

STORMWATER WETLAND #41 PLAN VIEW
SCALE = 1" = 30'

STORMWATER WETLAND PLANTING SCHEDULE

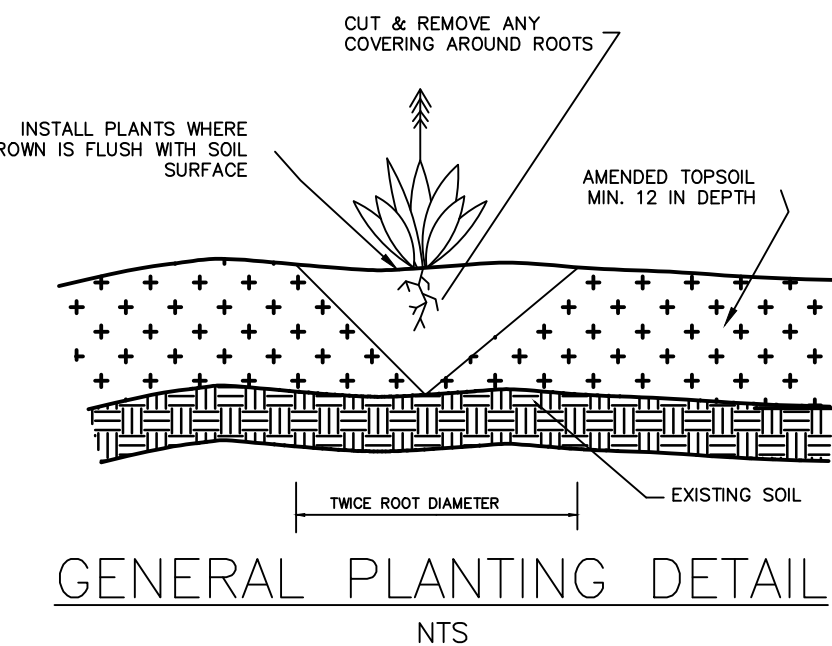
DEEP POOL ZONE: ALLOWABLE PLANT SPECIES						
COMMON NAME	BOTANICAL NAME	DEPTH RANGE (INCHES BELOW NORMAL POOL)	SPACING (O.C., FT)	QUANTITY	PERCENTAGE	SIZE
SPATTERDOCK	NUPHAR POLYSPALUM	6-18	5	10	33%	2 IN PLUG (MIN)
FRAGRANT WHITE LILY	NYPHAEA LUTEA	6-18	5	10	33%	2 IN PLUG (MIN)
AMERICAN LOTUS	NELUMBO LUTEA	6-18	5	10	33%	2 IN PLUG (MIN)

SHALLOW WATER ZONE: ALLOWABLE PLANT SPECIES						
COMMON NAME	BOTANICAL NAME	DEPTH RANGE (INCHES BELOW NORMAL POOL)	SPACING (O.C., FT)	QUANTITY	PERCENTAGE	SIZE
ARROW ARUM	PELTANDRA VIRGINICA	0-6	2.0	138	10%	PINT
PICKERELWEED	PONTEDERIA CORDATA	0-6	2.0	138	10%	2 IN PLUG (MIN)
DUCK POTATO	SAGITTARIA LATIFOLIA	0-6	2.0	138	10%	BARE ROOT
SOFTSTEM BULRUSH	SCHENOPLECTUS TABERNEMONTANI	0-6	2.0	138	10%	2 IN PLUG (MIN)
SWEETFLAG	ACORUS CALAMUS	0-6	2.0	138	10%	BARE ROOT
THREE WAY SEDGE	DULICHUM ARUNDINACEUM	0-6	2.0	138	10%	BARE ROOT
SPIKERUSH	ELEOCHARIS OBTUSA	0-6	2.0	138	10%	2 IN PLUG (MIN)
SOUTHERN BLUE FLAG IRIS	IRIS VIRGINICA	0-6	2.0	138	10%	2 IN PLUG (MIN)
LIZARD'S TAIL	SAURURUS CERNUUS	0-6	2.0	138	10%	3 IN PLUG (MIN)
SOFT RUSH	JUNCUS EFFUSUS	0-6	2.0	138	10%	2 IN PLUG (MIN)

SHALLOW LAND ZONE: ALLOWABLE PLANT SPECIES						
COMMON NAME	BOTANICAL NAME	DEPTH RANGE (INCHES ABOVE NORMAL POOL)	SPACING (O.C., FT)	QUANTITY	PERCENTAGE	SIZE
SWAMP MILKWEED	ASCLEPIAS INCARNATA	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
FRINGED SEDGE	CAREX CRINITA	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
GREAT BLADDER SEDGE	CAREX INTUMESCENS	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
HOP SEDGE	CAREX LUPULINA	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
SHALLOW SEDGE	CAREX LURIDA	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
SCARLET ROSE MALLOW	HIBISCUS COCCINEUS	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
ROSE MALLOW	HIBISCUS MOSCHEutos	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
SPIDER LILY	HYMENOCALLIS EULAE	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
SWAMP LILY	CRINUM ERUBESCENS	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
CARDINAL FLOWER	LOBELIA CARDINALIS	0-12	2.0	97	9.0%	2 IN PLUG (MIN)
SWAMP SUNFLOWER	HELIANTHUS ANGUSTIFOLIUS	0-12	2.0	97	9.0%	2 IN PLUG (MIN)

STORMWATER WETLAND PLANTING LEGEND:

- DEEP POOL (6" BELOW - 30" BELOW)
- SHALLOW WATER (NORMAL POOL - 6" BELOW)
- SHALLOW LAND (NORMAL POOL - 12" ABOVE)



STORMWATER WETLAND PLANTING NOTES

- GENERAL PLANTING NOTES**
1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
 2. PLANTS OF THE SAME SPECIES SHOULD BE PLANTED IN CLUSTERS. THESE CLUSTERS SHOULD CONTAIN MIN. 4-6 PLANTS OF THAT SPECIES.
 3. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
 4. AVOID PLANTING INDIVIDUAL SPECIES IN LARGE GROUPS BY SPACING CLUSTERS A MIN. OF 5' APART.
 5. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
 6. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
 7. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADEQUATE TIME TO ESTABLISH BEFORE WINTER MONTHS.
 8. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252-482-5707), MELLOW MARSH FARMS (919-742-1200), CURE NURSERY (919-542-6186) OR ENGINEER APPROVED SUBSTITUTE.

SHALLOW WATER PLANTING NOTES:

1. 70% OF SOFT STEM BULRUSH SHOULD BE PLANTED WITHIN 3-4 INCHES BELOW NORMAL POOL.
2. 70% OF PICKERELWEED AND 70% OF ARROW ARUM SHOULD BE PLANTED WITHIN 5-6 INCHES BELOW NORMAL POOL.
3. SEDGES SHOULD BE PLANTED WITHIN 0-2 INCHES BELOW NORMAL POOL.
4. 70% OF SWEETFLAG, 70% OF LIZARDS TAIL, AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2-3 INCHES BELOW NORMAL POOL.
5. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.

SHALLOW LAND PLANTING NOTES:

1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.
2. 70% OF CARDINAL FLOWER AND 70% OF BLUE LOBELIA SHOULD BE PLANTED WITHIN 0-1 INCH OF THE NORMAL POOL ELEVATION.

DEEP POOL PLANTING NOTES:

1. ENSURE ALL PLANTS ARE PLACED IN WATER NO DEEPER THAN 24 INCHES BELOW NORMAL POOL.

GRADING PLAN NOTES:

1. WETLAND MUST BE STABILIZED WITHIN 14 DAYS OF CONSTRUCTION
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR LOCATING AND PROTECTION OF EXISTING ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES. ANY AND ALL MAINS OR INDIVIDUAL SERVICES LINES PRESENTLY IN SERVICE WHICH ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY AT NO ADDITIONAL EXPENSE TO THE UTILITY OWNER.
3. CONTRACTOR SHALL KEEP ALL PARKING AREAS AND STREETS ADJACENT TO THE CONSTRUCTION SITE CLEAN AND OPEN AT ALL TIMES DURING CONSTRUCTION.
4. ALL SHALLOW WATER AND SHALLOW LAND AREAS WITHIN THE WETLAND CELL SHALL BE TOP DRESSED WITH A MINIMUM OF 12 IN OF TOPSOIL.
5. ALL ITEMS WHICH ARE SHOWN FOR REMOVAL SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND LEGALLY DISPOSED OF OFF SITE.
6. CONTRACTOR SHALL AT ALL TIMES MAINTAIN ADEQUATE SAFETY MEASURES, ACTIVITIES, AND BARRICADES FOR THE PROTECTION OF ALL PERSONS ON OR ABOUT THE LOCATION OF THE SITE.
7. GRADE TO ELEVATIONS AND DIMENSIONS SHOWN ON DRAWINGS. ELEVATIONAL GRADING TOLERANCE IS ±0.1 FT.
8. NO GRADING IS TO OCCUR IN THE DEEP POOL AREAS BEYOND THE SPECIFIED GRADING LIMITS.

TOPSOIL SPECIFICATION:

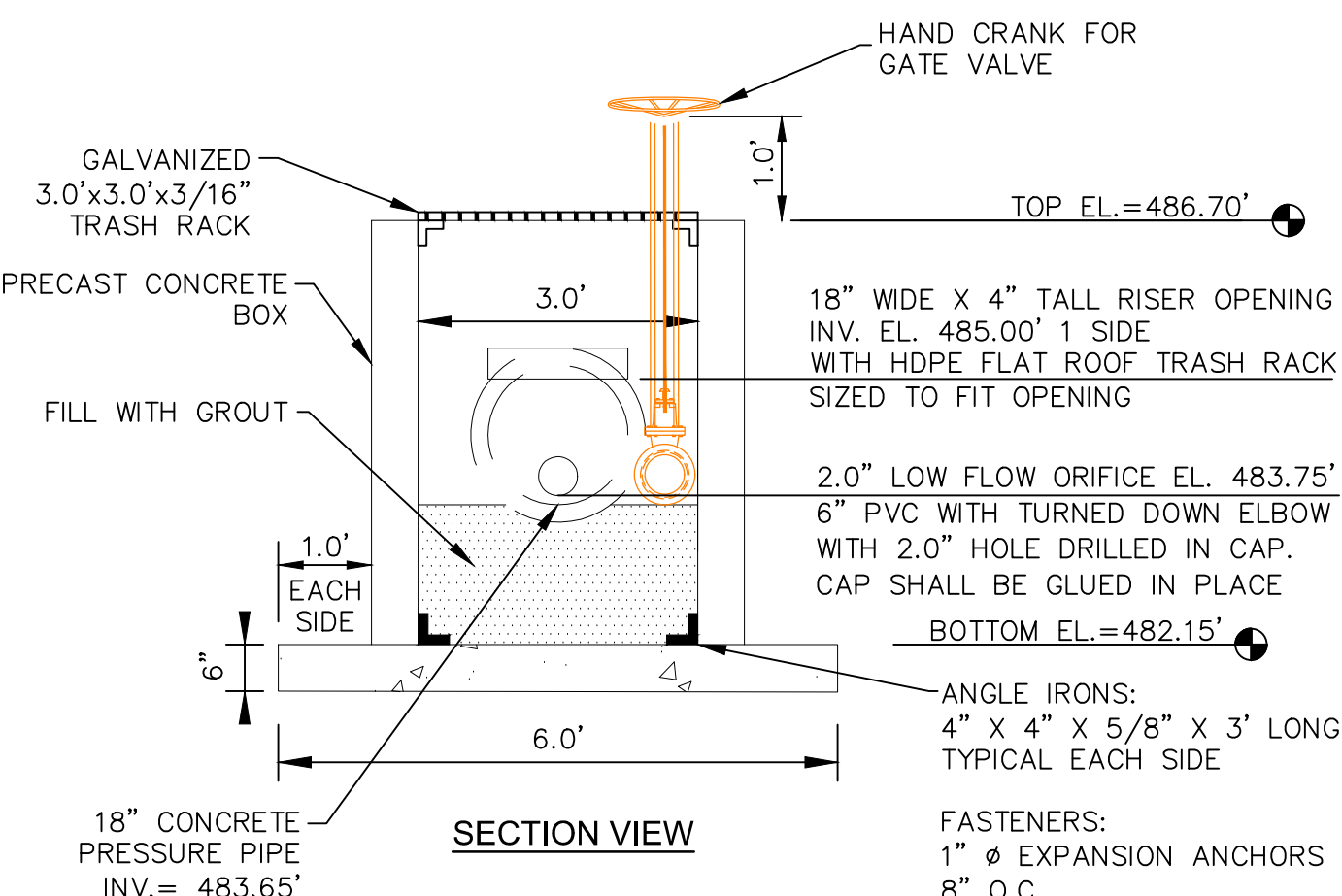
1. TOPSOIL TO BE ADDED TO TOP OF WETLAND SHELF IS TO MEET CRITERIA SPECIFIED BELOW.
2. TOPSOIL SHALL BE WELL MIXED, FREE OF TRASH AND DEBRIS, UNCOMPACTED, AND VOID OF LARGE STONES (>2 INCHES) AND WOODY MATERIAL (>3 INCHES).
3. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
SOIL TYPE: CLAY < 60%, SAND < 80%, SILT < 80%
ORGANIC CONTENT: 5-8%
P-I: 20<50
PH: 6.0-7.0
4. IN THE EVENT THAT SELECTED TOPSOIL DOES NOT MEET SPECIFICATION LISTED ABOVE, SOIL CAN BE AMENDED BY ADDITION OF APPROPRIATE MATERIALS (MASON SAND OR MATURE STABLE COMPOST, OR LIME).
5. UPON PLACEMENT OF TOPSOIL, AREA SHOULD BE LIGHTLY COMPACTED TO ENSURE STABILIZATION OF MATERIAL.
6. EXCESSIVE TRAFFICKING OF EQUIPMENT OVER WETLAND PLANTING AREAS SHOULD BE AVOIDED.
7. MINIMUM DEPTH OF TOPSOIL SHOULD BE 12 INCHES.

EARTHWORK SPECIFICATIONS

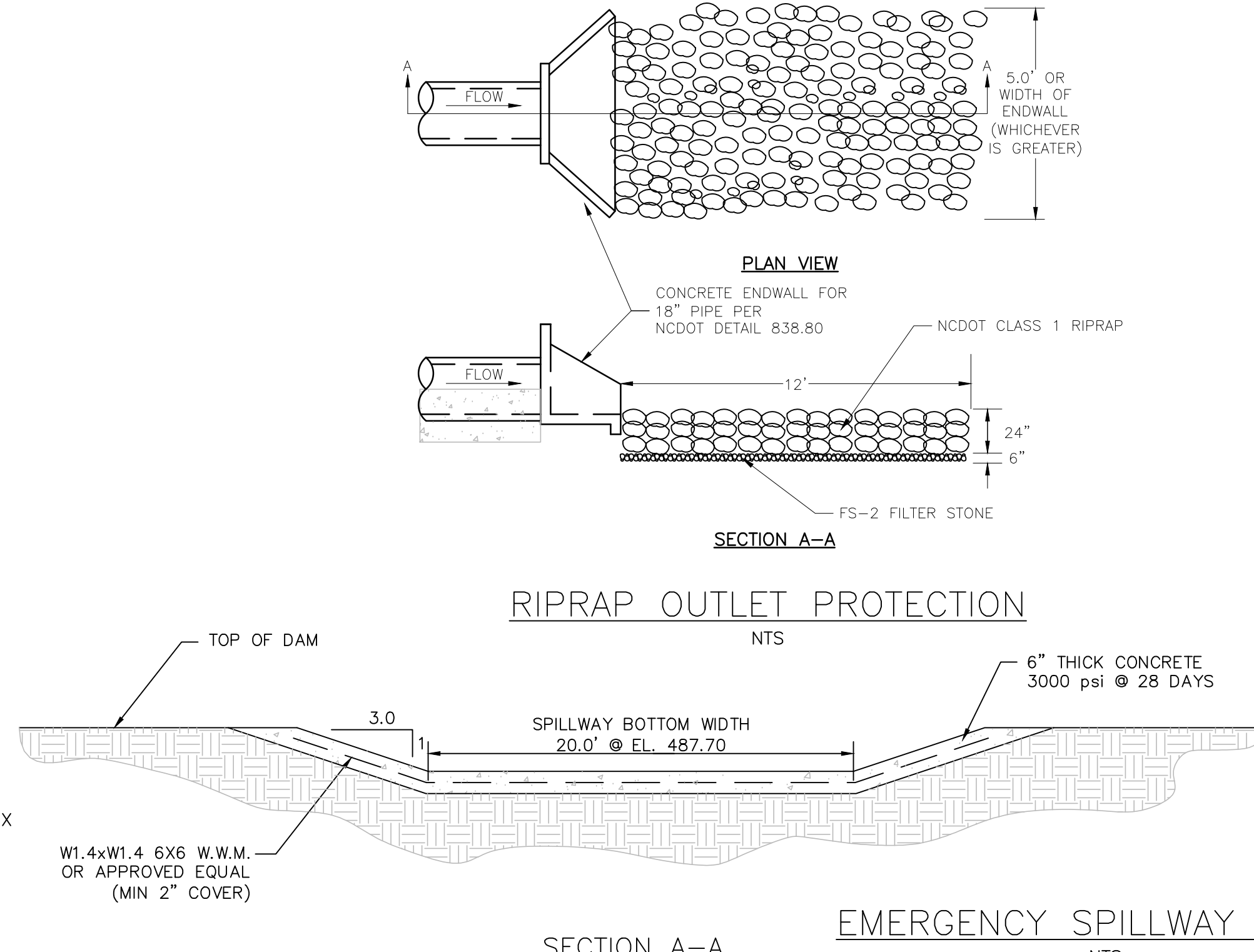
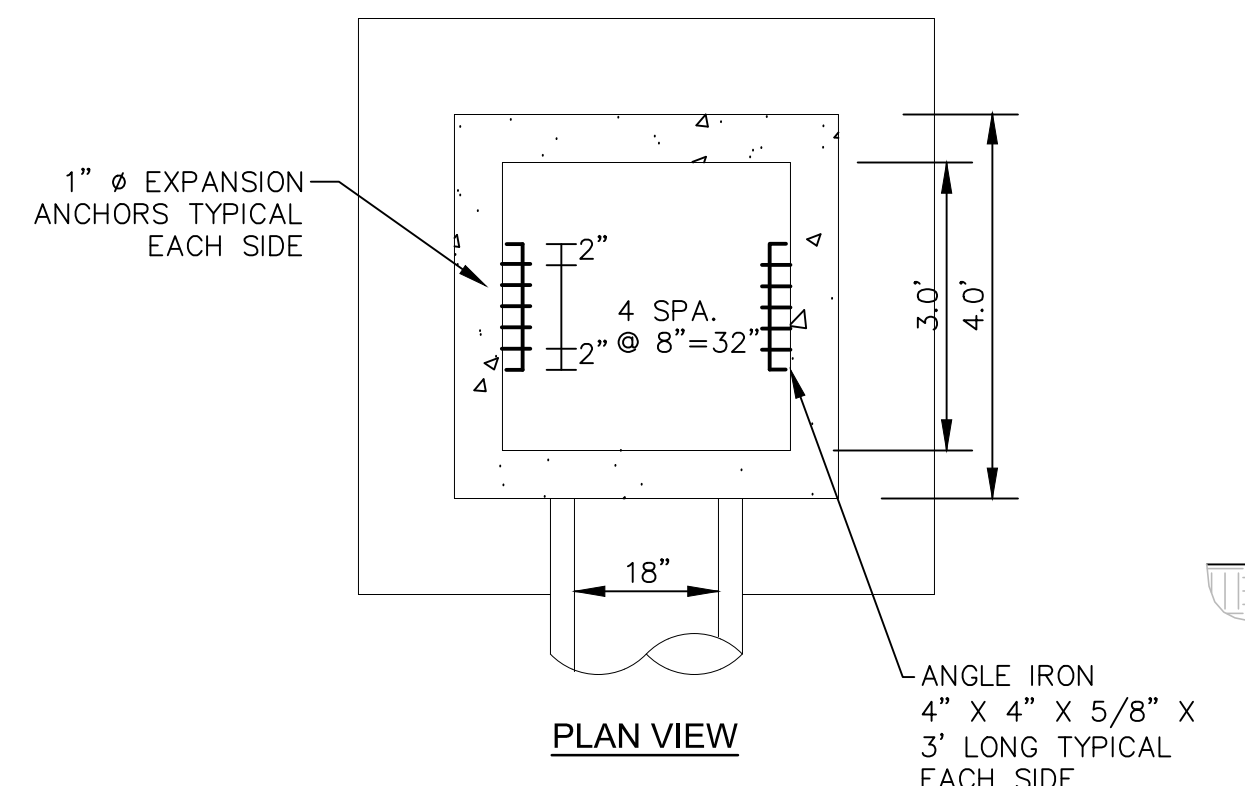
1. GRADE TO ELEVATIONS AND DIMENSIONS SHOWN ON DRAWINGS. GRADED ELEVATIONAL TOLERANCE SHALL BE ±0.1 FT.
2. TOPSOIL MATERIAL SHALL BE APPROVED BY ENGINEER PRIOR TO USE BASED ON SOIL PROPERTY TEST SUBMITTALS THAT INCLUDE STANDARD TEST METHOD FOR PARTICLE-SIZE ANALYSIS (ASTM D422), PARTICLE SIZE ANALYSIS OF SOILS (AASHTO T88), AND NCDA SOIL ANALYSIS.
3. INSTALL FINAL COVER IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS WHERE APPLICABLE.

CLAY LINER SPECIFICATIONS

IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE BMP AREA UP TO THE NORMAL POOL ELEVATION. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTONITE CL. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.01 IN/HR OR LESS IN ACCORDANCE WITH THE NCDENR BMP MANUAL. THE PROPOSED MATERIAL FOR THIS LINER SHALL BE TESTED BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THE RESULTS OF THIS TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO PLACEMENT. UPON COMPLETION OF LINER INSTALLATION, A 4" MINIMUM LAYER OF TOPSOIL SHALL BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



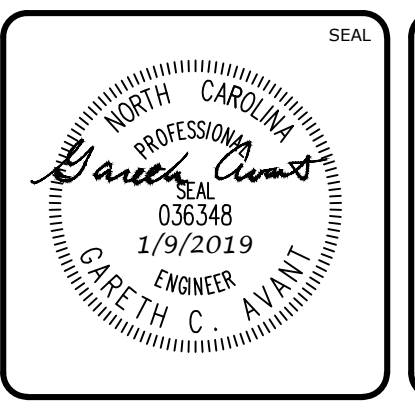
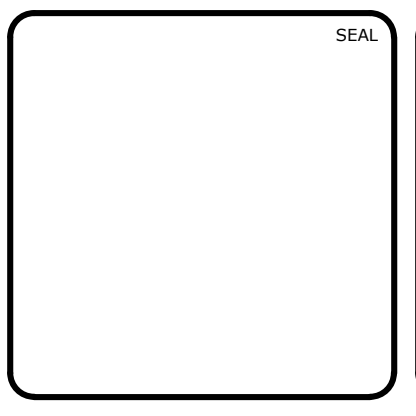
PRINCIPLE SPILLWAY
SCALE = 1" = 2'



SECTION A-A
NTS

EMERGENCY SPILLWAY DETAIL
NTS

REV. NO.	DESCRIPTIONS	DATE
5	REVISIONS PER COUNTY EROSION CONTROL COMMENTS	2019.01.09
4	REVISIONS PER NCDOT COMMENTS	2019.01.07
3	REVISIONS PER NCDOT COMMENTS	2018.12.17
2	REVISIONS PER CHATHAM COUNTY PUBLIC WORKS	2018.11.06
1	INITIAL SUBMITTAL	2018.10.23

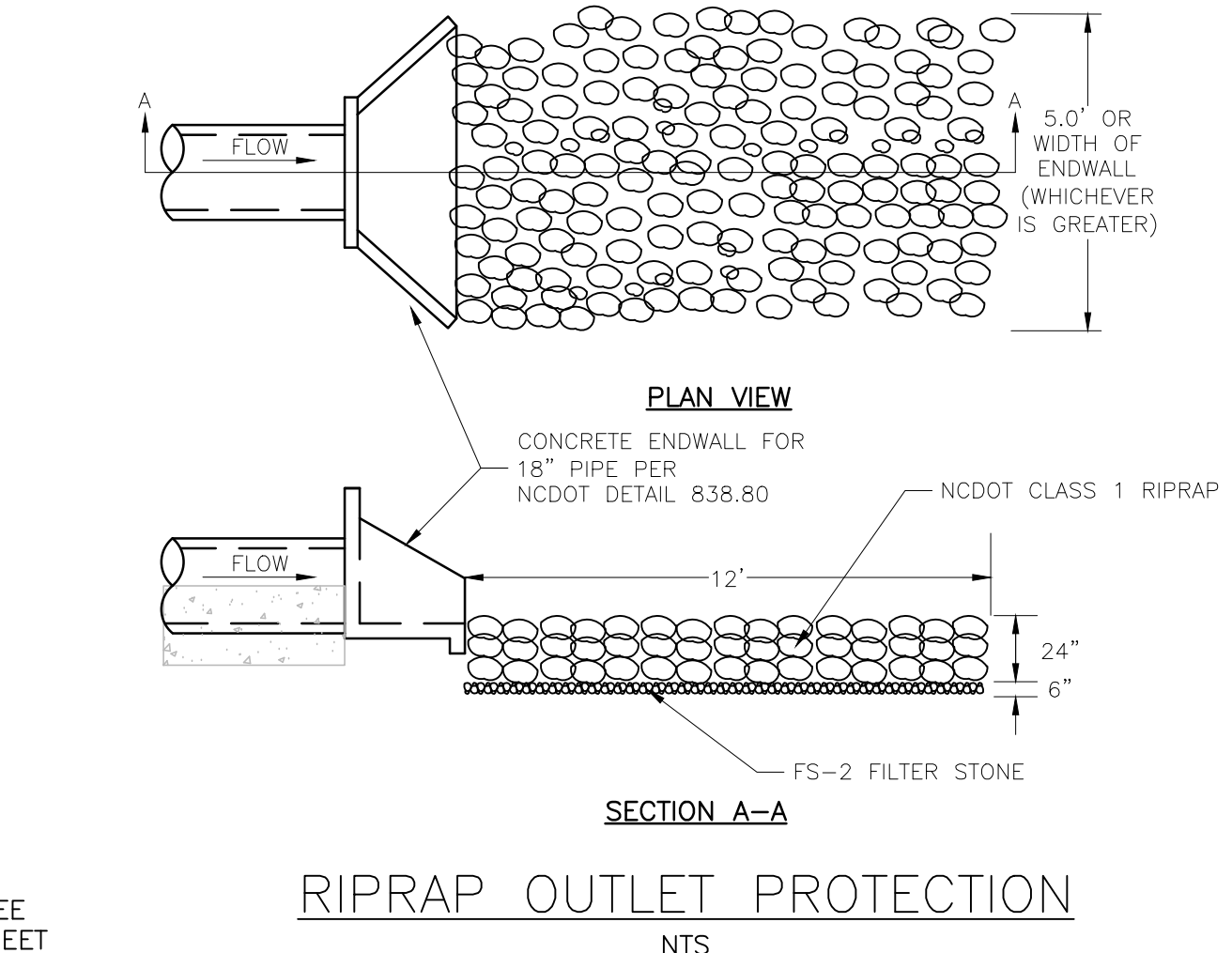
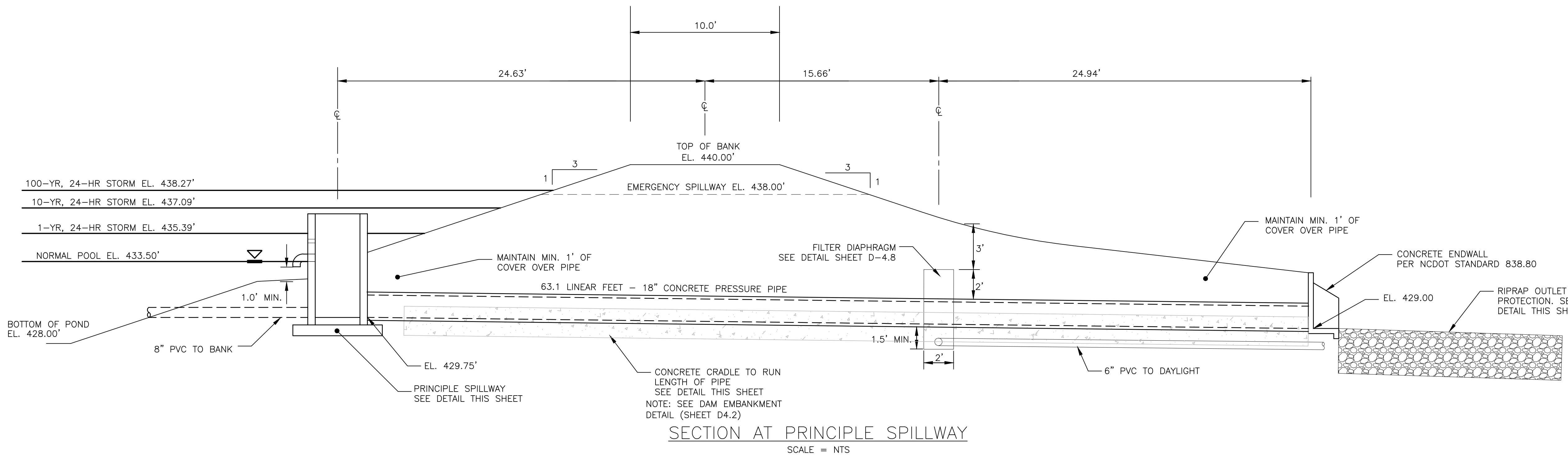
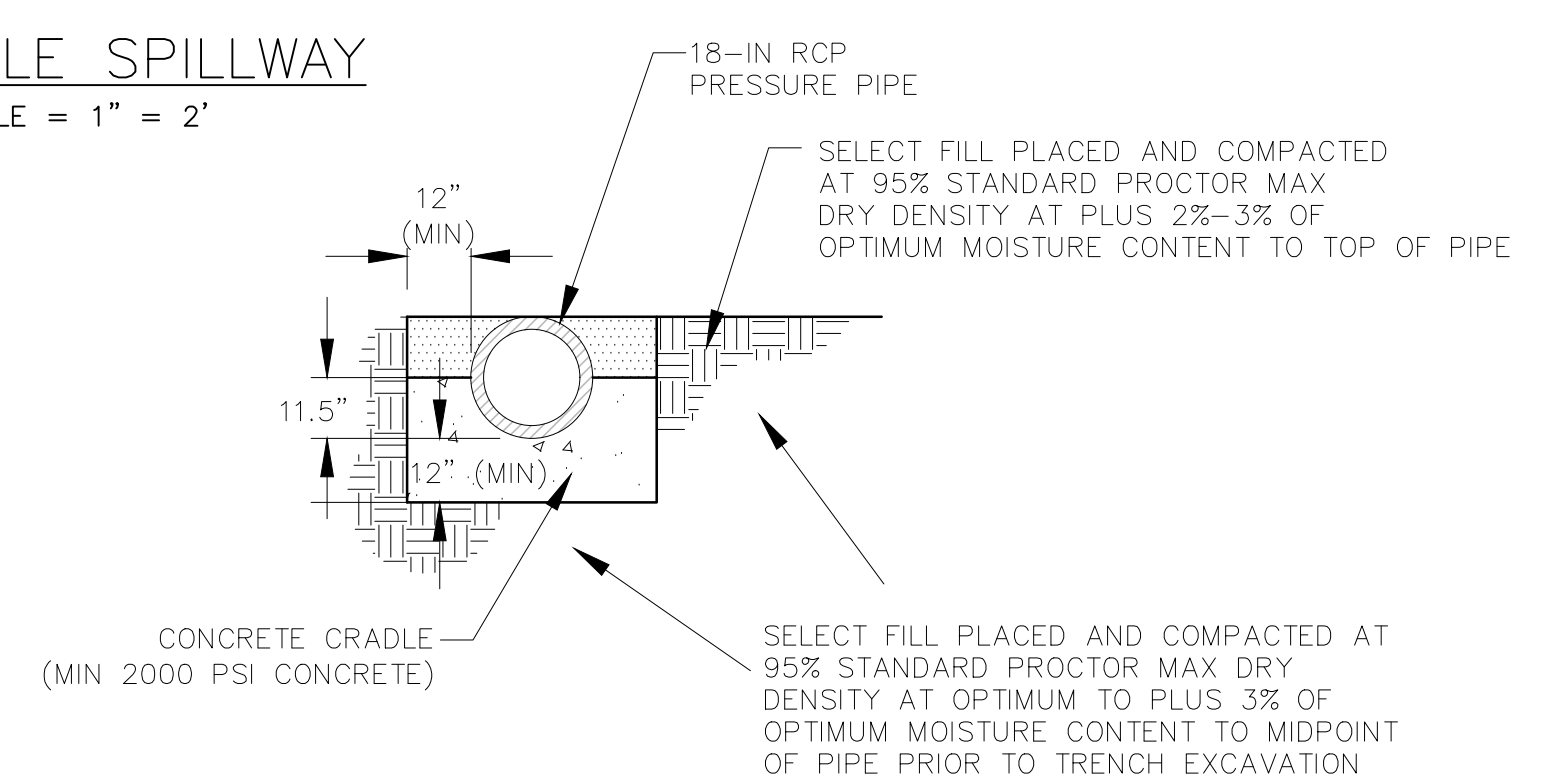
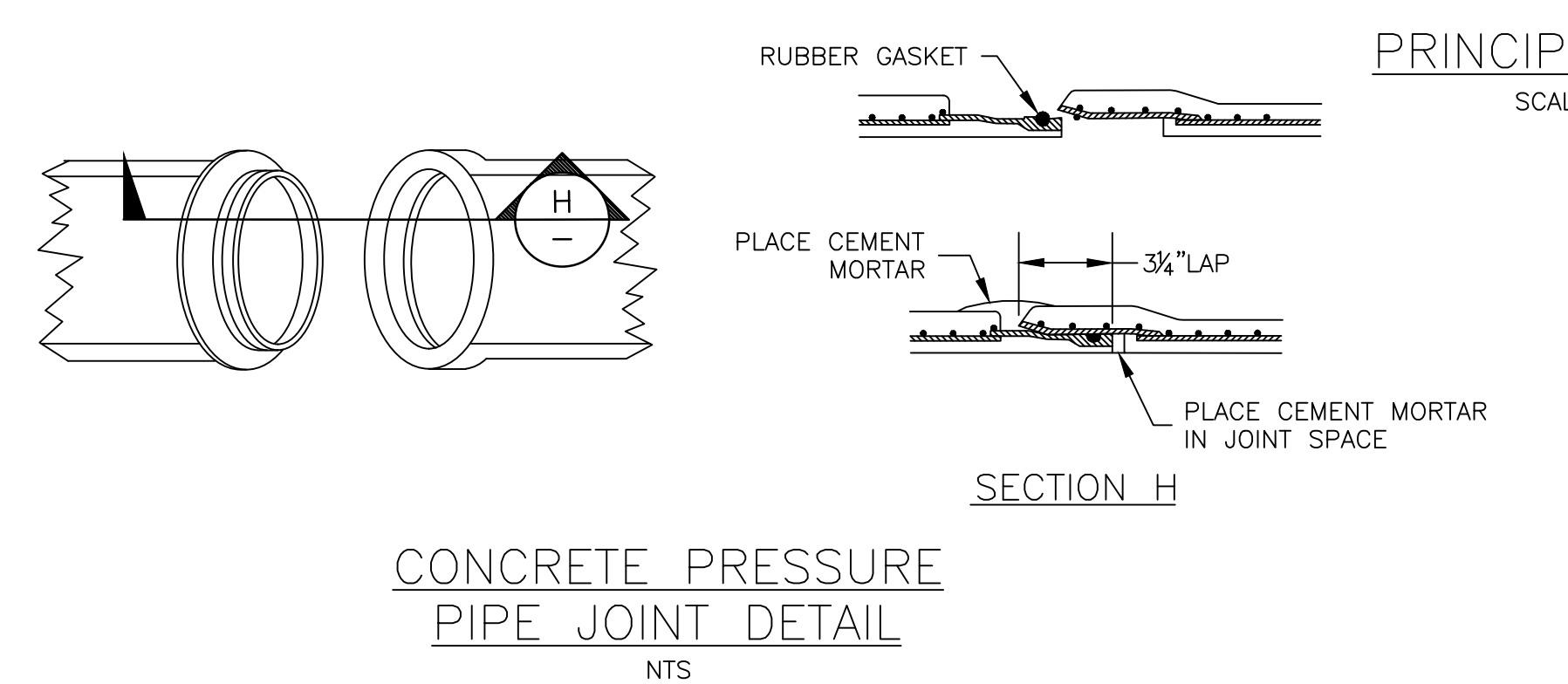
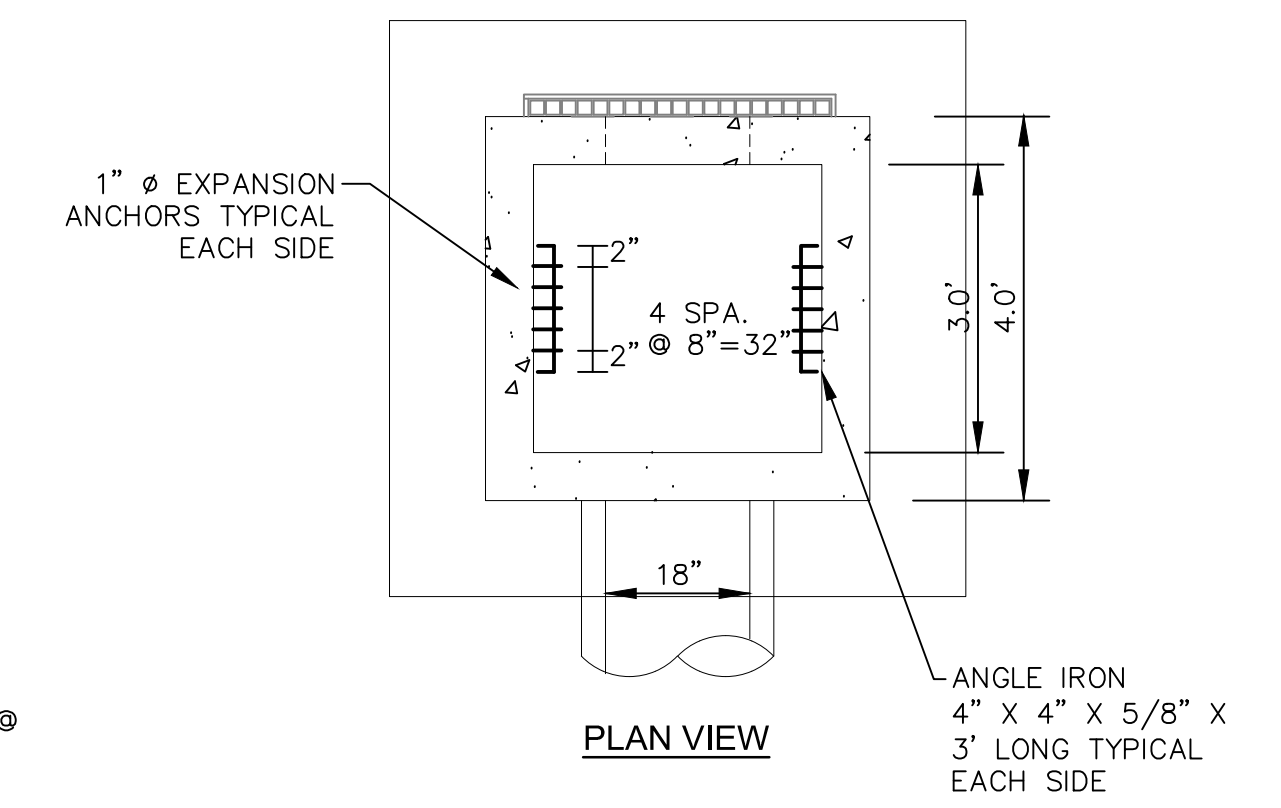
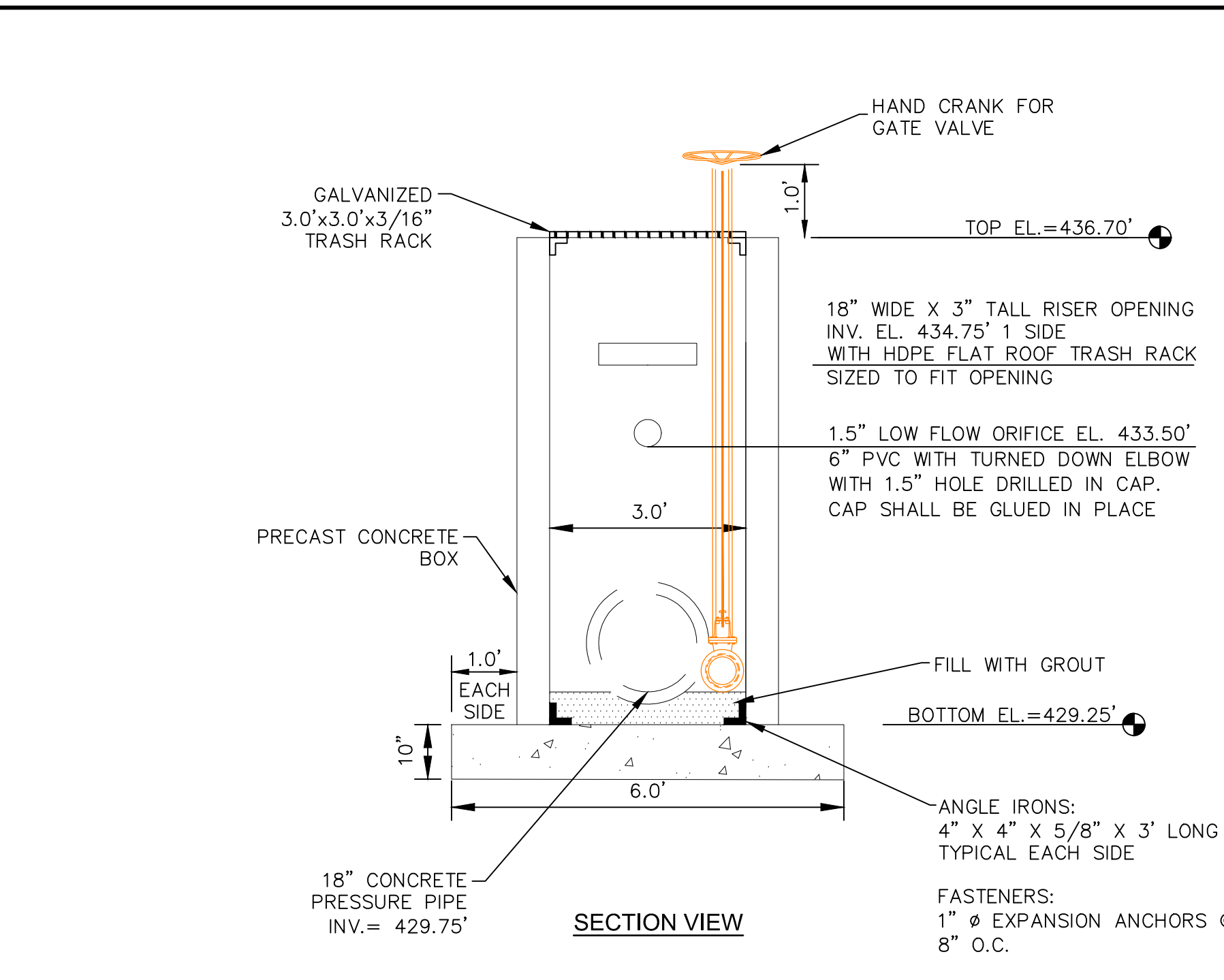
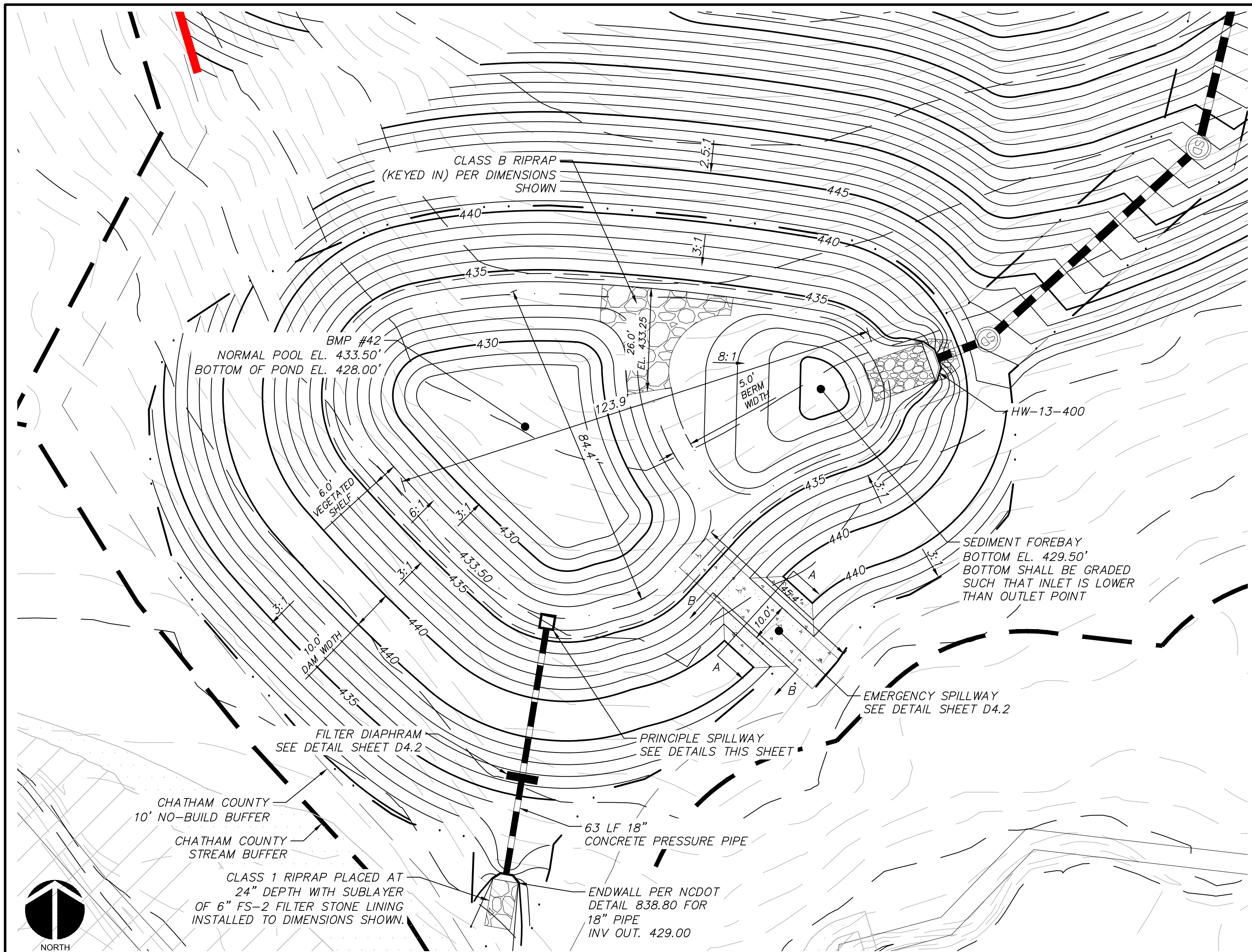


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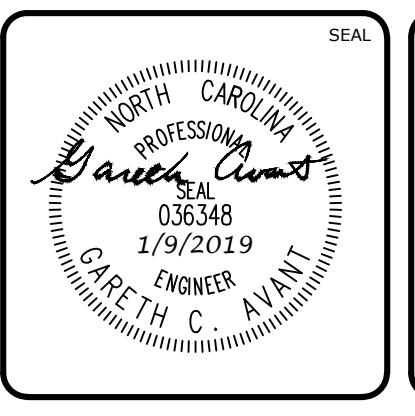
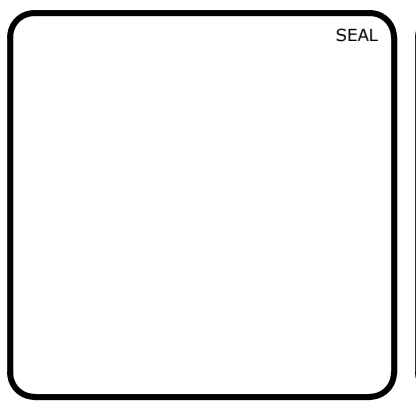
BRIAR CHAPEL™
by
Newland COMMUNITIES

BRIAR CHAPEL
PHASE 13 - SECTION 3
CHATHAM COUNTY, NORTH CAROLINA
BMP #41 PLAN & DETAILS

DATE: OCTOBER 23, 2018	SCALE: D4.1	MFC FILE NUMBER: D4.1
MCE PROJ. # 02735-0239	HORIZONTAL: AS NOTED	DRAWING NUMBER: D4.1
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR. CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 5	



REV. NO.	DESCRIPTIONS / REVISIONS	DATE
5	REVISIONS PER COUNTY EROSION CONTROL COMMENTS	2019.01.09
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1	INITIAL SUBMITTAL	2018.10.23



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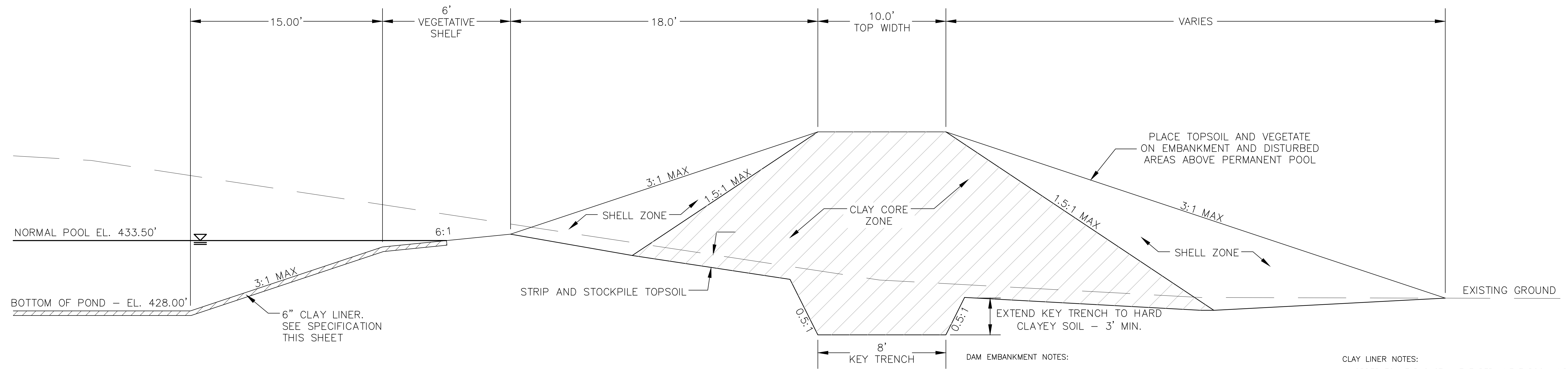
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by **Newland COMMUNITIES**

**BRIAR CHAPEL
PHASE 13 - SECTION 3
CHATHAM COUNTY, NORTH CAROLINA**

BMP #42 PLAN & DETAILS

DATE: OCTOBER 23, 2018	SCALE: HORIZONTAL: AS NOTED VERTICAL: N/A	M&C FILE NUMBER: D4.2
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DRAWN: BSS	CHECKED: GCA	
DESIGNED: BSS	PROJ. MGR.: CHS	
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 5	



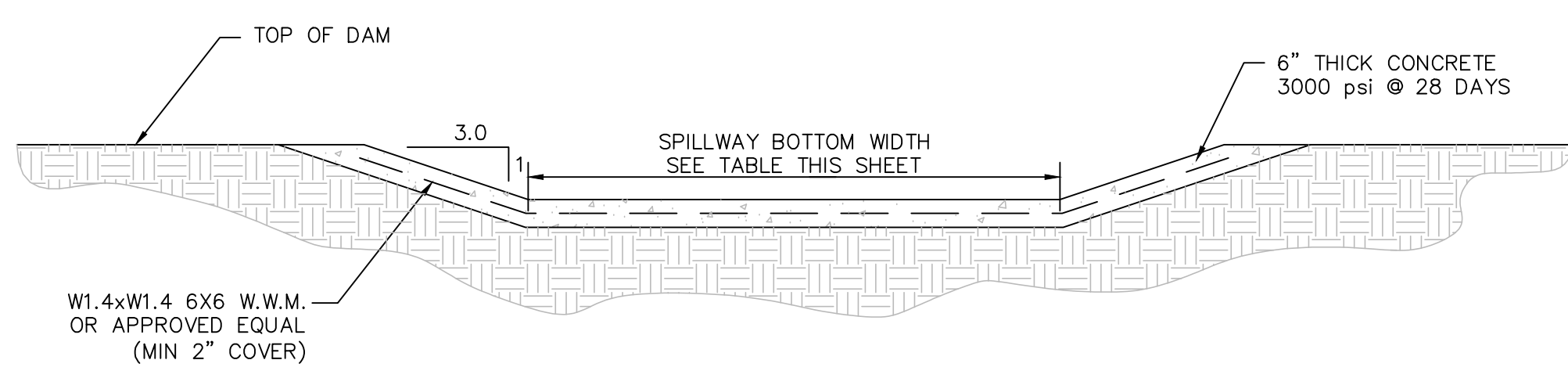
DAM EMBANKMENT DETAIL
NTS

DAM EMBANKMENT NOTES:

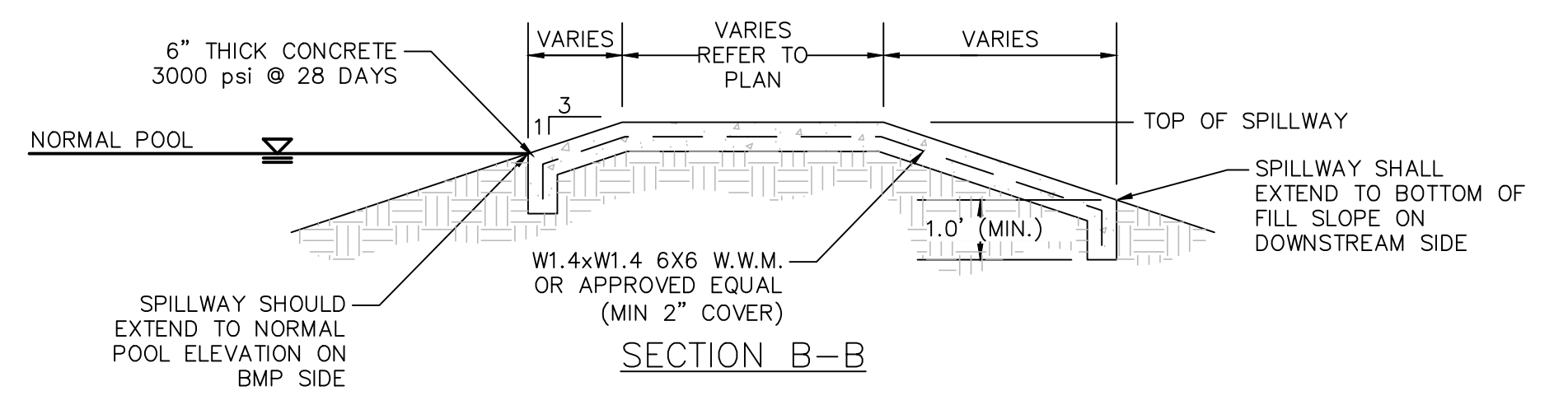
- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE WILL HAVE A MOISTURE CONTENT OF OPTIMUM TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. THE SHELL ZONE FILL WILL HAVE A MOISTURE CONTENT FROM 2 PERCENT BELOW OPTIMUM MOISTURE CONTENT TO 4 PERCENT ABOVE OPTIMUM.
- 3) EMBANKMENT FILL:
SHELL ZONE: SOILS WITH LESS THAN 30% PASSING THE NO. 200 SIEVE OR A PI OF LESS THAN 10 WHEN THE PERCENTAGE OF MATERIAL PASSING THE NO. 200 SIEVE IS GREATER THAN 30 PERCENT. SOILS WHICH ARE CLASSIFIED AS CLAYS (CH OR CL) SHOULD NOT BE USED AT THE FACE OF THE SHELL ZONES.
CLAY CORE ZONE: CH, CL OR SC MATERIAL WITH A PI RANGING BETWEEN 15 AND 60
- 4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.
- 5) A PROFESSIONAL GEOTECHNICAL ENGINEER SHALL APPROVE ALL MATERIALS USED FOR THE EMBANKMENT AND SUPERVISE CONSTRUCTION.
- 6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACW Meadow Mix ERNMX-182

CLAY LINER NOTES:

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SECTION A-A

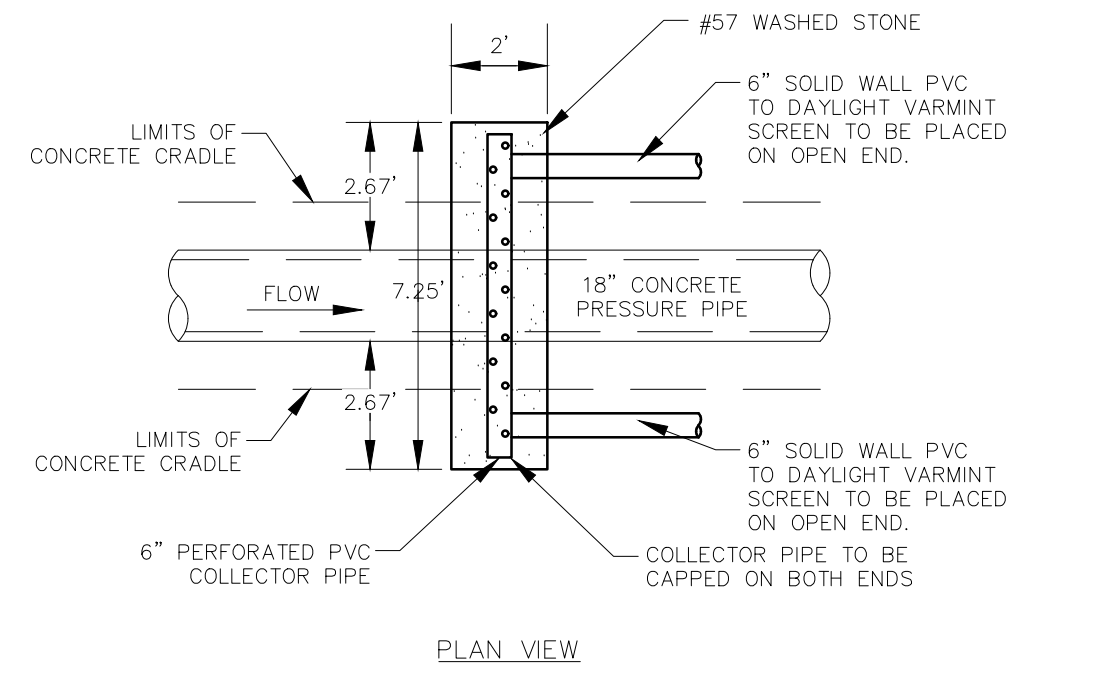


SECTION B-B

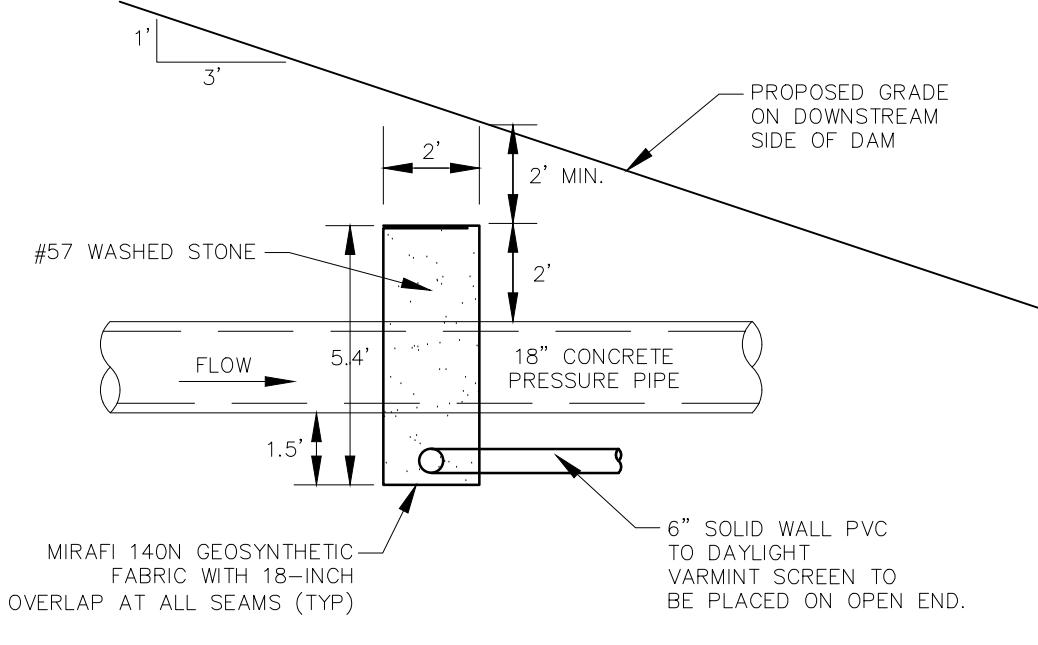
BMP #42	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
	433.50	440.00	438.00	10'

NOTE: EXPANSION/CONTRACTION JOINTS PER AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS FOR SLABS ON GRADE.

EMERGENCY SPILLWAY DETAIL
NTS



PLAN VIEW



FILTER DIAPHRAGM DETAIL
NTS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

11-21
ENGLISH STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

SHEET 1 OF 1
838.80

ELEVATION

SIDE

PLAN

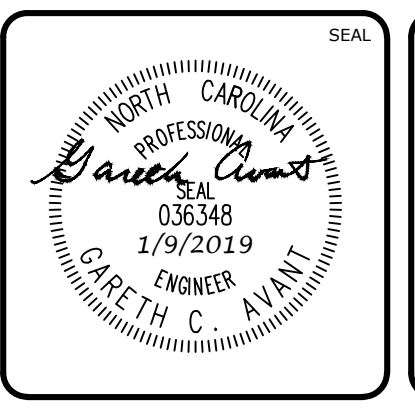
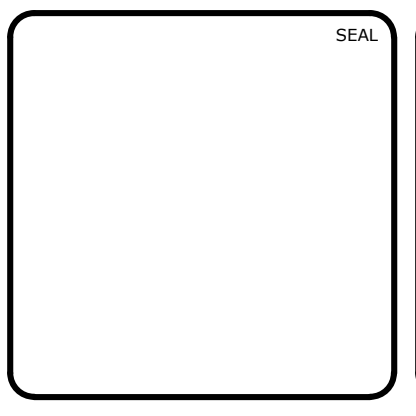
NOTES:

- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.33, 838.39, 838.51, 838.57, 838.63 AND 838.69.
- INSTALL PRECAST ENDWALLS WITH WINGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.
- USE 4000 PSI CONCRETE.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185 WITH 2" MIN. CLEARANCE.
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- PIPE TO BE GROUDED INTO HEADWALL AT JOB SITE BY CONTRACTOR
- ALL ELEMENTS PRECAST TO MEET ASTM C913.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 6" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS						
PIPE DIA.	BAR SIZE	H1 (FT.)	H2 (FT.)	D (FT.)	W1	W2
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.00/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.50/11.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75	12.00/13.25
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

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BRIAR CHAPEL™
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Newland COMMUNITIES

BRIAR CHAPEL
PHASE 13 - SECTION 3
CHATHAM COUNTY, NORTH CAROLINA

BMP #42 PLAN & DETAILS

DATE: OCTOBER 23, 2018
MCE PROJ. # 02735-0239
DRAWN: BSS
DESIGNED: BSS
CHECKED: GCA
PROJ. MGR. CHS

SCALE: HORIZONTAL: AS NOTED
VERTICAL: N/A

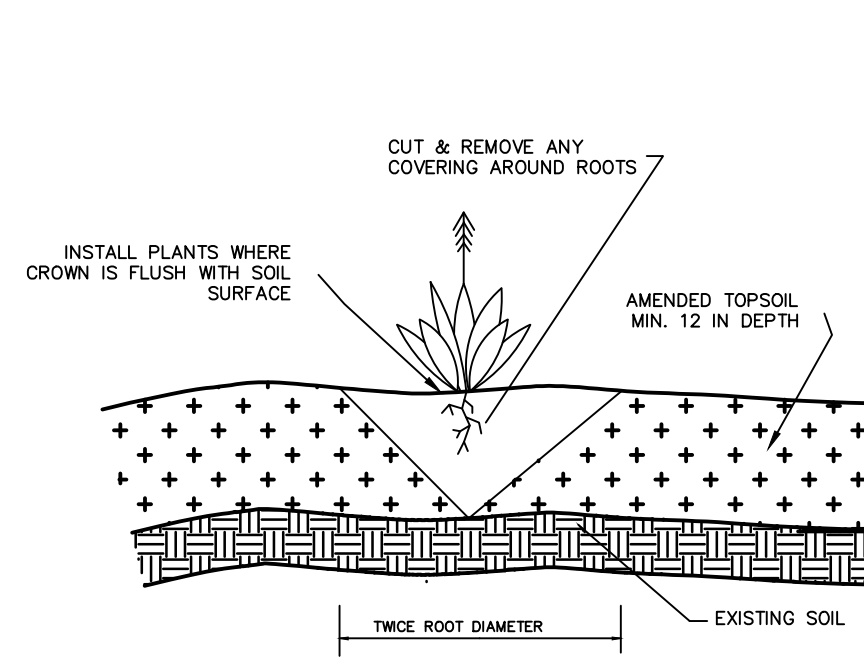
M&C FILE NUMBER: D4.X
DRAWING NUMBER: D4.3

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 5

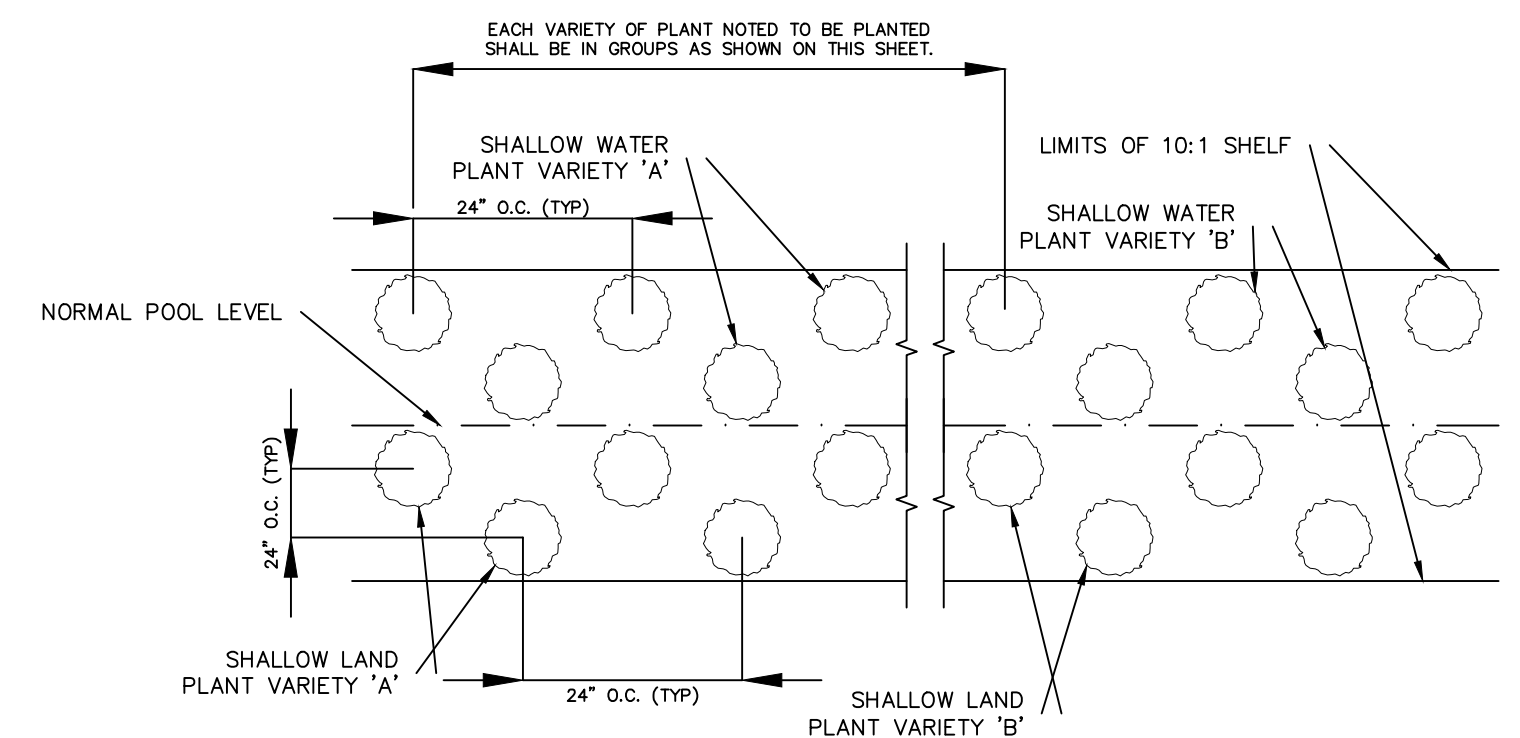


WET DETENTION POND #42 PLANTING PLAN
SCALE = 1" = 10'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
	SF	SWEETFLAG	<i>Acorus subcordatum</i>	35	24"-30" O.C.	1 QT.
	PW	PICKERELWEED	<i>Pontederia cordata</i>	35	24"-30" O.C.	1 QT.
	BFI	BLUE FLAG IRIS	<i>Iris virginica</i>	35	24"-30" O.C.	1 QT.
	SR	SOFT RUSH	<i>Juncus effusus var. pygmaei or solutus</i>	35	24"-30" O.C.	1 QT.
	TSB	THREE SQUARE BULRUSH	<i>Schoenoplectus americanus</i>	35	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
	SM	SWAMP MILKWEED	<i>Asclepias incarnata</i>	30	24"-30" O.C.	1 QT.
	CF	CARDINAL FLOWER	<i>Lobelia cardinalis</i>	30	24"-30" O.C.	1 QT.
	SRM	SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	30	24"-30" O.C.	1 QT.
	JPW	DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	30	24"-30" O.C.	1 QT.
	ST	SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	30	24"-30" O.C.	1 QT.



GENERAL PLANTING DETAIL
NTS



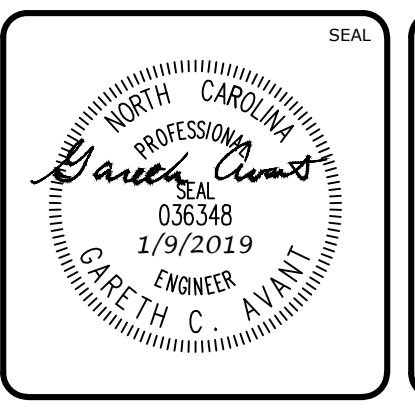
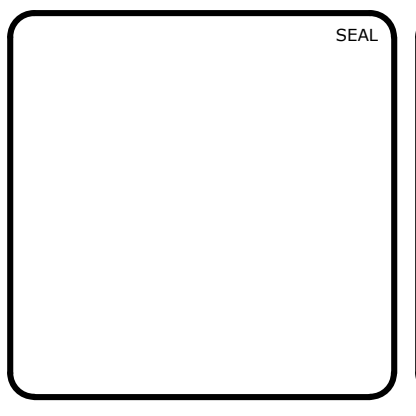
VEGETATED PLANTING SHELF DETAIL
NTS

NOTES:
1. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW WATER PLANTING ZONE.
2. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW LAND PLANTING ZONE.
3. OTHER SPECIES WITH SIMILAR GROWTH HABITS AND MAY BE APPROVED AS LISTED IN THE "STORMWATER BEST MANAGEMENT PRACTICES MANUAL" TABLE 9-1.

- GENERAL PLANTING NOTES:**
1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
 2. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
 3. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
 4. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
 5. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADEQUATE TIME TO ESTABLISH BEFORE WINTER MONTHS.
 6. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252-482-5707), MELLOW MARSH FARMS (919-742-1200), CURE NURSERY (919-542-6186) OR ENGINEER APPROVED SUBSTITUTE.
 7. REFER TO EROSION CONTROL DETAIL SHEET D1.2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

- SHALLOW WATER PLANTING NOTES:**
1. 70% OF PICKERELWEED SHOULD BE PLANTED WITHIN 5-6 INCHES BELOW NORMAL POOL.
 2. 70% OF SWEETFLAG AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2-3 INCHES BELOW NORMAL POOL.
 3. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.
- SHALLOW LAND PLANTING NOTES:**
1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.

REV. NO.	DESCRIPTIONS	DATE
5	REVISIONS PER COUNTY EROSION CONTROL COMMENTS	2019.01.09
4	REVISIONS PER NCDOT COMMENTS	2019.01.07
3	REVISIONS PER NCDOT COMMENTS	2018.12.17
2	REVISIONS PER CHATHAM COUNTY PUBLIC WORKS	2018.11.06
1	INITIAL SUBMITTAL	2018.10.23



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BMP #42 PLAN & DETAILS

DATE: OCTOBER 23, 2018	SCALE: HORIZONTAL: AS NOTED	M&C FILE NUMBER: D4.X
M&C PROJ. # 02735-0239	VERTICAL: N/A	DRAWING NUMBER: D4.4
DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 5	

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CB-13-502	DI-13-501A	500.00	499.35	24"	RCP	120.9	0.54%
CB-13-601	DI-13-600B	490.20	489.75	18"	RCP	84.6	0.53%
CI-13-302	SDMH-13-301	484.45	484.35	30"	RCP	12.0	0.83%
CI-13-303	CI-13-310	496.10	495.95	15"	RCP	24.5	0.61%
CI-13-304	CI-13-308	497.45	497.30	15"	RCP	24.5	0.61%
CI-13-305	CI-13-306	503.90	503.75	15"	RCP	24.6	0.61%
CI-13-306	CI-13-307	503.65	498.80	15"	RCP	90.9	5.33%
CI-13-307	CI-13-308	498.70	497.10	15"	RCP	94.0	1.70%
CI-13-308	CI-13-309	497.00	496.40	15"	RCP	81.9	0.73%
CI-13-309	CI-13-310	496.20	495.60	18"	RCP	80.9	0.74%
CI-13-310	CI-13-311	495.50	494.70	18"	RCP	78.6	1.02%
CI-13-311	CI-13-312	494.60	493.10	18"	RCP	80.0	1.88%
CI-13-312	CI-13-313	493.00	491.30	18"	RCP	80.0	2.12%
CI-13-313	CI-13-302	484.70	484.55	30"	RCP	24.5	0.61%
CI-13-314	CI-13-313	485.30	484.80	24"	RCP	82.0	0.61%
CI-13-316	CI-13-321	490.65	490.50	15"	RCP	24.5	0.61%
CI-13-317	CI-13-320	498.65	498.50	15"	RCP	24.5	0.61%
CI-13-318	CI-13-319	503.95	503.80	15"	RCP	24.5	0.61%
CI-13-319	CI-13-320	503.70	498.30	15"	RCP	113.1	4.78%
CI-13-320	CI-13-321	498.20	490.00	15"	RCP	166.1	4.94%

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-13-321	DBL CI-13-322	489.90	487.65	18"	RCP	103.2	2.18%
CI-13-405	DBL CI-13-404	478.15	470.00	24"	RCP	115.2	7.07%
CI-13-406	CI-13-405	484.90	478.25	24"	RCP	111.6	5.96%
CI-13-407	CI-13-406	493.00	485.00	18"	RCP	108.9	7.35%
CI-13-408	CI-13-407	499.50	493.10	15"	RCP	106.9	5.98%
CI-13-409	CI-13-408	505.40	499.60	15"	RCP	108.9	5.33%
CI-13-410	CI-13-409	505.85	505.70	15"	RCP	24.5	0.61%
CI-13-411	CI-13-407	494.90	494.75	15"	RCP	24.5	0.61%
CI-13-412	CI-13-405	479.60	479.45	15"	RCP	24.5	0.61%
DBL CI-13-315	CI-13-314	486.00	485.40	24"	RCP	108.4	0.55%
DBL CI-13-322	DBL CI-13-315	486.30	486.10	18"	RCP	24.4	0.82%
DBL CI-13-404	SDMH-13-403	467.00	460.50	24"	RCP	71.9	9.04%
DI-13-501A	SDMH-13-501	499.25	498.90	24"	RCP	59.8	0.59%
DI-13-600A	FES-13-600	489.30	489.10	18"	RCP	31.0	0.64%
DI-13-600B	DI-13-600A	489.65	489.40	18"	RCP CLASS IV	43.4	0.58%
SDMH-13-301	HW-13-300	484.25	484.00	30"	RCP	25.6	0.98%
SDMH-13-401	HW-13-400	434.50	434.00	24"	RCP	13.5	3.70%
SDMH-13-402	SDMH-13-401	442.00	435.40	24"	RCP	72.1	9.15%
SDMH-13-403	SDMH-13-402	453.25	446.75	24"	RCP	69.8	9.31%
SDMH-13-501	FES-13-500	498.70	498.00	24"	RCP	46.3	1.51%

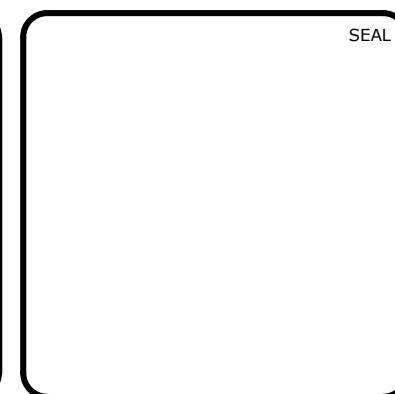
*ALL PIPE RUNS ARE TO BE RCP CLASS III UNLESS OTHERWISE NOTED ABOVE

STORM SEWER RIM TABLE	
STRUCTURE	RIM ELEVATION
CB-13-502	504.25
CB-13-601	493.91
CI-13-302	496.69
CI-13-303	500.90
CI-13-304	502.12
CI-13-305	508.60
CI-13-306	508.61
CI-13-307	503.85
CI-13-308	502.11
CI-13-309	501.50
CI-13-310	500.90
CI-13-311	500.02
CI-13-312	498.42
CI-13-313	496.68
CI-13-314	494.90
CI-13-316	495.12
CI-13-317	503.32
CI-13-318	508.47
CI-13-319	508.47
CI-13-320	503.30
CI-13-321	495.15
CI-13-405	484.46

STORM SEWER RIM TABLE	
STRUCTURE	RIM ELEVATION
CI-13-406	492.27
CI-13-407	499.64
CI-13-408	505.16
CI-13-409	510.56
CI-13-410	510.59
CI-13-411	499.63
CI-13-412	484.41
DBL CI-13-315	493.10
DBL CI-13-322	493.10
DBL CI-13-404	476.58
DI-13-501A	508.45
DI-13-600A	494.49
DI-13-600B	494.50
FES-13-500	501.08
FES-13-600	490.89
HW-13-300	487.79
HW-13-400	437.25
SDMH-13-301	497.32
SDMH-13-401	442.31
SDMH-13-402	453.53
SDMH-13-403	466.89
SDMH-13-501	505.00

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-706	SSMH-701	493.20	489.25	8"	PVC	314.3	1.26%
SSMH-708	SSMH-706	495.70	493.40	8"	PVC	303.7	0.76%
SSMH-709	SSMH-708	504.00	497.50	8"	PVC	94.0	6.92%
SSMH-710	SSMH-709	508.15	505.00	8"	PVC	131.4	2.40%

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**STORM DRAINAGE &
 SANITARY SEWER TABLES**

DATE:	OCTOBER 23, 2018
MCE PROJ. #	02735-0239
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE	D4.5
HORIZONTAL:	N/A
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MAC FILE NUMBER	D4.5
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