
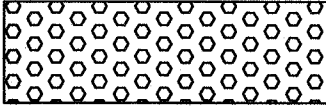
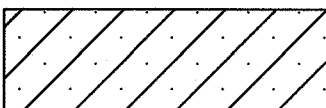
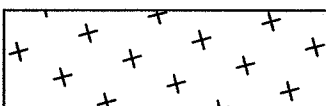
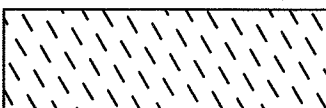
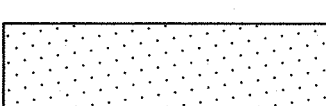


**PLANTING LEGEND**

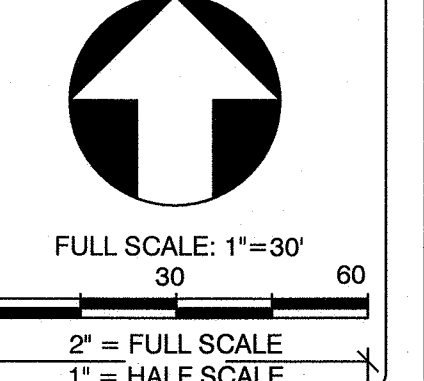
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 PLANTING ZONE A - DETAIL 2/D1  
(MATTING, WETLAND SEEDING & PLANTINGS)
- 
 PLANTING ZONE B - DETAIL 2/D1  
(WETLAND SEEDING & PLANTINGS)
- 
 PLANTING ZONE C - DETAIL 2/D1  
(WETLAND SEEDING ONLY ALONG SEWER MAIN)
- 
 PLANTING ZONE D - DETAIL 2/D1  
(UPLAND SEEDING & PLANTINGS)
- 
 PLANTING ZONE E - DETAIL 2/D1  
(UPLAND SEED MIX ONLY)
- 
 PLANTING ZONE F  
LAWN SEEDING TO MATCH EXISTING

CONSTRUCTION AT STREAM BANK NOTE:

STREAM CHANNEL

CONTRACTOR SHALL NOT PERFORM ANY WORK WITHIN STREAM BANK BELOW ORDINARY HIGH WATER MARK UNLESS OTHERWISE DIRECTED BY ENGINEER. ORDINARY HIGH WATER MARK ELEVATION IS NOTED AS PROPOSED TOP OF BANK ELEVATION ON SHEETS 4-6.

SEE DETAIL 4 / D1 FOR BANK STABILIZATION PLANTINGS ABOVE HIGH WATER MARK.



MARK	DATE	DESCRIPTION	PLOT DATE: 2/28/2020
REVISIONS:			
RELEASED FOR CONSTRUCTION			RELEASED FOR CONSTRUCTION

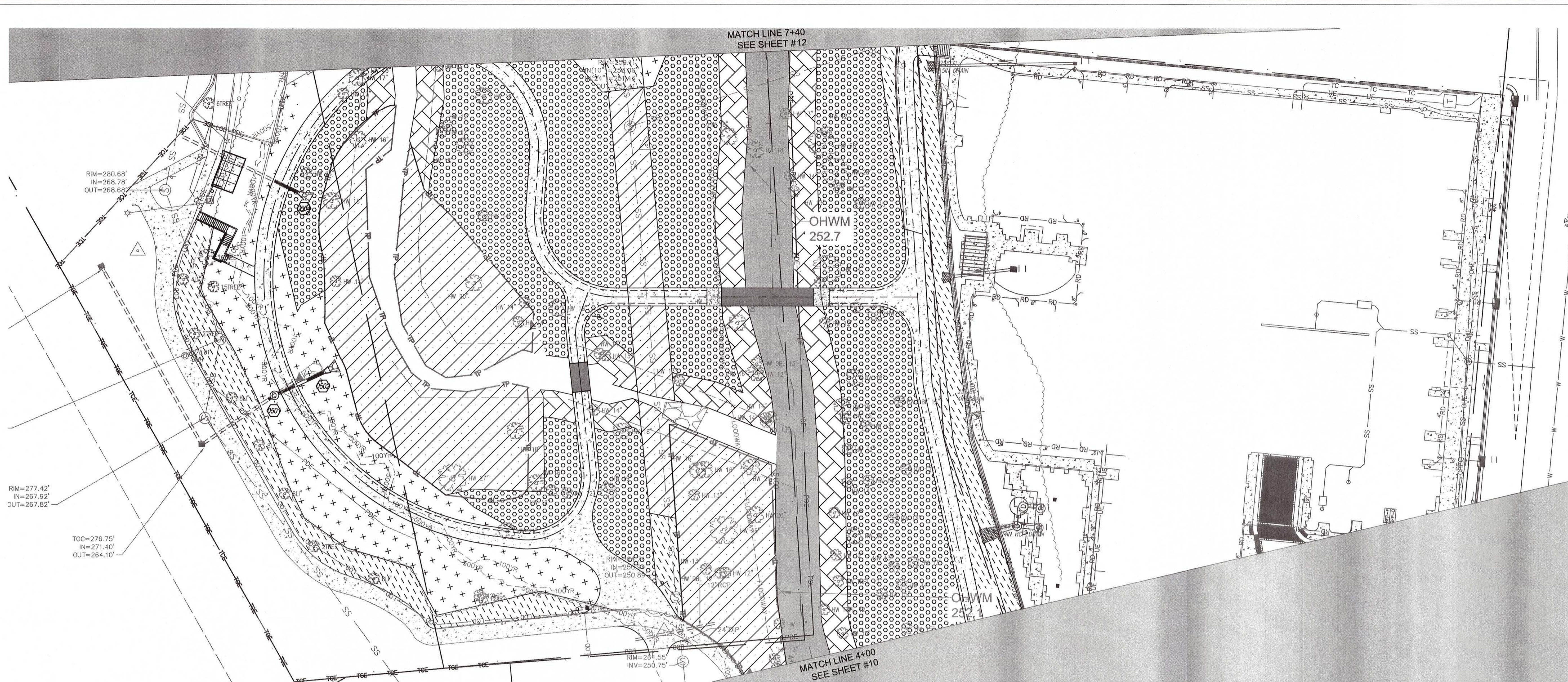
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TOWN OF CHAPEL HILL, NORTH CAROLINA

DRAWING TITLE: PLANTING PLAN

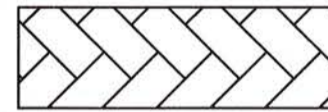
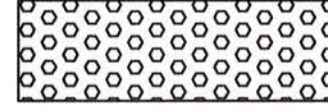
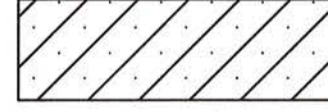
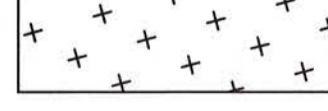

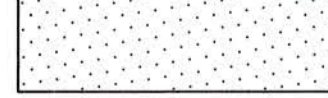
PROJ. DATE: JUNE 2019  
Q.C.: TLM  
Q.C. DATE: MAY 2019

DRAWING NUMBER:  
**10**

PROJ. NO.:  
20170225.00.RA



**PLANTING LEGEND**

-  PLANTING ZONE A - DETAIL 2/D1  
(MATTING, WETLAND SEEDING & PLANTINGS)
-  PLANTING ZONE B - DETAIL 2/D1  
(WETLAND SEEDING & PLANTINGS)
-  PLANTING ZONE C - DETAIL 2/D1  
(WETLAND SEEDING ONLY ALONG SEWER MAIN)
-  PLANTING ZONE D - DETAIL 2/D1  
(UPLAND SEEDING & PLANTINGS)
-  PLANTING ZONE E - DETAIL 2/D1  
UPLAND SEED MIX ONLY
-  PLANTING ZONE F  
LAWN SEEDING TO MATCH EXISTING

**CONSTRUCTION AT STREAM BANK NOTE:**

CONTRACTOR SHALL NOT PERFORM ANY WORK WITHIN STREAM BANK BELOW ORDINARY HIGH WATER MARK (OHWM) UNLESS OTHERWISE DIRECTED BY ENGINEER.

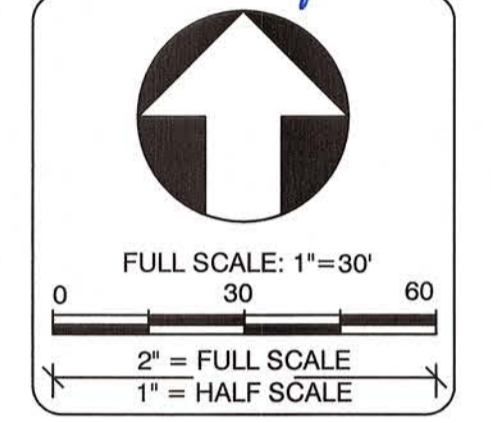
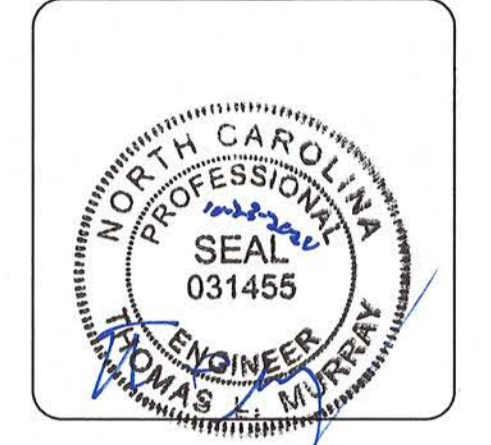
SEE DETAIL 4 / D1 FOR BANK STABILIZATION PLANTINGS ABOVE HIGH WATER MARK.

STREAM CHANNEL

**WK DICKSON**  
community infrastructure consultants  
Transportation + Water Resources  
Urban Development + Geomatics

720 Corporate Drive  
Raleigh, NC 27607  
(919) 782-0495  
(919) 782-9672  
www.wkdickson.com

NC LICENSE NO. F-0374



MARK	DATE	DESCRIPTION	REVISIONS:	RELEASED FOR:	CONSTRUCTION	PLOT DATE:
						9/23/2020

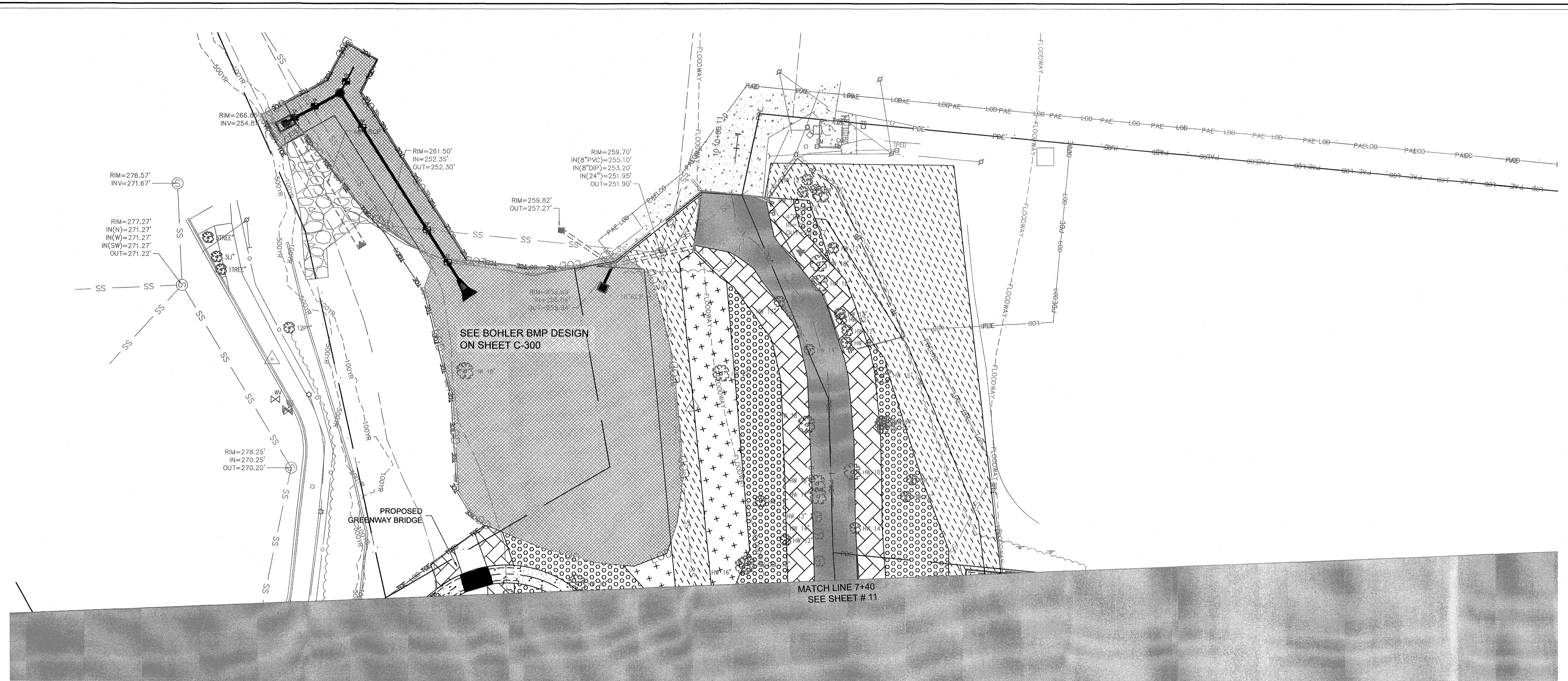
PROJECT NAME: ELLIOTT STORAGE DESIGN  
TOWN OF CHAPEL HILL, NORTH CAROLINA

DRAWING TITLE: PLANTING PLAN

PROJ. DATE: JUNE 2019  
Q.C.: TLM  
Q.C. DATE: MAY 2019

DRAWING NUMBER:  
**11**

PROJ. No.:  
20170225.00.RA



**PLANTING LEGEND**

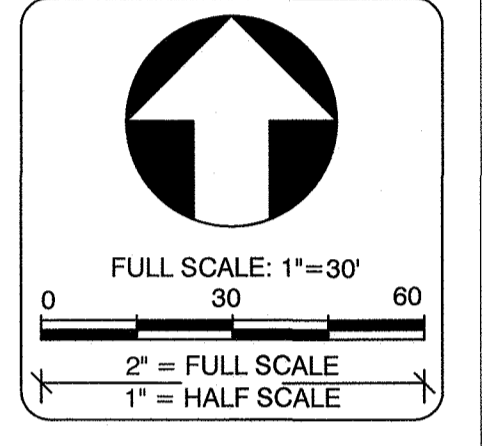
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	PLANTING ZONE B - DETAIL 2/D1 (WETLAND SEEDING & PLANTINGS)
	PLANTING ZONE C - DETAIL 2/D1 (WETLAND SEEDING ONLY ALONG SEWER MAIN)
	PLANTING ZONE D - DETAIL 2/D1 (UPLAND SEEDING & PLANTINGS)
	PLANTING ZONE E - DETAIL 2/D1 UPLAND SEED MIX ONLY
	PLANTING ZONE F LAWN SEEDING TO MATCH EXISTING

**CONSTRUCTION AT STREAM BANK NOTE:**

CONTRACTOR SHALL NOT PERFORM ANY WORK WITHIN STREAM BANK BELOW ORDINARY HIGH WATER MARK UNLESS OTHERWISE DIRECTED BY ENGINEER. ORDINARY HIGH WATER MARK ELEVATION IS NOTED AS PROPOSED TOP OF BANK ELEVATION ON SHEETS 4-6.

SEE DETAIL 4 / D1 FOR BANK STABILIZATION PLANTINGS ABOVE HIGH WATER MARK.

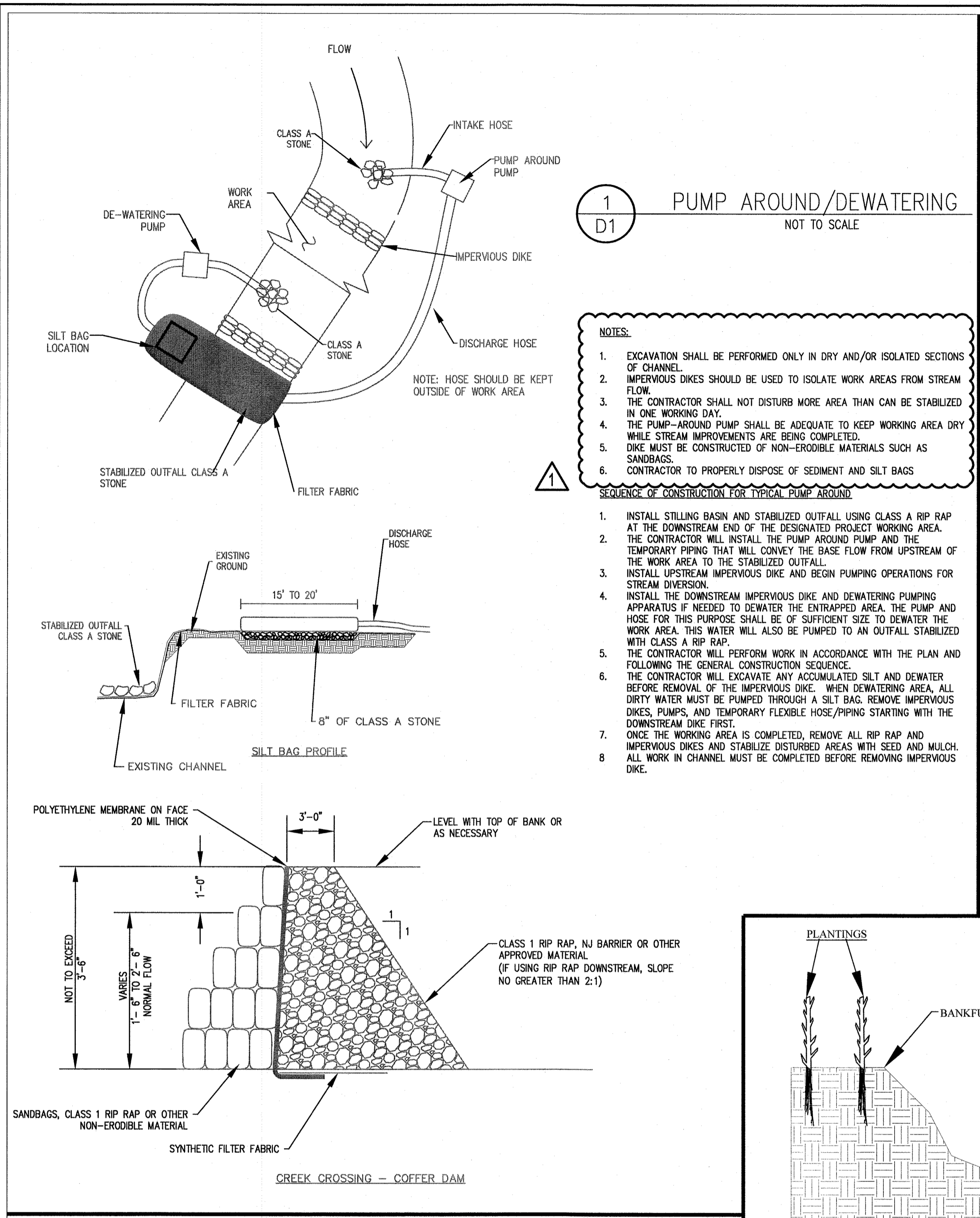
**WK DICKSON**  
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REVISIONS:	MARK	DATE	DESCRIPTION	PLOT DATE:
				2/28/2020
RELEASED FOR CONSTRUCTION				

PROJECT NAME: ELLIOTT STORAGE DESIGN  
 TOWN OF CHAPEL HILL, NORTH CAROLINA  
 DRAWING TITLE: PLANTING PLAN

PROJ. DATE: JUNE 2019  
 Q.C.: TLM  
 Q.C. DATE: MAY 2019  
 DRAWING NUMBER:  
**12**  
 PROJ. NO.:  
 20170225.00.RA



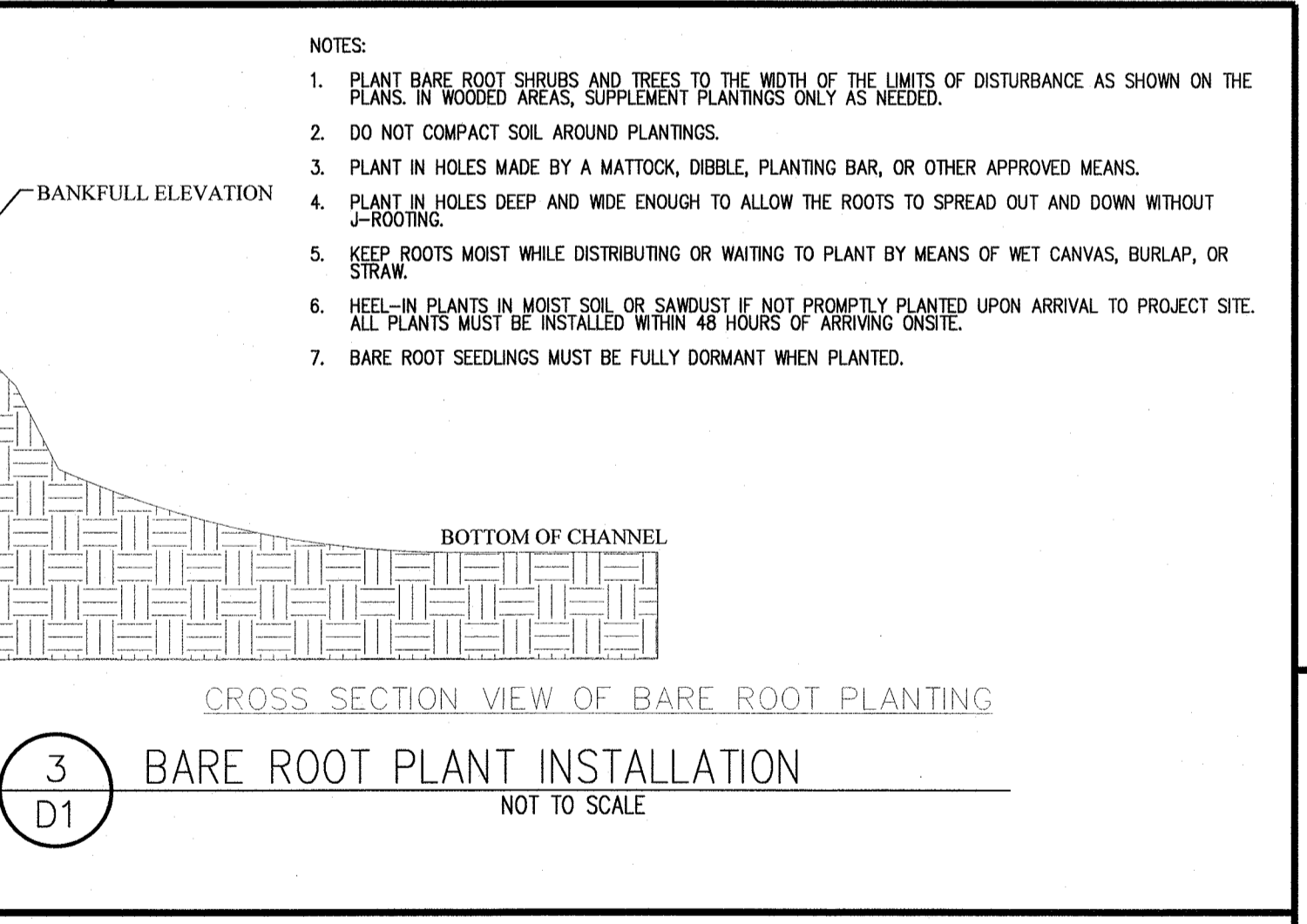
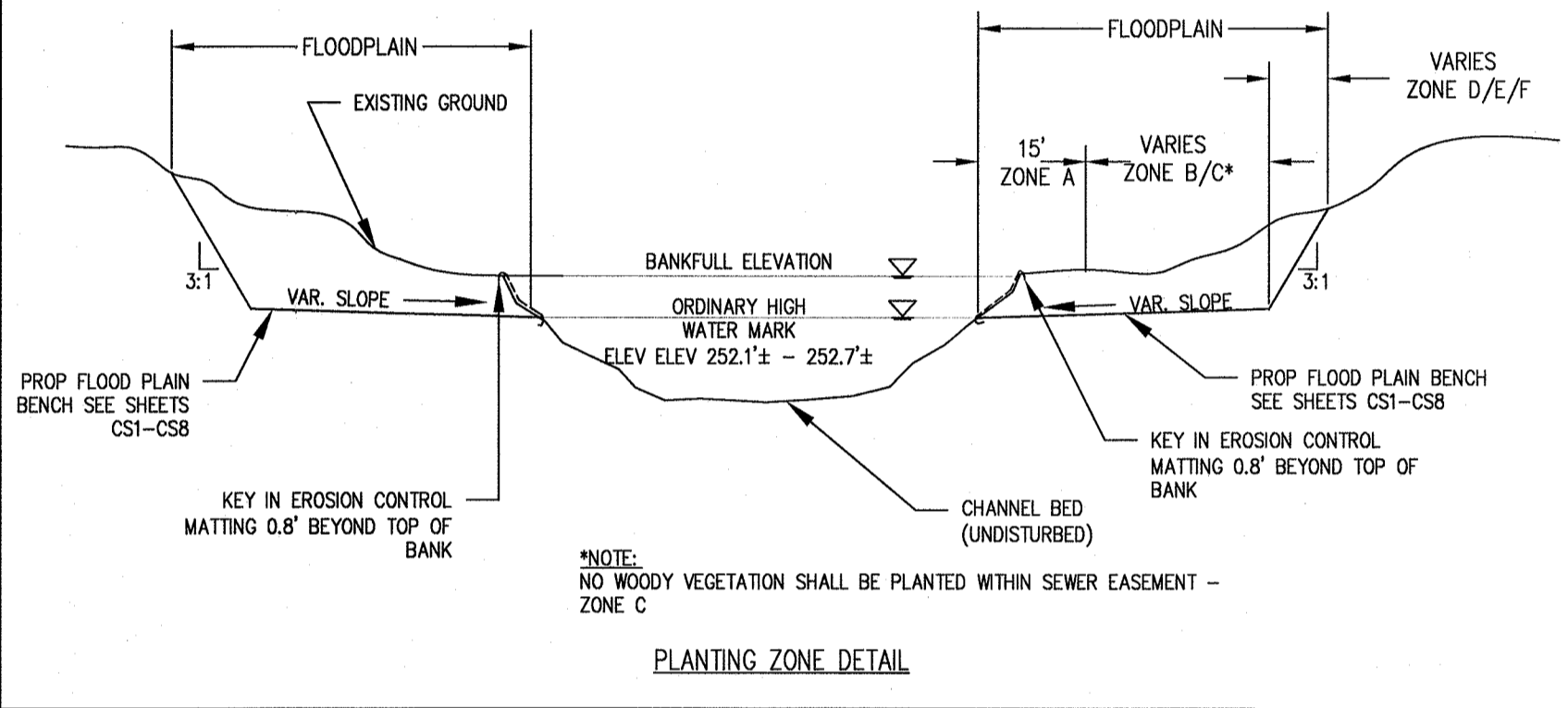
1 PUMP AROUND/DEWATERING  
NOT TO SCALE

- NOTES:**
- EXCAVATION SHALL BE PERFORMED ONLY IN DRY AND/OR ISOLATED SECTIONS OF CHANNEL.
  - IMPERVIOUS DIKES SHOULD BE USED TO ISOLATE WORK AREAS FROM STREAM FLOW.
  - THE CONTRACTOR SHALL NOT DISTURB MORE AREA THAN CAN BE STABILIZED IN ONE WORKING DAY.
  - THE PUMP-AROUND PUMP SHALL BE ADEQUATE TO KEEP WORKING AREA DRY WHILE STREAM IMPROVEMENTS ARE BEING COMPLETED.
  - DIKE MUST BE CONSTRUCTED OF NON-ERODIBLE MATERIALS SUCH AS SANDBAGS.
  - CONTRACTOR TO PROPERLY DISPOSE OF SEDIMENT AND SILT BAGS.
- SEQUENCE OF CONSTRUCTION FOR TYPICAL PUMP AROUND:**
- INSTALL STILLING BASIN AND STABILIZED OUTFALL USING CLASS A RIP RAP AT THE DOWNSTREAM END OF THE DESIGNATED PROJECT WORKING AREA.
  - THE CONTRACTOR WILL INSTALL THE PUMP AROUND PUMP AND THE TEMPORARY PIPING THAT WILL CONVEY THE BASE FLOW FROM UPSTREAM OF THE WORK AREA TO THE STABILIZED OUTFALL.
  - INSTALL UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
  - INSTALL THE DOWNSTREAM IMPERVIOUS DIKE AND DEWATERING PUMPING APPARATUS IF NEEDED TO DEWATER THE ENTRAPPED AREA. THE PUMP AND HOSE FOR THIS PURPOSE SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA. THIS WATER WILL ALSO BE PUMPED TO AN OUTFALL STABILIZED WITH CLASS A RIP RAP.
  - THE CONTRACTOR WILL PERFORM WORK IN ACCORDANCE WITH THE PLAN AND FOLLOWING THE GENERAL CONSTRUCTION SEQUENCE.
  - THE CONTRACTOR WILL EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF THE IMPERVIOUS DIKE. WHEN DEWATERING AREA, ALL DIRTY WATER MUST BE PUMPED THROUGH A SILT BAG. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE/PIPING STARTING WITH THE DOWNSTREAM DIKE FIRST.
  - ONCE THE WORKING AREA IS COMPLETED, REMOVE ALL RIP RAP AND IMPERVIOUS DIKES AND STABILIZE DISTURBED AREAS WITH SEED AND MULCH. ALL WORK IN CHANNEL MUST BE COMPLETED BEFORE REMOVING IMPERVIOUS DIKE.

2 PLANTING PLAN NOTES  
NOT TO SCALE

- NOTES:**
- EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
  - EROSION CONTROL LINER SHALL NOT BE CUT WITH PLANTING IMPLEMENTS. THE SMALLEST OPENING NECESSARY TO ACCOMMODATE EACH PLANT SHALL BE CUT INTO THE LINER USING A SHARP KNIFE OR SHEARS. AFTER PLANTING IS COMPLETE USE 2-3 PINS TO SECURE LINER WHERE CUT WAS MADE. ALL AREAS TO BE PLANTED SHALL BE PREPARED PRIOR TO PLANTING BY DISC OR SPRING-TOOTH CHISEL PLOW TO MINIMUM DEPTH OF 12 INCHES, TAKING CARE TO AVOID EXISTING TREES CALLED OUT TO BE PROTECTED. MULTIPLE PASSES SHALL BE MADE ACROSS PLANTING AREAS WITH THE IMPLEMENT AND THE FINAL PASS SHALL FOLLOW TOPOGRAPHIC CONTOURS.
  - PLANTS SHALL BE INSTALLED IN STAGGERED ROWS. PLANT SPACING SHALL BE APPROXIMATELY EIGHT FEET (8.0') BETWEEN PLANTS IN THE SAME ROW. ROWS SHALL BE STAGGERED SUCH THAT PLANTS ARE APPROXIMATELY FIVE FEET (5.0') APART. AT LEAST 50% OF TREE SPECIES AND 50% OF SHRUB SPECIES SHALL BE FROM ONE GALLON OR LARGER CONTAINERS. AT LEAST 40% OF ALL PLANTS SHALL BE A SHRUB SPECIES.
  - ASPHALTIC TACKIFIER SHALL NOT BE USED.
  - ONCE PERMANENT VEGETATION AND EROSION CONTROL MEASURES ARE ESTABLISHED, THE CONTRACTOR SHALL SCHEDULE A FINAL INSPECTION IN ORDER TO OBTAIN A CERTIFICATE OF COMPLETION. AFTER APPROVAL, ALL REMAINING TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED.
  - THE RIPARIAN BUFFER IS DEFINED AS THE AREA BETWEEN THE TOP OF BANK AND THE WIDTH NEEDED TO EXTEND 15' ABOVE BANKFULL. THE REMAINING FLOODPLAIN AREA TO BE PLANTED EXTENDS TO THE LIMITS OF DISTURBANCE. SEE PLANTING PLAN SHEETS 11, 12 & 13 FOR FULL EXTENT OF PLANTINGS.

- MAINTENANCE NOTES**
- TEMPORARY SEEDING**
- RESEED AND MULCH AREAS WHERE SEEDLING EMERGENCE IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.
- PERMANENT SEEDING**
- RESEED AREAS WHERE VEGETATIVE COVER IS BELOW 70 PERCENT, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.
  - IF GERMINATION OR EROSION CONTINUES TO BE PROBLEMTIC THE FOLLOWING MEASURES WILL BE PERFORMED AS NEEDED: SOIL FERTILITY TESTING, SOIL AMENDMENTS, PLACEMENT OF TOPSOIL, EROSION CONTROL MATTING.



3 BARE ROOT PLANT INSTALLATION  
NOT TO SCALE

**PLANTING LIST**

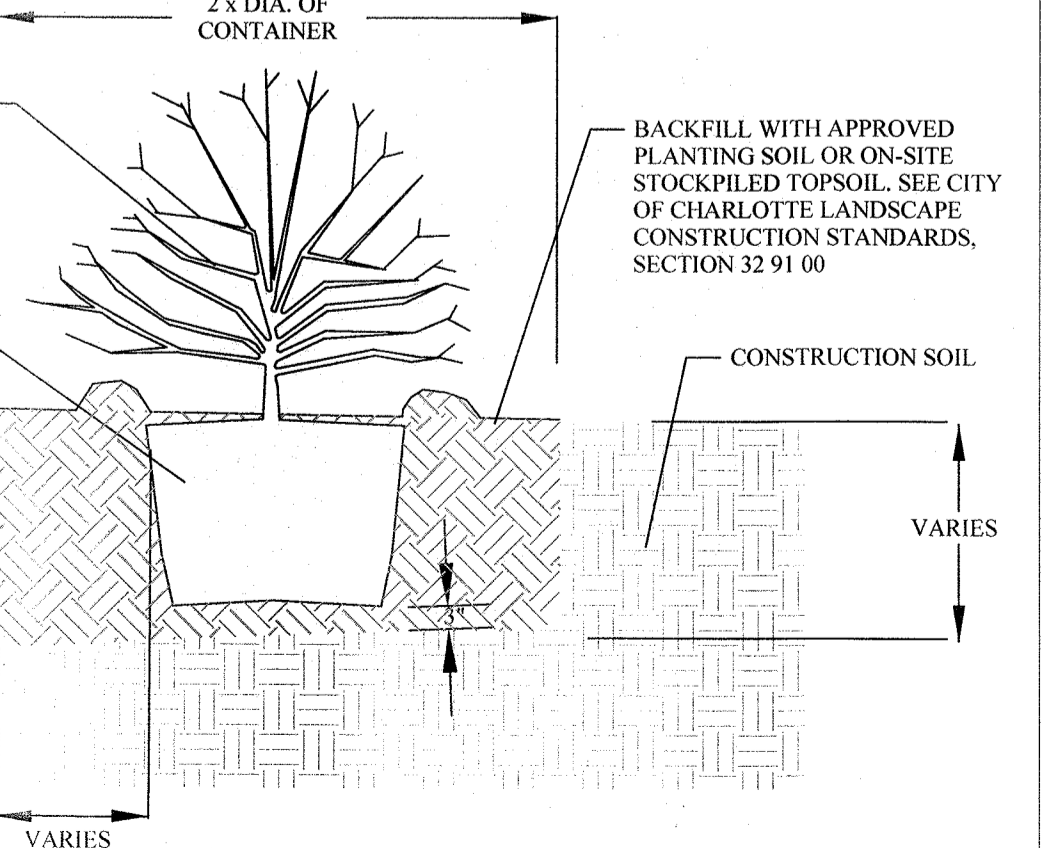
Scientific Name	Common Name	Stems/ Area	Stock Type*	Indicator Status		
<b>Zone A (Along channel)</b>						
Shrub						
<i>Alnus serrulata</i>	Tag Alder	50	CN	OBL	"Zone A - 0 to 15 feet along channel banks live stakes along top of bank spacing for Zone A is 8 x 8 feet"	
<i>Aronia arbutifolia</i>	Red Chokeberry	50	CN	FACW		
<i>Sambucus canadensis</i>	Elderberry	50	CN	FAC		
<i>Viburnum nudum</i>	Viburnum, Possumhaw	50	CN	OBL		
Tree						
<i>Betula nigra</i>	River Birch	75	BR	FACW	"Zone B1 - Occasional Inundation from 15 feet to limit of disturbed floodplain spacing for Zone B is 8 x 8 feet"	
<i>Ulmus americana</i>	Elm, American	100	BR	FACW		
<i>Platanus occidentalis</i>	Sycamore	100	BR	FACW		
Shrub						
<i>Ilex opaca</i>	American Holly	50	CN	FACU		
<i>Ilex verticillata</i>	Holly, Winterberry	50	CN	FACW	"Zone B2 - Frequent Inundation from 15 feet to limit of disturbed floodplain spacing for Zone B is 8 x 8 feet"	
<i>Sambucus canadensis</i>	Elderberry	50	CN	FAC		
<i>Viburnum nudum</i>	Viburnum, Possumhaw	50	CN	OBL		
Tree						
<i>Betula nigra</i>	River Birch	100	BR	FACW		
<i>Platanus occidentalis</i>	Sycamore	100	BR	FACW	"Zone C - Upland areas spacing for Zone C is 8 x 8 feet"	
<i>Quercus phellos</i>	Oak, Willow	100	BR	FAC		
Shrub						
<i>Calliopsis americana</i>	Beautyberry	50	CN	FACU		
<i>Cephalanthus occidentalis</i>	Button bush	50	CN	OBL		
<i>Ilex opaca</i>	American Holly	50	CN	FACU	"Zone D - Upland areas"	
<i>Sambucus canadensis</i>	Elderberry	50	CN	FAC		
<i>Platanus occidentalis</i>	Sycamore	100	BR	FACU		
<i>Quercus michauxii</i>	Oak, Swamp Chestnut	100	BR	FACW		
<i>Quercus shumardii</i>	Shumard's oak	100	BR	FAC		
Tree						
<i>Juniperus virginiana</i>	Eastern red cedar	100	BR	FACU		
<i>Pinus taeda</i>	Loblolly pine	100	BR	FAC		
<i>Quercus rubra</i>	Oak, Northern Red	100	BR	FACU		

**GROUND STABILIZATION TIMEFRAMES**

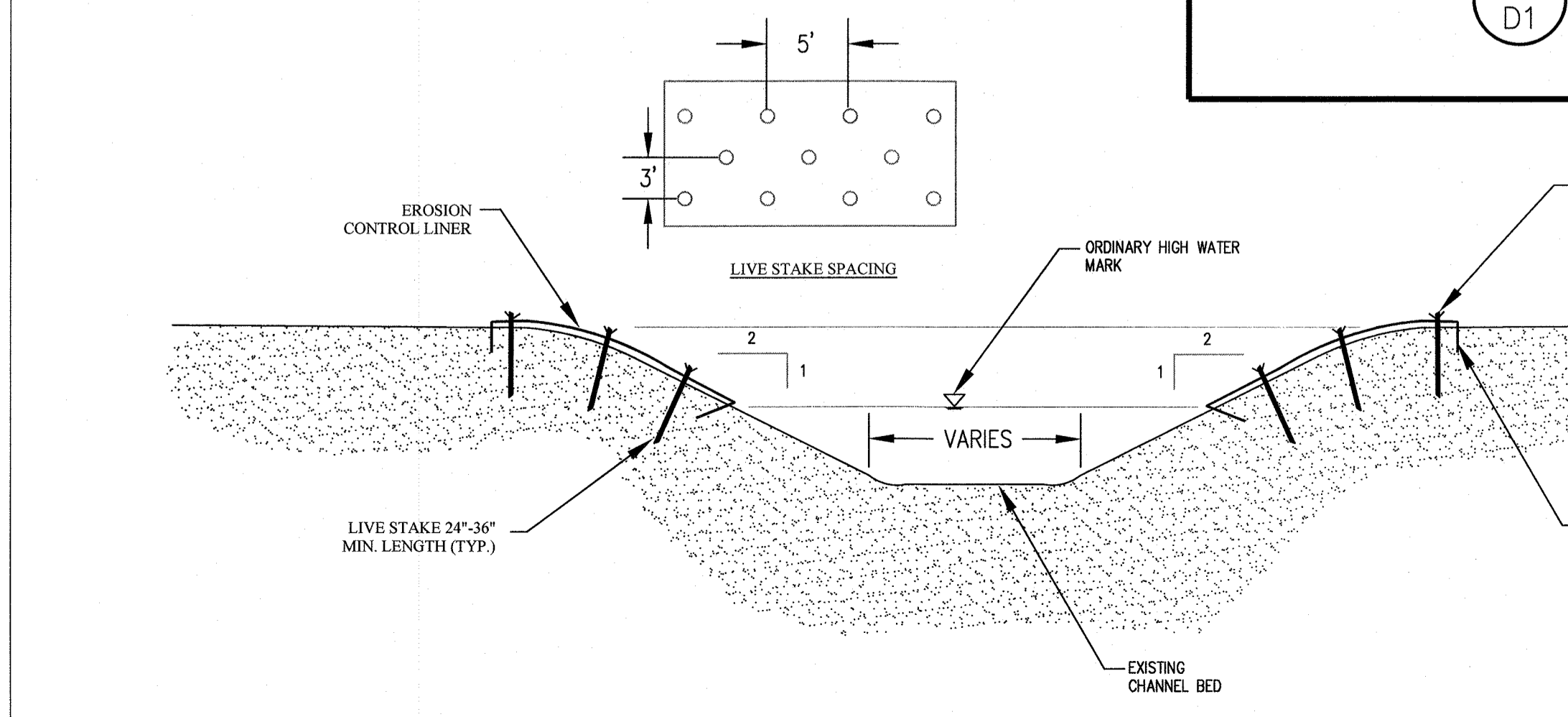
Site Area Description	Stabilization	Timeframe Exceptions
Perimeter dikes, swales and slopes	7 Days	None
High Quality Water (HQW) Zones	7 Days	None
Slopes Steeper than 3:1	7 Days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 4:1 or flatter	14 Days	7 days for slopes greater than 50' in length
All other areas with slopes flatter than 4:1	14 Days	None, except for perimeters and HQW Zones

5 CONTAINERIZED PLANT INSTALLATION  
NOT TO SCALE

- NOTES FOR CONTAINER PLANTING:**
- WHEN PREPARING THE HOLE FOR A POTTED PLANT OR SHRUB DIG THE HOLE 8-12 INCHES LARGER THAN THE DIAMETER OF THE POT AND THE SAME DEPTH AS THE POT. SCARIFY SIDES AND BOTTOM OF THE HOLE.
  - REMOVE THE PLANT FROM THE POT. LAY THE PLANT ON ITS SIDE IF NECESSARY TO REMOVE THE POT.
  - FOR ALL CONTAINERIZED PLANTS, MAKE VERTICAL CUTS IN ROOTBALL KNIFE JUST DEEP ENOUGH TO CUT THE NET OF ROOTS. ALSO MAKE A CRISS-CROSS CUT ACROSS THE BOTTOM OF THE ROOTBALL.
  - PLACE THE PLANT IN THE HOLE.
  - FILL HALF OF THE HOLE WITH SOIL (SAME SOIL REMOVED FOR BACKFILL).
  - BACKFILL ONE-HALF OF REMAINING HOLE WITH ACCEPTABLE PLANTING MEDIUM AND WATER THOROUGHLY. BACKFILL REST OF HOLE WITH ACCEPTABLE PLANTING MEDIUM. FIRM DOWN, ELIMINATING ALL AIR POCKETS. DO NOT PACK.
  - BUILD A FOUR-INCH HIGH BERM AROUND THE EDGE OF THE ROOT BALL USING SOIL REMOVED FROM THE HOLE TO FORM A BASIN FOR HOLDING WATER. THE BOTTOM OF THE BASIN SHALL BE AT SURROUNDING FINISH GRADE.
  - CONTAINER PLANTS INSTALLED WITHIN LIMITS OF DISTURBANCE DO NOT REQUIRE A LAYER OF MULCH.



4 CHANNEL BANK STABILIZATION DETAIL  
NOT TO SCALE

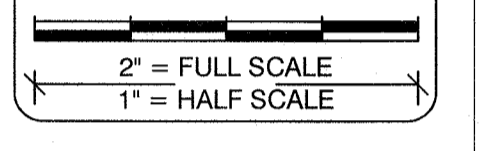
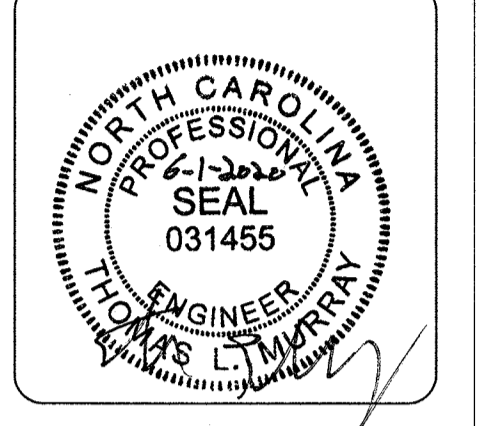


**NOTE:**

- LINE DISTURBED CHANNEL BANKS WITH EROSION CONTROL LINER AND SILKY DOGWOOD, BLACK WILLOW, AND SILKY WILLOW LIVE STAKING AT STATIONS AS FOLLOWS:  
WEST BANK  
9+50 TO 18+25  
EAST BANK  
7+75 TO 19+75
- GEOTEXTILE MATTING SHOULD BEGIN INSIDE THE CHANNEL AT THE NORMAL WATER SURFACE ELEVATION AND EXTEND PAST NEWLY GRADED TOP OF BANK A MINIMUM OF 24".
- PLACE LIVE STAKES IN MATTING MATERIAL, STARTING AT NORMAL WATER SURFACE ELEVATION AND EXTENDING 15 FEET INTO THE FLOODPLAIN.
- PLACE LIVE STAKES WITH A 5 FT STAGGERED SPACING EVERY 3 FT. SEE SPACING DIAGRAM BELOW.

Live Stakes	Scientific Name	Indicator Status	Bank Protection Area
<i>Cornus amomum</i>	Silky Dogwood	FACW	Place Live Stakes spaced 5 in rows with 3 staggered rows 3 feet apart for 0 to 6 feet from bank.
<i>Salix nigra</i>	Black Willow	OBL	
<i>Salix sericea</i>	Silky Willow	OBL	

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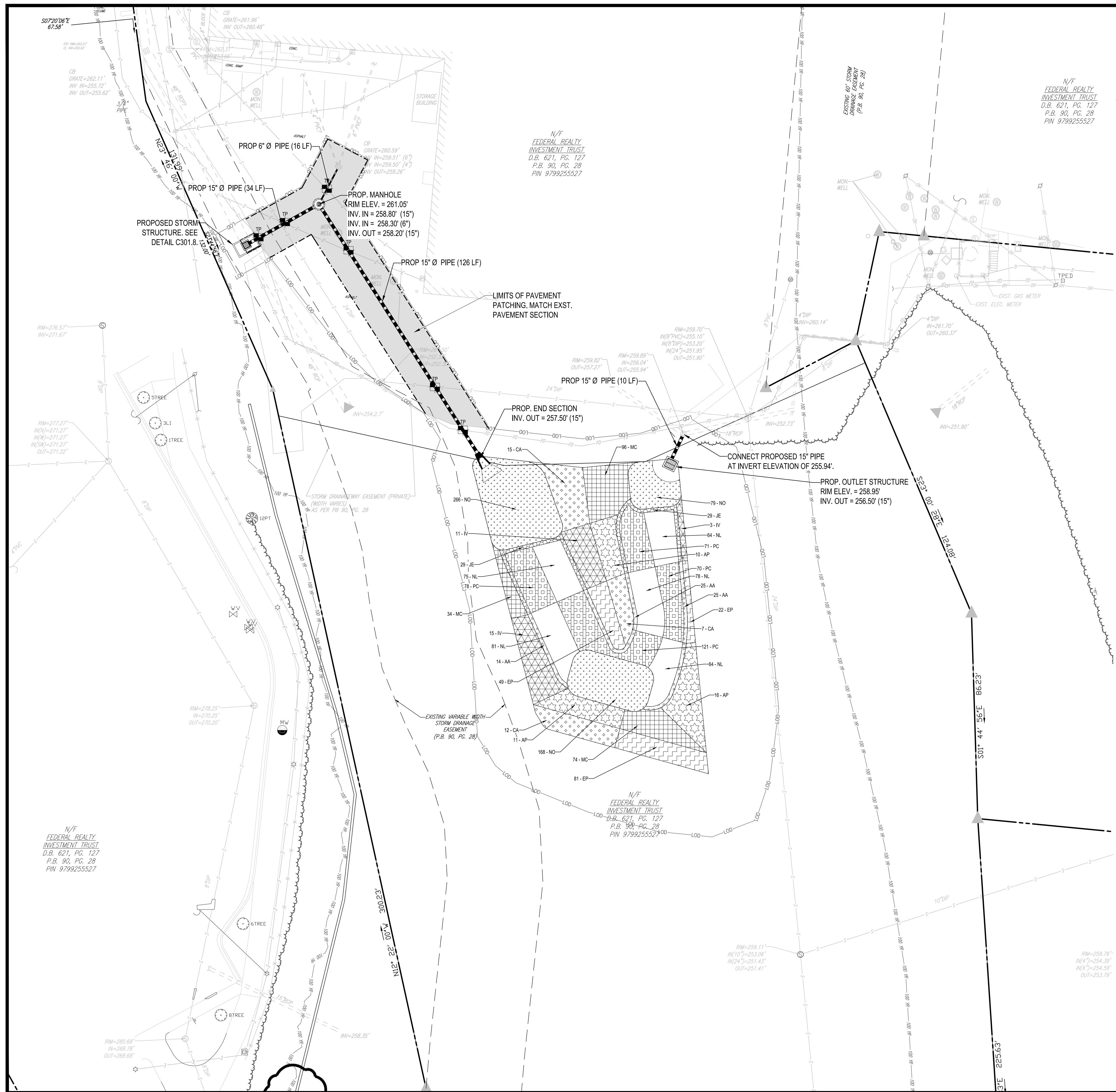


**REVISIONS:**

MARK	DATE	DESCRIPTION
1	5-28-20	ADDED NOTE 6

**RELEASED FOR CONSTRUCTION**

PROJECT NAME: ELLIOTT STORAGE DESIGN  
TOWN OF CHAPEL HILL, NORTH CAROLINA  
DRAWING TITLE: DETAILS  
PROJECT DATE: JUNE 2019  
Q.C. DATE: ILM  
Q.C. DATE: MAY 2019  
DRAWING NUMBER: D1  
PROJ. NO.: 20170225.00.RA

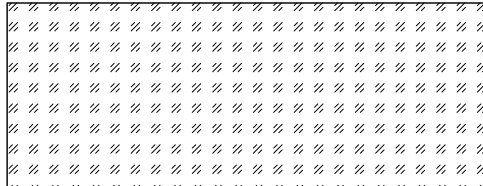


**LANDSCAPE LEGEND**

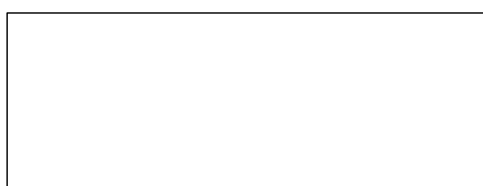
**SHALLOW WATER:**



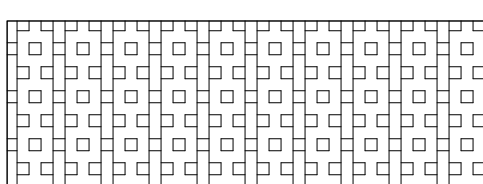
JE: *JUNCUS EFFUSUS* - COMMON RUSH / 58 UNITS



AA: *ACORUS AMERICANUS* - SWEETFLAG / 64 UNITS

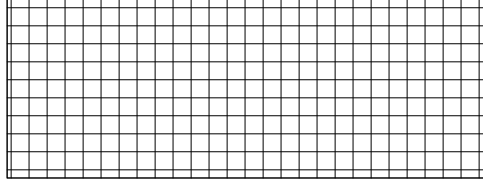


NL: *NUPHAR LUTEA* SSP. *ADVENA* - YELLOW POND-LILY / 362 UNITS

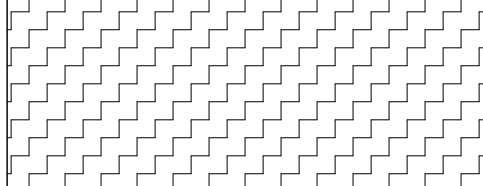


PC: *PONTERDERIA CORDATA* - PICKERELWEED / 340 UNITS

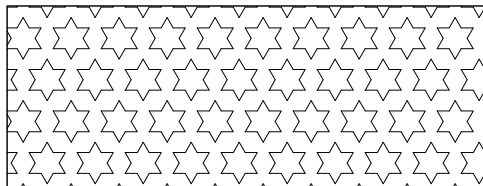
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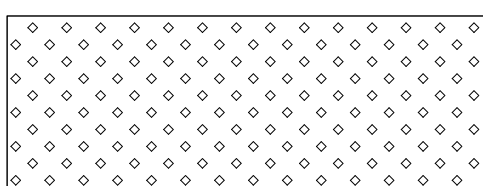
MC: *MUHLENBERGIA CAPILLARIS* - PURPLE MUHLY / 204 UNITS



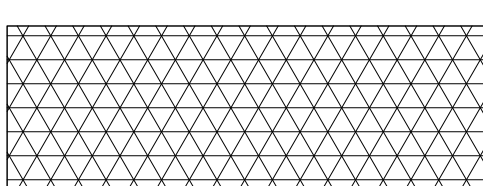
EP: *ECHINACEA PURPUREA* - PURPLE CONE FLOWER / 152 UNITS



AP: *AESCULUS PAVIA* - RED BUCKEYE / 37 UNITS

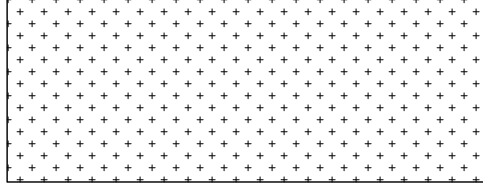


CA: *CORNUS AMOMUM* - SILKY DOGWOOD / 34 UNITS



IV: *ITEA VIRGINICA* - VIRGINIA SWEETSPICE / 29 UNITS

**DEEP WATER:**



NO: *NYMPHAEA ODORATA* - VIRGINIA WHITE WATER LILY / 513 UNITS

**BOHLER**  
ENGINEERING NC, PLLC

SITE CIVIL AND CONSULTING ENGINEERING  
LAND SURVEYING  
PROGRAM MANAGEMENT  
LANDSCAPE ARCHITECTURE  
SUSTAINABLE DESIGN  
PLANNING  
TRANSPORTATION SERVICES

**REVISIONS**

REV	DATE	COMMENT	BY

**811**

KNOW WHAT'S BELOW  
ALWAYS CALL 811  
**BEFORE YOU DIG**

It's fast. It's free. It's the law.

**NOT APPROVED FOR CONSTRUCTION**

PROJECT No.:	NCR172083
DRAWN BY:	ERB
CHECKED BY:	WLB
DATE:	4/8/19
SCALE:	1" = 20'
CAD I.D.:	SSD

PROJECT: **PROP. STORMWATER PLANS FOR FEDERAL REALTY**

LOCATION OF SITE  
1800 E FANKLIN STREET  
ORANGE COUNTY  
TOWN OF CHAPEL HILL, NC

**BOHLER**  
ENGINEERING NC, PLLC  
NCBELS P-1122

4130 PARKLAKE AVENUE, SUITE 130  
RALEIGH, NC 27612  
Phone: (919) 578-9000  
[NC@BohlerEng.com](mailto:NC@BohlerEng.com)

NORTH CAROLINA PROFESSIONAL SEAL  
W. L. BONE  
ENGINEER  
6/18/19

SHEET TITLE:  
**LANDSCAPE PLAN**

SHEET NUMBER:  
**C-500**

