGED IN THE MUD.
 - ATTACH A ROPE AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS TETHER WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.
- MAINTENANCE NOTES:**
- MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
 - IF THE SKIMMER IS CLOGGED WITH TRASH, PULL THE TETHER AND REMOVE TRASH.
 - IF SKIMMER BECOMES STUCK IN SEDIMENT BASIN, USE THE TETHER TO DISLodge FROM MUD. IT MAY BE NECESSARY TO REMOVE SEDIMENT FROM BASIN AND/OR REINSTALL PAD UNDER SKIMMER.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
SKIMMER		
SW-20.09		



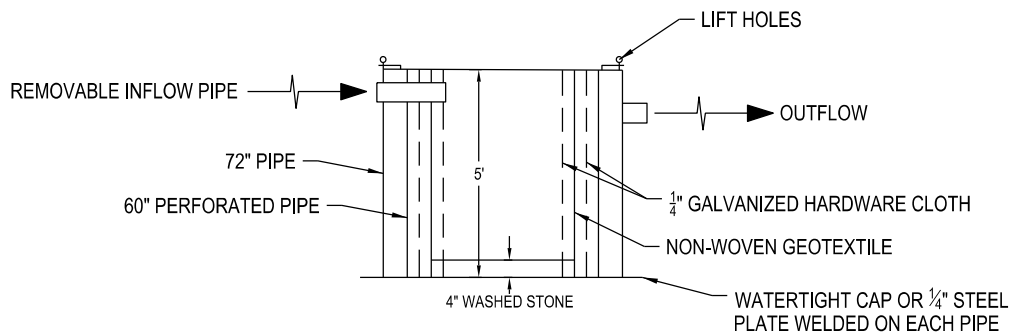
INSTALLATION NOTES:

1. USE #5 OR #57 STONE TO LEVEL BAG FROM NATURAL GROUND.
2. THE SIZE AND NUMBER OF SILT BAGS SHOULD BE BASED ON THE DEWATERING PUMP AND MANUFACTURER RECOMMENDATIONS.
3. FILTER BAG SHALL BE EQUIPPED WITH SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM 4-INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF 6 INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE WITHOUT TREATMENT.
4. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE SILT BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE THE PUMP RATE.
5. SILT BAG MUST BE \geq 50FT FROM THE TOP OF THE STREAM BANK AND WATER MUST BE DISCHARGED IN A DIFFUSE MANNER.
6. NOTIFY NCDEMLR AND THE CITY PRIOR TO DEWATERING.
7. SILT BAG MUST FIT WITHIN THE ESTABLISHED LIMITS OF DISTURBANCE.

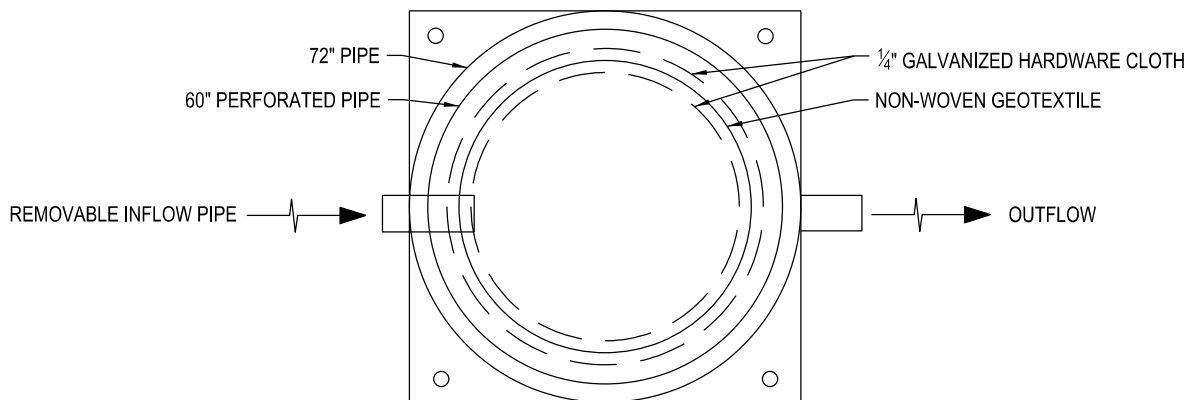
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER.
2. REPLACE SILT BAG IF CLOGGED OR HAS RIPS, TEARS OR PUNCTURES.
3. REPLACE SILT BAG WHEN 75% FULL OF SEDIMENT.
4. ADDITIONAL BAGS SHALL BE AVAILABLE ONSITE AT ALL TIMES DURING PUMPING OPERATIONS.
5. WHEN PUMPING IS COMPLETE, SILT BAG SHOULD BE REMOVED. LIFTING STRAPS MAY BE NECESSARY TO ENSURE BAG IS NOT DAMAGED.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	SILT BAG FOR DEWATERING ACTIVITIES	
	SW-20.10	



ELEVATION



PLAN VIEW

INSTALLATION NOTES:

1. PROVIDE ONE CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.
2. USE 60-INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER FOR THE INNER PIPE. LINE PIPE WITH NON-WOVEN GEOTEXTILE SANDWICHED BETWEEN AND ATTACHED TO 1/4-INCH HARDWARE CLOTH.
3. OVERLAP GEOTEXTILE 8 INCHES MINIMUM AT VERTICAL SEAM, AND AT THE BOTTOM PLATE.
4. ANCHOR GEOTEXTILE AT BOTTOM OF TANK WITH 4 INCHES OF WASHED STONE.
5. USE 72-INCH CORRUGATED METAL OR PLASTIC OUTER PIPE WITH PERMANENT OUTFLOW PIPE WITH INVERT LOWER THAN INFLOW PIPE.
6. INFLOW PIPE MUST DISCHARGE INTO INNER PIPE AND BE REMOVABLE.
7. PLACE TANK ON LEVEL SURFACE AND DISCHARGE TO A STABLE AREA AT A NON-EROSIVE RATE.

MAINTENANCE NOTES:

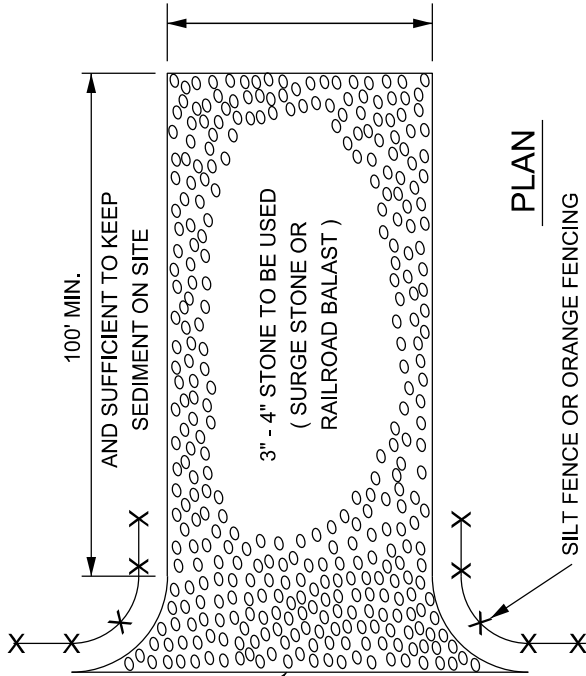
1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EVERY RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. REMOVE ACCUMULATED SEDIMENT FROM INNER PIPE WHEN IT REACHES TWO FEET IN DEPTH.
3. IF SYSTEM CLOGS, PULL OUT INNER PIPE, REMOVE ACCUMULATED SEDIMENT, AND REPLACE GEOTEXTILE.
4. DEPOSIT SEDIMENT REMOVED FROM THE DEVICE IN A SUITABLE AREA AWAY FROM THE DEVICE SO THAT IT WILL NOT BE RE-DEPOSITED. DEPOSIT AREA SHALL BE STABILIZED.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	PORTABLE SEDIMENT TANK	
	SW-20.11	

MAINTENANCE NOTES:

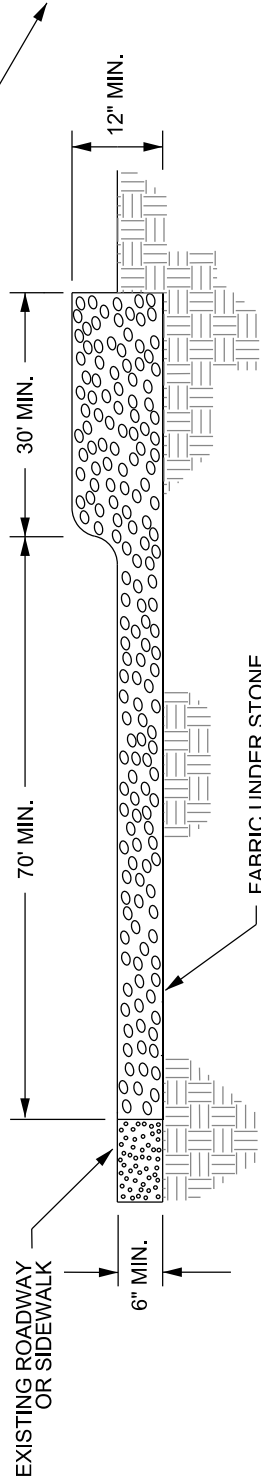
1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. MAINTAIN CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS REQUIRES PERIODIC TOPDRESSING WITH 2 INCHES OF STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
4. SEDIMENT ON ROADWAYS IS TO BE REMOVED IMMEDIATELY BY BROOM AND SHOVEL, EITHER BY MANUAL OR MECHANICAL MEANS. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

25' OR FULL WIDTH OF PROPOSED STREET OR ENTRANCE, WHICHEVER IS GREATER.



PLAN

SILT FENCE OR ORANGE FENCING (SEE INSTALLATION NOTE 1)

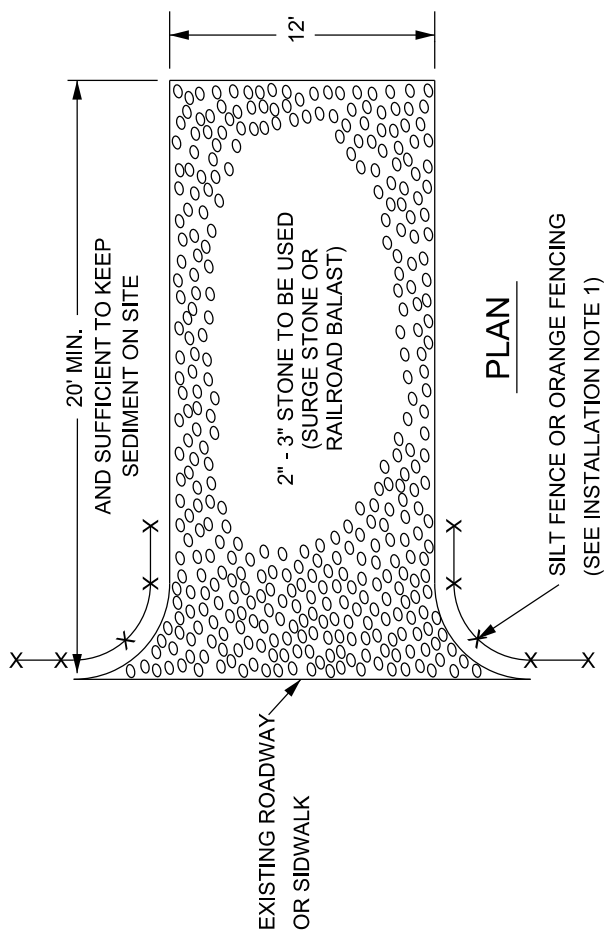


CROSS SECTION

INSTALLATION NOTES:

1. IF CONSTRUCTION ENTRANCE IS ON LOW SIDE OF SITE, SILT FENCE MUST BE INSTALLED TO LIMIT VEHICULAR ACCESS TO THE CONSTRUCTION ENTRANCE AND PREVENT SEDIMENT FROM FLOWING DOWN THE ENTRANCE. WHEN THE CONSTRUCTION ENTRANCE IS ON THE HIGH SIDE OF THE SITE, ORANGE FENCING MUST BE INSTALLED TO LIMIT VEHICULAR ACCESS TO THE CONSTRUCTION ENTRANCE ONLY.
2. IF MUD IS NOT REMOVED FROM THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD OR THE LENGTH OF THE CONSTRUCTION ENTRANCE MUST BE EXTENDED. A WASH RACK MAY ALSO BE USED, SEE WASH RACK DETAIL SW-20.14. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO AN APPROVED SETTLING AREA TO REMOVE SEDIMENT.
3. WHEN CONSTRUCTION ENTRANCE MUST CROSS A SIDEWALK, ADA REQUIREMENTS MUST REMAIN INTACT. DO NOT REMOVE SIDEWALK OR COVER THE SIDEWALK WITH A CONSTRUCTION ENTRANCE STONE UNLESS THE SIDEWALK IS CLOSED.
4. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE THROUGH CULVERTS SHALL BE PROVIDED AS NEEDED.
5. ON SITES WHERE THE GRADE TOWARD THE PAVED AREA IS GREATER THAN 2%, A DIVERSION RIDGE 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES SHALL BE CONSTRUCTED ACROSS THE FOUNDATION OF THE CONSTRUCTION ENTRANCE APPROXIMATELY 15 FEET FROM THE ROAD.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	CONSTRUCTION ENTRANCE	
SW-20.12		

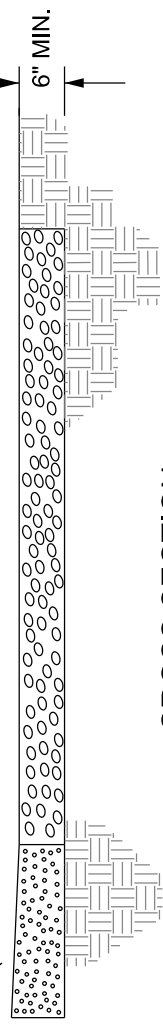


PLAN

EXISTING ROADWAY

NEW CONSTRUCTION

RAILROAD BALLAST



CROSS SECTION

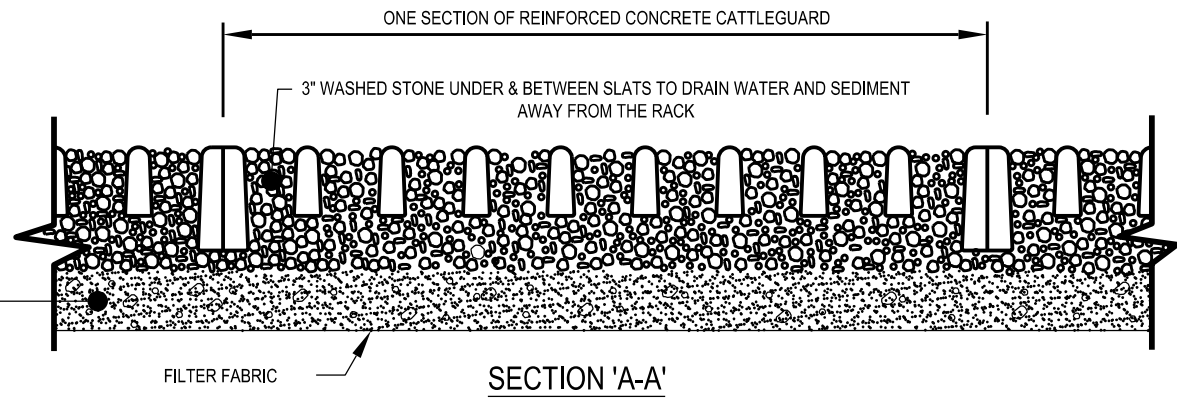
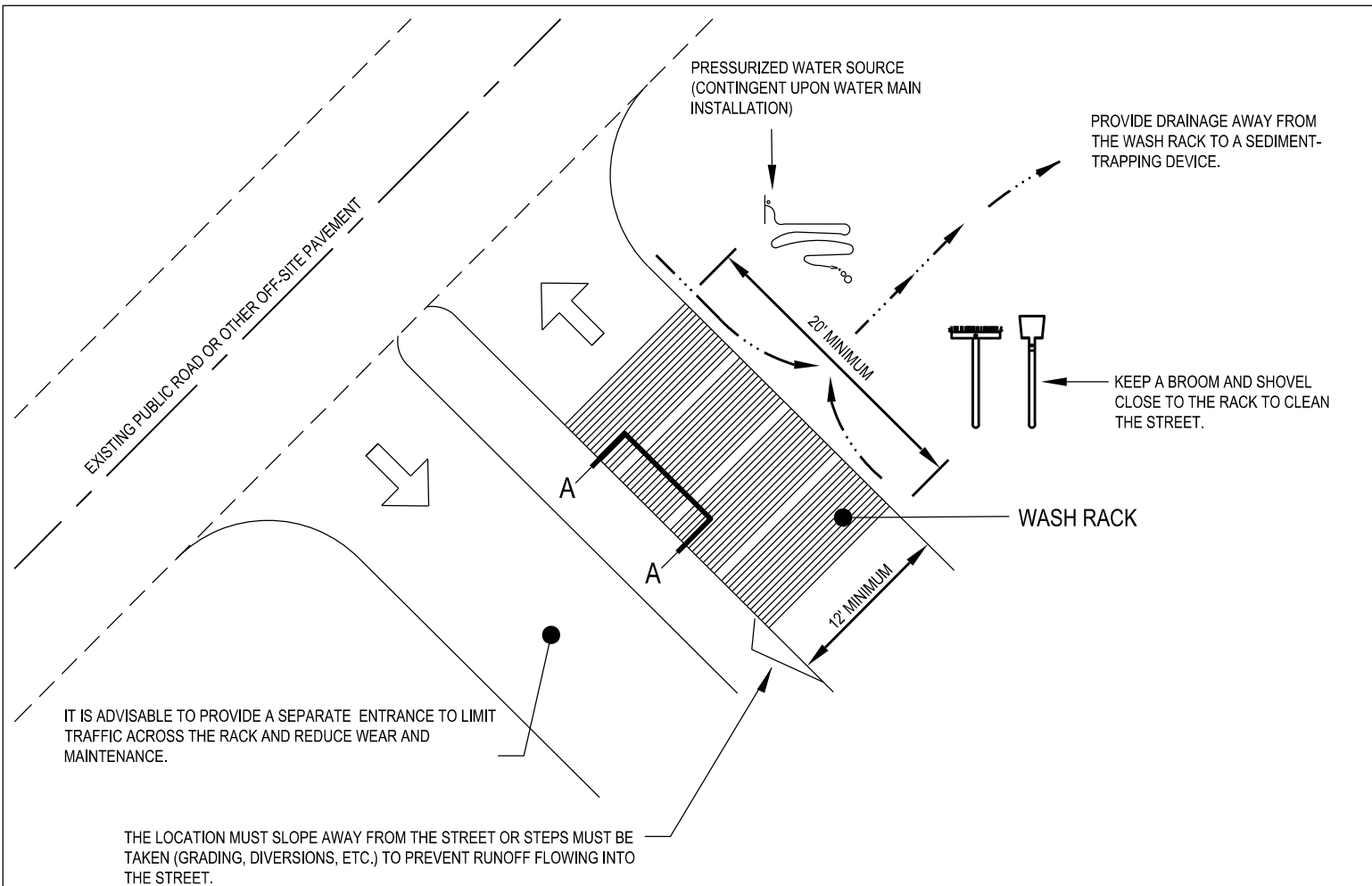
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. MAINTAIN CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS REQUIRES PERIODIC TOPDRESSING WITH 2 INCHES OF STONE.
3. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
4. SEDIMENT ON ROADWAYS IS TO BE REMOVED IMMEDIATELY BY BROOM AND SHOVEL, EITHER BY MANUAL OR MECHANICAL MEANS.
5. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

INSTALLATION NOTES:

1. IF CONSTRUCTION ENTRANCE IS ON LOW SIDE OF SITE, SILT FENCE MUST BE INSTALLED TO LIMIT VEHICULAR ACCESS TO THE CONSTRUCTION ENTRANCE AND PREVENT SEDIMENT FROM FLOWING DOWN THE ENTRANCE. WHEN THE CONSTRUCTION ENTRANCE IS ON THE HIGH SIDE OF THE SITE, ORANGE FENCING MUST BE INSTALLED TO LIMIT VEHICULAR ACCESS TO THE CONSTRUCTION ENTRANCE ONLY.
2. IF MUD IS NOT REMOVED FROM THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD OR THE LENGTH OF THE CONSTRUCTION ENTRANCE MUST BE EXTENDED. A WASH RACK MAY ALSO BE USED, SEE WASH RACK DETAIL SW-20.14. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO AN APPROVED SETTLING AREA TO REMOVE SEDIMENT.
3. WHEN CONSTRUCTION ENTRANCE MUST CROSS A SIDEWALK, ADA REQUIREMENTS MUST REMAIN INTACT. DO NOT REMOVE SIDEWALK OR COVER THE SIDEWALK WITH A CONSTRUCTION ENTRANCE STONE UNLESS THE SIDEWALK IS CLOSED.
4. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE THROUGH CULVERTS SHALL BE PROVIDED AS NEEDED.
5. ON SITES WHERE THE GRADE TOWARD THE PAVED AREA IS GREATER THAN 2%, A DIVERSION RIDGE 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES SHALL BE CONSTRUCTED ACROSS THE FOUNDATION OF THE CONSTRUCTION ENTRANCE APPROXIMATELY 15 FEET FROM THE ROAD.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	RESIDENTIAL & SMALL SITE CONSTRUCTION ENTRANCE	
SW-20.13		



INSTALLATION NOTES:

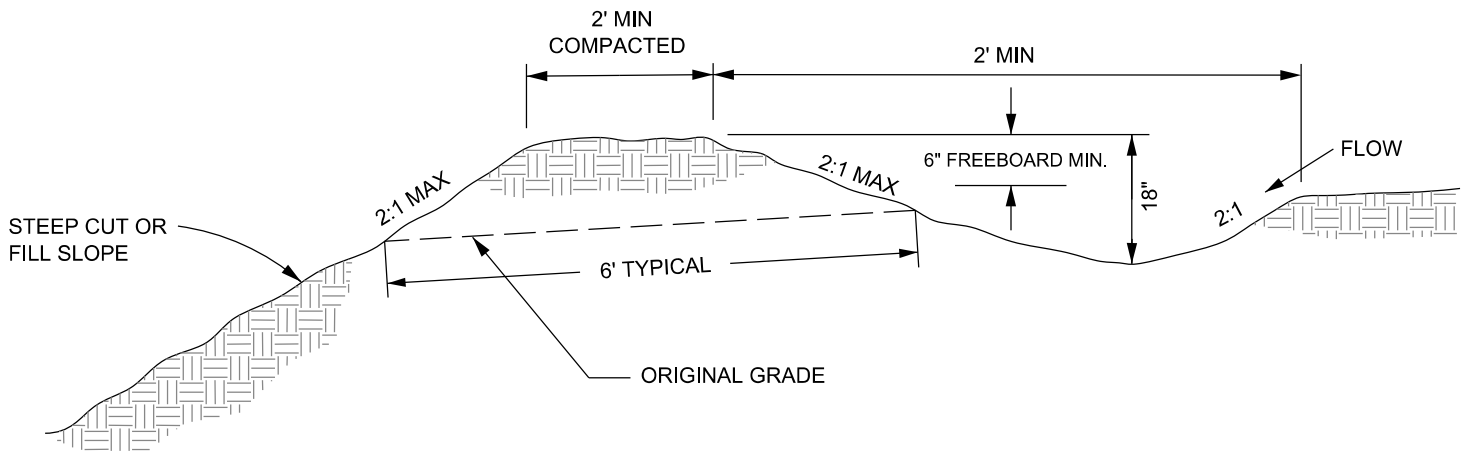
1. PROVIDE DRAINAGE AWAY FROM THE WASH RACK TO AN APPROVED SEDIMENT TRAPPING DEVICE.
2. THE WASH RACK LOCATION MUST SLOPE AWAY FROM THE STREET OR STEPS MUST BE TAKEN (GRADING, DIVERSIONS, ETC.) TO PREVENT RUNOFF FROM FLOWING INTO THE STREET.
3. IT IS ADVISABLE TO PROVIDE A SEPARATE STABILIZED CONSTRUCTION ENTRANCE FOR SMALLER VEHICLES TO ACCESS THE SITE TO LIMIT TRAFFIC ACROSS THE RACK AND REDUCE WEAR AND MAINTENANCE.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. MAINTAIN AS NEEDED TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.
3. IMMEDIATELY REMOVE ALL MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

**THIS IS AN EXAMPLE OF AN ACCEPTABLE WASH RACK. OTHER APPROVED METHODS MAY BE UTILIZED.

CITY OF RALEIGH		
STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
		CONSTRUCTION EXIT WASH RACK
		SW-20.14



CROSS SECTION

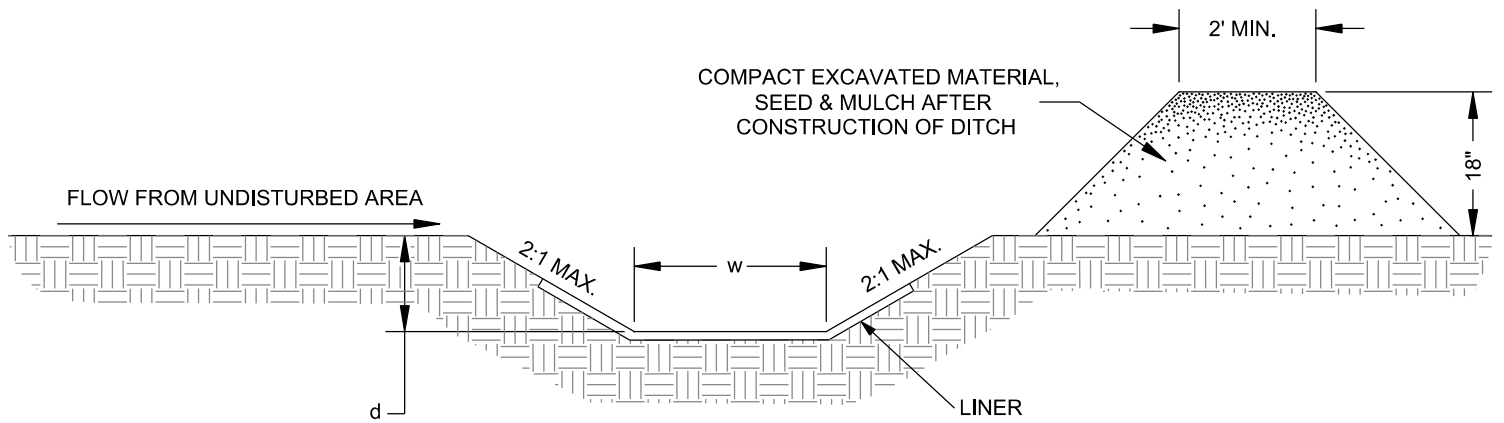
INSTALLATION NOTES:

1. STABILIZE IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.
2. STABILIZE DIVERSION DITCH BASED ON DESIGN VELOCITY. IF DESIGN VELOCITIES (Q2) IN BARE EARTH CONDITIONS EXCEED 2 FEET/SECOND, A TEMPORARY LINER IS REQUIRED.
3. TEMPORARY DIVERSIONS ARE TO ONLY BE USED FOR DRAINAGE AREAS OF 5 ACRES OR LESS TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE.
4. RIDGES WILL HAVE A 2 FEET MINIMUM TOP WIDTH, 2:1 OR FLATTER SIDE SLOPES AND A MINIMUM OF 6 INCHES OF FREEBOARD.
5. CHANNELS WILL HAVE A PARABOLIC, TRAPEZOIDAL, OR V SHAPE WITH SIDE SLOPES OF 2:1 OR FLATTER.
6. ANY POINT WHERE VEHICLES WILL BE CROSSING SHOULD HAVE 3:1 OR FLATTER SIDE SLOPES.
7. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE RE-GRADING AND CLEANOUT.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER.
2. SILT SHALL BE REMOVED WHEN DIVERSION DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED BEFORE THE END OF THE WORKDAY WHEN DAMAGE BY EQUIPMENT OR COVERED BY FILL.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	DIVERSION DITCH	
	SW-20.15	



CROSS SECTIONAL VIEW

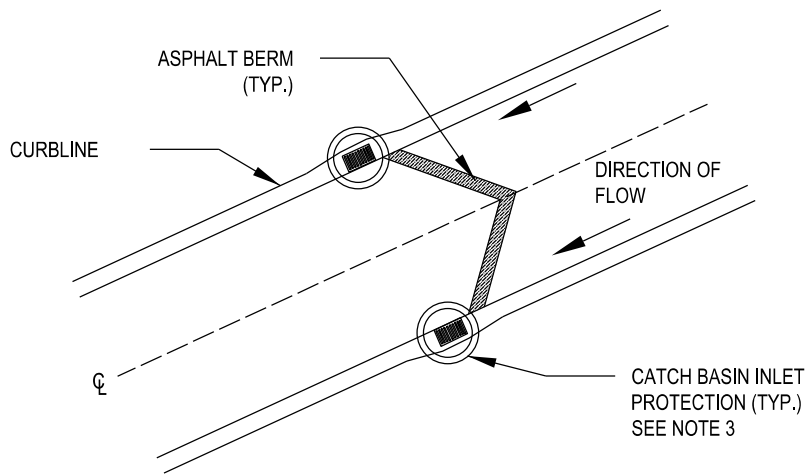
INSTALLATION NOTES:

1. DIMENSIONS d & w AND LINER TO BE DETERMINED BY ENGINEER.
2. CLEAN WATER DIVERSION TO BE USED UPSLOPE OF A CONSTRUCTION SITE TO PREVENT STORMWATER RUNOFF FROM ENTERING THE DISTURBED AREA.
3. IMMEDIATELY LINE AND STABILIZE BEFORE ANY DOWNSLOPE GRADING BEGINS.
4. DIVERSIONS SHOULD ONLY BE USED FOR DRAINAGE AREAS 5 ACRES OR LESS.

MAINTENANCE NOTES:

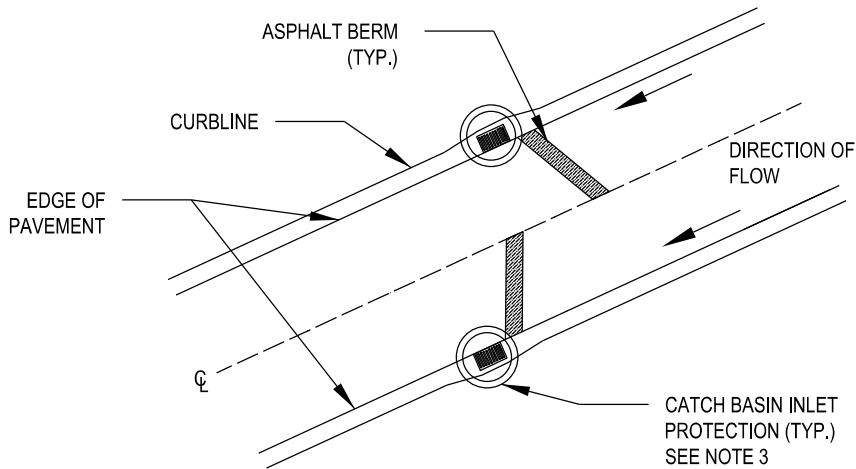
1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. THIS MEASURE SHALL NOT ACCUMULATE SEDIMENT. IF THIS OCCURS, REMOVE SEDIMENT, RESTABILIZE DIVERSION IF NECESSARY AND/OR REEVALUATE DESIGN.
3. IMMEDIATELY REMOVE ANY OBSTRUCTIONS OR DEBRIS FROM THE FLOW AREAS, AND REPAIR DIVERSION RIDGE AS NEEDED.
4. CHECK OUTLET AND MAKE REPAIRS AS NEEDED.
5. MAINTAIN THE VEGETATION IN A HEALTHY CONDITION AT ALL TIMES.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	CLEAN WATER DIVERSION	
	SW-20.16	



OPTION 1

CATCH BASINS ALIGNED ACROSS STREET

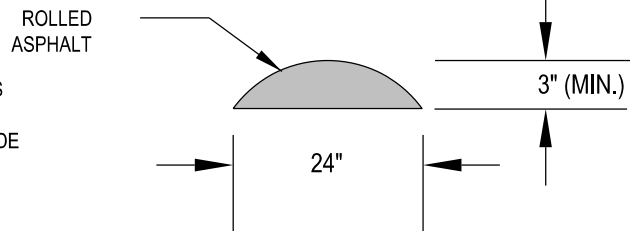


OPTION 2

CATCH BASINS OFFSET OR INDIVIDUAL CATCH BASIN

INSTALLATION NOTES:

1. TEMPORARY ASPHALT BERMS ARE INSTALLED TO ACHIEVE DESIGNED DRAINAGE AREAS PRIOR TO FINAL ASPHALT LIFT BEING INSTALLED ON ROAD SURFACE.
2. CONTRACTOR TO INSTALL TEMPORARY BERMS ON INTERMEDIATE COURSE, ON HIGH SIDE OF CURB INLETS FOR STRUCTURES ALONG THE STREET SLOPE.
3. CATCH BASIN INLET PROTECTION MAY BE OMITTED IF APPROVED BY STORMWATER INSPECTOR.
4. THE ASPHALT BERM SHALL BE INSTALLED EXTENDING TO THE CROWN OF STREET TO ENSURE DRAINAGE ACCESSES CATCH BASIN.

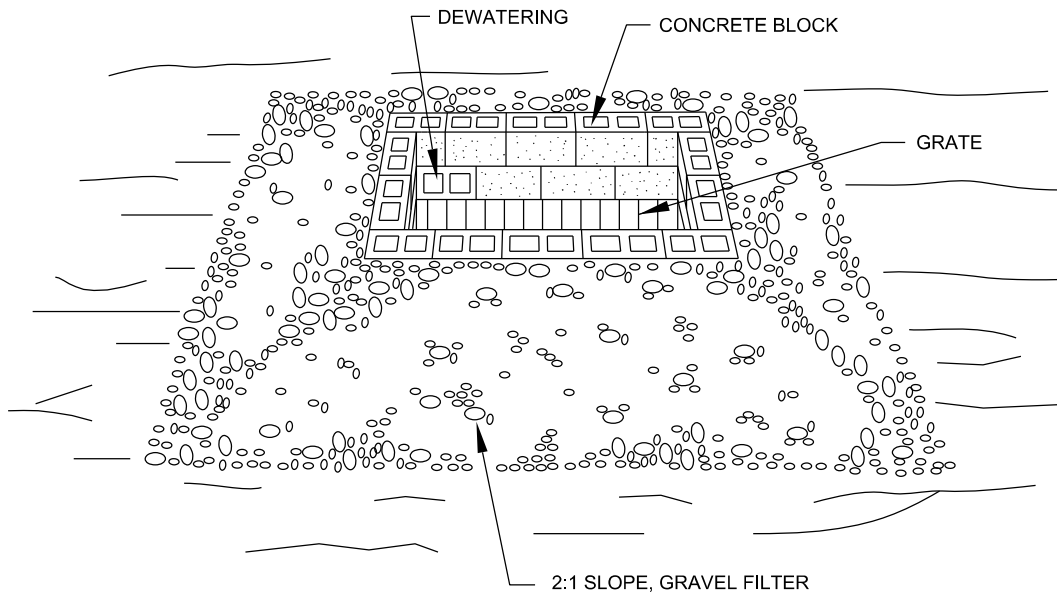


BERM CROSS SECTION

MAINTENANCE NOTES:

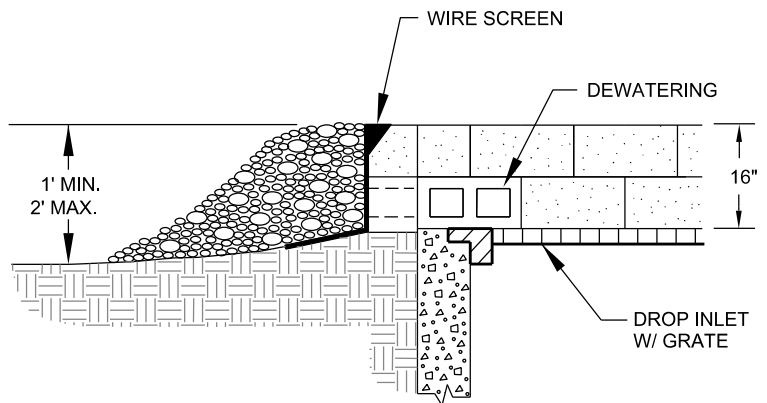
1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. REMOVE ANY ACCUMULATED SEDIMENT FROM ABOVE BERM AS NEEDED TO MAINTAIN FUNCTION
3. REPLACE BERMS AS NECESSARY WHEN DAMAGED FROM EQUIPMENT.
4. REMOVE BERM PRIOR TO INSTALLING FINAL ASPHALT LIFT, FINISHING ROAD SURFACE.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	ASPHALT DIVERSION BERM	
SW-20.17		



INSTALLATION NOTES:

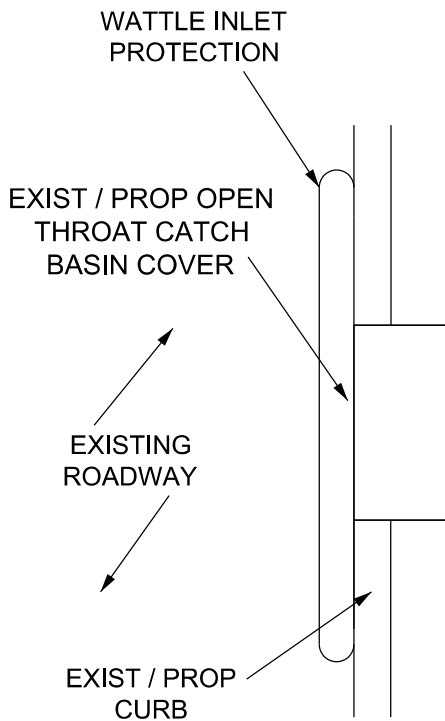
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS.
2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.
3. USE CLEAN GRAVEL, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. NCDOT #57 WASHED STONE IS RECOMMENDED.
4. NOT TO BE USED FOR SEDIMENT STORAGE OR ON ROADWAYS OPEN TO PUBLIC TRAFFIC.



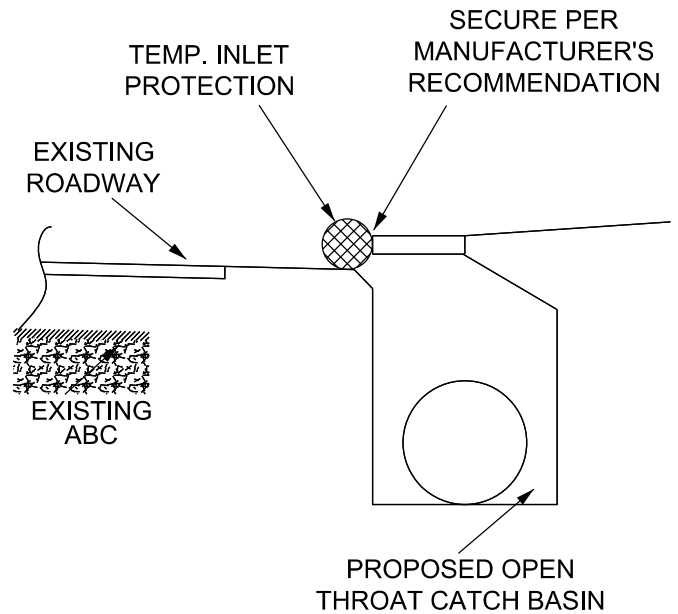
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. REMOVE SEDIMENT AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR SUBSEQUENT RAINS. SEDIMENT REMOVAL IS REQUIRED WHEN OVER HALF STONE IS COVERED. REMOVE SEDIMENT AND STONE AND REPLACE WITH NEW STONE.
3. WHEN DAMAGED, REPAIR AS NECESSARY AND REPLACE WITH NEW STONE.
4. REPLACE STONE AS NEEDED TO FACILITATE DE-WATERING.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE ALL MATERIALS AND ANY UNSTABLE SOIL, AND EITHER SALVAGE OR DISPOSE OF IT PROPERLY. BRING THE DISTURBED AREA TO PROPER GRADE, THEN SMOOTH AND COMPACT BEFORE STABILIZING.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
BLOCK AND GRAVEL DROP INLET PROTECTION		
SW-20.18		



**PLAN W / INLET
INLET PROTECTION - COR BOX**



CROSS SECTION

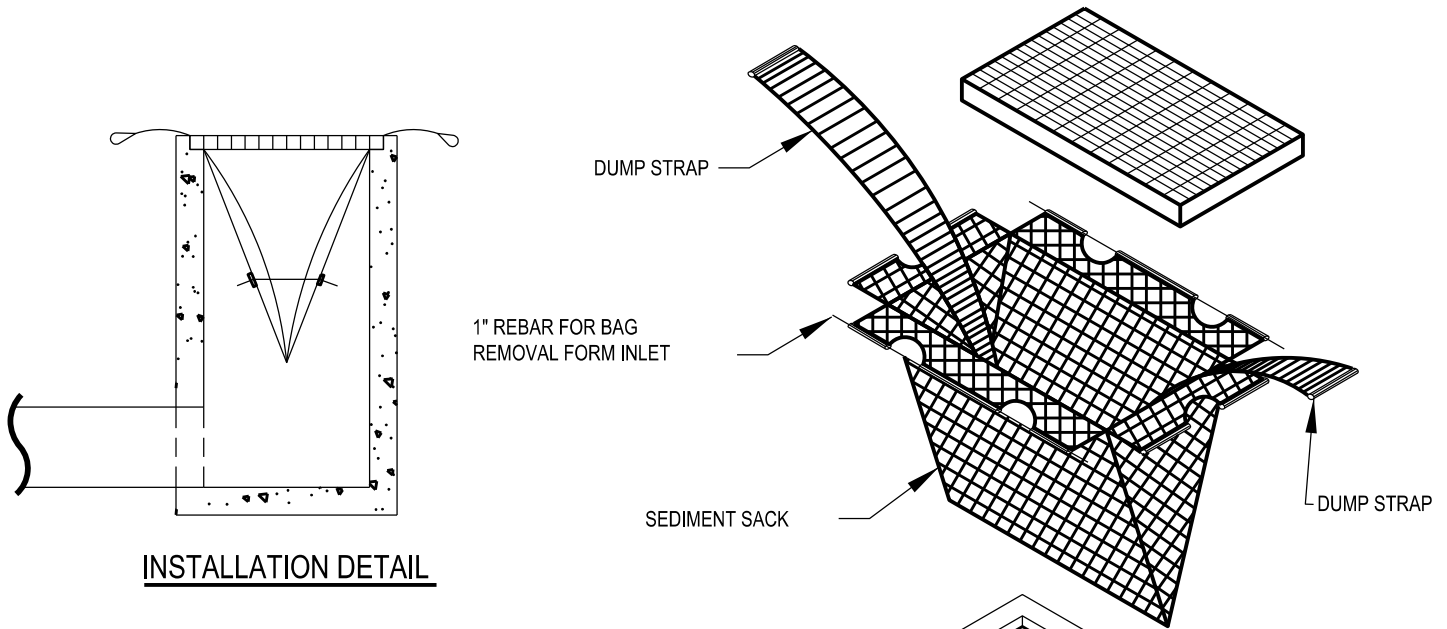
INSTALLATION NOTES:

1. WATTLES SHALL BE FILLED WITH STRAW OR OTHER APPROVED MATERIAL.

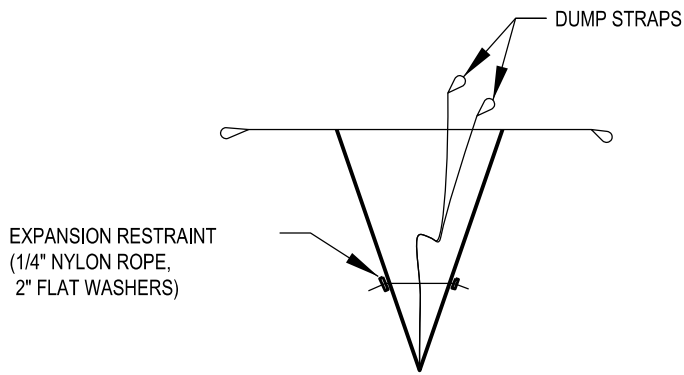
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. REMOVE ACCUMULATED SEDIMENT OR DEBRIS.
3. WATTLES MUST BE REPLACED IF CLOGGED OR TORN OR IF WATER DOES NOT APPEAR TO BE DRAINING THROUGH THE WATTLE.
4. REINSTALL IF DAMAGED OR DISLODGED. IF THE WATTLE FALLS INTO THE STORM DRAIN REMOVE IMMEDIATELY AND REINSTALL.
5. IF PONDING BECOMES EXCESSIVE, THE WATTLE MAY NEED TO BE REPLACED WITH A LARGER DIAMETER OR A DIFFERENT MEASURE.

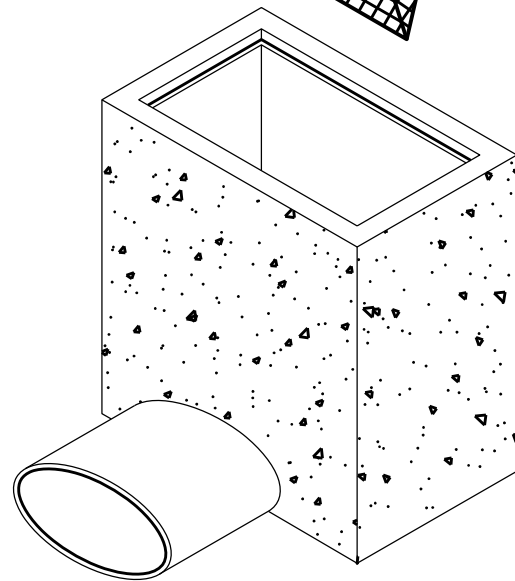
CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	WATTLE / INLET PROTECTION DETAIL	
	SW-20.20	



INSTALLATION DETAIL



BAG DETAIL



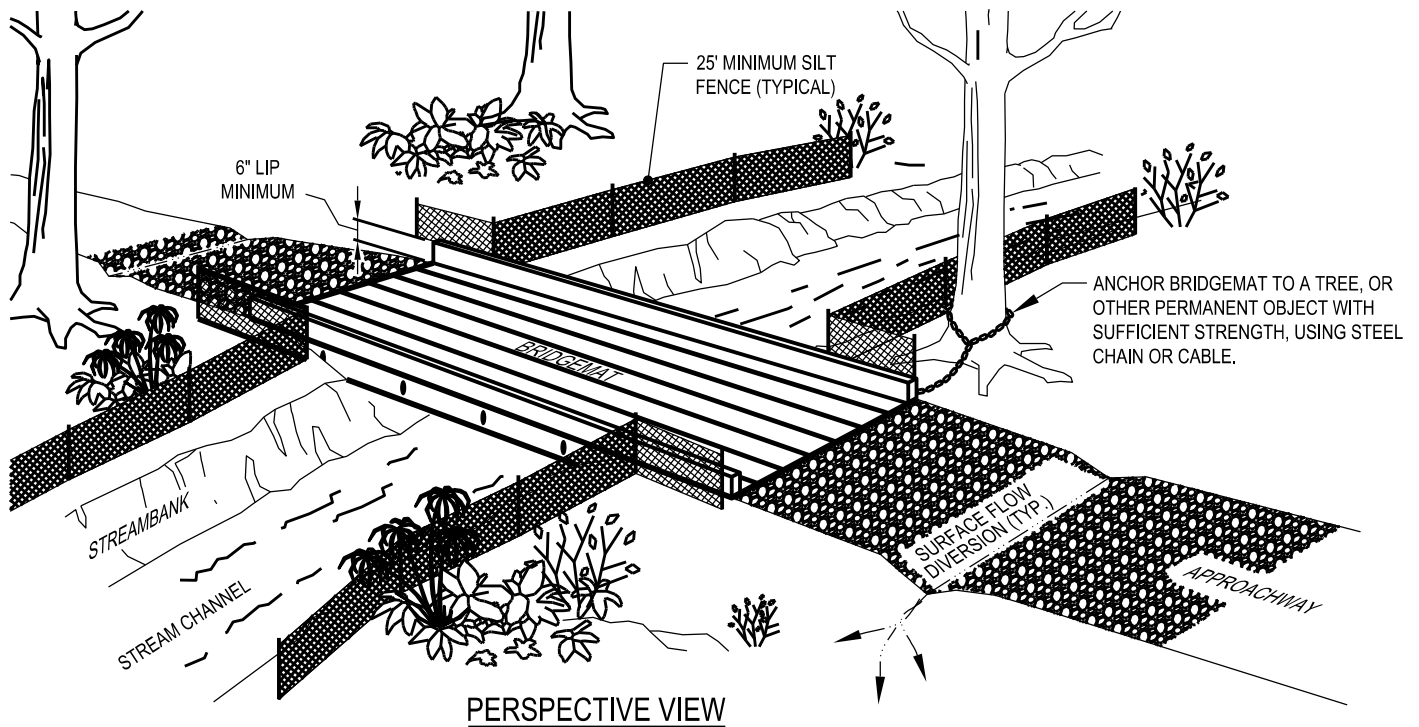
INSTALLATION NOTES:

1. FILTER BAGS SHALL NOT BE ALLOWED ON PUBLIC OR PRIVATE ROADS TO HELP PREVENT FLOODING.

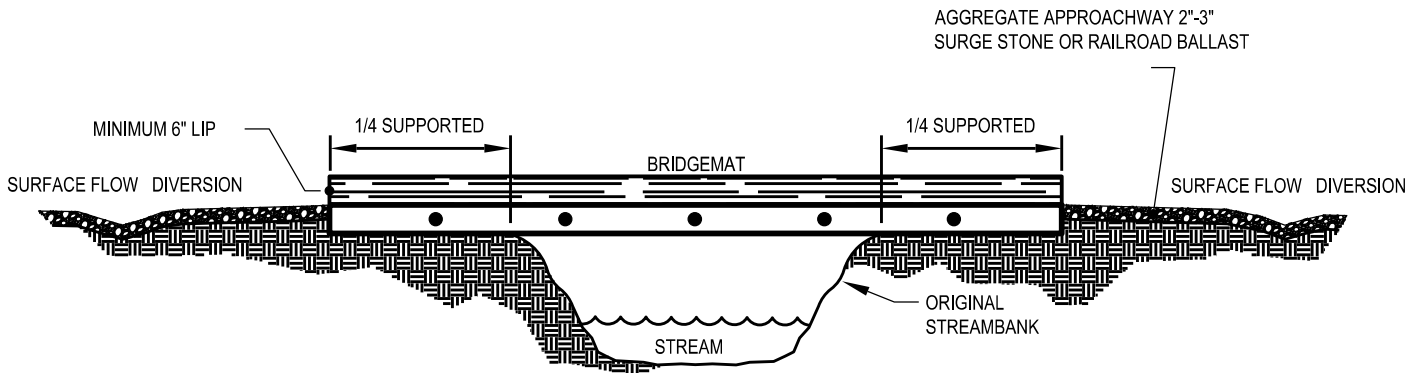
MAINTENANCE NOTES:

1. INSPECT ALL MEASURES AT LEAST WEEKLY AND AFTER EVERY RAINFALL OF 1.0 INCH OR GREATER, MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. CLEAN AND REPLACE BAG WHEN IT IS HALF FULL WITH SEDIMENT AND/OR CONSTRUCTION DEBRIS OR IS INCAPABLE OF DRAINING.
3. WHEN MAINTAINING AND REMOVING INLET PROTECTION DEVICES, MINIMIZE SEDIMENT FALLING INTO THE INLET. IMMEDIATELY REMOVE ALL MATERIALS THAT HAVE FALLEN INTO INLETS.
4. DEPOSIT SEDIMENT REMOVED FROM THE DEVICE IN A SUITABLE AREA AWAY FROM THE DEVICE SO THAT IT WILL NOT BE RE-DEPOSITED. DEPOSIT AREA SHALL BE STABILIZED.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	FILTER BAG INLET PROTECTION	
SW-20.22		



PERSPECTIVE VIEW



SIDE VIEW

INSTALLATION NOTES:

1. REFER TO "NORTH CAROLINA DIVISION OF FOREST RESOURCES" LITERATURE, INSTALLATION MAINTENANCE GUIDELINES, & "NORTH CAROLINA FORESTRY BMP MANUAL-2006".
2. THE TEMPORARY BRIDGE MUST BE CONSTRUCTED AT OR ABOVE THE TOP OF BANK ELEVATION TO PREVENT ENTRAPMENT OF FLOATING MATERIALS AND DEBRIS.
3. SURFACE FLOW ON EITHER SIDE OF THE BRIDGE MUST BE DIVERTED BY SWALE AND/OR DIKE.
4. BRIDGE MUST BE CHAINED TO AN APPROPRIATE ANCHOR ON ONE OF THE BANKS.
5. STABILIZE EXPOSED MINERAL SOIL WITH TREE TOPS OR BRUSH DURING MAT INSTALLATION, AND SEEDING/MULCH AFTER MAT REMOVAL.
6. INSTALL MATS TO CREATE A MINIMUM 10 FOOT BRIDGE WIDTH.
7. INCLUDE COARSE AGGREGATE ON THE APPROACHWAY FOR A MINIMUM OF 25 FEET AND SILT FENCE ALONG STREAMBANKS ADJACENT TO CROSSING FOR A MINIMUM OF 25 FEET.

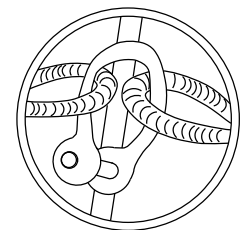
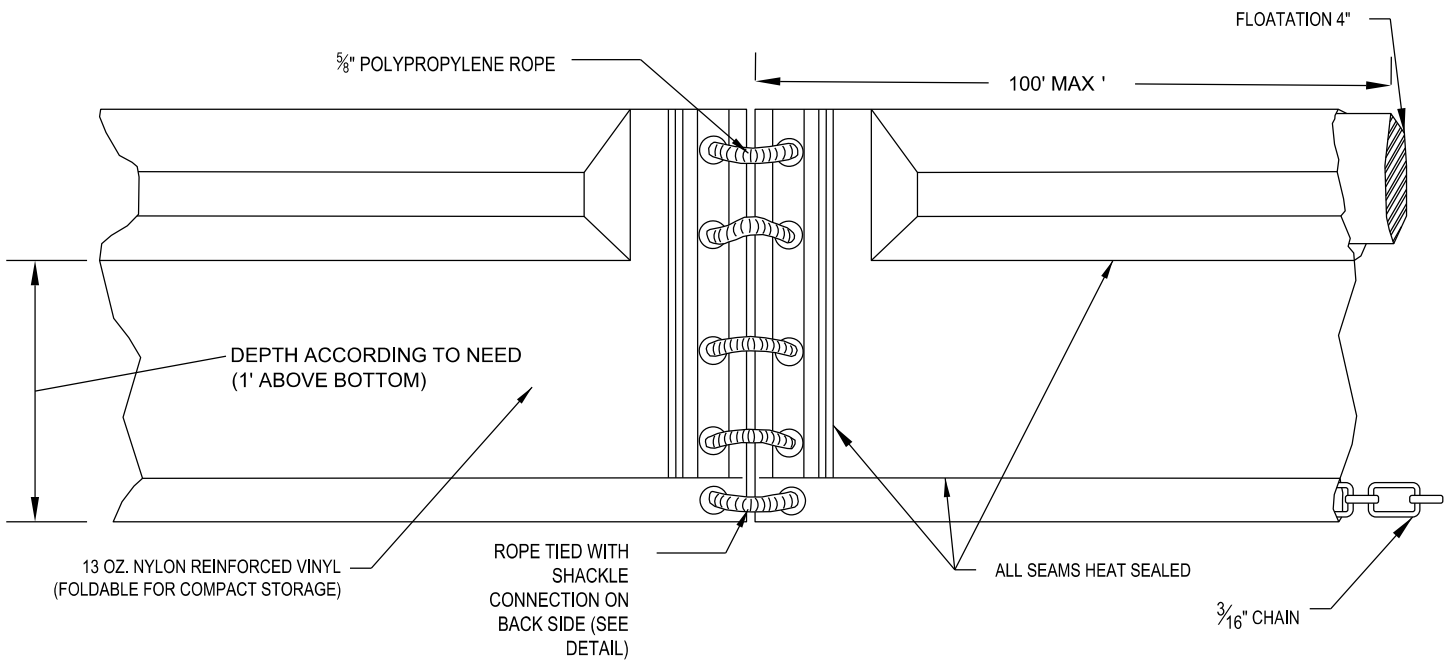
REMOVAL NOTES:

1. REMOVE MATS BY USING MAT CABLE LOOP OR SKIDDER GRAPPLE.
2. PERMANENTLY STABILIZE DISTURBED PORTIONS OF STREAMBANK AND APPROACH ROADS WITH PERENNIAL GRASSES/MULCH (OR WETLAND MIX WHEN APPLICABLE).
3. LEAVE APPROPRIATE WATER DIVERSION STRUCTURES IN PLACE ON BOTH SIDES OF THE STREAM.
4. RESTORE THE STREAM CHANNEL TO ITS ORIGINAL CROSS-SECTION AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREA.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. KEEP MATS' SURFACE FREE OF MINERAL SOIL AND DEBRIS THAT COULD ENTER STREAM.
3. PERIODICALLY CHECK MAT HARDWARE; RETIGHTEN NUTS & CABLE CLAMPS AS NECESSARY TO MAINTAIN BRIDGE STRENGTH AND INTEGRITY.
4. IMMEDIATELY REMOVE ANY DEBRIS WHICH ENTERS THE STREAM AT THE CROSSING LOCATION.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	TEMPORARY STREAM CROSSING BRIDGE MAT	
	SW-20.23	



SHACKLE CONNECTION DETAIL

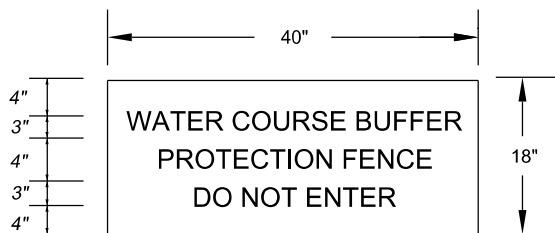
TURBIDITY CURTAIN (IN POND/COVE):

1. TURBIDITY CURTAINS MAY BE USED IN PONDS OR COVES (WITH REQUISITE APPROVAL) WHERE UPSLOPE DISTURBANCES/CONSTRUCTION WILL OCCUR TO REDUCE SEDIMENT TRANSPORT TO A LIMITED AREA IN THE RECEIVING WATERCOURSE.
2. TYPE 1 TURBIDITY CURTAINS SHALL BE USED IN PROTECTED AREAS WHERE THERE IS NO CURRENT AND THE AREA IS SHELTERED FROM WIND AND WAVES, CONSTRUCTED OF MINIMUM SPECIFICATIONS OF 13 OZ. PVC FABRIC, 4 INCH FLOAT, AND A 3/16 INCH BOTTOM BALLAST CHAIN. THE MAXIMUM SPAN BETWEEN JOINTS IS 100 FEET. SHOULD TYPE 2 OR TYPE 3 TURBIDITY CURTAINS BE NEEDED (WHERE THERE MAY BE SMALL TO CONSIDERATE CURRENT AND/OR WIND AND WAVE ACTION), ENGINEERED SPECIFICATIONS SHALL BE PROVIDED WITH THE PLAN SUBMISSION. TURBIDITY CURTAINS SHOULD NOT BE PLACED ACROSS THE MAIN FLOW OF A SIGNIFICANT BODY OF MOVING WATER.
3. THE TURBIDITY CURTAIN SHOULD BE ANCHORED TO THE SHORELINE ABOVE THE NORMAL HIGH WATER MARK, TOWED TO THE DESIRED LOCATION, AND ANCHORED (IF NEEDED) TO MAINTAIN THE DESIRED LOCATION WITHIN THE WATERCOURSE. THE TURBIDITY CURTAIN SHOULD EXTEND TO 1 FOOT ABOVE THE BOTTOM OF THE WATERCOURSE.

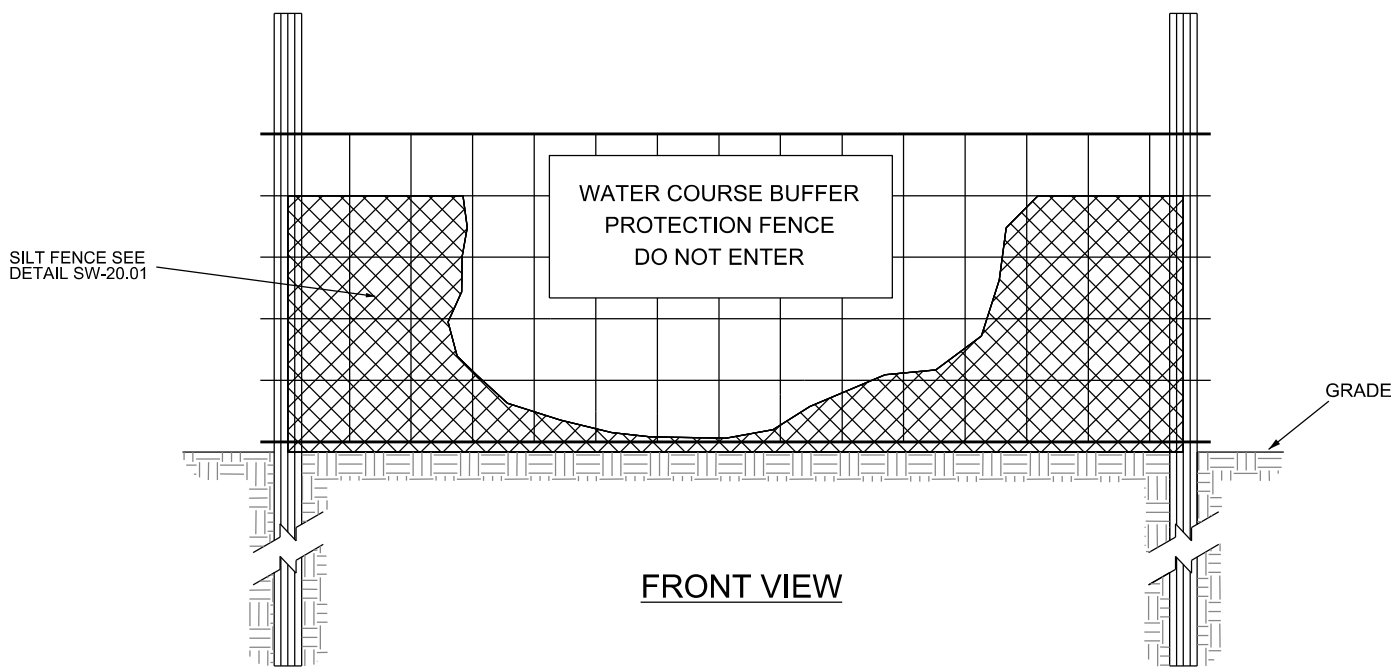
MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. WHEN THE CURTAIN IS NO LONGER REQUIRED, THE CURTAIN, ANCHORS, AND COMPONENTS SHALL BE REMOVED AND IN SUCH A MANNER AS TO MINIMIZE TURBIDITY. REMAINING SEDIMENT SHALL BE SUFFICIENTLY SETTLED BEFORE REMOVING THE CURTAIN. SEDIMENT MAY NEED TO BE REMOVED TO ACHIEVE THE ORIGINAL DEPTH OF THE WATERCOURSE AND SPOILS PROPERLY DISPOSED OR STABILIZED.

CITY OF RALEIGH	
STANDARD DETAIL	
REVISIONS	DATE: 9/2024 NOT TO SCALE
	TURBIDITY CURTAIN
SW-20.24	



WARNING SIGN DETAIL



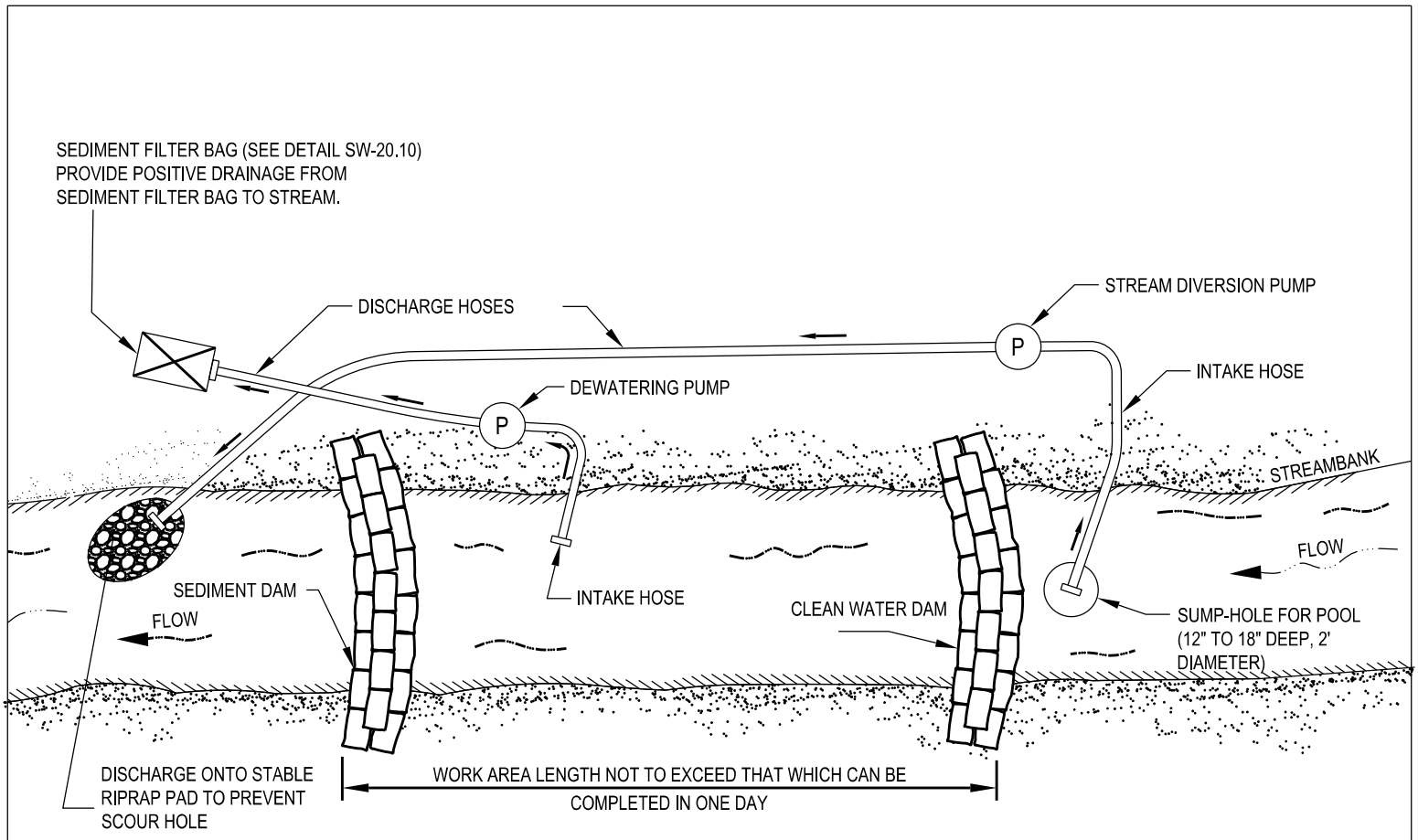
INSTALLATION NOTES:

1. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
2. LETTERS TO BE 3 INCH HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50 FEET MAXIMUM INTERVALS.
4. FOR WATERCOURSE BUFFER PROTECTION AREAS LESS THAN 200 FEET IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
5. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
6. MAINTAIN WATERCOURSE BUFFER PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
7. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH BASED ON ACTUAL FIELD CONDITIONS.
8. PLACE A SIGN AT EACH END OF LINEAR WATERCOURSE BUFFER PROTECTION AND 50 FEET ON CENTER THEREAFTER.

MAINTENANCE NOTES:

1. IF SIGN DETACHES OR FALLS FROM THE FENCE, AFFIX THE SIGN BACK ONTO THE FENCE.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	WATERCOURSE BUFFER PROTECTION FENCE	
	SW-20.25	



SEDIMENT FILTER BAG (SEE DETAIL SW-20.10)
 PROVIDE POSITIVE DRAINAGE FROM
 SEDIMENT FILTER BAG TO STREAM.

TEMPORARY PUMP AROUND SEQUENCE

1. SET UP PUMP WITH SUCTION AND DISCHARGE HOSE.
2. INSTALL UP-STREAM SANDBAG DAM OR OTHER APPROVED MATERIAL.
3. INSTALL DOWN-STREAM DAM.
4. THE PUMP MUST RUN CONTINUOUSLY WHILE WORKING IN THE STREAM.
5. BANKS MUST BE STABILIZED AT THE END OF EACH DAY.

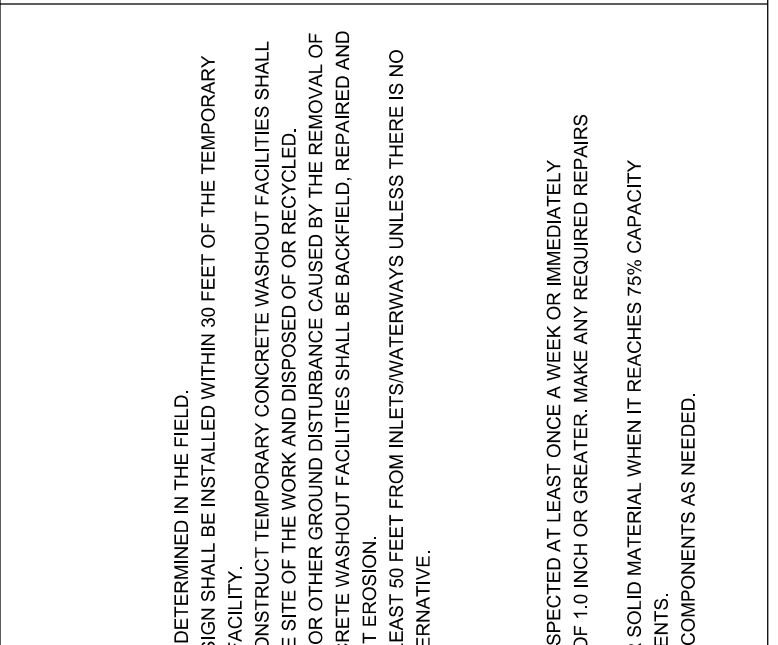
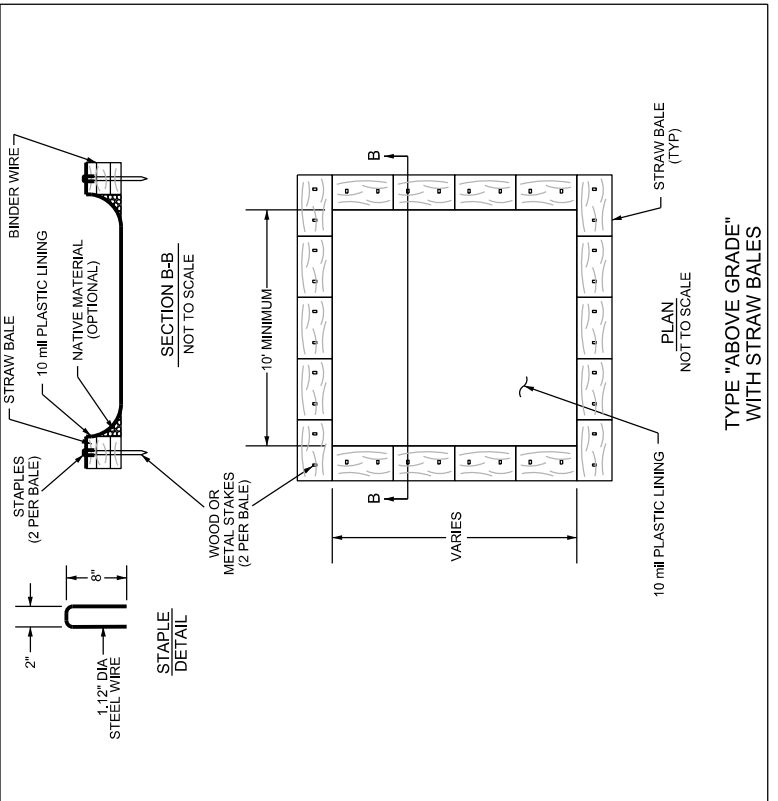
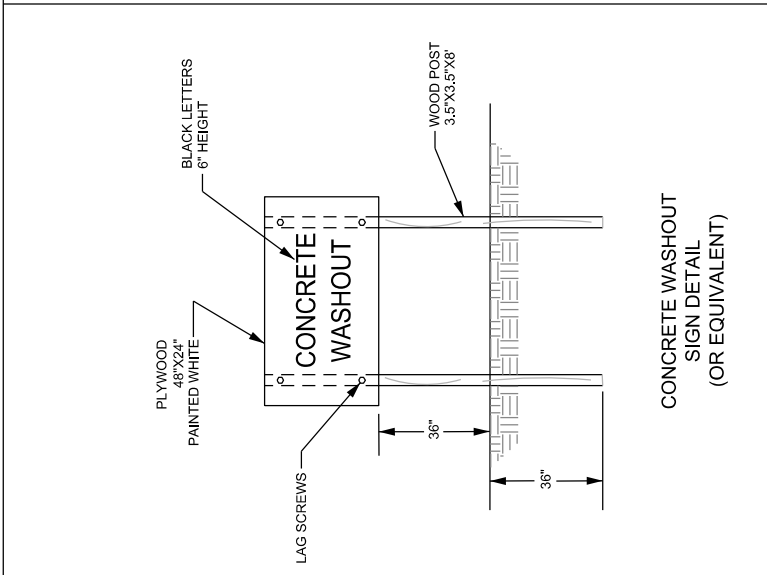
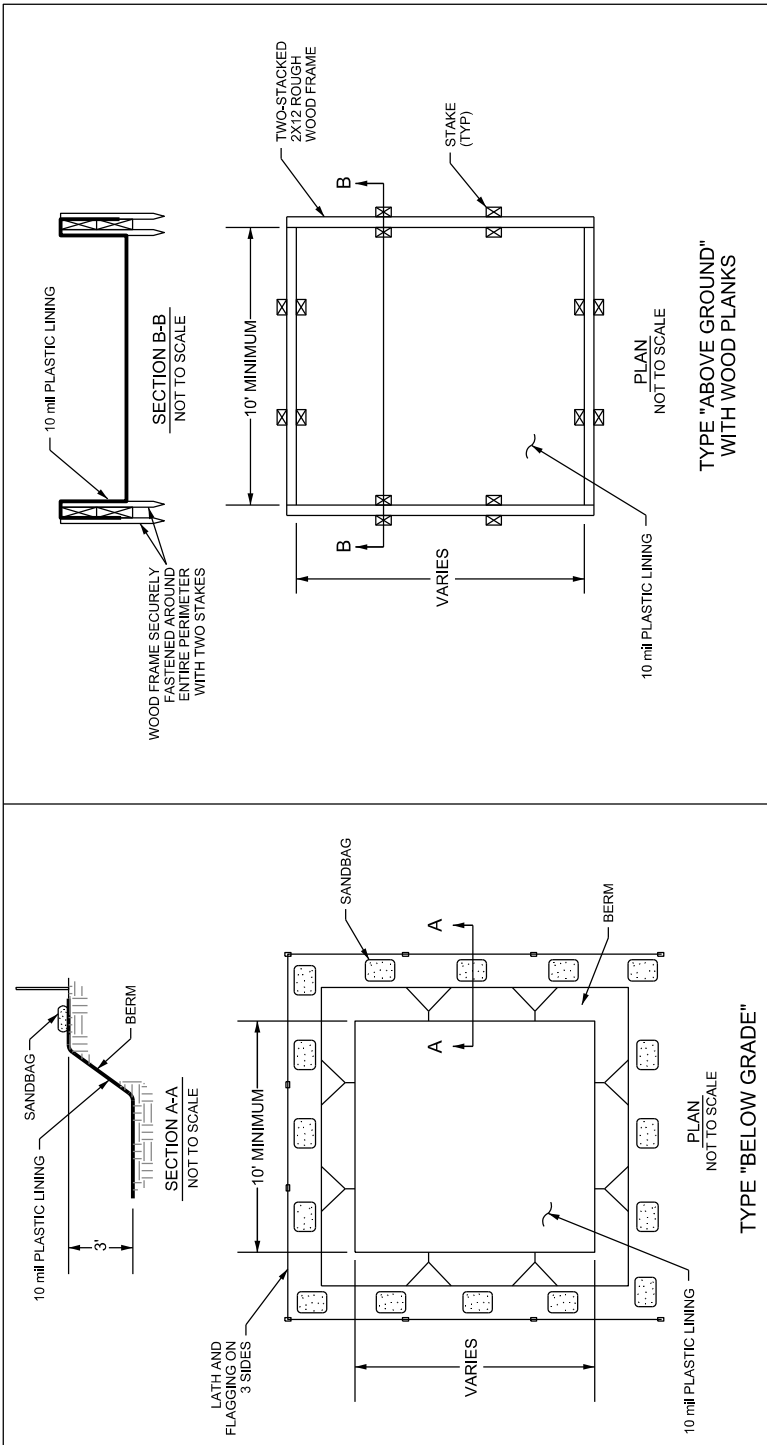
INSTALLATION NOTES:

1. DAMS SHALL BE SITUATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA, AND STREAM FLOW SHALL BE PUMPED AROUND THE WORK AREA. THE PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATER CONSTRUCTED OF RIPRAP.
2. WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A SEDIMENT BAG OR OTHER APPROVED DEVICE. THE MEASURE SHALL BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DAM WITHOUT CAUSING FURTHER EROSION BETWEEN THE SEDIMENT FILTER BAG AND THE STREAMBANK.

MAINTENANCE NOTES:

1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. BANKS MUST BE STABILIZED AT THE END OF EACH DAY.
3. WHEN RAIN EVENTS ARE ANTICIPATED, ENSURE THAT PUMPS ARE IN WORKING ORDER.

CITY OF RALEIGH		
STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	TEMPORARY PUMP AROUND	
	SW-20.26	



TYPE "BELOW GRADE"

TYPE "ABOVE GROUND" WITH WOOD PLANKS

TYPE "ABOVE GRADE" WITH STRAW BALES

INSTALLATION NOTES:

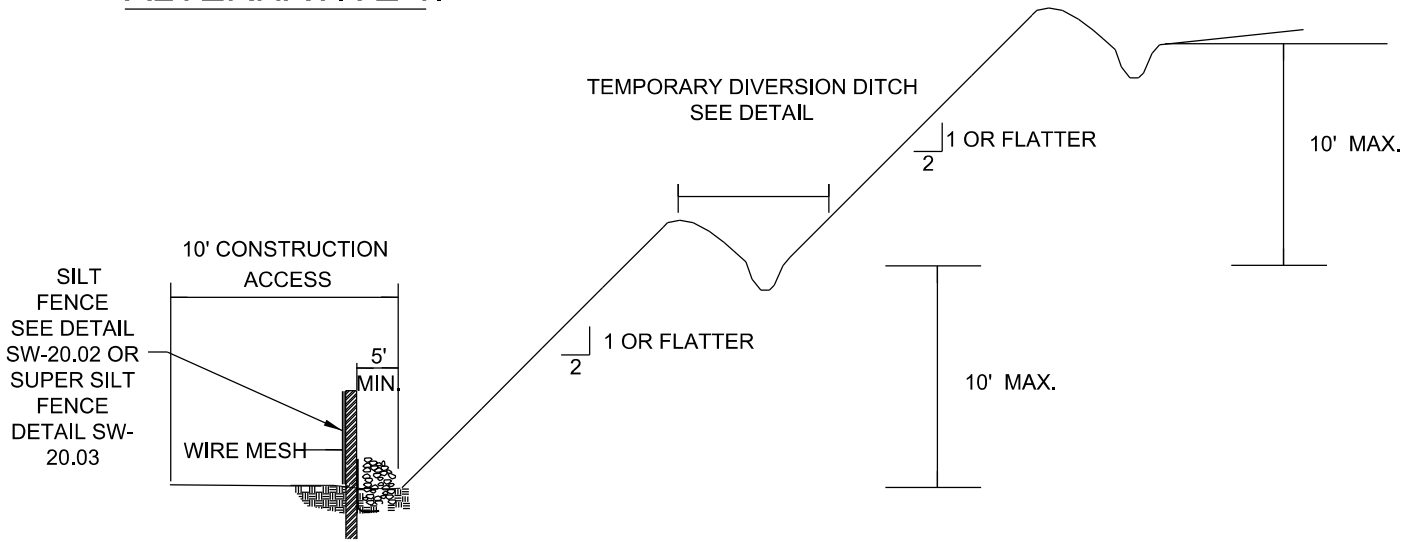
1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS, OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED AND STABILIZED TO PREVENT EROSION.
5. MUST BE LOCATED AT LEAST 50 FEET FROM INLETS/WATERWAYS UNLESS THERE IS NO OTHER PRACTICAL ALTERNATIVE.

MAINTENANCE NOTES:

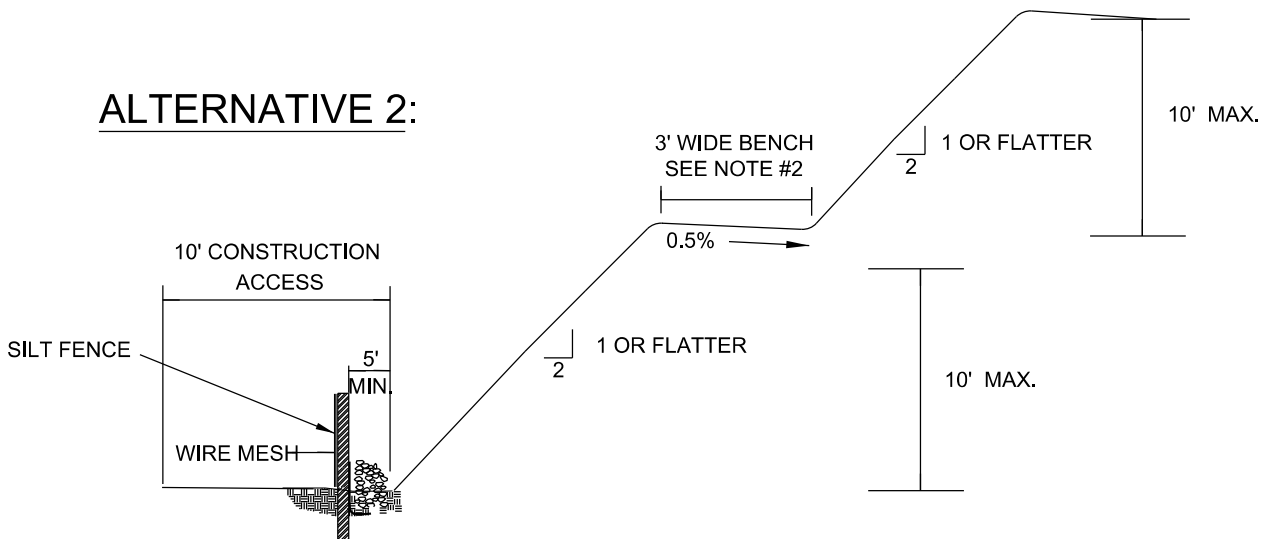
1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. REMOVE LIQUID AND/OR SOLID MATERIAL WHEN IT REACHES 75% CAPACITY TO LIMIT OVERFLOW EVENTS.
3. REPLACE STRUCTURAL COMPONENTS AS NEEDED.

CITY OF RALEIGH	
STANDARD DETAIL	
REVISIONS	DATE: 9/2024
	NOT TO SCALE
CONCRETE WASHOUT	
SW-20.27	

ALTERNATIVE 1:



ALTERNATIVE 2:



INSTALLATION NOTES:

1. IF DIVERSION DITCH USED, IT SHOULD FLOW INTO SEDIMENT BASIN, ROCK CHECK DAM, OR SLOPE DRAIN.
2. BENCH SHOULD BE GRADED AT 0% LONGITUDINAL SLOPE (ON-CONTOUR).
3. SLOPES SHOULD BE STABILIZED IMMEDIATELY AFTER GRADING IS COMPLETE.

MAINTENANCE NOTES:

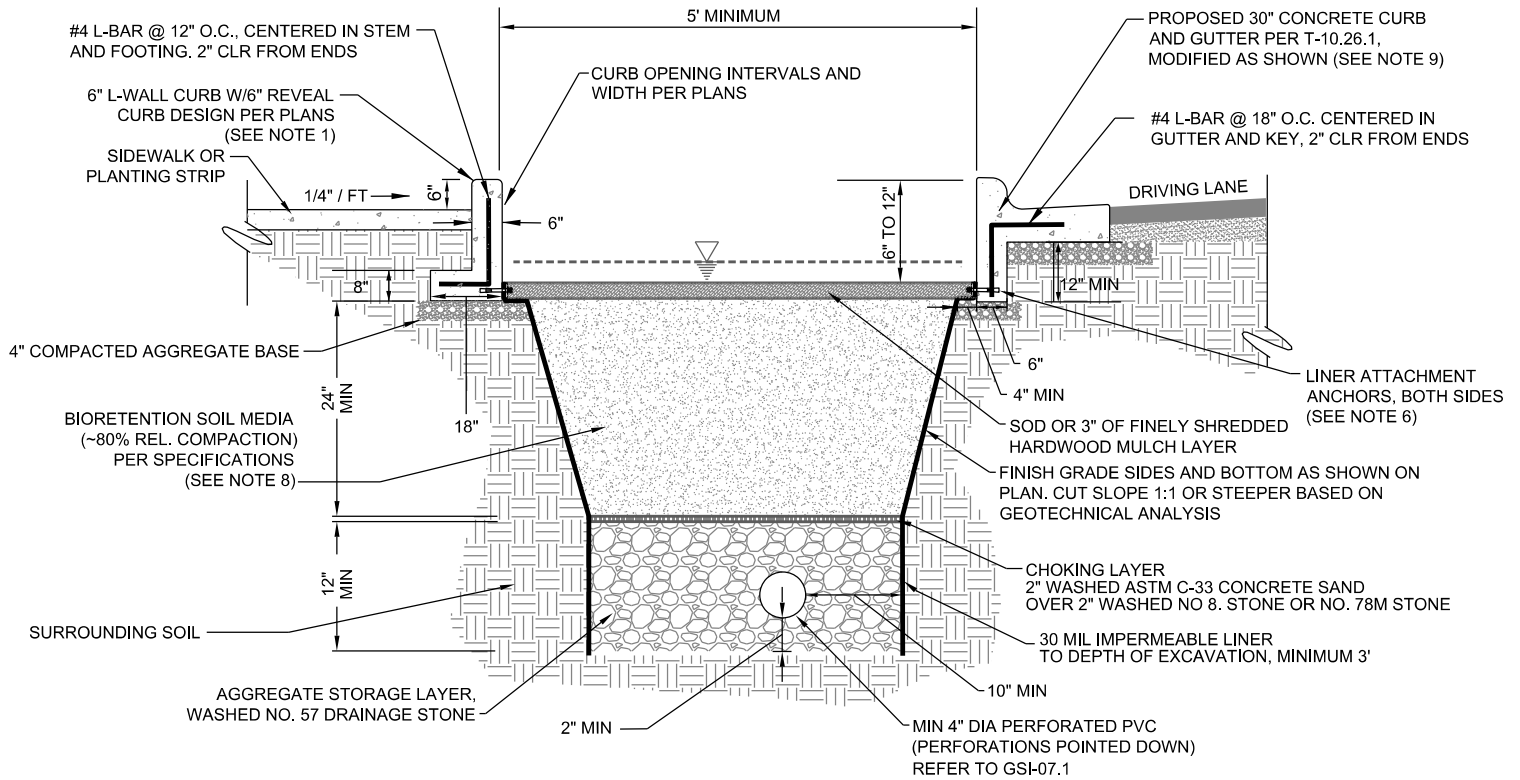
1. MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK OR IMMEDIATELY AFTER EACH RAINFALL OF 1.0 INCH OR GREATER. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. IF SIGNS OF EROSION ARE EVIDENT, REGRADE AND RESTABILIZE. CONSIDER USING MATTING OR OTHER MEASURES TO HELP PREVENT EROSION.

CITY OF RALEIGH STANDARD DETAIL

REVISIONS DATE: 9/2024 NOT TO SCALE

SLOPE TERRACING

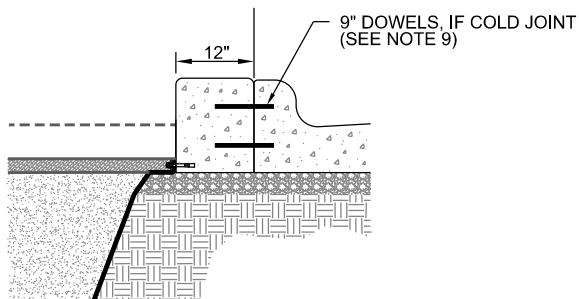
SW-20.28



**TYPICAL BUMP-OUT BIORETENTION SECTION
POSTED SPEED LIMIT OF 30 MPH AND LOWER**

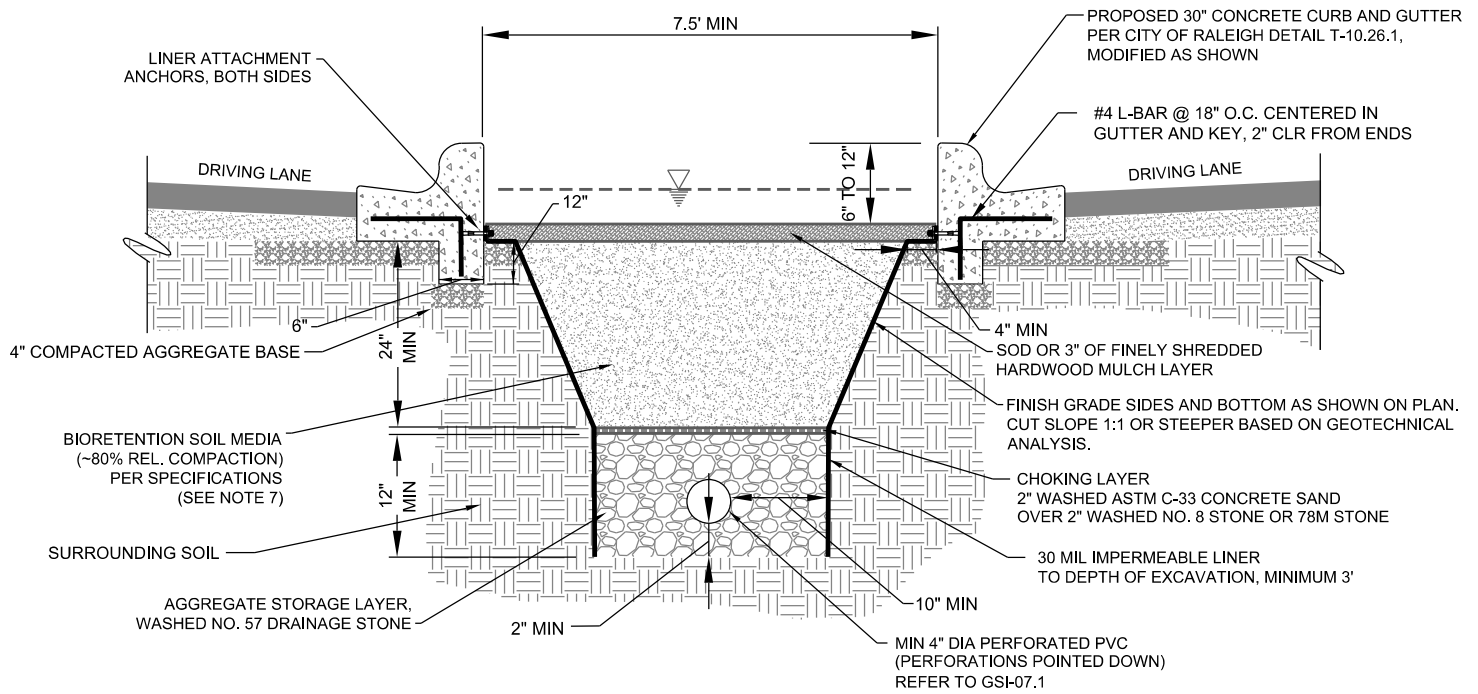
NOTES:

1. EXPANSION JOINTS AND DUMMY JOINTS SHALL BE PER STANDARD DETAIL T-10.26.1, CURB AND GUTTER.
2. REFER TO DESIGN PLANS FOR HORIZONTAL CONTROL INFORMATION.
3. BIORETENTION SIZING IS THE RESPONSIBILITY OF THE DESIGN ENGINEER. SIZING CALCULATIONS SHALL BE SUBMITTED TO THE CITY FOR REVIEW.
4. IF REQUIRED, REFER TO DESIGN PLANS FOR UNDERDRAIN INVERT ELEVATIONS.
5. REFER TO PLANS FOR UNDERDRAIN CLEANOUT LOCATIONS AND INSTALLATION DETAILS.
6. BOTH PIPE PENETRATIONS AND ATTACHMENT OF 30 MIL IMPERMEABLE LINER TO CONCRETE CURBS (USING CONCRETE ANCHORS SPACED AT MAXIMUM 18" O.C. AND BATTEN STRIPS) SHALL BE DONE IN ACCORDANCE WITH ASTM 6497. REFER TO GSI-08.1 AND GSI-08.2.
7. BOTTOM OF STORAGE LAYER SHALL BE SCARIFIED TO PROMOTE INFILTRATION PRIOR TO BACKFILL. FOR CITY PROJECTS SEE SPECIFICATION 33.43.73 FOR SUBGRADE PREPARATION.
8. BIORETENTION MEDIA SHALL BE PLACED IN 6" TO 12" LIFTS THAT ARE WALKED ON OR WATERED TO CONSOLIDATE AND ALLOW SHAPING OF THE MEDIA'S SURFACE. THE MEDIA SHALL NOT BE MECHANICALLY COMPACTED. REFER TO NCDEQ STORMWATER DESIGN MANUAL AND FOR CITY PROJECTS SPECIFICATION 33.46.70 FOR BIORETENTION SOIL MEDIA SPECIFICATIONS.
9. POUR 1' WIDE CONCRETE EXTENDED CURB MONOLITHICALLY WITH THE PROPOSED CURB AND GUTTER. OTHERWISE, ANCHOR CONCRETE STRIP TO EXISTING CURB WITH OILED OR GREASED BAR (1/2"x9") AT 24" O.C. INSTALL BAR 3" INTO THE EXISTING CURB. USE CONCRETE ADHESIVE ON THE EXISTING CURB.
10. STABILIZE CONTRIBUTING DRAINAGE AREA PRIOR TO PLACEMENT OF UNDERDRAIN AND VARIOUS FILL MATERIALS.
11. FOR CITY PROJECTS, ALL MATERIALS SPECIFIED AS WASHED SHALL BE WASHED FOLLOWING SPECIFICATION 33.46.70.
12. EXTEND CLEANOUT TO ELEVATION SHOWN ON PLANS.



(OPTIONAL) CONCRETE CURB EXTENSION DETAIL

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
CURB-SIDE AND BUMP-OUT BIORETENTION (FOR 30 MPH AND BELOW)		
SW-30.01		

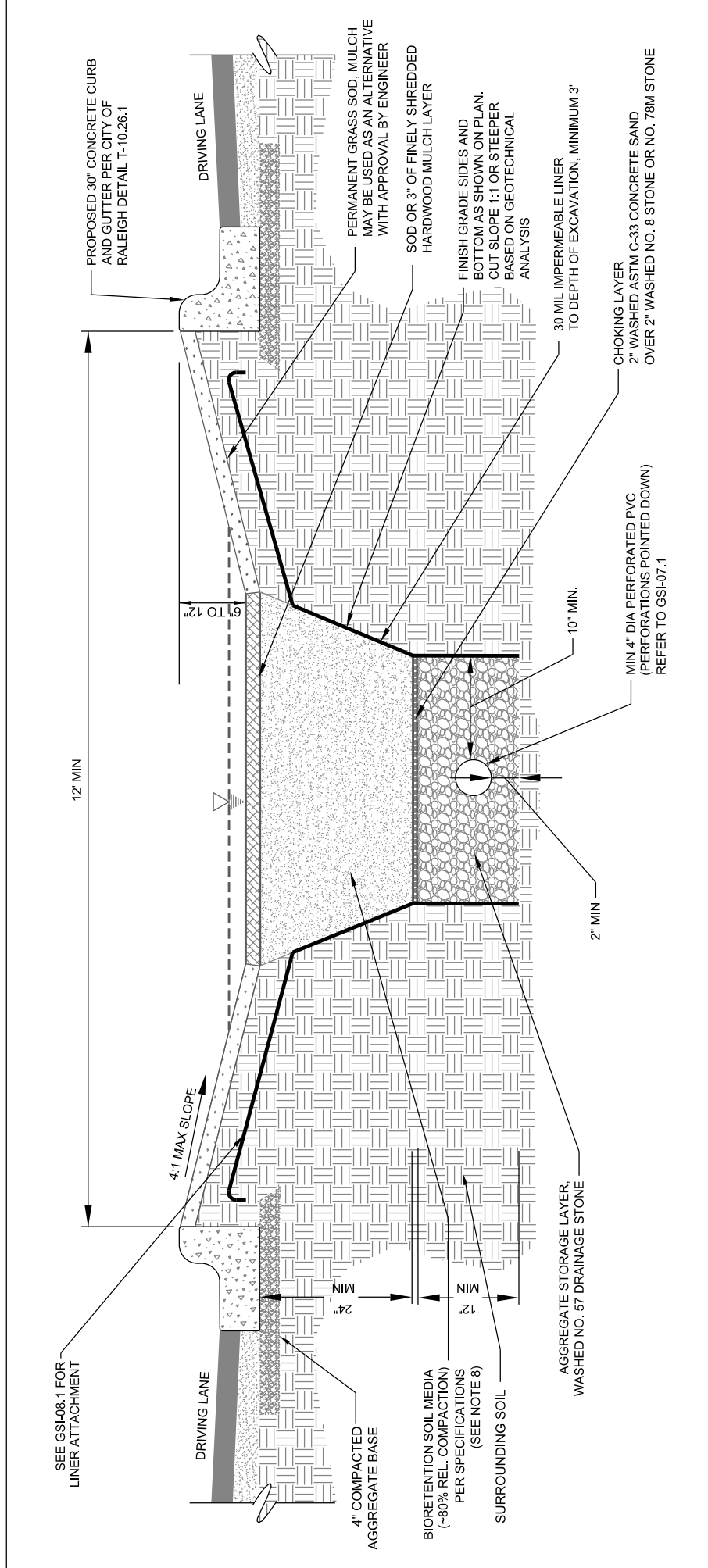


**TYPICAL MEDIAN BIORETENTION SECTION
POSTED SPEED LIMIT OF 30 MPH AND LOWER**

NOTES:

1. REFER TO DESIGN PLANS FOR HORIZONTAL CONTROL INFORMATION.
2. FOR CITY PROJECTS, SEE SPECIFICATION 33.46.71 FOR UNDERDRAIN AND SPECIFICATION 33.46.74 FOR IMPERMEABLE LINER.
3. IF REQUIRED, REFER TO DESIGN PLANS FOR UNDERDRAIN INVERT ELEVATIONS.
4. REFER TO PLANS FOR UNDERDRAIN CLEANOUT LOCATIONS AND INSTALLATION DETAILS.
5. BOTH PIPE PENETRATIONS, AND ATTACHMENT OF 30 MIL IMPERMEABLE LINER TO CONCRETE CURBS (USING CONCRETE ANCHORS SPACED AT MAXIMUM 18" O.C. AND BATTEN STRIPS), SHALL BE DONE IN ACCORDANCE WITH ASTM 6497. REFER TO GSI-08.1 AND GSI-08.2.
6. BOTTOM OF STORAGE LAYER SHALL BE SCARIFIED TO PROMOTE INFILTRATION PRIOR TO BACKFILL. FOR CITY PROJECTS, SEE SPECIFICATION 33.43.73 FOR SUBGRADE PREPARATION.
7. BIORETENTION MEDIA SHALL BE PLACED IN 6" TO 12" LIFTS THAT ARE WALKED ON OR WATERED TO CONSOLIDATE AND ALLOW SHAPING OF THE MEDIA'S SURFACE. THE MEDIA SHALL NOT BE MECHANICALLY COMPACTED. REFER TO NCDEQ STORMWATER DESIGN MANUAL AND FOR CITY PROJECTS, SPECIFICATION 33.46.70 FOR BIORETENTION SOIL MEDIA SPECIFICATIONS.
8. STABILIZE CONTRIBUTING DRAINAGE AREA PRIOR TO PLACEMENT OF UNDERDRAIN AND VARIOUS FILL MATERIALS.
9. FOR CITY PROJECTS, ALL MATERIALS SPECIFIED AS WASHED SHALL BE WASHED FOLLOWING SPECIFICATION 33.46.70.
10. EXTEND CLEANOUT TO ELEVATION SHOWN ON PLANS.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	MEDIAN BIORETENTION (FOR 30 MPH AND BELOW)	
	SW-30.02.1	

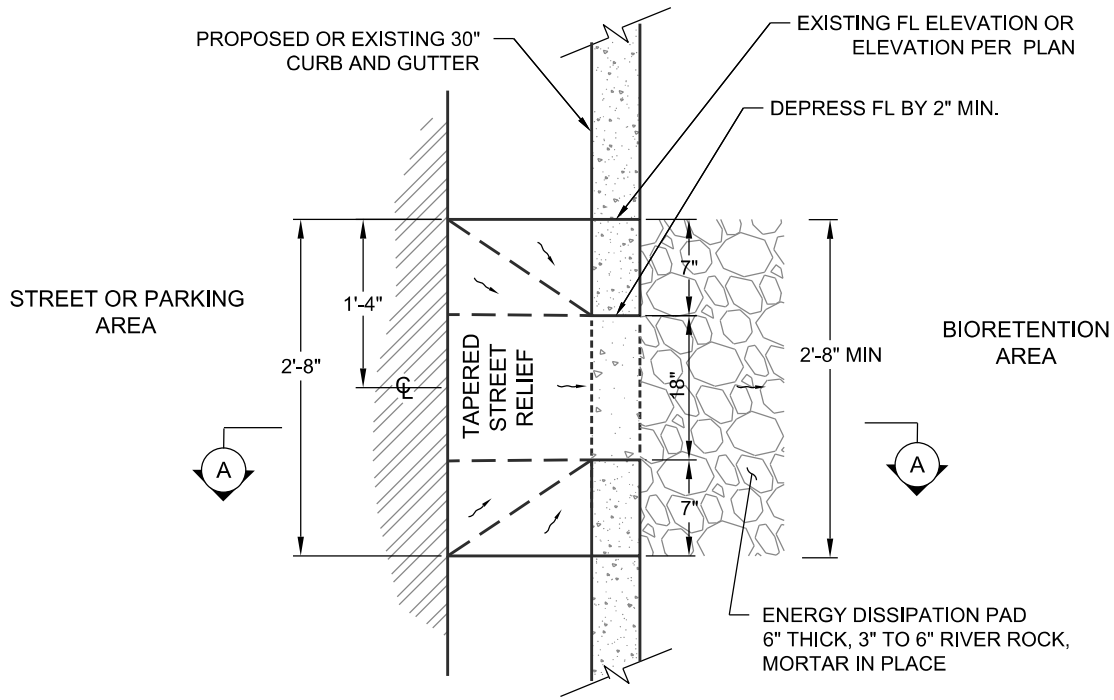


**TYPICAL MEDIAN BIORETENTION SECTION
POSTED SPEED LIMIT HIGHER THAN 30 MPH**

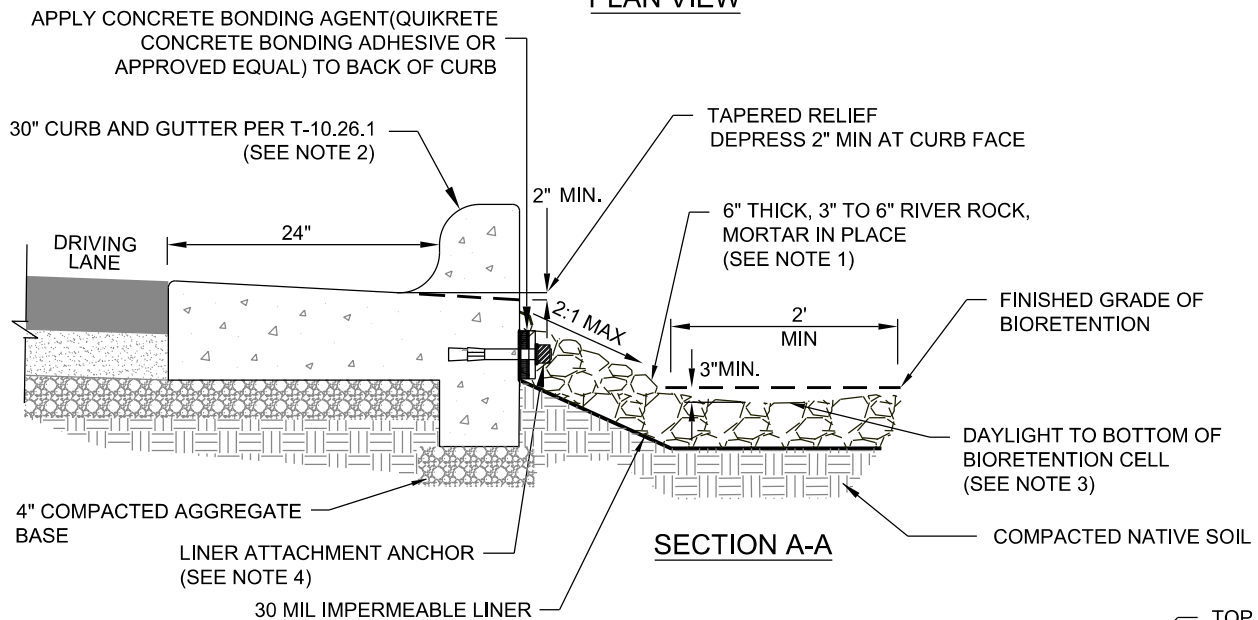
NOTES:

1. REFER TO DESIGN PLANS FOR HORIZONTAL CONTROL INFORMATION.
2. FOR CITY PROJECTS, SEE SPECIFICATION 33.46.71 FOR UNDERDRAIN AND SPECIFICATION 33.46.74 FOR IMPERMEABLE LINER.
3. IF UNDERDRAIN IS REQUIRED, REFER TO DESIGN PLANS FOR UNDERDRAIN INVERT ELEVATIONS.
4. REFER TO PLANS FOR UNDERDRAIN CLEANOUT LOCATIONS AND INSTALLATION DETAILS.
5. BOTTOM OF STORAGE LAYER SHALL BE SCARIFIED TO PROMOTE INFILTRATION PRIOR TO BACKFILL. FOR CITY PROJECTS, SEE SPECIFICATION 33.43.73 FOR SUBGRADE PREPARATION.
6. VEGETATION MAY BE PLACED ON SIDE SLOPES TO ANCHOR MULCH IF DESIRED.
7. ALL FEATURES, INCLUDING VEGETATION, INTEGRATED INTO MEDIAN BIORETENTION SHALL MEET SIGHT DISTANCE REQUIREMENTS PER STREET DESIGN MANUAL AND RECOMMENDED PLANT SPECIES IN THE NCDEQ STORMWATER DESIGN MANUAL.
8. BIORETENTION MEDIA SHALL BE PLACED IN 6" TO 12" LIFTS THAT ARE WALKED ON OR WATERED TO CONSOLIDATE AND ALLOW SHAPING OF THE MEDIA'S SURFACE. THE MEDIA SHALL NOT BE MECHANICALLY COMPACTED. REFER TO NCDEQ STORMWATER DESIGN MANUAL AND FOR CITY PROJECTS, SPECIFICATION 33.46.70 FOR BIORETENTION SOIL MEDIA SPECIFICATIONS.
9. STABILIZE CONTRIBUTING DRAINAGE AREA PRIOR TO PLACEMENT OF UNDERDRAIN AND VARIOUS FILL MATERIALS.
10. FOR CITY PROJECTS, ALL MATERIALS SPECIFIED AS WASHED SHALL BE WASHED FOLLOWING SPECIFICATION 33.46.70.
11. EXTEND CLEANOUT TO ELEVATION SHOWN ON PLANS.

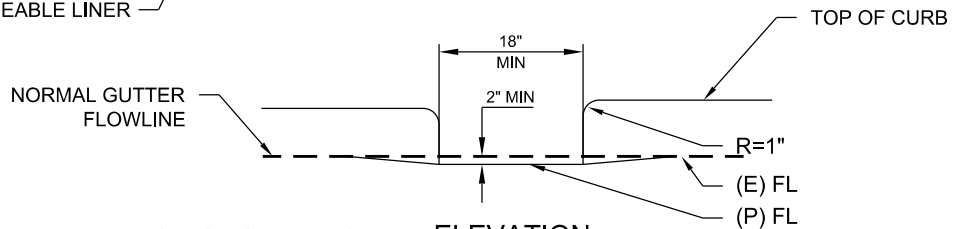
CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
MEDIAN BIORETENTION (FOR ABOVE 30 MPH)		
SW-30.02.2		



PLAN VIEW



SECTION A-A

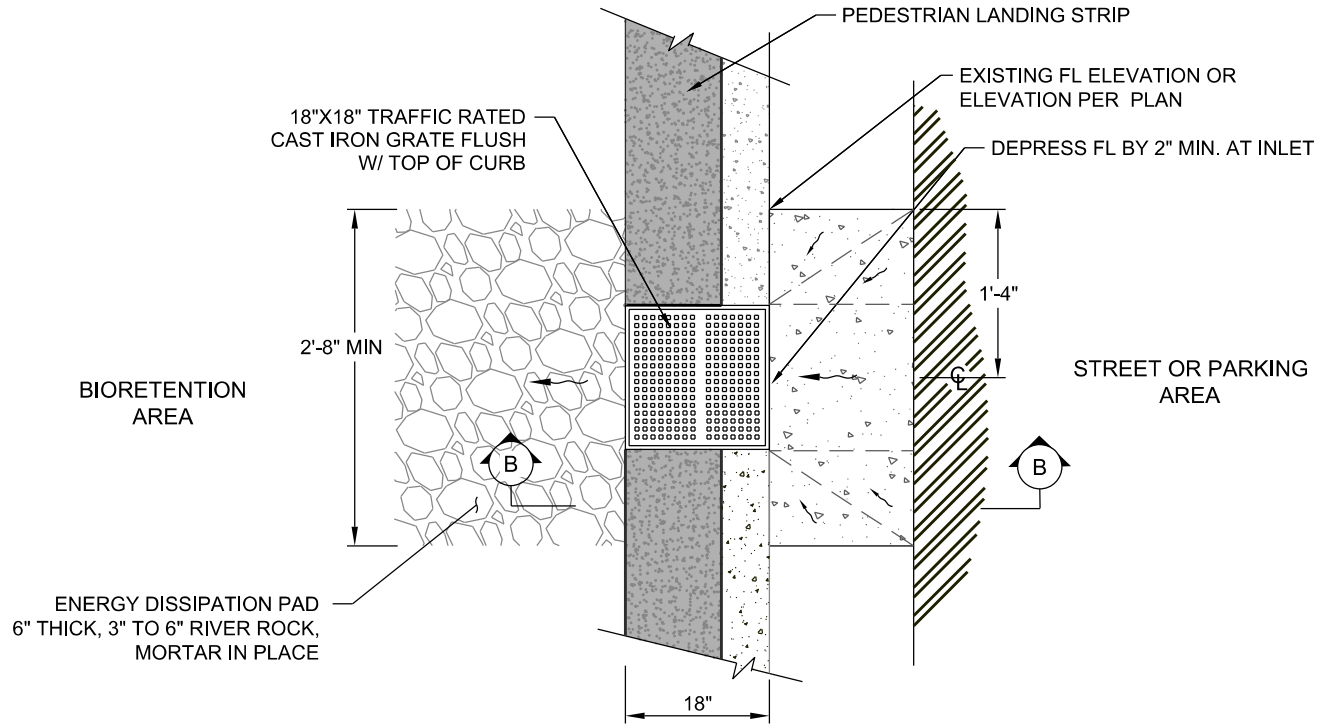


ELEVATION

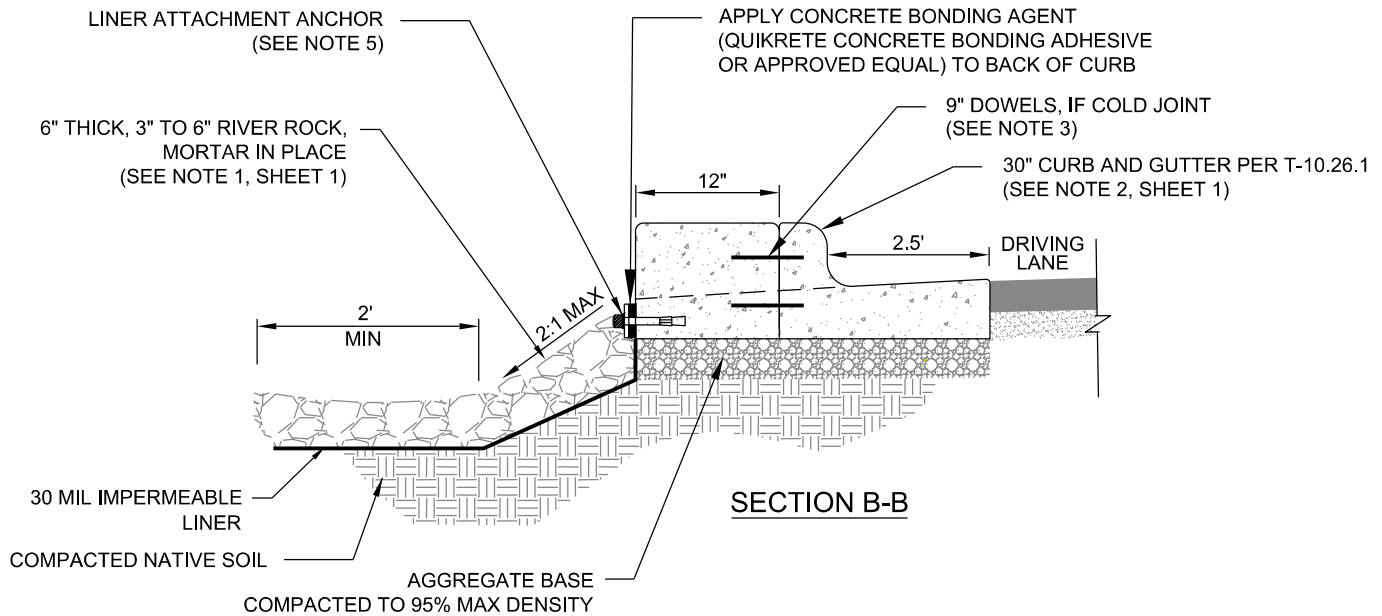
NOTES:

1. ENERGY DISSIPATION PAD PROVIDED AS STABILIZED ENTRANCE TO BIORETENTION SYSTEM. ROCK SHALL BE PLACED IN IRREGULAR PATTERN USING NON-UNIFORM SIZES TO PREVENT PREFERENTIAL FLOW PATHS, INCREASE ENERGY DISSIPATION, AND TO LIMIT THE SURFACE AREA OF EXPOSED MORTAR. ALTERNATIVE PRE-TREATMENT SOLUTIONS WILL BE CONSIDERED.
2. WHERE NECESSARY, EXTEND GUTTER TO 2.5' WIDTH TO ACCOMMODATE TRASH CONTAINER PLACEMENT.
3. ROCK AND MORTAR INLET PROTECTION SHALL EXTEND ACROSS BOTTOM OF BIORETENTION TO OPPOSITE TOE OF SLOPE, OR 2' MINIMUM. FINISH GRADE OF MORTARED BOTTOM SHALL BE AT LEAST 3" BELOW ADJACENT BIORETENTION BOTTOM ELEVATION TO PROVIDE SEDIMENT STORAGE.
4. ATTACHMENT OF 30 MIL IMPERMEABLE LINER TO CONCRETE CURBS (USING CONCRETE ANCHORS SPACED AT MAXIMUM 18" O. C. AND BATTEN STRIPS) SHALL BE DONE IN ACCORDANCE WITH ASTM 6497.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
CURB-CUT INLET (TAPERED STREET RELIEF)		
SW-30.03.1		



PLAN VIEW
PEDESTRIAN OPTION

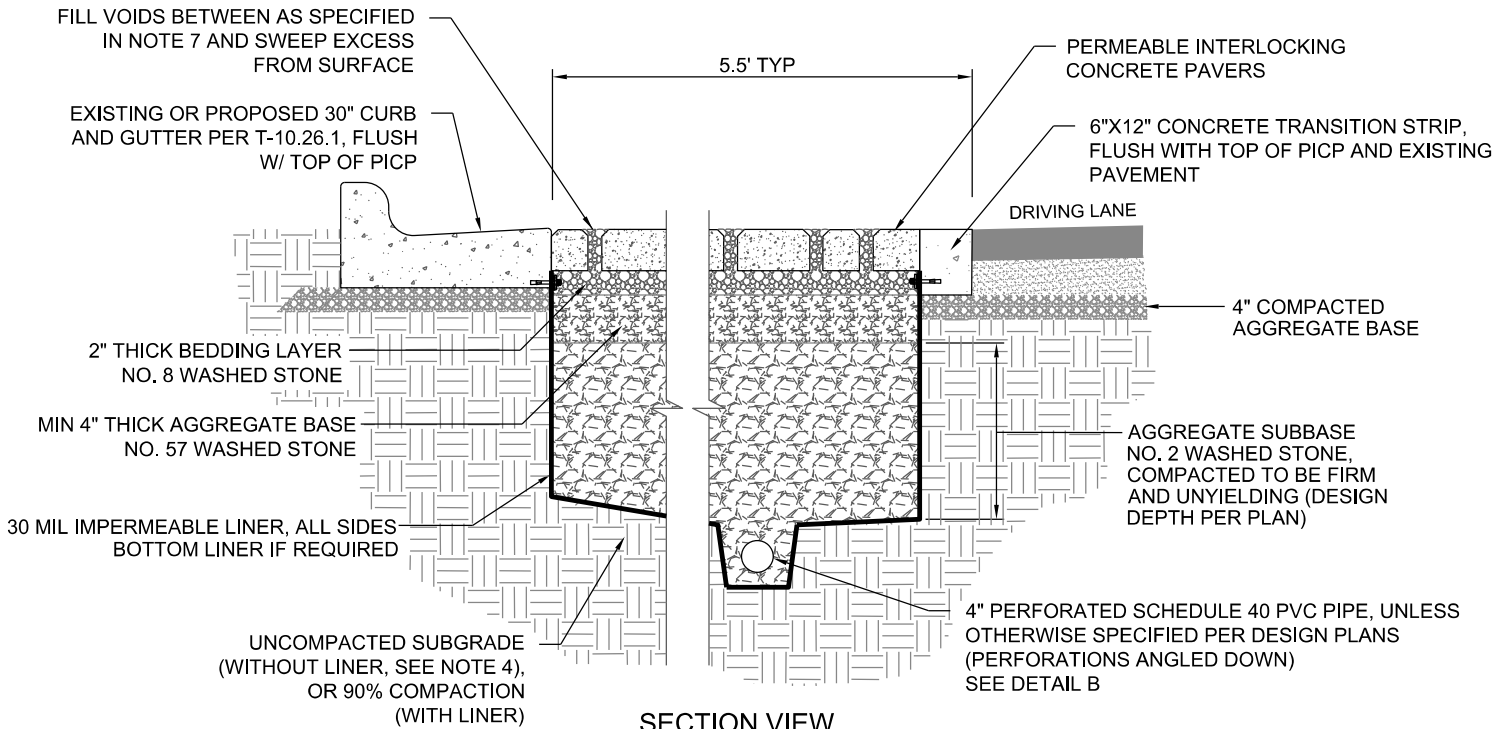


SECTION B-B

NOTES:

1. CURB CUT SHALL BE 18" WIDE WITH VERTICAL SIDES.
2. GRATE FRAME SHALL BE CAST INTO TOP EDGES OF CURB CUT SO GRATE IS FLUSH WITH TOP OF CURB AND PEDESTRIAN LANDING STRIP.
3. CONCRETE CURB EXTENSIONS ARE RECOMMENDED WHERE PARKING IS IMMEDIATELY ADJACENT AND/OR WHERE SPEED LIMITS EXCEED 35 MPH. POUR 1' WIDE CONCRETE EXTENDED CURB MONOLITHICALLY WITH THE PROPOSED CURB AND GUTTER. OTHERWISE, ANCHOR CONCRETE STRIP TO EXISTING CURB WITH OILED OR GREASED BAR (1/2" X 9") AT 24" O.C. INSTALL BAR 3" INTO THE EXISTING CURB. USE CONCRETE ADHESIVE ON THE EXISTING CURB.
4. GRATE SHALL BE COMPLIANT WITH AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.
5. ATTACHMENT OF 30 MIL IMPERMEABLE LINER TO CONCRETE CURBS (USING CONCRETE ANCHORS SPACED AT MAXIMUM 18" O. C. AND BATTEN STRIPS) SHALL BE DONE IN ACCORDANCE WITH ASTM 6497

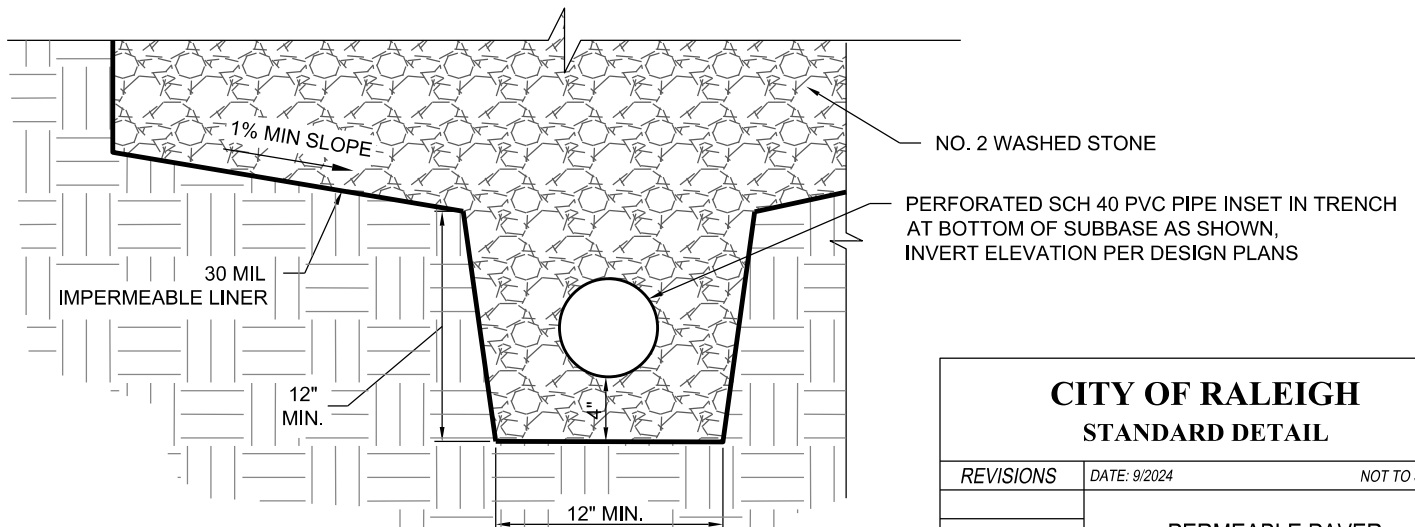
CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		CURB-CUT INLET (CAST IRON GRATE)
		SW-30.03.2



SECTION VIEW

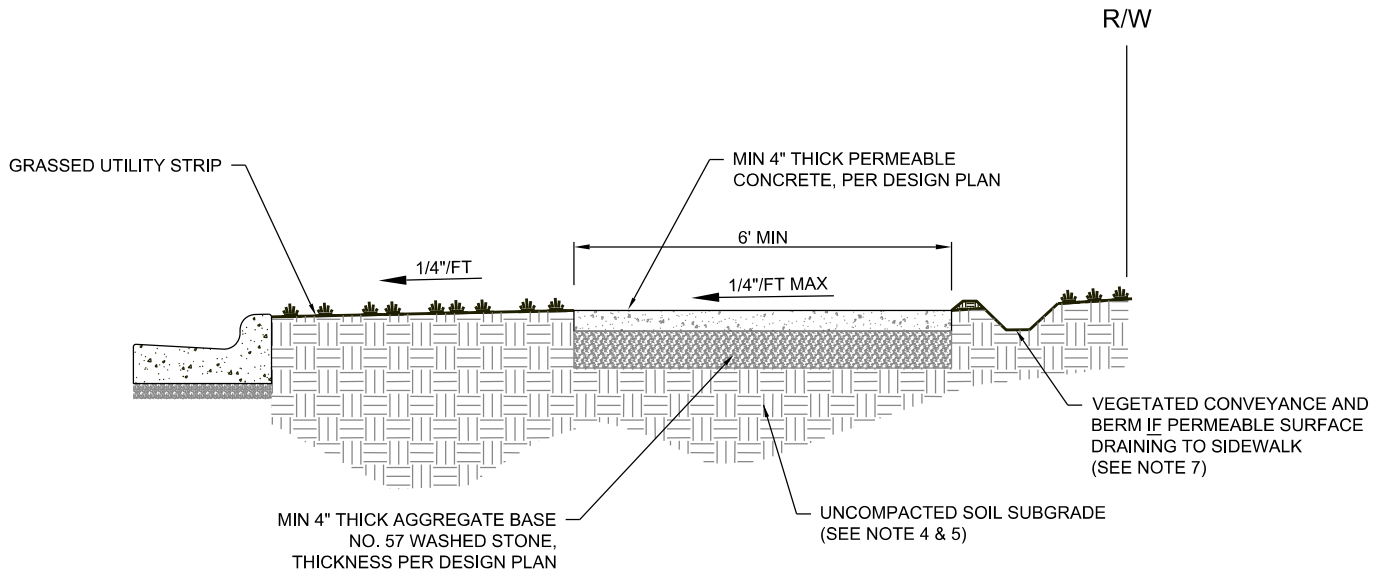
NOTES:

1. ALL PICP SHALL CONFORM TO ASTM C936 AND ADA DESIGN GUIDELINES.
2. SLOPE OF SOIL SUBGRADE SHALL BE 0.5% OR LESS, MAXIMUM PICP SURFACE SLOPE SHALL BE 6%.
3. THE SEASONAL HIGH WATER TABLE SHALL HAVE A MINIMUM 2 FT SEPARATION FROM THE BOTTOM OF THE AGGREGATE SUBBASE.
4. IN HSG B, C, OR D SOILS, THE SURFACE OF THE SUBGRADE UNDER INFILTRATING PICP SYSTEMS SHOULD BE SCARIFIED, RIPPED, OR TRENCHED IMMEDIATELY PRIOR TO AGGREGATE SUBBASE PLACEMENT TO MAINTAIN PRE-CONSTRUCTION SUBGRADE INFILTRATION RATE.
5. THE INCLUSION OF AN UNDERDRAIN SYSTEM WITH IMPERMEABLE LINER (INCLUDING BOTTOM LAYER) IS DEPENDENT UPON THE RESULTS OF THE GEOTECHNICAL INVESTIGATION CONSISTENT WITH THE GUIDANCE PROVIDED IN THE NCDEQ STORMWATER DESIGN MANUAL AND CITY OF RALEIGH DESIGN MANUAL. IMPERMEABLE LINER SHALL BE HDPE, PVC, OR LDPE AND SHOULD BE INSTALLED SO THAT LINER EXPOSURE TO SUNLIGHT IS MINIMIZED.
6. ELEVATION GRADIENT BETWEEN THE CONCRETE GUTTER AND ADJACENT PICP SHALL NOT EXCEED 1/4"; OTHERWISE, PROVIDE 1:2 BEVEL ON EDGE OF GUTTER.
7. OPEN VOID FILL MEDIA AROUND PICP SHALL BE LARGER OF NO. 8, NO.9, OR NO. 89 STONE, WASHED AND FREE OF FINES, SUITABLE FOR PLACEMENT IN JOINT SIZE SPECIFIED BY MANUFACTURER.
8. BOTH PIPE PENETRATIONS AND ATTACHMENT OF 30 MIL IMPERMEABLE LINER TO CONCRETE CURBS (USING CONCRETE ANCHORS SPACED AT MAXIMUM 18" O.C. AND BATTEN STRIPS) SHALL BE DONE IN ACCORDANCE WITH ASTM 6497.
9. ALL AGGREGATE SIZED ACCORDING TO ASTM C136.
10. AASHTO LAYER COEFFICIENTS FOR OPEN-GRADED BASE AND SUBBASE SHALL RANGE BETWEEN 0.06 AND 0.10.
11. AASHTO MINIMUM LAYER COEFFICIENT OF 0.3 FOR PAVER AND BEDDING LAYERS IS RECOMMENDED.
12. LOCATE UNDERDRAIN AS SHOWN ON THE IMPROVEMENT PLANS. HORIZONTAL LOCATION MAY VARY WITHIN PAVEMENT SECTION AS LONG AS MINIMUM OFFSET DISTANCES AND BOTTOM SLOPES ARE MAINTAINED.
13. DEPTH OF PERFORATED PVC PIPE MAY BE ADJUSTED TO TIE INTO THE ADJACENT DRAINAGE INFRASTRUCTURE AS NEEDED.
14. ALTERNATE BOTTOM PROFILE OMITTING THE INSET TRENCH MAY BE USED AT DIRECTION OF ENGINEER SO LONG AS 1% MIN SLOPE TO UNDERDRAIN IS RETAINED.
15. ALL MATERIALS SPECIFIED AS WASHED SHALL BE WASHED AND FREE OF FINES.



DETAIL B

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	PERMEABLE PAVER PARKING LANE	
	SW-30.04	

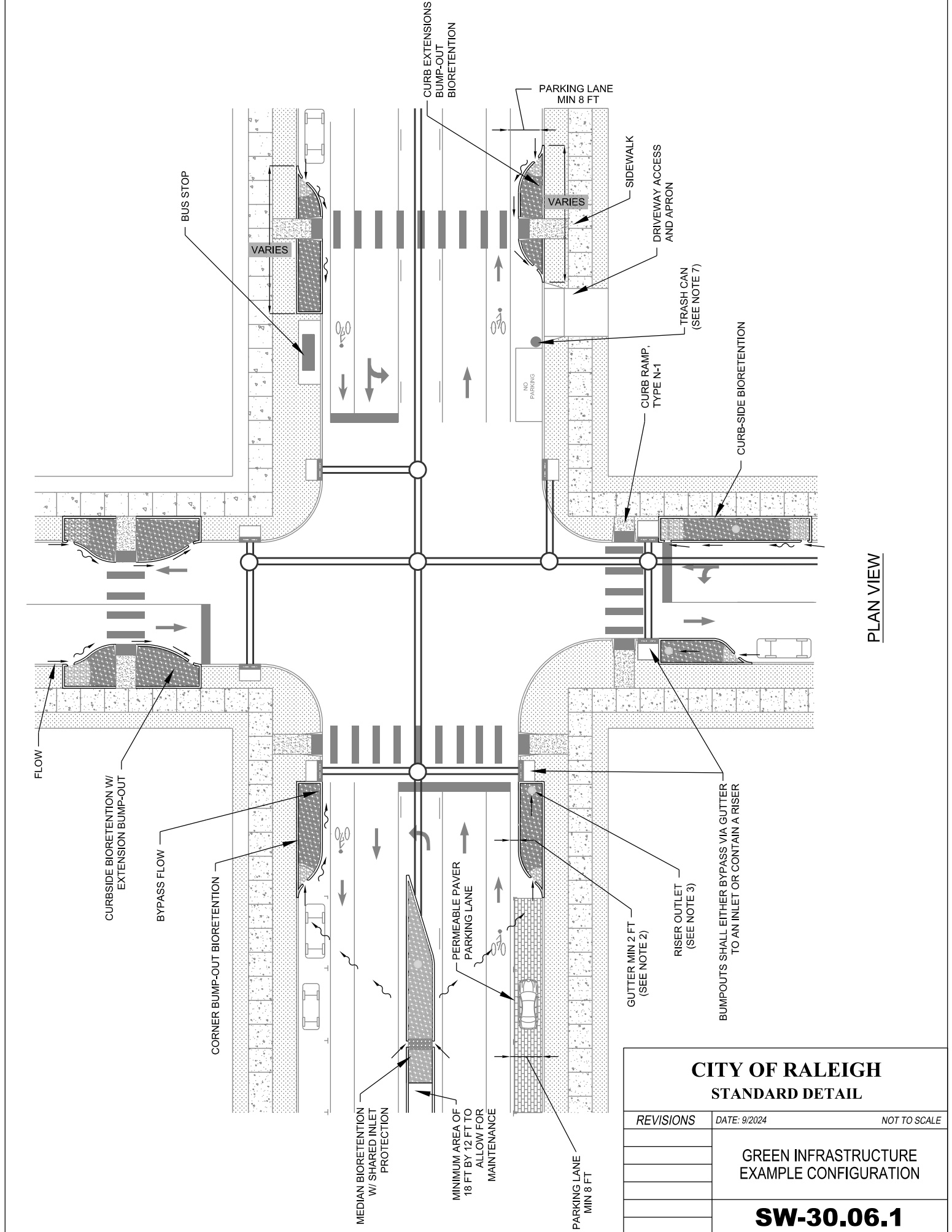


SECTION VIEW

NOTES:

1. MATERIALS AND CONSTRUCTION OF PERMEABLE CONCRETE (PC) SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS: MIX DESIGN (ACI 522.1); FRESH UNIT WEIGHTS AND VOIDS (ASTM C1688); FIELD INFILTRATION (ASTM C1701); RAVELING POTENTIAL (ASTM C1747); HARDENED UNIT WEIGHT AND VOID CONTENT (ASTM C1754).
2. RECOMMENDED VOIDS RATIO FOR PC IS 20% (15-25% ACCEPTABLE).
3. SLOPE OF SOIL SUBGRADE SHALL BE 0.5% OR LESS. MAXIMUM PC SURFACE SLOPE SHALL BE 6%.
4. THE SEASONAL HIGH WATER TABLE SHALL BE 2 FEET BELOW THE BOTTOM OF THE AGGREGATE BASE.
5. IN HSG B, C, OR D SOILS, THE SURFACE OF THE SUBGRADE SHOULD BE SCARIFIED, RIPPED, OR TRENCHED IMMEDIATELY PRIOR TO AGGREGATE SUBBASE PLACEMENT TO MAINTAIN PRE-CONSTRUCTION SUBGRADE INFILTRATION RATE.
6. THE INCLUSION OF AN UNDERDRAIN SYSTEM WITH IMPERMEABLE LINER (INCLUDING BOTTOM LAYER) IS DEPENDENT UPON THE RESULTS OF THE GEOTECHNICAL INVESTIGATION CONSISTENT WITH THE GUIDANCE PROVIDED IN THE NCDEQ STORMWATER DESIGN MANUAL AND CITY OF RALEIGH DESIGN MANUAL.
7. IF PERMEABLE RUNOFF DRAINS TO THE PC SIDEWALK, A VEGETATED CONVEYANCE DIVERSION SHALL BE INSTALLED UPGRADIENT AND SIZED FOR SAFE CONVEYANCE OF THE 10-YR, 24-HR STORM. CONVEYANCE DIVERSION SHALL DISCHARGE TO STORM DRAINAGE SYSTEM AND NOT ON OR ACROSS PC SIDEWALK.
8. IMPERMEABLE RUNOFF IS ALLOWED TO DRAIN TO THE PC SIDEWALK IN ACCORDANCE WITH DESIGN CRITERIA PROVIDED IN CHAPTER 18 OF THE NCDEQ STORMWATER DESIGN MANUAL.
9. ALL AGGREGATE SIZED ACCORDING TO ASTM C136.
10. IF REQUIRED BASED ON SITE CONDITIONS, INCLUDING SIGNIFICANT IMPERVIOUS RUN-ON VOLUMES, LOCATE UNDERDRAIN AS SHOWN ON THE IMPROVEMENT PLANS. HORIZONTAL LOCATION MAY VARY WITHIN PAVEMENT SECTION AS LONG AS MINIMUM OFFSET DISTANCES AND BOTTOM SLOPES ARE MAINTAINED. DEPTH OF PERFORATED PVC PIPE MAY BE ADJUSTED TO TIE INTO THE ADJACENT DRAINAGE INFRASTRUCTURE AS NEEDED.
11. ALL MATERIAL SPECIFIED AS WASHED SHALL BE WASHED AND FREE OF FINES.

CITY OF RALEIGH		
STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	PERMEABLE CONCRETE SIDEWALK	
	SW-30.05	



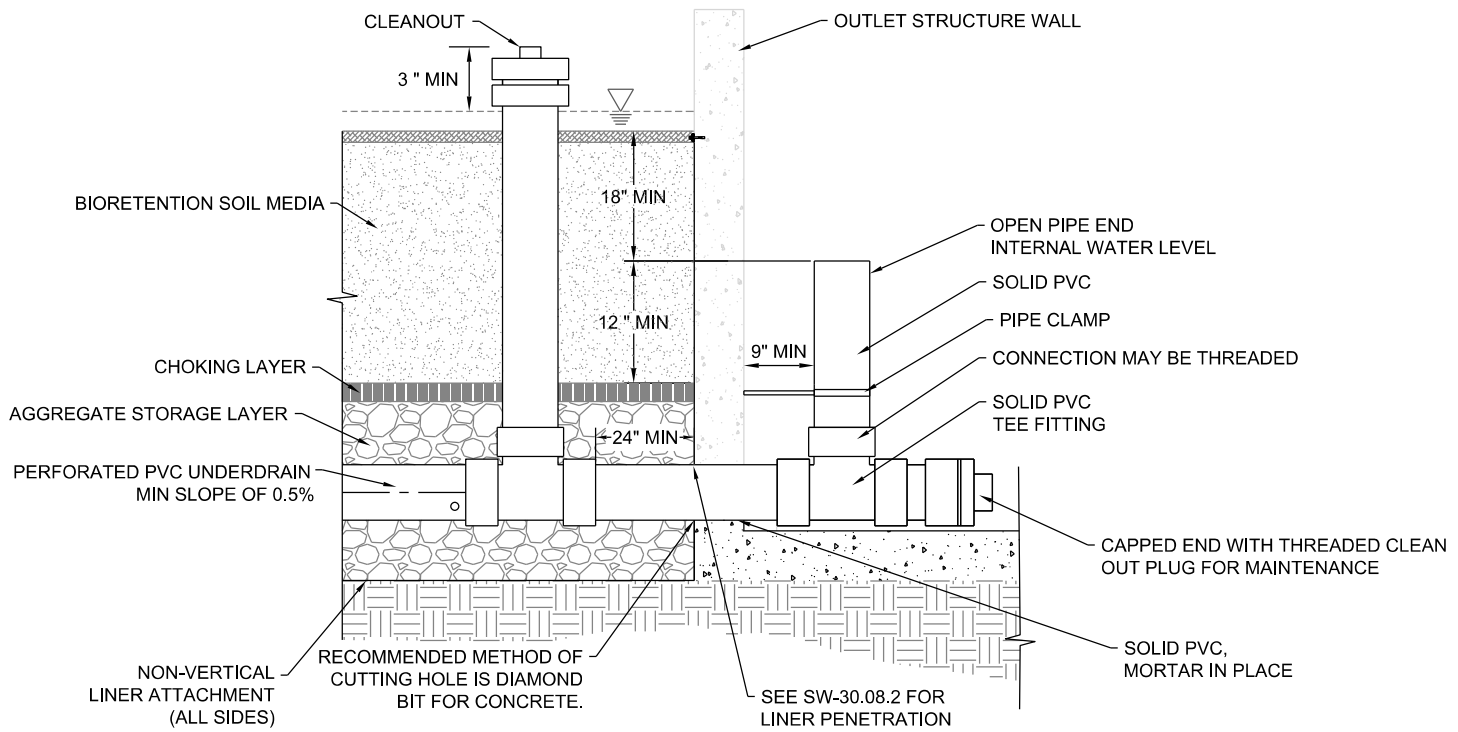
PLAN VIEW

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
GREEN INFRASTRUCTURE EXAMPLE CONFIGURATION		
SW-30.06.1		

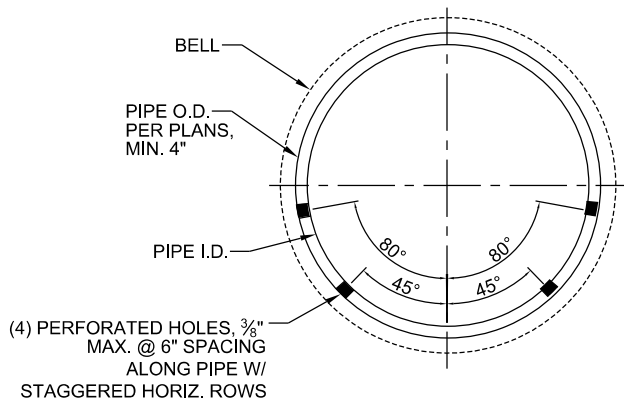
NOTES:

1. SELECTION OF BUMP-OUT BIORETENTION TYPE AND LOCATION DEPENDS ON ROADWAY DESIGN CONDITIONS AND ARE ASSUMED TO BE INSTALLED IN CONJUNCTION WITH RETROFIT/STREET IMPROVEMENT PROJECTS.
2. IN ALL CASES, BUMP-OUTS MUST MAINTAIN REQUIRED GUTTER SPREAD TO SAFELY PASS OVERFLOW FROM THE 2-YR STORM (I.E., PONDED WATER LESS THAN 1/2 LANE WIDTH FROM EDGE OF CURB).
3. WHERE NECESSARY, RISER STRUCTURES SIZED FOR THE 2-YR STORM SHALL BE LOCATED WITHIN BUMP-OUT BIORETENTION. ALL BIORETENTION BUMP-OUTS SHALL BE DESIGNED TO BYPASS STORMS LARGER THAN THE 2-YR EVENT.
4. ALL BIORETENTION AND PERMEABLE PAVEMENT UNDERDRAINS, IF REQUIRED, SHALL CONNECT TO STORM DRAIN OR OTHER DRAINAGE FEATURE ACCEPTABLE TO THE CITY ENGINEER.
5. ALL FEATURES, INCLUDING VEGETATION, INTERGRATED INTO BUMP-OUT BIORETENTION SHALL MEET SIGHT DISTANCE REQUIREMENTS PER STREET DESIGN MANUAL AND RECOMMENDED PLANT SPECIES IN THE NC DEQ STORMWATER MANUAL AND CITY OF RALEIGH STORMWATER DESIGN MANUAL. FOR CITY PROJECTS, SEE SPECIFICATION 33.46.76 FOR VEGETATION.
6. ROADWAY FEATURES AND PAVEMENT MARKINGS ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND MARKINGS SHALL CONFORM TO THE CITY OF RALEIGH STREET DESIGN MANUAL.
7. CURB AREA SHOULD BE PROVIDED TO ALLOW FOR PLACEMENT OF WASTE COLLECTION BINS (I.E., ALLOW SOME CURB THAT IS NOT TAKEN UP BY BIORETENTION AND DRIVEWAYS).

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	GREEN INFRASTRUCTURE GENERAL NOTES	
	SW-30.06.2	



UNDERDRAIN UPTURNED ELBOW

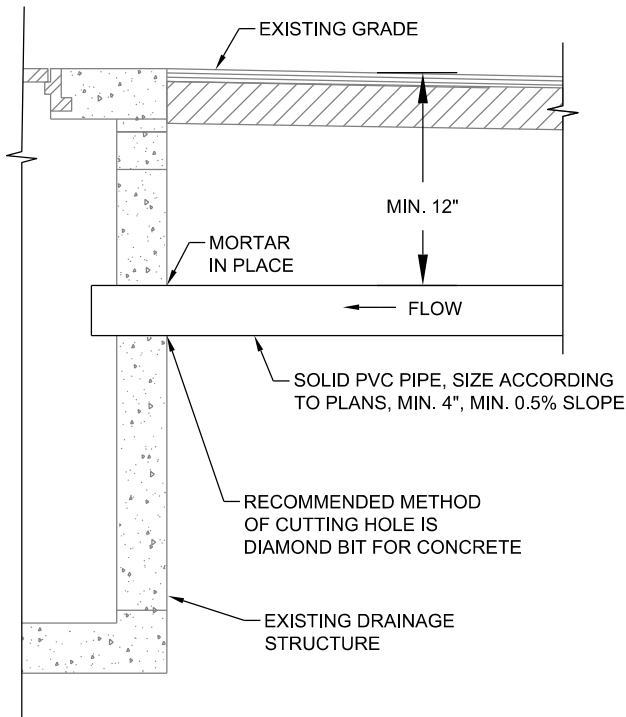


PERFORATED HOLE PLACEMENT

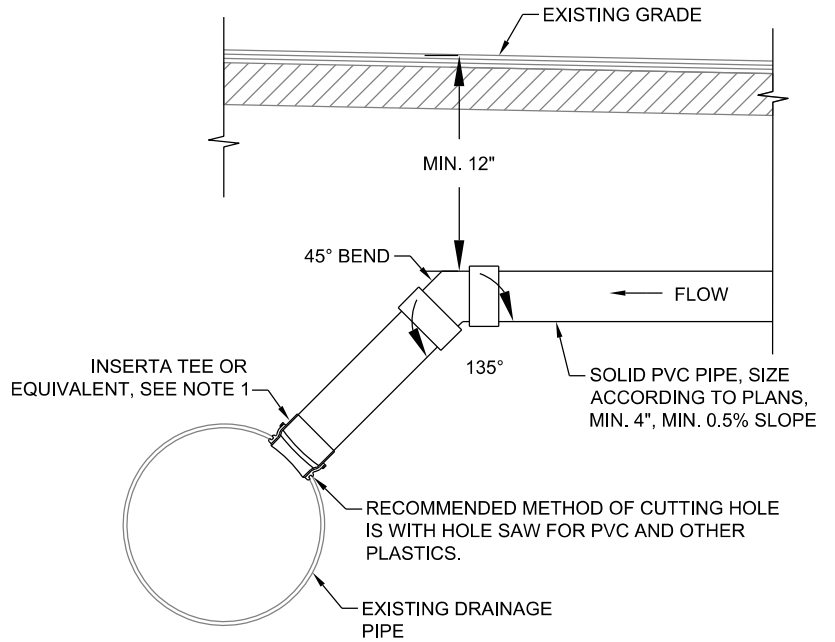
NOTES:

1. PLACEMENT OF THE UNDERDRAIN SHALL BE IN ACCORDANCE WITH THE APPROVED IMPROVEMENT PLANS, OR AS INDICATED BY THE CITY ENGINEER. HORIZONTAL LOCATION MAY VARY AS LONG AS MINIMUM OFFSET DISTANCES AND BOTTOM SLOPES ARE MAINTAINED.
2. PERFORATED PLASTIC PIPE SHALL BE SMOOTH-WALL PVC PLASTIC PIPE HAVING A CELL CLASSIFICATION OF 12454 OR 13364, AS DEFINED IN ASTM D1784.
3. PIPE, FITTING, AND JOINT DIMENSIONS SHALL BE COMPATIBLE AND MEASURED IN ACCORDANCE WITH ASTM D 2122. FITTING AND JOINT MATERIAL SHALL BE COMPATIBLE WITH THE PIPE MATERIAL. GLUE OR PRESS FIT ALL JOINTS PER MANUFACTURER'S SPECIFICATIONS.
4. PIPE PENETRATIONS THROUGH IMPERMEABLE BARRIER SHALL BE SEALED ACCORDING TO PLANS.
5. DEPTH OF UNDERDRAIN MAY BE ADJUSTED TO TIE INTO THE ADJACENT CONNECTION POINT OF THE DOWNSTREAM DRAINAGE INFRASTRUCTURE, AS NEEDED, PER CITY ENGINEER'S APPROVAL.
6. DIMENSIONS OF PERFORATED PVC PIPE, SOLID PVC PIPE, AND ALL FITTINGS SPECIFIED IN PLANS.
7. ALL PIPE SHALL BE SCHEDULE 40 OR SDR 35 SMOOTH WALL PVC.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		UNDERDRAIN DETAIL
		SW-30.07.1



CONNECTION TO EXISTING STORMWATER STRUCTURE

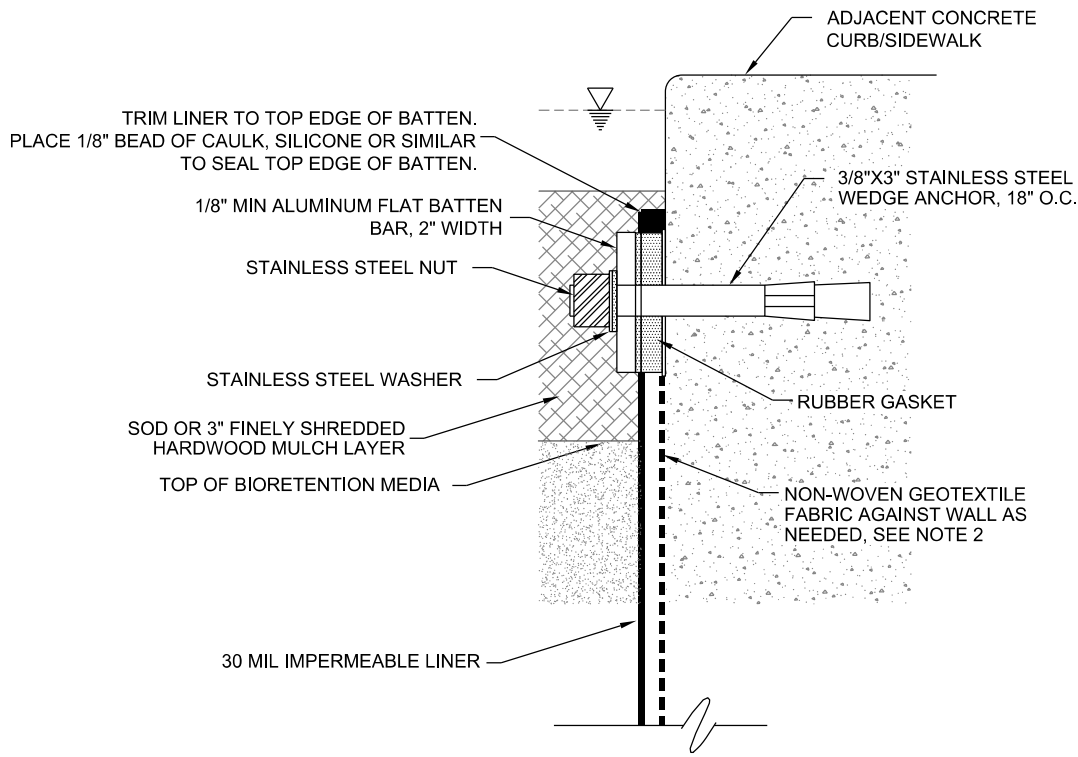


CONNECTION TO EXISTING STORMWATER PIPE

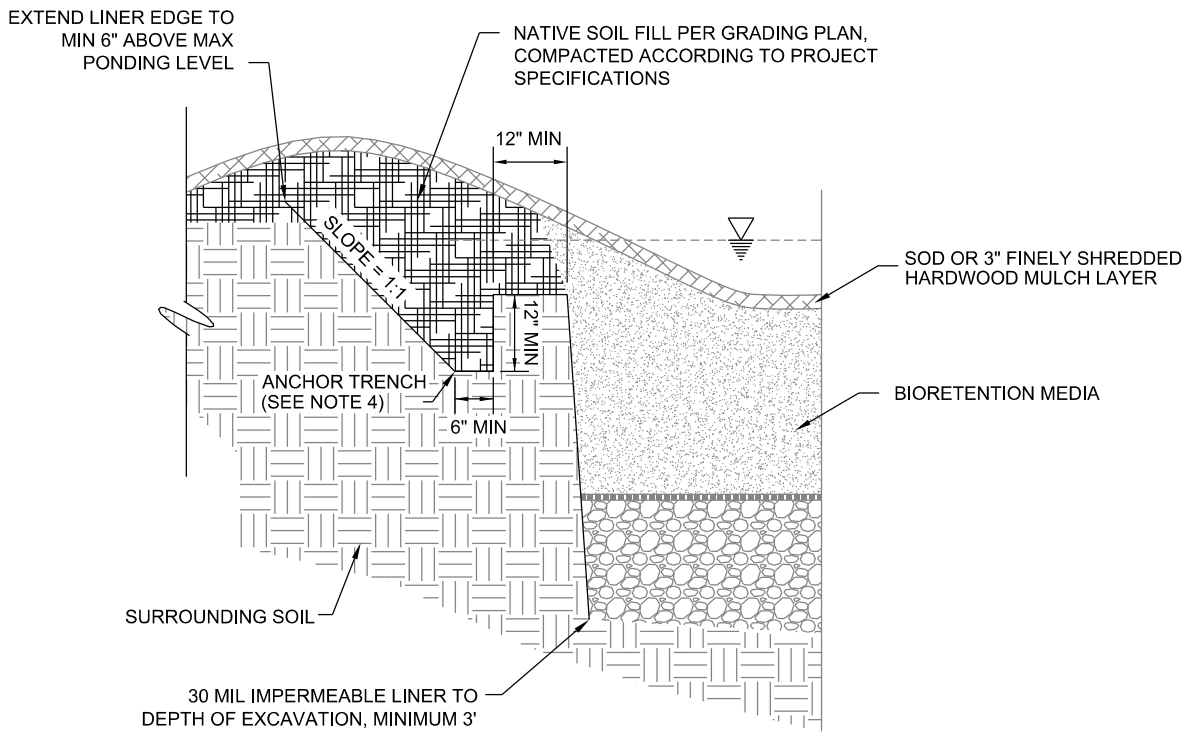
NOTES

1. INSTALL INSERTA TEE PER MANUFACTURER'S SPECIFICATIONS. ONLY ALLOWED FOR PLASTIC PIPES.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	UNDERDRAIN CONNECTION TO EXISTING INFRASTRUCTURE	
	SW-30.07.2	



VERTICAL WALL LINER ATTACHMENT

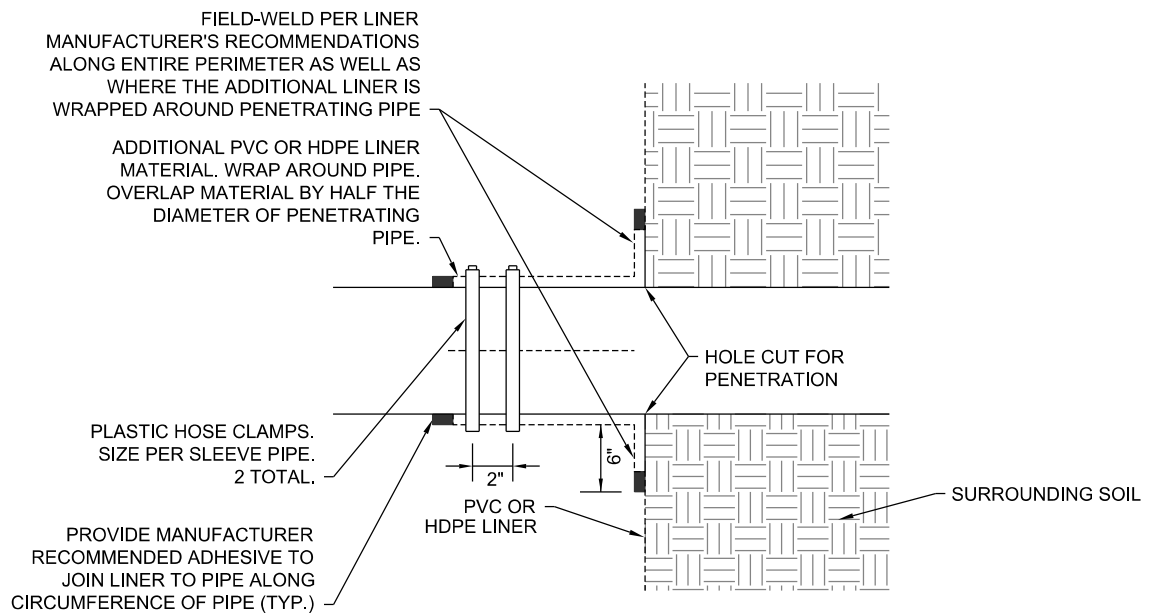


NON-VERTICAL LINER ATTACHMENT

NOTES:

1. THE SURFACE OF THE EXISTING/PROPOSED SIDEWALK OR EXTENDED CURB TO WHICH THE GEOMEMBRANE LINER IS TO BE ATTACHED SHOULD BE CONSTRUCTED OR FORMED TO PREVENT DAMAGE TO THE GEOMEMBRANE BY REMOVING IRREGULARITIES ON THE CONCRETE SURFACE TO PREVENT STRESS POINTS IN THE GEOMEMBRANE.
2. IF IRREGULARITIES (I.E., SHARP PROTRUSIONS EXCEEDING 1/2 INCH FROM SURFACE FACE) CAN NOT BE REMOVED FROM AN EXISTING SAW-CUT OR FORMED STRUCTURE, A PROTECTIVE GEOTEXTILE LAYER SHOULD BE PLACED BETWEEN THE SURFACE AND THE GEOMEMBRANE.
3. ENSURE BATTEN ANCHORS ARE MAX DISTANCE OF 6" FROM JOINTS.
4. WHERE SITE CONDITIONS PROHIBIT TEMPORARY SOIL SATURATION WITHIN THE ANCHOR TRENCH, THE LINER SHALL BE PUNCTURED ALONG THE BOTTOM OF THE TRENCH BY DRILLING/PUNCHING 1 INCH DIAMETER SEEPAGE HOLES AT 2 FOOT SPACING.
5. NON-VERTICAL LINER ATTACHMENT TO BE USED IF BATTEN BAR ATTACHMENT IS NOT AVAILABLE.

CITY OF RALEIGH		
STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
LINER ATTACHMENT DETAIL		
SW-30.08.1		

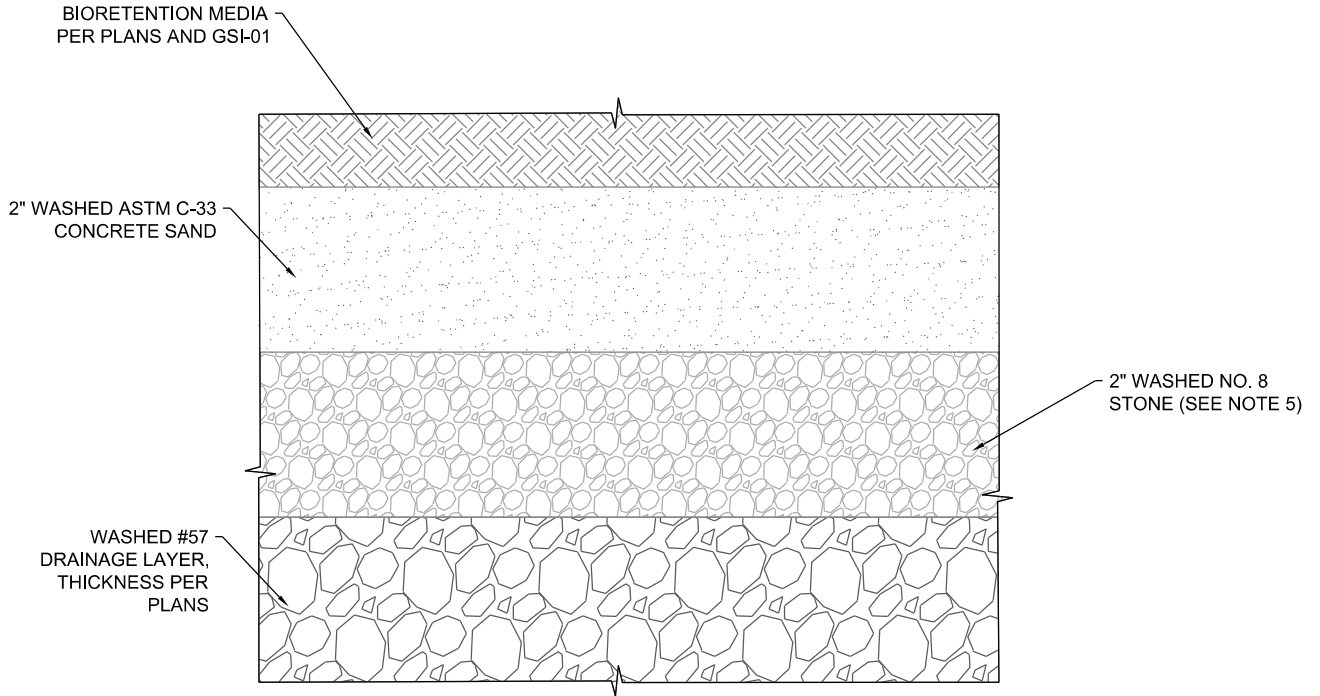


LINER PENETRATION

NOTE:

1. CONTACT UTILITY OWNER FOR SLEEVE, COVERAGE, AND OTHER CROSSING REQUIREMENTS.
2. INCLUDE SLEEVE WITHIN PVIOUS PAVEMENT SIMILAR TO THIS DETAIL.
3. CROSSING MAY PASS THROUGH SOIL MEDIA FILTER COURSE OR UNDERDRAIN GRAVEL LAYERS AND ARE NOT RESTRICTED TO THE SOIL AS SHOWN HEREIN.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
	LINER PENETRATION DETAIL	
	SW-30.08.2	

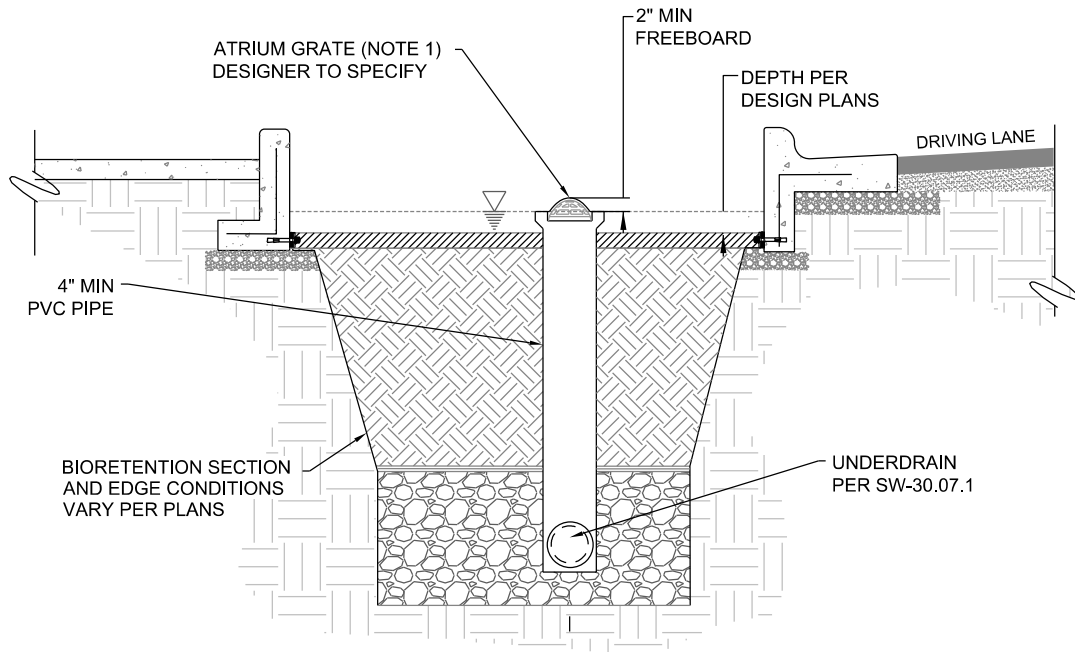


CHOKER LAYER DETAIL

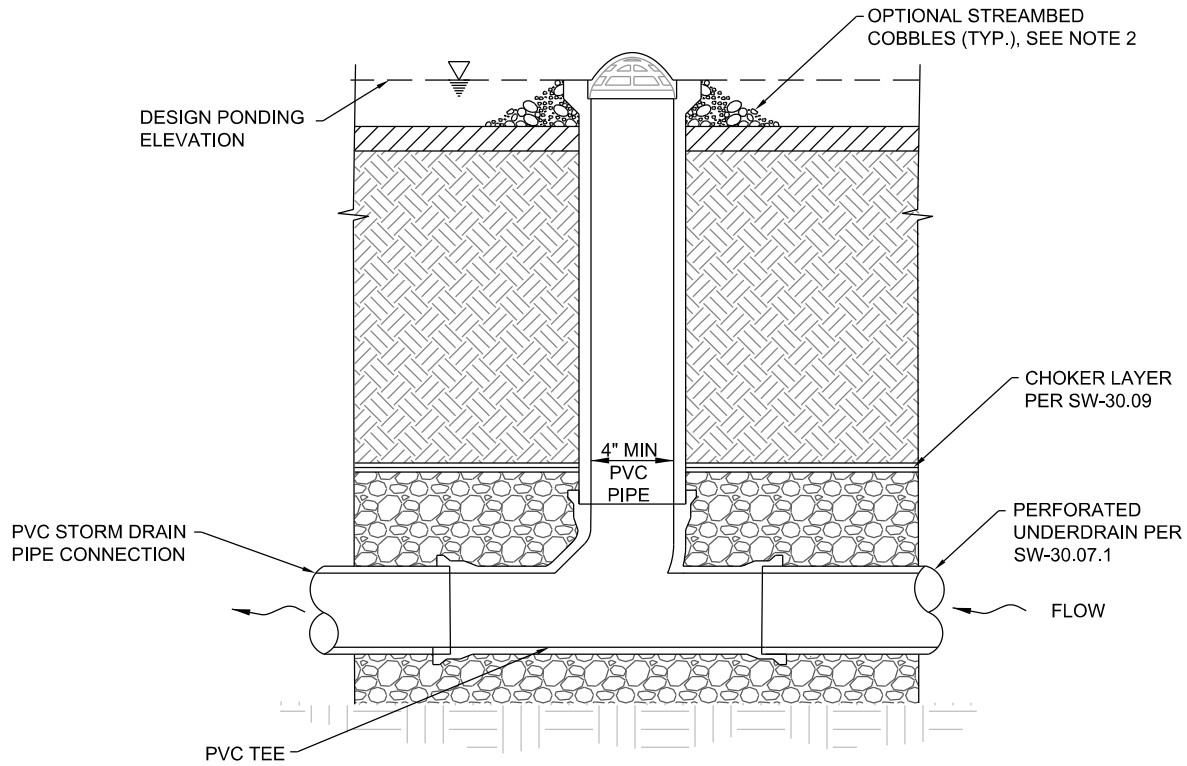
NOTES

1. GRADED AGGREGATE FOR CHOKER LAYER SHALL BE WASHED AND CONFORM TO ASTM D-448.
2. SAND FOR THE CHOKER LAYER SHALL BE WASHED AND CONFORM TO ASTM C-33 CONCRETE SAND.
3. ALL MATERIALS SPECIFIED AS WASHED SHALL BE WASHED AND FREE OF FINES.
4. SAND AND NO. 8 STONE LAYERS SHALL BE SPREAD USING HAND TOOLS TO ENSURE A CONSISTENT THICKNESS AND PREVENT VOIDS.
5. AGGREGATE MATERIAL SHALL BE NO. 8 STONE OR 78M (NCDOT SPECIFICATIONS).

CITY OF RALEIGH STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	TYPICAL CHOKER LAYER DETAILS	
	SW-30.09	



BIORETENTION SECTION WITH OVERFLOW

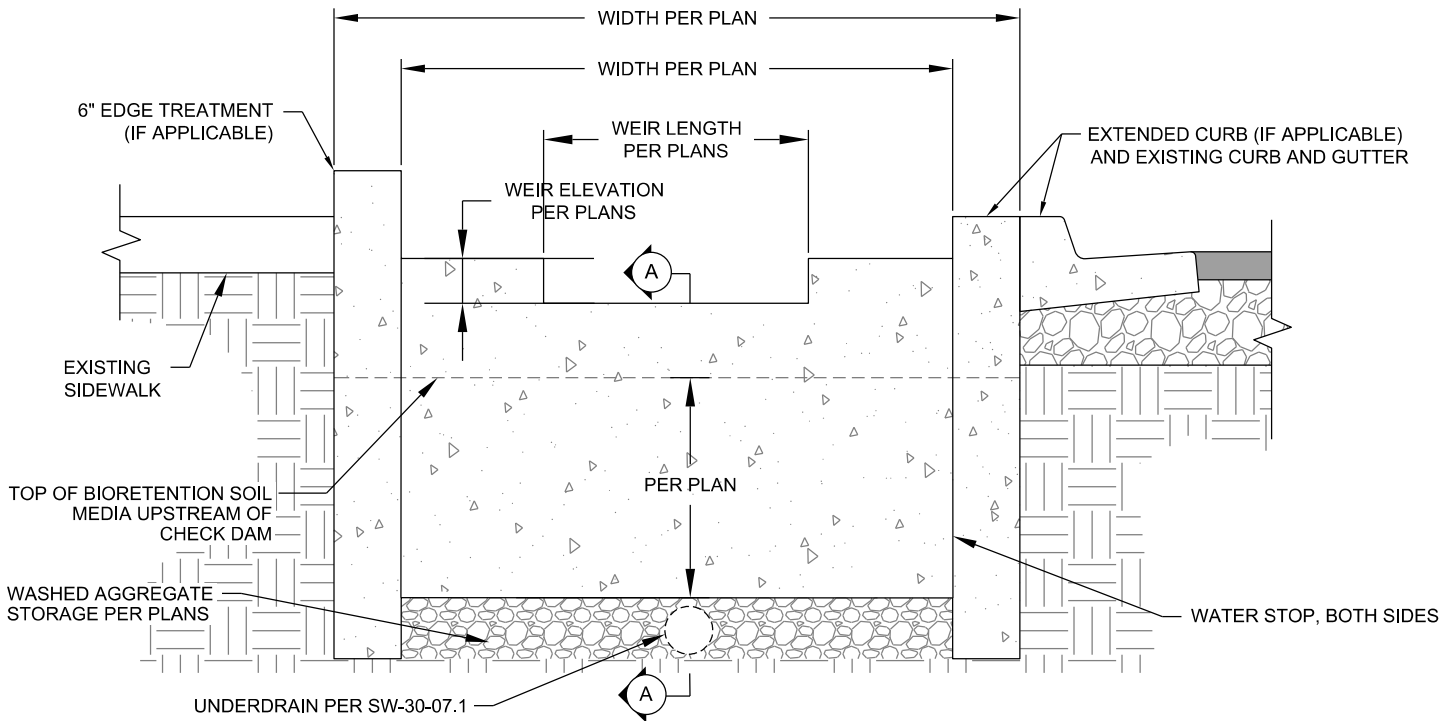


OVERFLOW STRUCTURE DETAIL

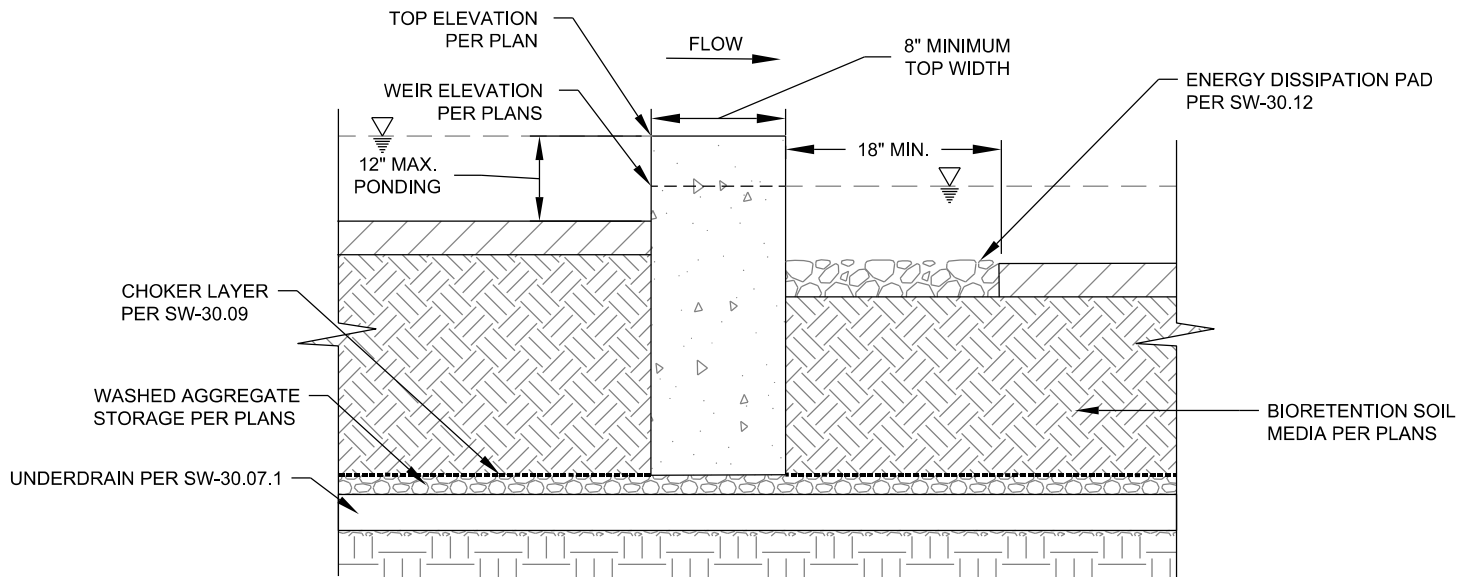
NOTES

1. MAXIMUM GRATE OPENING SHALL BE 4 INCHES. SIZE OF ATRIUM GRATE SHALL MATCH SIZE OF RISER SPECIFIED IN PLANS, SHALL BE REMOVABLE TO PROVIDE MAINTENANCE ACCESS, AND SHALL BE BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER- RESISTANT LOCKING MECHANISM.
2. MINIMUM STREAMBED COBBLE DIAMETER SHALL BE LARGER THAN MAXIMUM GRAT OPENING.
3. OVERFLOW/ UNDERDRAIN PIPES MUST BE EQUIPPED WITH CLEANOUTS PER SW-30.07.1.
4. OVERFLOW RISER TO BE INSTALLED AS REQUIRED BY HYDRAULIC ANALYSIS.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
RISER OVERFLOW STRUCTURE DETAILS		
SW-30.10		



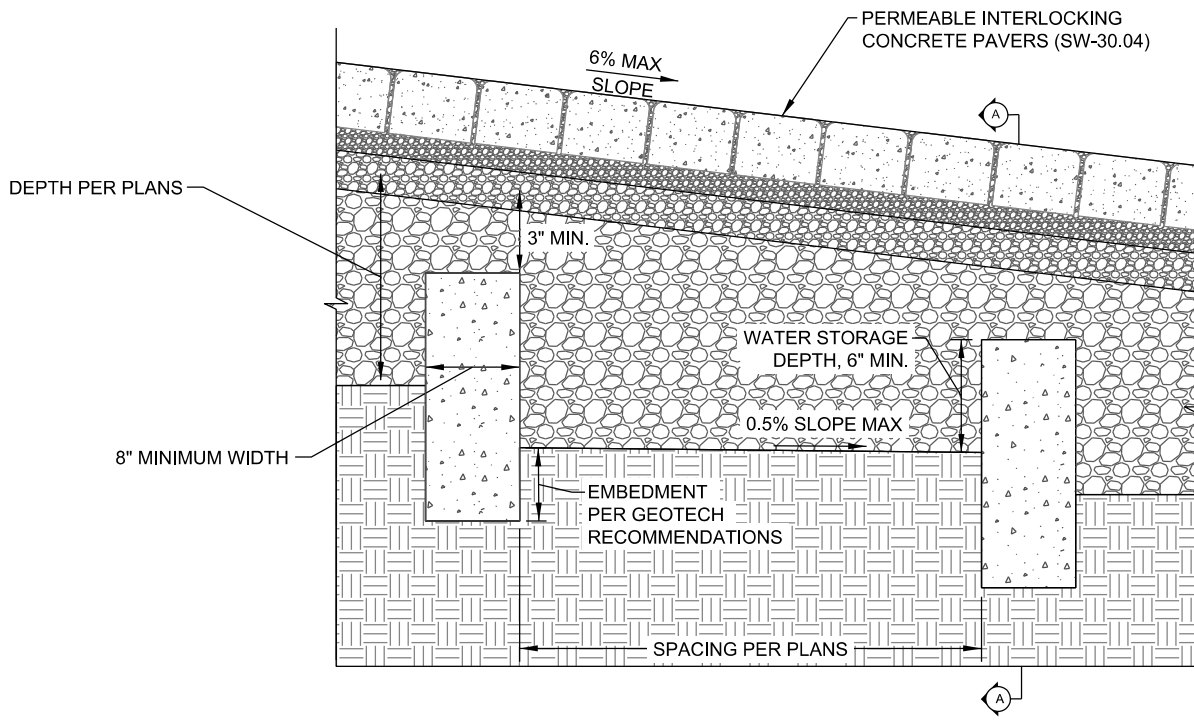
TYPICAL ELEVATION



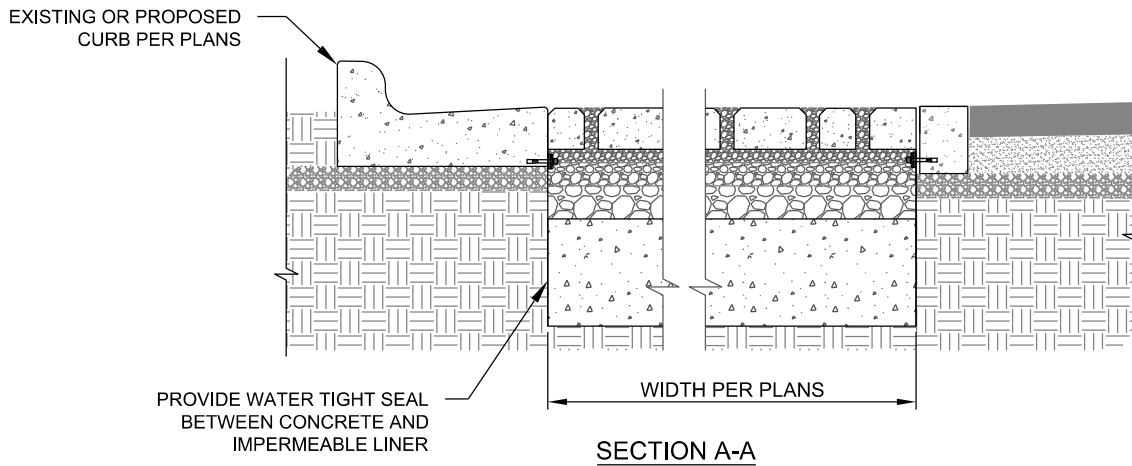
SECTION A-A

NOTES:
 1. REFER TO PLANS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
LINEAR BIORETENTION CHECK DAM DETAIL		
SW-30.11.1		



TYPICAL ELEVATION

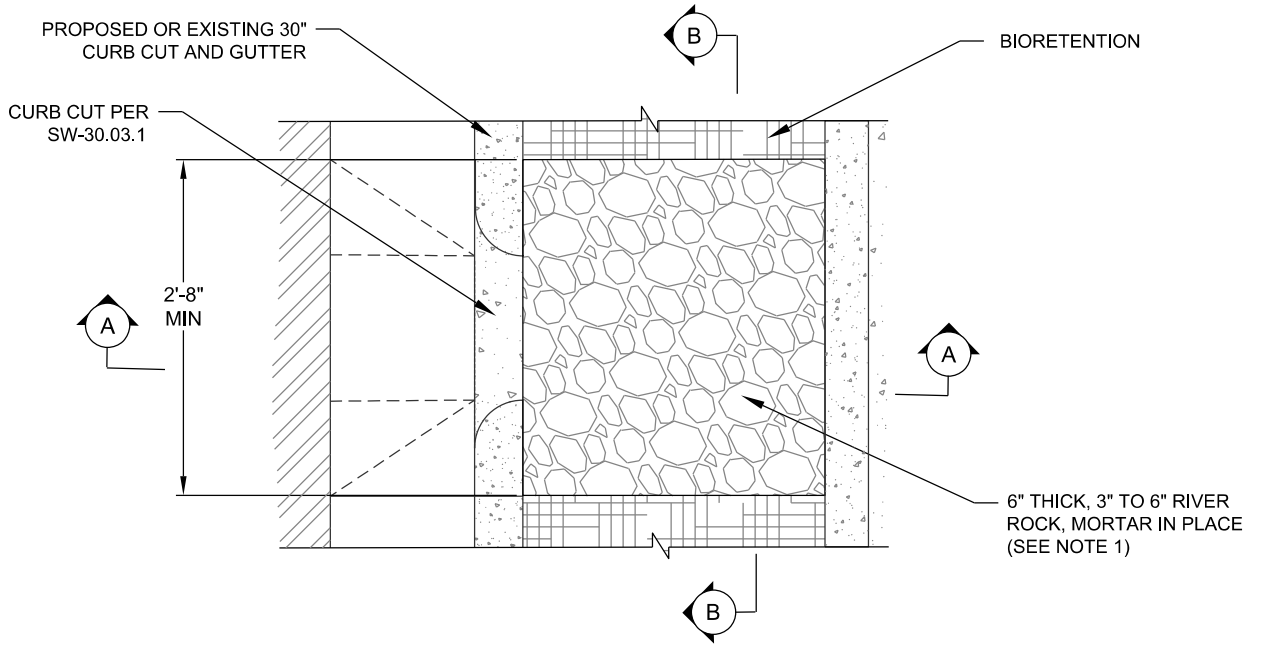


SECTION A-A

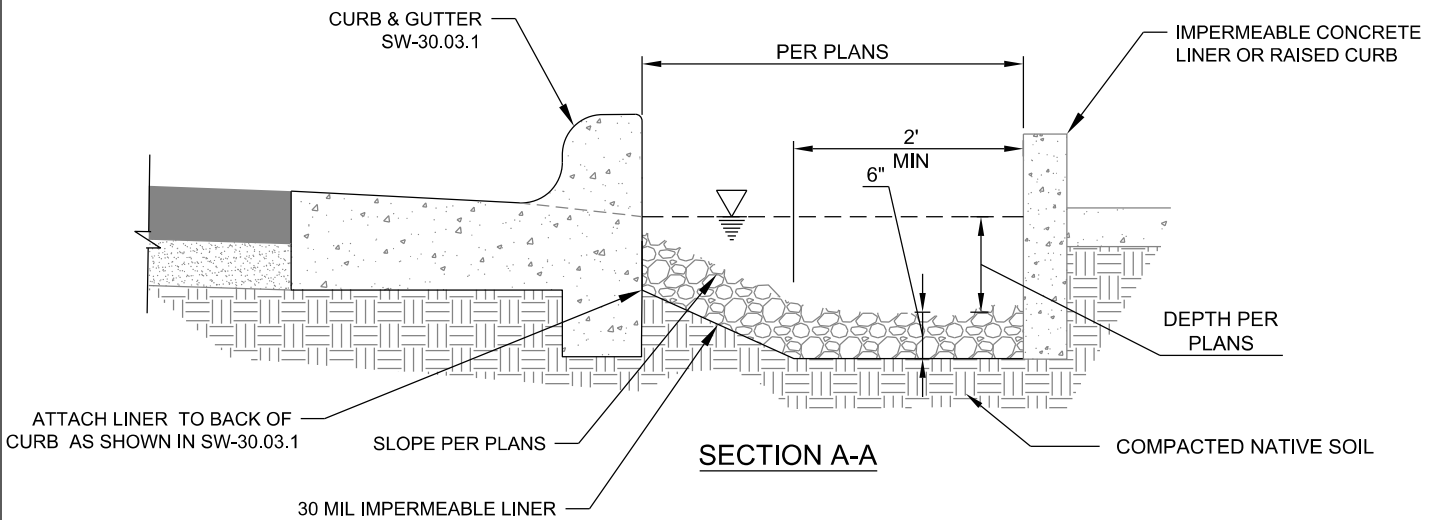
NOTES

1. CHECK DAMS TO BE USED UNDER PERMEABLE INTERLOCKING CONCRETE PAVERS WHERE INFILTRATION IS ALLOWED. IF THE SYSTEM IS FULLY LINED WITH NO INFILTRATION, CHECK DAMS ARE NOT NEEDED.
2. CONCRETE CHECK DAM EMBEDMENT PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. IF INCIDENTAL INFILTRATION IS ALLOWED ON POOR SOILS, OPTIONALLY INSTALL PERFORATED UNDERDRAIN PER SW-30.07.1 AT ENGINEER'S DISCRETION.
4. CONCRETE SHALL BE 650-C-3250.

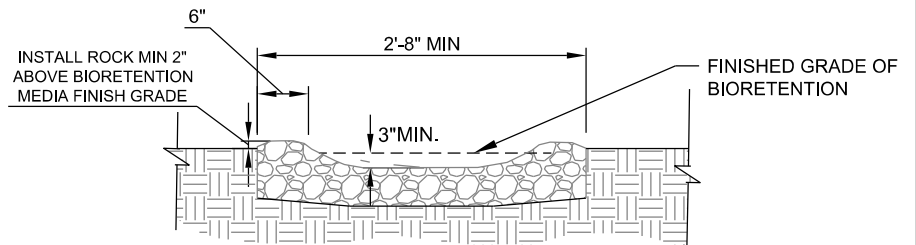
CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		PERMEABLE PAVER SUB-SURFACE CHECK DAM DETAIL
		SW-30.11.2



PLAN VIEW



SECTION A-A

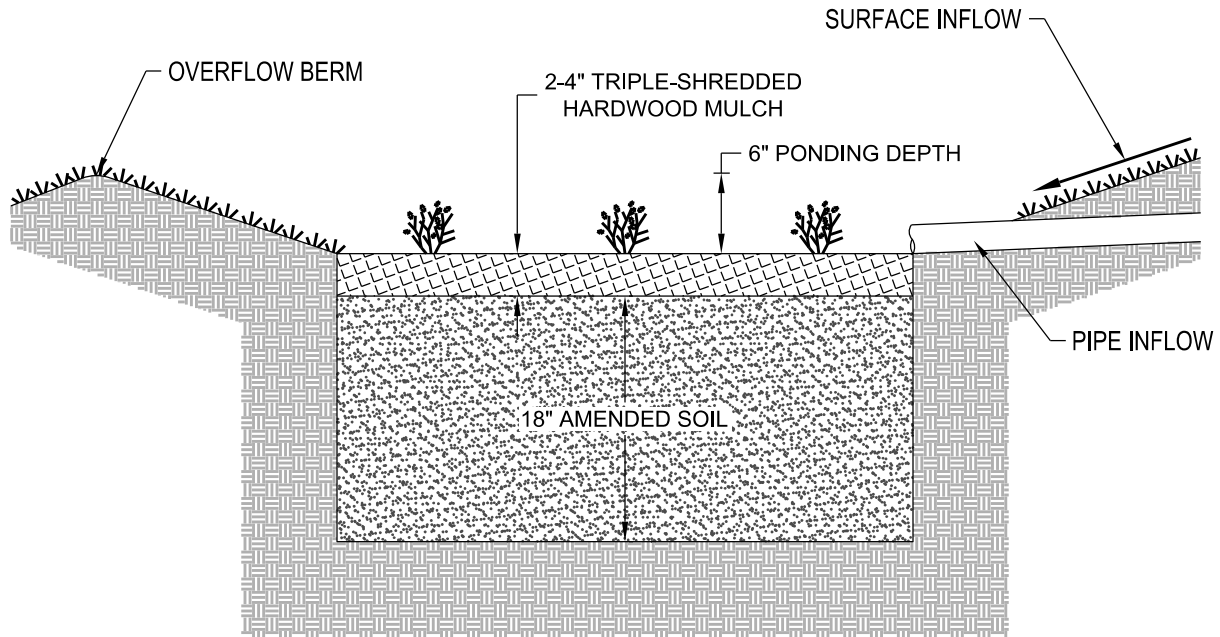


SECTION B-B

NOTES:

- ENERGY DISSIPATION PAD PROVIDED AS STABILIZED ENTRANCE TO BIORETENTION SYSTEM. ROCK SHALL BE PLACED IN IRREGULAR PATTERN USING NON-UNIFORM SIZES TO PREVENT PREFERENTIAL FLOW PATHS, INCREASE ENERGY DISSIPATION, AND TO LIMIT THE SURFACE AREA OF EXPOSED MORTAR. ALTERNATIVE PRE-TREATMENT SOLUTIONS WILL BE CONSIDERED.
- ROCK AND MORTAR INLET PROTECTION SHALL EXTEND ACROSS BOTTOM OF BIORETENTION TO OPPOSITE TOE OF SLOPE, OR 2' MINIMUM. FINISH GRADE OF MORTARED BOTTOM SHALL BE AT LEAST 3" BELOW ADJACENT BIORETENTION BOTTOM ELEVATION TO PROVIDE SEDIMENT STORAGE.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		ENERGY DISSIPATION PAD
		SW-30.12

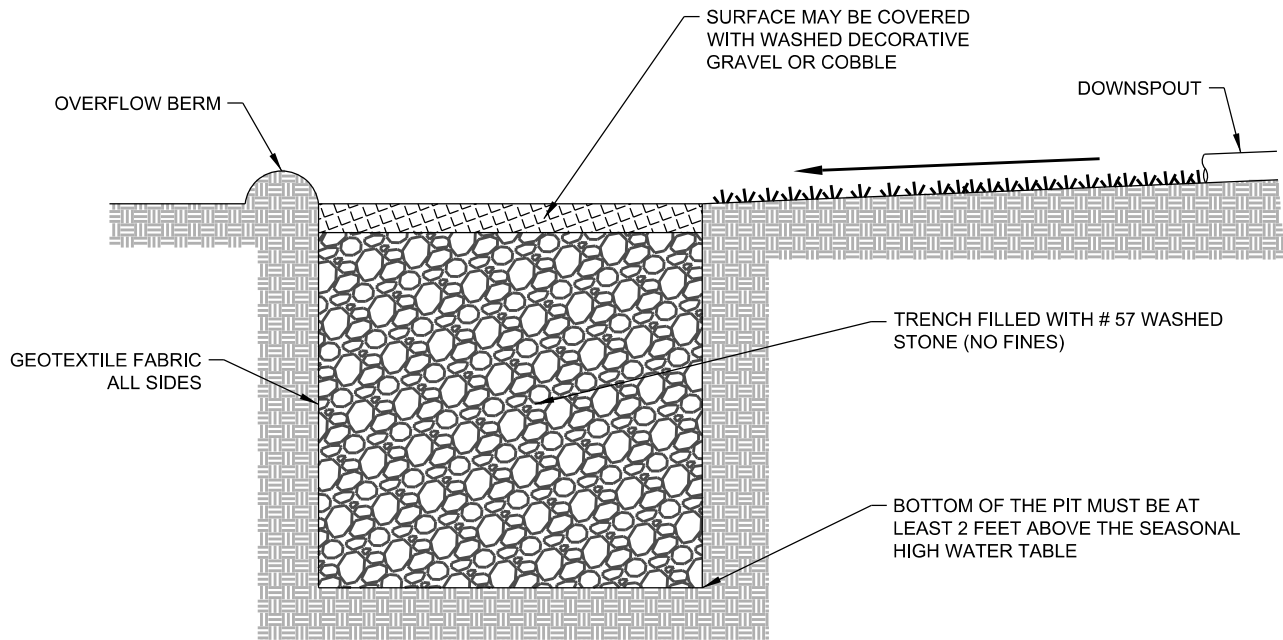


IMPERVIOUS SQUARE FOOTAGE (SF)	RAIN GARDEN SIZE (SF) ASSUMES 6" PONDING DEPTH
<= 100	16
GREATER THAN 100 AND <= 200	33
GREATER THAN 200 AND <=400	67
GREATER THAN 400 AND <=600	100
GREATER THAN 600 AND <=800	133
GREATER THAN 800 AND <=1000	167

INSTALLATION NOTES:

1. AMENDED SOIL SHALL BE COMPOSED OF 50% OF THE EXISTING SOIL (THE SOIL REMOVED TO CREATE THE HOLE) PLUS 40% COARSE WASHED SAND AND COMPOST OR ORGANIC MATTER FOR THE LAST 10%.
2. A SIMPLE INFILTRATION TEST SHALL BE PERFORMED TO ENSURE THE RAIN GARDEN WILL DRAIN. DIG A HOLE 1 FOOT DEEP. FILL IT WITH WATER. IF IT DOES NOT DRAIN WITHIN 36 HOURS, A RAIN GARDEN CANNOT BE USED.
3. CHOOSE PLANTS FROM A RAIN GARDEN PLANT LIST. SEE THIS LINK FOR IDEAS FOR PLANTS AND LAYOUTS: <https://forsyth.ces.ncsu.edu/wp-content/uploads/2016/03/RGmanual2015.pdf?fw=no>
4. AS AN ALTERNATE TO THE ABOVE TABLE, THE PONDING AREA SHALL BE SIZED BASED ON THIS FORMULA: $(0.0833 \text{ FT} \times \text{IMPERVIOUS AREA SF}) / 0.5 \text{ FT}$

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE: 9/2024	NOT TO SCALE
		RESIDENTIAL RAIN GARDEN FOR LOT GRADING PLAN
		SW-40.01

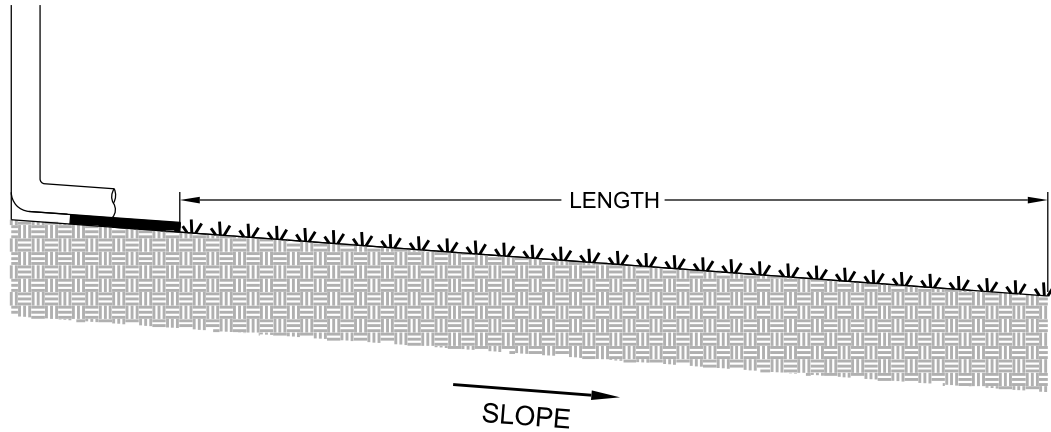


<u>IMPERVIOUS SQUARE FOOTAGE (SF)</u>	<u>SURFACE INFILTRATION PIT SIZE (LENGTH X WIDTH X DEPTH IN FT)</u>
<= 100	3.5 X 3.5 X 2.5
GREATER THAN 100 AND <= 200	4 X 4 X 3.5
GREATER THAN 200 AND <=400	6 X 6 X 3.5
GREATER THAN 400 AND <=600	9 X 5 X 4
GREATER THAN 600 AND <=800	9 X 7 X 4
GREATER THAN 800 AND <=1000	9 X 9 X 4

INSTALLATION NOTES:

1. PER NC RULES ABOUT INJECTION WELLS, ONE SURFACE DIMENSION TO BE GREATER THAN THE DEPTH OF THE PIT.
2. PER NC RULES ABOUT INJECTION WELLS, DOWNSPOUTS MUST DISCHARGE TO THE SURFACE AND NOT BE PIPED INTO THE STONE WITHIN THE PIT.
3. AS AN ALTERNATIVE TO THE ABOVE TABLE, THE SIZE OF THE INFILTRATION PIT CAN BE DETERMINED WITH THIS FORMULA:
 MINIMUM VOLUME (CUBIC FEET) = 0.3 X IMPERVIOUS AREA (SQUARE FEET)

CITY OF RALEIGH STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
		RESIDENTIAL SURFACE INFILTRATION PIT FOR LOT GRADING PLAN
		SW-40.02



INSTALLATION NOTES:

1. LENGTH: 0.04 TIMES THE DRAINAGE AREA (IN SF) OR 10 FEET, WHICHEVER IS GREATER
2. WIDTH: ONE HALF ($\frac{1}{2}$) THE LENGTH OF THE RECEIVING AREA
3. SLOPE: 8% OR LESS
4. VEGETATION: PLANTED WITH NON-CLUMPING, DEEP ROOTED GRASS AND/OR NATIVE PLANTS APPROPRIATE FOR RAIN GARDENS

CITY OF RALEIGH		
STANDARD DETAIL		
<i>REVISIONS</i>	<i>DATE: 9/2024</i>	<i>NOT TO SCALE</i>
	RESIDENTIAL VEGETATED AREA FOR LOT GRADING PLAN	
	SW-40.03	