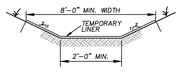
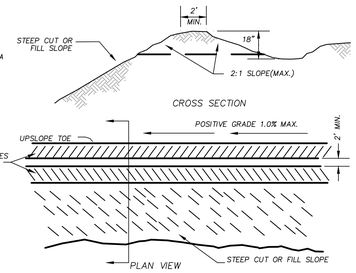


TEMP. PLASTIC LINING
NTS

MAINTENANCE NOTES:

1. INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL.
2. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR DIVERSION DITCH.
3. INSPECT AND MAKE TIMELY REPAIRS AS NEEDED.



DIVERSION DITCH SCHEDULE

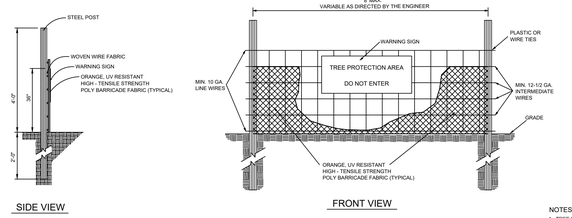
DITCH	BOTTOM WIDTH (FT)	SIDE SLOPE (H:V)	CHANNEL GRADE	CHANNEL LENGTH	TEMP. LINING	MIN. TOP WIDTH OF LINING (FT)
DIV-1	1	3:1	5.8%	240 LF	EXCELSIOR	10
DIV-2	1	3:1	2.5%	280 LF	EXCELSIOR	10

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIALS.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.
6. APPLY SOLID PLASTIC (BLACK, 20 MIL) LINING ON SURFACE OF DIVERSION DITCH ON ANY SLOPES GREATER THAN 10% ENTERING BASINS/PONDS.

TEMPORARY DIVERSION DITCH

N.T.S.



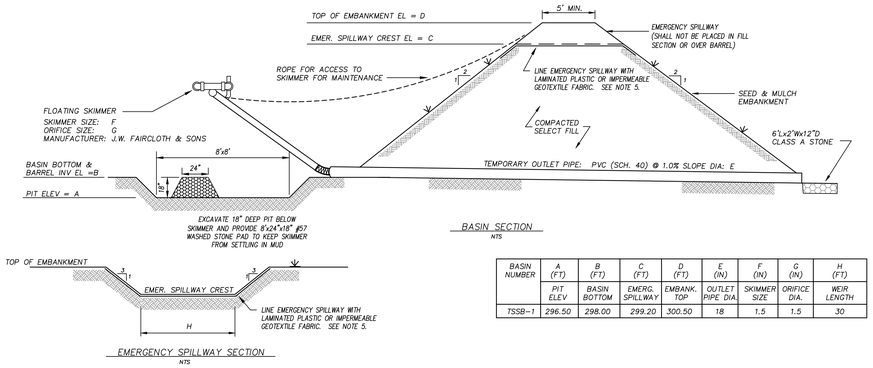
NOTE: FOR TREE PROTECTION ONLY

NOTES:

1. TREE PROTECTION FENCING MUST BE INSTALLED AT A MINIMUM RADIUS OF THE CRITICAL ROOT ZONE (SEE DETAIL TPF-02 FOR EXAMPLES)
2. THE TREE PROTECTION FENCING MUST REMAIN IN PLACE FOR THE DURATION OF THE PROJECT UNLESS OTHERWISE APPROVED BY URBAN FORESTRY STAFF.
3. APPROVED IMPACT PROTECTION DEVICES MUST BE REMOVED AFTER CONSTRUCTION WHEN APPLICABLE.
4. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER FOR THE REMAINDER.
5. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTED AREA.
6. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
7. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH BASED ON ACTUAL FIELD CONDITIONS.
8. SIGNS ARE TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL WITH LETTERS A MINIMUM OF 3" HIGH, CLEARLY LEGIBLE AND SPACED AS SHOWN.

TREE PROTECTION FENCING

N.T.S.



BASIN NUMBER	A (FT) PIT ELEV	B (FT) BASIN BOTTOM	C (FT) EMERG. SPILLWAY	D (FT) EMBANK. TOP	E (IN) OUTLET PIPE DIA.	F (IN) SKIMMER SIZE	G (IN) ORIFICE DIA.	H (FT) WEIR LENGTH
TSSB-1	296.50	298.00	299.20	300.50	18	1.5	1.5	30

CONSTRUCTION NOTES:

1. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS INDICATED. CLEAR, GRUB AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOILS CONTAINING HIGH AMOUNTS OF ORGANIC MATTER.
2. PLACE OUTLET BARREL ON A FIRM, SMOOTH FOUNDATION OF IMERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL OR CRUSHED STONE AS BACKFILL AROUND PIPE. PLACE FILL MATRIAL AROUND PIPE IN 4-IN LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST 90% OF THE STANDARD PROCTOR DENSITY. CARE SHALL BE TAKEN TO NOT RAISE THE PIPE FROM FIRM CONTACT WITH ITS FOUNDATION.
3. ASSEMBLE THE SKIMMER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ATTACH SKIMMER TO BARREL PIPE WITH FLEXIBLE JOINT AND POSITION THE SKIMMER OVER THE EXCAVATED PIT. ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN.
4. EMBANKMENT SHALL BE CONSTRUCTED OF CLEAN STRUCTURAL SOIL, FREE OF ROOTS, VEGETATION, ROCKS & OTHER OBJECTIONABLE MATERIAL. SCARIFY SURFACES BEFORE PLACING FILL. PLACE FILL IN 6-8 INCH LOOSE LIFTS. COMPACT TO AT LEAST 90% OF THE STANDARD PROCTOR DENSITY.
5. LINE THE ENTIRE EMERGENCY SPILLWAY WITH LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. FABRIC SHALL BE WIDE ENOUGH TO COVER THE BOTTOM AND SIDES OF THE SPILLWAY AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES SHALL BE SECURED WITH 6-IN STAPLES OR PINS. THE FABRIC SHALL BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC SHALL BE ONE PIECE, NOT JOINED OR SPLICED. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTIONS SHALL OVERLAP THE LOWER SECTIONS SO WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS.
6. INSTALL BAFFELS ACROSS BOTTOM OF BASIN.

MAINTENANCE NOTES:

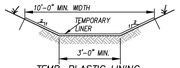
1. INSPECT DEVICE AFTER EACH RAINFALL. REMOVE SEDIMENT WHEN SEDIMENT REACHES A DEPTH OF NO MORE THAN ONE-HALF THE HEIGHT OF THE RISER. REPAIR BAFFELS IF THEY ARE DAMAGED.
2. PULL SKIMMER TO SIDE OF BASIN WITH ROPE AND INSPECT REGULARLY. KEEP SKIMMER HEAD, ORIFICE AND PIPE FREE OF DEBRIS. REMOVE SEDIMENT FROM BENEATH SKIMMER AND ENSURE VEGETATION DOES NOT INTERFERE WITH SKIMMER OPERATION.
3. CHECK FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY.

TEMPORARY SKIMMER SEDIMENT BASIN

N.T.S.

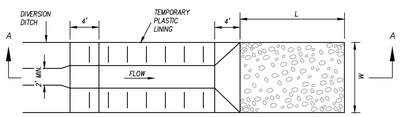
PLASTIC LINING OUTLET PROTECTION

TYPE OUTLET PROTECTION	L (FT)	W (FT)	TH (IN)	TYPE STONE
TYPE 1	18	9	22	CLASS B
TYPE 2	24	9	27	CLASS 1
TYPE 3	30	9	32	CLASS 2

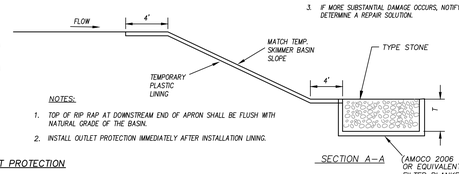


TEMP. PLASTIC LINING
NTS

* WEIR IS RIM OF SCM OUTLET STRUCTURE.



TEMP. PLASTIC LINING OUTLET PROTECTION
NTS



NOTES:

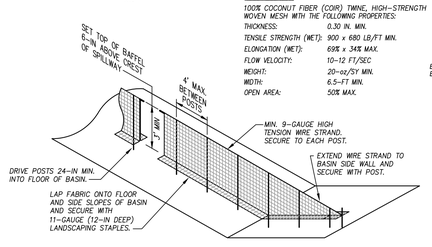
1. TOP OF RIP RAP AT DOWNSTREAM END OF APRON SHALL BE FLUSH WITH NATURAL GRADE OF THE BASIN.
2. INSTALL OUTLET PROTECTION IMMEDIATELY AFTER INSTALLATION LINING.

MAINTENANCE NOTES:

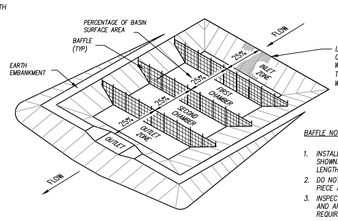
1. RIP RAP OUTLET STRUCTURES TO BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT.
2. REPAIR DISLODGED STONES TO DESIGN DIMENSIONS IMMEDIATELY.
3. IF MORE SUBSTANTIAL DAMAGE OCCURS, NOTIFY ENGINEER TO DETERMINE A REPAIR SOLUTION.

BAFFLE FABRIC:
100% COCONUT FIBER (COIR) TWINE, HIGH-STRENGTH WOVEN MESH WITH THE FOLLOWING PROPERTIES:

THICKNESS:	0.30 IN. MIN.
TENSILE STRENGTH (MET):	900 x 680 LB/FT MIN.
ELONGATION (MET):	60% x 34% MAX.
FLOW VELOCITY:	10-12 FT/SEC
WEIGHT:	20-oz/SY MIN.
WIDTH:	6.5-FT MIN.
OPEN AREA:	50% MAX.



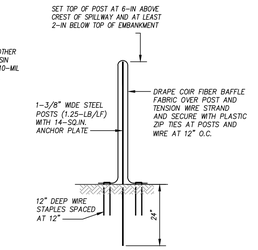
BAFFLE INSTALLATION



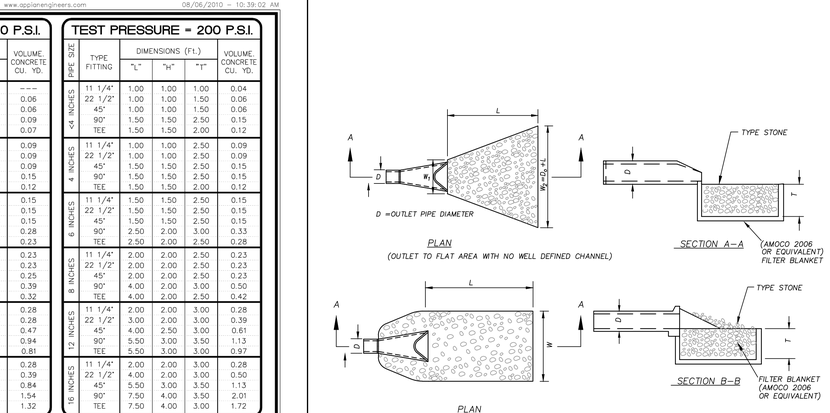
BAFFLE PLACEMENT

BAFFLE NOTES:

1. INSTALL AT LEAST 3 BAFFLES SPACED AS SHOWN. BASINS LESS THAN 20-FT IN LENGTH MAY USE 2 BAFFLES.
2. DO NOT SPLICE FABRIC. USE CONTINUOUS PIECE ACROSS THE BASIN.
3. INSPECT BAFFLES AT LEAST ONCE PER WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
4. SHOULD BAFFLE FABRIC COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE PROMPTLY.
5. TAKE CARE TO AVOID DAMAGE TO BAFFLES DURING PERIODIC SEDIMENT REMOVAL. REPAIR ANY DAMAGE AS NEEDED.



BAFFLE SECTION



MAINTENANCE NOTES:

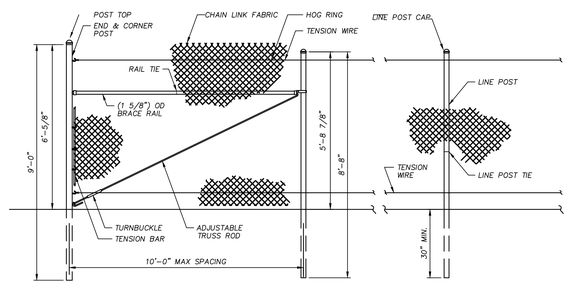
1. RIP RAP OUTLET STRUCTURES TO BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT.
2. REPAIR DISLODGED STONES TO DESIGN DIMENSIONS IMMEDIATELY.
3. IF MORE SUBSTANTIAL DAMAGE OCCURS, NOTIFY ENGINEER TO DETERMINE A REPAIR SOLUTION.

NOTES:

1. TOP OF RIP RAP AT DOWNSTREAM END OF APRON SHALL BE FLUSH WITH NATURAL GRADE OF THE RECEIVING CHANNEL.
2. INSTALL OUTLET PROTECTION IMMEDIATELY AFTER INSTALLATION OF PIPE.
3. SEE GRADING PLAN FOR PERMANENT OUTLET PROTECTION DIMENSIONS. SEE EROSION CONTROL PLAN FOR TEMPORARY OUTLET PROTECTION DIMENSIONS.

PERMANENT OUTLET PROTECTION

N.T.S.



FENCE ELEVATION

NOTES:

1. STEEL CHAIN-LINK FENCE FABRIC: MAXIMUM 2-1/4" MESH, MINIMUM 0.106" DIAMETER (#12 GAUGE).
2. END/CORNER POSTS: 2.875" OUTSIDE DIAMETER STEAL PIPE.
3. LINE POSTS: 2.375" OUTSIDE DIAMTER STEEL PIPE.
4. TENSION WIRE: 7 GAUGE COATED COIL SPRING TENSION WIRE. WIRE TIES: TIE FABRIC TO RAILS & BRACES 24" ON CENTER. TO TIE FABRIC TO TENSION WIRE, USE HOG RINGS SPACED 24" ON CENTER.
5. DRIVE POSTS DIRECTLY INTO FIRM GROUND. CONCRETE FOOTINGS SHALL BE UTILIZED AS NEEDED TO STABILIZE POSTS. STABILITY OF POSTS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION TO ENSURE SAFE BARRIER.

TEMPORARY CONSTRUCTION FENCE

N.T.S.

Details Provided by APPIAN Consulting Engineers — www.appliancengineers.com 08/06/2010 — 10:39:02 AM

TEST PRESSURE = 150 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME, CONCRETE CU. YD.
<4 INCHES	11 1/4°	----	----	----	----
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.00	1.00	2.50	0.09
	TEE / PLUG	1.00	1.00	2.00	0.07
4 INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.00	1.00	2.50	0.09
	90°	1.50	1.50	2.50	0.15
	TEE / PLUG	1.50	1.50	2.00	0.12
6 INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.00	2.00	3.00	0.28
	TEE / PLUG	2.00	2.00	2.50	0.23
8 INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.75	0.25
	90°	3.00	2.00	3.00	0.39
	TEE / PLUG	3.00	2.00	2.50	0.32
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	2.00	2.00	3.00	0.28
	45°	3.00	2.50	3.00	0.47
	90°	4.50	3.00	3.50	0.94
	TEE / PLUG	4.50	3.00	3.00	0.81
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	3.00	3.50	0.84
	90°	6.50	3.50	3.50	1.54
	TEE / PLUG	6.50	3.50	3.00	1.32

TEST PRESSURE = 200 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME, CONCRETE CU. YD.
<4 INCHES	11 1/4°	1.00	1.00	1.00	0.04
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
4 INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.50	1.50	2.50	0.15
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
8 INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.50	0.23
	90°	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	2.50	3.00	0.61
	90°	5.50	3.00	3.50	1.13
	TEE	5.50	3.00	3.00	0.97
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	4.00	2.00	3.00	0.50
	45°	5.50	3.00	3.50	1.13
	90°	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

CHART NOTES:

1. If blocking excavation is in lightly compacted fill areas, or in areas where boulders or stumps have been removed, blocking size must be re-sized for the specific location/circumstance by a NC licensed Professional Engineer.
2. Blocking sizes shown in these tables assume the following:
   A. Blocking is constructed in residual soils as shown in detail.
   B. Soil bearing pressure = 2000 psf
   C. Velocity of flow = 15 fps.
3. This detail not applicable to reducing bends.
4. Neither the weight of the concrete blocking nor friction between concrete blocking and soil was added into blocking sizes computation. Therefore, blocking size is conservative.

TOWN of CLAYTON
USE WITH THE TOWN of CLAYTON STANDARD SPECIFICATIONS ONLY

HORIZONTAL BLOCKING DETAIL for BENDS, TEE, & PLUG

SCALE:	DETAIL #:
Not To Scale	₵ S12-01
REVISION DATE:	SHEET #:
July, 2010	2 of 2

boomerang DESIGN
rethink, repurpose, results

SHELBY
207 S. Trade Street
Shelby, NC 28150
704/751-7000

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1230 W. Morehead St., Suite 214
Charlotte, NC 28208
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RALEIGH
6131 Falls of Neuse Rd., Suite 204
Raleigh, NC 27609
919/573-6400

LEXINGTON
1070 S. Lake Dr., Suite J
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803/356-0927

CLH DESIGN, P.A.
400 Regency Forest Drive
Suite 130
Cary, North Carolina 27518
Phone: (919)319-0716
Fax: (919)319-0716
LA: C-106, PE: C-1595

COOPER ACADEMY A & R

PROJECT TITLE

"CLIENT'S PROJECT" # - XXX

Digitally signed by Steven J. Miller
Date: 2024.02.26 17:04:22-05'00'

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 22625 ENGINEER STEVEN J. MILLER

REVISIONS

NO.	DATE	DESCRIPTION
1	2/27/2024	ADDENDUM #2

BID DOCUMENTS

PROJECT PHASE

2307

BOOMERANG DESIGN PROJECT NUMBER

02.07.24

DRAWING RELEASE DATE

DETAILS

SHEET TITLE

C702

SHEET

Town of Clayton
Planning Department

Planning Director:

Official Document

This document has been reviewed by the Town of Clayton and to the best of our knowledge and belief, conforms to all laws, ordinances, policies and specifications that are applicable. Approval by the Town shall not relieve the Applicant and/or Design Professional from the responsibility for adequacy of design or for errors or omissions in the plans and specifications and meeting all applicable standards and regulations.