

EROSION AND SEDIMENT CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT APPROVED

EROSION CONTROL S-XXXX

STORMWATER MGMT. S-XXXX

FLOOD STUDY _____

DATE xx/xx/20 _____



ENVIRONMENTAL CONSULTANT SIGNATURE

ACCORDING TO PRIOR AGREEMENT WITH THE CORPUD, THE KALAS FALLS PHASE 3 SUBDIVISION PLANS CAN BE APPROVED WITHOUT THE APPROVAL OF THE HARRIS CREEK SEWER REPLACEMENT PLAN APPROVAL. THE HARRIS CREEK REPLACEMENT WILL BE REQUIRED TO BE DESIGNED AND APPROVED AT THE TIME THE DOWNTOWN SEWER HAS REACHED 65% CAPACITY. THE 65% CAPACITY IS BASED ON THE APPROVED SEWER STUDY FOR THE KALAS FALLS SUBDIVISION WHICH INCLUDES LOTS WITHIN THIS PHASE. NO ADDITIONAL BUILDING PERMITS CAN BE ISSUED WITHIN THIS PHASE ONCE THE HARRIS CREEK SEWER LEG OR LEGS REACH 65% AND UNTIL THE REPLACEMENT DESIGN HAS BEEN APPROVED.

CONSTRUCTION DRAWINGS

FOR KALAS FALLS PHASE 3

CD 21-07

SITUATED AT

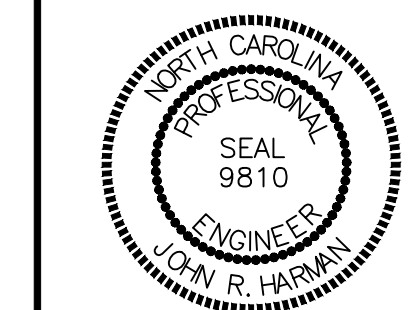
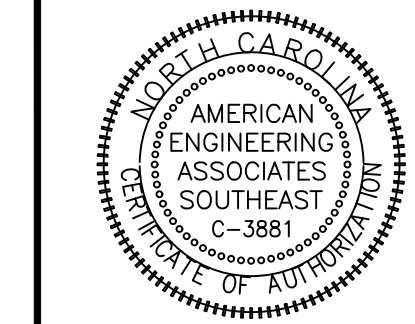
ROLESVILLE ROAD, ROLESVILLE

WAKE COUNTY, NORTH CAROLINA

1ST CD SUBMITTAL: 02-19-2021
 2ND CD SUBMITTAL: 08-17-2021
 3RD CD SUBMITTAL: 12-03-2024
 4TH CD SUBMITTAL: 02-03-2025

PROPERTY OWNER:	MITCHELL MILL ROAD INVESTORS LLC CONTACT: KARL BLACKLEY 105 WESTON ESTATES WAY CARY, NC 27513 919-481-3000
DEVELOPER:	MITCHELL MILL ROAD INVESTORS LLC CONTACT: KARL BLACKLEY 105 WESTON ESTATES WAY CARY, NC 27513 919-481-3000
SURVEYOR:	WITHERS RAVENEL CONTACT: MATT TIMBLIN 115 MACKENAN DRIVE CARY, NC 27511 919-469-3340
BUFFER/WETLAND:	WITHERS RAVENEL CONTACT: TROY BEASLEY 115 MACKENAN DRIVE CARY, NC 27511 919-469-3340

SHEET INDEX	
CVR	COVER SHEET
1.0	OVERALL EXISTING CONDITIONS
1.1-1.2	EXISTING CONDITIONS PHASE 3
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2.2-2.6	EROSION CONTROL(50 SCALE)
2.7	CULVERT CROSSING DETAILS
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10.0	DONNINGTON HILL DR PLAN AND PROFILE
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14.0	BROOKBANK DR PLAN AND PROFILE
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NO.	DATE	REVISION
1	7/27/2021	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT,
2	9/14/2024	WAKE COUNTY AND CITY OF RALEIGH CONSULTANT COMMENTS
3	10/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

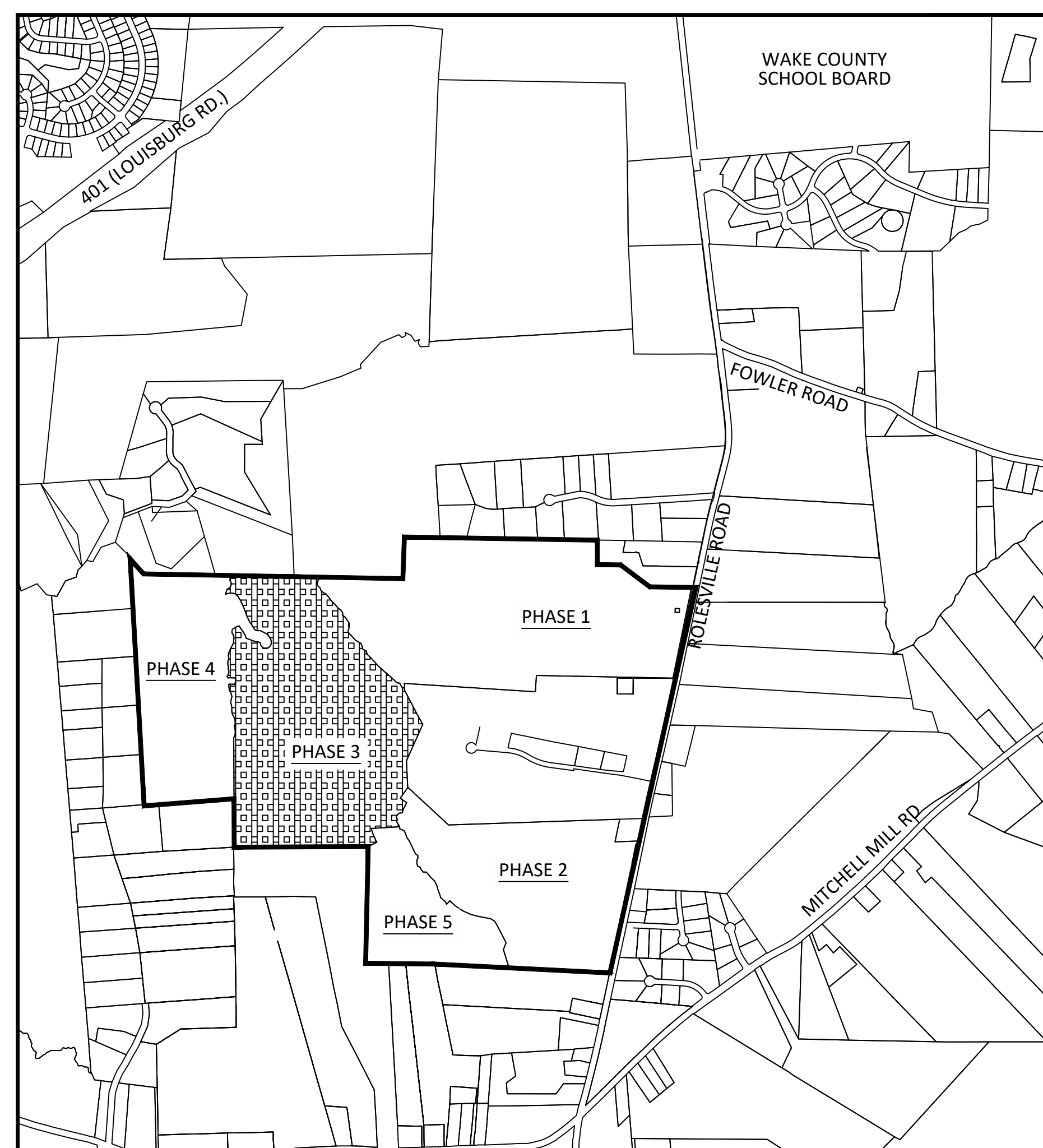
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:

COVER SHEET
 SHEET NO.: CVR



VICINITY MAP
 SCALE: 1"=1000'

THESE IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE FOLLOWING DRAWINGS AND THE STANDARD SPECIFICATIONS OF THE TOWN OF ROLESVILLE, THE CITY OF RALEIGH, WAKE COUNTY, AND NCDOT.

PUBLIC IMPROVEMENTS PHASE 3	
PUBLIC WATER (12")	4,230 LF
PUBLIC WATER (8")	5,803 LF
PUBLIC WATER (6")	411 LF
PUBLIC SEWER (8")	8,567 LF
PUBLIC STREETS	10,273 LF
TOTAL NO. OF LOTS	145
LIMITS OF DISTURBANCE	28.04 AC

RALEIGH WATER INSECTIONS QUANTITIES (SUBDIVISIONS AND SITE PLANS)	
PHASE NUMBERS	PHASE 3
NUMBER OF LOT(S)	145
NUMBER OF UNITS	145
PUBLIC WATER (LF)	10417
PUBLIC SEWER (LF)	8,567
PUBLIC FORCE MAIN (LF)	N/A
PRIVATE SEWER* (LF)	N/A
WATER SERVICE STUBS (QUANTITY)	146
SEWER SERVICE STUBS (QUANTITY)	146
AVERAGE DAILY FLOW PER PHASE**	38,325

*Sewer mains and manholes as part of a collection system
 **Entire Project Flow. Based on 75gpd per bedroom for residential (Apartments, single Family dwelling, townhouse, condos), or based on 15A NCAC 02T .0114 Wastewater Design Flow Rates for Commercial and Industrial.
 The meter size must match domestic service size (Exemption - 3/4" service tap with 5/8" meter)

PROJECT NARRATIVE

THIS PROJECT IS LOCATED IN ROLESVILLE, NORTH CAROLINA AT ROLESVILLE ROAD. IT INVOLVES THE COMBINING OF SEPARATELY PROPOSED PROJECTS KNOWN AS KALAS FALLS, ROGERS FARM AND ONE OTHER TRACT KNOWN AS THE WATKINS PROPERTY. IT DRAINS TO TRIBUTARIES OF HARRIS BRANCH WHICH IS PART OF THE NEUSE RIVER BASIN. IT IS ALSO BOUNDED ON ALL SIDES BY MOSTLY UNDEVELOPED LAND. IT IS APPROXIMATELY 0.5 MILES NORTHWEST OF THE INTERSECTION OF MITCHELL MILL ROAD AND ROLESVILLE ROAD IN WAKE COUNTY, NORTH CAROLINA. THE TOTAL AREA OF THE PROJECT IS 282.726 AC(EXCLUDES EXISTING ROW AND CEMETERY).THE CURRENT PHASE IS 79.96 ACRES.

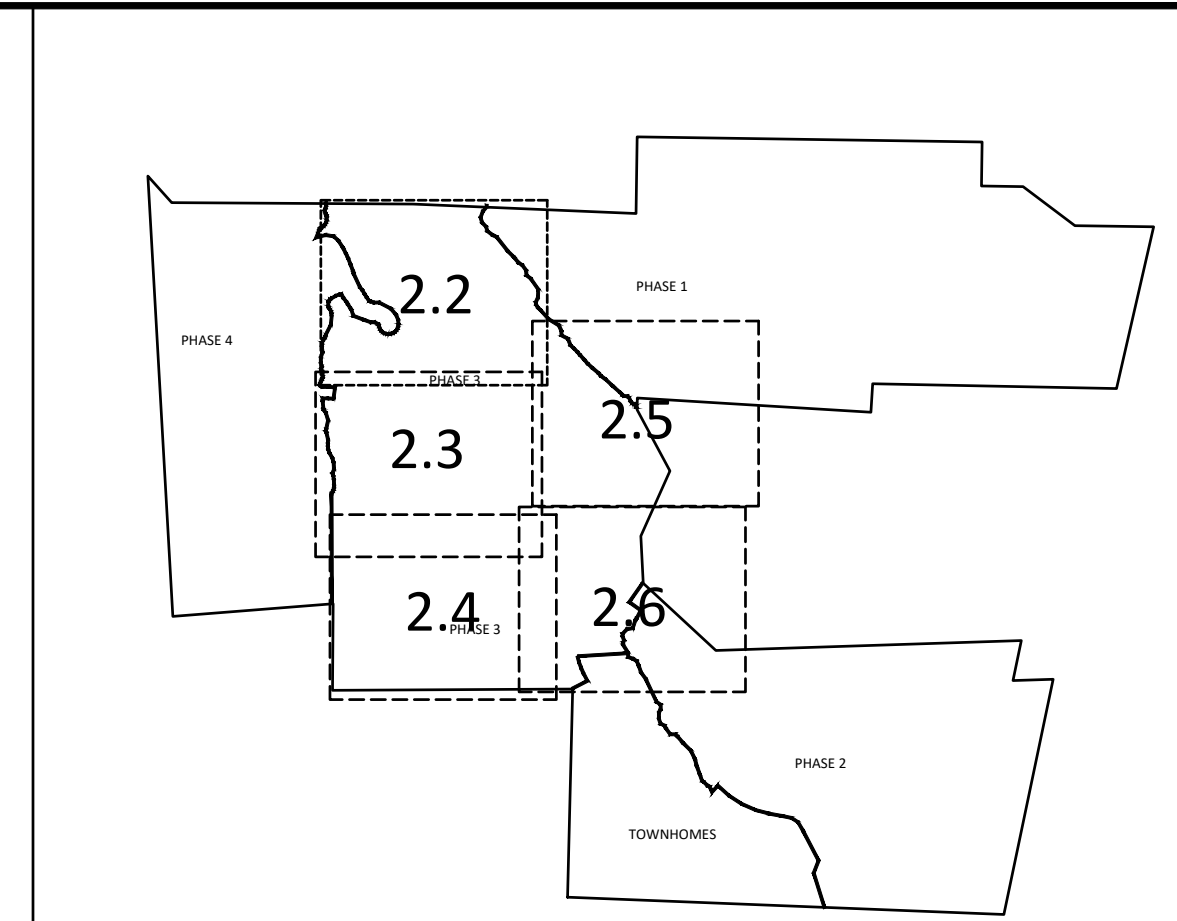
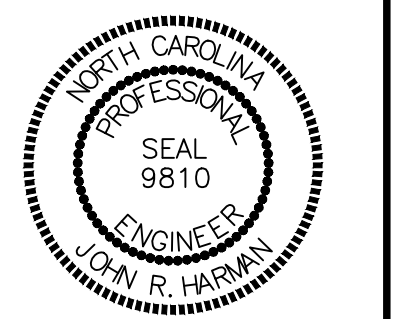
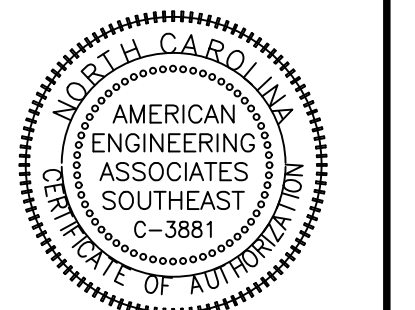
GENERAL NOTES:

- ALL PUBLIC WATER AND SEWER MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL CONTACT NORTH CAROLINA ONE CALL (1-800-632-4949) TO LOCATE ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE EXISTING UTILITIES AND NOTIFY THE PROJECT ENGINEER (919-469-1101) OF ANY CONFLICTS.
- ALL BOUNDARY AND FIELD TOPOGRAPHY PROVIDED BY WITHERS & RAVENEL.

Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

Public Water Distribution / Extension System
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 City of Raleigh
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North Carolina 811
 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-632-4949
 Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>



GRAPHIC SCALE 1"=100'

EROSION CONTROL LEGEND

	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	BUILDING RESTRICTION LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED 25 x 50 GRAVEL CONSTRUCTION ENTRANCE
	PROPOSED RIP RAP
	BASIN WEIR
	PROPOSED SEDIMENT BASIN
	PROPOSED INLET PROTECTION
	PROPOSED CHECK DAM
	PROPOSED SF OUTLET
	GREENWAY TRAIL HATCH
	PROPOSED AREAS FOR 7 DAY STABILIZATION
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED BASIN MAINTENANCE PAD
	PROPOSED WATTLE
	PROPOSED SILT FENCE
	LIMITS OF DISTURBANCE
	PROPOSED SILT FENCE/LIMITS OF DISTURBANCE
	PROPOSED DIVERSION DITCH
	PROPOSED SWALE
	PROPOSED JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

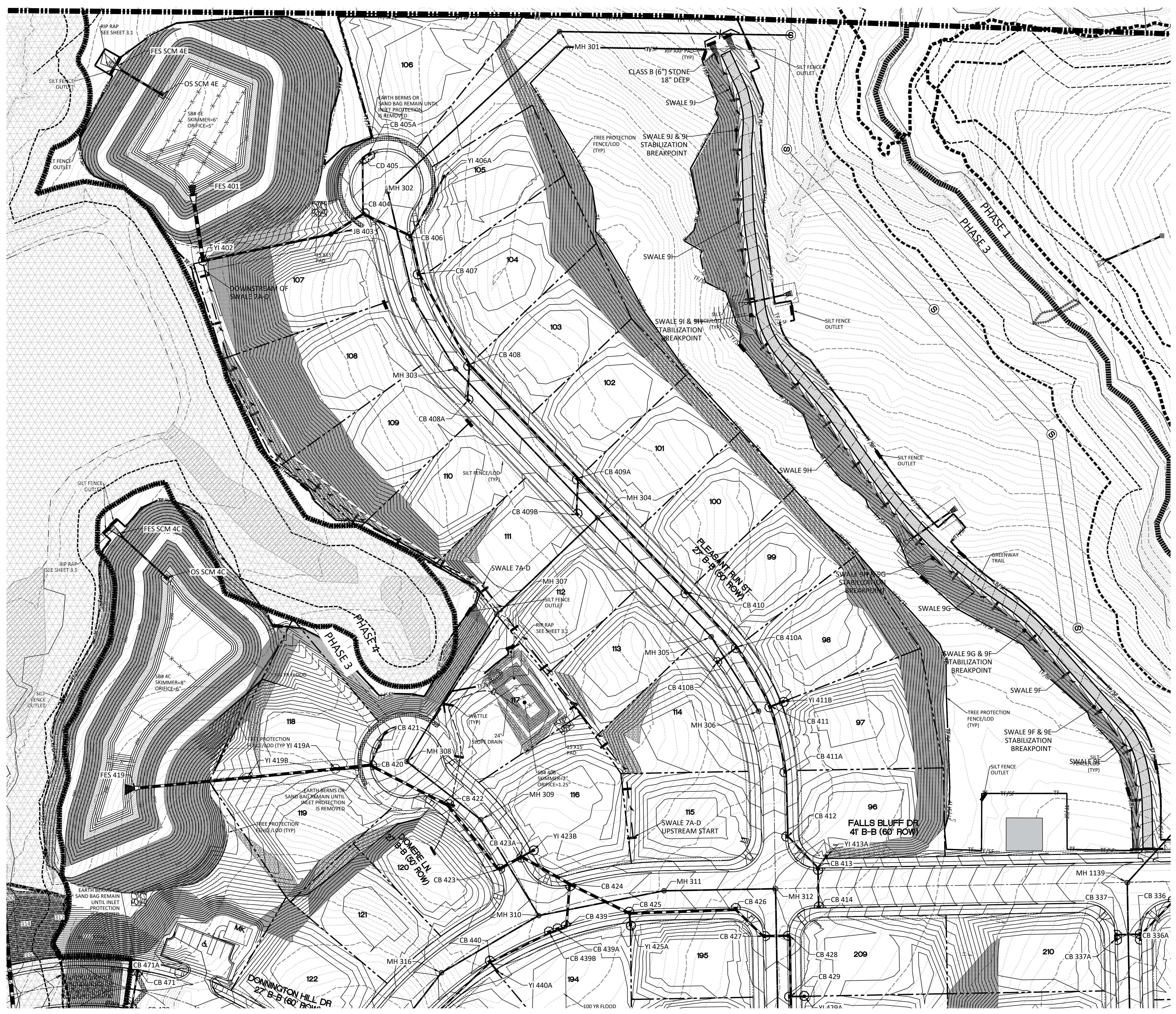
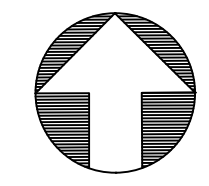
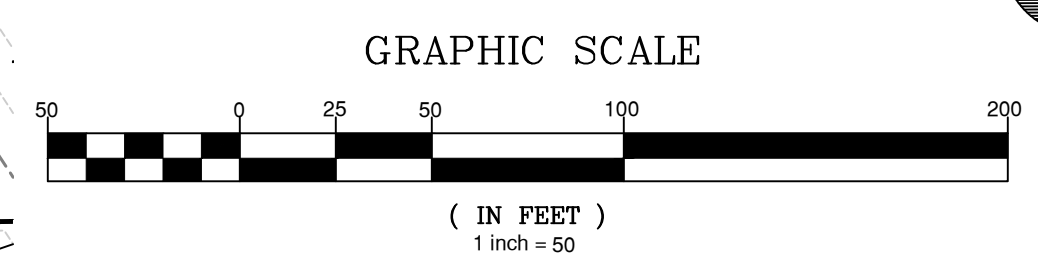
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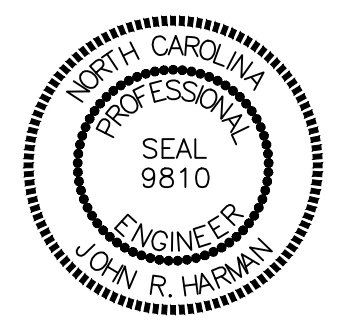
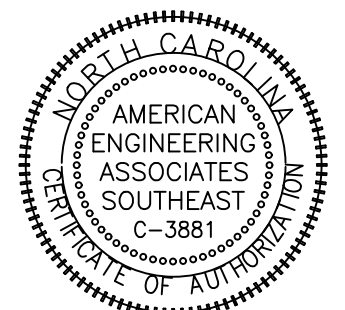
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**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
**PHASE 3
EROSION CONTROL
(50 SCALE)**
SHEET NO.:
2.2

- GENERAL NOTES:**
- ALL SEDIMENT TRAPS/PONDS SHALL BE STABILIZED WITHIN 7 DAYS OF INSTALLATION.
 - WATTLE/CHECK DAM ARE TO BE PLACED EVERY 3 TO 4 FT VERTICALLY.
 - WHERE SILT FENCE IS LOCATED OUTSIDE THE DISTURBED AREA WHERE TREE FENCE ISN'T PRESENT THE SILT FENCE WILL BE THE LIMITS OF DISTURBANCE.
 - SEE SHEET 3.1 FOR SEDIMENT BASIN CHART SHOWING THE SKIMMER/ORIFICE SIZES.
 - DIVERSION SWALE DESIGN, SEE SHEET 3.1 FOR DETAILS AND REFERENCE TABLE.
 - SEE SHEETS 2.2 TO 2.6 FOR SLOPE DRAIN PIPE SIZES.
 - SEE SHEET 3.1 FOR RIP RAP PAD SIZES.





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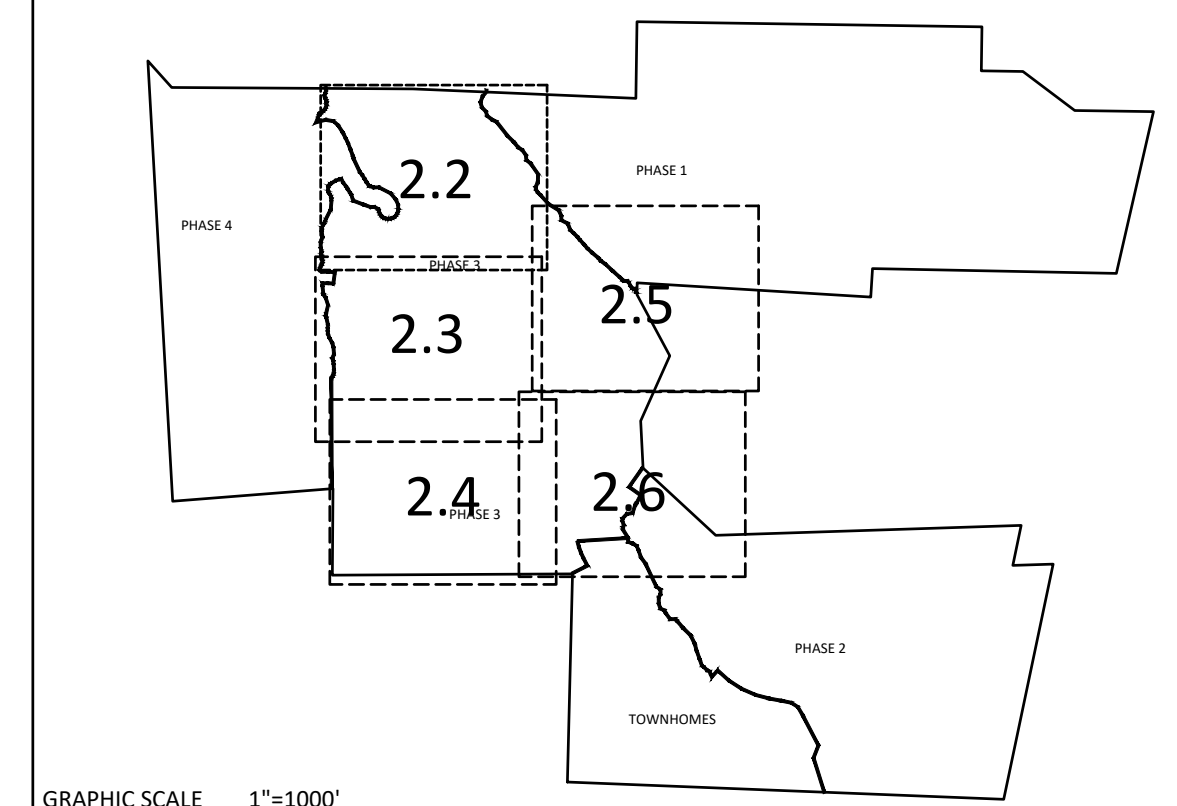
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**KALAS FALLS
 PHASE 3
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 WAKE COUNTY, NC**

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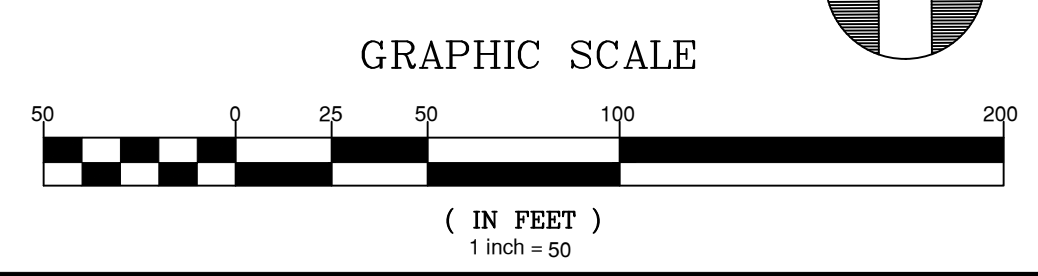
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 EROSION CONTROL
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SHEET NO.:
2.3

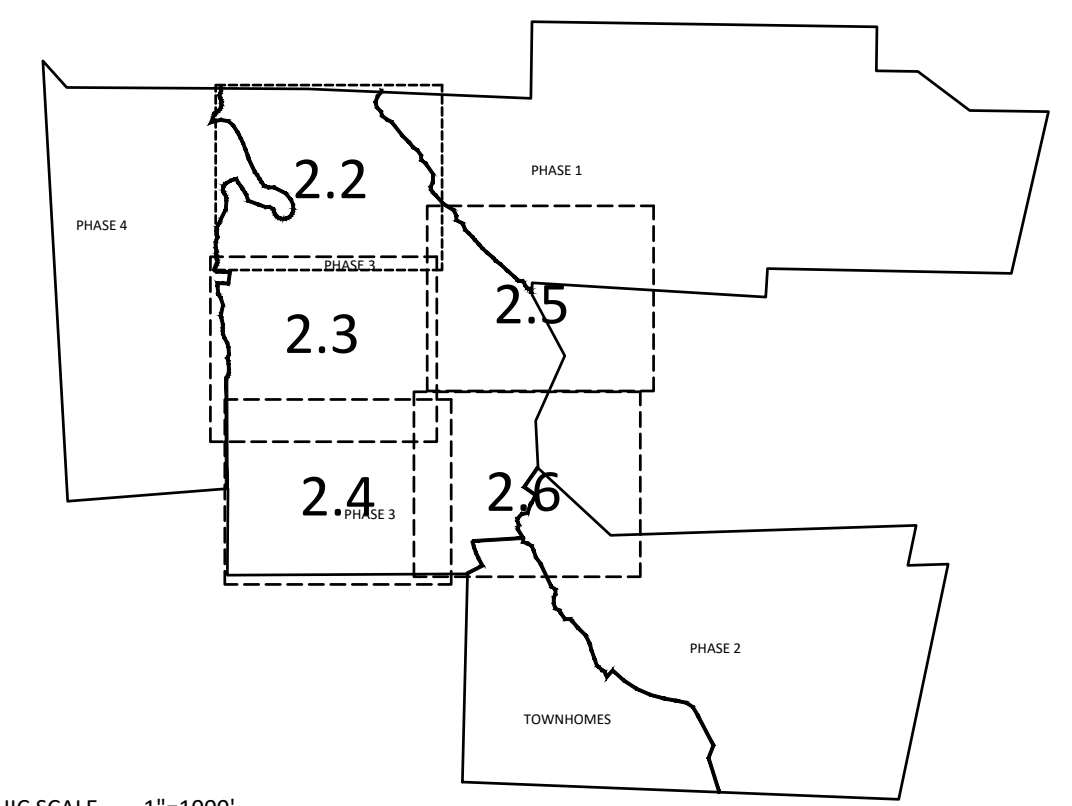
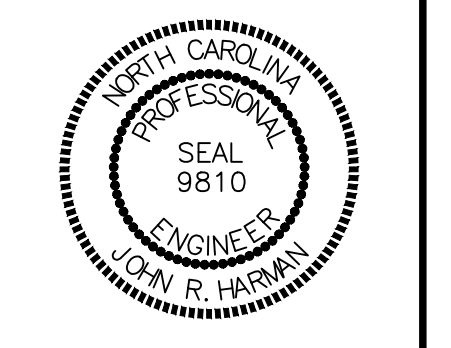
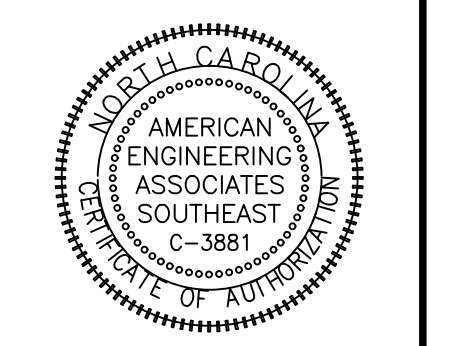


EROSION CONTROL LEGEND	
	100 YEAR FLOOD EASEMENT
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
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	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED STORM WATER

GENERAL NOTES:
 1. ALL SEDIMENT TRAPS/PONDS SHALL BE STABILIZED WITHIN 7 DAYS OF INSTALLATION.
 2. WATTLE/CHECK DAM ARE TO BE PLACED EVERY 3 TO 4 FT VERTICALLY.
 3. WHERE SILT FENCE IS LOCATED OUTSIDE THE DISTURBED AREA WHERE TREE FENCE ISN'T PRESENT THE SILT FENCE WILL BE THE LIMITS OF DISTURBANCE.
 4. SEE SHEET 3.1 FOR SEDIMENT BASIN CHART SHOWING THE SKIMMER/ORIFICE SIZES.
 5. DIVERSION SWALE DESIGN, SEE SHEET 3.1 FOR DETAILS AND REFERENCE TABLE.
 6. SEE SHEETS 2.2 TO 2.6 FOR SLOPE DRAIN PIPE SIZES.
 7. SEE SHEET 3.1 FOR RIP RAP PAD SIZES.



Z:\nc\9900\Working\Drawings\Phase 3\Erosion Control.dwg Figure 4, 2025



GRAPHIC SCALE 1"=100'

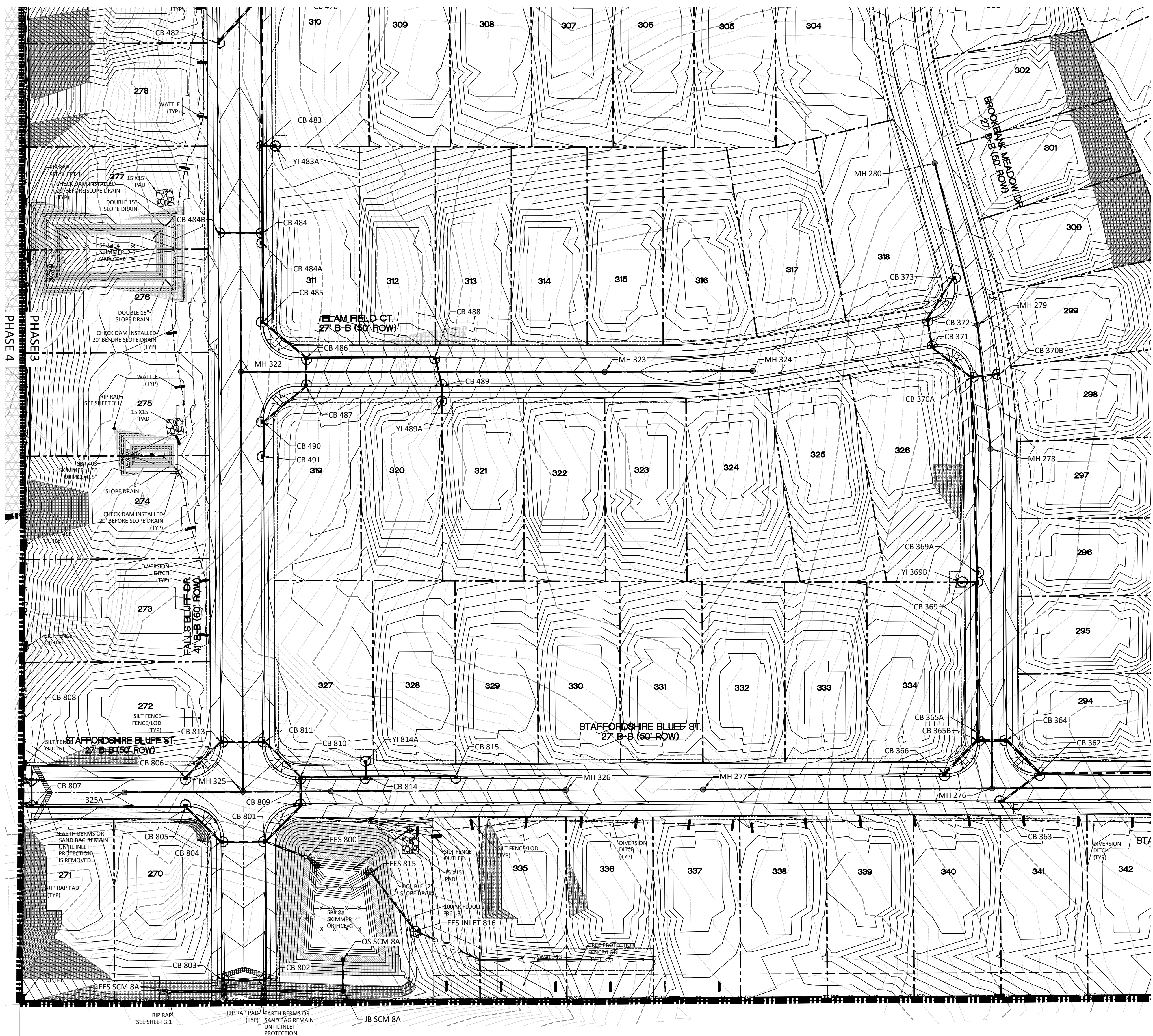
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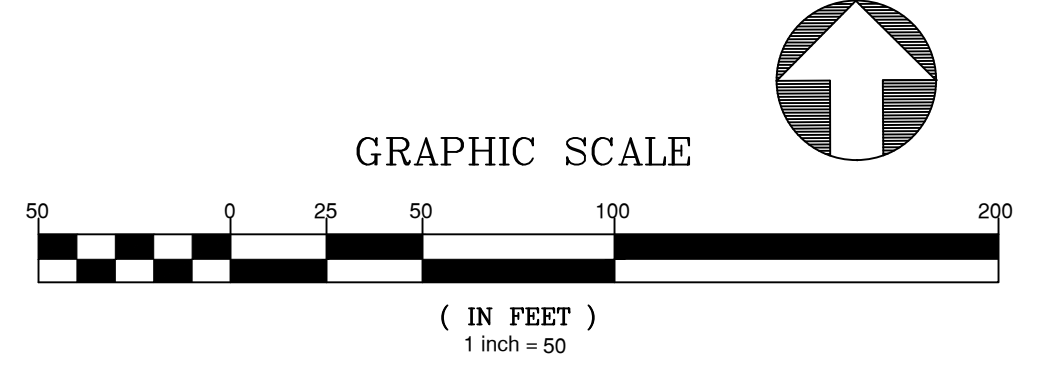
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EROSION CONTROL
(50 SCALE)**
SHEET NO.:
2.4



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 - SEE SHEET 3.1 FOR RIP RAP PAD SIZES.



CONSTRUCTION SEQUENCE FOR PHASE 3 SHALL BE AS FOLLOWS:

- 1. OWNER SHALL OBTAIN NCG01 PERMIT. THERE MAY BE A FEE FOR THIS.
2. SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE WATERSHED MANAGER. OBTAIN LAND DISTURBING PERMIT. CONTACT JEEVAN NEUPANE, P. E. (919-819-8907).
3. TREE PROTECTION FENCES, SILT FENCES AND CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS SHOWN ON THE EROSION CONTROL SHEETS. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEE ALL RESULTING BARE AREAS IMMEDIATELY AFTER CONSTRUCTION. ALL MAINTENANCE PADS SHALL BE CLEARED BUT THE STONE REQUIRED SHOULD NOT BE INSTALLED UNTIL JUST BEFORE THE PAD IS NEEDED.
4. EACH SEDIMENT BASIN THAT IS TO BE CONVERTED TO A WET POND SHALL BE GRADED AS SHOWN ON THE SCM SHEETS. THE FOREBAY DIVIDER IS NOT TO BE CONSTRUCTED AT THIS TIME. THE RISER AND OUTLET PIPE IS TO BE PLACED AND THE DRAIN VALVE IS TO BE LEFT OPEN. THE SKIMMER SHALL BE ATTACHED TO THE DRAIN PIPE.
5. CONSTRUCT EROSION CONTROL MEASURES INCLUDING SILT DITCHES LEADING TO THEM AS SHOWN ON THE EROSION CONTROL SHEETS. CONSTRUCT DIVERSION DITCHES AS SHOWN. EACH DIVERSION DITCH SHALL HAVE THE LINING INSTALLED THE SAME DAY AS THE SECTION IS CONSTRUCTED. THE CONSTRUCTION ENTRANCE ON WOODLYN PARK DR. IS TO BE CONSTRUCTED WITH THE INITIAL EROSION CONTROL MEASURES.
6. OBTAIN CERTIFICATE OF COMPLIANCE THROUGH INSPECTION BY WATERSHED MANAGER.
7. GENERAL GRADING MAY BEGIN. SEE THE CROSSING SHEET FOR FALLS BLUFF DR. FOR INSTRUCTIONS ABOUT CONSTRUCTING THE CROSSING. THE CONSTRUCTION ENTRANCE FOR THIS CROSSING SHALL BE ADDED AS THE GRADING AT THE CROSSING IS COMPLETED.
8. CLEAN SEDIMENT BASINS WHEN ONE-HALF FULL.
9. SEED AND MULCH DENUDE AREA INCLUDING ANY CUT/FILL SLOPES WITHIN FOURTEEN (14) DAYS AFTER FINISHED GRASSES ARE ESTABLISHED.
10. MAINTAIN SOIL EROSION CONTROL MEASURES UNTIL PERMANENT GROUND IS ESTABLISHED.
11. AS EACH CATCH BASIN OR YARD INLET IS INSTALLED, IT SHALL HAVE INLET PROTECTION INSTALLED. THIS IS TO REMAIN IN PLACE UNTIL ALL AREAS WHICH DRAIN TO IT ARE STABILIZED OR PAVED.
12. WHEN ALL CONTRIBUTARY AREAS ARE STABILIZED, OBTAIN APPROVAL FROM THE WATERSHED MANAGER TO CLOSE EACH SEDIMENT BASIN.
13. CLEAN SEDIMENT FROM SEDIMENT BASIN WHICH IS TO BE CONVERTED TO A WET POND AND REMOVE THE SKIMMER. INSTALL THE FOREBAY DIVIDER. INSTALL PLANTINGS AS REQUIRED. CLOSE THE DRAIN VALVE.
14. REQUEST FINAL APPROVAL BY WATERSHED MANAGER AFTER VEGETATION IS ESTABLISHED.
15. REMOVE SOIL EROSION CONTROL MEASURES AND STABILIZE THESE AREAS.
16. THE OWNER IS TO FINALIZE THE NCG01 PERMIT.

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REQUIRED WAKE COUNTY BASIN REMOVAL SEQUENCE

- 1. SCHEDULE A SITE MEETING WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF CULVERT PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
3. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ASPHALT TACK ANY RESULTING BARE AREAS IMMEDIATELY.
4. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
5. WHEN SITE IS FULLY STABILIZED, CALL ENVIRONMENTAL CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION.

NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE ENVIRONMENTAL CONSULTANT TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORMWATER USE. SOME MUNICIPALITIES MAY ALSO REQUIRE THIS.

REQUIRED WAKE COUNTY CONSTRUCTION SEQUENCE*

- 1. SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE WATERSHED MANGER, JEEVAN NEUPANE, PE (919)819-8907. OBTAIN A LAND-DISTURBING PERMIT.
2. INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
3. CALL JEEVAN NEUPANE, PE (919)819-8907 FOR AN ONSITE INSPECTION BY THE WATERSHED MANAGER TO OBTAIN A CERTIFICATE OF COMPLIANCE.
4. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
5. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL INLET CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN. BEGIN CONSTRUCTION, BUILDING, ETC.
6. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDE AREAS PER GROUND STABILIZATION TIME FRAMES.
7. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL JEEVAN NEUPANE, PE (919)819-8907 FOR AN INSPECTION BY THE WATERSHED MANAGER.
8. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
9. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE WATERSHED MANAGER, JEEVAN NEUPANE, PE (919)819-8907. OBTAIN A CERTIFICATE OF COMPLETION.

SCM CONVERSION SEQUENCE

- 1. WHEN ALL CONTRIBUTARY AREAS TO THE STORMWATER CONTROL MEASURE (SCM) HAVE BEEN STABILIZED CONTACT WAKE COUNTY FOR PERMISSION TO CONVERT THE SEDIMENT BASIN TO A SCM.
2. REMOVE ALL SEDIMENT FROM THE BASIN AND RESTORE GRADES TO DESIGNED CONFIGURATION, IF NEEDED.
3. CONSTRUCT FOREBAY DIVIDERS AS SHOWN.
4. MAKE ANY REPAIRS, ETC. NECESSARY TO THE OUTLET STRUCTURE, OUTLET PIPE, EMERGENCY OVERFLOW, ETC. EXAMINE RIP-RAP TO SEE IF REFRESHING OR CLEANING OF ROCK IS NECESSARY.
5. REMOVE SKIMMER AND CLOSE OUTLET VALVE.
6. CONTACT EROSION CONTROL OFFICER FOR APPROVAL.
7. CONTACT A LICENSED SURVEYOR FOR SURVEY OF AS-BUILT CONDITIONS. NOTIFY ENGINEER-OF-RECORD FOR PREPARATION OF AS-BUILT DRAWINGS.

NOTES FOR CONSTRUCTION:

- 1. PLANS FOR INFRASTRUCTURE ONLY.
2. ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT CITY OF RALEIGH STANDARD SPECS AND DETAILS, WAKE COUNTY SPECIFICATIONS, NCDOT SPECIFICATIONS AND TOWN OF ROLESVILLE SPECIFICATIONS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES BETWEEN FIELD CONDITIONS AND THESE DRAWINGS.
4. CONTRACTOR WILL KEEP STREETS CLEAN AT ALL TIMES, OR A WASH STATION WILL BE REQUIRED.
5. ALL CATCH BASINS SHALL HAVE INLET PROTECTION.
6. ALL CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 14 DAYS OF ANY PHASE OF GRADING, WITH SOME SLOPES TO BE STABILIZED WITHIN 7 DAYS AS SHOWN ON CHART TO THE LEFT AND ON THE EC SHEETS.
7. TREE PROTECTION FENCING ON THIS PROJECT WILL BE INSTALLED AND INSPECTED BEFORE THE GRADING PERMIT IS ISSUED.
8. A PRE-CONSTRUCTION CONFERENCE MAY BE REQUIRED BEFORE GRADING PERMIT IS ISSUED.
9. PERMANENT GROUND COVER WILL BE ESTABLISHED IN 15 WORKING DAYS OR 90 CALENDAR DAYS WHICHEVER IS SHORTER.
10. THE AREA DESIGNATED SHALL BE USED FOR TOPSOIL STOCKPILE.
11. THIS PROJECT IS IN THE NEUSE RIVER WATERSHED. PROJECT AREA = 283 ACRES.
12. WETLANDS ON THIS PROJECT ARE AS SHOWN.
13. MINIMUM CORNER CLEARANCE FROM THE CURB LINE OF INTERSECTING STREETS SHALL BE AT LEAST TWENTY (20) FEET FROM THE POINT OF TANGENCY.

GENERAL NOTES:

- A. ALL TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL BE REMOVED PRIOR TO THE FINAL SITE INSPECTION FOR THE CERTIFICATE OF OCCUPANCY (CO).
B. ALL TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL REMAIN UNTIL ISSUANCE OF CERTIFICATE OF OCCUPANCY (CO).
C. WITHIN THE SIGHT TRIANGLES SHOWN ON ALL SITE PLAN AND LANDSCAPE PLAN SHEETS, NO OBSTRUCTION BETWEEN 2 FEET AND 8 FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION SHALL BE LOCATED IN WHOLE OR PART. OBSTRUCTIONS INCLUDE, BUT ARE NOT LIMITED TO, ANY BERM, FOLIAGE, FENCE, WALL SIGN, PARKED CAR, OR OTHER OBJECT. ALL STREET TREES FALLING WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN SHALL BE LIMBED UP BETWEEN 2 FEET AND 8 FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION.
D. MINIMUM CORNER CLEARANCE FROM THE CURB LINE OF INTERSECTING STREETS SHALL BE AT LEAST 20 FEET FROM THE POINT OF TANGENCY OF THE CURB. NO DRIVEWAYS SHALL ENCRACH ON THIS MINIMUM CORNER CLEARANCE.
E. ALL STREETS SHOWN ON THESE PLANS HAVE FULL WIDTH OF RIGHT-OF-WAY CLEARED AND GRADED WITHIN 50 FEET OF ALL STREET INTERSECTIONS. THE FULL WIDTH OF RIGHT-OF-WAY SHALL BE CLEARED AND GRADED ALONG ALL MAJOR, MINOR AND SENSITIVE AREA THROUGHFARES.
F. WHEEL CHAIR ACCESS RAMPS WILL BE PROVIDED IN ACCORDANCE WITH STANDARD DRAWING SHOWN ON SHEET CD19. WHERE SIDEWALK IS NOT REQUIRED ALONG THE PUBLIC RIGHT-OF-WAY, CURB IS TO BE DEPRESSED AT ALL RAMP LOCATIONS SHOWN ON THE STANDARD DETAIL.
G. ALL INDIVIDUAL LOTS SHALL HAVE AN EROSION CONTROL PLAN SUBMITTED PRIOR TO CONSTRUCTION OF HOUSES THERE UPON. IF MULTIPLE LOTS WITH A TOTAL DISTURBED AREA OF MOTRE THAN 12,000 SF ARE TO BE BUILT UPON AT ONE TIME, A COORDINATED EROSION CONTROL PLAN SHALL BE SUBMITTED.

MAINTENANCE OF EROSION CONTROL MEASURES

SILT FENCE MAINTENANCE - ANY DAMAGE IS TO BE REPAIRED AS SOON AS POSSIBLE AFTER IT IS DISCOVERED. FENCE POSTS ARE TO BE STRAIGHTENED OR REPLACED AS NECESSARY. WIRE FENCING SUPPORTING THE FILTER FABRIC SHALL BE REPLACED AS NECESSARY. ANY TORN FILTER FABRIC SHALL BE PATCHED OR REPLACED. WHEN STONE IS CONTAMINATED IT SHALL BE REMOVED AND REPLACED WITH CLEAN STONE.

SILT FENCE OUTLETS - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF DAMAGED, THEY SHALL HAVE FABRIC, POSTS OR WIRE BACKING REPLACED TO RESTORE TO ORIGINAL CONDITION.

TREE PROTECTION FENCE MAINTENANCE - ANY SEGMENTS THAT ARE DAMAGED ARE TO BE REPLACED AS SOON AS POSSIBLE FOLLOWING DISCOVERY.

CONSTRUCTION ENTRANCE - IF ANY OF THE STONE SHALL BE LOST, IT SHALL BE REPLACED. IF THE FILTER FABRIC UNDER THE STONE IS DAMAGED, THAT PORTION SHALL BE REPLACED. IF THE STONE BECOMES COMPLETELY CLOGGED WITH SOIL, IT SHALL BE REMOVED AND REPLACED.

SOIL STOCKPILE AREAS/OTHER GRASSED AREAS MAINTENANCE - GRASS AREAS SHALL BE RESEED AS NECESSARY. SOIL STOCKPILE AREAS SHALL BE SEEDD WHEN THEIR USE IS COMPLETE.

TEMPORARY SEDIMENT TRAP - THESE BASINS SHALL BE INSPECTED AT LEAST ONCE PER WEEK AND AFTER EVERY STORM OF 1" OR MORE OF RAIN. DEBRIS SHALL BE REMOVED IMMEDIATELY. ANY DAMAGE TO THE TRAP SHALL BE REPAIRED TO THE STANDARD FOR INITIAL CONSTRUCTION. SEDIMENT IS TO BE REMOVED WHEN IT REACHES 6" DEEP OR AT LEAST ONCE EVERY SIX MONTHS.

SEDIMENT BASINS - ALL REQUIREMENTS FOR SEDIMENT TRAPS SHALL APPLY.

CONCRETE WASHOUT - IT SHALL BE CLEANED PERIODICALLY AS NEEDED. IF THE PLASTIC LINER IS DAMAGED, IT SHALL BE REPLACED.

BAFFLES - SHALL BE INSPECTED AFTER EACH SIGNIFICANT RAINFALL AND AT LEAST ONCE A WEEK. IF NECESSARY, THEY SHALL BE REPAIRED TO THE ORIGINAL PERFORMANCE LEVEL USING MATERIALS SPECIFIED IN THE DETAIL.

DITCH LINER - SHALL BE INSPECTED AT LEAST ONCE A WEEK AND FOLLOWING SIGNIFICANT RAINFALL. IF NECESSARY, THE LINER SHALL BE REPLACED WITH THE ORIGINAL TYPE MATERIAL AND ANCHORED ACCORDING TO THE METHODS SHOWN ON SHEET CD3.

SKIMMERS - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. THEY SHALL BE CLEANED OF DEBRIS AND ANY REPAIRS MADE TO THE ORIGINAL QUALITY OR THE ITEM REPLACED.

RIP-RAP CHANNEL - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF STONE IS MISSING IT SHALL BE REPLACED TO THE ORIGINAL SPECIFICATIONS. DEBRIS AND SEDIMENT SHALL BE REMOVED AS NECESSARY.

RIP-RAP APRONS - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF STONE IS MISSING, IT SHALL BE REPLACED TO THE ORIGINAL SPECIFICATIONS. DEBRIS AND SEDIMENT SHALL BE REMOVED AS NECESSARY.

TEMPORARY SILT DITCH - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. IF SIGNIFICANT EROSION OF THE DITCH IS HAPPENING IT SHALL BE REGRADED. ANY BREACH OF THE DOWNHILL SIDE BERM SHALL BE FIXED IMMEDIATELY.

WATTLES - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. ACCUMULATED SEDIMENT SHALL BE REMOVED. IF THE WATTLE ANCHORS ARE DISPLACED OR DAMAGED THEY SHALL BE REINSTALLED OR REPLACED. IF THE WATTLE IS DAMAGED SUCH THAT IT NO LONGERS FUNCTIONS, IT SHALL BE REPLACED.

INLET PROTECTION - SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT RAINFALL. SEDIMENT SHALL BE REMOVED. IF STONE IS SIGNIFICANTLY CLOGGED, IT SHALL BE REMOVED AND REPLACED WITH CLEAN STONE. ANY DAMAGE TO SILT FENCE TYPE PROTECTION SHALL BE REPAIRED BY PATCHING OR REPLACEMENT.

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SEEDBED PREPARATION

- 1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6-INCH DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW *).
5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDD AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, RE-ESTABLISHED FOLLOWING ORIGINAL LINE, FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

*APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE (3 TONS/ACRE IN CLAY SOILS) FERTILIZER - 1,000 LB/ACRE - 10-10-10 SUPERPHOSPHATE - 500 LB/ACRE - 20% ANALYSIS MULCH - 2 TONS/ACRE - SMALL GRAIN STRAW ANCHOR - ASPHALT EMULSION @ 300 GALS/ACRE

SEEDING SCHEDULE

Table with columns: Date, Shoulders, Side Ditches, Slopes (Maximum 3:1), Type*, Planting Rate. Rows include Aug 15 - Nov 1, Nov 1 - Mar 1, Mar 1 - Apr 15, Apr 15 - June 30, July 15 - Aug 15.

Consult Erosion Control Officer or NRCS for additional alternatives for vegetating denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible.

***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12 inches in height before mowing to keep fescue from being shaded out.
**Bahia grass shall not be used in City maintained areas.

Table with columns: Date, Shoulders, Side Ditches, Slopes (3:1 and 2:1) (not mowed), Type*, Planting Rate. Rows include Mar 1 - June 1, Mar 1 - Apr 15, Mar 1 - June 30, June 1 - Sept 1, Sept 1 - Mar 1.

Consult Erosion Control Officer or NRCS for additional alternatives for vegetating denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible.

***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12 inches in height before mowing to keep fescue from being shaded out.
**Bahia grass shall not be used in City maintained areas.

STOCKPILE DESIGN CRITERIA

- A. A 25-FOOT TEMPORARY MAINTENANCE AND ACCESS EASEMENT SHALL BE SHOWN AROUND ALL PROPOSED STOCKPILES (EROSION CONTROL MEASURES SURROUNDING THE STOCKPILE SHALL BE SHOWN AT THE OUTER LIMIT OF THIS EASEMENT).
B. STOCKPILE FOOTPRINTS SHALL BE SETBACK A MINIMUM OF 25' FROM ADJACENT PROPERTY LINES.
C. A NOTE SHALL BE PROVIDED ON THE APPROVED PLAN THAT STOCKPILE HEIGHT SHALL NOT EXCEED 35 FEET.
D. STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.
E. APPROVED BMPs SHALL BE SHOWN ON A PLAN TO CONTROL ANY POTENTIAL SEDIMENT LOSS FROM A STOCKPILE.
F. STOCKPILING MATERIALS ADJACENT TO A DITCH, DRAINAGEWAY, WATERCOURSE, WETLAND, STREAM BUFFER, OR OTHER BODY OF WATER SHALL BE AVOIDED UNLESS AN ALTERNATIVE LOCATION IS DEMONSTRATED TO BE UNAVAILABLE.
G. ANY CONCENTRATED FLOW LIKELY TO AFFECT THE STOCKPILE SHALL BE DIVERTED TO AN APPROVED BMP.
H. OFF-SITE SPOIL OR BORROW AREAS MUST BE IN COMPLIANCE WITH WAKE COUNTY UDO AND STATE REGULATIONS. ALL SPOIL AREAS OVER AN ACRE ARE REQUIRED TO HAVE AN APPROVED SEDIMENT CONTROL PLAN. DEVELOPER/CONTRACTOR SHALL NOTIFY WAKE COUNTY OF ANY OFFSITE DISPOSAL OF SOIL PRIOR TO DISPOSAL. FILL OF FEMA FLOODWAYS AND NON-ENCROACHMENT AREAS ARE PROHIBITED EXCEPT AS OTHERWISE PROVIDED BY SUBSECTION 14-19-2 OF THE WAKE COUNTY UNIFIED DEVELOPMENT ORDINANCE (CERTIFICATIONS AND PERMITS REQUIRED).

MAINTENANCE REQUIREMENTS TO BE NOTED ON THE PLAN

- I. SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEVED IN AT THE TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDERNEATH THE PLASTIC.
J. IF A STOCKPILE IS TO REMAIN FOR FUTURE USE AFTER THE PROJECT IS COMPLETE (BUILDERS, ETC.), THE FINANCIAL RESPONSIBLE PARTY MUST NOTIFY WAKE COUNTY OF A NEW RESPONSIBLE PARTY FOR THAT STOCKPILE.
K. THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGED SEEDING AND MULCHING ON A CONTINUAL BASIS WHILE THE STOCKPILE IS IN USE.
L. ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

STANDARD UTILITY NOTES (AS APPLICABLE):

- 1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
B) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
D) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM/RAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W- 41 & S-49).
E) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24-HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
5. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE PUBLIC UTILITIES HANDBOOK.
6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE CONNECTIONS OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
8. INSTALL 3/2" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
9. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT.
10. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER.
11. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH. CONSULT WITH THE ENGINEERING INSPECTION COORDINATOR DURING THE PRE-CONSTRUCTION MEETING ON THE NECESSARY PERMITS.
12. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
13. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.
14. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDOW, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
15. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
16. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC AND/OR BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
17. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA.
18. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
19. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
20. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
21. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN \$250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS.
22. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT".

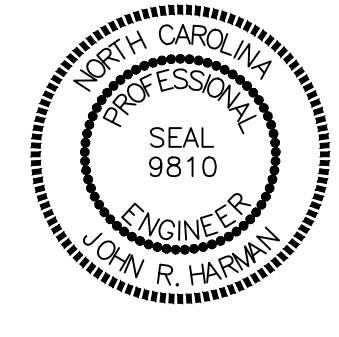
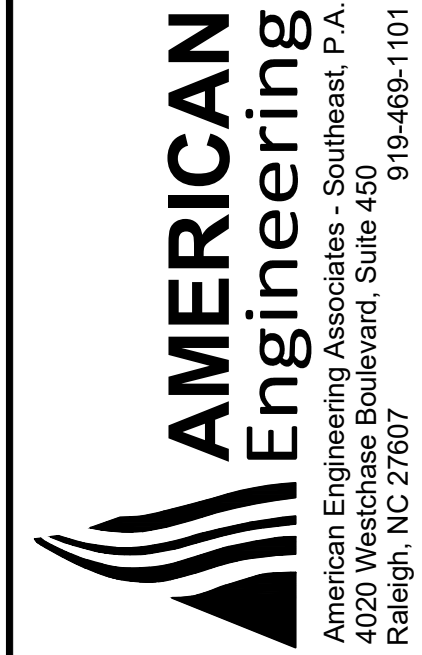


Table with columns: NO., DATE, REVISION, REVIEWED BY, DRAWN BY, CHECKED BY, TOWN OF RALEIGH CONSULTANT COMMENTS, CONSTRUCTION DRAWING COMMENT RESPONSES. Rows 1-3.

STIPULATION FOR REUSE

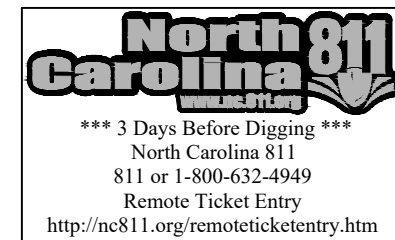
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3 1832 ROLESVILLE ROAD WAKE COUNTY, NC

JOB NUMBER: 9900 CHECKED BY: BH/JH DRAWN BY: SMM/ALL/ES/AH/DH DATE: NOV 1, 2024

GENERAL NOTES AND LEGENDS

SHEET NO.: 3.0



NETWORK SCM 3B - PIPE SUMMARY							
UPSTREAM STRUCTURE	DOWNSIDE STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSIDE INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 338A	FES 338	24"	32.87	1.83%	351.50	352.10	Reinforced Concrete Pipe
CB 338B	CB 338A	24"	27.00	1.00%	352.20	352.47	Reinforced Concrete Pipe
CB 338C	CB 338B	15"	4.00	0.20%	352.60	352.61	Reinforced Concrete Pipe
CB 338E	CB 338B	24"	42.16	0.50%	352.60	352.81	Reinforced Concrete Pipe
CB 339A	CB 338E	24"	27.05	1.00%	352.91	353.18	Reinforced Concrete Pipe
CB 339B	CB 339A	15"	7.12	0.20%	353.55	353.56	Reinforced Concrete Pipe
CB 340	CB 338E	24"	108.12	0.50%	352.91	353.45	Reinforced Concrete Pipe
CB 341	CB 340	18"	156.84	3.50%	353.95	359.44	Reinforced Concrete Pipe
CB 342	CB 341	18"	153.88	3.00%	359.55	364.17	Reinforced Concrete Pipe
CB 343	CB 342	15"	68.21	0.92%	364.27	364.90	Reinforced Concrete Pipe
CB 344A	CB 343	15"	40.03	0.87%	365.00	365.35	Reinforced Concrete Pipe
CB 344B	CB 344A	15"	122.84	3.30%	365.55	369.60	Reinforced Concrete Pipe
CB 344C	CB 344B	15"	27.00	1.00%	369.70	369.97	Reinforced Concrete Pipe
* CB 345	CB 344A	15"	27.00	1.00%	365.81	366.08	Reinforced Concrete Pipe
CB 346	CB 344B	15"	82.38	2.12%	369.70	371.45	Reinforced Concrete Pipe
CB 347	CB 346	15"	39.33	0.50%	371.55	371.75	Reinforced Concrete Pipe
CB 348	CB 347	15"	27.00	1.00%	371.85	372.12	Reinforced Concrete Pipe
CB 350	FES 349	42"	67.18	0.60%	351.50	351.90	Reinforced Concrete Pipe
CB 352	CB 350	42"	64.32	0.60%	352.00	352.39	Reinforced Concrete Pipe
CB 353	CB 352	42"	63.17	1.58%	352.50	353.50	Reinforced Concrete Pipe
CB 354	CB 353	42"	102.76	1.00%	353.60	354.63	Reinforced Concrete Pipe
CB 355	CB 354	42"	45.16	1.25%	354.79	355.35	Reinforced Concrete Pipe
* CB 356	CB 355	36"	30.31	0.50%	355.46	355.61	Reinforced Concrete Pipe
CB 357	CB 356	36"	37.60	0.50%	355.71	355.90	Reinforced Concrete Pipe
CB 358	CB 357	15"	27.10	1.65%	357.65	358.10	Reinforced Concrete Pipe
CB 359	CB 355	30"	127.82	2.45%	356.20	359.33	Reinforced Concrete Pipe
CB 361	CB 359	15"	28.03	1.00%	360.58	360.86	Reinforced Concrete Pipe
CB 362	CB 359	24"	130.78	2.87%	359.45	363.20	Reinforced Concrete Pipe
CB 363	CB 362	18"	45.61	4.27%	363.30	365.25	Reinforced Concrete Pipe
CB 364	CB 362	24"	43.13	1.80%	363.30	364.08	Reinforced Concrete Pipe
CB 365A	CB 365B	24"	7.50	0.70%	364.72	364.77	Reinforced Concrete Pipe
* CB 365B	CB 364	24"	27.00	0.50%	364.20	364.34	Reinforced Concrete Pipe
CB 366	CB 365B	24"	43.13	1.00%	364.90	365.33	Reinforced Concrete Pipe
CB 369	CB 365A	24"	138.19	0.70%	364.97	365.94	Reinforced Concrete Pipe
CB 369A	CB 369	18"	9.00	1.00%	366.10	366.19	Reinforced Concrete Pipe
CB 370A	CB 369A	18"	180.08	1.00%	366.30	368.10	Reinforced Concrete Pipe
CB 370B	CB 370A	15"	26.75	1.00%	369.96	370.23	Reinforced Concrete Pipe
CB 371	CB 370A	15"	44.69	3.80%	368.20	369.90	Reinforced Concrete Pipe
CB 372	CB 371	15"	27.00	0.50%	371.06	371.20	Reinforced Concrete Pipe
CB 373	CB 372	15"	44.43	0.50%	371.53	371.75	Reinforced Concrete Pipe
CB 374	CB 357	36"	87.91	1.25%	356.00	357.10	Reinforced Concrete Pipe
* CB 375	CB 374	36"	57.09	0.68%	357.90	358.29	Reinforced Concrete Pipe
* CB 393	JB 392A	18"	127.25	0.50%	351.04	351.68	Reinforced Concrete Pipe
CB 393A	CB 393	15"	7.91	0.20%	351.78	351.80	Reinforced Concrete Pipe
* CB 394	CB 393	15"	27.00	0.50%	351.78	351.92	Reinforced Concrete Pipe
CB 394A	CB 394	15"	7.91	0.20%	352.02	352.04	Reinforced Concrete Pipe
** JB 392A	FES 392	18"	29.83	0.50%	350.75	350.90	Reinforced Concrete Pipe
OS SCM 3B	FES SCM 3B	48"	39.09	0.74%	347.71	348.00	Reinforced Concrete Pipe
YI 344D	CB 344C	15"	13.67	1.00%	370.13	370.26	Reinforced Concrete Pipe
YI 350A	CB 350	30"	13.67	8.00%	352.00	353.09	Reinforced Concrete Pipe
YI 369B	CB 369	18"	13.67	8.00%	366.10	367.19	Reinforced Concrete Pipe

NETWORK SCM 3C - PIPE SUMMARY							
UPSTREAM STRUCTURE	DOWNSIDE STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSIDE INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 331	FES 330	18"	55.26	6.33%	340.50	344.00	Reinforced Concrete Pipe
CB 332	CB 331	15"	73.93	0.50%	344.31	344.68	Reinforced Concrete Pipe
CB 332A	CB 332	15"	9.00	0.20%	344.78	344.80	Reinforced Concrete Pipe
CB 333	CB 332A	15"	41.00	0.50%	344.90	345.10	Reinforced Concrete Pipe
CB 333A	CB 333	15"	9.00	0.20%	345.20	345.22	Reinforced Concrete Pipe
CB 334	CB 331	18"	62.09	1.59%	344.46	345.45	Reinforced Concrete Pipe
CB 335	CB 334	18"	108.80	1.25%	345.65	347.01	Reinforced Concrete Pipe
CB 336	CB 335	18"	45.96	0.50%	347.21	347.44	Reinforced Concrete Pipe
* CB 336A	CB 336	15"	4.84	5.17%	347.64	347.89	Reinforced Concrete Pipe
* CB 337	CB 336	15"	27.00	0.50%	347.70	347.83	Reinforced Concrete Pipe
* CB 337A	CB 337	15"	4.84	0.20%	347.93	347.94	Reinforced Concrete Pipe
FES INLET 26	FES 25	18"	70.49	1.33%	340.50	341.44	Reinforced Concrete Pipe
OS SCM 3C	FES SCM 3C	18"	74.04	0.51%	337.50	337.88	Reinforced Concrete Pipe

NETWORK SCM 4E - PIPE SUMMARY							
UPSTREAM STRUCTURE	DOWNSIDE STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSIDE INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 404	JB 403	24"	38.76	11.12%	295.70	300.01	Reinforced Concrete Pipe
CB 405A	CD 405	15"	8.00	1.75%	301.39	301.53	Reinforced Concrete Pipe
CB 406	CB 404	24"	53.59	6.48%	300.21	303.68	Reinforced Concrete Pipe
CB 407	CB 406	24"	39.46	3.62%	303.88	305.31	Reinforced Concrete Pipe
CB 408	CB 407	24"	105.43	2.60%	305.51	308.25	Reinforced Concrete Pipe
CB 408A	CB 408	15"	37.16	1.00%	308.45	308.82	Reinforced Concrete Pipe
CB 409A	CB 408	24"	160.14	2.50%	308.45	312.45	Reinforced Concrete Pipe
CB 409B	CB 409A	15"	37.33	1.00%	315.00	315.37	Reinforced Concrete Pipe
CB 410	CB 409A	24"	160.00	3.37%	312.65	318.05	Reinforced Concrete Pipe
CB 410A	CB 410	18"	76.13	4.23%	318.55	321.77	Reinforced Concrete Pipe
CB 410B	CB 410A	15"	27.00	1.00%	323.50	323.77	Reinforced Concrete Pipe
CB 411	CB 410A	18"	69.57	4.24%	321.97	324.92	Reinforced Concrete Pipe
CB 411A	CB 411	15"	68.03	3.79%	325.17	327.75	Reinforced Concrete Pipe
CB 412	CB 411A	15"	66.18	3.79%	327.95	330.46	Reinforced Concrete Pipe
CB 413	CB 412	15"	44.23	6.31%	330.66	333.45	Reinforced Concrete Pipe
CB 414	CB 413	15"	41.00	0.71%	333.65	333.94	Reinforced Concrete Pipe
CD 405	CB 404	15"	57.36	0.75%	300.76	301.19	Reinforced Concrete Pipe
JB 403	YI 402	24"	132.83	9.79%	282.50	295.50	Reinforced Concrete Pipe
OS SCM 4E	FES SCM 4E	24"	55.28	0.90%	276.50	277.00	Reinforced Concrete Pipe
YI 402	FES 401	42"	66.95	0.75%	280.50	281.00	Reinforced Concrete Pipe
YI 406A	CB 406	15"	69.35	0.89%	303.88	304.50	Reinforced Concrete Pipe
YI 411B	CB 411	18"	13.50	1.00%	324.50	324.64	Reinforced Concrete Pipe
YI 413A	CB 413	15"	14.65	2.00%	333.65	333.94	Reinforced Concrete Pipe

NETWORK SCM 4C - PIPE SUMMARY							
UPSTREAM STRUCTURE	DOWNSIDE STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSIDE INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 420	YI 419A	30"	35.34	4.37%	304.10	305.64	Reinforced Concrete Pipe
CB 421	CB 420	15"	37.45	3.07%	306.63	307.78	Reinforced Concrete Pipe
CB 422	CB 420	30"	88.97	4.99%	307.64	312.08	Reinforced Concrete Pipe
CB 423	CB 422	30"	83.20	5.00%	318.24	322.40	Reinforced Concrete Pipe
CB 423A	CB 423	30"	27.00	0.52%	324.26	324.40	Reinforced Concrete Pipe
CB 424	CB 423A	30"	56.34	3.99%	325.17	327.42	Reinforced Concrete Pipe
CB 425	CB 424	30"	67.56	0.50%	327.92	328.26	Reinforced Concrete Pipe
CB 426	CB 425	30"	108.27	1.54%	328.66	330.33	Reinforced Concrete Pipe
CB 427	CB 426	24"	38.89	3.50%	330.53	331.89	Reinforced Concrete Pipe
CB 428	CB 427	24"	27.00	1.41%	332.09	332.47	Reinforced Concrete Pipe
CB 429	CB 428	24"	62.00	1.40%	332.67	333.54	Reinforced Concrete Pipe
CB 430	CB 429	24"	70.00	1.00%	333.74	334.44	Reinforced Concrete Pipe
CB 431	CB 430	24"	50.10	1.50%	334.64	335.39	Reinforced Concrete Pipe
CB 432	CB 431	24"	63.60	1.49%	335.59	336.54	Reinforced Concrete Pipe
CB 433	CB 432	24"	47.32	0.70%	337.04	337.37	Reinforced Concrete Pipe
CB 434	CB 433	18"	29.17	4.70%	337.57	338.94	Reinforced Concrete Pipe
CB 435	CB 434	18"	46.09	1.45%	339.16	339.83	Reinforced Concrete Pipe
CB 436	CB 435	18"	63.82	1.19%	340.03	340.79	Reinforced Concrete Pipe
CB 438	CB 431	15"	27.03	1.74%	336.14	336.61	Reinforced Concrete Pipe
CB 439	CB 424	24"	43.96	0.50%	327.92	328.14	Reinforced Concrete Pipe
CB 439A	CB 439	24"	9.00	0.56%	328.34	328.39	Reinforced Concrete Pipe
CB 439B	CB 439A	24"	9.00	0.56%	328.58	328.63	Reinforced Concrete Pipe
CB 440	CB 439B	18"	67.25	0.51%	329.13	329.47	Reinforced Concrete Pipe
CB 441	CB 440	15"	136.53	2.24%	329.72	332.78	Reinforced Concrete Pipe
CB 442	CB 441	15"	49.19	3.11%	332.98	334.51	Reinforced Concrete Pipe
CB 443	CB 442	15"	27.00	1.00%	334.71	334.98	Reinforced Concrete Pipe
CB 443A	CB 443	15"	5.00	1.00%	335.18	335.23	Reinforced Concrete Pipe
OS SCM 4C	FES SCM 4C	18"	66.55	1.50%	289.00	290.00	Reinforced Concrete Pipe
YI 419A	YI 419B	30"	90.75	4.96%	299.50	304.00	Reinforced Concrete Pipe
YI 419B	FES 419	30"	114.56	4.38%	293.50	298.52	Reinforced Concrete Pipe
YI 423B	CB 423A	18"	13.67	2.00%	324.60	324.87	Reinforced Concrete Pipe
YI 425A	CB 425	18"	11.67	2.00%	329.51	329.74	Reinforced Concrete Pipe
YI 429A	CB 429	15"	13.67	1.00%	334.29	334.43	Reinforced Concrete Pipe
YI 432A	CB 432	15"	17.04	2.00%	338.46	338.80	Reinforced Concrete Pipe
YI 437	CB 436	15"	13.67	2.71%	340.89	341.26	Reinforced Concrete Pipe
YI 440A	CB 440	18"	11.72	2.00%	329.47	329.70	Reinforced Concrete Pipe

*DENOTES CLASS IV RCP
 **DENOTES GASKET JOINT

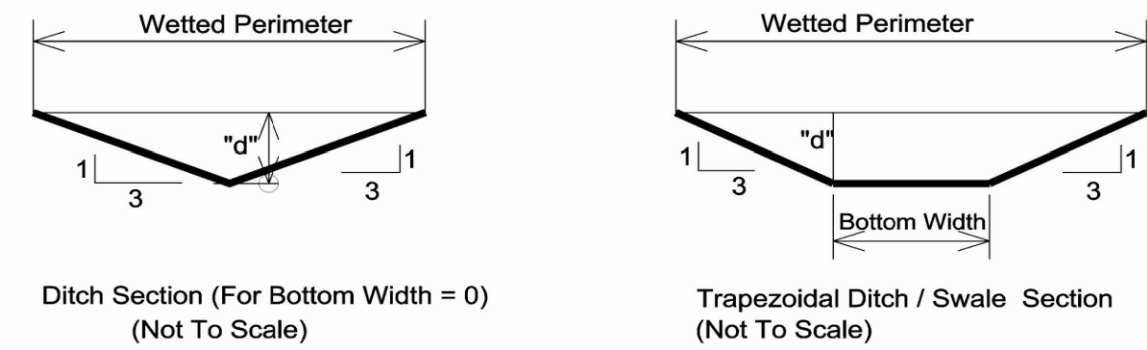
NETWORK SCM 4B - PIPE SUMMARY							
UPSTREAM STRUCTURE	DOWNSIDE STRUCTURE	PIPE SIZE	LENGTH	SLOPE	DOWNSIDE INVERT (FT)	UPSTREAM INVERT (FT)	Pipe Material
CB 470	CB 470	15"	90.41	1.21%	327.61	328.70	Reinforced Concrete Pipe
CB 470A	CB 470	15"	5.00	1.00%	328.91	328.96	Reinforced Concrete Pipe
CB 471	CB 470	15"	41.00	1.00%	328.90	329.31	Reinforced Concrete Pipe
CB 471A	CB 471	15"	5.73	1.05%	329.51	329.57	Reinforced Concrete Pipe
CB 472	FES 469	36"	42.52	0.82%	323.50	323.85	Reinforced Concrete Pipe
CB 473	CB 472	36"	129.39	1.75%	328.76	331.02	Reinforced Concrete Pipe
CB 474	CB 473	36"	42.58	2.00%	335.95	336.80	Reinforced Concrete Pipe
CB 475	CB 474	36"	103.49	6.00%	337.00	343.21	Reinforced Concrete Pipe
CB 476	CB 475	30"	260.35	5.33%	343.86	357.73	Reinforced Concrete Pipe
CB 477	CB 476	30"	45.96	3.00%	357.93	359.31	Reinforced Concrete Pipe
CB 477A	CB 477	15"	5.02	1.00%	360.56	360.61	Reinforced Concrete Pipe
CB 478	CB 477	30"	27.00	1.00%	359.51	359.78	Reinforced Concrete Pipe
CB 478A	CB 478	18"	5.00	1.00%	360.78	360.83	Reinforced Concrete Pipe
CB 479	CB 478A	18"	136.00	3.38%	361.03	365.62	Reinforced Concrete Pipe
CB 480	CB 479	15"	150.00	2.43%	36		

Z:\Jobs\9900\Watkins Property\Documents\Schedule\Phase 3\Phase 3 General Notes-Layout\Schedule.dwg February 4, 2025

Table with 2 columns: STRUCTURE NAME, RIM (FT). Lists structures from CB331 to CB479 with their respective rim heights.

Table with 2 columns: STRUCTURE NAME, RIM (FT). Lists structures from CB480 to Y1814A with their respective rim heights.

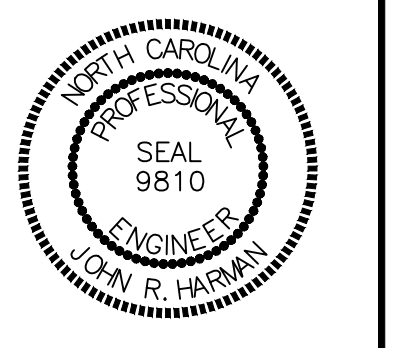
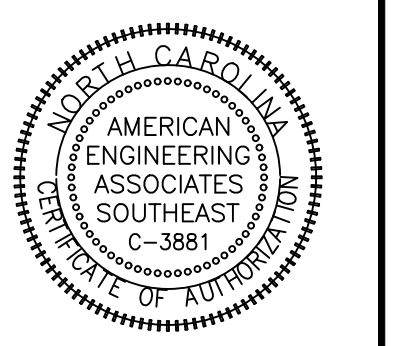
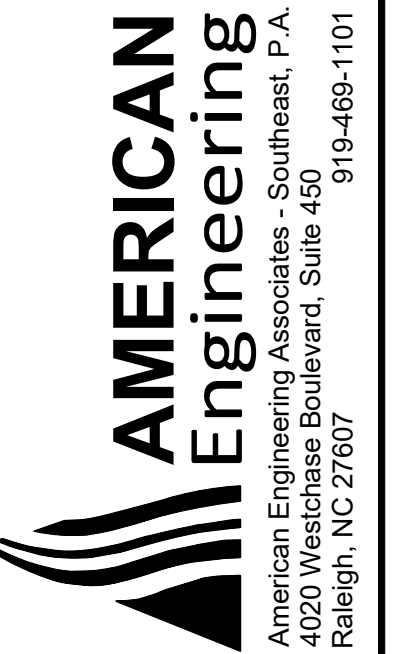
RIP-RAP PADS table. Includes Date (6/14/21), Project (Kalas Falls, Phase 3), and a detailed table of outlet pipes with columns for NO., PIPE DIA., VELOCITY, ZONE, STONE SIZE, STONE CLASS, WIDTH, LENGTH, and DEPTH.



TRAPEZOIDAL SWALE DRAINAGE CHART-PHASE THREE. A table with columns for Ditch I.D., D.A., Ac., C, i10, in/hr, Q10, cfs, Left Side Slope, Right Side Slope, Avg. Ditch Slope, Bottom Width, Ditch Lining, Manning, Q10 Flow Depth, Flow Velocity, and Calc. Shear Stress.

Sediment Basin/Sediment Trap Schedule table. Columns include Basin No., Bottom Elev., Top of Dam Elev., Top of Riser Elev., Spillway Elev., Weir Length, Riser/ Barrel Size, Basin Dimensions (At Top of Dam, At Emerg. Spillway, At Bott. of Basin), Skimmer Size, Skimmer Hole Size, and Anti-Flotation Size.

Phase 3 Lot Areas table. A grid of lot numbers and square footages, organized into four columns. Includes lot numbers from 96 to 310 and their corresponding square footages.



Revision table with columns: NO., DATE, REVISION. Lists three revisions for the drawing.

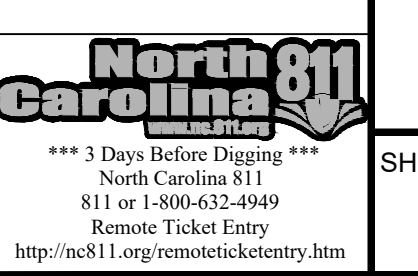
STIPULATION FOR REUSE. Text stating that the drawing was prepared for use on the specific site and is not suitable for use on a different project site or at a later time.

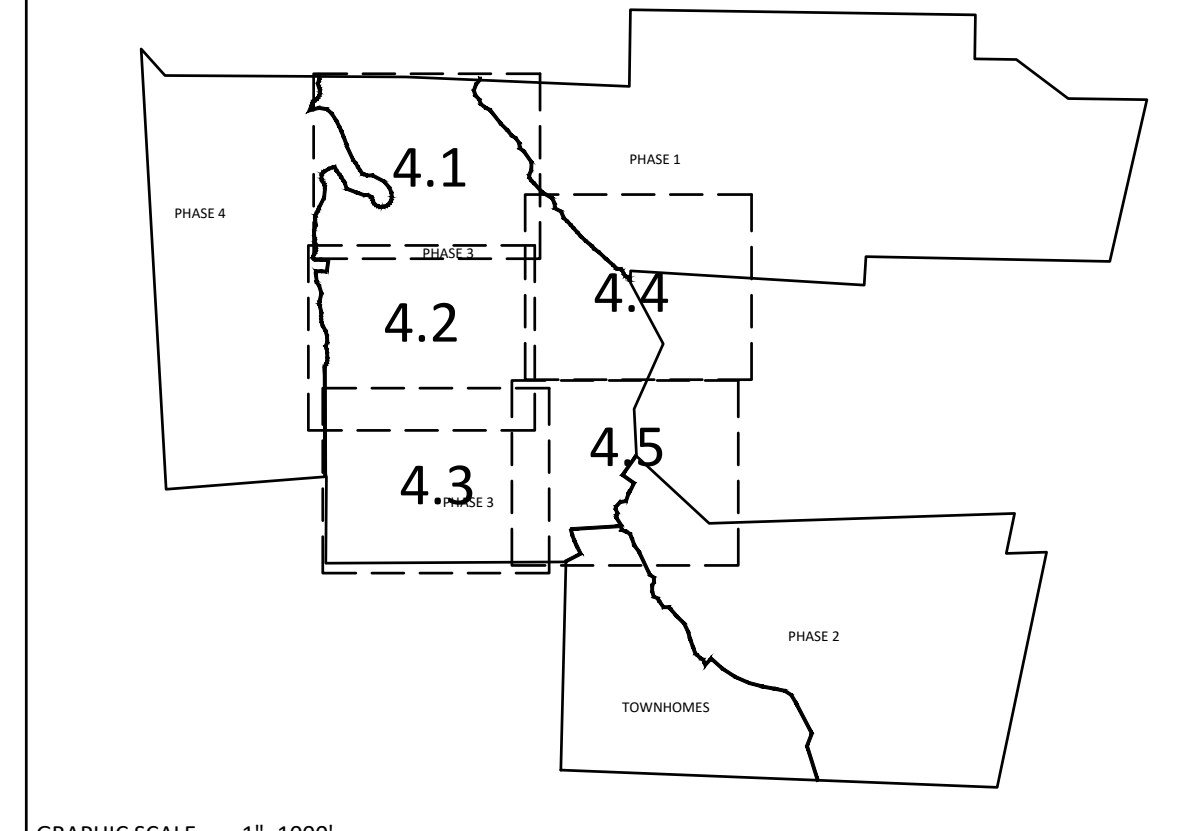
KALAS FALLS PHASE 3 1832 ROLESVILLE ROAD WAKE COUNTY, NC

JOB NUMBER: 9900 CHECKED BY: BH/JH DRAWN BY: SMMA/LLES/AH/DH DATE: NOV 1, 2024 SHEET TITLE:

SCHEDULE PLAN SHEET NO.: 3.2

Public Sewer Collection / Extension System and Public Water Distribution / Extension System. Includes City of Raleigh Public Utilities Department Permit # and North Carolina 811 information.





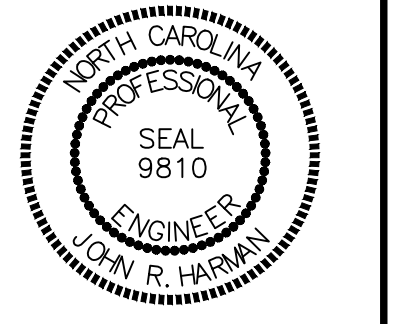
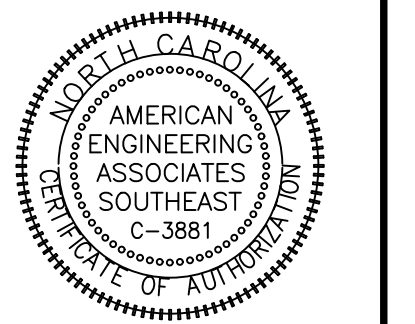
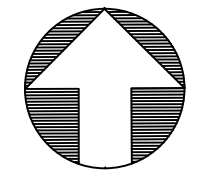
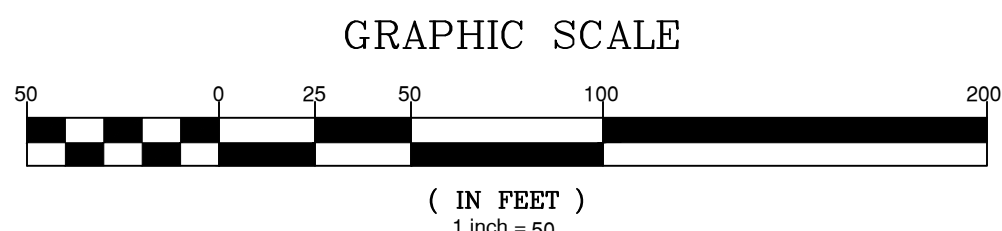
GRAPHIC SCALE 1"=1000'

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

* LOTS SHOWN WITH AN ASTERISK MUST BE GRADED TO DRAIN TO REAR AWAY FROM ROAD EXCEPT ANY PORTION ALREADY DRAINING TOWARD ROAD DUE TO GRADING SHOWN ON THESE PLANS MAY CONTINUE

NOTE: REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)



NO.	DATE	REVISION
1	7/25/2024	PREPARED FROM TOWN OF ROLESVILLE CONSULTANT
2	8/24/2024	MADE COUNTY AND CITY OF RALEIGH
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

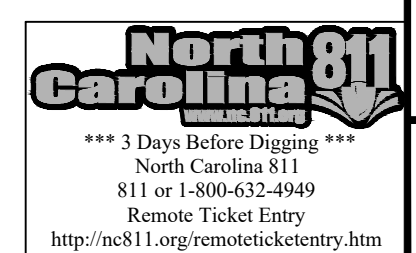
STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

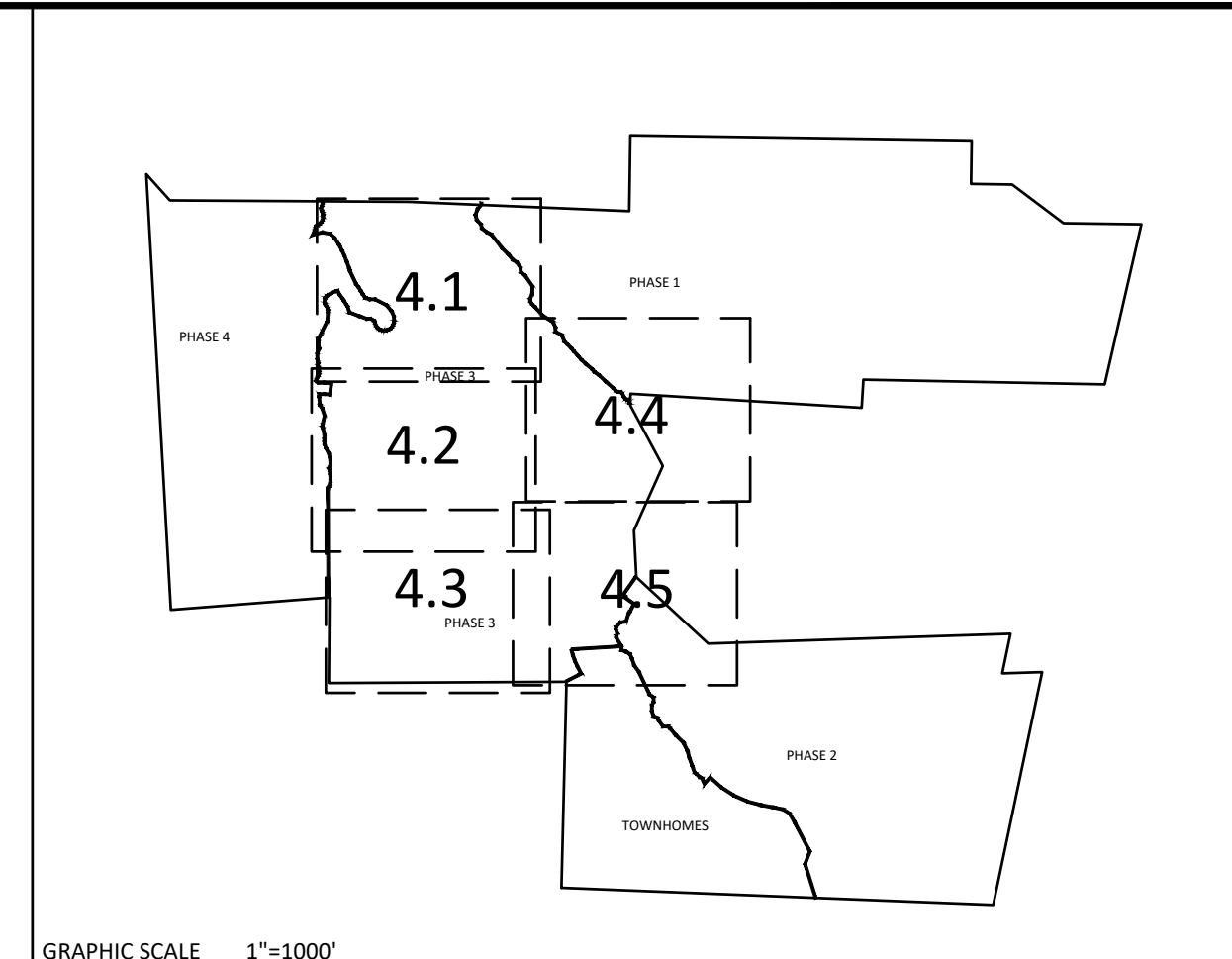
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:

PHASE 3 GRADING & DRAINAGE

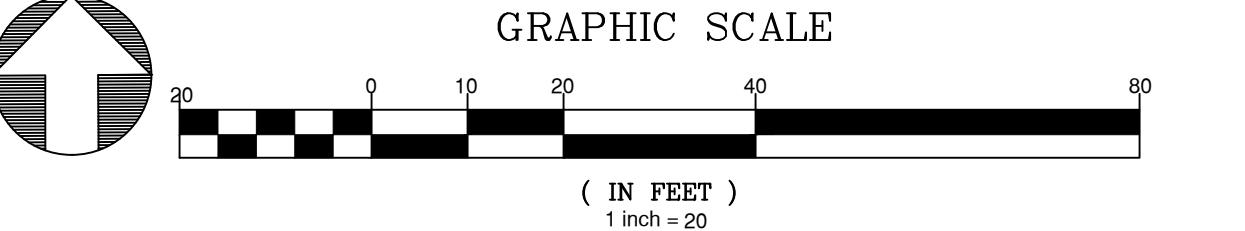
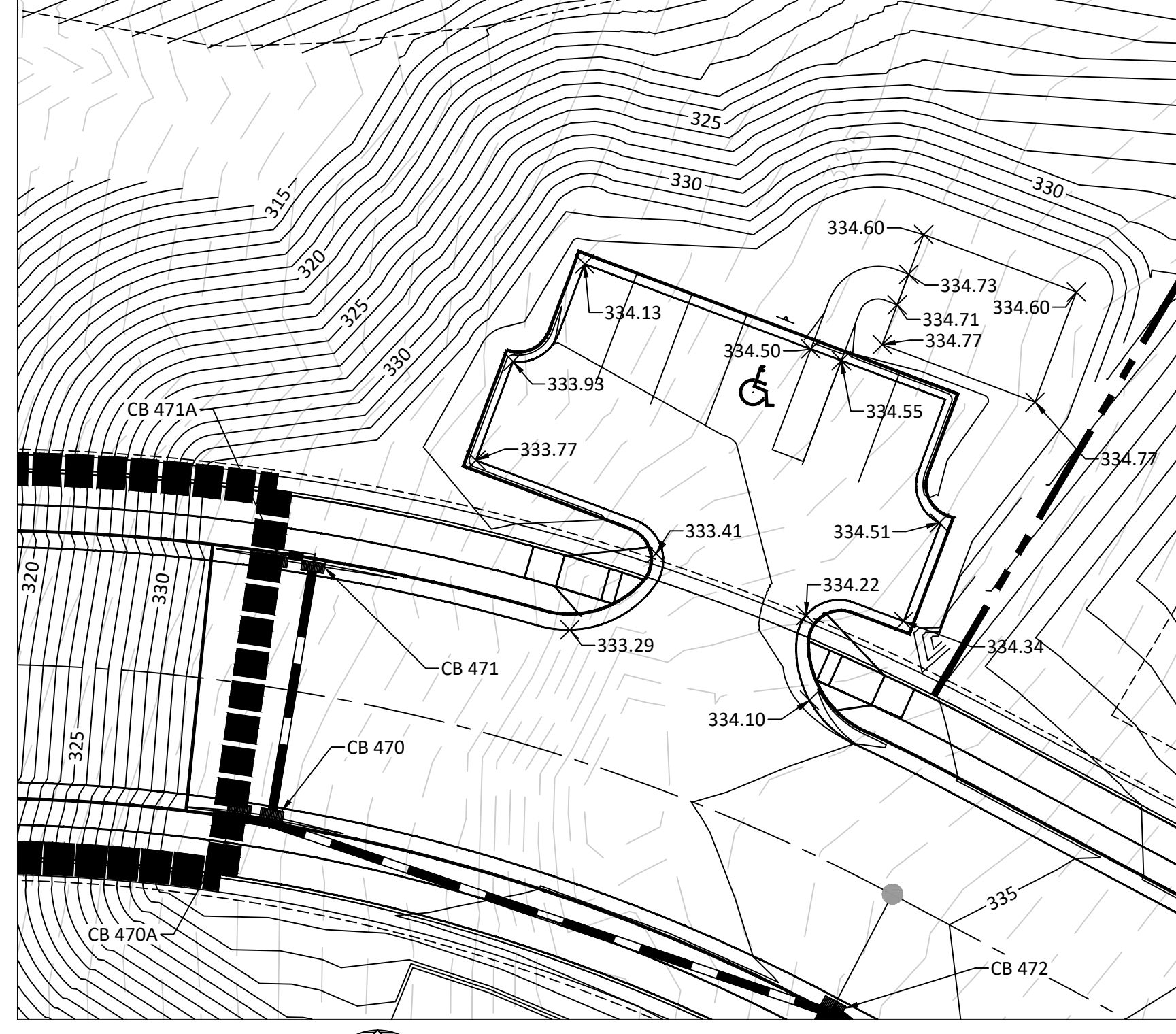
SHEET NO.: 4.1



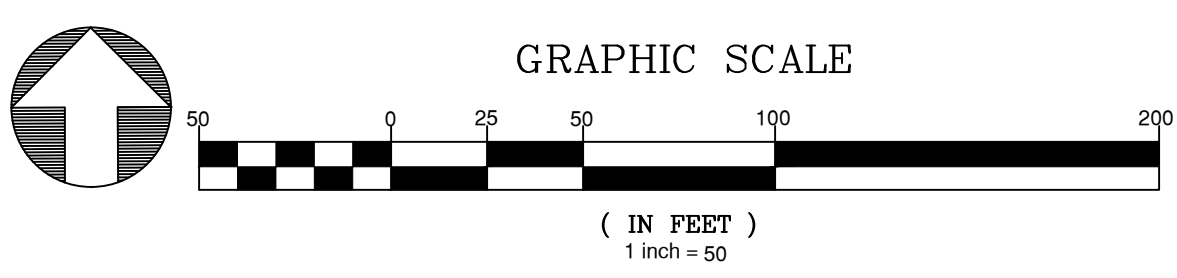
GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)



* LOTS SHOWN WITH AN ASTERISK MUST BE GRADED TO DRAIN TO REAR AWAY FROM ROAD EXCEPT ANY PORTION ALREADY DRAINING TOWARD ROAD DUE TO GRADING SHOWN ON THESE PLANS MAY CONTINUE



NOTE: REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)



February 4, 2025
Z:\a\10000\Auto\Project\Phase 3\Phase 3\Grading and Drainage.dwg

AMERICAN
Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607

AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881
NORTH CAROLINA PROFESSIONAL ENGINEERING SEAL 9810
KIM R. HARRISON

NO.	DATE	REVISION
1	2/27/2025	33' REVIEW FROM TOWN OF ROLESVILLE. CONSULT PLAN.
2	3/24/2025	REVISE COUNTY AND TOWN OF ROLESVILLE CONSULT TOWN ORDINANCES
3	12/07/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE NAMED HEREON. IT IS NOT TO BE REPRODUCED OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF AMERICAN ENGINEERING ASSOCIATES SOUTHEAST. ANY REUSE OF THIS DRAWING FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF AMERICAN ENGINEERING ASSOCIATES SOUTHEAST IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

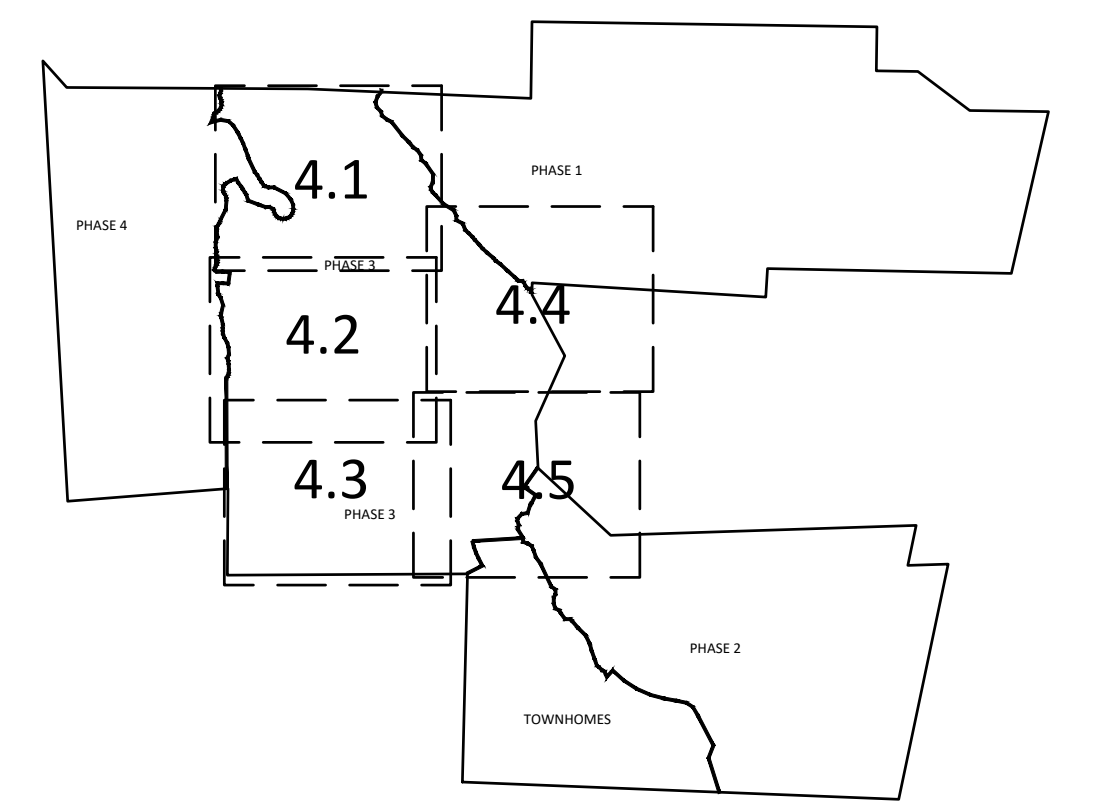
**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AHDH
DATE: NOV 1, 2024
SHEET TITLE:
**PHASE 3
GRADING &
DRAINAGE**
SHEET NO.:
4.2

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-432-4949
Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>



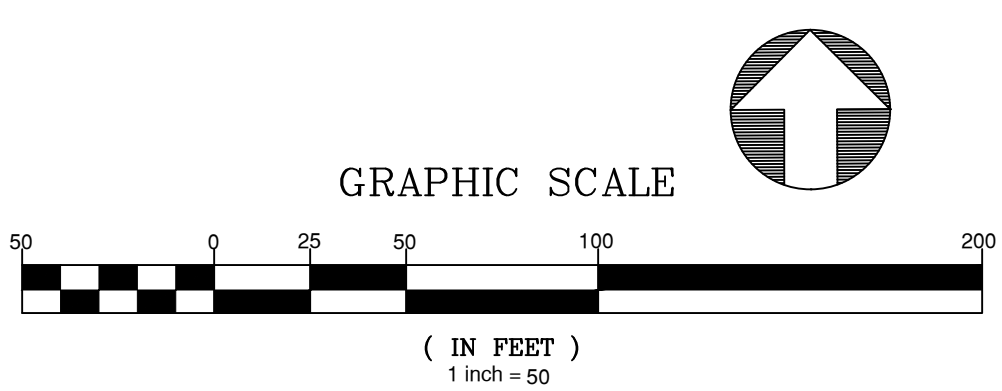
BENNY L. MOODY
JEFFERY LYNN MOODY
ZONING: R-30
D.B. 14297, PG. 1583
B.M. 2016, PG. 38
B.M. 1986, PG. 968
B.M. 1928, PG. 142
PIN NO. 1767-01-28-4304
REAL ESTATE ID: 0048422



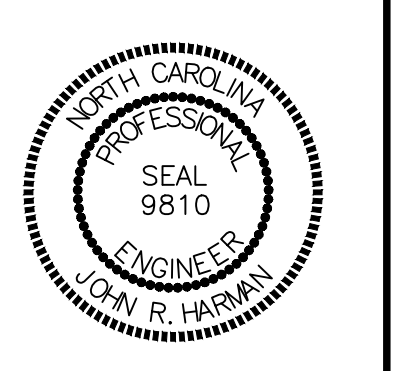
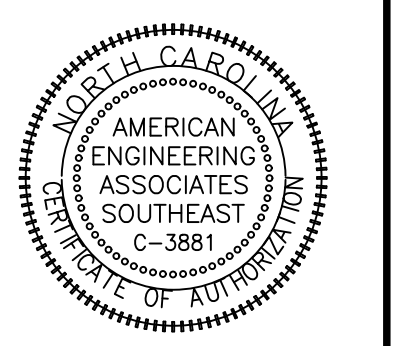
NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

GRADING LEGEND	
	EXISTING TOPOGRAPHY
	EXISTING BOUNDARY
	EXISTING WETLANDS AREA
	EXISTING 50' NEUSE RIVERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED GREENWAY HATCHING
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED STORM WATER
	EXISTING PHASING
	FUTURE PHASING
	PROPOSED SWALE (AT TIME OF LOT GRADING)

NOTE: REFER TO SHEET 3.2 FOR SWALE MATERIAL (RIPRAP/GRASS MAT)



AMERICAN
Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101



NO.	DATE	REVISION
1	12/17/2024	AS PER NEW FERRY TOWN OF ROLESVILLE, CONSULTANT
2	01/14/2025	AS PER COUNTY AND CITY OF RALEIGH
3	01/14/2025	FOR REVIEW OF RALEIGH CONSULTANT COMMENTS
4	11/07/2025	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTAMINATED WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

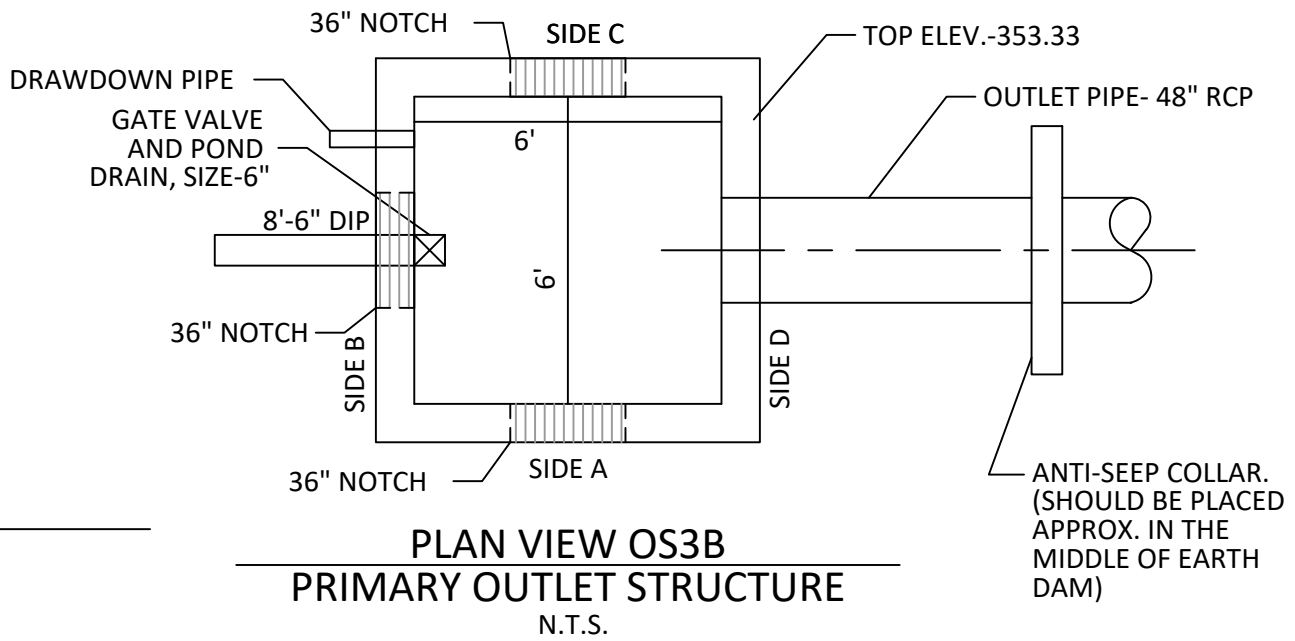
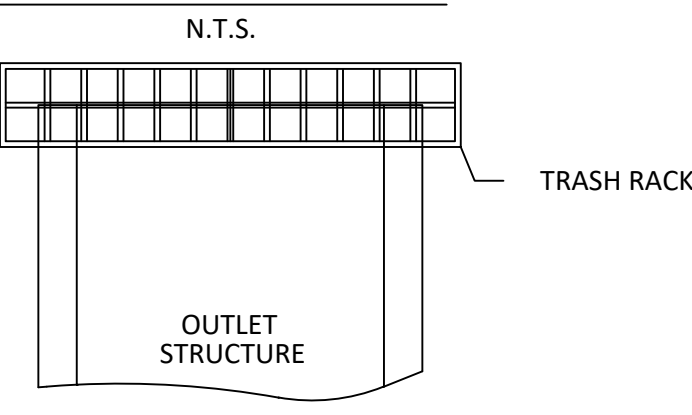
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024

**PHASE 3
GRADING &
DRAINAGE**

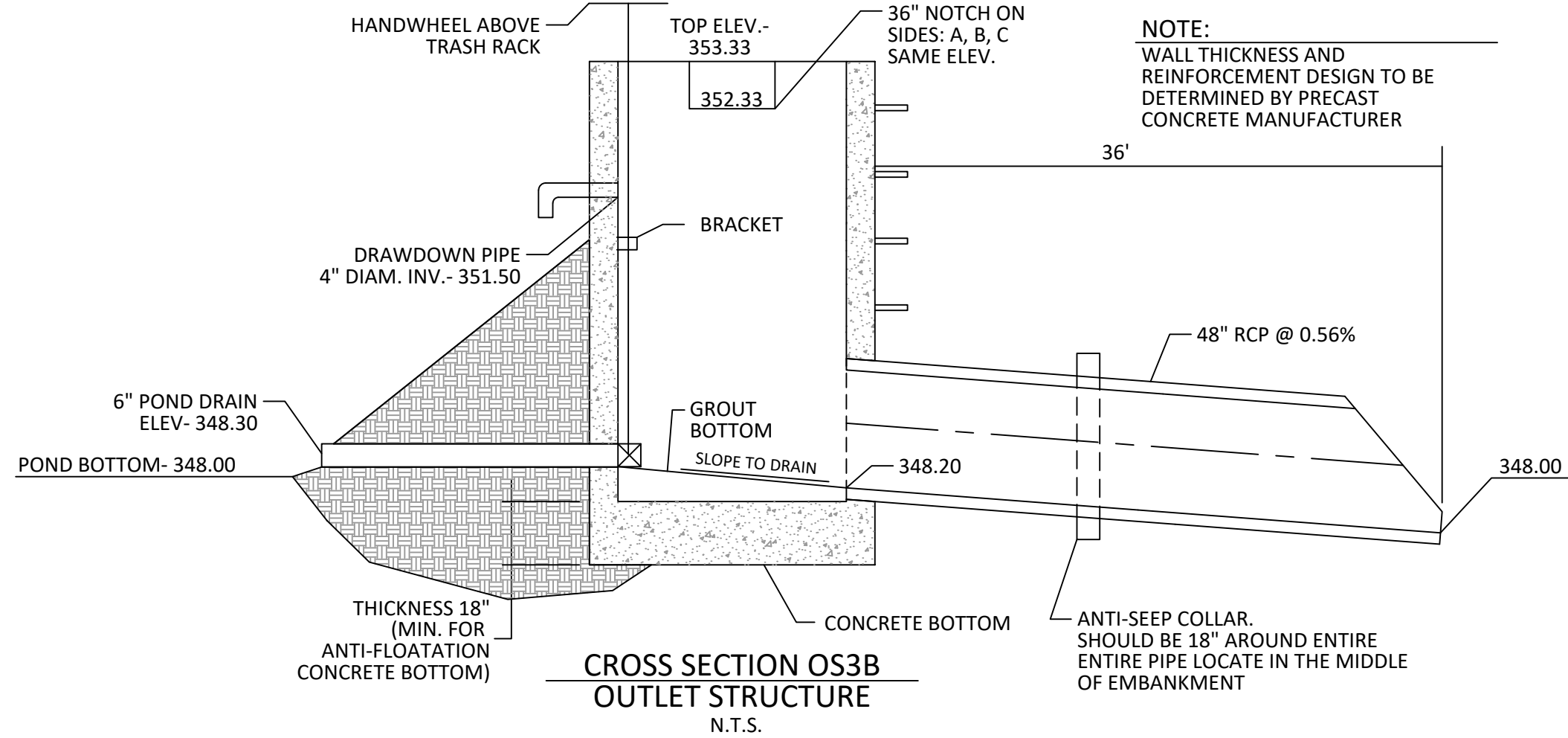
SHEET NO.:
4.5



TRASH RACK DETAIL
N.T.S.



- TRASH RACK NOTES**
- TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
 - IF STRUCTURE FEATURES ANY WEIR NOTCHES THE TRASH RACK WILL EXTEND 5" BELOW THE NOTCHES. (SEE CROSS-SECTION OF THE OUTLET STRUCTURE.)
 - TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
 - TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THROUGH AN OPENING.
 - TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
 - MAX. OPENING IN TRASH RACK SHALL BE 5"x5".
 - TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").



NOTE: WALL THICKNESS AND REINFORCEMENT DESIGN TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER

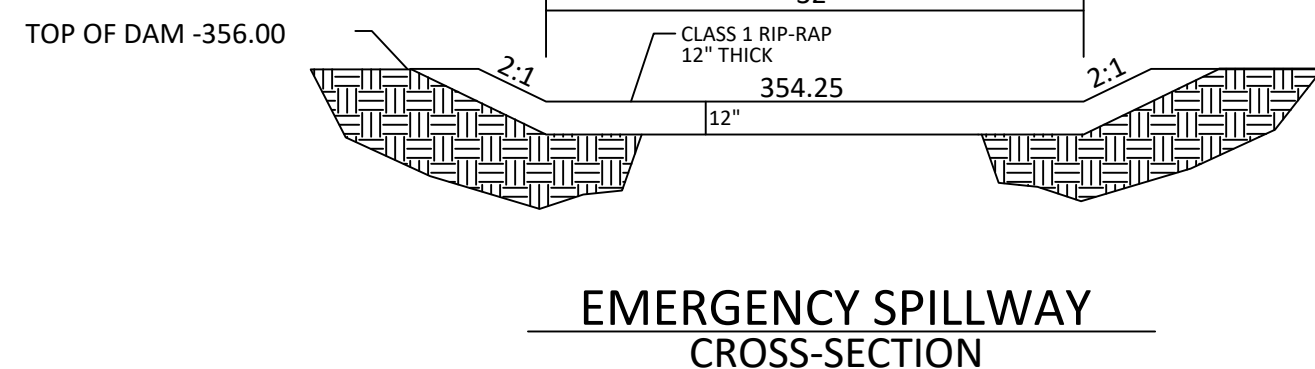
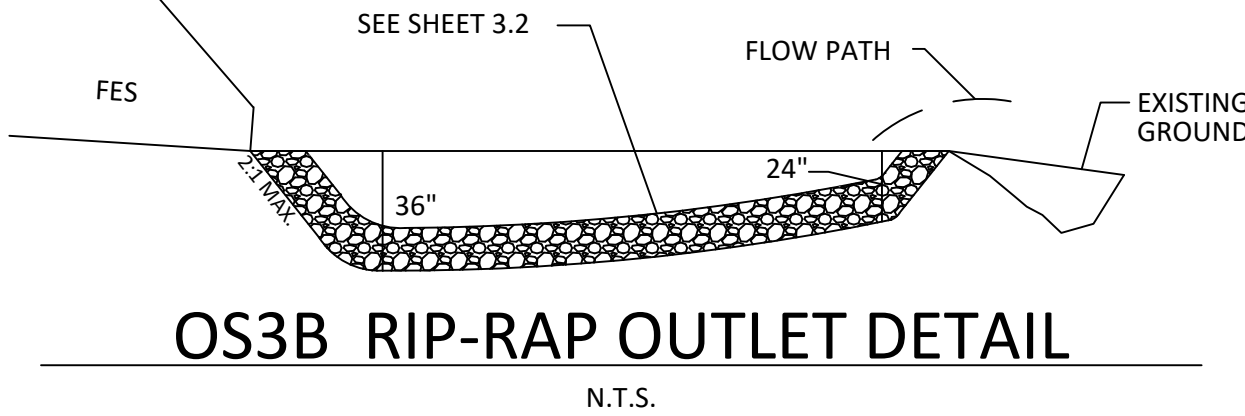
NOTE: ANTI-SEEP COLLAR SHOULD BE 18" AROUND ENTIRE ENTIRE PIPE LOCATE IN THE MIDDLE OF EMBANKMENT

PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND (HERB.)	SHALLOW WATER (HERB.)
EF EUPATORIUM FISTRULOSUM	JE JUNCUS EFFUSES
HC HIBISCUS COCCINEA	AS ACORUS SPP
CG CHELONE GLABRA	IV IRIS VERSICOLOR
LC LOBELIA CARDINALIS	PC PONTEDERIA CORDATA
JOE PYE WEED	PECKEREL WEED
SCARLET ROSE MALLOW	BLUE FLAG IRIS
WHITE TURTLEHEAD	PELTIANDRA VIRGINICA
CARDINAL FLOWER	ARROW ARUM

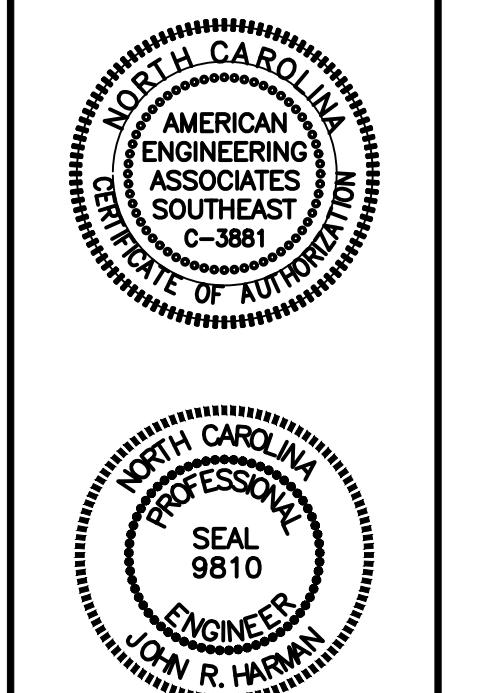
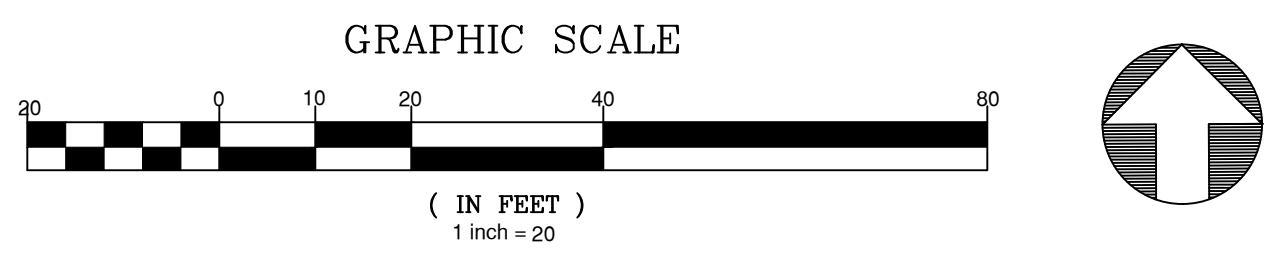
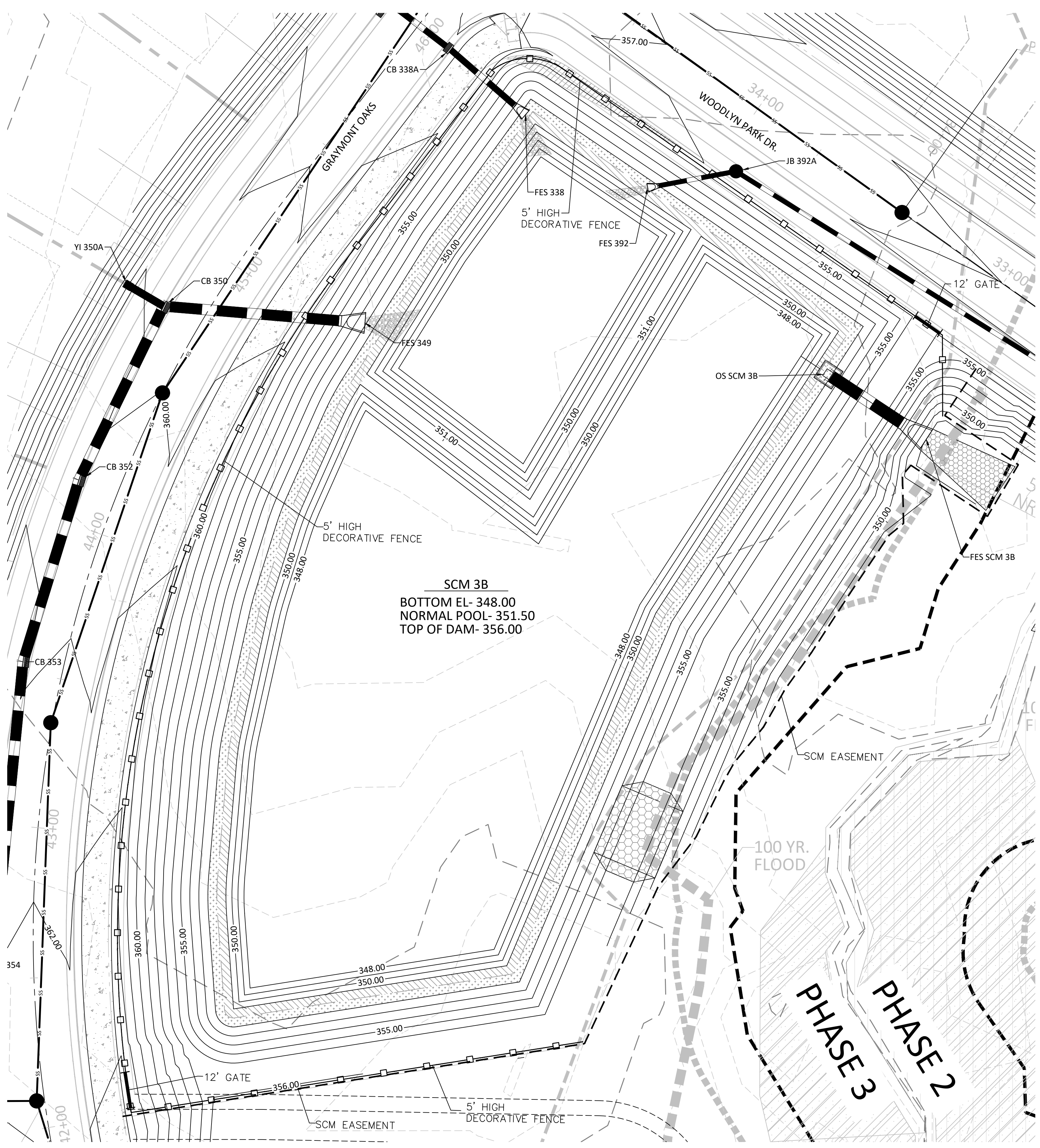
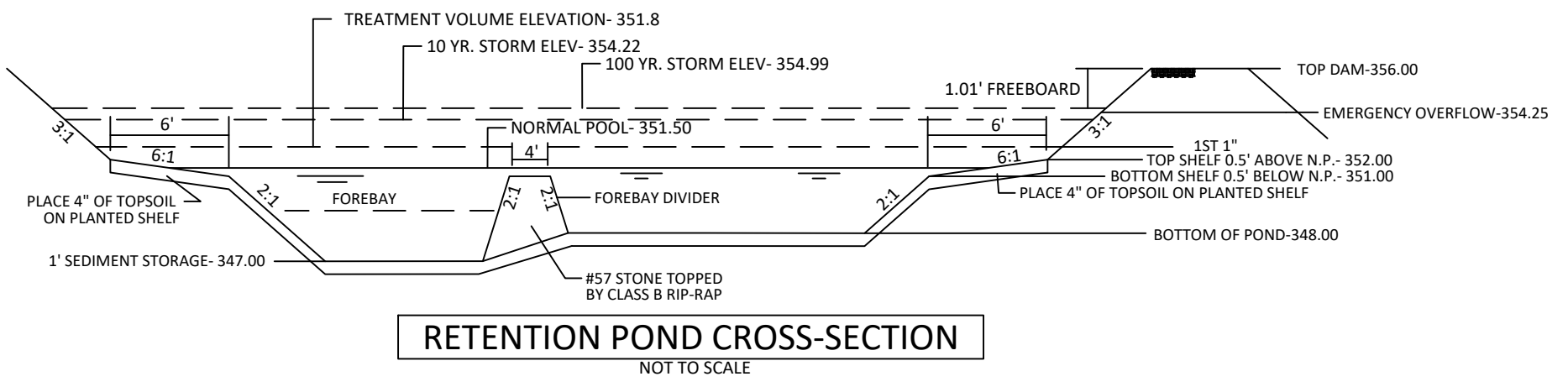
LANDSCAPE PLAN:
SHALLOW LAND= 2,438 sf (USE 609 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 2,374 sf (USE 594 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF



- OUTLET STRUCTURE GENERAL NOTES**
- OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
 - THE OUTLET STRUCTURE SHALL HAVE A TRASH RACK COVERING THE OPENINGS. SUCH TRASH RACK SHALL BE 6" OUT FROM THE OPENING AND SHALL HAVE A MAXIMUM OPENING OF 6"x6". IT SHALL BE SECURELY FASTENED TO THE STRUCTURE BUT REMOVEABLE FOR MAINTENANCE.
 - OUTLET PIPES SHALL HAVE AN ANTI-SEEP COLLAR OF CONCRETE LOCATED APPROXIMATELY UNDER THE MIDDLE OF THE DAM IN WHICH IT IS LOCATED. IT SHALL CONSIST OF CONCRETE POURED AROUND THE PIPE IN A VERTICAL DIRECTION. THE COLLAR SHALL BE A SQUARE 8" THICK AND SHALL EXTEND 18" BEYOND THE OUTSIDE OF THE PIPE IN EACH DIRECTION.
 - TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.

- POND NOTES**
- SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
 - FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.



NO.	DATE	REVISION:
1	7/21/2021	LIST REVIEW FROM TOWN OF ROLESVILLE, CONSULTANT.
2	9/4/2024	TOWN OF ROLESVILLE, CONSULTANT COMMENTS.
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTINGUOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
SCM 3B DETAILS
SHEET NO.: 4.6



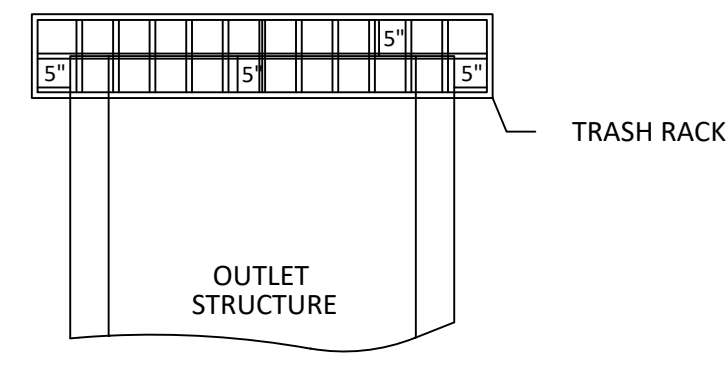
NO.	DATE	REVISION
1	7/27/2021	ISSUE FOR TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2023	REVISION BY TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/20/2023	CONSULTANT DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
**SCM 3C
DETAILS**
SHEET NO.:
4.7

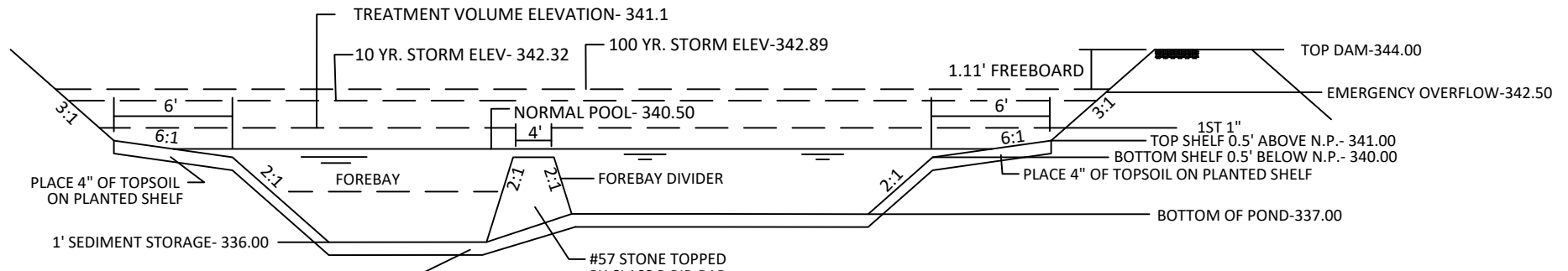
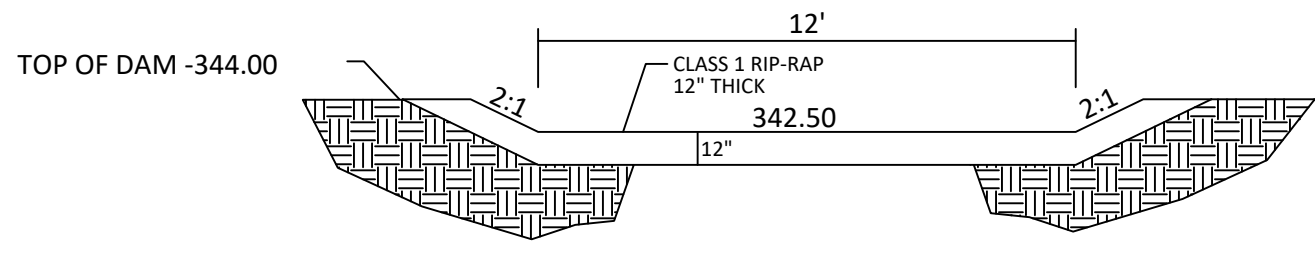
TRASH RACK DETAIL
N.T.S.



TRASH RACK NOTES

- TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
- TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
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- MAX. OPENING IN TRASH RACK SHALL BE 5"x5".
- TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

**EMERGENCY SPILLWAY
CROSS-SECTION**



RETENTION POND CROSS-SECTION
NOT TO SCALE

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLEECE, III AND ASSOCIATES, P.A.

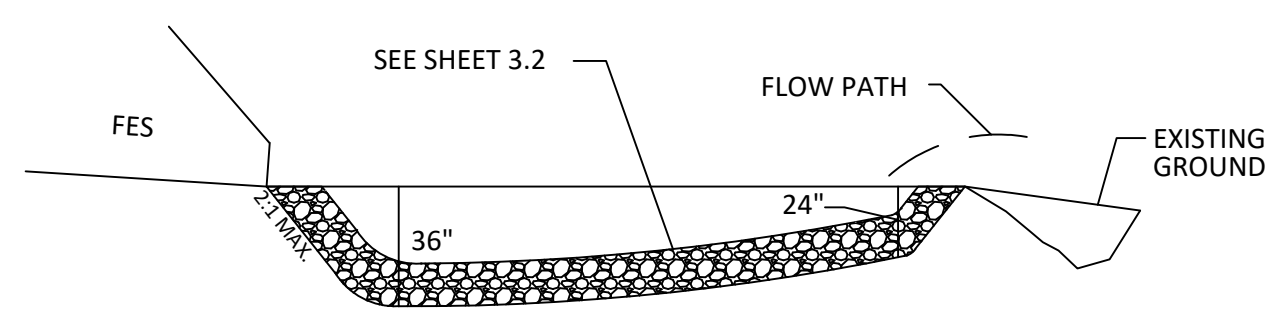
PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND (HERB.)			
EF	EUPATORIUM FISTRULOSUM	JOE PYE WEED	4-6" POT @ 3' SPACING
HC	HIBISCUS COCCINEA	SCARLET ROSE MALLOW	4-6" POT @ 3' SPACING
CG	CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
LC	LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING
SHALLOW WATER (HERB.)			
JE	JUNCUS EFFUSUS	SOFTRUSH	4-6" POT @ 3' SPACING
AS	ACORUS SPP	SWEET FLAG	4-6" POT @ 3' SPACING
IV	IRIS VERSICOLOR	BLUE FLAG IRIS	4-6" POT @ 3' SPACING
PC	PONTEDERIA CORDATA	PECKEREL WEED	4-6" POT @ 3' SPACING
PV	PELTANDRA VIRGINICA	ARROW ARUM	4-6" POT @ 3' SPACING

LANDSCAPE PLAN:

SHALLOW LAND= 1,734 sf (USE 434 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,668 sf (USE 417 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF



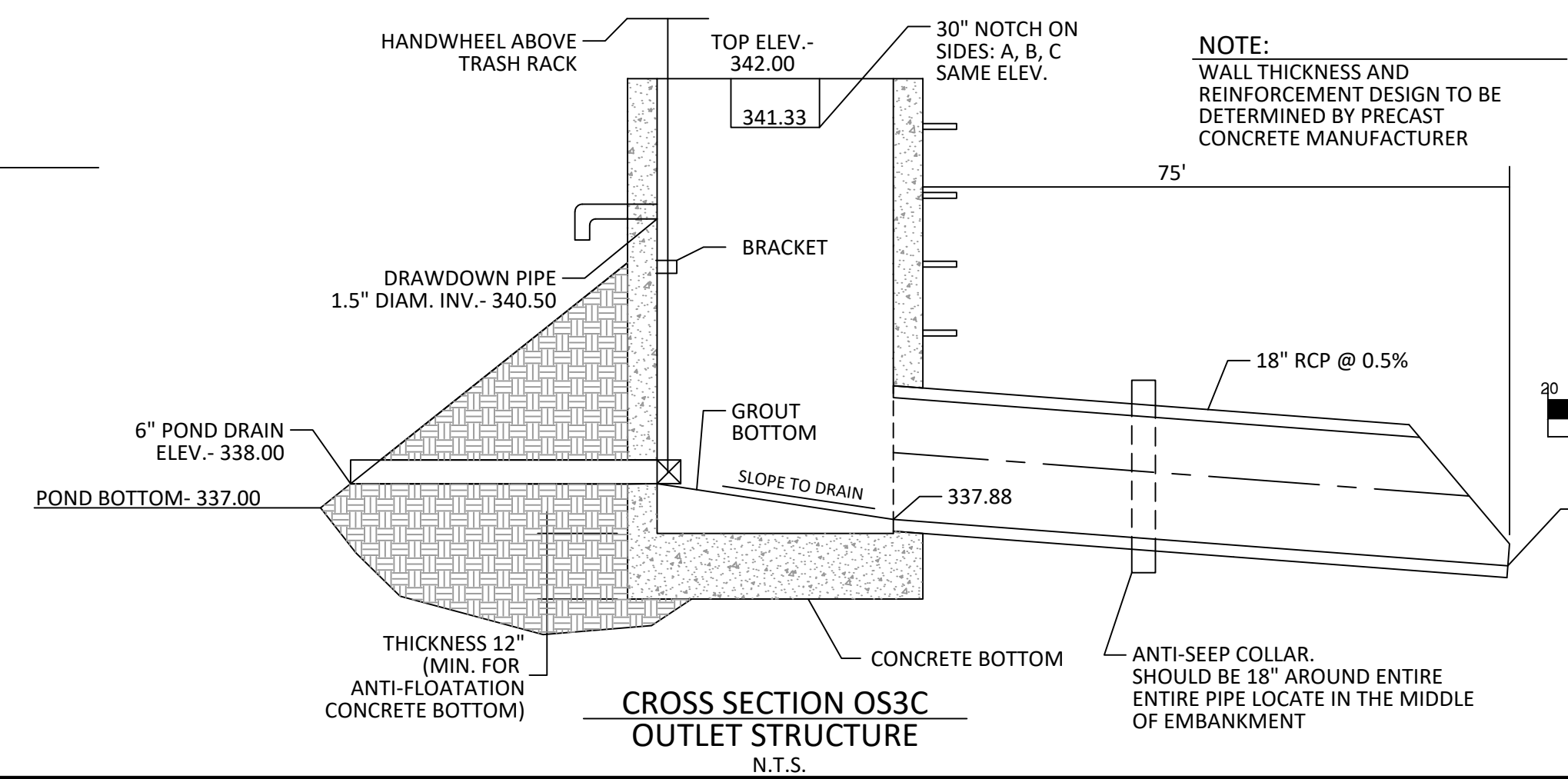
OS3C RIP-RAP OUTLET DETAIL
N.T.S.

OUTLET STRUCTURE GENERAL NOTES

- OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
- THE OUTLET STRUCTURE SHALL HAVE A TRASH RACK COVERING THE OPENINGS. SUCH TRASH RACK SHALL BE 6" OUT FROM THE OPENING AND SHALL HAVE A MAXIMUM OPENING OF 6"x6". IT SHALL BE SECURELY FASTENED TO THE STRUCTURE BUT REMOVEABLE FOR MAINTENANCE.
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- TREATMENT OUTLET PIPE SHALL NOT BE PVC BUT OTHER MATERIAL SUCH AS GSP WHICH IS NOT SUBJECT TO DETERIORATION IN SUNLIGHT.

POND NOTES

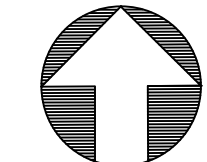
- SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
- FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.



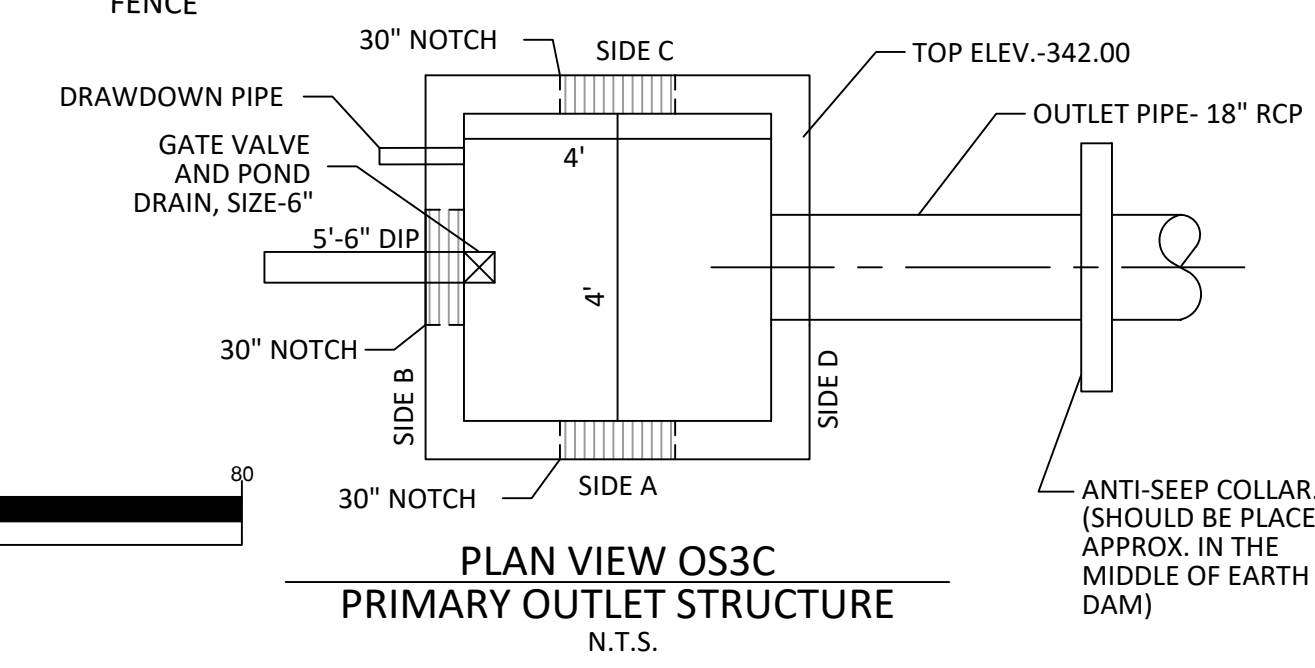
**CROSS SECTION OS3C
OUTLET STRUCTURE**
N.T.S.

NOTE: WALL THICKNESS AND REINFORCEMENT DESIGN TO BE DETERMINED BY PRECAST CONCRETE MANUFACTURER

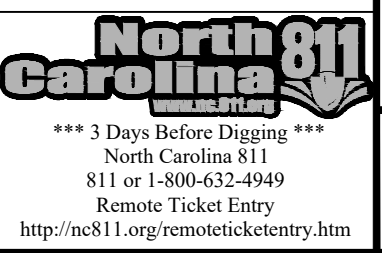
ANTI-SEEP COLLAR SHOULD BE 18" AROUND ENTIRE PIPE LOCATE IN THE MIDDLE OF EMBANKMENT



GRAPHIC SCALE
(IN FEET)
1 inch = 20'

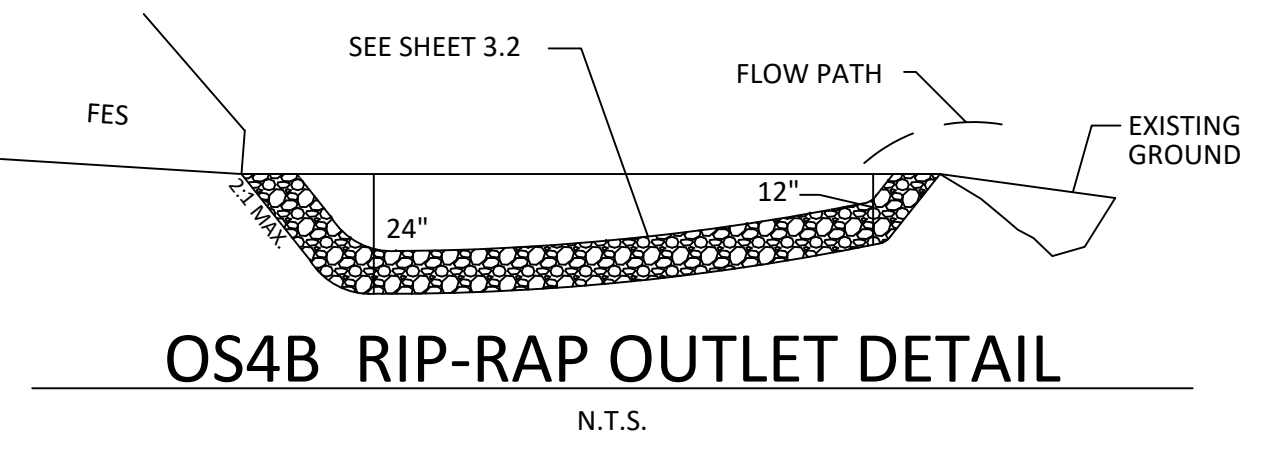
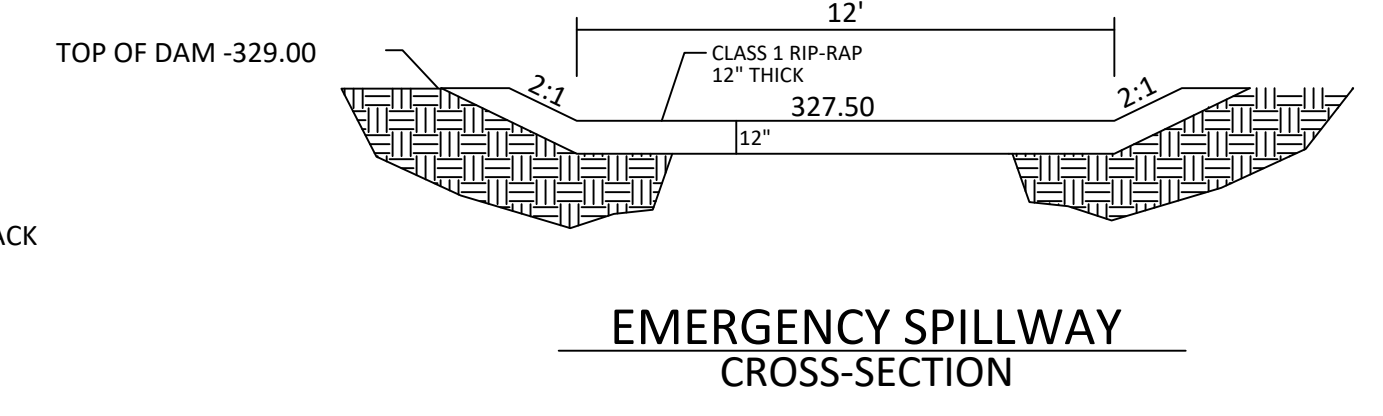
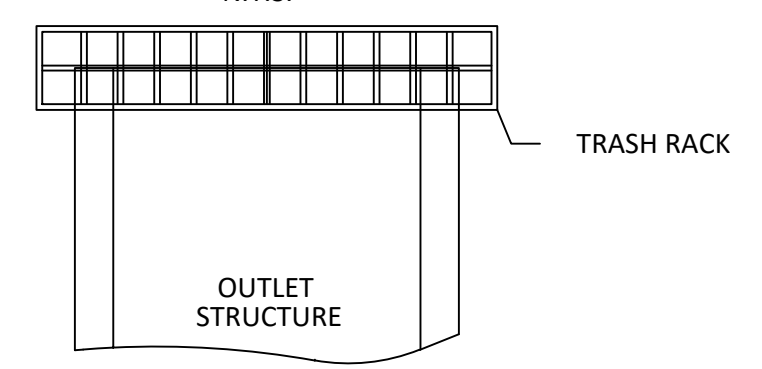


**PLAN VIEW OS3C
PRIMARY OUTLET STRUCTURE**
N.T.S.



2/16/2024 10:00 AM Working Drawings/Phase 3/Drawings/Sheet No. 4.4.11 Phase 3/SCM Details/Drawings

TRASH RACK DETAIL
N.T.S.



PLANT LIST LITTORAL SHELF PLANT SCHEDULE:

SHALLOW LAND (HERB.)	EF EUPATORIUM FISTRULOSUM	JOE PYE WEED	4-6" POT @ 3' SPACING
	HC HIBISCUS COCCINEA	SCARLET ROSE MALLOW	4-6" POT @ 3' SPACING
	CG CHELONE GLABRA	WHITE TURTLEHEAD	4-6" POT @ 3' SPACING
	LC LOBELIA CARDINALIS	CARDINAL FLOWER	4-6" POT @ 3' SPACING
SHALLOW WATER (HERB.)	JE JUNCUS EFFUSUS	SOFTRUSH	4-6" POT @ 3' SPACING
	AS ACORUS SPP	SWEET FLAG	4-6" POT @ 3' SPACING
	IV IRIS VERSICOLOR	BLUE FLAG IRIS	4-6" POT @ 3' SPACING
	PC PONTEDERIA CORDATA	PECKEREL WEED	4-6" POT @ 3' SPACING
	PV PELTANDRA VIRGINICA	ARROW ARUM	4-6" POT @ 3' SPACING

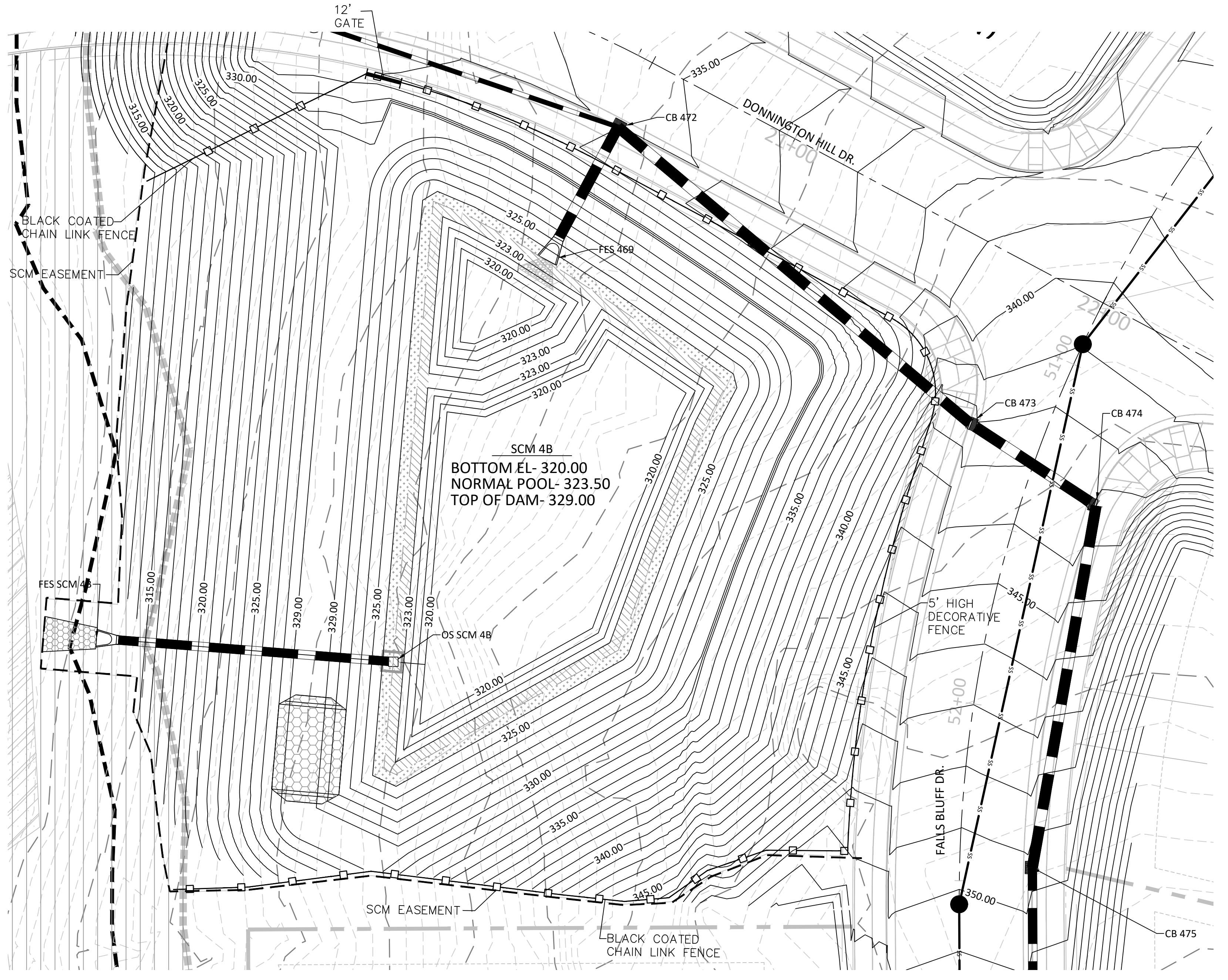
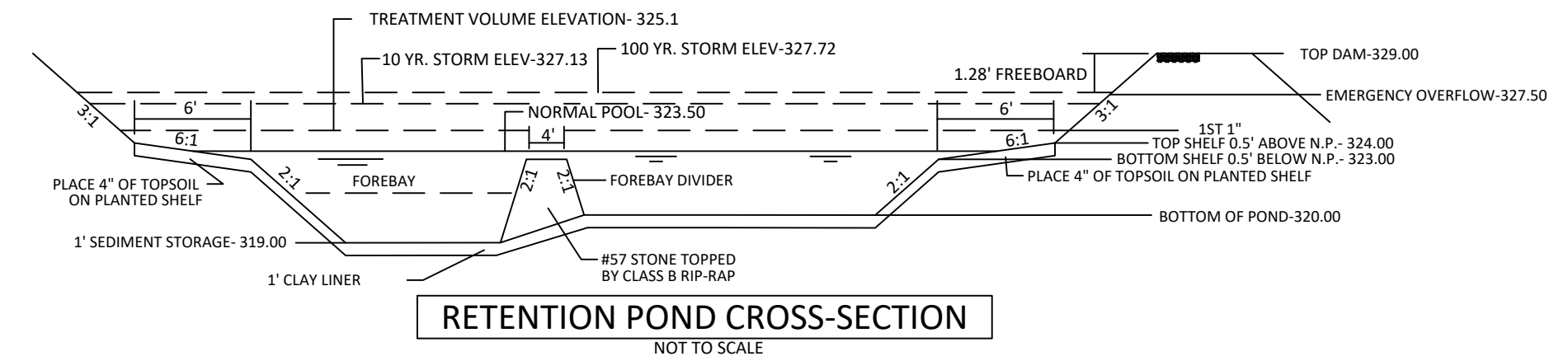
LANDSCAPE PLAN:
SHALLOW LAND= 1,281 sf (USE 320 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,217 sf (USE 304 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 20 SF

TRASH RACK NOTES

- TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
- IF STRUCTURE FEATURES ANY WEIR NOTCHES THE TRASH RACK WILL EXTEND 5" BELOW THE NOTCHES. (SEE CROSS-SECTION OF THE OUTLET STRUCTURE.)
- TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
- TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THOUGH AN OPENING.
- TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
- MAX. OPENING IN TRASH RACK SHALL BE 5"x5".
- TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

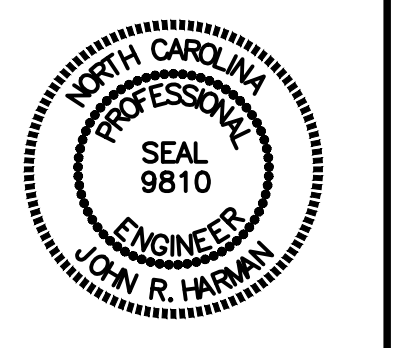
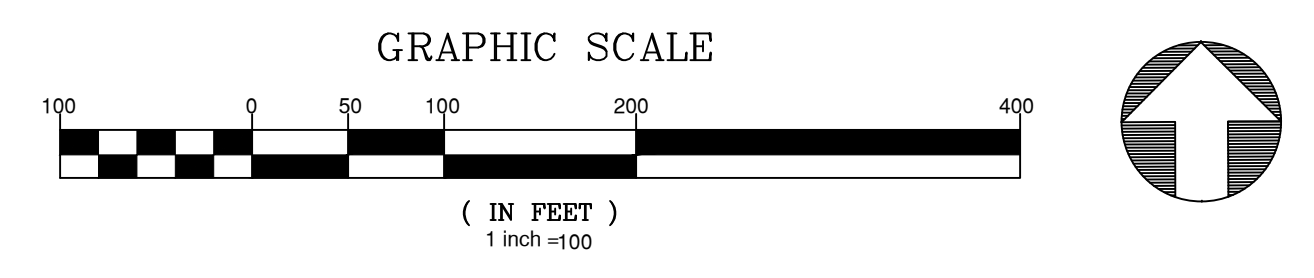
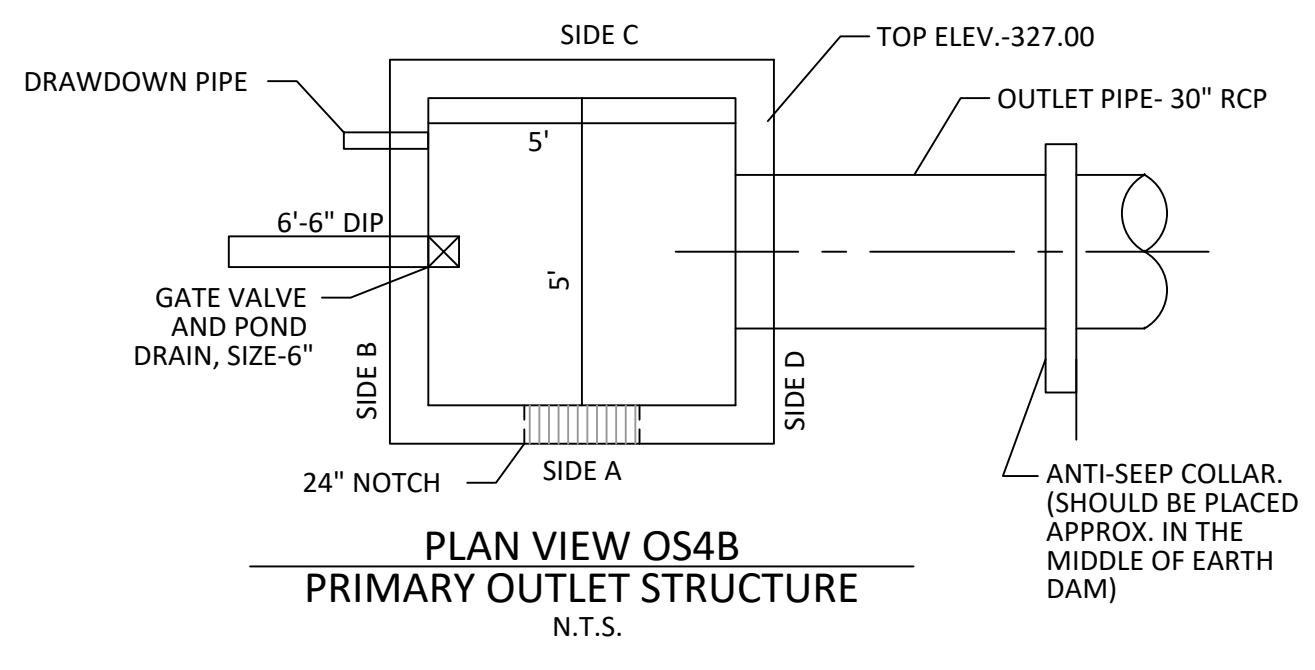
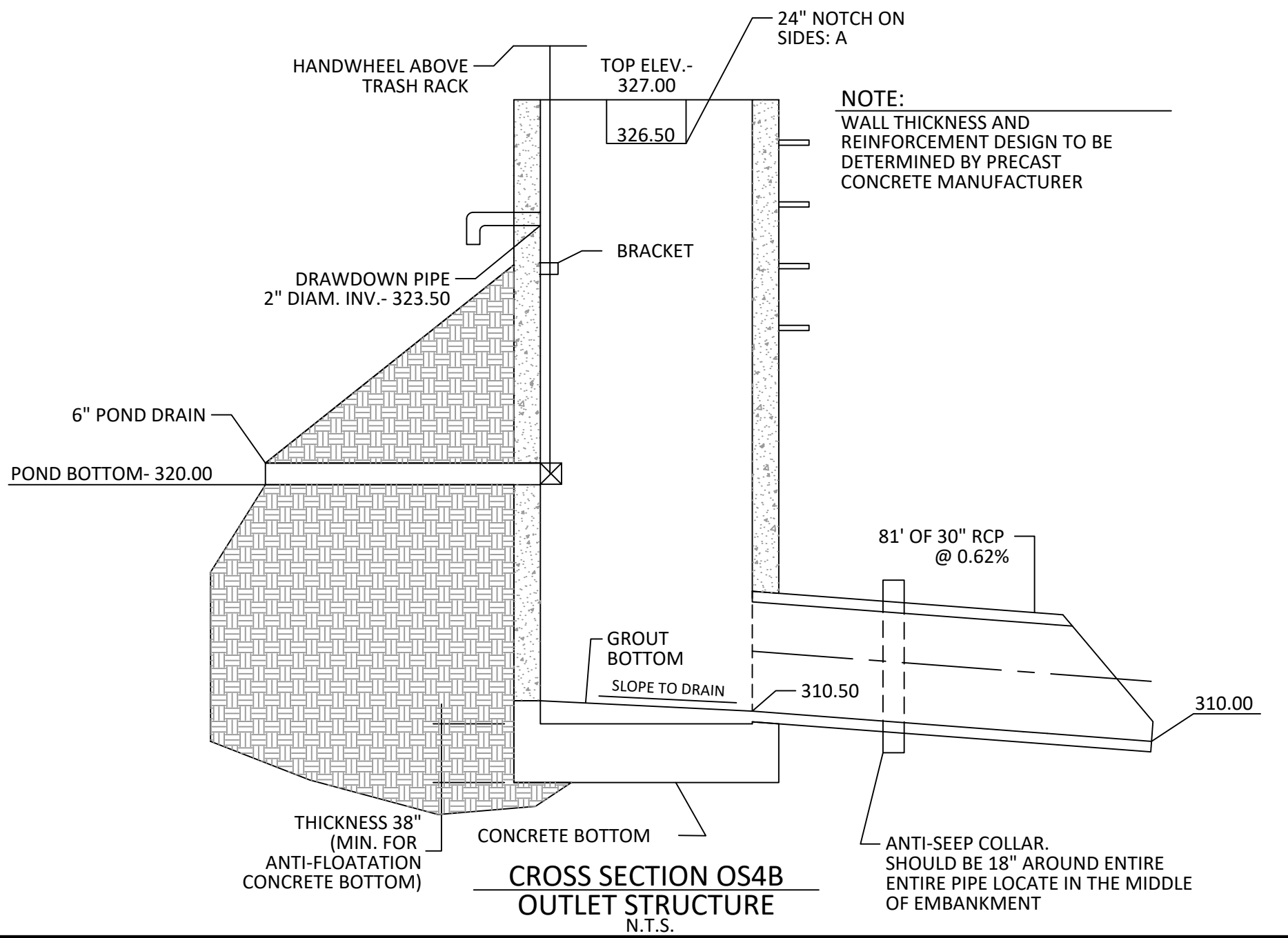


OUTLET STRUCTURE GENERAL NOTES

- OUTLET STRUCTURE ELEVATIONS SHOWN ON THE DETAILS ON THIS SHEET ARE CRITICAL AND MUST BE WITHIN 0.02' OF THAT SHOWN. IF OUTLET STRUCTURES ARE PRE-CAST OFF-SITE, THE HOLE FOR THE OUTLET PIPE SHALL BE ENLARGED TO ALLOW UP TO 0.3' OF VERTICAL MOVEMENT. WHEN INSTALLED, THE EXCESS OPENING SHALL BE FILLED WITH GROUT.
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POND NOTES

- SEE SHEET 3.0 FOR BMP CONVERSION SEQUENCE.
- FOREBAY DIVIDERS ARE TO BE INSTALLED WHILE CONVERTING FROM SEDIMENT BASIN TO WET POND.



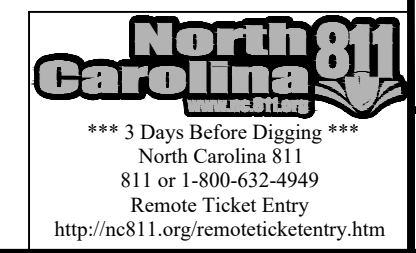
NO.	DATE	REVISION:
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, REVIEW AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING RESPONSES

STIPULATION FOR REUSE
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MALL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
SCM 4B DETAILS
SHEET NO.:
4.8



February 4, 2025
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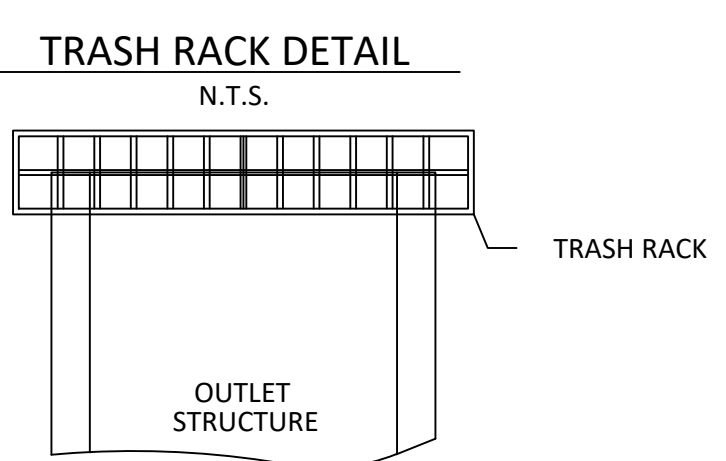
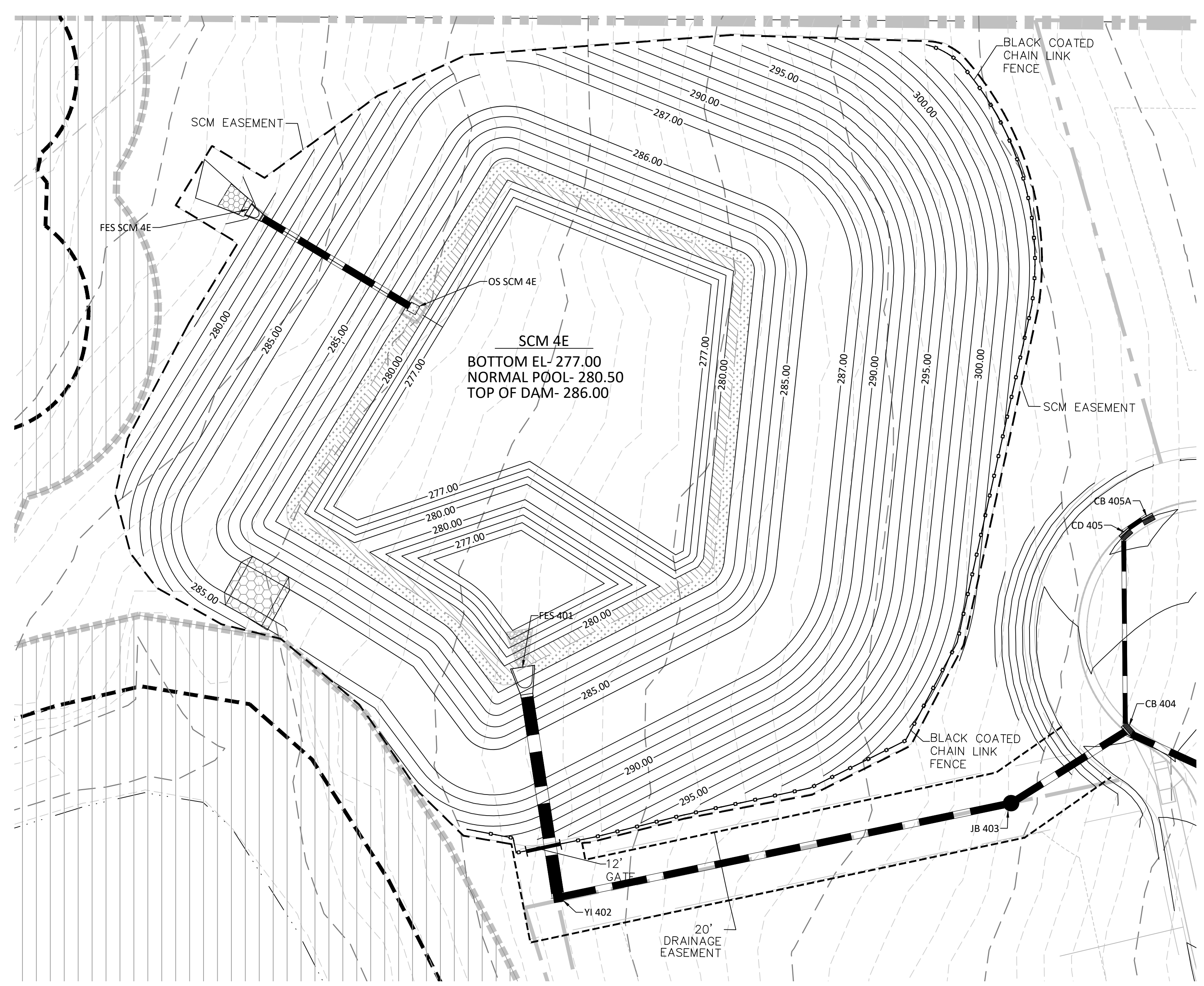
NO.	DATE	REVISION
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2	9/14/2023	FOR TOWN OF ROLESVILLE CONSULTANT COMMENTS
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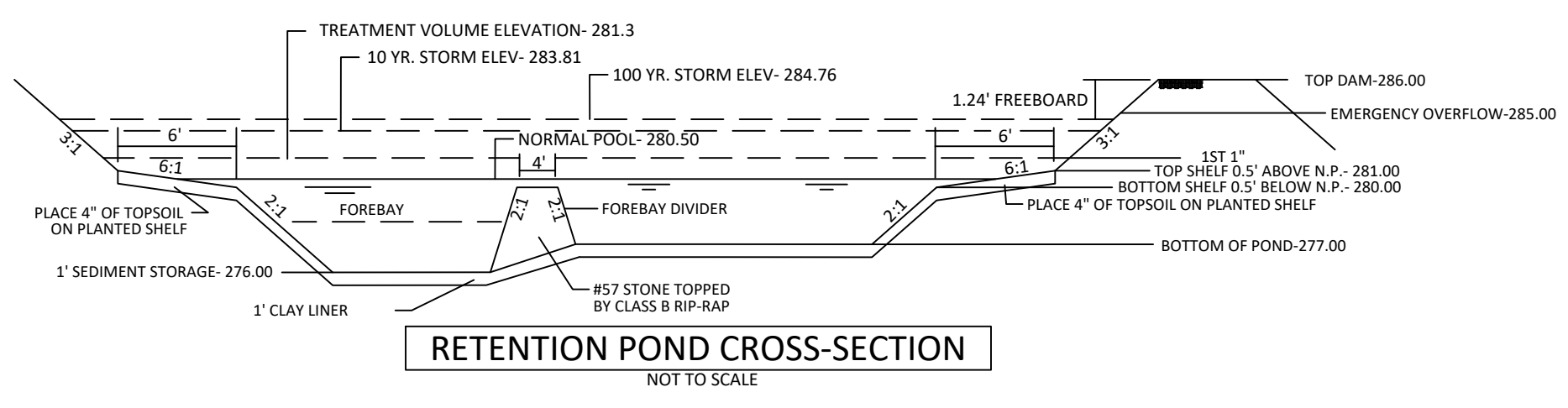
**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
**SCM 4E
DETAILS**
SHEET NO.:
4.10



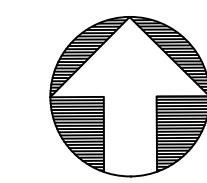
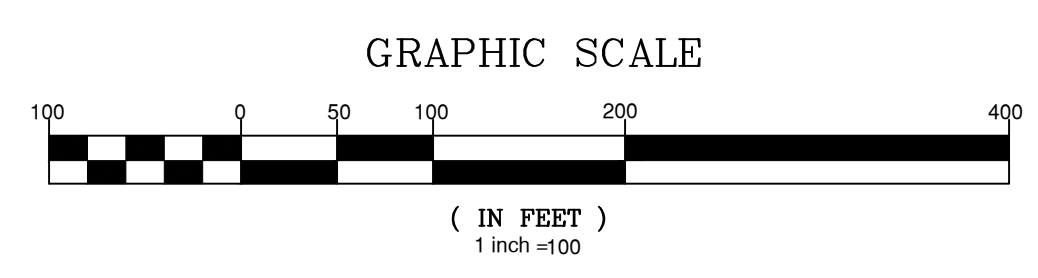
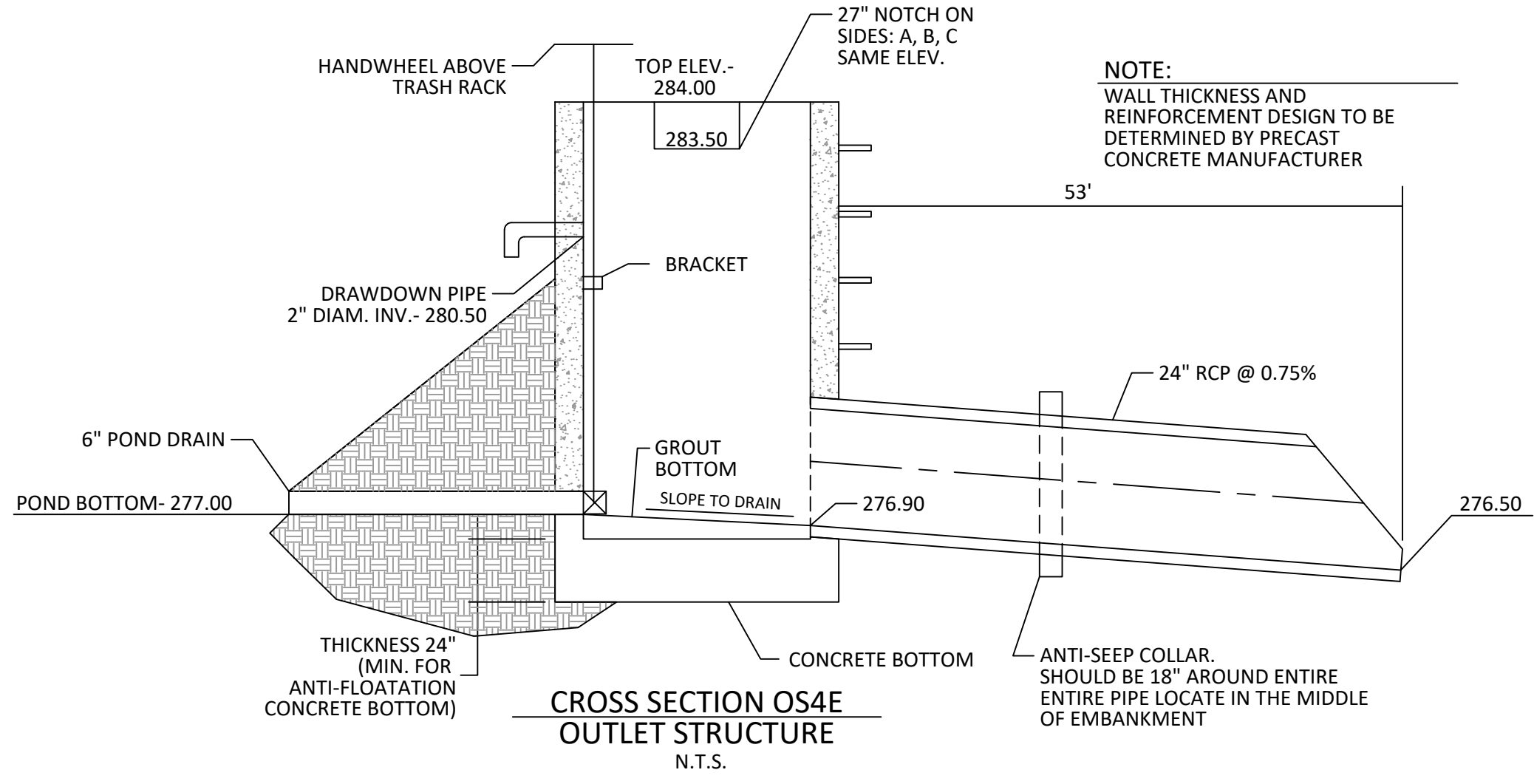
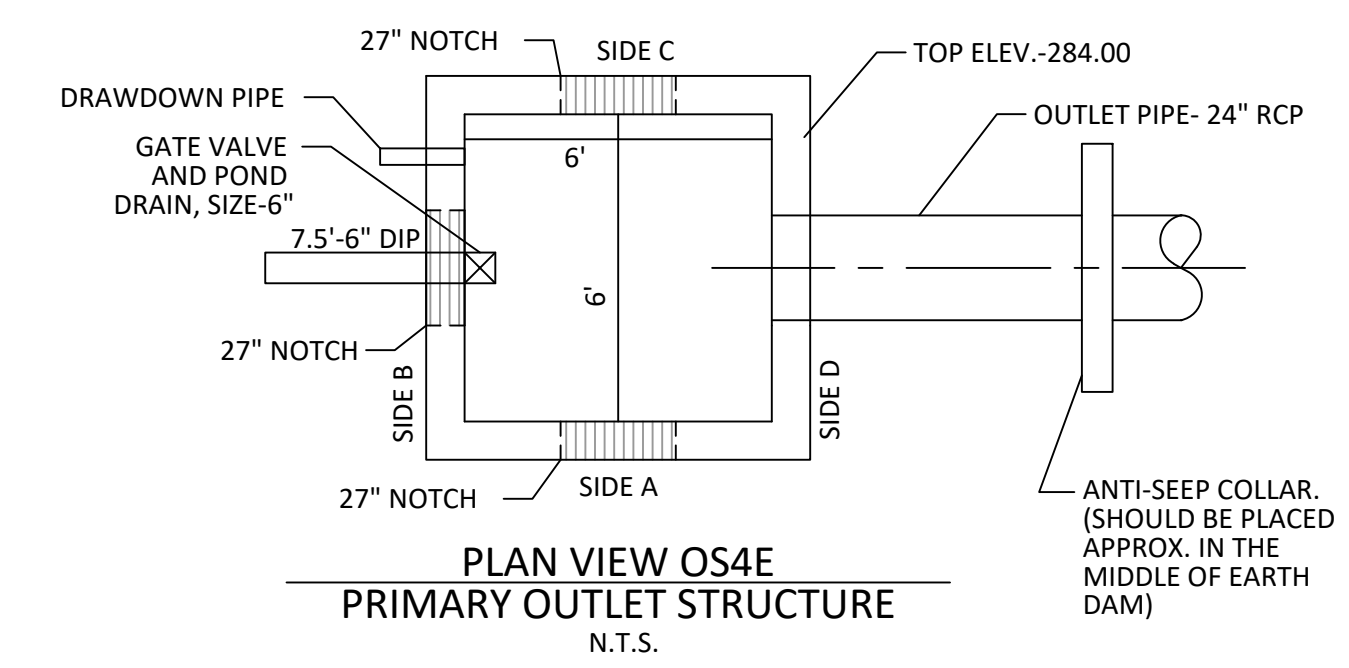
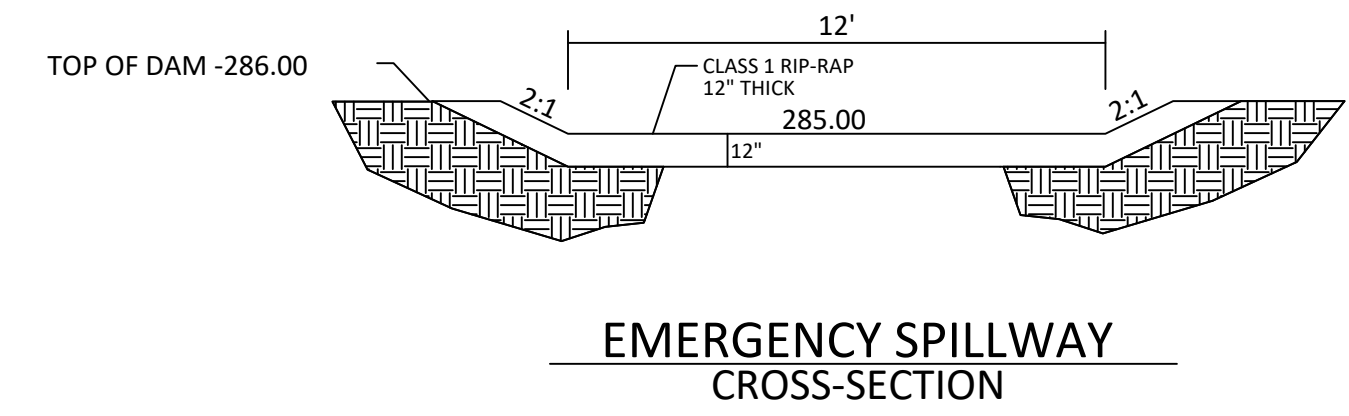
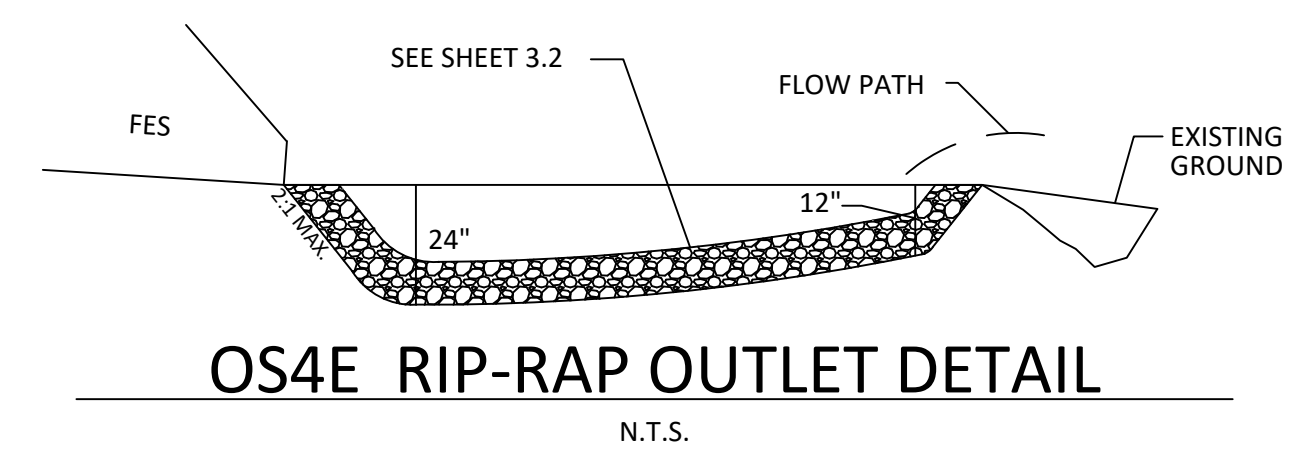
- TRASH RACK NOTES**
1. TRASH RACK SHALL BE 6" CLEAR OF STRUCTURE TOP AND SIDES. THE TRASH RACK NEED NOT COVER THE TREATMENT OUTLET PIPE.
 2. IF STRUCTURE FEATURES ANY WEIR NOTCHES THE TRASH RACK WILL EXTEND 5" BELOW THE NOTCHES. (SEE CROSS-SECTION OF THE OUTLET STRUCTURE.)
 3. TRASH RACK SHALL BE FASTENED TO EACH SIDE OF THE STRUCTURE AT AT LEAST 2 POINTS. IT SHALL BE EASILY REMOVED FOR MAINTENANCE OR ENTRY INTO THE STRUCTURE.
 4. TRASH RACK SHALL ACCOMMODATE VALVE SHAFT THROUGH AN OPENING.
 5. TRASH RACK SHALL BE MADE OF DURABLE MATERIAL WHICH WILL NOT RUST OR DETERIORATE IN SUNLIGHT.
 6. MAX. OPENING IN TRASH RACK SHALL BE 5"x5".
 7. TOP OF TRASH RACK SHALL HAVE A GRID OF BARS (MAX. 6"x6").



- PLANT LIST LITTORAL SHELF PLANT SCHEDULE:**
- SHALLOW LAND (HERB.)**
- EF EUPATORIUM FISTULOSUM JOE PYE WEED 4-6" POT @ 3' SPACING
 - HC HIBISCUS COCCINEA SCARLET ROSE MALLOW 4-6" POT @ 3' SPACING
 - CG CHELONE GLABRA WHITE TURTLEHEAD 4-6" POT @ 3' SPACING
 - LC LOBELIA CARDINALIS CARDINAL FLOWER 4-6" POT @ 3' SPACING
- SHALLOW WATER (HERB.)**
- JE JUNCUS EFFUSUS SOFTRUSH 4-6" POT @ 3' SPACING
 - AS ACORUS SPP SWEET FLAG 4-6" POT @ 3' SPACING
 - IV IRIS VERSICOLOR BLUE FLAG IRIS 4-6" POT @ 3' SPACING
 - PC PONTEDERIA CORDATA PECKEREL WEED 4-6" POT @ 3' SPACING
 - PV PELTANDRA VIRGINICA ARROW ARUM 4-6" POT @ 3' SPACING

LANDSCAPE PLAN:
SHALLOW LAND= 1,290 sf (USE 322 PLANTS FROM LIST ABOVE)
SHALLOW WATER= 1,233 sf (USE 308 PLANTS FROM LIST ABOVE)
USE EQUAL NUMBER OF PLANTS FROM LIST ABOVE

CALCULATION: 50 PLANTS PER 200 SF

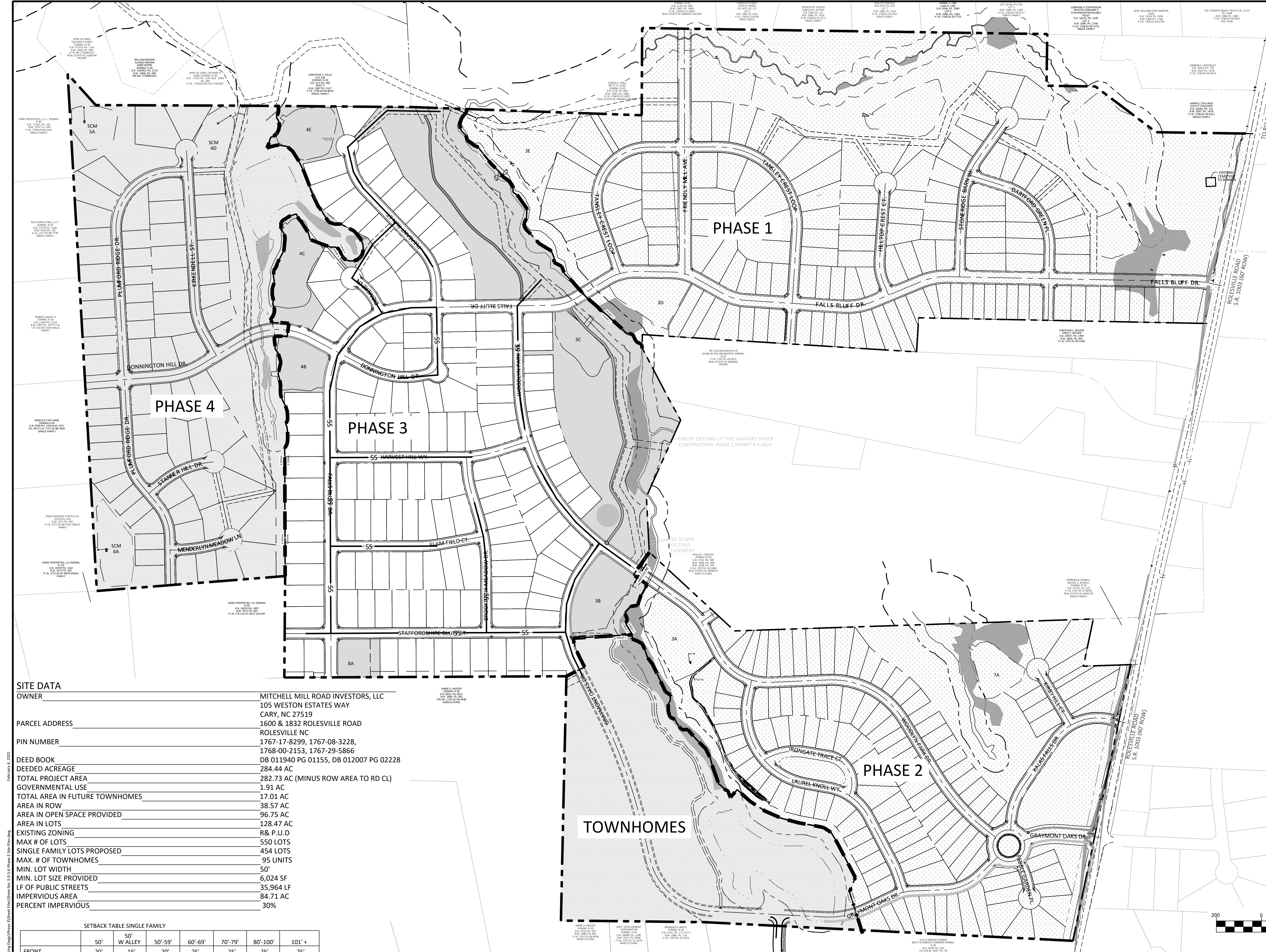


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February 4, 2025 Z:\Projects\9900\Working\Drawings\Phase 3\Submittal\Drawings\Sheet No. 4.4.11 Phase 3 SCM Details.dwg





SITE LEGEND

	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGE EASEMENT
	PROPOSED UTILITY EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	TOT LOT
	POCKET PARK
	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASELINE

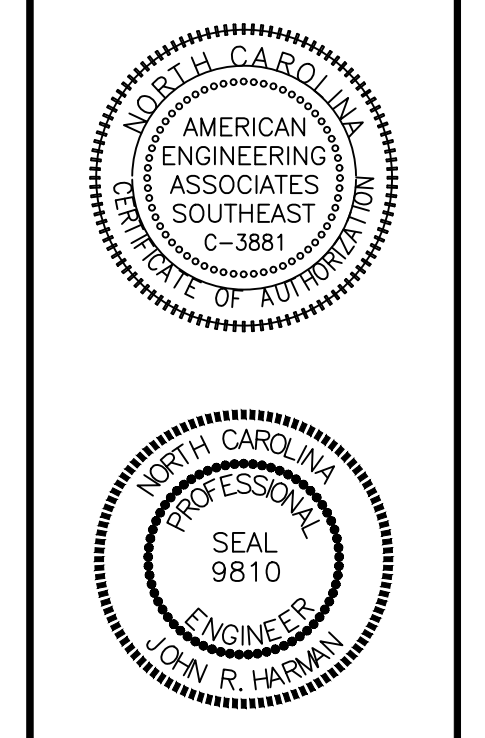
SITE DATA

OWNER	MITCHELL MILL ROAD INVESTORS, LLC
PARCEL ADDRESS	105 WESTON ESTATES WAY CARY, NC 27519
PIN NUMBER	1600 & 1832 ROLESVILLE ROAD ROLESVILLE NC
DEED BOOK	1767-17-8299, 1767-08-3228, 1768-00-2153, 1767-29-5866
DEEDED ACREAGE	DB 011940 PG 01155, DB 012007 PG 02228
TOTAL PROJECT AREA	284.44 AC
GOVERNMENTAL USE	282.73 AC (MINUS ROW AREA TO RD CL)
TOTAL AREA IN FUTURE TOWNHOMES	1.91 AC
AREA IN ROW	17.01 AC
AREA IN OPEN SPACE PROVIDED	38.57 AC
EXISTING ZONING	96.75 AC
MAX # OF LOTS	128.47 AC
SINGLE FAMILY LOTS PROPOSED	R& P.U.D
MAX # OF TOWNHOMES	550 LOTS
MIN. LOT WIDTH	454 LOTS
LF OF PUBLIC STREETS	95 UNITS
IMPERVIOUS AREA	50'
PERCENT IMPERVIOUS	6,024 SF
	35,964 LF
	84.71 AC
	30%

SETBACK TABLE SINGLE FAMILY

	50'	50'-59'	60'-69'	70'-79'	80'-100'	101' +
FRONT	20'	15'	20'	25'	25'	25'
REAR	20'	15'	20'	25'	25'	30'
SIDE	**	**	**	*	10'	12'
CORNER SIDE	10'	10'	10'	10'	15'	18'
MIN. LOT SIZE	6,000	6,000	6,000	6,600	8,400	14,000

* AGGREGATE 12', MIN. 5'
** MIN. 3' AGGREGATE 10'



REVISIONS

NO.	DATE	DESCRIPTION
1	7/27/2024	REVISED FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	REVISED CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING RESPONSES

STIPULATION FOR REUSE

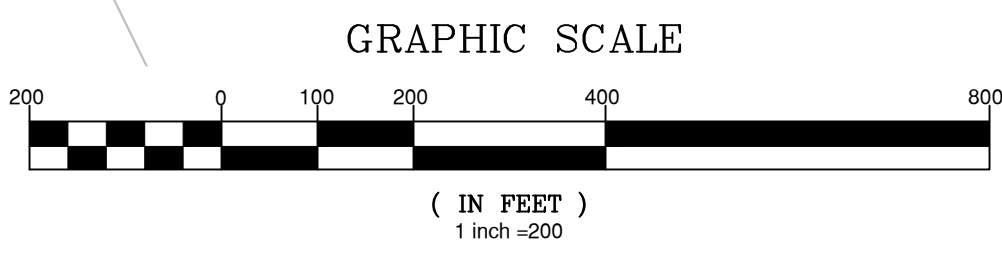
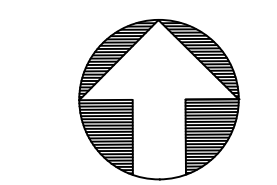
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MAL/ES/AH/DH
DATE: NOV 1, 2024

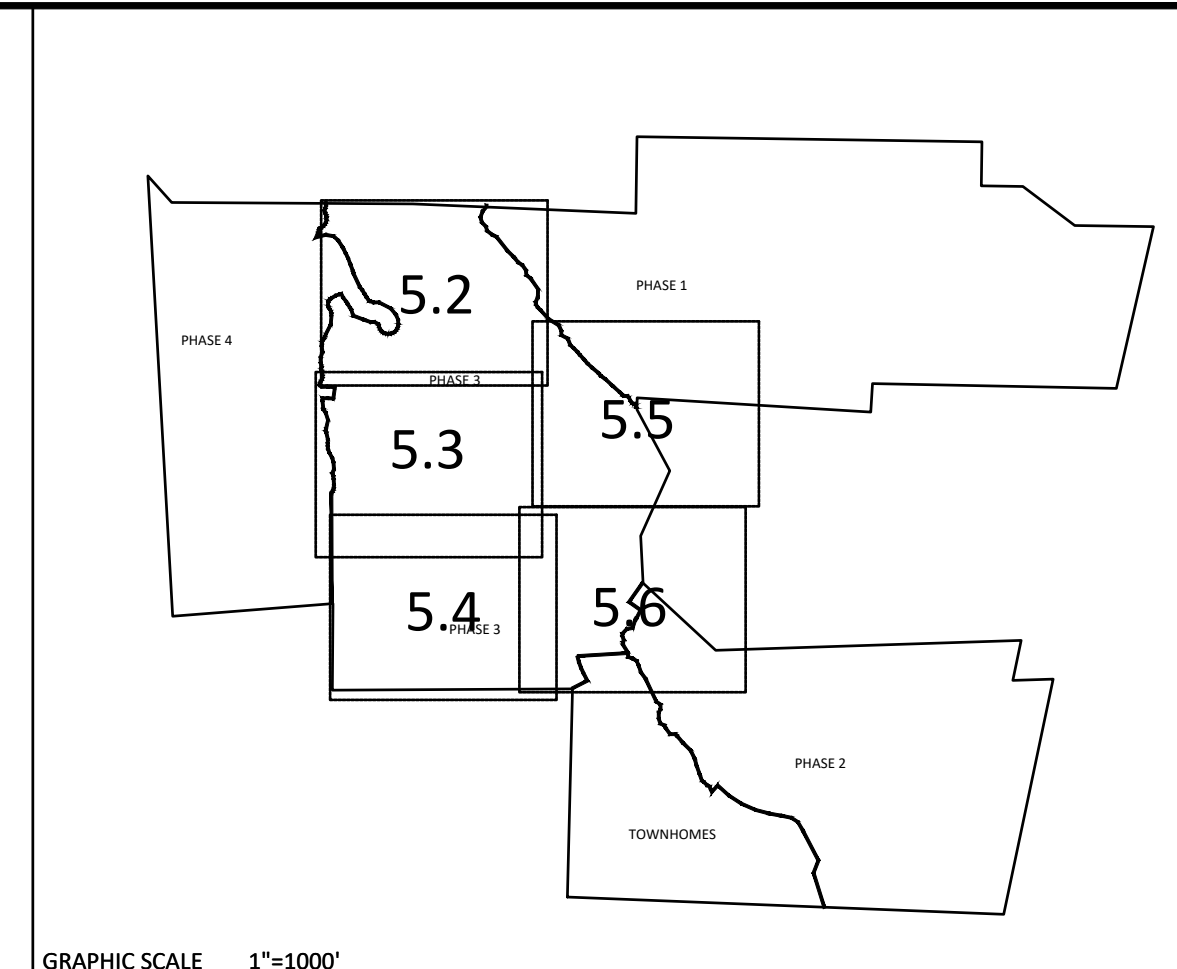
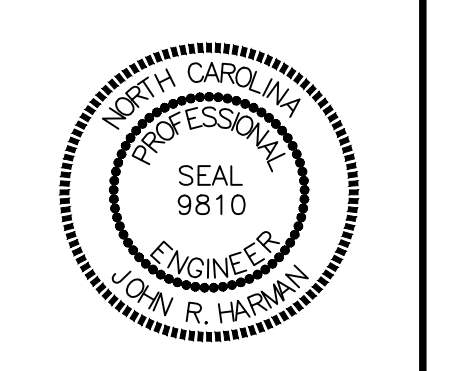
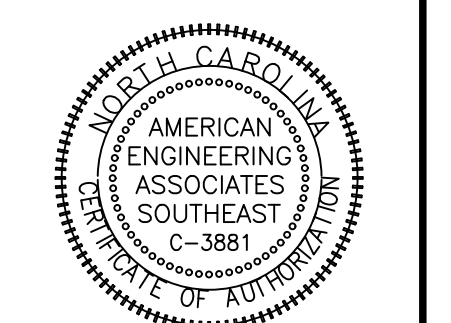
OVERALL SITE PLAN

SHEET NO.: 5.0



2/20/2024 10:00 AM (Working Draft) Phase 3 Submittal - 5.0 of 5.0 (Phase 3 Submittal)

JONATHAN V. GILLIS
 ZONING: R-30
 D.B. 4974, PG. 38
 TRACT 2 B.M. 1987, PG. 1527
 PIN NO. 1758.04-90-8610
 REAL ESTATE ID: 0163469



SETBACK TABLE SINGLE FAMILY

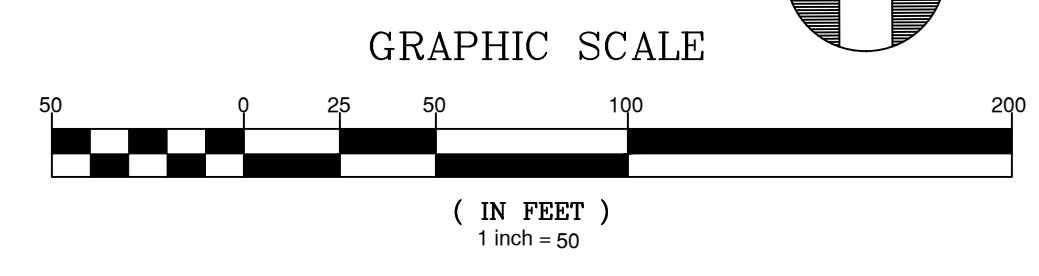
	50'	50' W ALLEY	50'-59'	60'-69'	70'-79'	80'-100'	101' +
FRONT	20'	15'	20'	25'	25'	25'	25'
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 ** MIN. 3' AGGREGATE 10'

GENERAL NOTE:
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 2. BACK OF CURB RADIUS AT INTERSECTIONS-
 RESIDENTIAL-RESIDENTIAL- 28'
 RESIDENTIAL-COLLECTOR- 30'
 COLLECTOR-COLLECTOR- 30'
 ENTRANCE AT CUL-DE-SAC- 32.5
 ENTRY ROADS-ROLESVILLE RD.- 35'

SITE LEGEND

	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGE EASEMENT
	PROPOSED UTILITY EASEMENT
	PROPOSED HANDICAP RAMPS
	TOT LOT
	POCKET PARK
	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASING LINE



NO.	DATE	REVISION
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2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/20/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

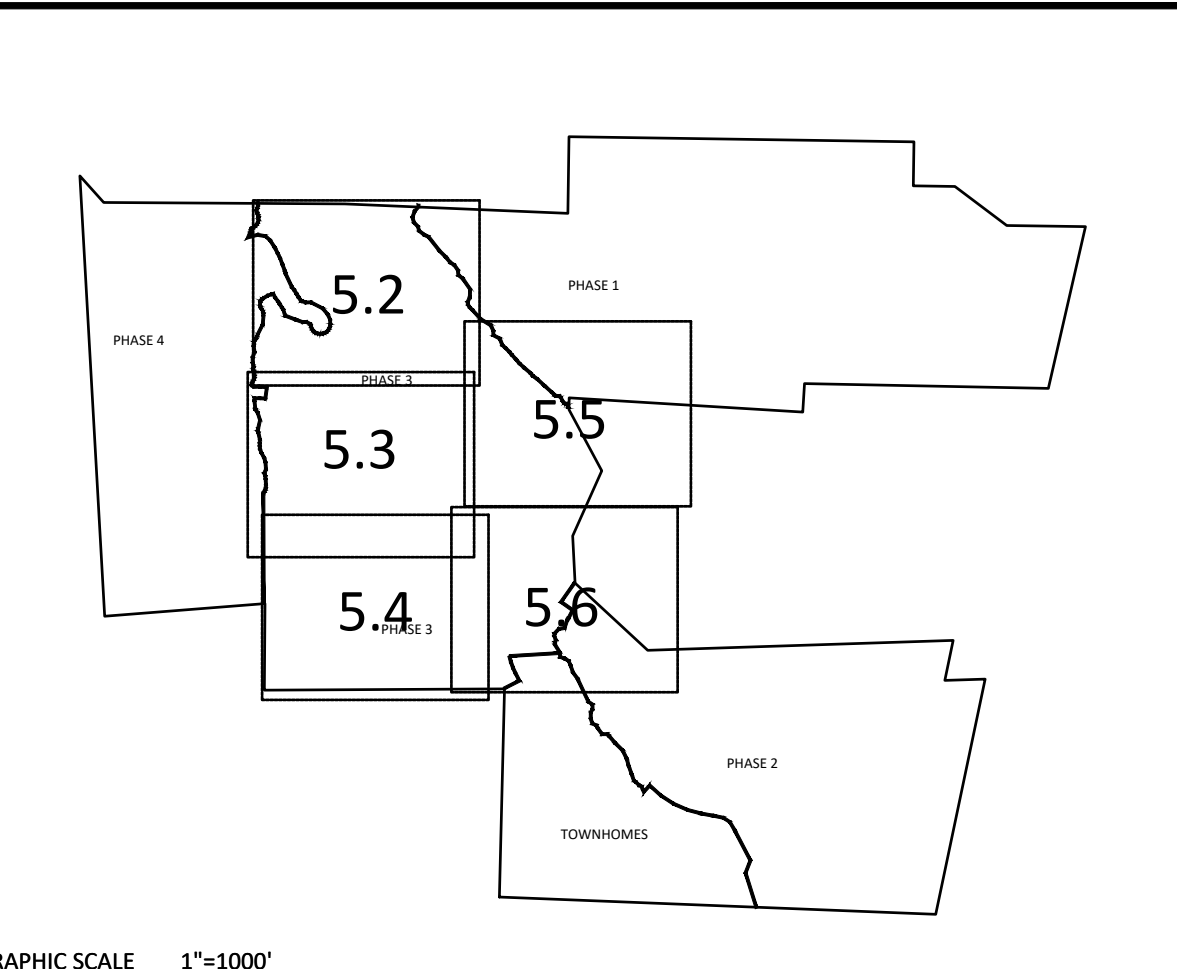
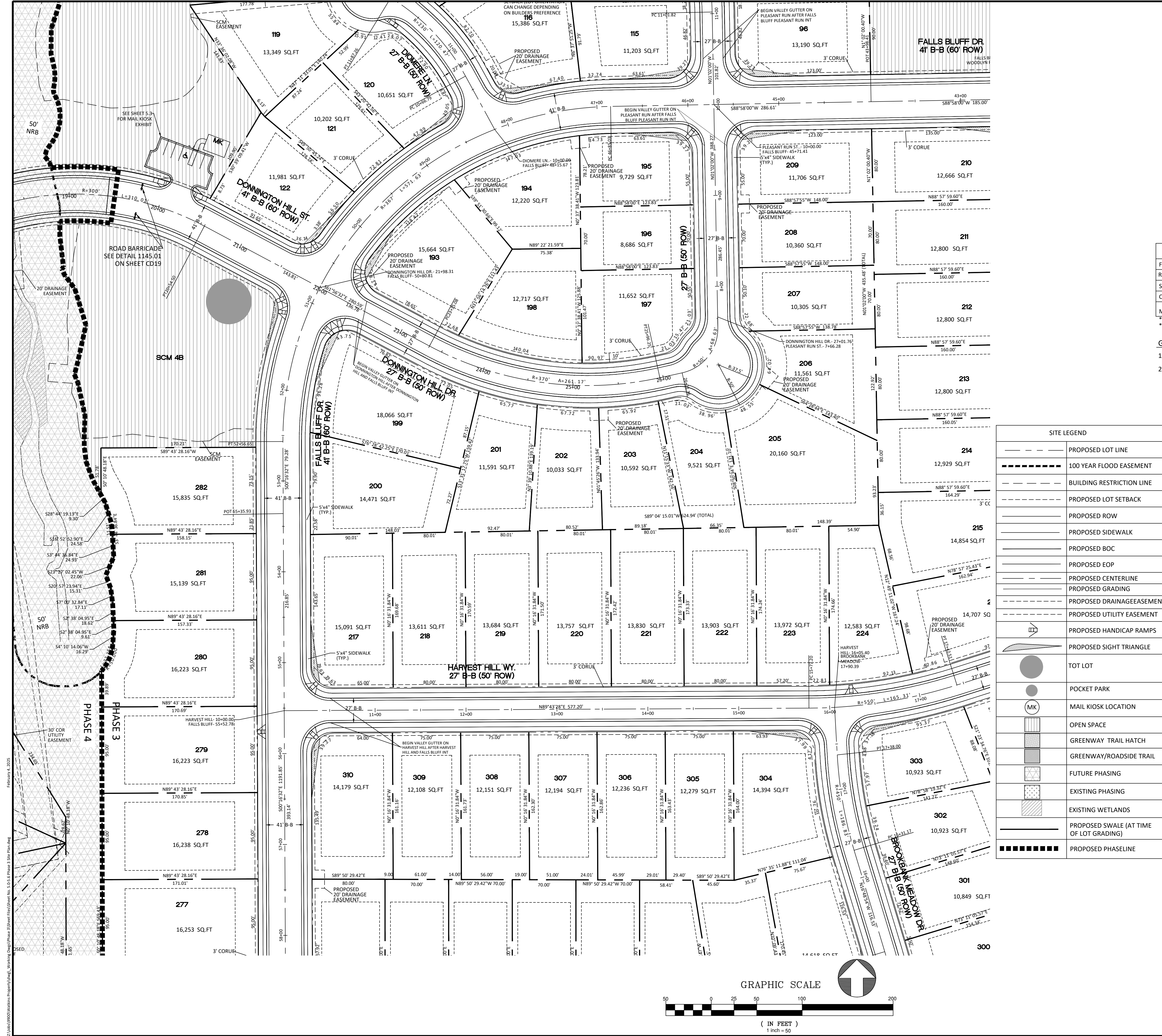
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**KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC**

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MAL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
**PHASE 3
 SITE PLAN**
 SHEET NO.:
5.2



February 4, 2025
 Z:\Arch\0000\Working\Drawings\Phase 3\Phase 3 Site Plan.dwg



GRAPHIC SCALE 1"=100'

SETBACK TABLE SINGLE FAMILY

	50'	50'	50'-59'	60'-69'	70'-79'	80'-100'	101'+
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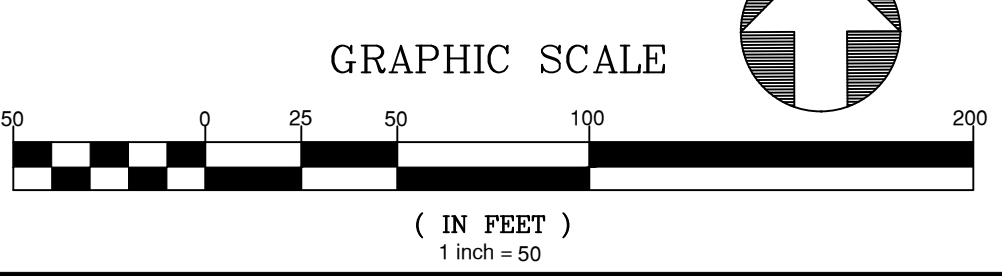
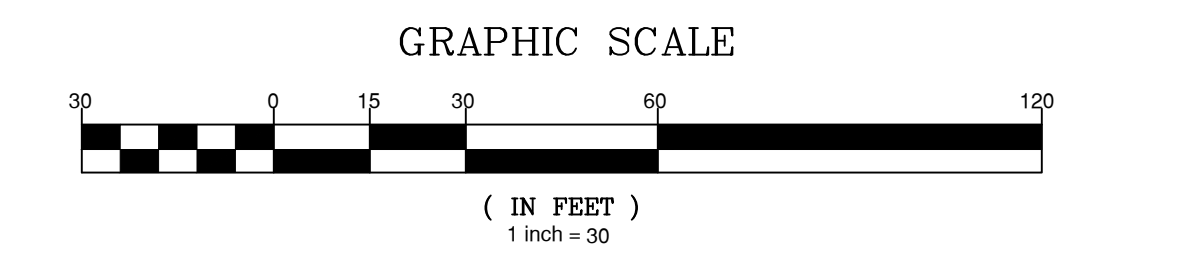
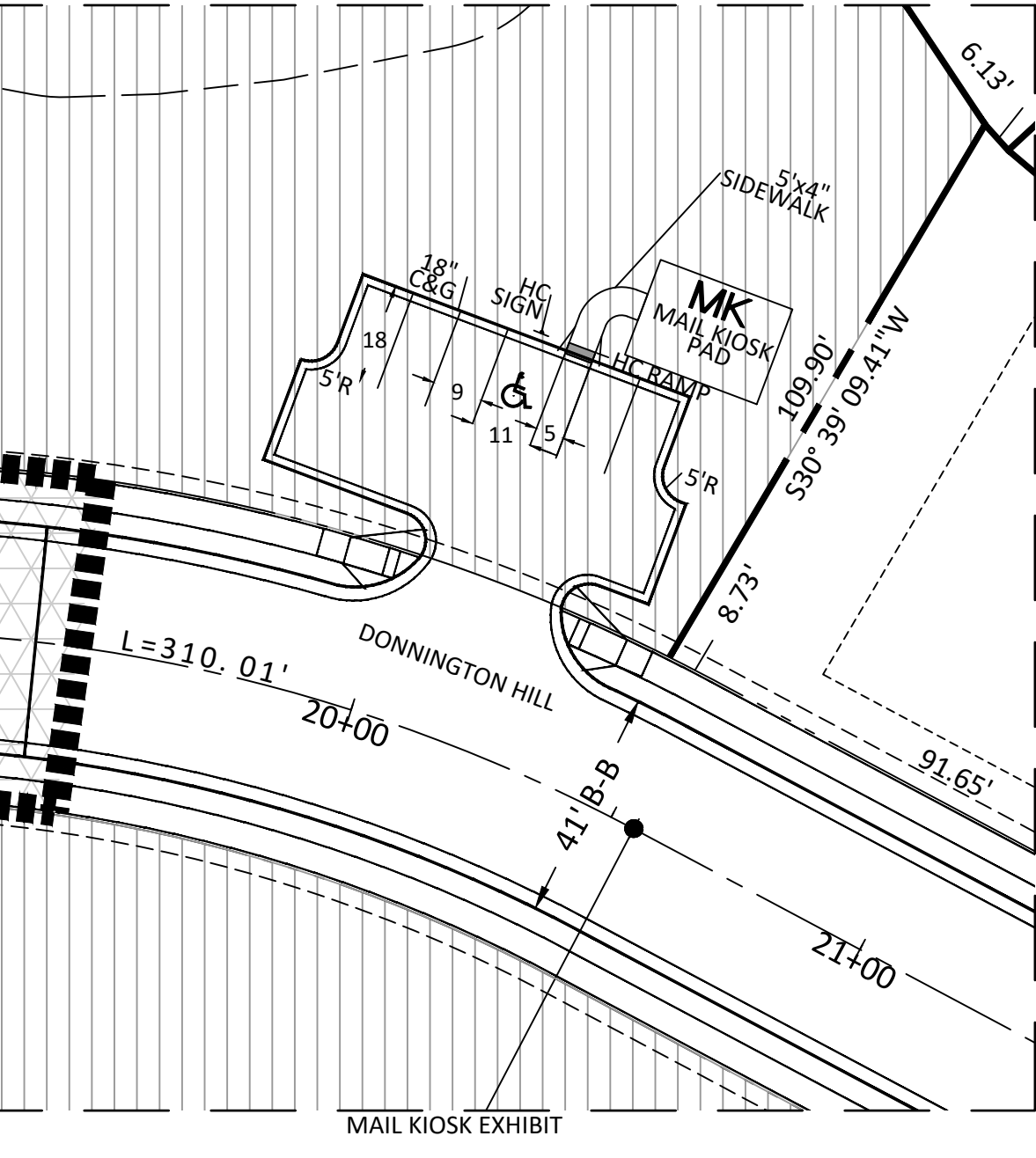
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GENERAL NOTE:

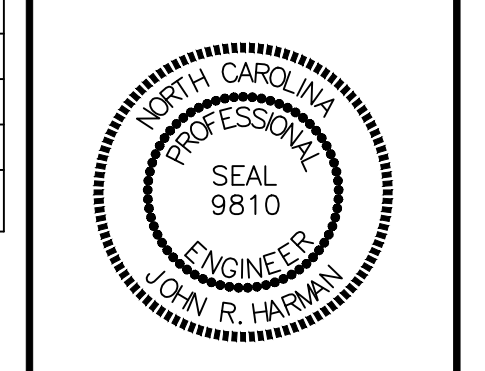
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ENTRY ROADS-ROLESVILLE RD.- 35'

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- PROPOSED LOT SETBACK
- PROPOSED ROW
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- EXISTING PHASING
- EXISTING WETLANDS
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- PROPOSED PHASELINE



AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101



NO. DATE REVISION / FROM TOWN OF ROLESVILLE CONSULTANT, RECORD AND CITY OF RALEIGH

- 7/21/2024
- 9/4/2024
- 11/20/2024

REVISIONS: 1. MAKE CITY OF RALEIGH COMMENTS. 2. MAKE TOWN OF ROLESVILLE CONSULTANT COMMENTS. 3. CONSTRUCTION DRAWING COMMENT RESPONSES.

STIPULATION FOR REUSE

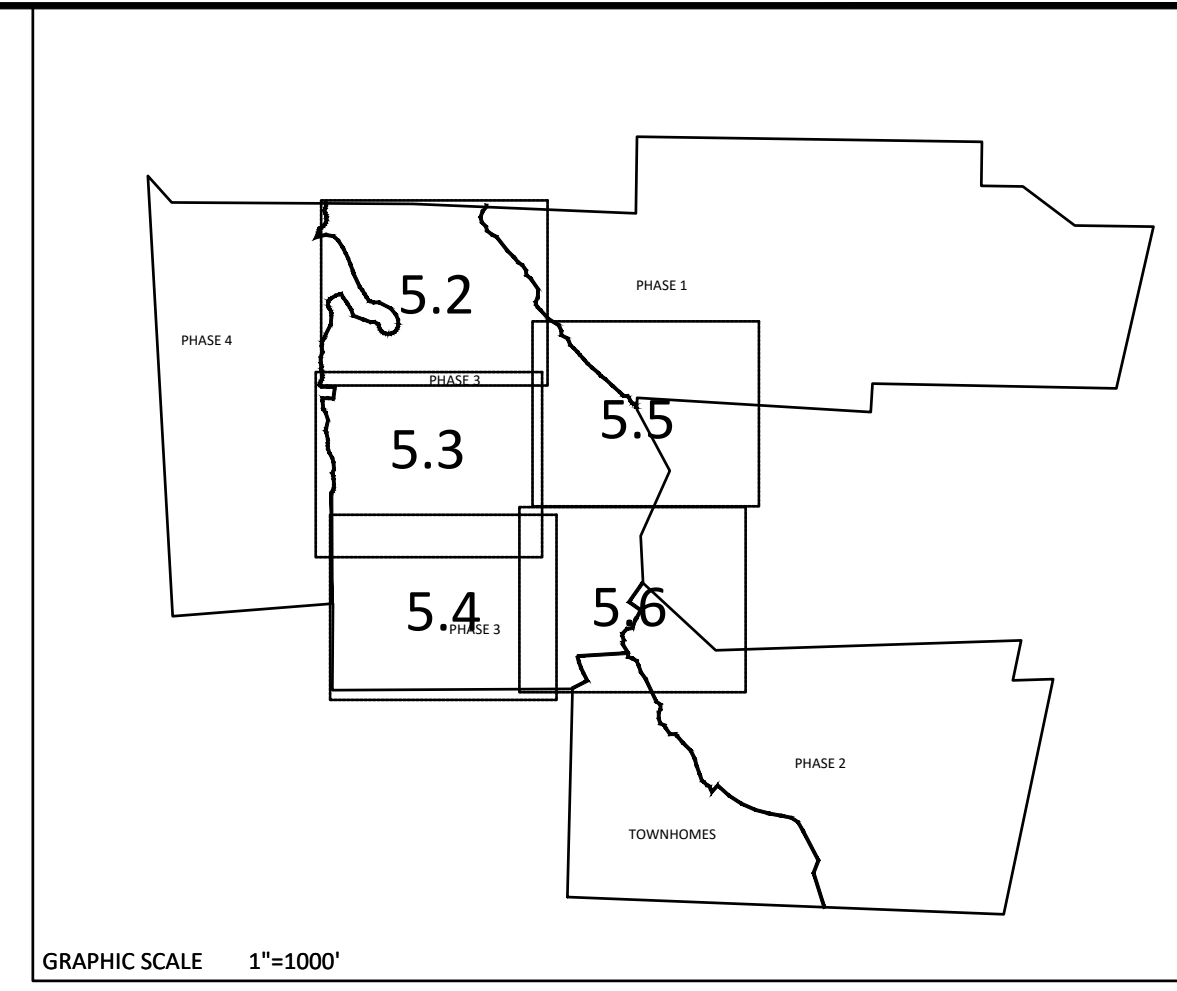
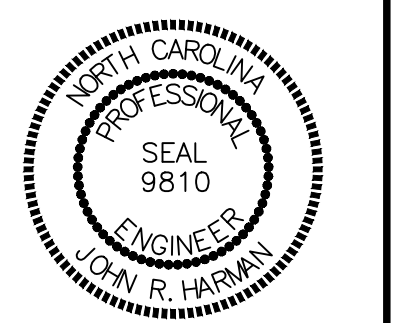
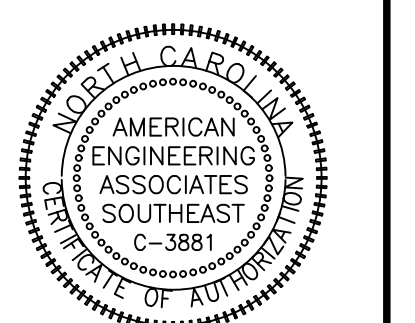
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MAL/ES/AHD/H
DATE: NOV 1, 2024
SHEET TITLE: PHASE 3 SITE PLAN
SHEET NO.: 5.3



February 4, 2025
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Working Drawing\Phase 3\Site Plan.dwg



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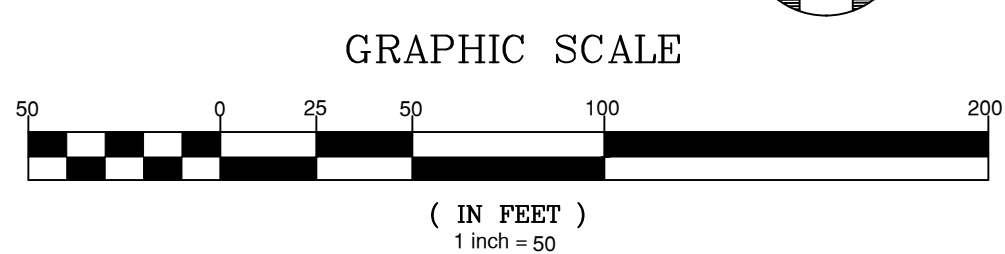
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ENTRANCE AT CUL-DE-SAC- 32.5
ENTRY ROADS-ROLESVILLE RD.- 35'

SITE LEGEND

	PROPOSED LOT LINE
	100 YEAR FLOOD EASEMENT
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED DRAINAGE EASEMENT
	PROPOSED UTILITY EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	TOT LOT
	POCKET PARK
	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED SWALE (AT TIME OF LOT GRADING)
	PROPOSED PHASELINE



1000 WILLIAM FRANK II MILES, GWENDOLYN H. ZONING: R-30 B. 15305, PG. 2406 TRACT 5 M. 1527, PG. 445 VO. 1757-02-97-4973 ESTATE ID: 0087115

JONES PROPERTIES, LLC ZONING: R-30 D.B. 13842, PG. 1231 LOT 4A

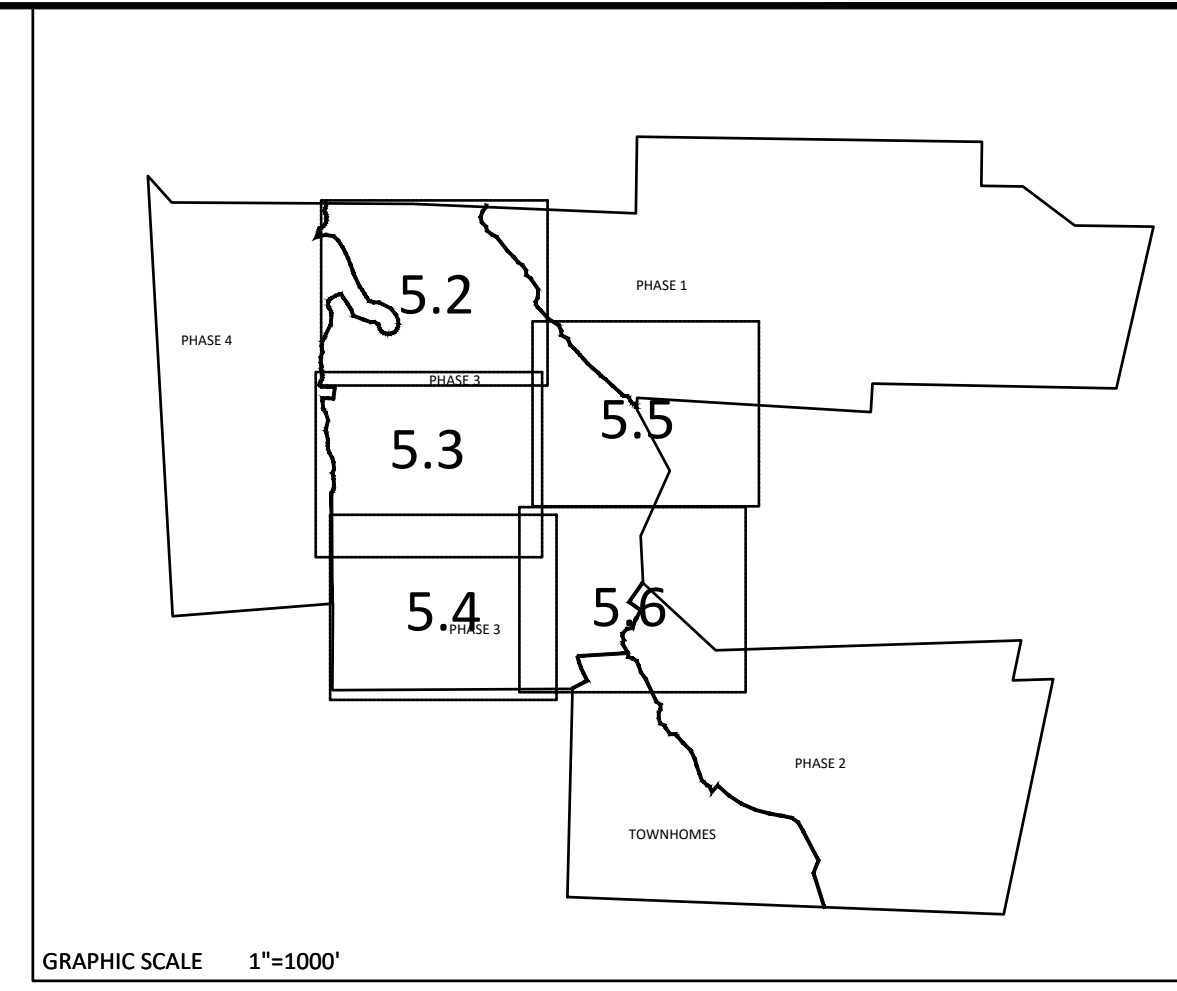
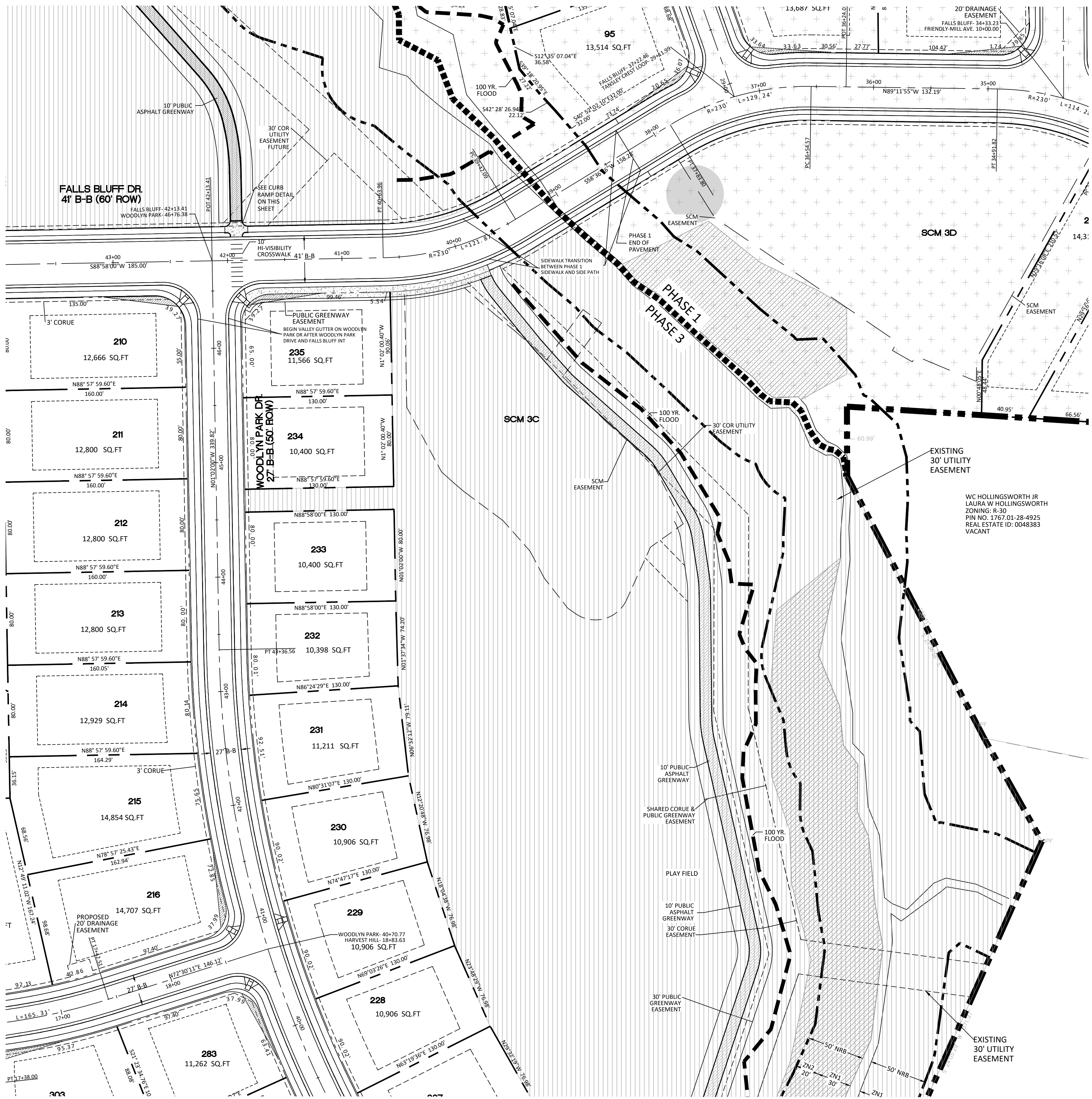
NO.	DATE	REVISION	BY	FOR
1	7/27/2024	ISSUE FOR REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH		
2	9/4/2024	REVISED PER TOWN OF ROLESVILLE CONSULTANT COMMENTS		
3	11/20/2024	CONSTRUCTION DRAWING COMMENT RESPONSES		

STIPULATION FOR REUSE
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**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
**PHASE 3
SITE PLAN**
SHEET NO.:
5.4

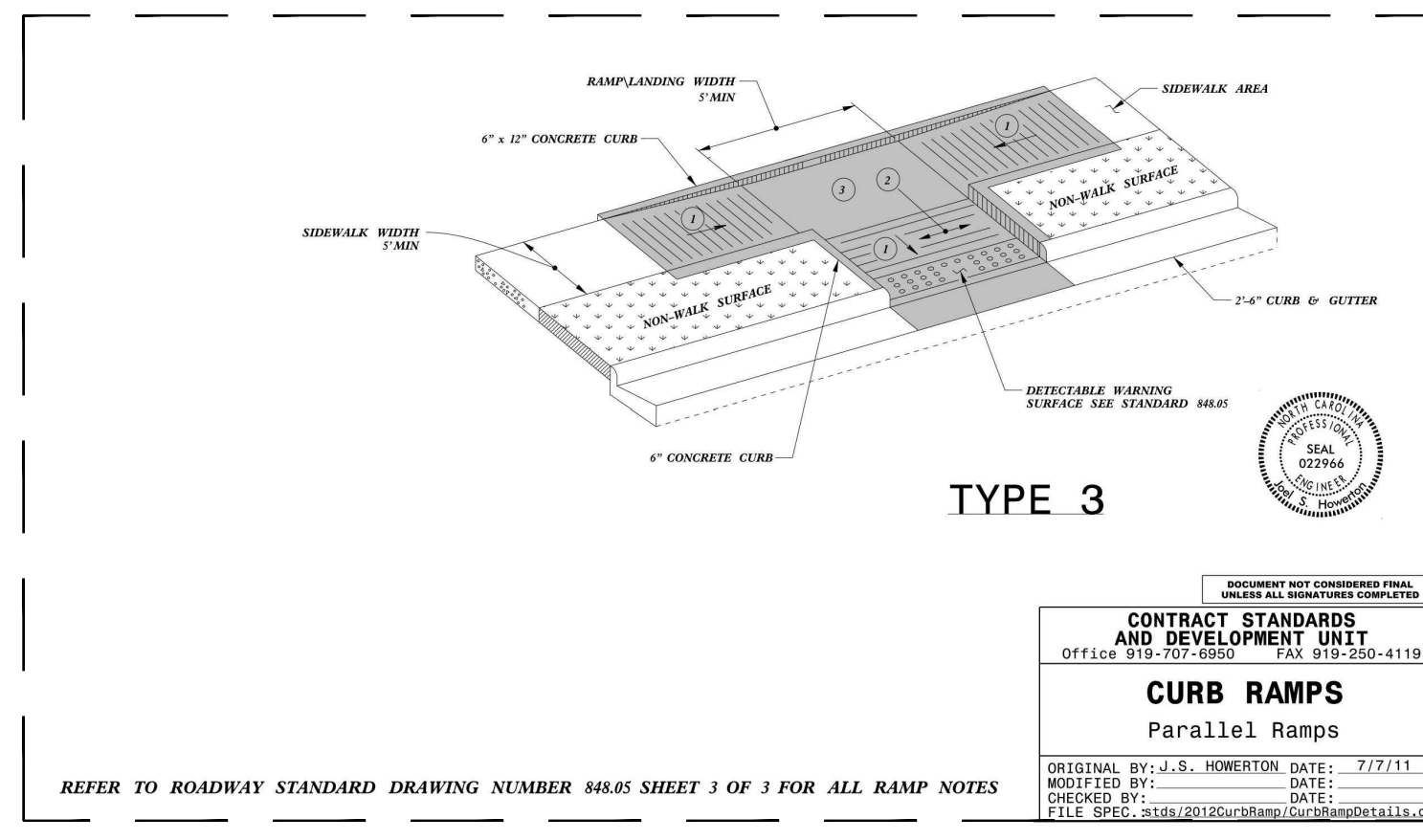




SETBACK TABLE SINGLE FAMILY

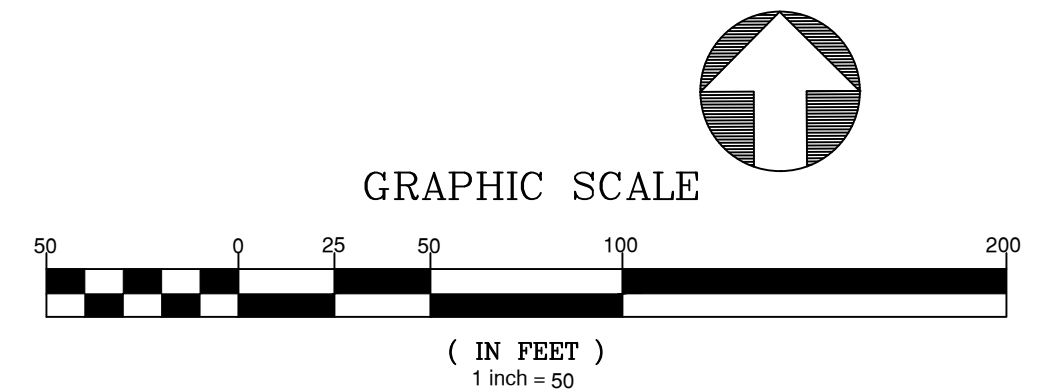
	50'	50' W ALLEY	50'-59'	60'-69'	70'-79'	80'-100'	101' +
FRONT	20'	15'	20'	25'	25'	25'	25'
REAR	20'	15'	20'	25'	25'	25'	30'
SIDE	**	**	**	*	*	10'	12'
CORNER SIDE	10'	10'	10'	10'	10'	15'	18'
MIN. LOT SIZE	6,000	6,000	6,000	6,600	8,400	10,400	14,000
* AGGREGATE 12', MIN. 5'							
** MIN. 3' AGGREGATE 10'							

- GENERAL NOTE:
- SIGHT DISTANCE TRIANGLES ARE 10'X70'. WHERE SIGHT LINES ENCR OACH ONTO A PRIVATE LOT A SIGHT EASEMENT IS REQUIRED.
 - BACK OF CURB RADIUS AT INTERSECTIONS- RESIDENTIAL-RESIDENTIAL- 28' RESIDENTIAL-COLLECTOR- 30' COLLECTOR-COLLECTOR- 30' ENTRANCE AT CUL-DE-SAC- 32.5 ENTRY ROADS-ROLESVILLE RD.- 35'

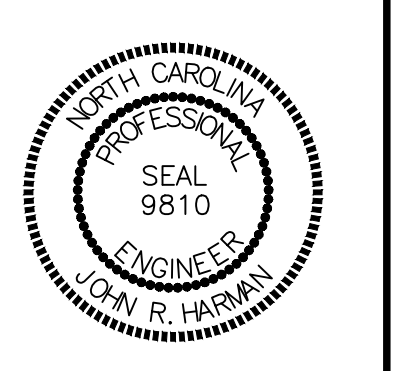
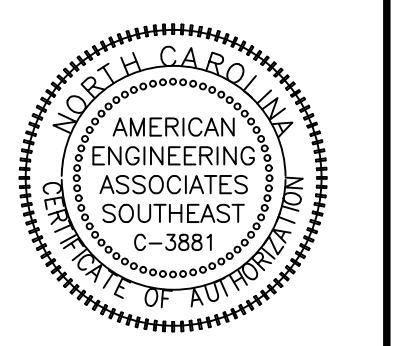


SITE LEGEND

---	PROPOSED LOT LINE
---	100 YEAR FLOOD EASEMENT
---	BUILDING RESTRICTION LINE
---	PROPOSED LOT SETBACK
---	PROPOSED ROW
---	PROPOSED SIDEWALK
---	PROPOSED BOC
---	PROPOSED EOP
---	PROPOSED CENTERLINE
---	PROPOSED GRADING
---	PROPOSED DRAINAGE EASEMENT
---	PROPOSED UTILITY EASEMENT
---	PROPOSED HANDICAP RAMPS
---	PROPOSED SIGHT TRIANGLE
○	TOT LOT
○	POCKET PARK
○	MAIL KIOSK LOCATION
□	OPEN SPACE
□	GREENWAY TRAIL HATCH
□	GREENWAY/ROADSIDE TRAIL
□	FUTURE PHASING
□	EXISTING PHASING
□	EXISTING WETLANDS
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---	PROPOSED PHASELINE



AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101



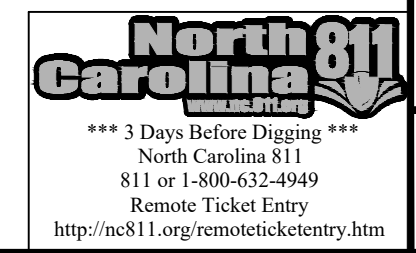
NO.	DATE	REVISION
1	7/27/2024	ISSUE FOR REVIEW AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

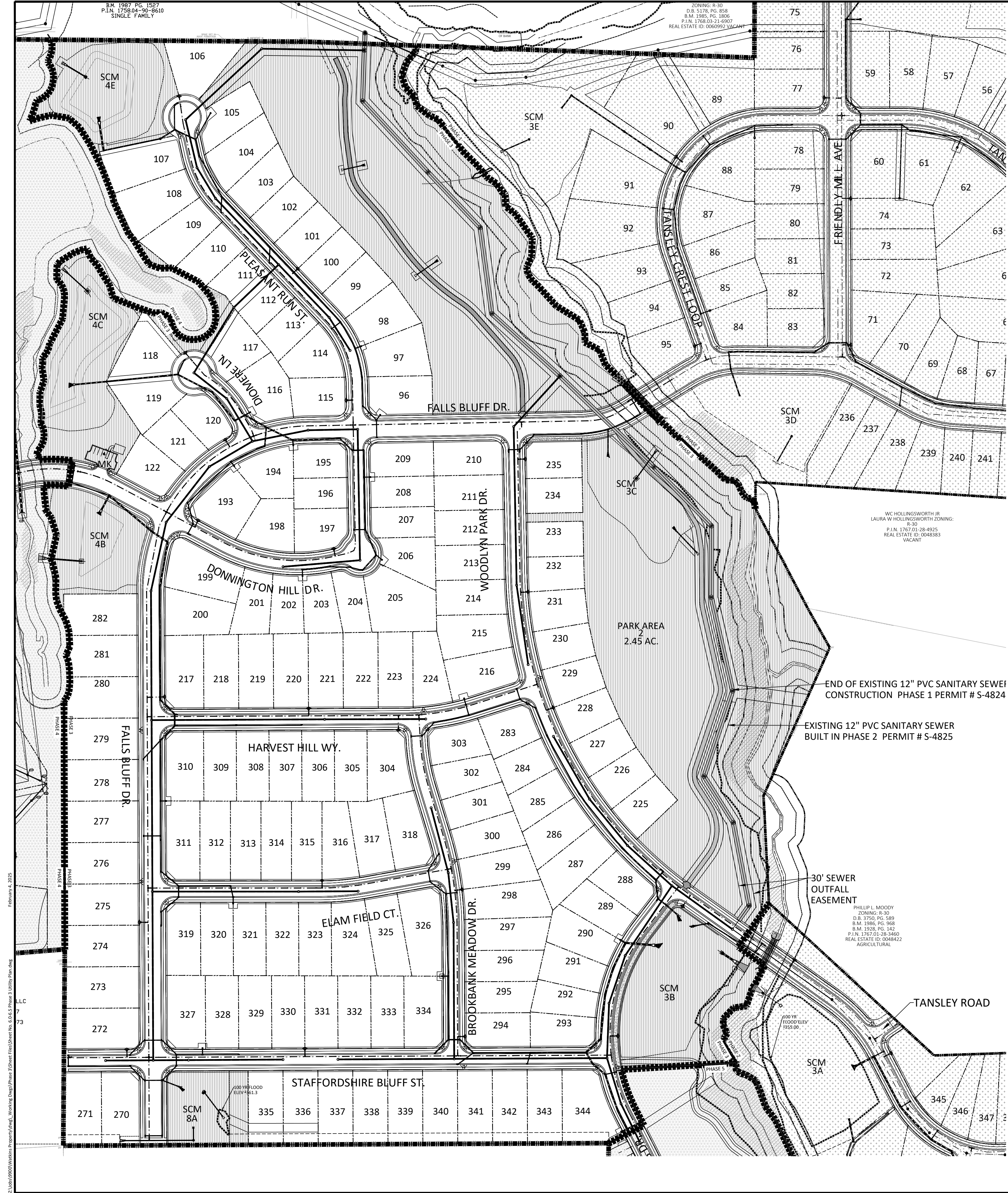
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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
PHASE 3 SITE PLAN
SHEET NO.:
5.5

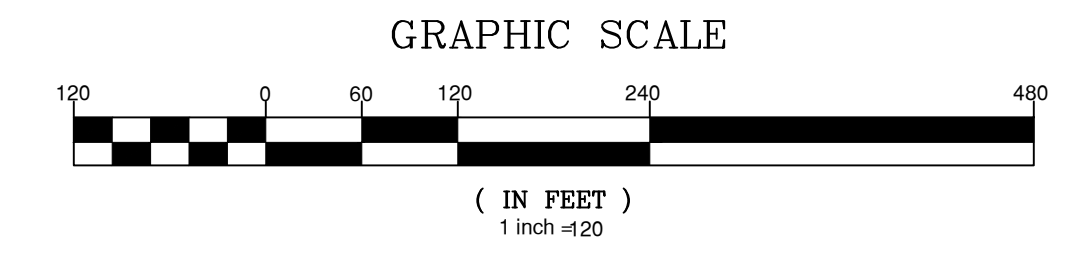
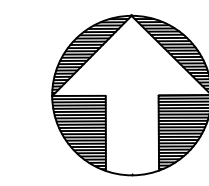




NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

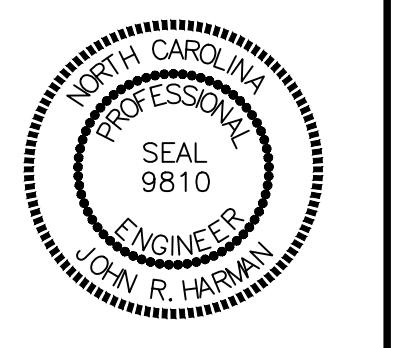
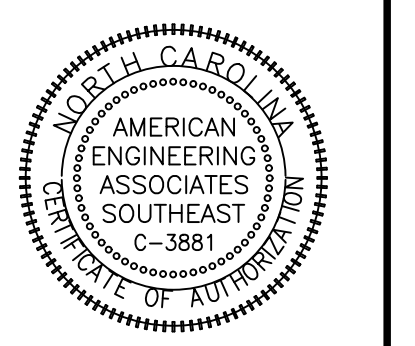
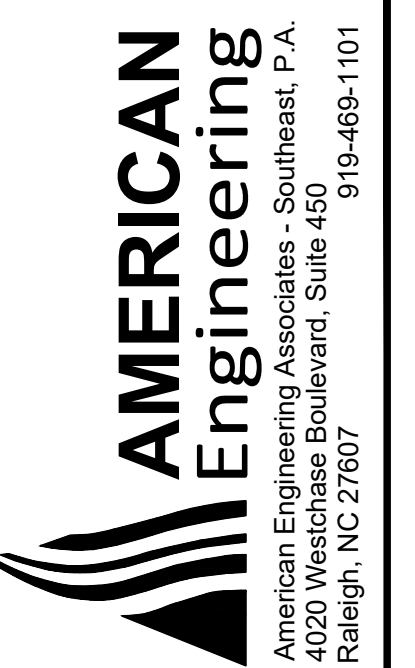
ATTENTION CONTRACTORS
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UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



Public Sewer Collection / Extension System
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 City of Raleigh
 Public Utilities Department Permit # _____

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 City of Raleigh
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NO.	DATE	REVISION
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2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENTS RESPONSES

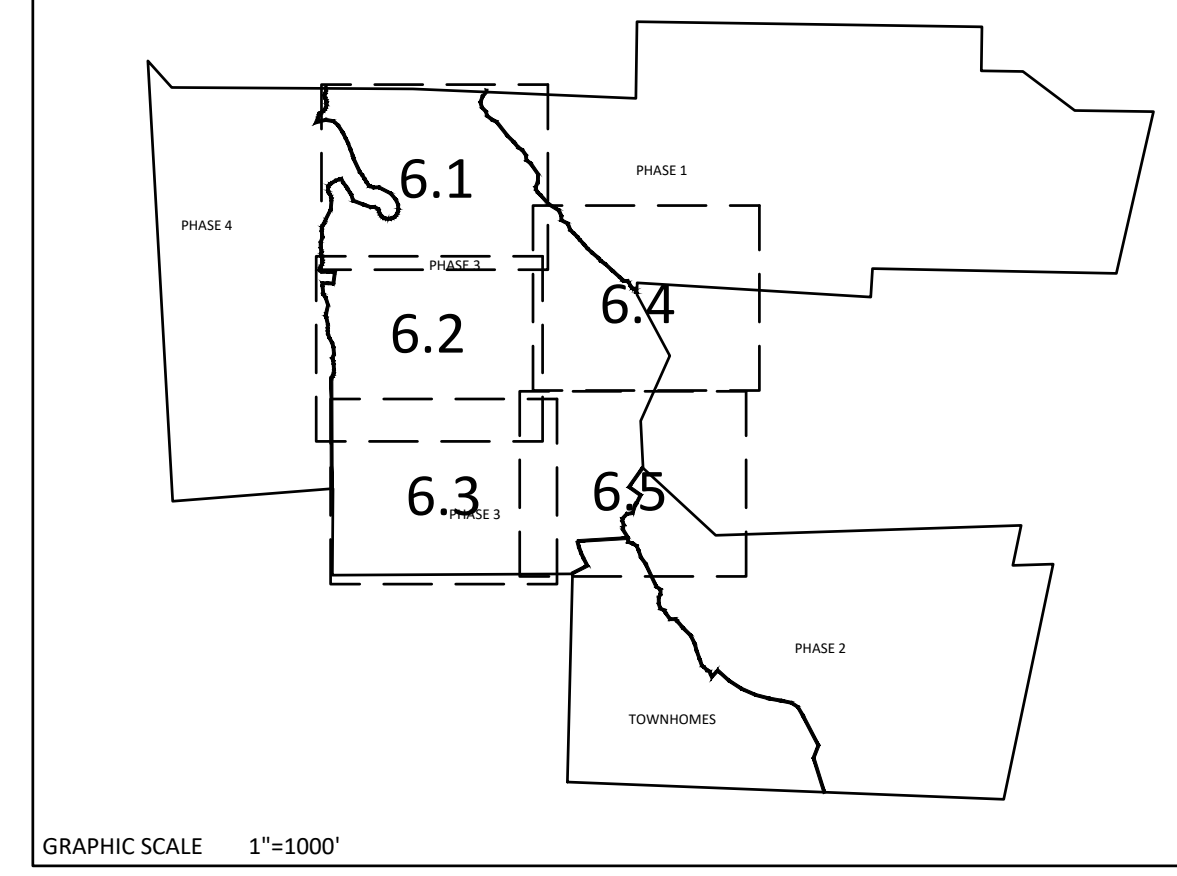
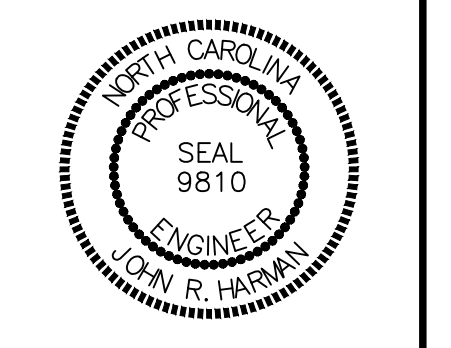
STIPULATION FOR REUSE
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/ML/ES/AH/DH
 DATE: NOV 1, 2024

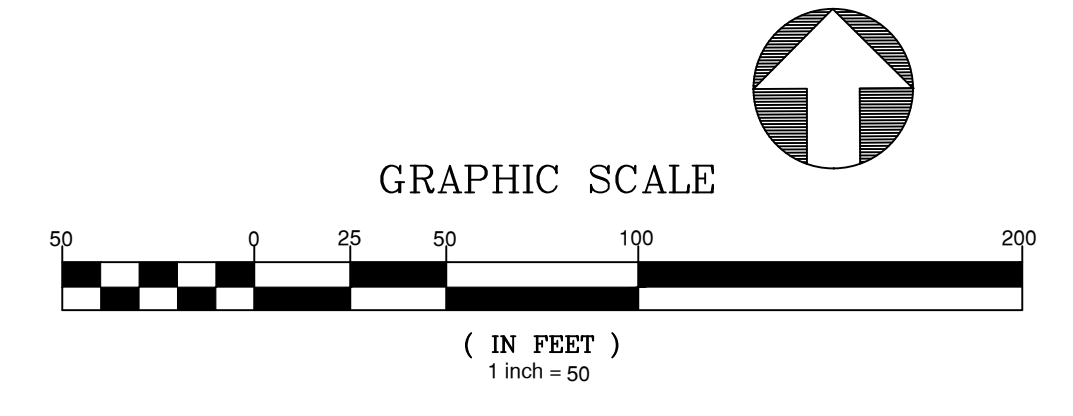
SHEET TITLE:
PHASE 3 OVERALL UTILITY PLAN

SHEET NO.:
6.0



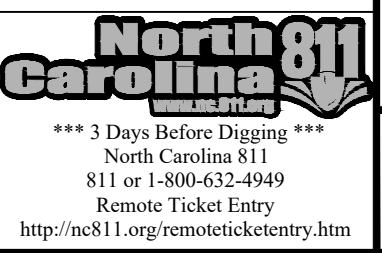
UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED FLORED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
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	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
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	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

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City of Raleigh
Public Utilities Department Permit # _____

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City of Raleigh
Public Utilities Department Permit # _____

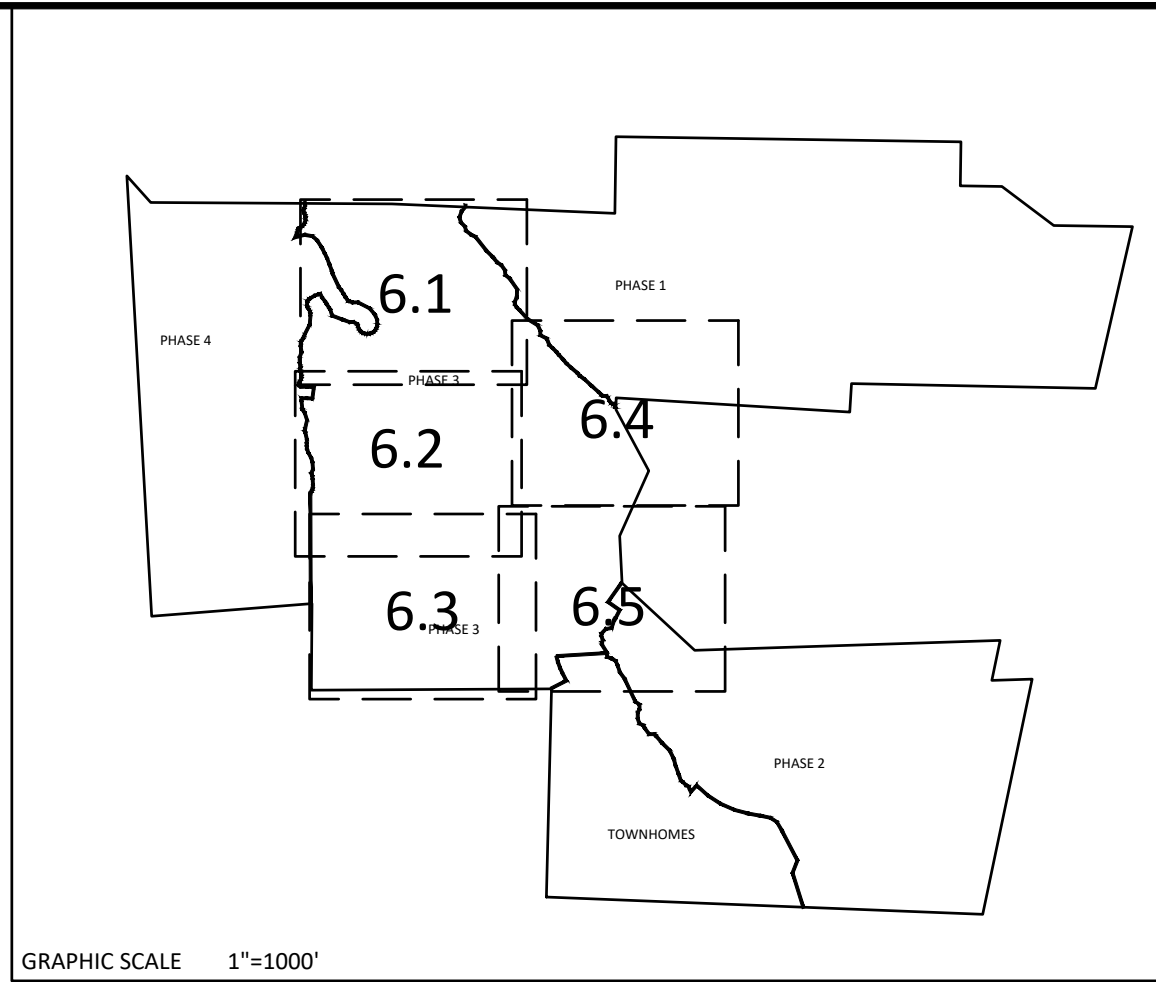
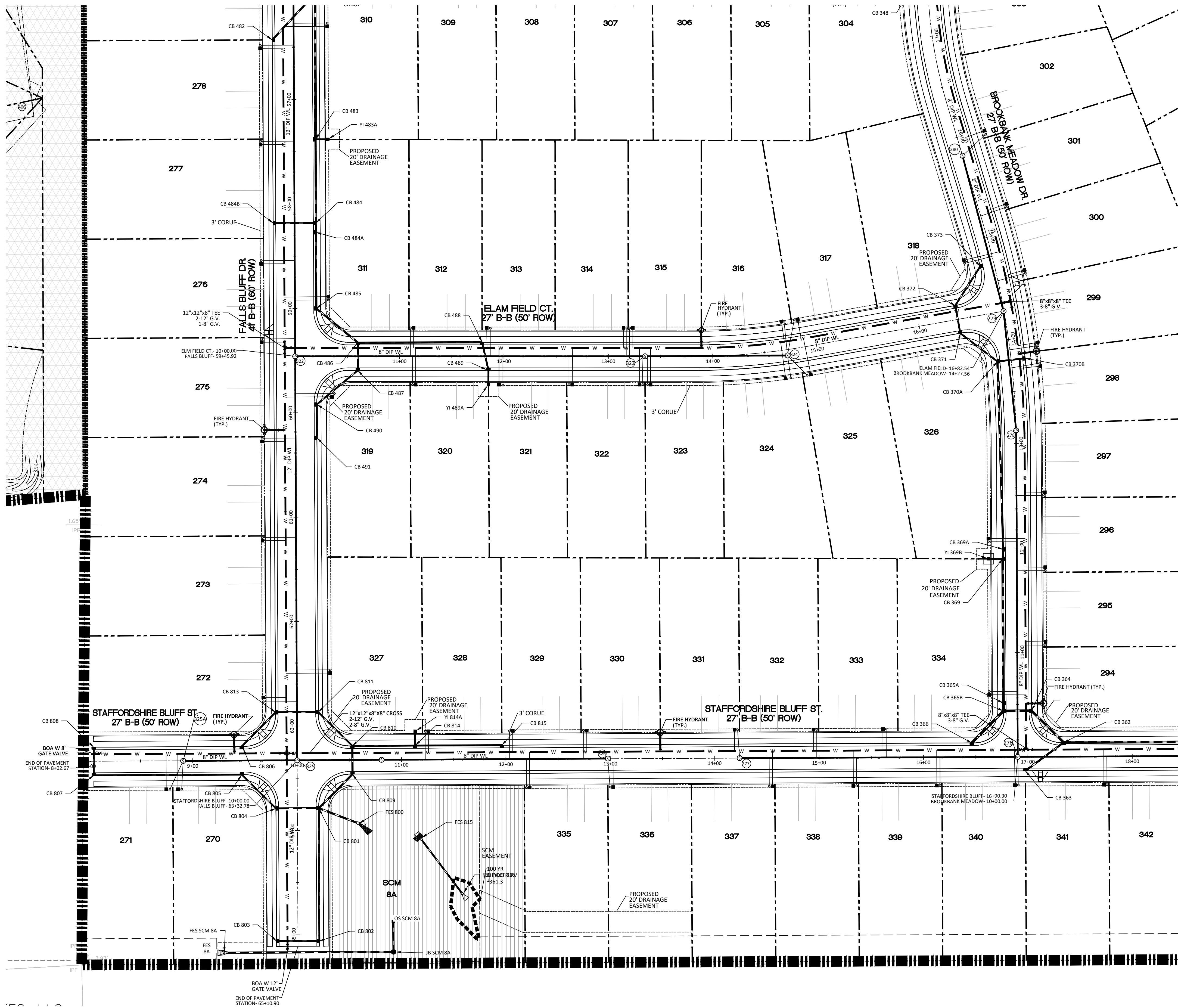


NO.	DATE	REVISION
1	7/2/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, REVISIONS MADE BY CITY OF RALEIGH
2	9/4/2024	REVISIONS MADE BY CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
PHASE 3 UTILITY PLAN (50 SCALE)
SHEET NO.: 6.2



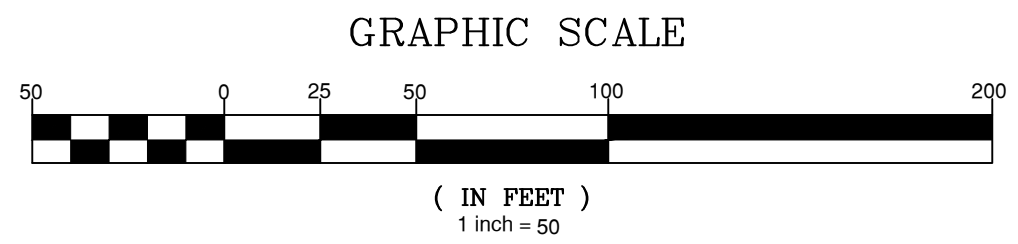
GRAPHIC SCALE 1"=100'

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIVERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
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	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

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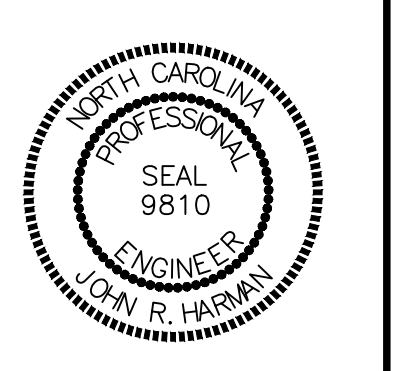
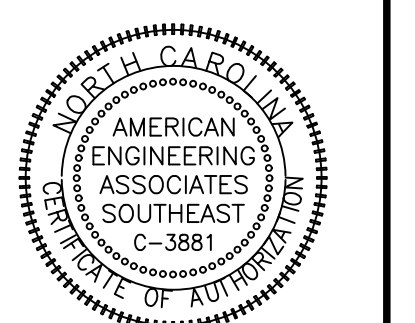
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AMERICAN Engineering
 American Engineering Associates - Southeast, P.A.
 4020 Westchase Boulevard, Suite 450
 Raleigh, NC 27607
 919-469-1101



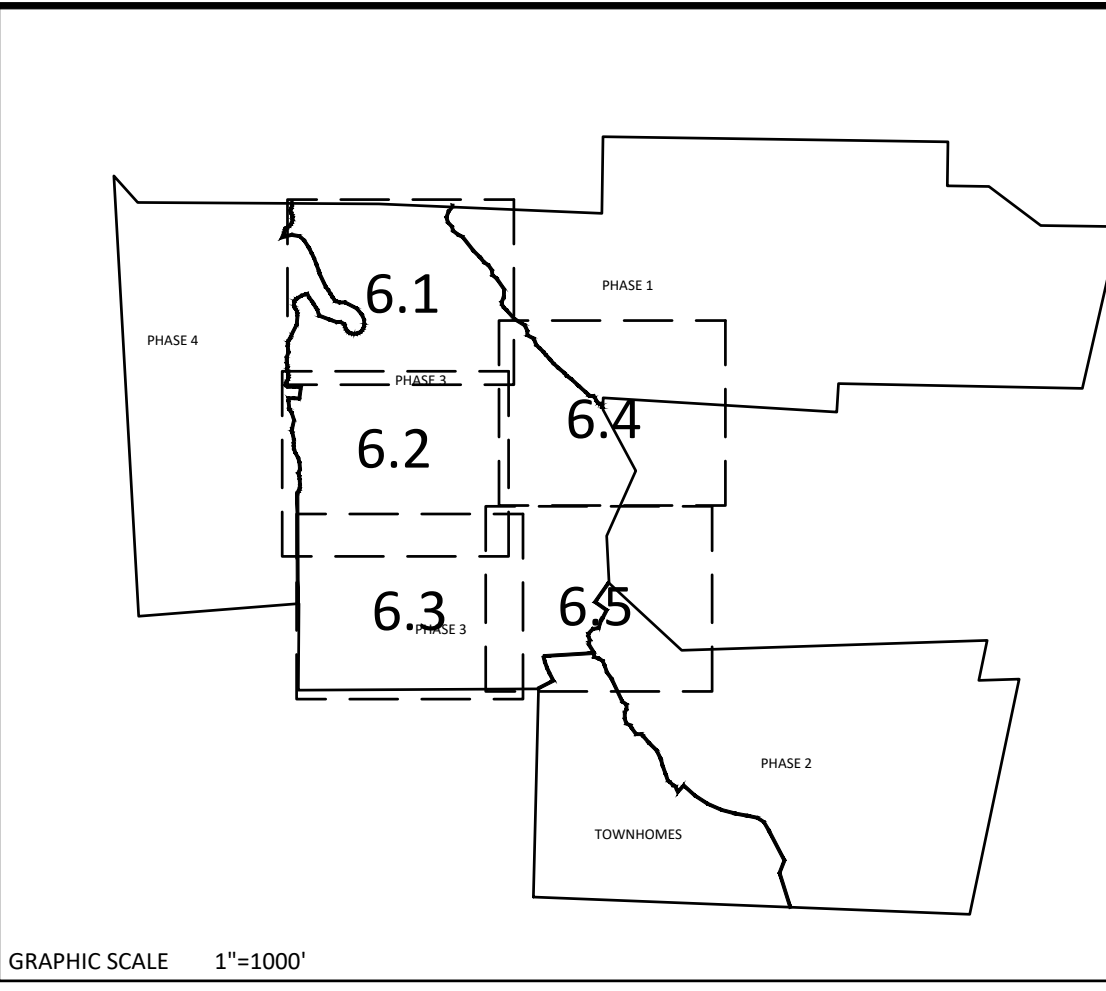
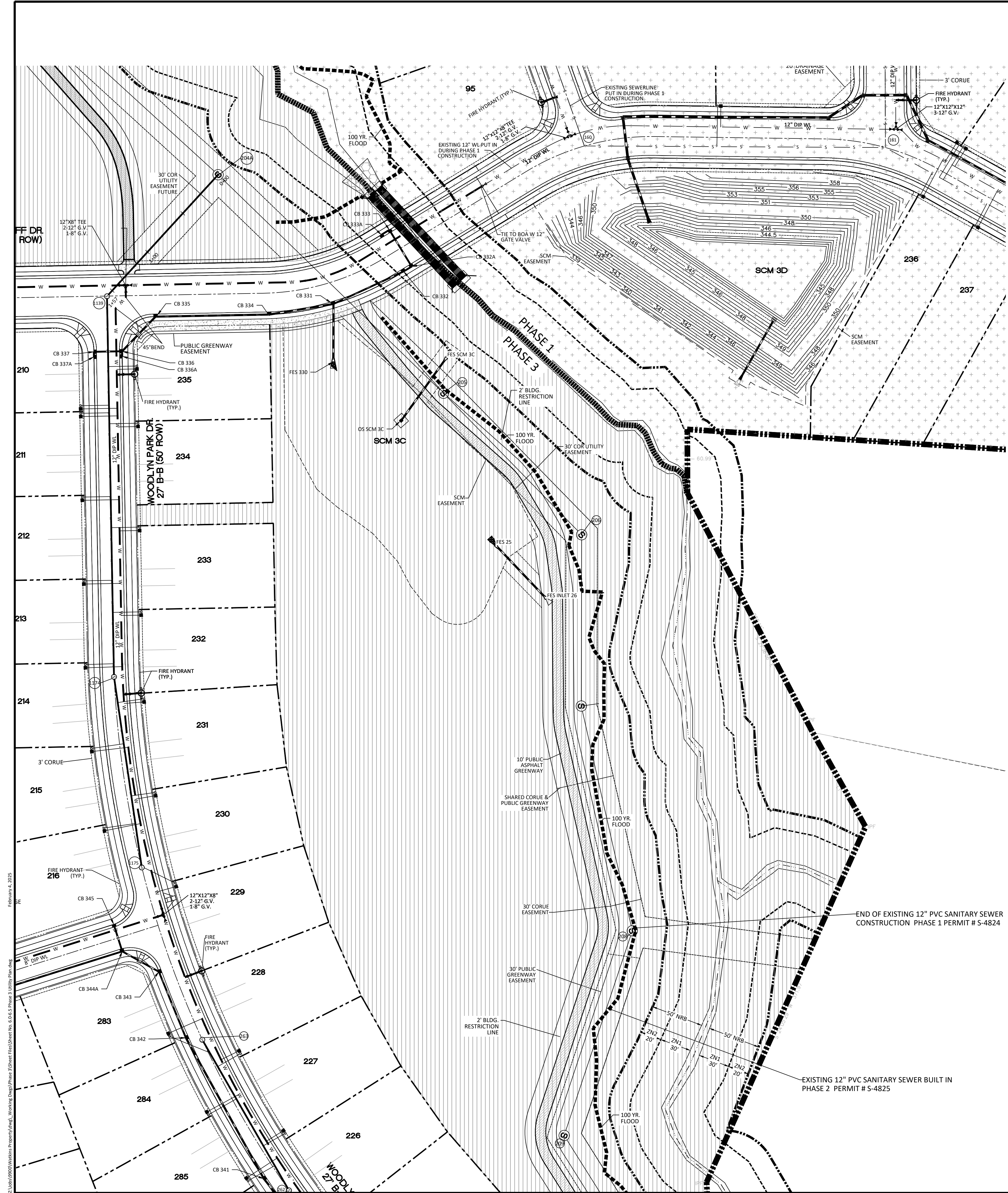
NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, REVISION AND CITY OF RALEIGH COMMENTS.
2	9/14/2024	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: **PHASE 3 UTILITY PLAN (50 SCALE)**
 SHEET NO.: **6.3**

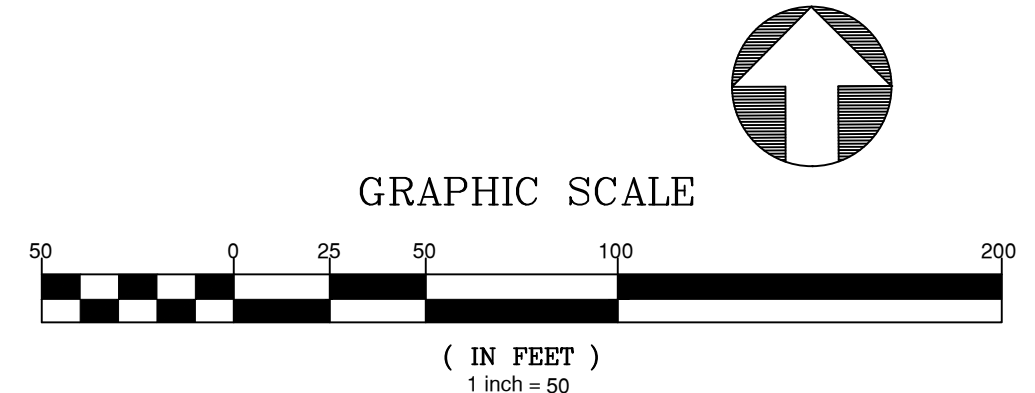
February 4, 2025
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UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
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	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

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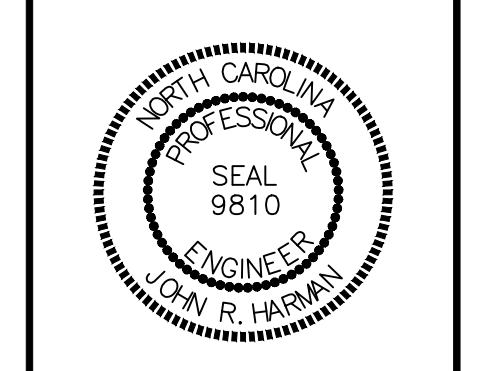
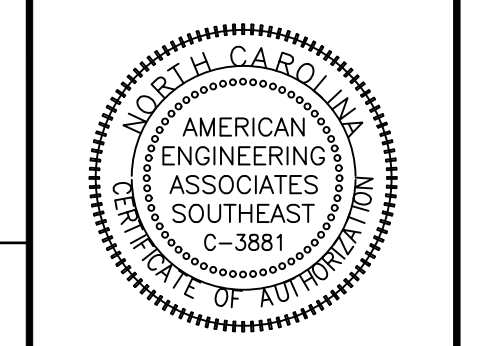


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 City of Raleigh
 Public Utilities Department Permit # _____

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 4020 Westchase Boulevard, Suite 450
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 919-469-1101

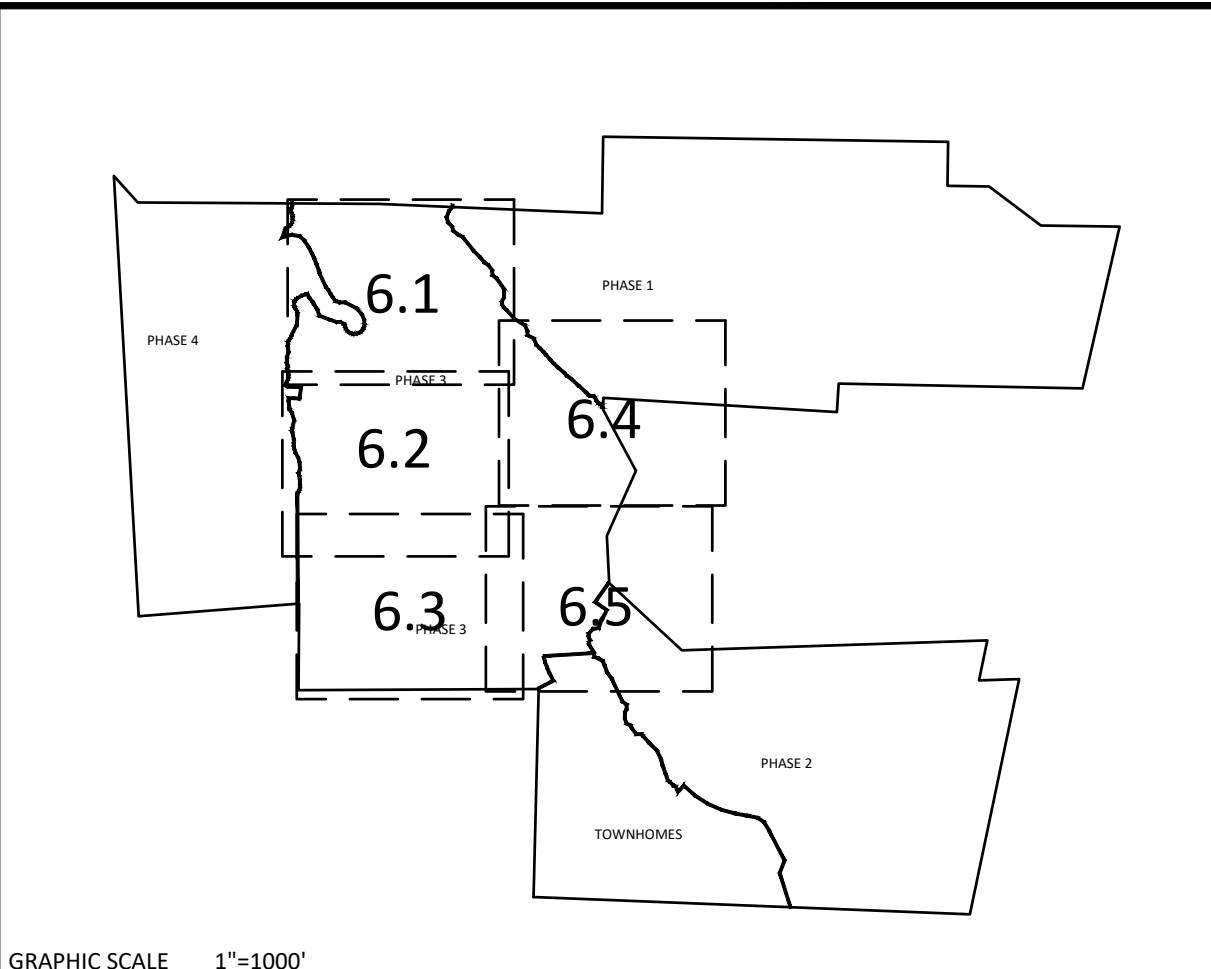
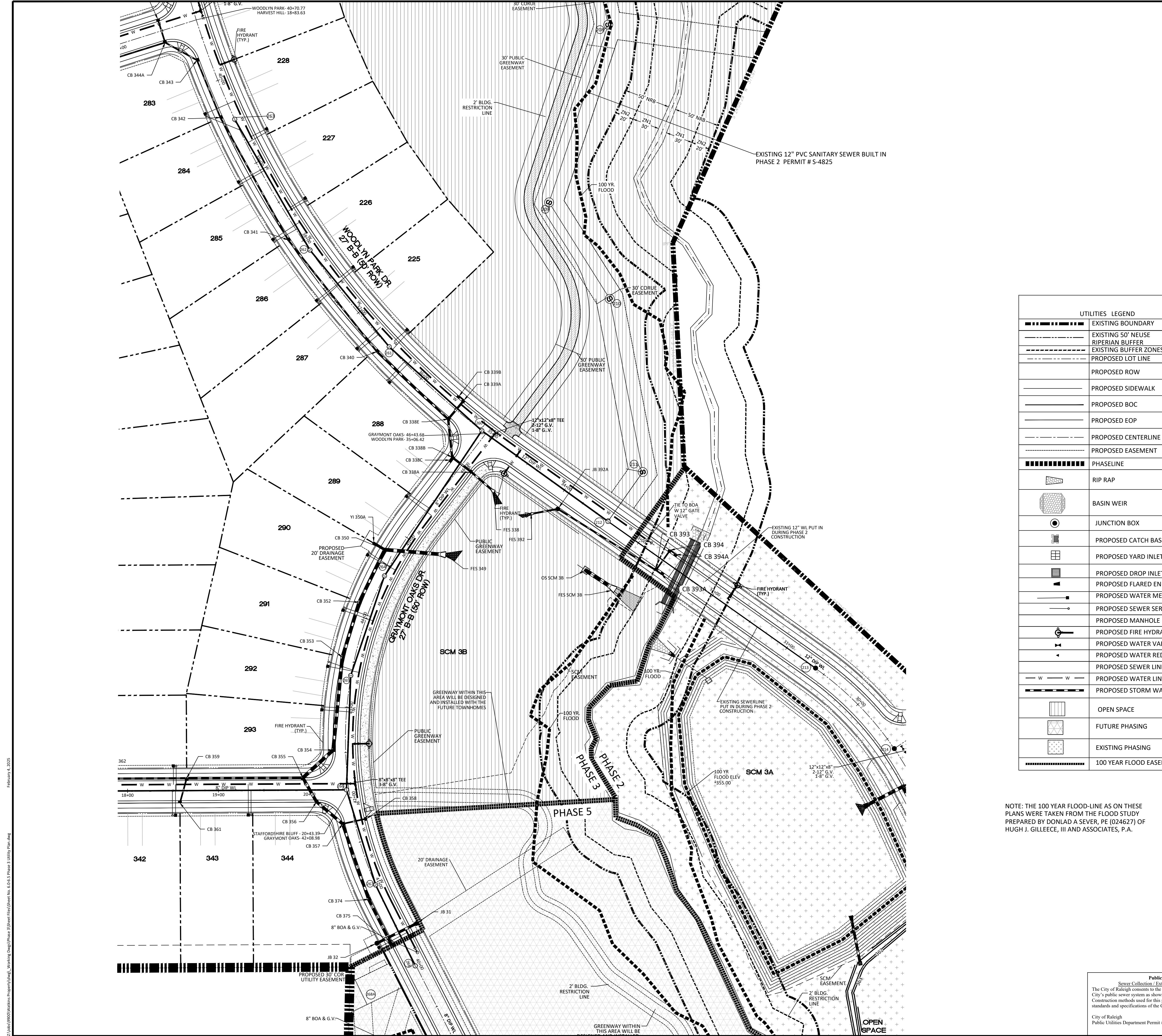


NO.	DATE	REVISION
1	7/27/2021	ISSUED FROM TOWN OF ROLESVILLE CONSULTANT, REVISIONS MADE BY CITY OF RALEIGH
2	9/14/2024	MADE BY TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

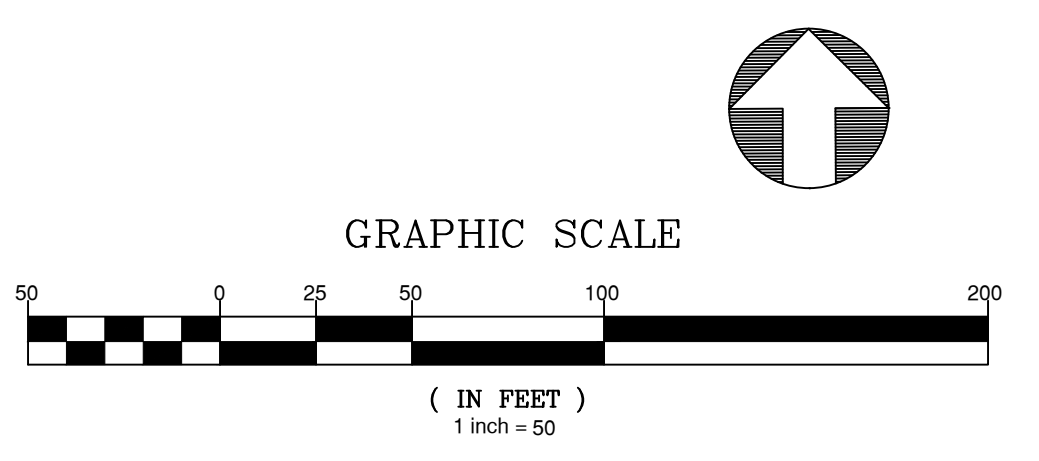
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 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: **PHASE 3 UTILITY PLAN (50 SCALE)**
 SHEET NO.: **6.4**



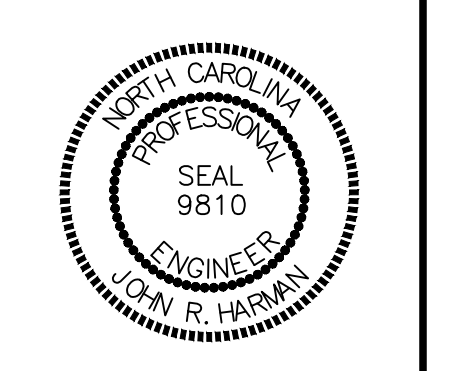
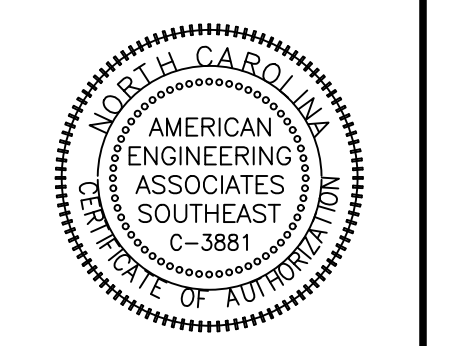
UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.

ATTENTION CONTRACTORS
 The Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the Public Utilities Inspector at 919-996-3245 or <https://cityworks.raleighnc.gov/pucontractors/New> and schedule a Pre-construction meeting prior to beginning any construction.
 Raleigh Water must be contacted at (919) 996-4540 at least twenty-four hours prior to beginning any work activity around critical water and sewer infrastructure.
 Failure to notify the Divisions in advance of beginning construction, will result in the issuance of monetary fines, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.
 Failure to call for Inspection, install a downstream plug, have permitted plans on the jobsite, or any other violation of City of Raleigh Standards will result in a fine and possible exclusion from future work in the City of Raleigh.



<p>Public Sewer Collection / Extension System The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # _____</p>	<p>Public Water Distribution / Extension System The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # _____</p>	<p>North Carolina 811 *** 3 Days Before Digging *** North Carolina 811 811 or 1-800-632-4949 Remote Ticket Entry http://nc811.org/remoteticketentry.htm</p>
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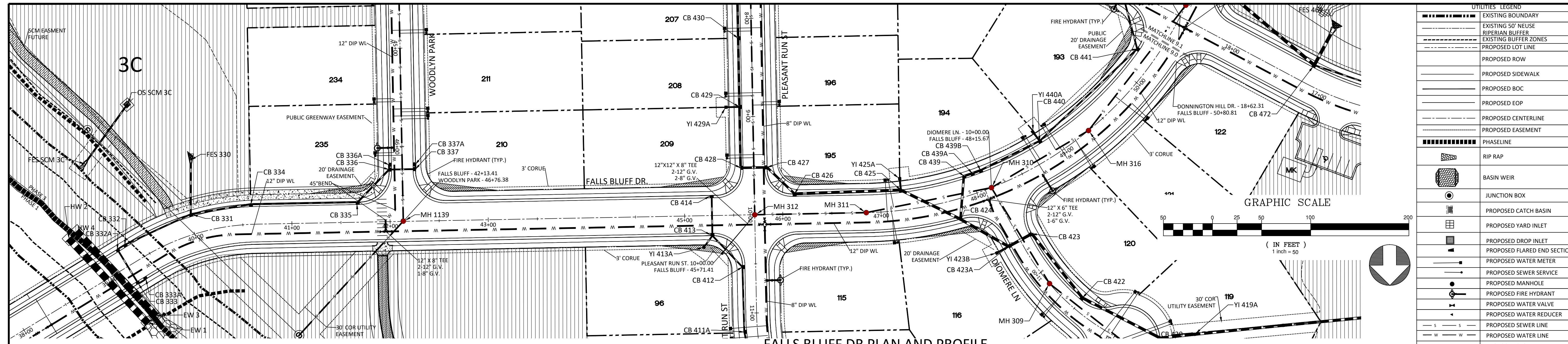
NO.	DATE	REVISION
1	7/21/2021	ISSUE FOR REVIEW AND CITY OF RALEIGH APPROVAL
2	9/14/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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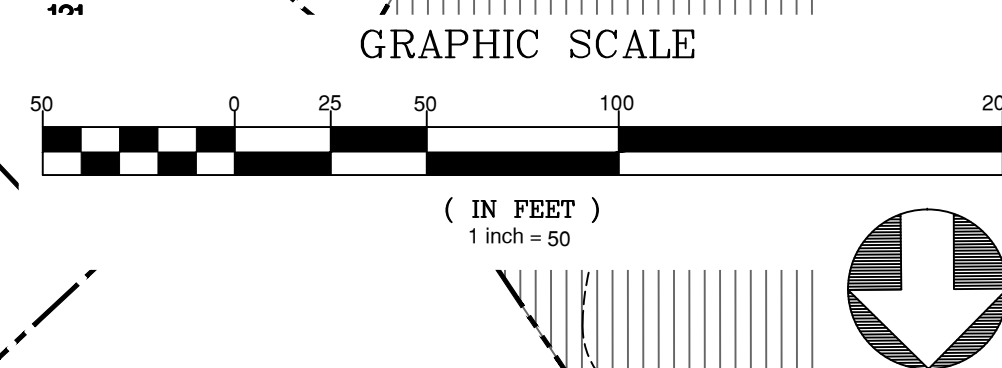
KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: **PHASE 3 UTILITY PLAN (50 SCALE)**
 SHEET NO.: **6.5**

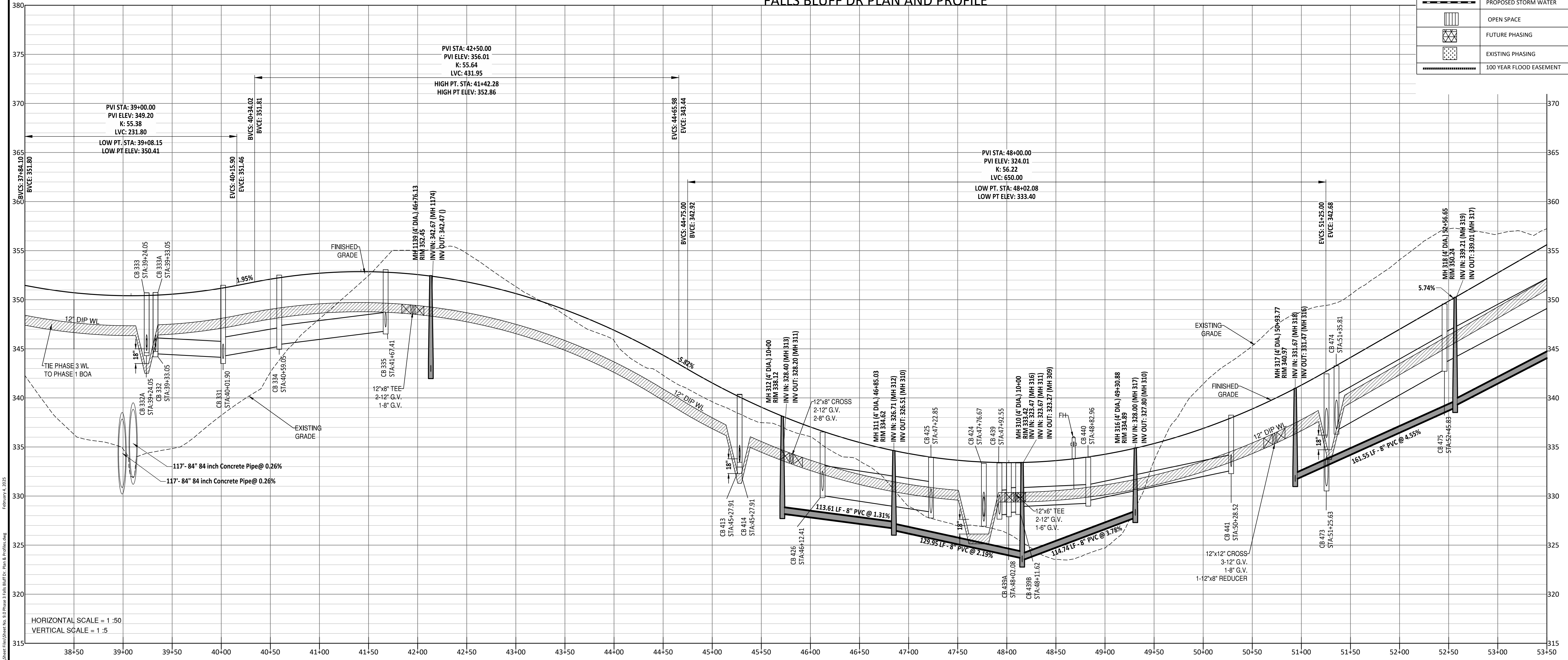
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UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIVERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



FALLS BLUFF DR PLAN AND PROFILE



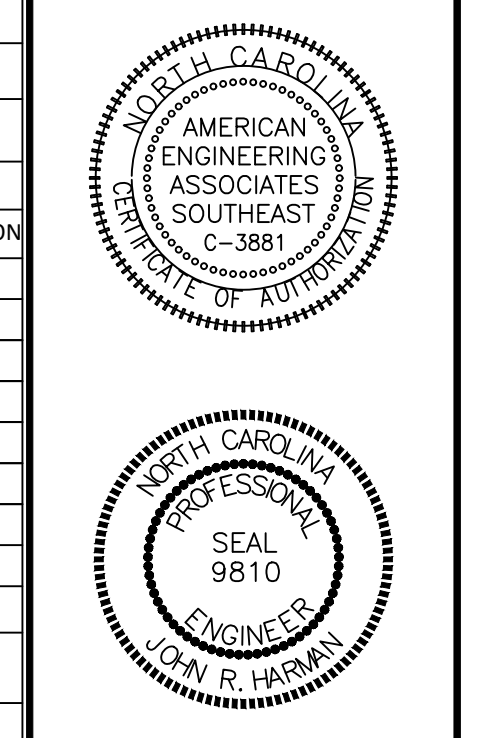
HORIZONTAL SCALE = 1:50
VERTICAL SCALE = 1:5

- GENERAL NOTE:
- ALL WATERLINE AND STORM CROSSINGS SHALL HAVE A MINIMUM OF 1.5' VERTICAL CLEARANCE. IF THIS CANNOT BE ACHIEVED THEN A CRADLE IS TO BE USED SEE DETAIL S-49 ON SHEET CD10
 - TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
 - PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

Public Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

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City of Raleigh
Public Utilities Department Permit # _____

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm



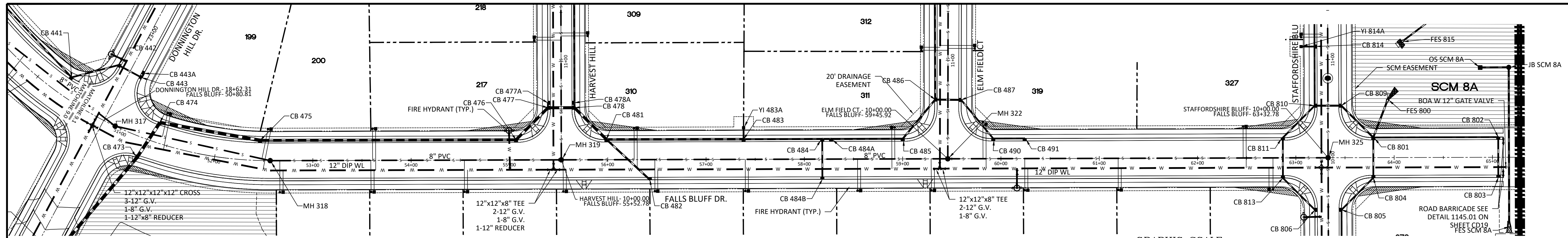
NO.	DATE	REVISION
1	7/27/2024	REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE NAMED HEREON. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT. ANY REUSE OF THIS DRAWING FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT IS STRICTLY PROHIBITED AND MAY BE CONTRARY TO THE LAW.

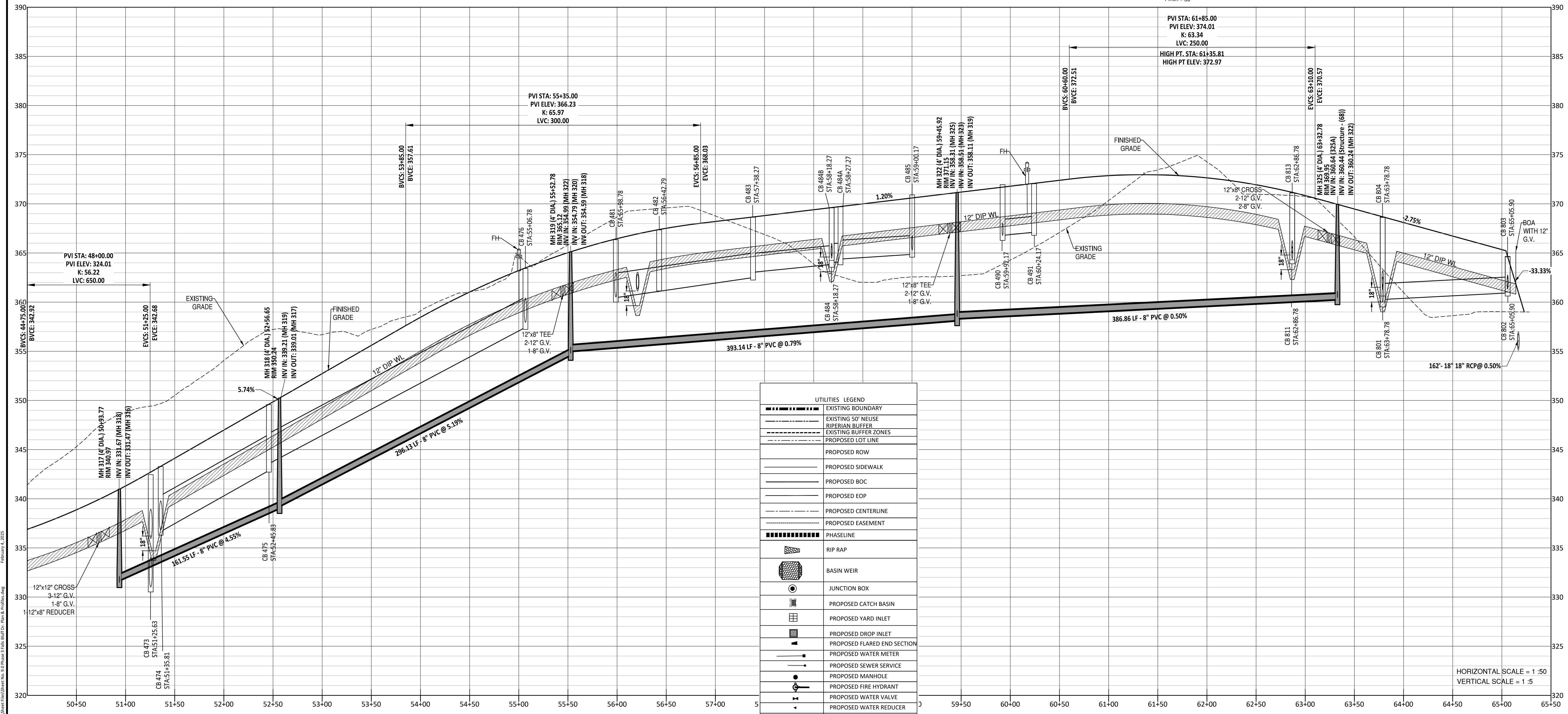
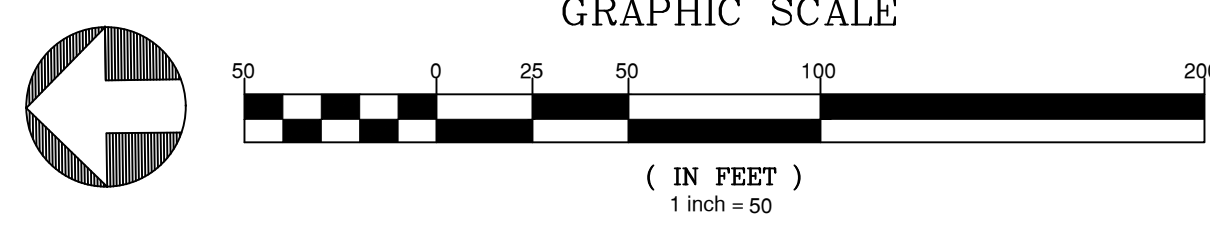
KALAS FALLS PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MAL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
FALLS BLUFF DRIVE PLAN & PROFILE
SHEET NO.: 9.0



FALLS BLUFF DR PLAN AND PROFILE

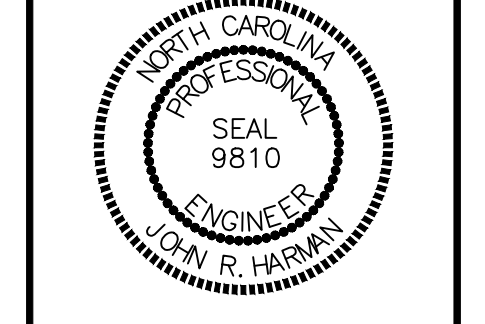


UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

GENERAL NOTE:
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 2. TOWN OF ROLESVILLE INSPECTOR WILL HAVE AUTHORITY FOR FINAL APPROVAL ON ROAD PROFILES THAT ARE DESIGNED WITH A CHANGE IN GRADE THAT IS 6% OR GREATER. THE INSPECTOR WILL NEED TO NOTIFY THE DESIGN ENGINEER ON ANY ROAD CONSTRUCTION THAT ARE NOT ACCEPTABLE IN THE FIELD (INCLUDING ALL INTERSECTION GRADES/CURB RETURNS GRADES).
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 City of Raleigh
 Public Utilities Department Permit # _____

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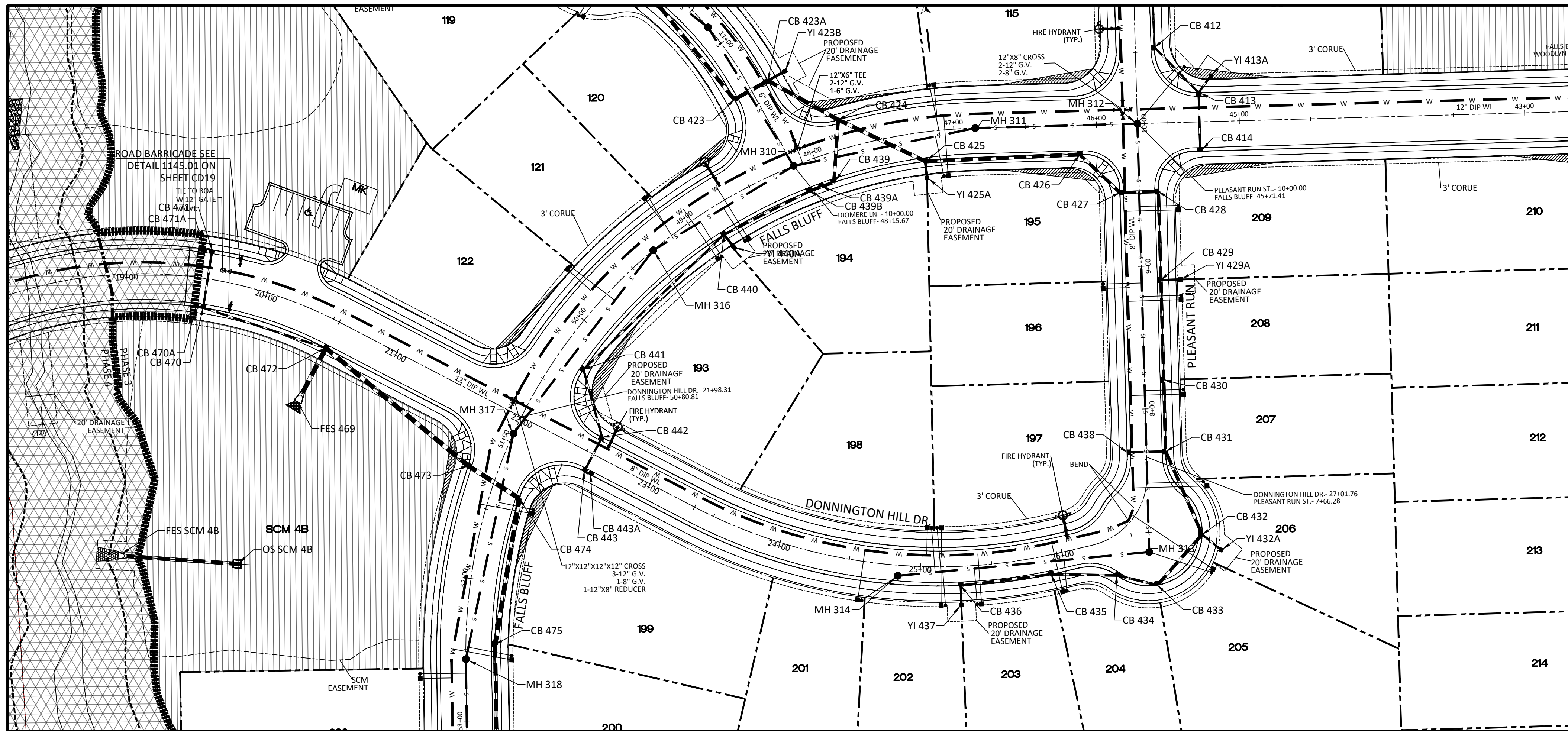
KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/MLL/ES/AH/DH
 DATE: NOV 1, 2024

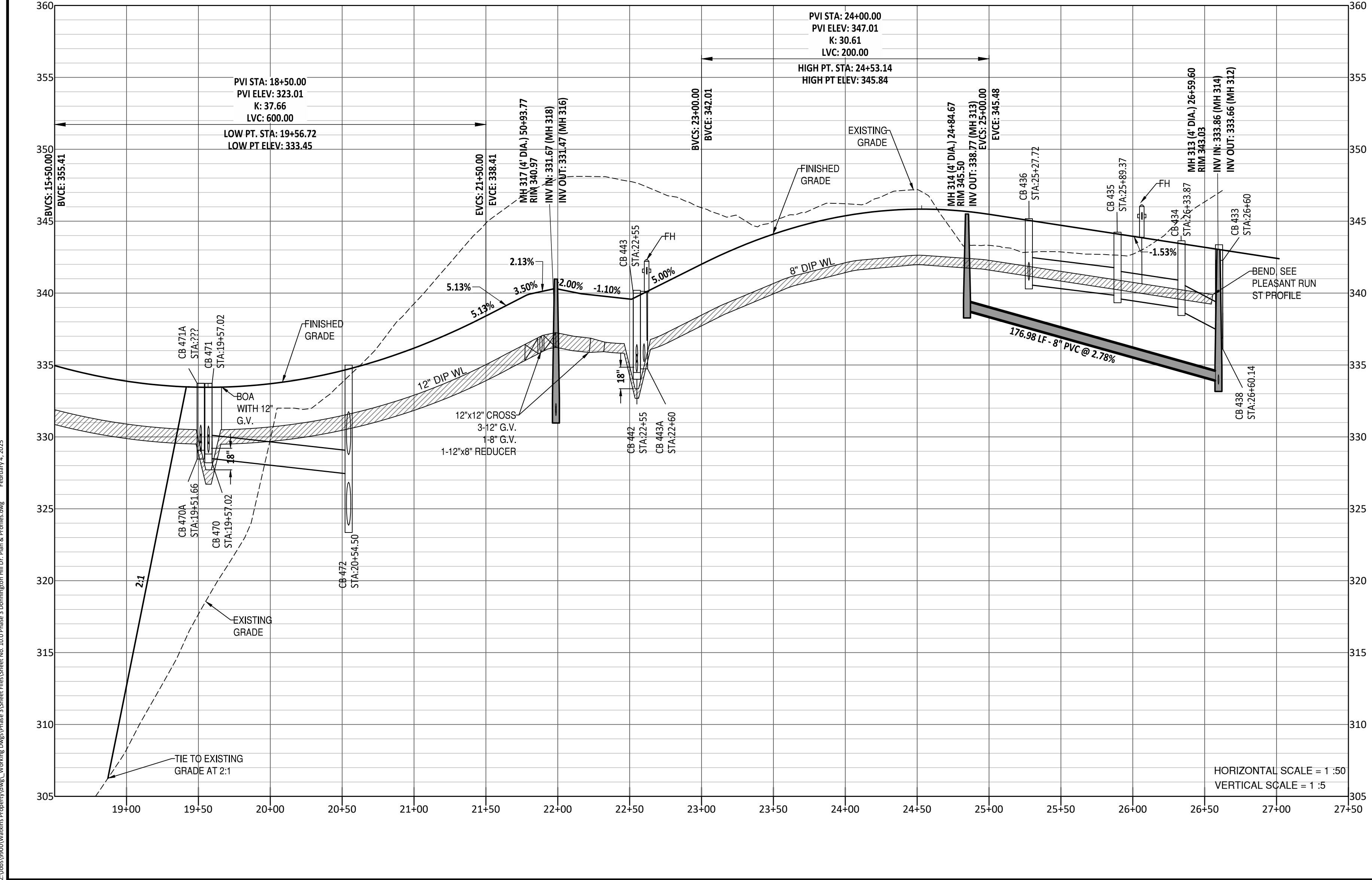
SHEET TITLE:
**FALLS BLUFF DRIVE
 PLAN & PROFILE**

SHEET NO.:
9.1

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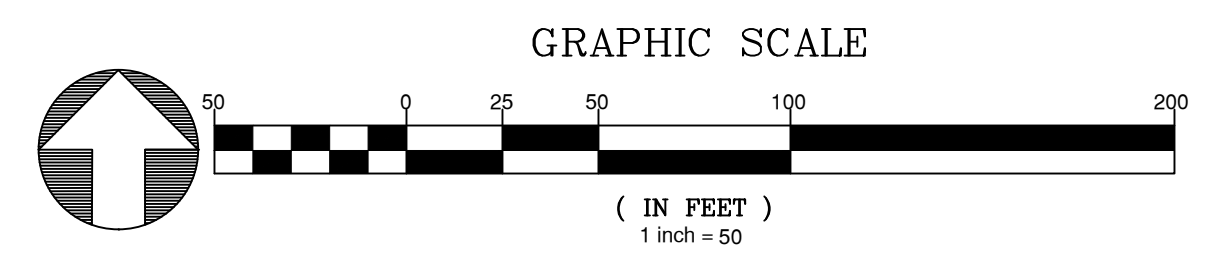


DONNINGTON HILL DR PLAN AND PROFILE

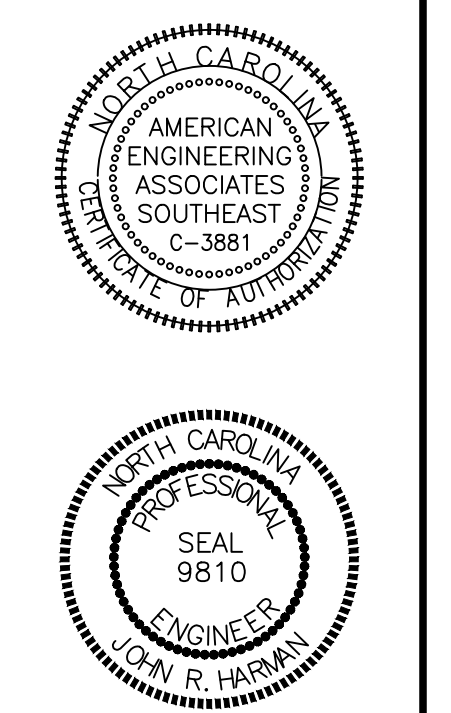


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UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
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	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



NO.	DATE	REVISION
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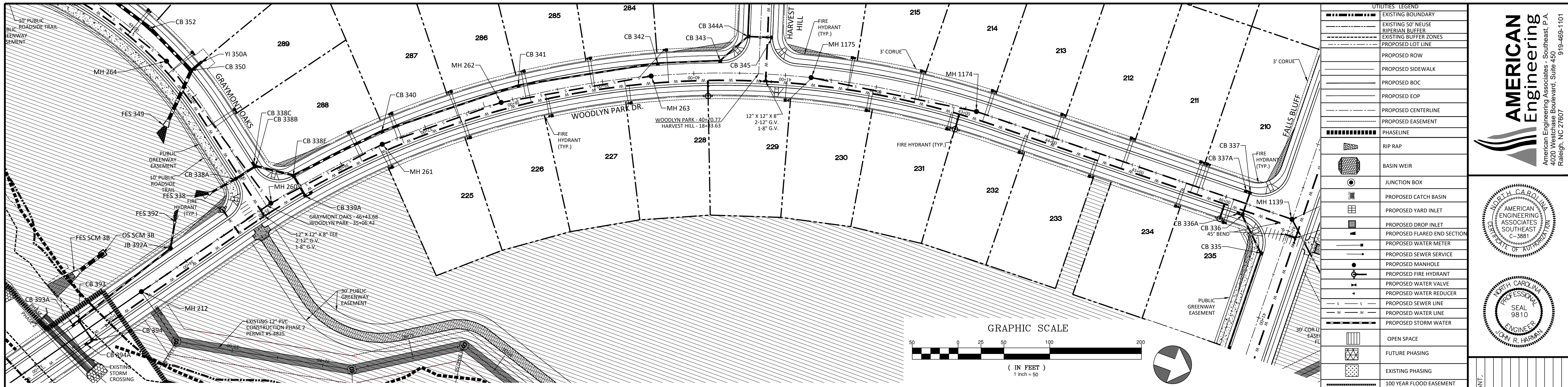
KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
DONNINGTON HILL DRIVE PLAN & PROFILE
 SHEET NO.: 10.0

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 City of Raleigh
 Public Utilities Department Permit # _____

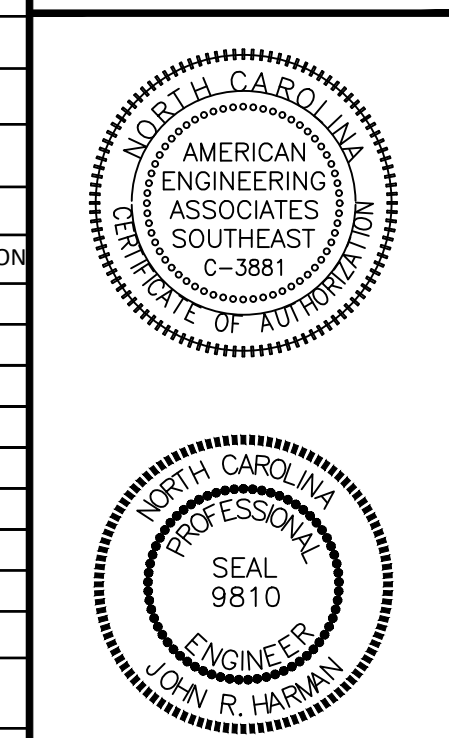
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 City of Raleigh
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 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-432-4949
 Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>

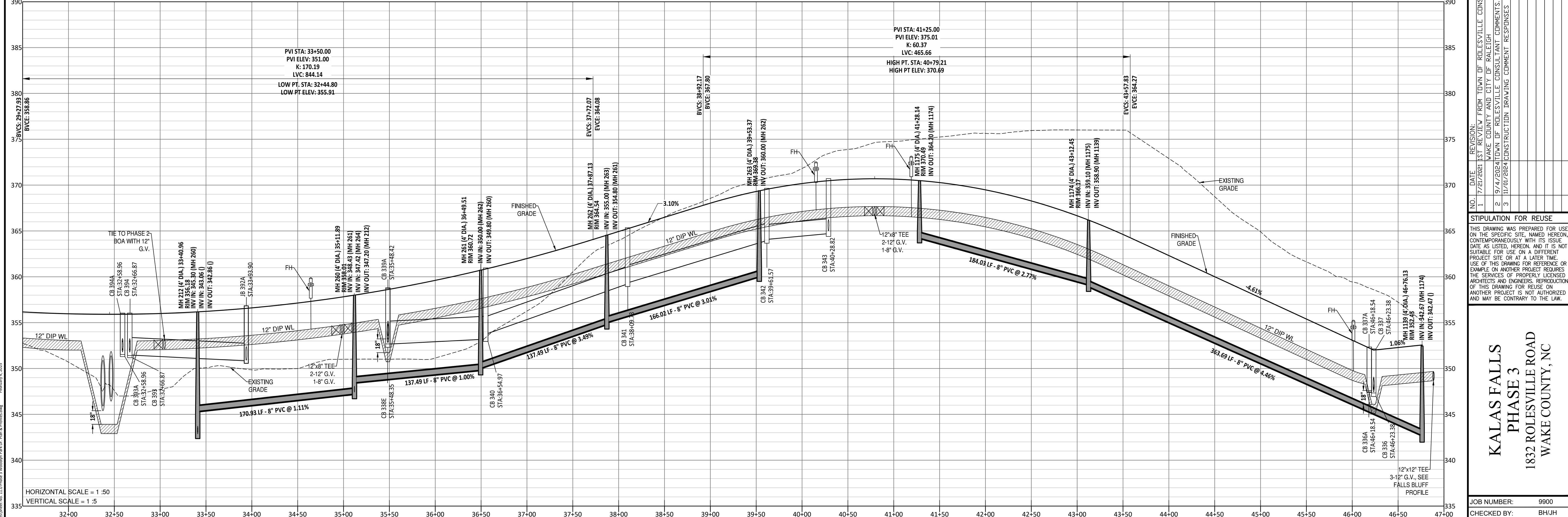


UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' NEUSE RIPARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
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	PHASELINE
	RIP RAP
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	JUNCTION BOX
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	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT

AMERICAN Engineering
 American Engineering Associates - Southeast, P.A.
 4020 Westchase Boulevard, Suite 450
 Raleigh, NC 27607
 919-469-1101



WOODLYN PARK DR PLAN AND PROFILE



NO.	DATE	REVISION
1	7/27/2021	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/MLL/ESA/HDH
 DATE: NOV 1, 2024
 SHEET TITLE:
WOODLYN PARK DRIVE PLAN & PROFILE
 SHEET NO.: 11.0

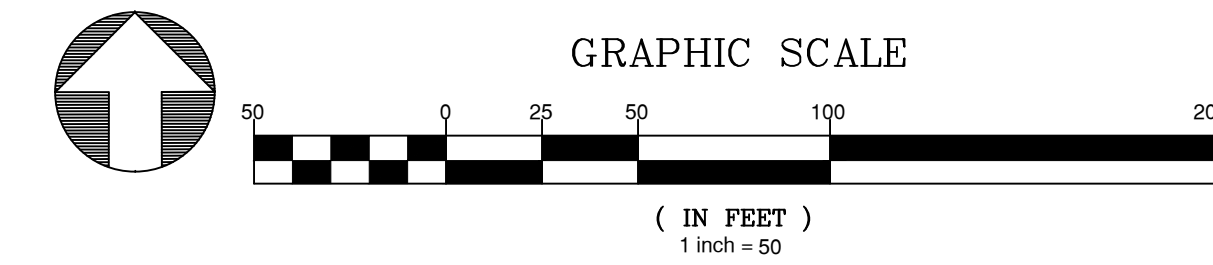
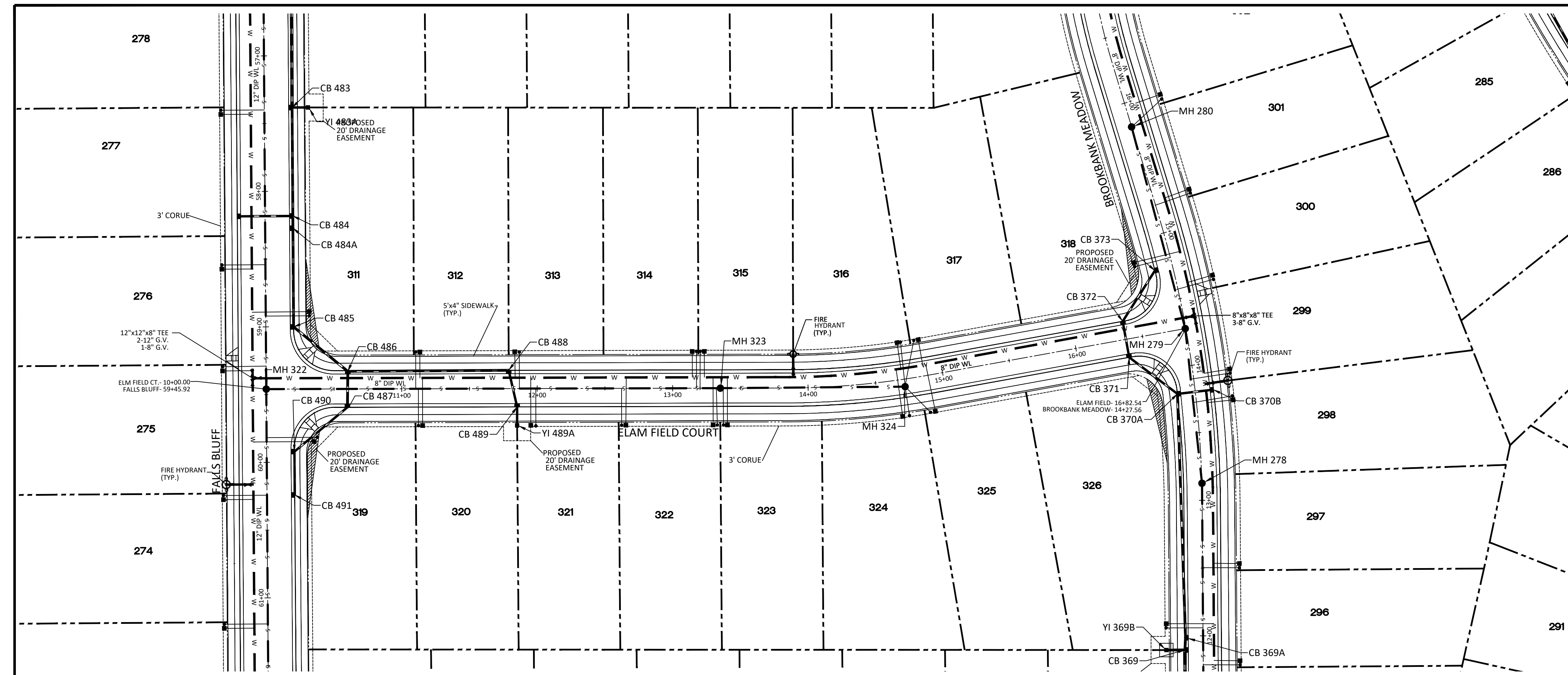
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 Public Utilities Department Permit # _____

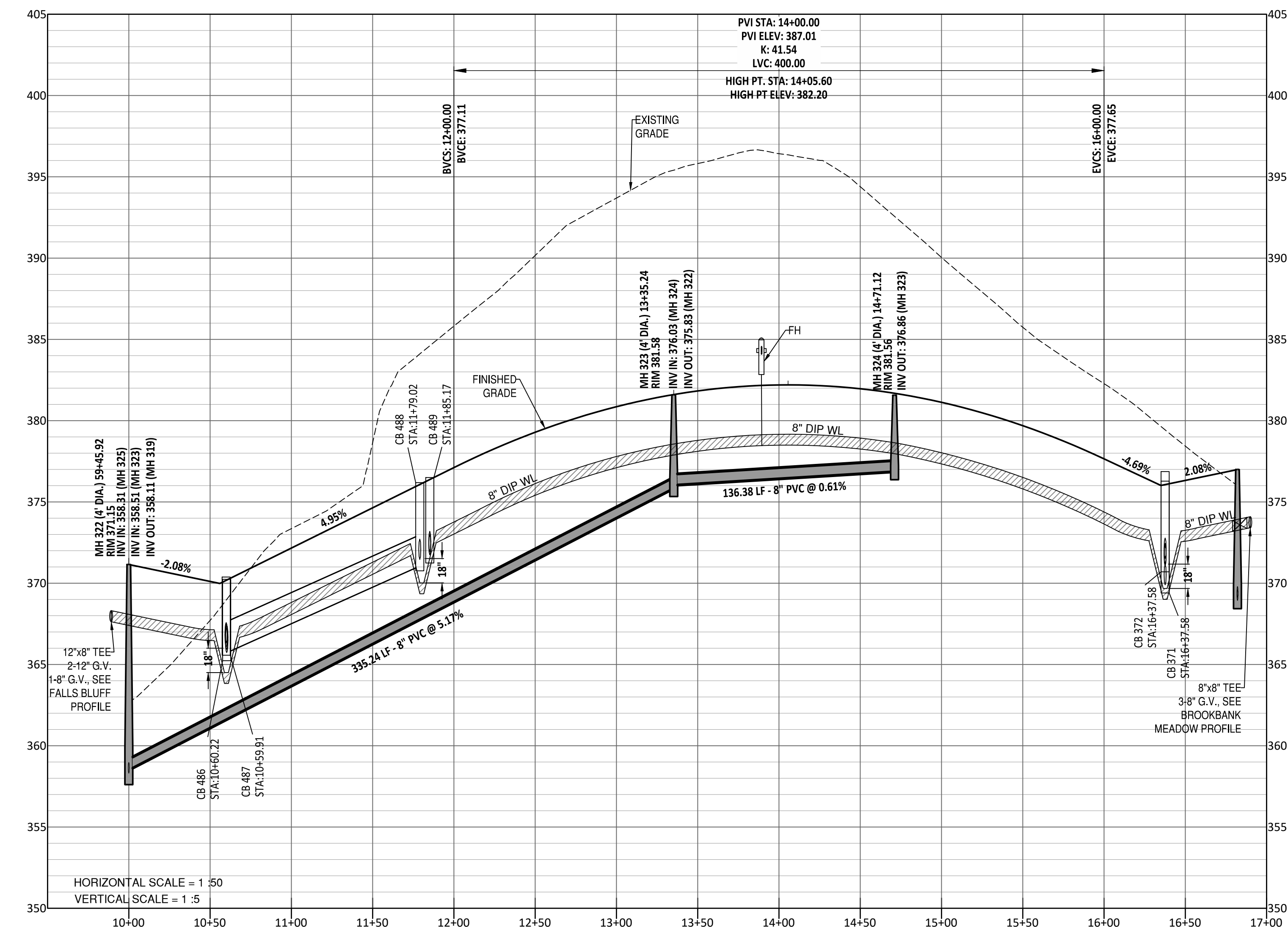
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 City of Raleigh
 Public Utilities Department Permit # _____



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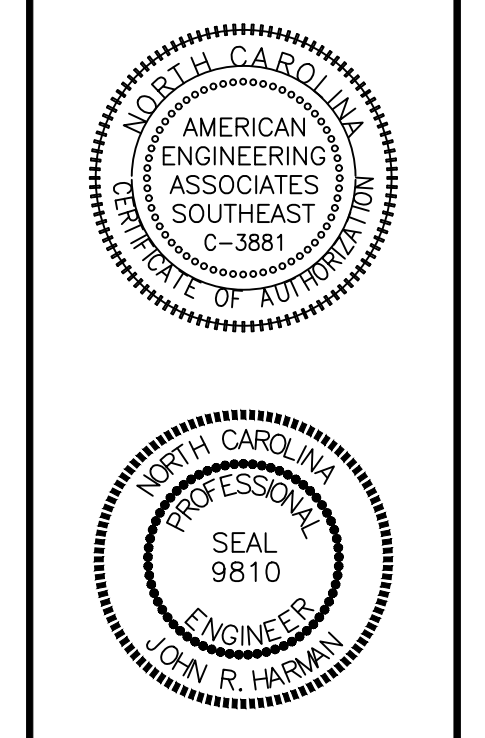


ELAM FIELD CT PLAN AND PROFILE



GENERAL NOTE:
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 3. PROPOSED CB (SAG'S) NEED TO BE COORDINATED WITH PVI (LOW POINTS) FOR GRADE.

UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' RIPEUSE RIPERIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



NO.	DATE	REVISION
1	7/2/2024	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF ROLESVILLE
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	10/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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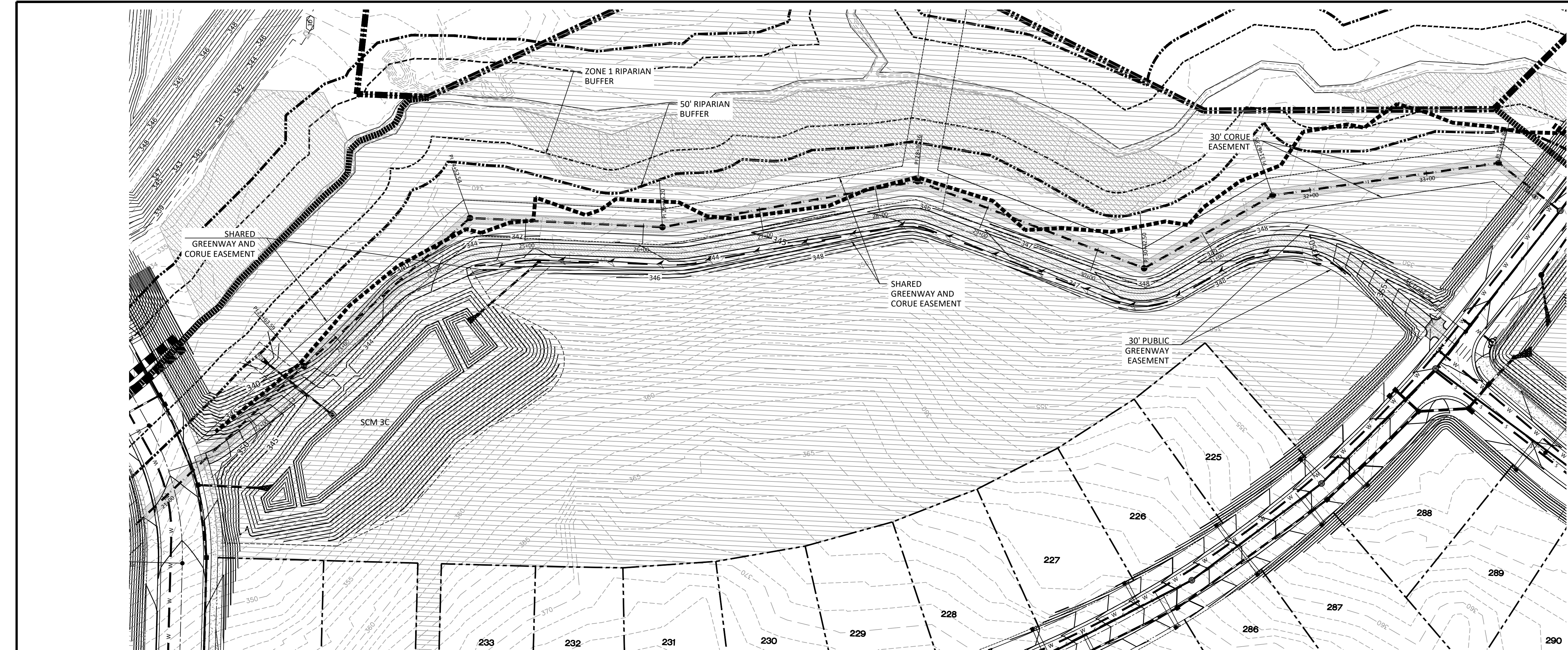
KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MAL/LES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
ELAM FIELD CT. PLAN & PROFILE
 SHEET NO.: 13.0

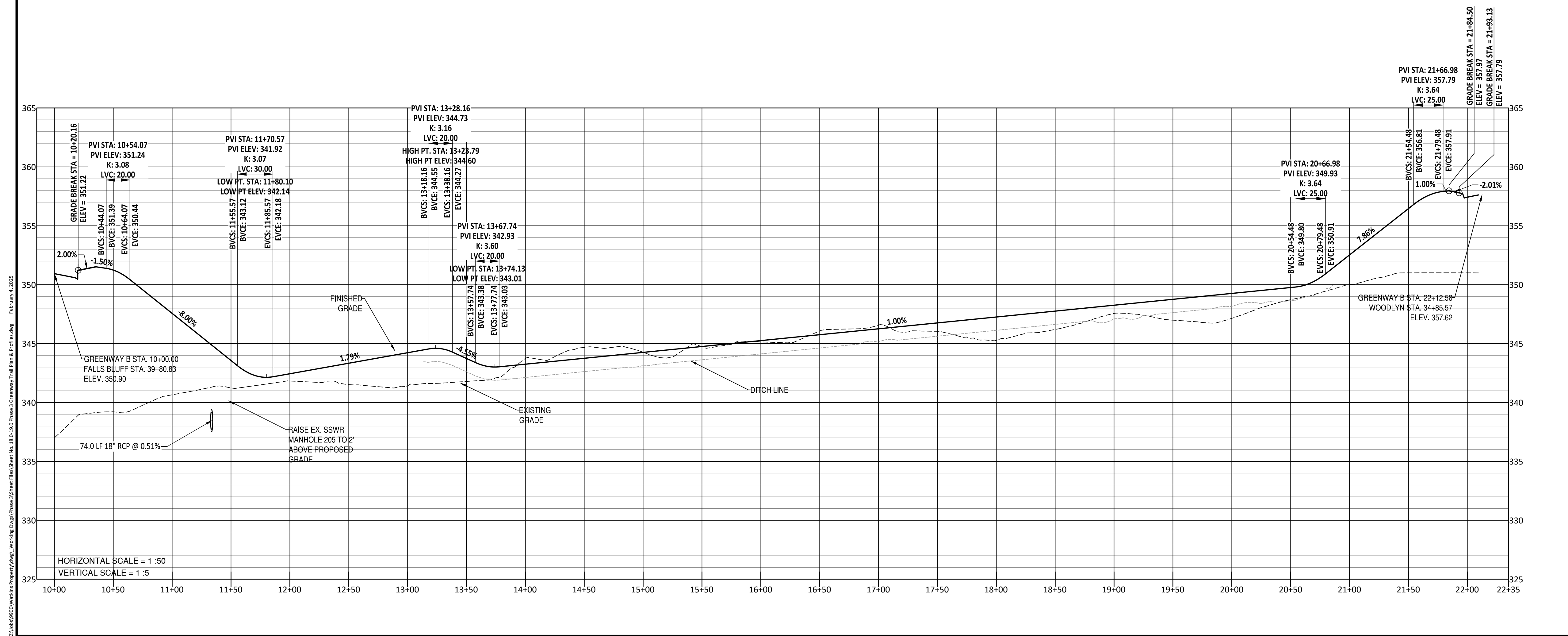
Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
 City of Raleigh
 Public Utilities Department Permit # _____

Public Water Distribution / Extension System
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 City of Raleigh
 Public Utilities Department Permit # _____

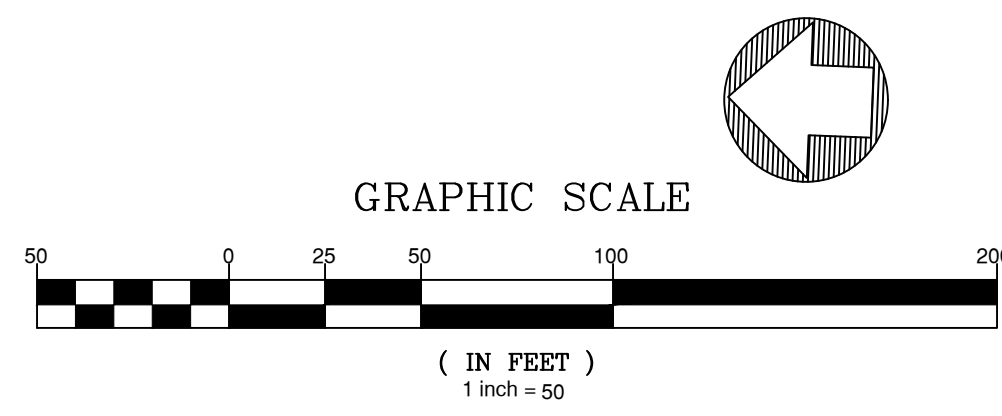
North 811
 *** Days Before Digging ***
 North Carolina 811
 811 or 1-800-632-4949
 Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>



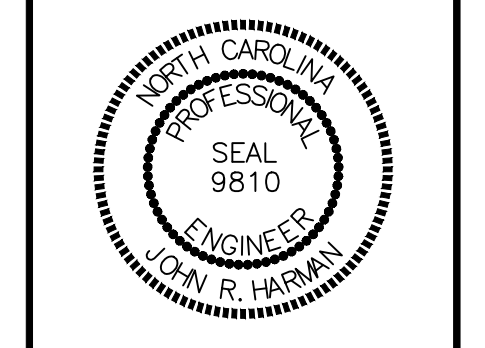
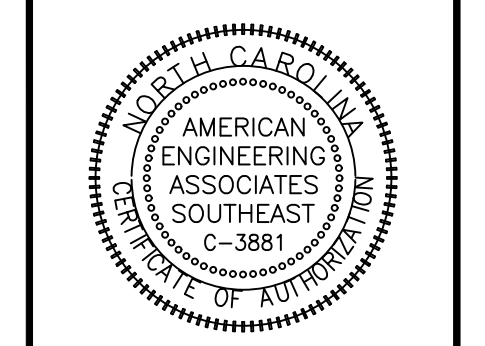
GREENWAY TRAIL "B"



NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.



UTILITIES LEGEND	
	EXISTING BOUNDARY
	EXISTING 50' RIPIARIAN BUFFER
	EXISTING BUFFER ZONES
	PROPOSED LOT LINE
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED EASEMENT
	PHASELINE
	RIP RAP
	BASIN WEIR
	JUNCTION BOX
	PROPOSED CATCH BASIN
	PROPOSED YARD INLET
	PROPOSED DROP INLET
	PROPOSED FLARED END SECTION
	PROPOSED WATER METER
	PROPOSED SEWER SERVICE
	PROPOSED MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER REDUCER
	PROPOSED SEWER LINE
	PROPOSED WATER LINE
	PROPOSED STORM WATER
	OPEN SPACE
	FUTURE PHASING
	EXISTING PHASING
	100 YEAR FLOOD EASEMENT



NO.	DATE	REVISION
1	7/27/2024	REVISED FROM TOWN OF ROLESVILLE CONSULTANT, REVIEW AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:
GREENWAY TRAIL "B" PLAN & PROFILE
 SHEET NO.: 19.0





NOTE:

A. SIGHT DISTANCE IS THE LENGTH OF ROADWAY AHEAD VISIBLE TO THE DRIVER. THE MINIMUM SIGHT DISTANCE AVAILABLE ON THE ROADWAY SHOULD BE SUFFICIENTLY LONG TO ENABLE A VEHICLE TRAVELING AT OR NEAR THE DESIGN SPEED TO STOP BEFORE REACHING A STATIONARY OBJECT IN ITS PATH.

B. MINIMUM STOPPING SIGHT DISTANCES SHALL BE PROVIDED IN BOTH THE HORIZONTAL AND VERTICAL PLANES FOR PLANNED ROADWAYS AS RELATED TO ASSUMED DRIVER'S EYE HEIGHT AND POSITION.

C. ADEQUATE SIGHT DISTANCE SHOULD BE PROVIDED AT ALL DRIVEWAY ACCESS POINTS AND SHALL BE IN ACCORDANCE WITH THE STANDARDS PROVIDED IN THIS MANUAL.

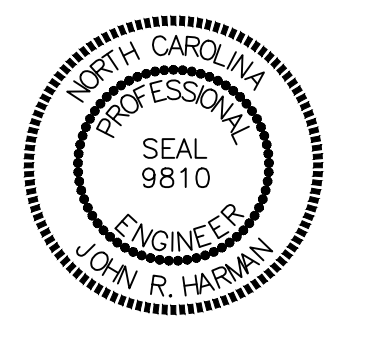
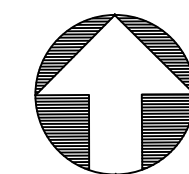
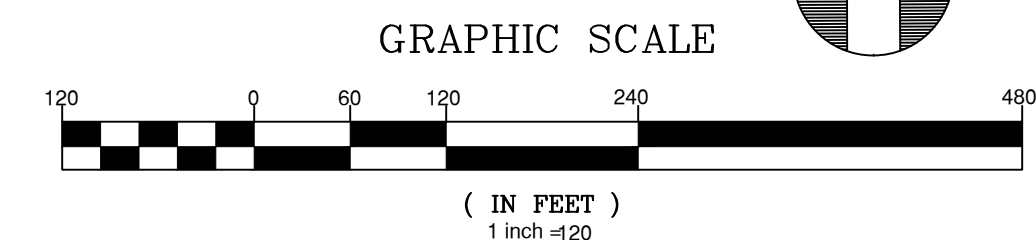
D. SIGHT TRIANGLES EASEMENTS SHALL BE SHOWN ON ALL NCDOT MAINTAINED ROADWAYS FOR ANY DRIVEWAY ACCESS ACCORDING TO THE MANUAL "POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS," AS ADOPTED AND AMENDED BY NCDOT.

E. THIS NOTE MUST BE PLACED ON ALL PLANS "WITHIN THE AREA OF ABOVE DEFINED SIGHT TRIANGLE, THERE SHALL BE NO SIGHT OBSTRUCTING OR PARTLY OBSTRUCTING WALL, FENCE, SIGN, FOLIAGE, BERMS, OR PARKED VEHICLES BETWEEN THE HEIGHTS OF 24 INCHES AND EIGHT FEET ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY IF NO CURBING EXISTS."

F. OBJECTS THAT CAN BE PERMITTED IN THE SIGHT DISTANCE TRIANGLE ARE UTILITIES SUCH AS HYDRANTS, UTILITY POLES, UTILITY BOXES, GSI PRACTICES, AND TRAFFIC CONTROL DEVICES. THOSE OBJECTS MUST BE LOCATED TO MINIMIZE VISUAL OBSTRUCTION.

TRANSPORTATION LEGEND	
	PROPOSED LOT LINE
	FLOODLINE
	BUILDING RESTRICTION LINE
	PROPOSED LOT SETBACK
	PROPOSED ROW
	PROPOSED SIDEWALK
	PROPOSED BOC
	PROPOSED EOP
	PROPOSED CENTERLINE
	PROPOSED GRADING
	PROPOSED EASEMENT
	PROPOSED HANDICAP RAMPS
	PROPOSED SIGHT TRIANGLE
	MAIL KIOSK LOCATION
	OPEN SPACE
	GREENWAY TRAIL HATCH
	GREENWAY/ROADSIDE TRAIL
	FUTURE PHASING
	EXISTING PHASING
	EXISTING WETLANDS
	PROPOSED PHASELINE

NOTE: THE 100 YEAR FLOOD-LINE AS ON THESE PLANS WERE TAKEN FROM THE FLOOD STUDY PREPARED BY DONLAD A SEVER, PE (024627) OF HUGH J. GILLECE, III AND ASSOCIATES, P.A.



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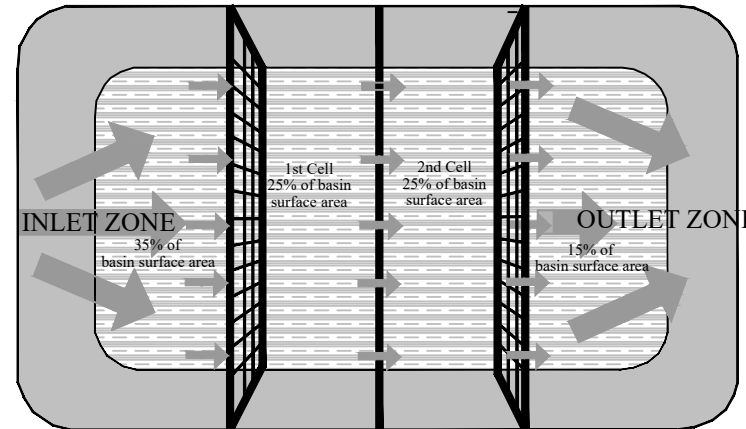
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**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

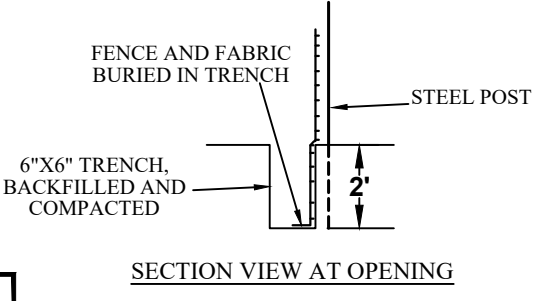
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
TRANSPORTATION PLAN
SHEET NO.:
21.0



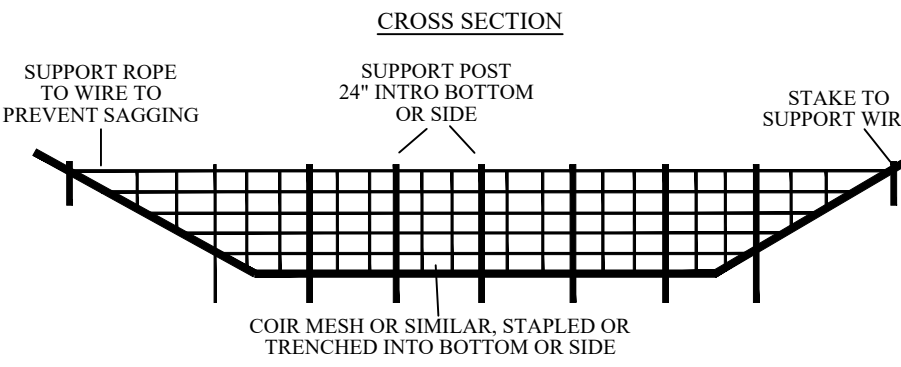


- NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
 2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
 3. PROVIDE 3 BAFFLES (SIZE TWO IF LESS THAN 20 FEET IN LENGTH), PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
 4. BAFFLES SHALL BE 700 G/M2 COIR EROSION BLANKET.
 5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
 6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL.

PLAN VIEW



SECTION VIEW AT OPENING

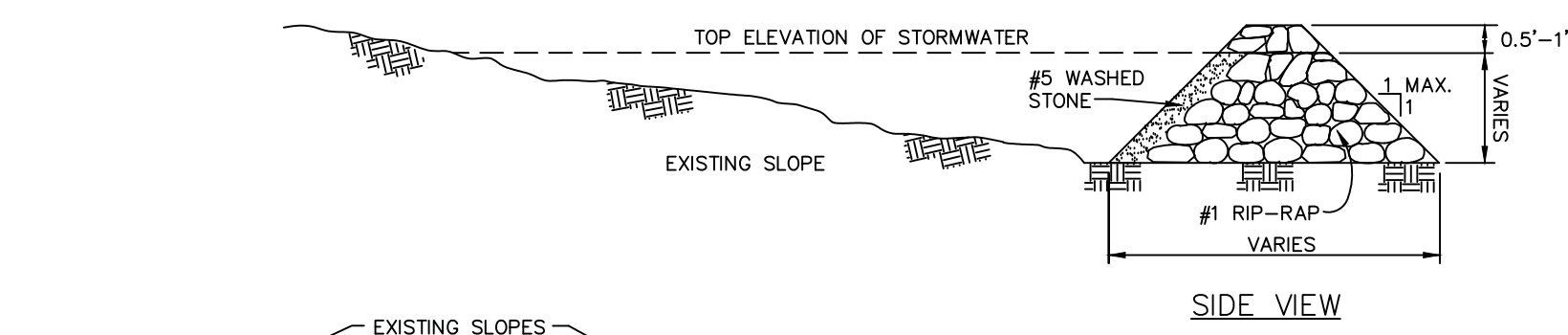


CROSS SECTION

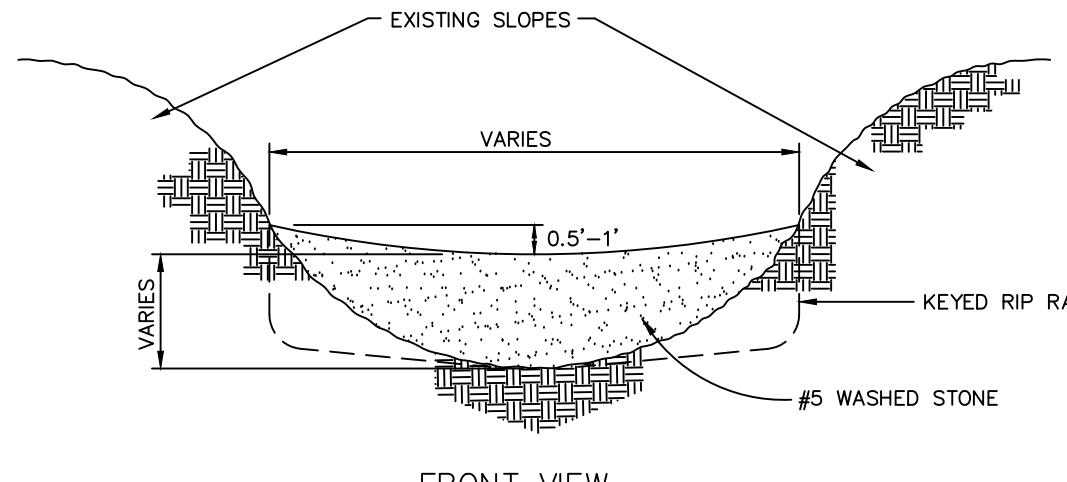


STANDARD BAFFLES DETAIL

EFFECTIVE: 01/31/08



SIDE VIEW



FRONT VIEW

STEP SEQUENCE

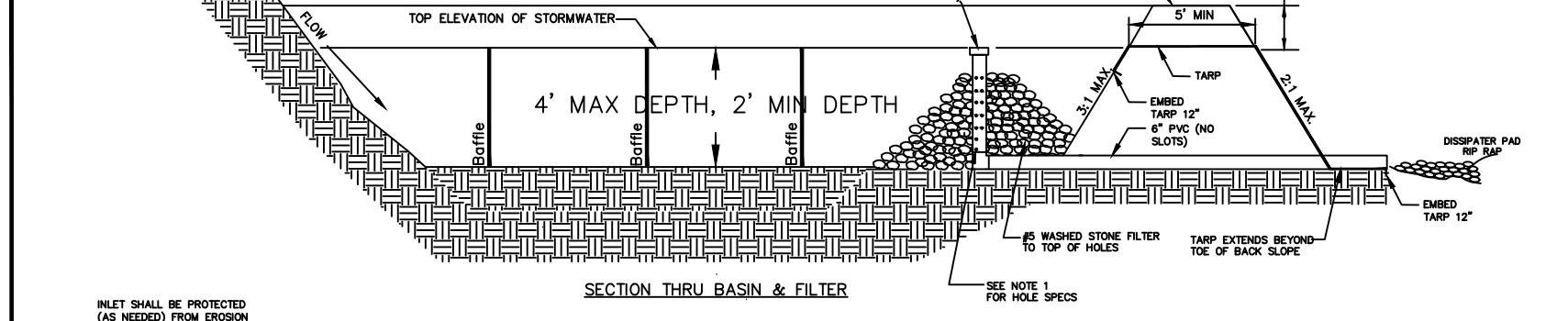
- CONSTRUCTION NOTES:
- HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
 - KEY RIP RAP INTO THE DAM FOR STABILIZATION.

NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

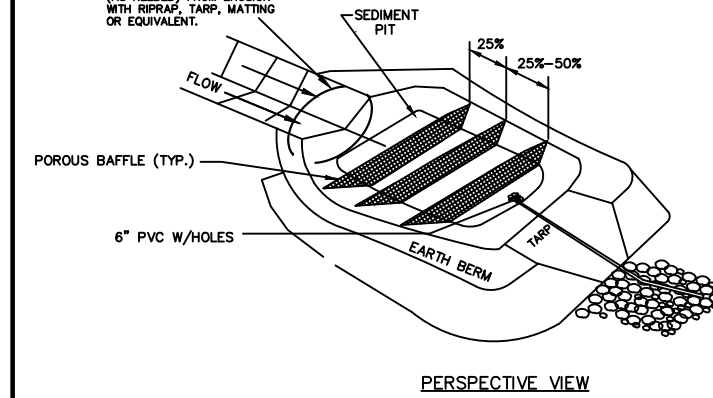


STANDARD CHECK DAM

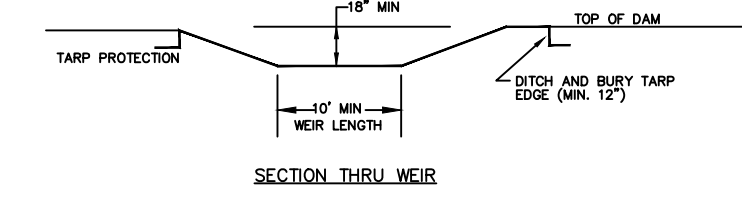
EFFECTIVE: 01/31/08



SECTION THRU BASIN & FILTER



PERSPECTIVE VIEW



SECTION THRU WEIR

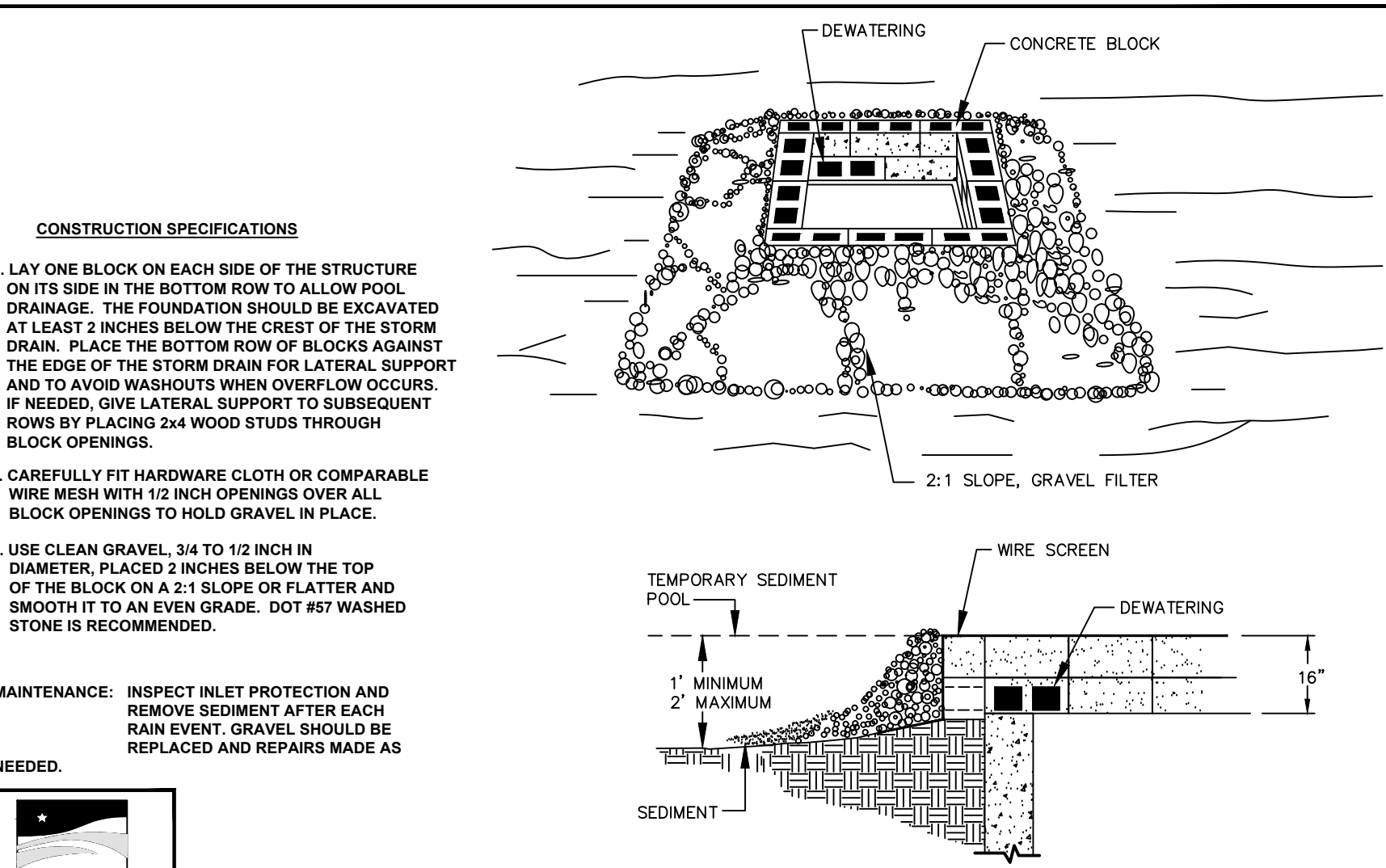
- GENERAL NOTES:
1. DRAW DOWN RISER & BARRISL SHALL BE 6" DIA. 40 PVC WITH CLEAN-OUT CAP AND 3/4" HOLES. SEE NOTE 1 FOR NUMBER AND SPACING OF HOLES.
 2. THE TAPPS USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TAPP SHALL BE ACCORDING TO AVAILABLE SUPPORT. IF MULTIPLE TAPPS ARE TO BE USED, TAPP SPACING SHALL BE MAINTAINED AT LEAST 12". THE UPSTREAM TAPP SHALL OVERLAP THE DOWNSTREAM TAPP. THE TAPP SHALL BE 1/2" MIN. HEAVY DUTY U.V. THERMOPLASTIC OR EQUIVALENT FOR U.V. RESISTANCE.
 3. MAINTENANCE: SEDIMENT TO BE REMOVED AND PROPERLY DISPOSED OF WHEN BASIN IS HALF FULL. GRAVEL FILTER AROUND RISER SHOULD BE REPLACED AS NEEDED TO ENSURE DEWATERING.

NOTE 1:
HOLES SPEC:
DEWATERING HOLES WILL BE INSTALLED IN SETS OF HORIZONTAL PIPES. THE FIRST SET OF HOLES WILL BE SET 6 INCHES FROM THE BOTTOM OF THE RISER. RINGS WILL CONTAIN 12 HOLES IN INTERVALS OF 3 INCHES. HOLES WILL BE 1/4 INCH IN DIAMETER AND WILL BE SPACED EQUALLY AROUND THE RISER. THE NUMBER OF HOLES PER RING WILL BE EQUAL TO THE DRAINAGE AREA.
EXAMPLE:
A BASIN DRAINING 2.0 ACRES SHOULD HAVE 2 HOLES PER RING EVERY 3 INCHES ON THE RISER PIPES. THE FIRST RING (2 HOLES) WILL BE SET 6 INCHES FROM THE BOTTOM OF THE RISER.
NOTE: ROUND DRAINAGE AREA TO THE NEAREST WHOLE NUMBER TO DETERMINE NUMBER OF HOLES.



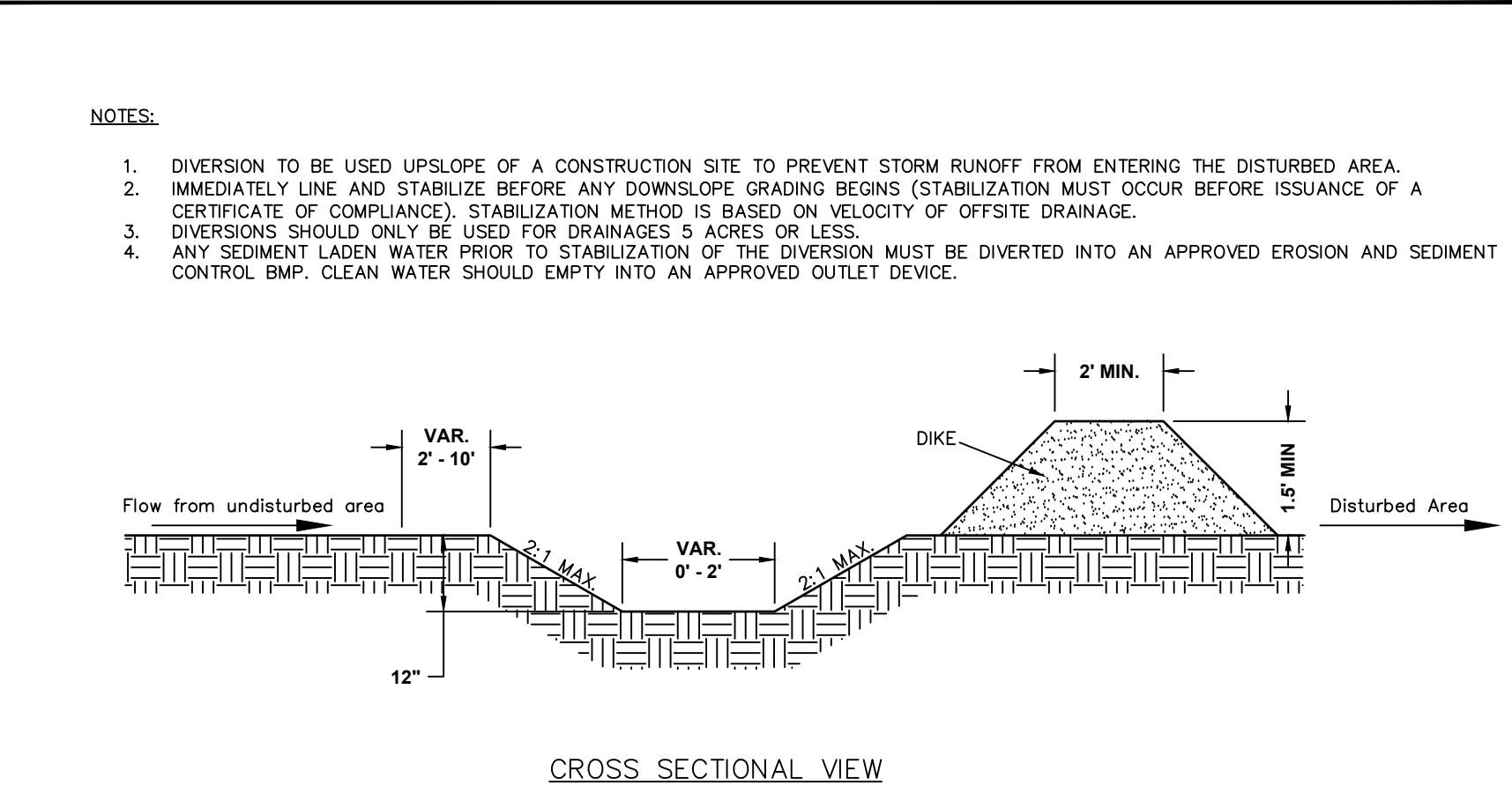
STANDARD CUSTOM BASIN

EFFECTIVE: 01/31/08



STANDARD BLOCK & GRAVEL DROP INLET PROTECTION

EFFECTIVE: 01/31/08

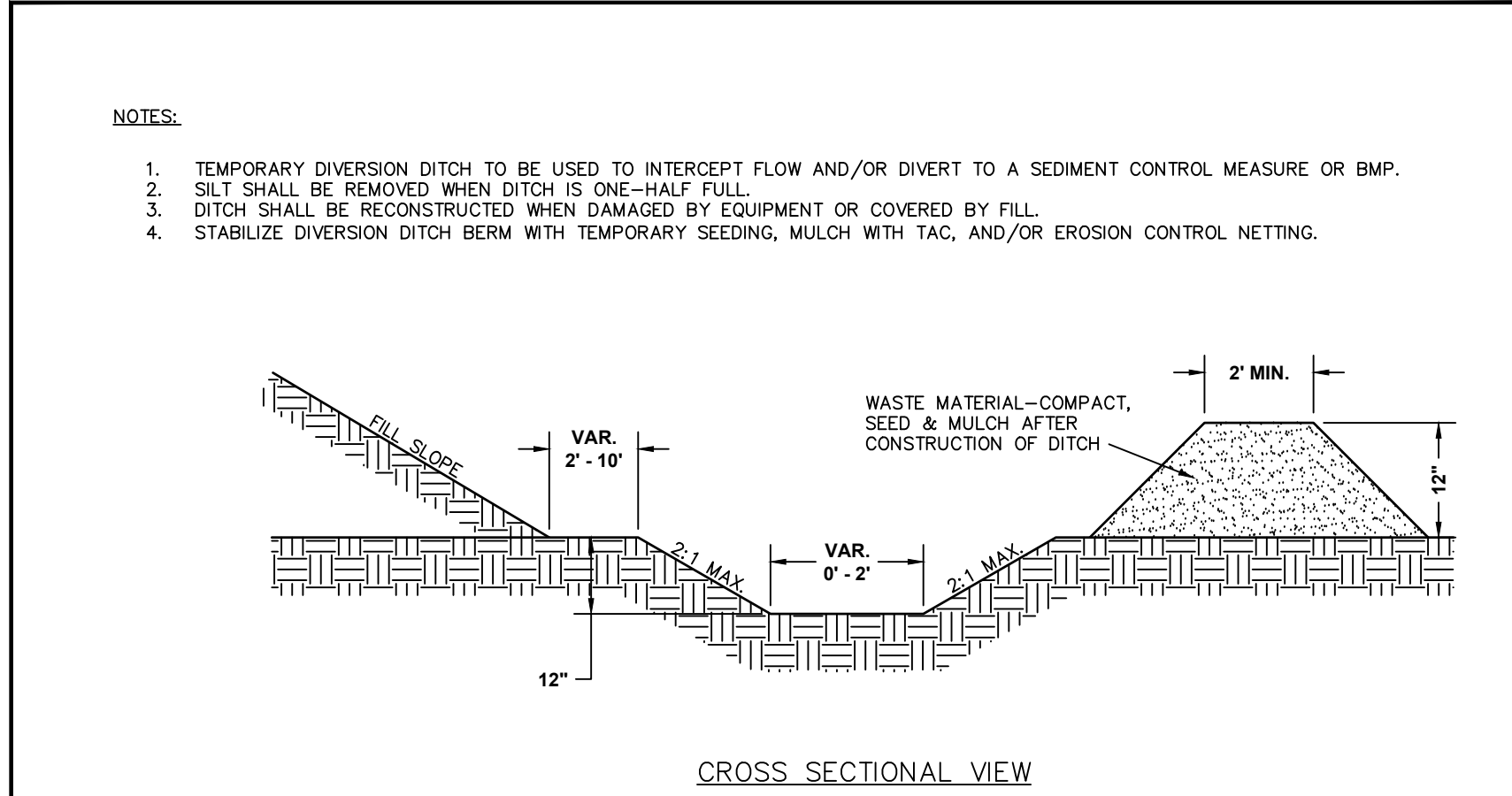


CROSS SECTIONAL VIEW



STANDARD CLEAN WATER DIVERSION

EFFECTIVE: 01/31/08

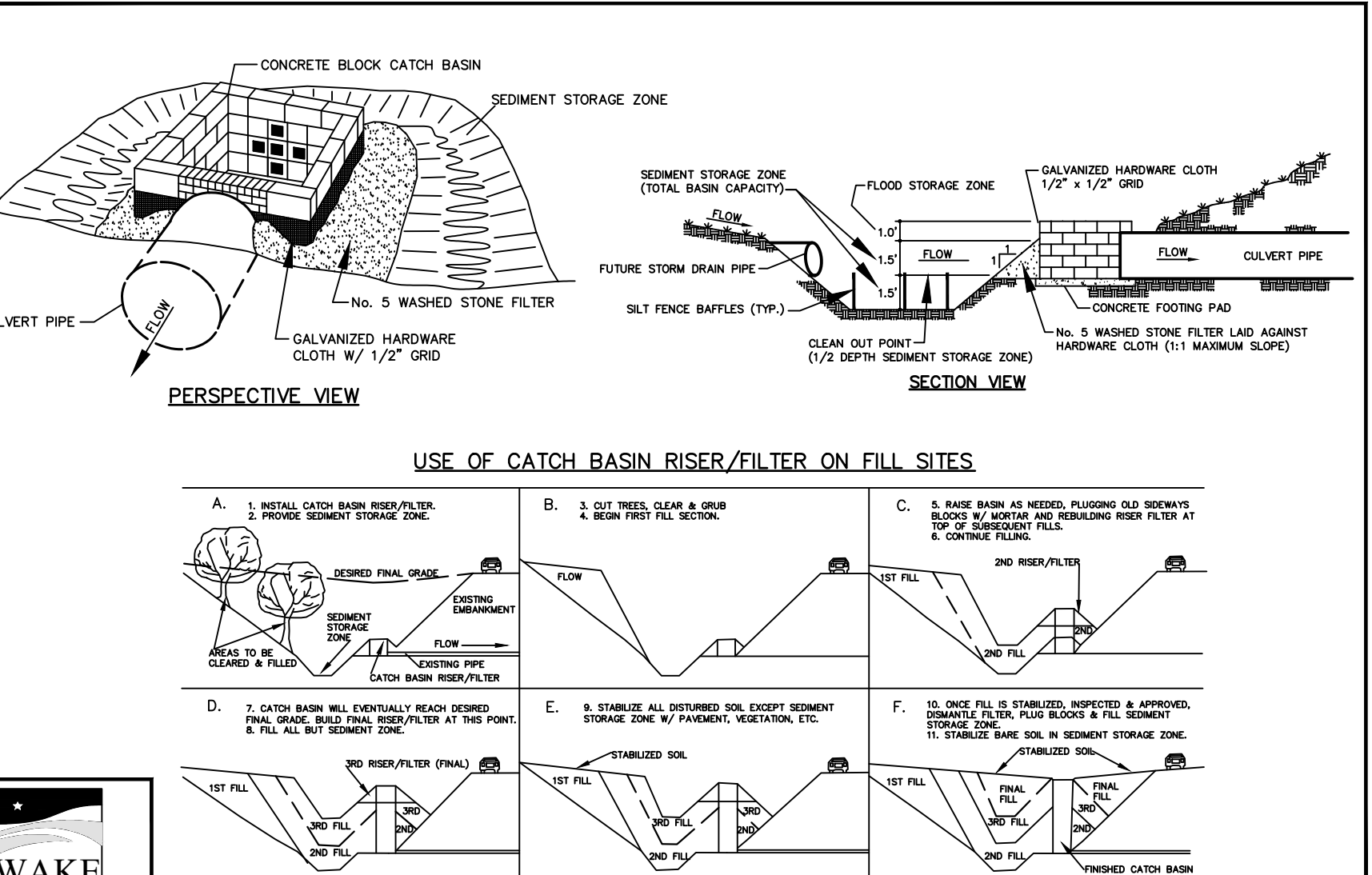


CROSS SECTIONAL VIEW



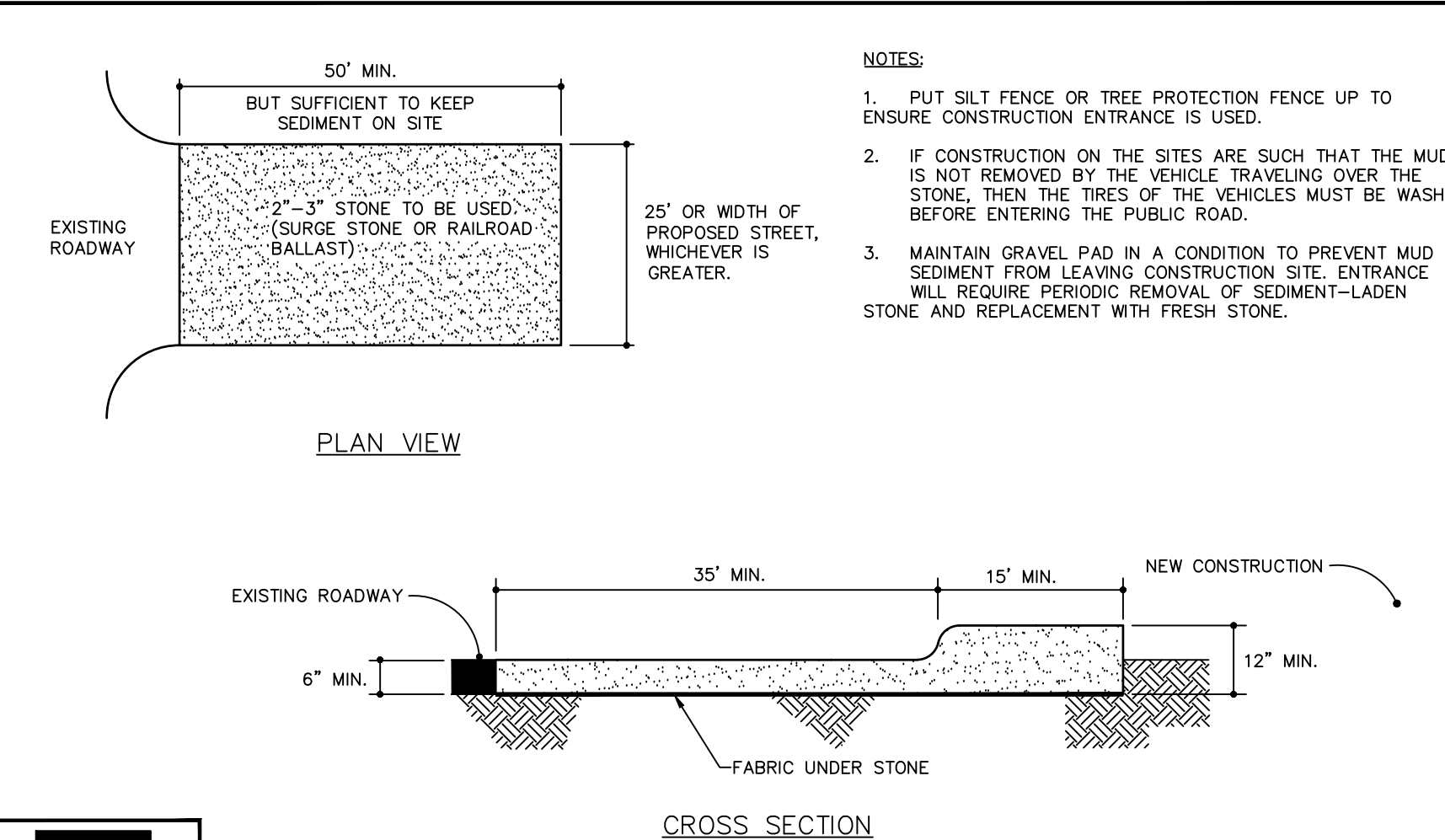
STANDARD TEMPORARY DIVERSION DITCH

EFFECTIVE: 01/31/08



STANDARD CATCH BASIN RISER/FILTER

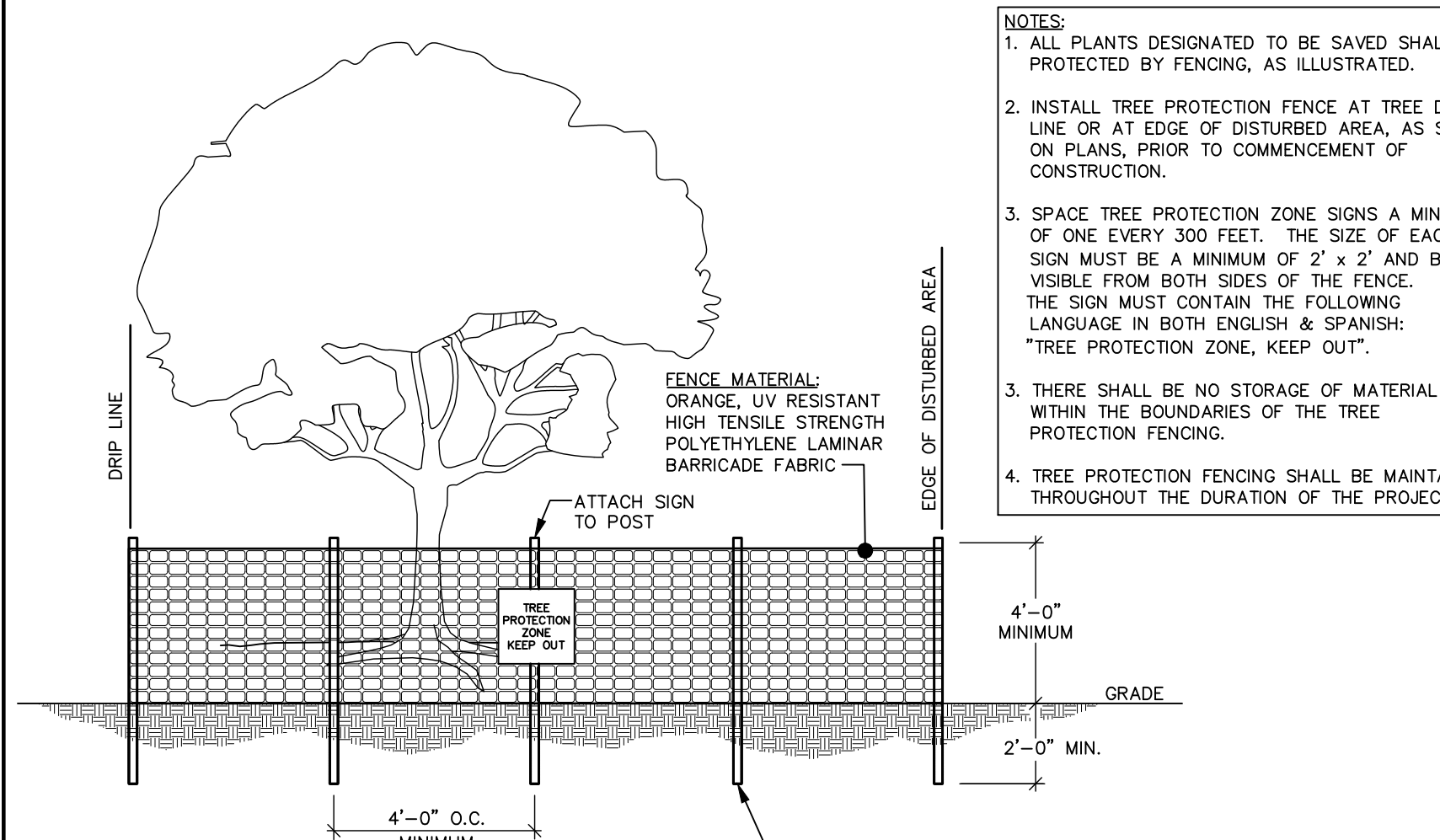
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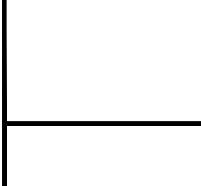
STANDARD CONSTRUCTION ENTRANCE



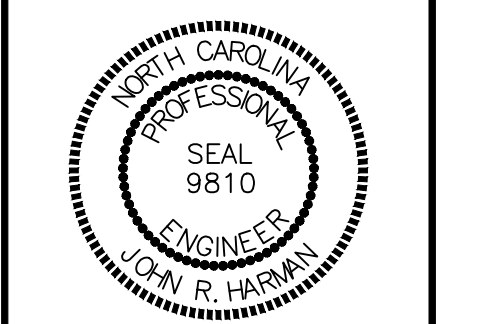
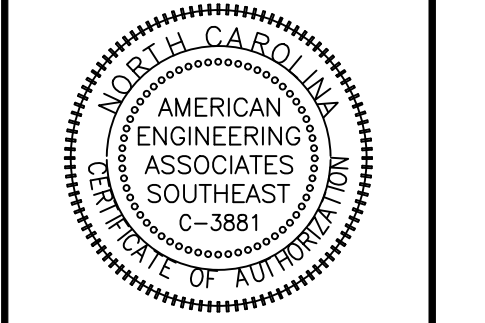
EFFECTIVE: 01/31/08



TREE PROTECTION FENCE



EFFECTIVE: 01/31/08



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	17/07/2024	1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
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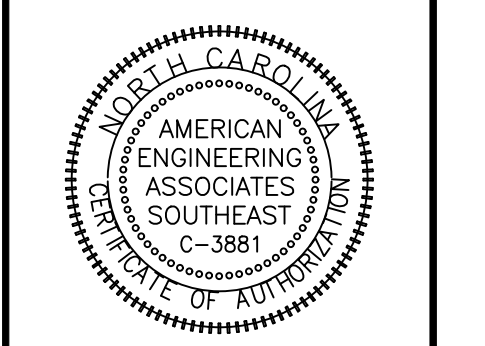
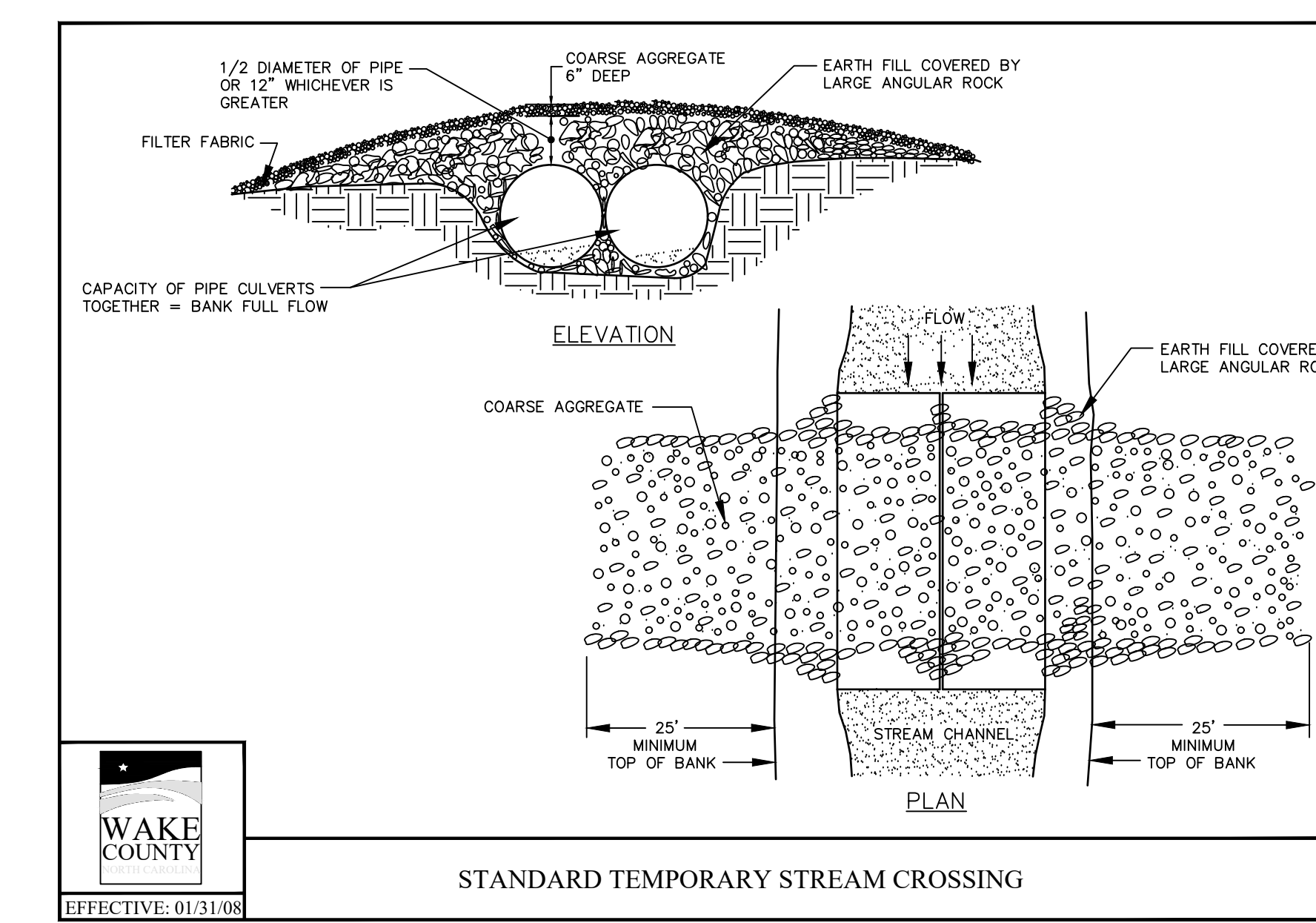
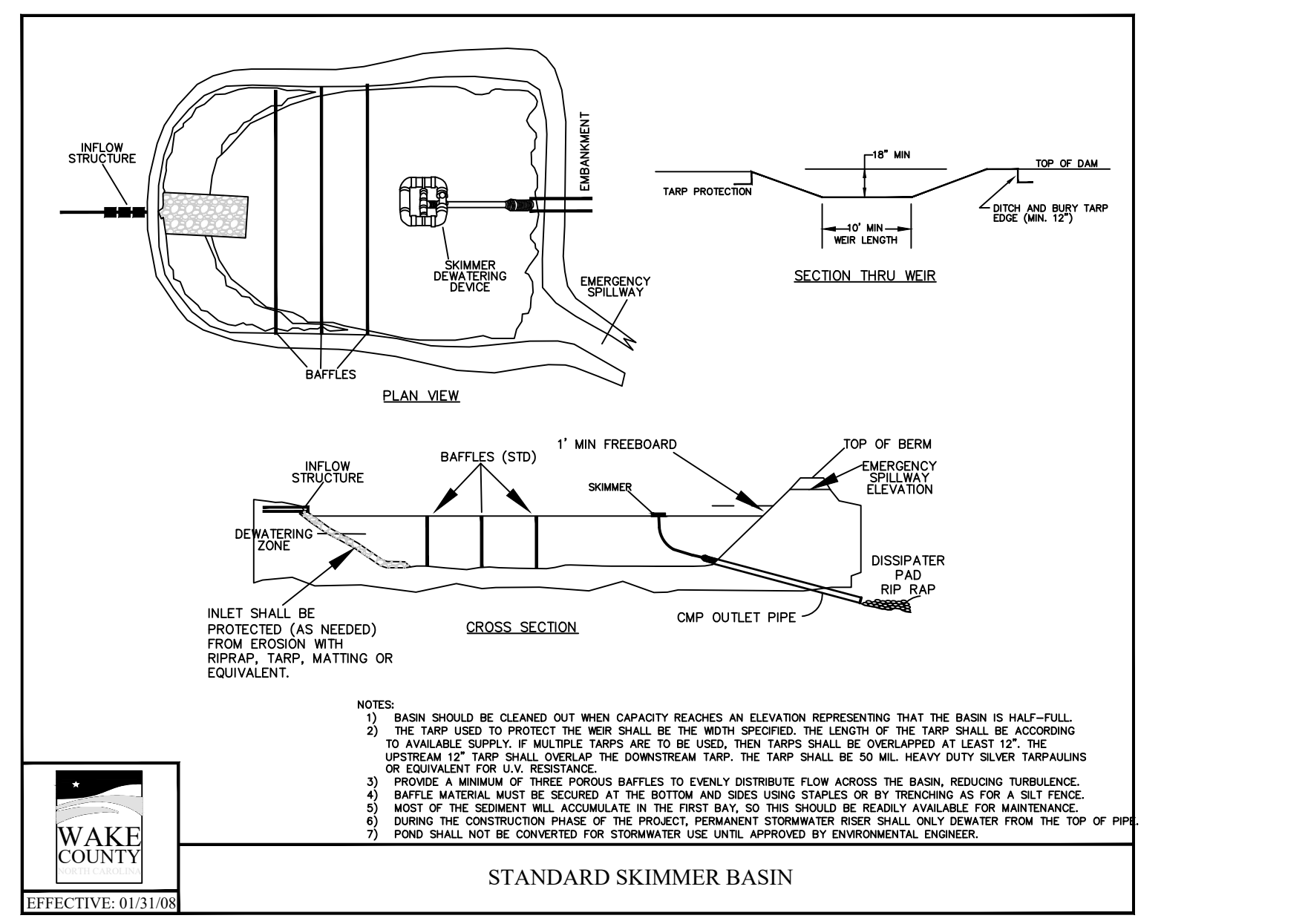
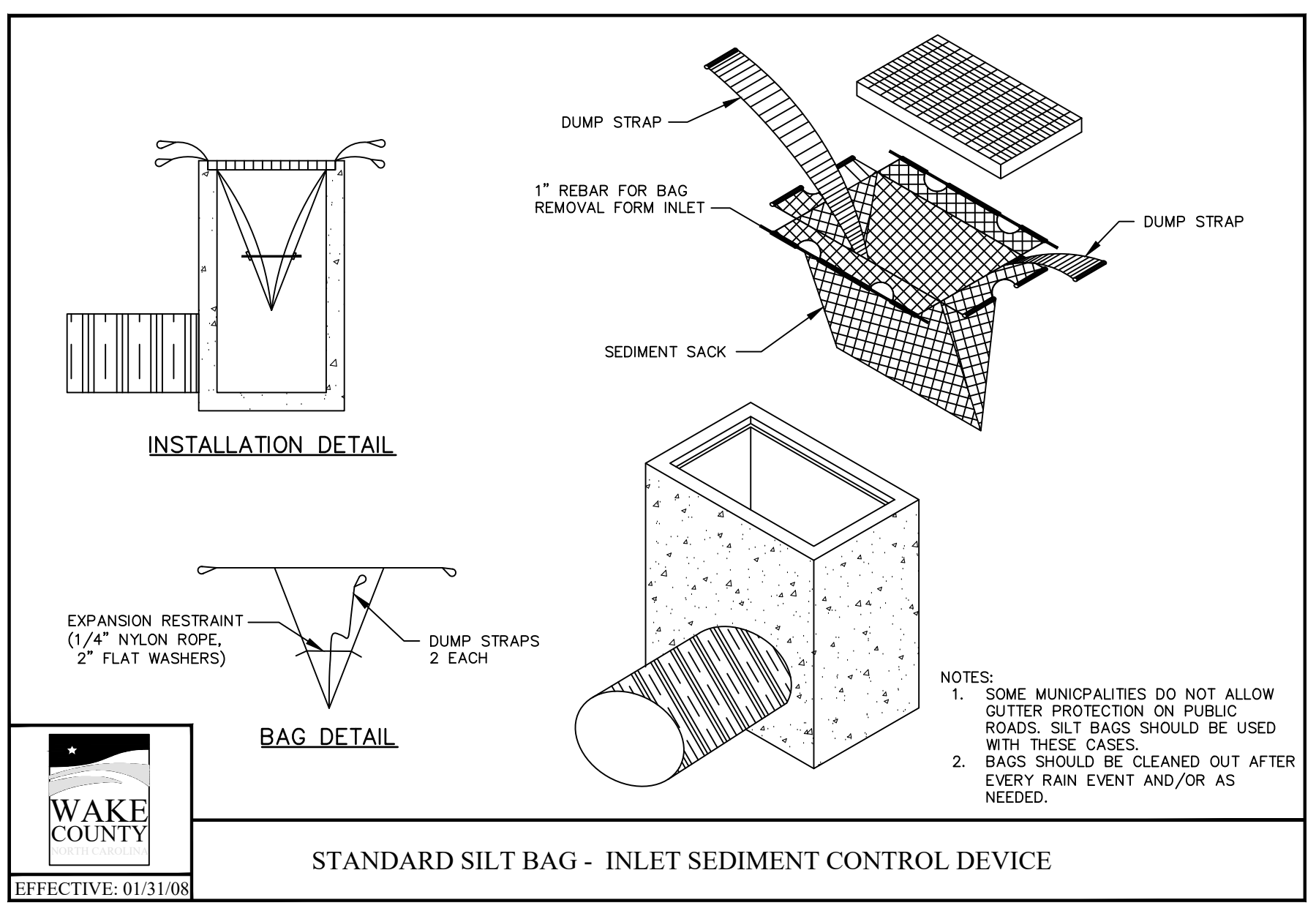
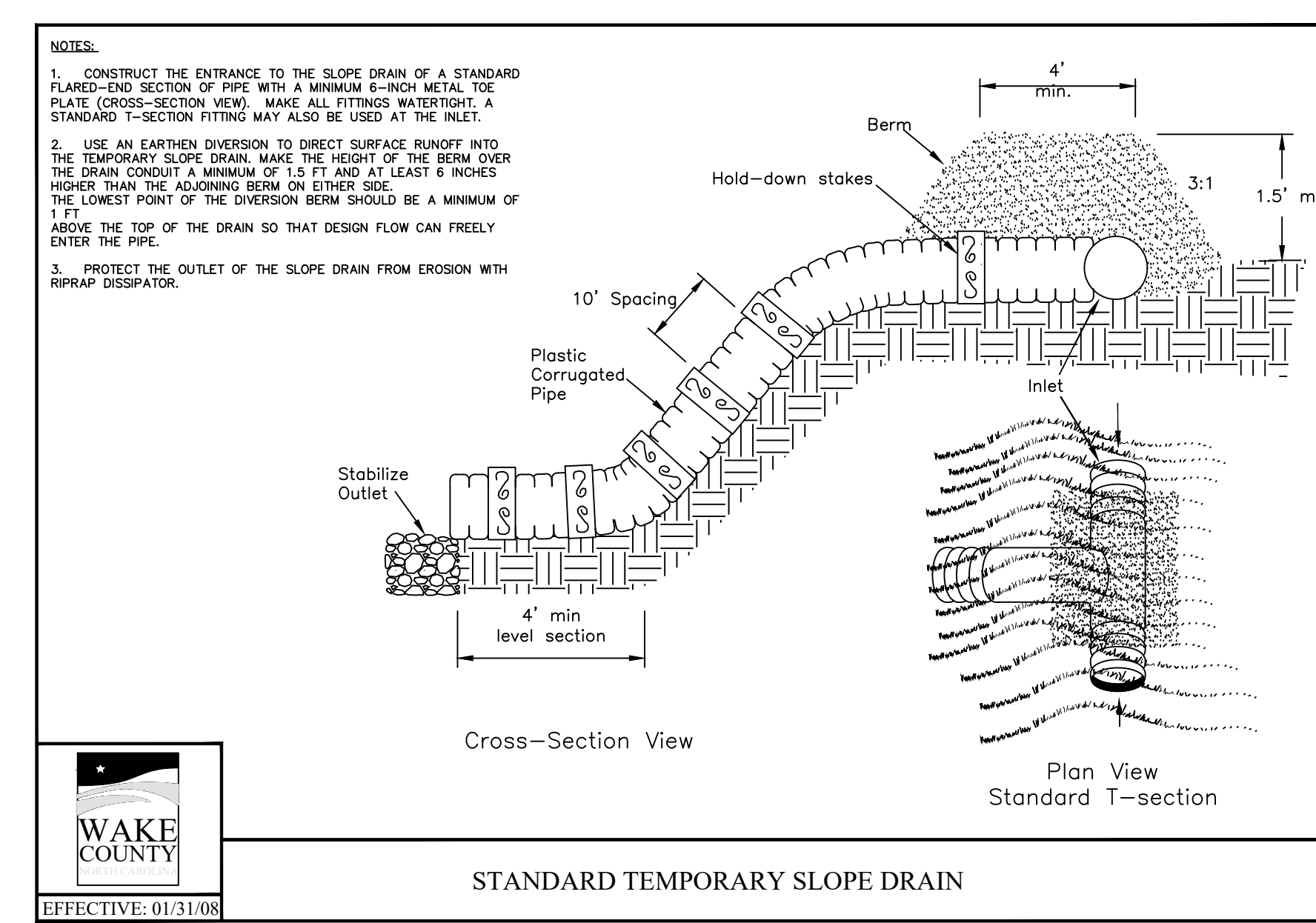
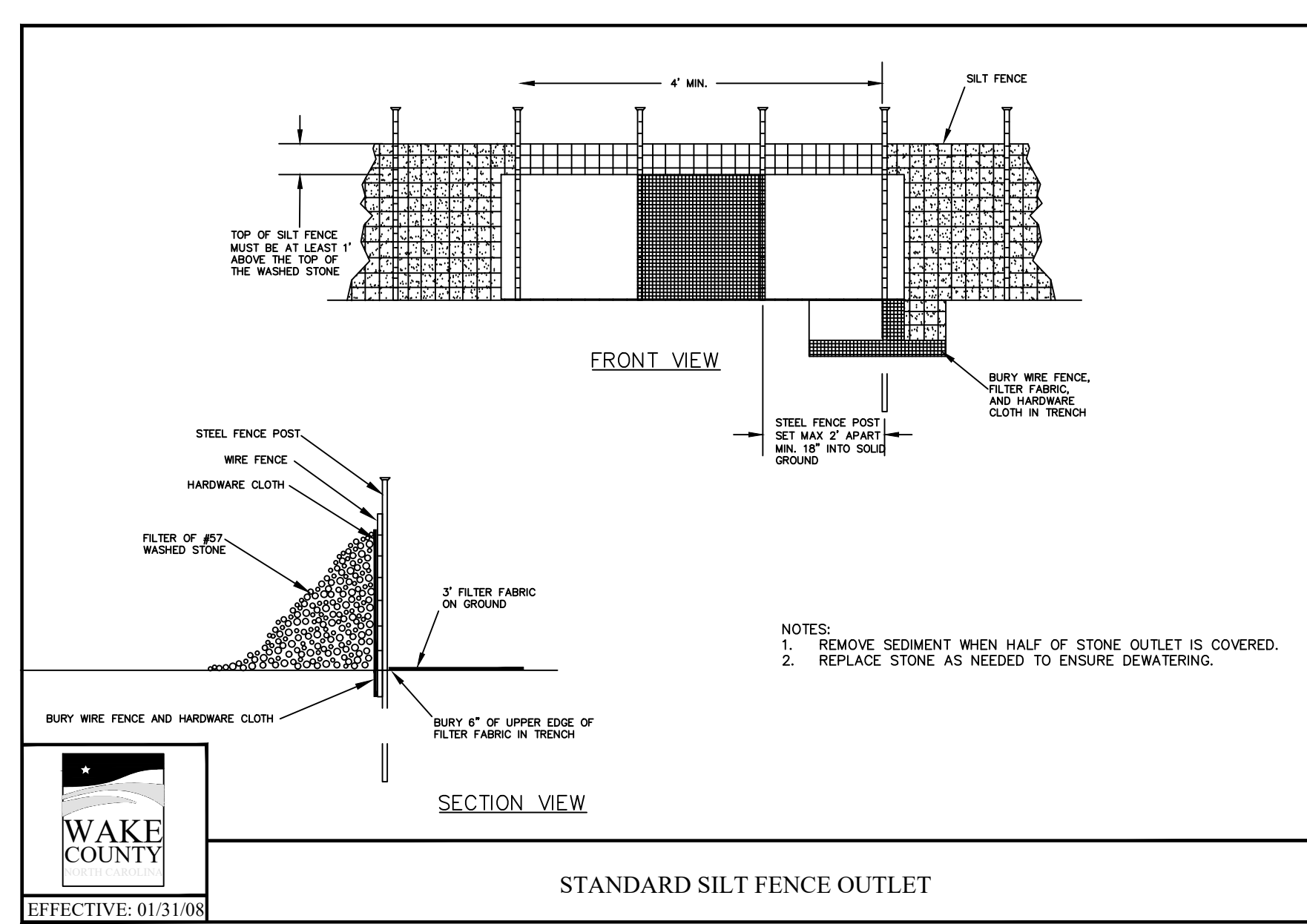
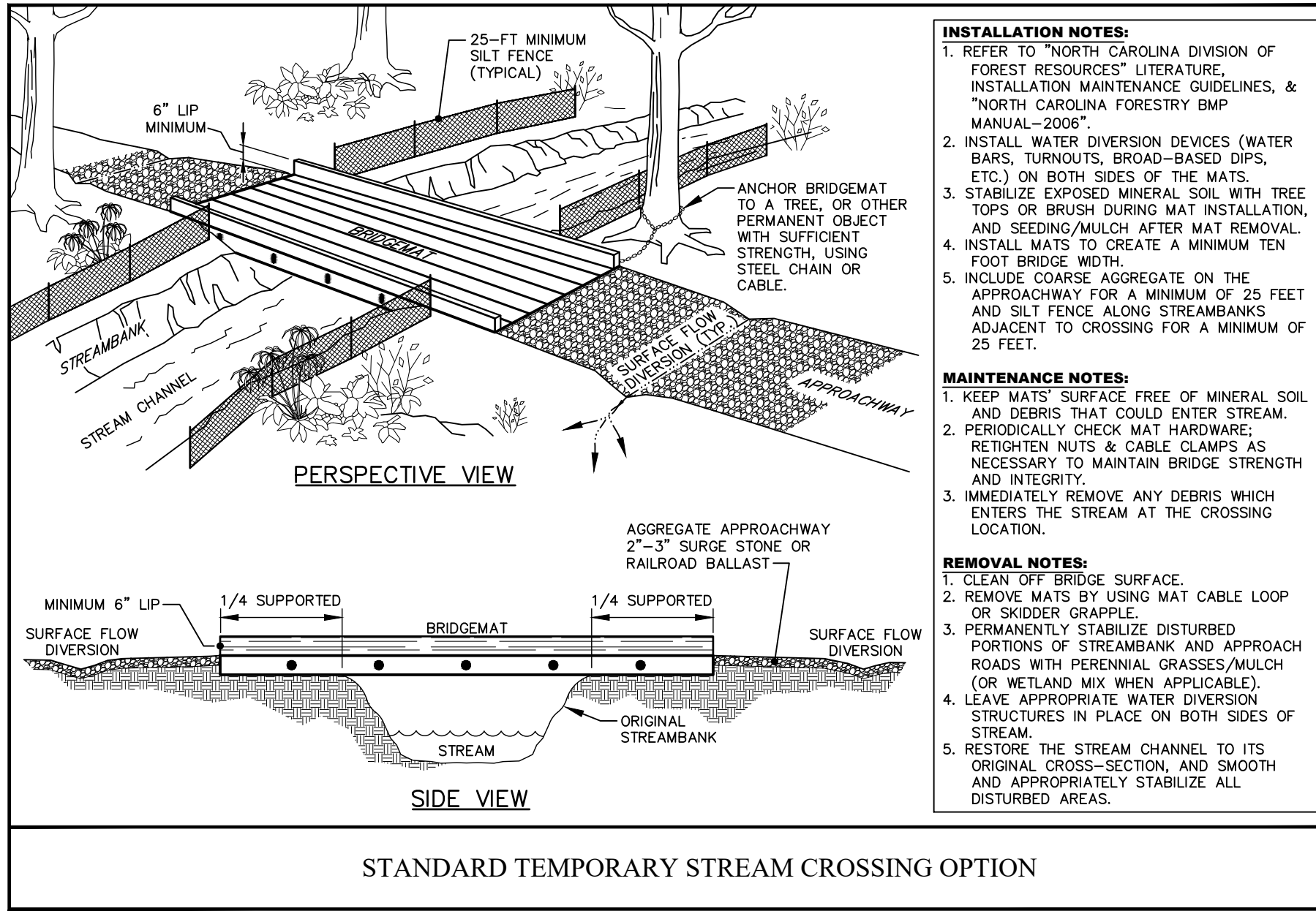
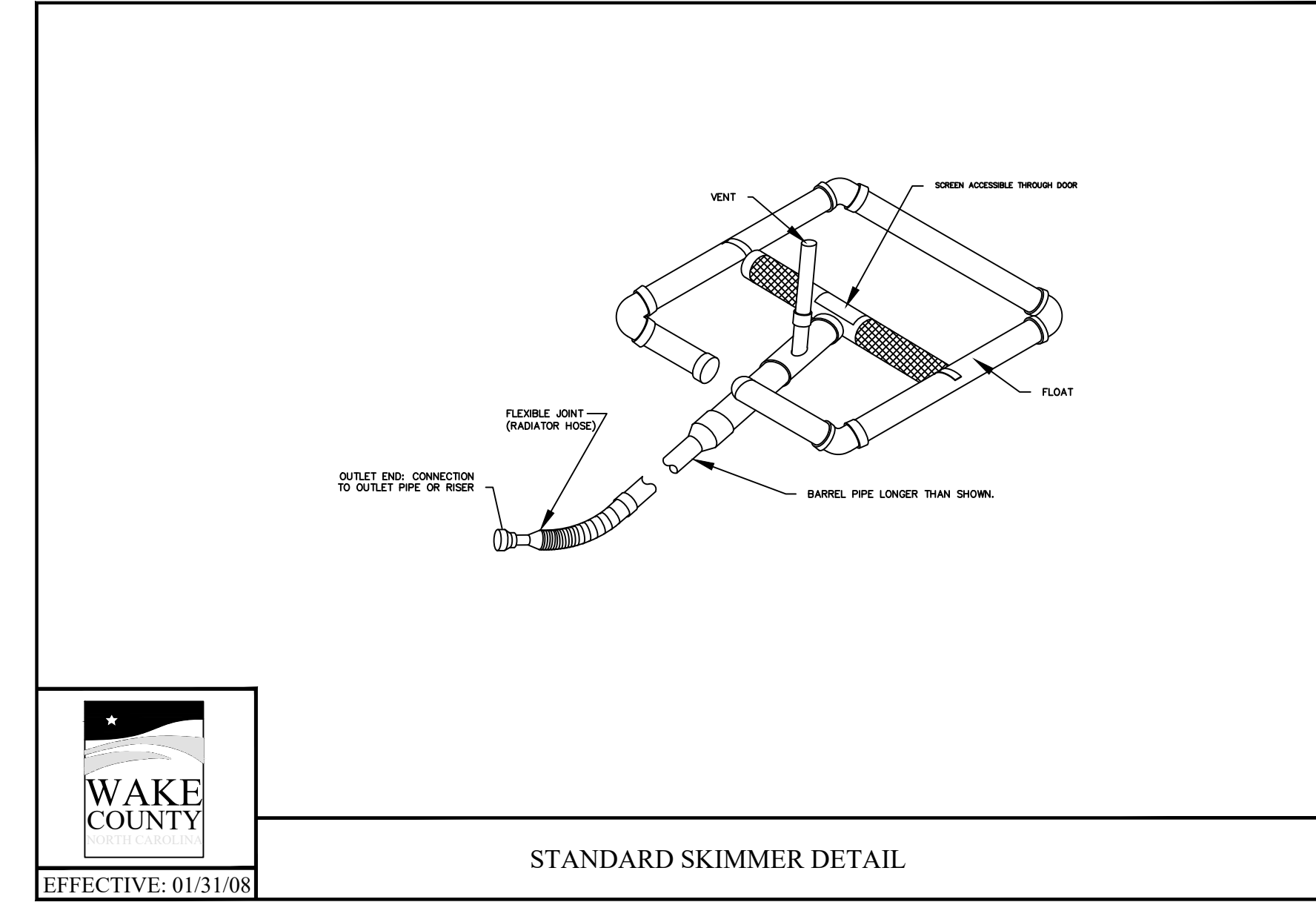
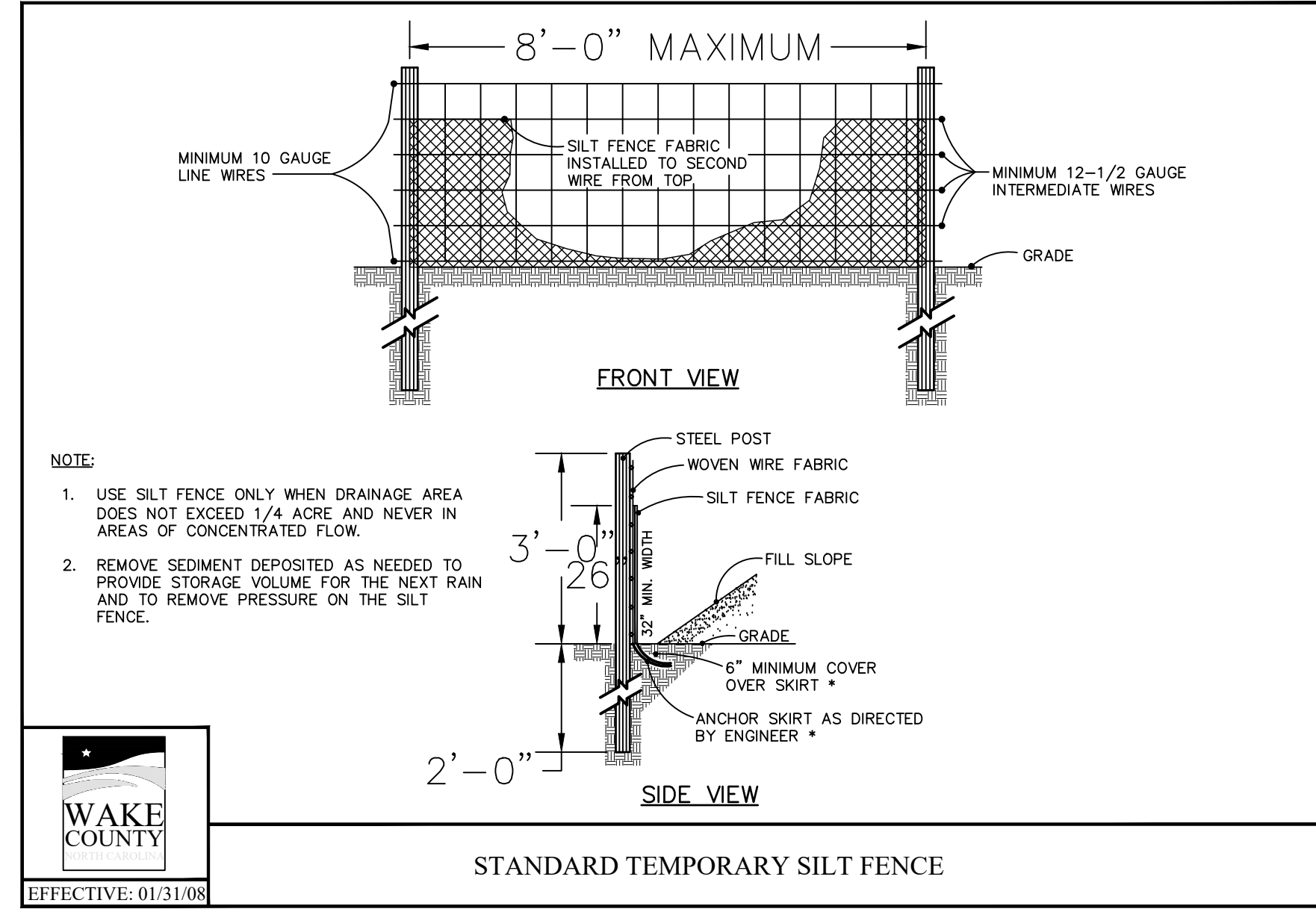
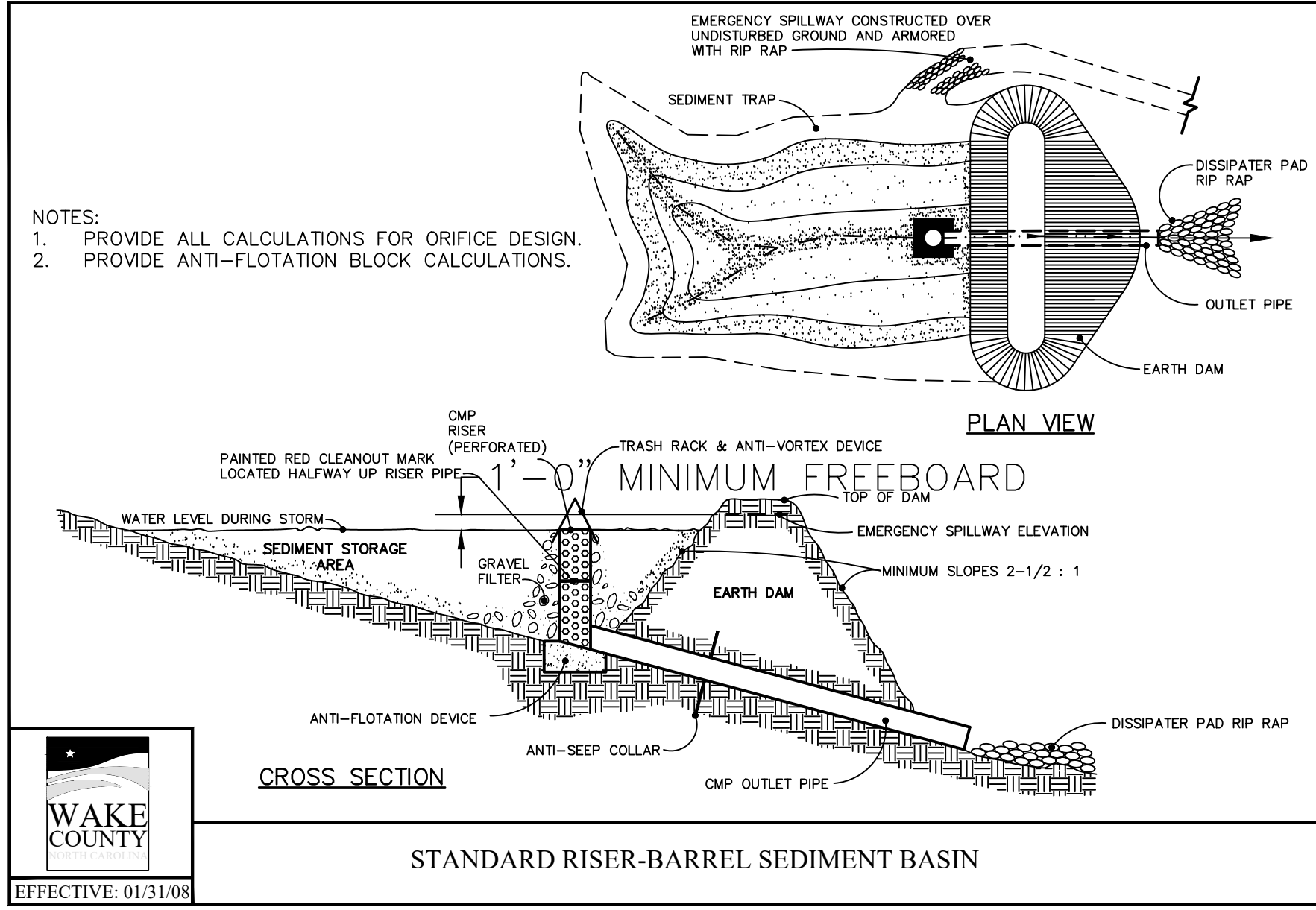
KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
KALAS FALLS
CIVIL DETAILS

SHEET NO.:
CD1



February 4, 2025
C:\Users\jgibson\OneDrive\Desktop\Projects\KFF\KFF - W/Phase 3\Drawings\Construction\KFF_CD1_CD1.dwg (Phase 3) - 2025.rvt



DETAIL SELECTION ONLY

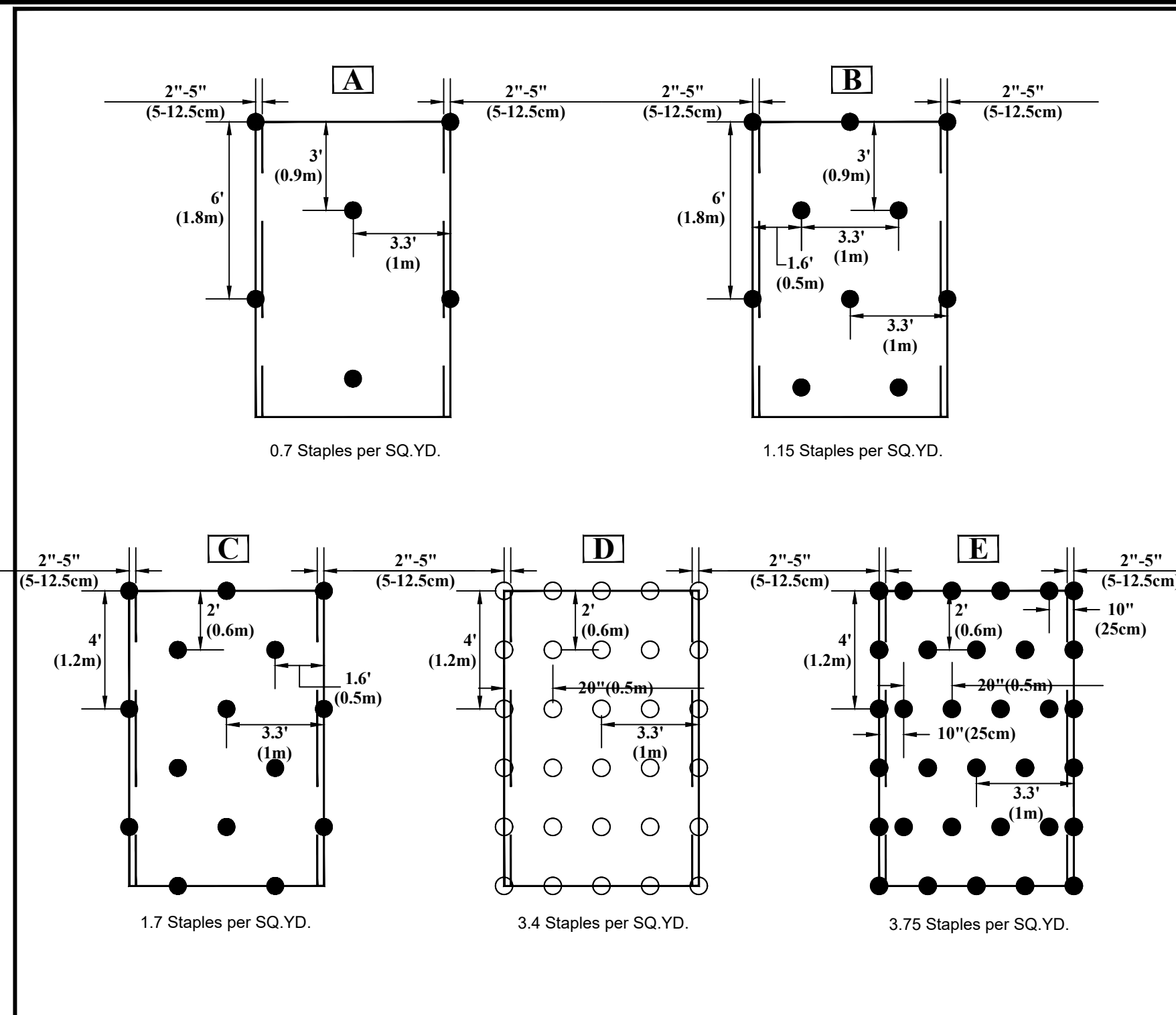
NO.	DATE	REVISION
1	7/27/2021	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
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KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS
 SHEET NO.: CD3





STAPLE PATTERN GUIDE

● 4:1 Slopes (A)

● 3:1 Slopes (B)

● 2:1 Slopes (C)

○ 1:1 & Steeper Slopes (D)

○ Medium/High Flow Channel (D)

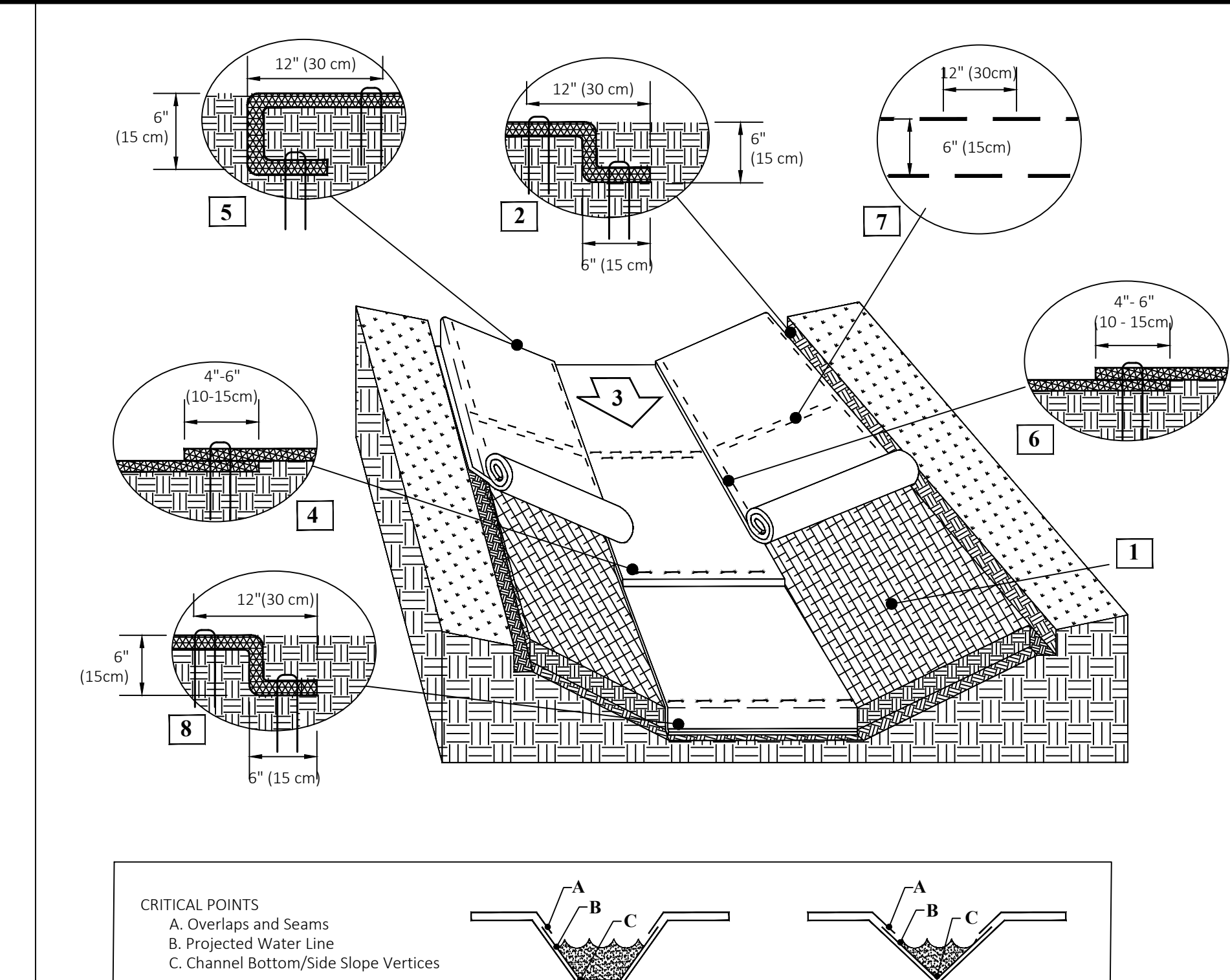
● High Flow Channel And Shoreline (E)

NOTES:

- * Use ECMDs for more accurate staple pattern selection.

North American Green
 5401 St. Wendel - Cynthia Rd. PO: 800-722-2040
 Poseyville, IN 47633 www.nagreen.com

Drawn on: 5-4-17 Drawing Not To Scale



Instructions

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
- Begin at the top of the channel by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench with approximately 12" (30 cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes/pins approximately 12" (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12" (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced approximately 12" (30 cm) apart across the width of the RECPs.
- Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide.
- Place consecutive RECPs end-over-end (Shingle style) with a 4" - 6" (10 - 15 cm) overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
- Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
- Adjacent RECPs must be overlapped approximately 4" - 6" (10 - 15 cm) and secured with staples/stakes/pins at S_T .
- In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 - 12m) intervals. Use a double row of staples staggered 6" (15 cm) apart and 12" (30 cm) on center over entire width of the channel.
- The terminal end of the RECPs must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
- Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may be used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide

Plan View

Underneath Roll Overlap Upper Roll

Unroll Direction

● Pin / Staple / Twist Pin, as appropriate for field conditions

Dimension	E
W_T	20" (50 cm)
L_T	20" (50 cm)
S_T	18" (45 cm)
Nominal Frequency	3.8 / SY

CRITICAL POINTS

- A. Overlaps and Seams
- B. Projected Water Line
- C. Channel Bottom/Side Slope Vertices

NOTES:

- * Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

Instructions

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
- Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
- Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
- The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
- Consecutive RECPs spliced down the slope must be overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
- At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T . If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
- Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may be used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide

Plan View

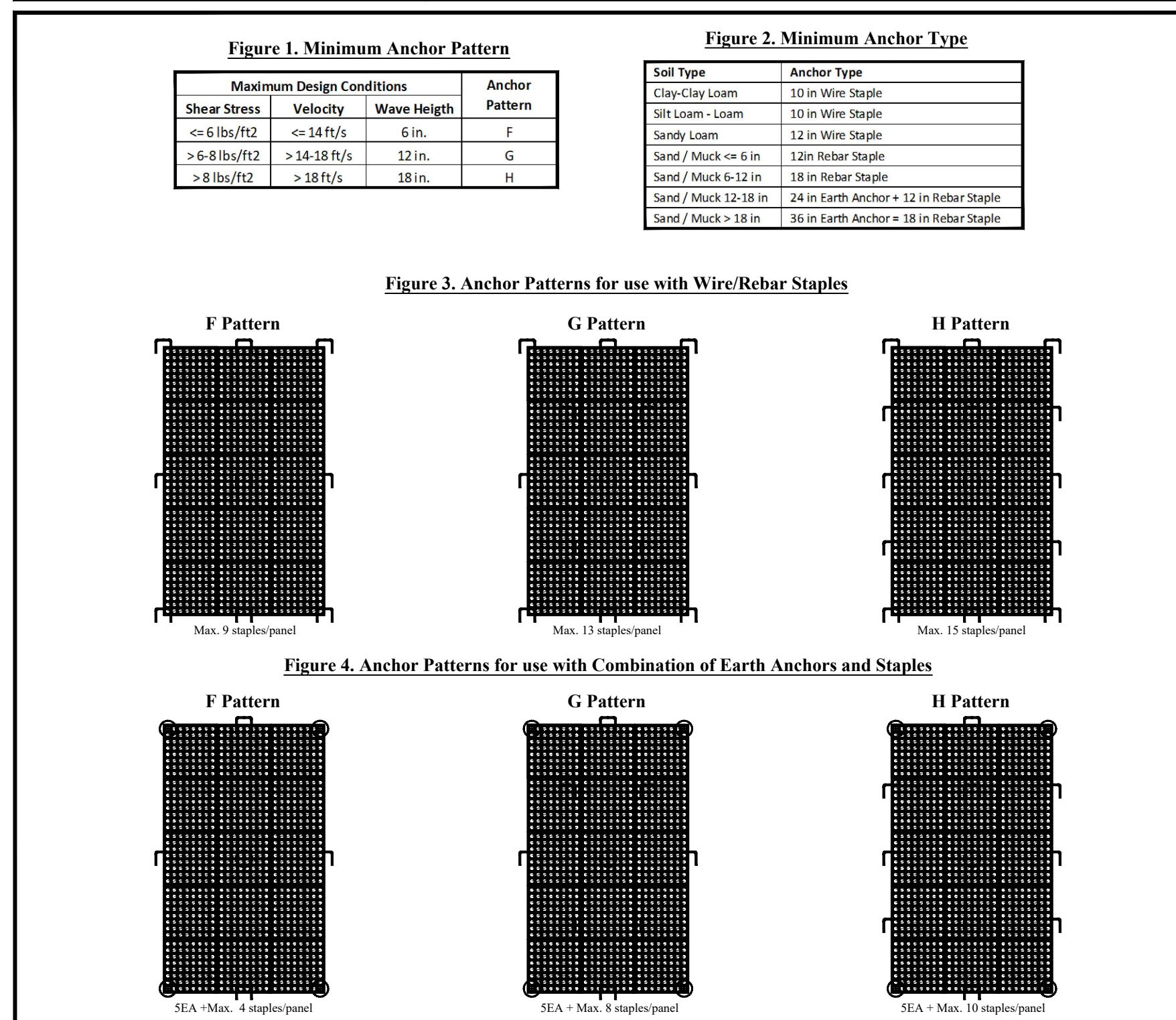
Underneath Roll Overlap Upper Roll

Unroll Direction

● Pin / Staple / Twist Pin, as appropriate for field conditions

Dimension	C	D
W_T	30" (75 cm)	24" (60 cm)
L_T	30" (75 cm)	20" (50 cm)
S_T	18" (45 cm)	18" (45 cm)
Nominal Frequency	1.7 / SY	3.0 / SY
Application	ECB (Degradable)	TRM (Permanent)

*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.



ShoreMax

ANCHORING GUIDE

- When installing ShoreMax mat, the anchor pattern (figure 3 or 4) should be selected based on the expected maximum design conditions (shear stress, velocity, or wave impact) (figure 1).
- Anchor selection should be based on the soil type and pull-out strength required (figure 2). In soft, highly erodible soils percussion earth anchors may be necessary. Earth anchors can be installed in conjunction with rebar staples (figure 4).
- When using percussion earth anchors, position anchors in each corner and the center of the panel. Place staples in the appropriate pattern through remainder of mat. Staples can be shared between two adjacent panels.

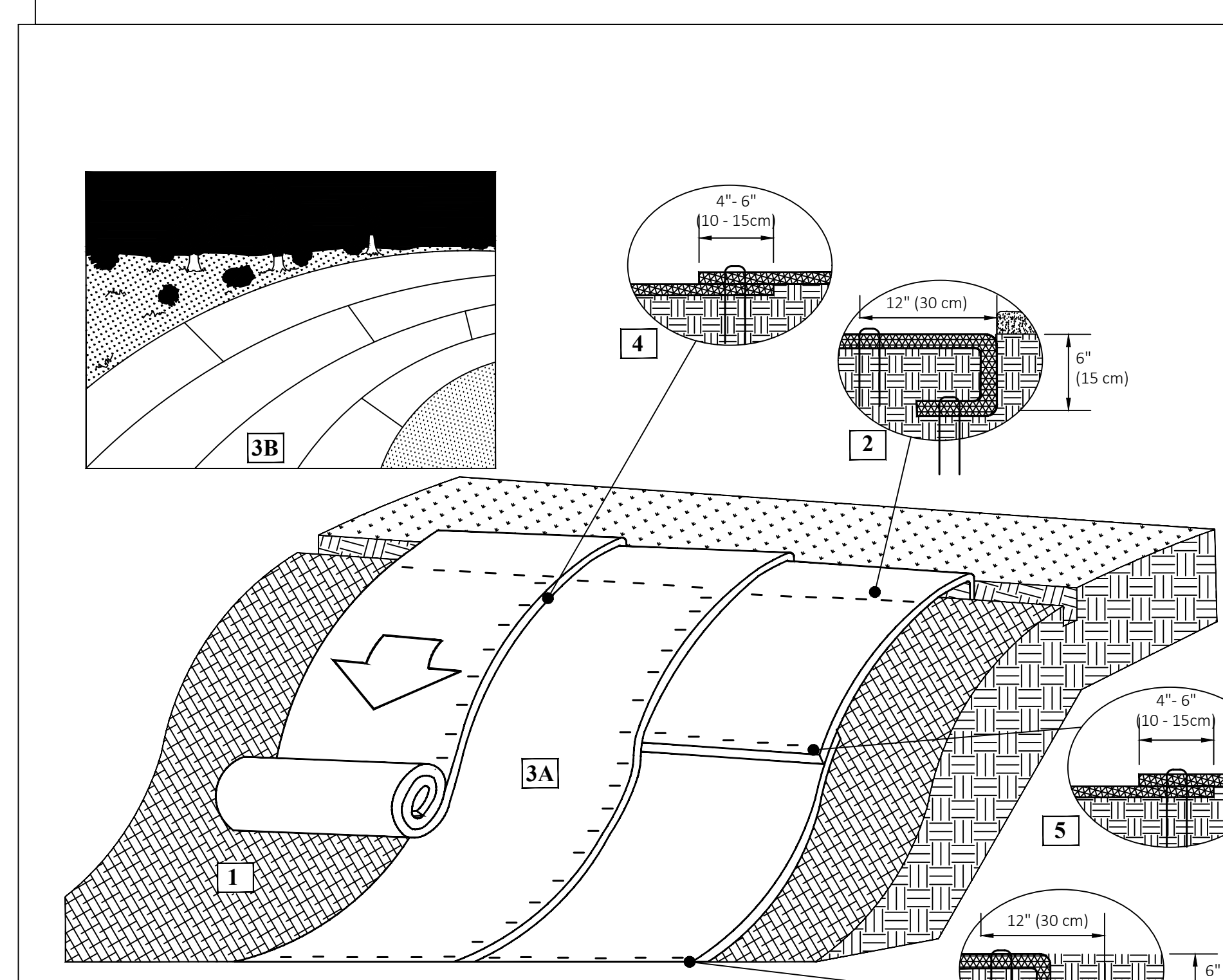
Note: Number of staples used per panel can be reduced by 30-40% when sharing staples between panels.

□ - Wire/Rebar Staple

⊕ - Percussion Earth Anchor

North American Green
 5401 St. Wendel - Cynthia Rd. PO: 800-722-2040
 Poseyville, IN 47633 www.nagreen.com

Drawn on: 5-4-17 Drawing Not To Scale



Instructions

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
- Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
- Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
- The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
- Consecutive RECPs spliced down the slope must be overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
- At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T . If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
- Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may be used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide

Plan View

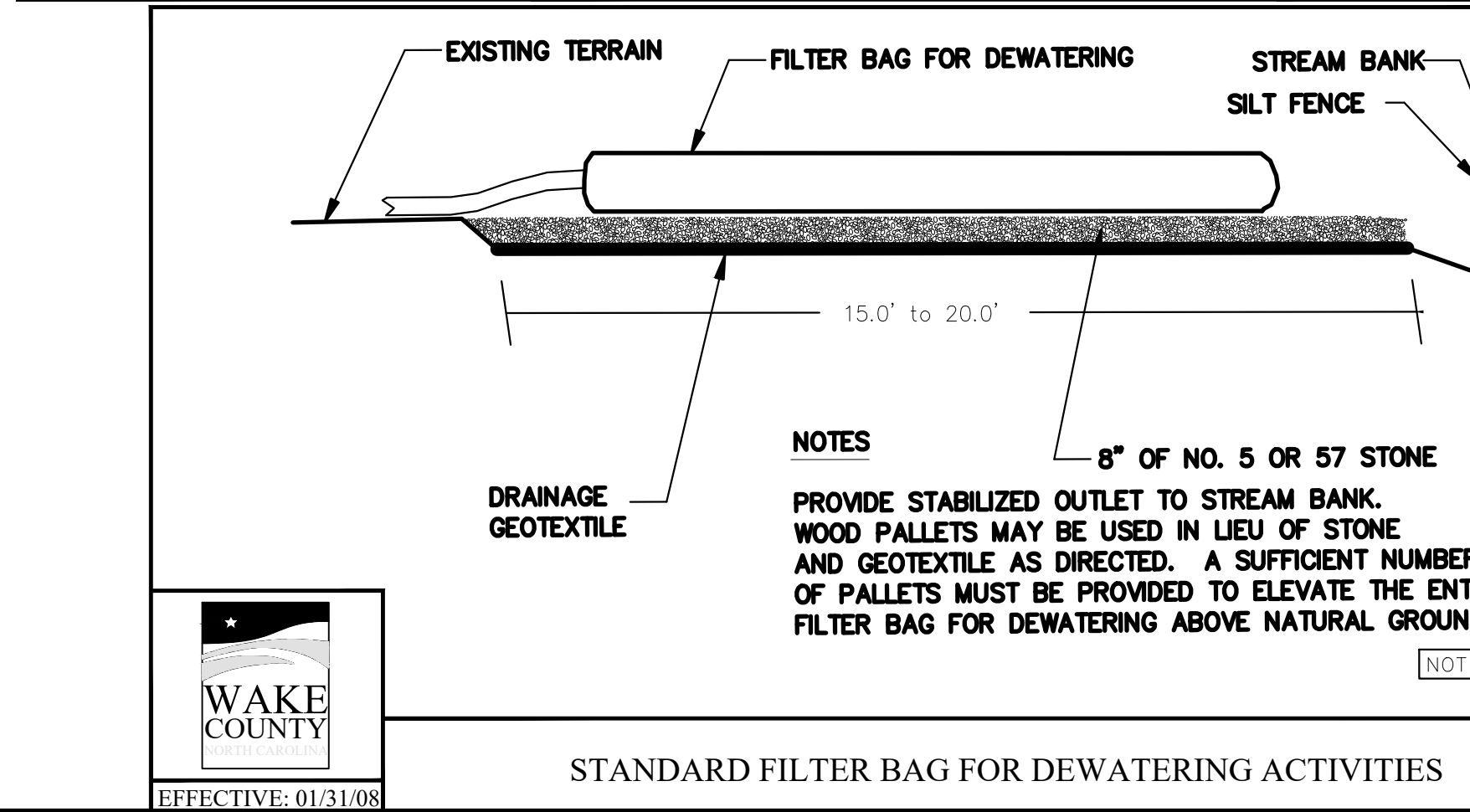
Underneath Roll Overlap Upper Roll

Unroll Direction

● Pin / Staple / Twist Pin, as appropriate for field conditions

Dimension	C	D
W_T	30" (75 cm)	24" (60 cm)
L_T	30" (75 cm)	20" (50 cm)
S_T	18" (45 cm)	18" (45 cm)
Nominal Frequency	1.7 / SY	3.0 / SY
Application	ECB (Degradable)	TRM (Permanent)

*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.

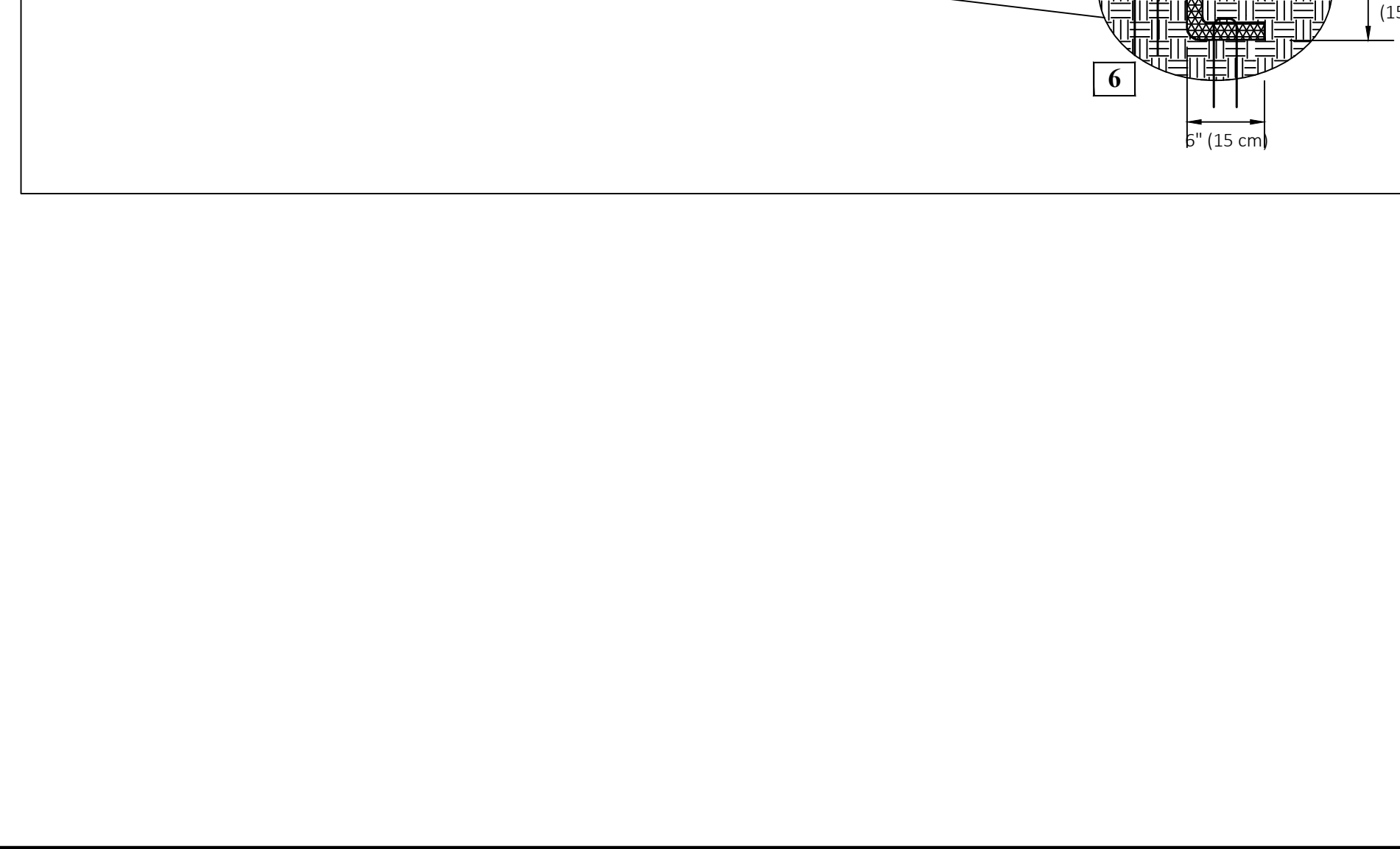


STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

NOTES

- PROVIDE STABILIZED OUTLET TO STREAM BANK. WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED. A SUFFICIENT NUMBER OF PALLETS MUST BE PROVIDED TO ELEVATE THE ENTIRE FILTER BAG FOR DEWATERING ABOVE NATURAL GROUND.

NOT TO SCALE



Instructions

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
- Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at S_T apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at S_T apart across the width of the RECPs.
- Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
- The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
- Consecutive RECPs spliced down the slope must be overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
- At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at S_T . If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
- Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may be used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide

Plan View

Underneath Roll Overlap Upper Roll

Unroll Direction

● Pin / Staple / Twist Pin, as appropriate for field conditions

Dimension	C	D
W_T	30" (75 cm)	24" (60 cm)
L_T	30" (75 cm)	20" (50 cm)
S_T	18" (45 cm)	18" (45 cm)
Nominal Frequency	1.7 / SY	3.0 / SY
Application	ECB (Degradable)	TRM (Permanent)

*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.

AMERICAN Engineering
 American Engineering Associates, Southeast, P.A.
 4020 Westbase Boulevard, Suite 450
 Raleigh, NC 27607
 919-469-1101

AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
 3881
 STATE OF NORTH CAROLINA
 PROFESSIONAL SEAL
 9810
 JOHN R. HARMAN
 ENGINEER

DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/17/2004	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2004	WAKE COUNTY AND CITY OF RALEIGH
3	11/07/2004	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
		CONSTRUCTION DRAWING COMMENT RESPONSES

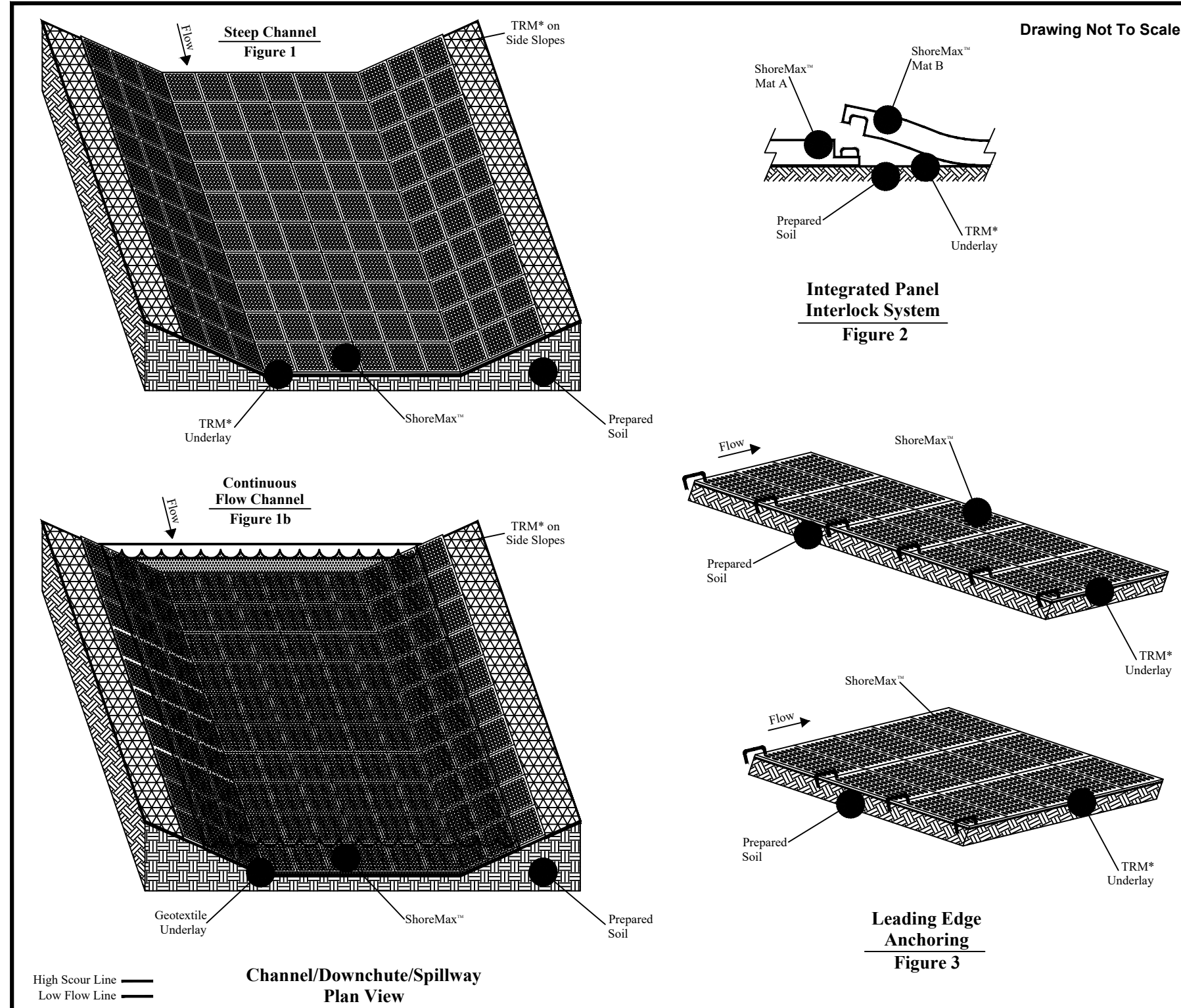
STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE NAMED HEREON. CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE: KALAS FALLS CIVIL DETAILS
SHEET NO.: CD4

North Carolina
 *** 3 Days Before Digging ***
 North Carolina 811
 811 or 1-800-632-4949
 Remote Ticket Entry
 http://nc811.org/remoteticketentry.htm



ShoreMax

STEEP CHANNEL/CHUTE/SPILLWAY DETAIL

* ShoreMax mats can be installed over a variety of underlayments including: sod, turf reinforcement mats (TRMs), geotextiles, and in some cases erosion control blankets (ECBs).

1. Prepare soil before installing erosion control products, including any necessary application of lime, fertilizer, and seed (when installing TRM or ECB underlayment).
2. Install turf reinforcement mat (TRM) over prepared soils according to manufacturer's recommendations.
3. Place ShoreMax mat in the bottom of the channel over the installed TRM (figure 1). The ShoreMax mat should be installed up to the appropriate elevation on the side slope as determined by the engineer. When using multiple panels, connect the panels using the Integrated Panel Interlock System (figure 2). ShoreMax mat can be laid in either direction.
4. For channels carrying continuous water flows, an appropriate geotextile should be placed between two adjacent panels. In soft or highly erodible soils, percussion earth anchors may be required. View ShoreMax Anchoring Guide, for additional details.
5. Place staples/anchors in the appropriate pattern. Perimeter staples can be shared between two adjacent panels. In soft or highly erodible soils, percussion earth anchors may be required. View ShoreMax Anchoring Guide, for additional details.
6. At beginning of channel and areas where significant concentrated flows are directed onto the ShoreMax mat, place 1 staple/pin per linear foot along the leading edge of the ShoreMax system, resulting in 1 staple/pin on each corner and gridline (figure 3).

NORTH AMERICAN GREEN
 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633
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 www.nagreen.com

Disclaimer:
 The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION
 Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-measuring device approved by the Division.
(2) EESC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indicator of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or off-site (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence, and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item 2(c) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of permanent EESC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or re-vegetation, permanent ground cover), 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART II, SECTION 6, ITEM (4) DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items.
- The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item 2(c) and (d) of this permit.
- Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, wet tanks, and filtration systems.
- Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in item (c) above.
- Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- Sediment removed from the dewatering treatment devices described in item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation
 The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site
 In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This General Permit as well as the Certificate of Coverage, after it is received.
- Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years
 All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

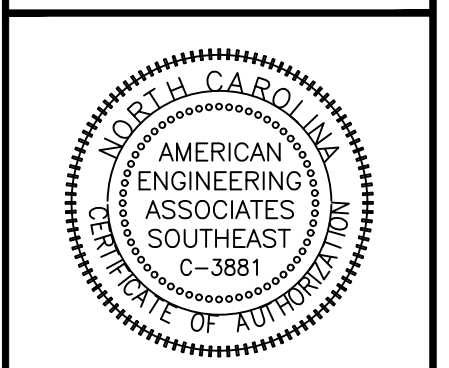
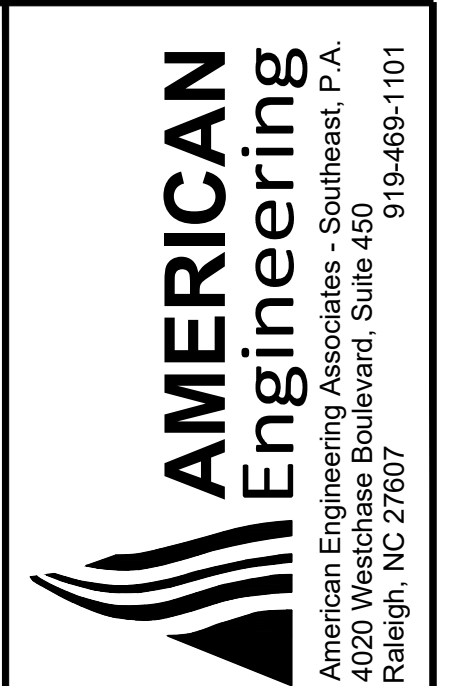
1. Occurrences that Must be Reported
 Permittees shall report the following occurrences:
 (a) Visible sediment deposition in a stream or wetland.

- Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
- Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- Anticipated bypasses and unanticipated bypasses.
- Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal and state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 2(b)(1)-(4) above	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release. • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass. • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the non-compliance, and its causes; the period of non-compliance including exact dates and times, and if the non-compliance has not been corrected, the anticipated time non-compliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance. [40 CFR 122.41(j)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(i)(7)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the non-compliance, and its causes; the period of non-compliance including exact dates and times, and if the non-compliance has not been corrected, the anticipated time non-compliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance. [40 CFR 122.41(j)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/27/2024	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH
3	11/07/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
		CONSTRUCTION DRAWING COMMENT RESPONSES

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING EFFECTIVE: 04/01/19

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed. -7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones
(d) Slopes 3:1 to 4:1	14	-10 days for Falls Lake Watershed -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones
(e) Areas with slopes flatter than 4:1	14	-10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> • Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting 	<ul style="list-style-type: none"> • Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

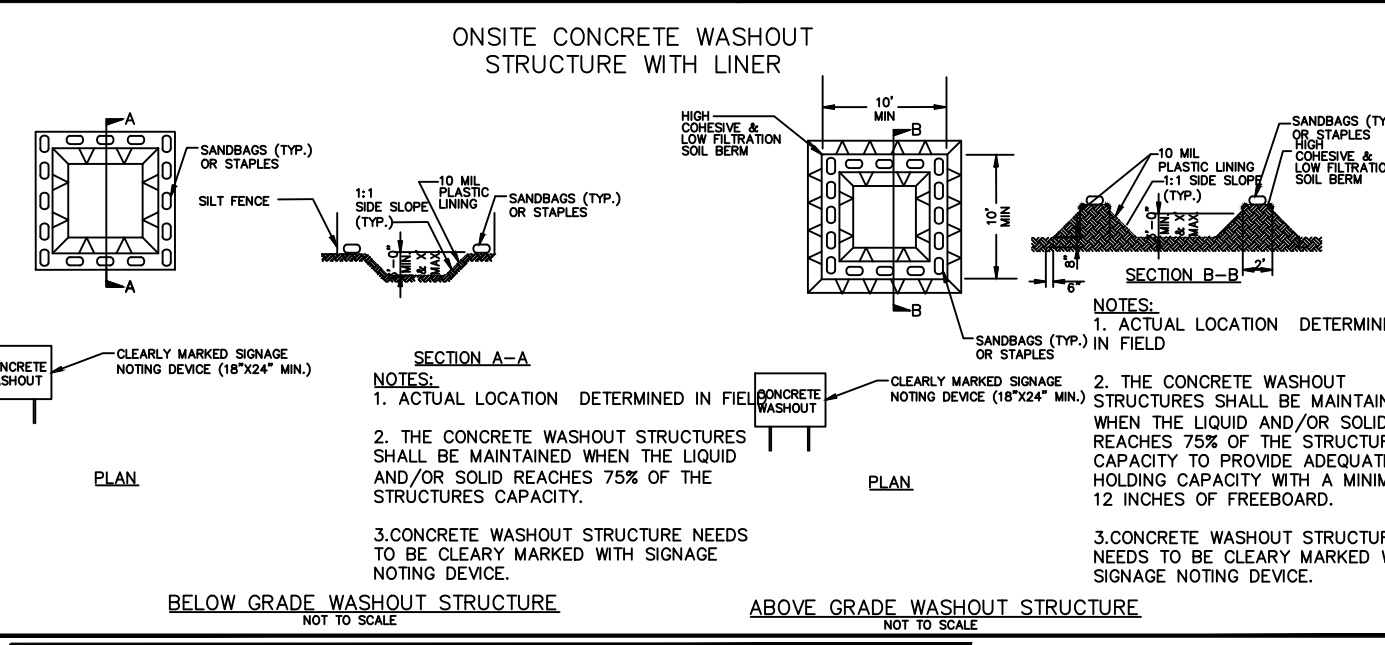
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

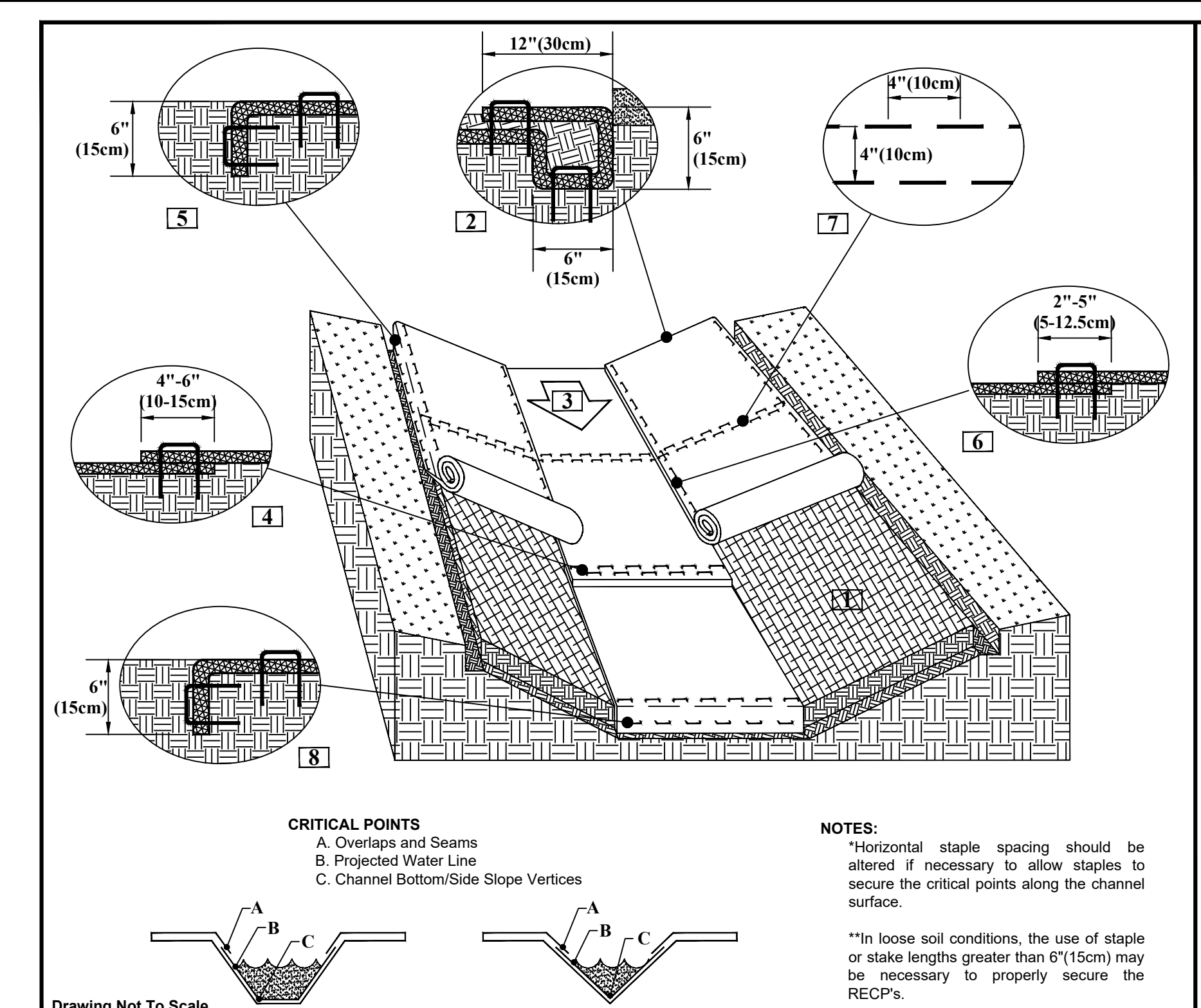
1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.



CHANNEL INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPS), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the RECPS in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPS extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/outlet outlet, as supplemental scour protection as needed. Anchor the RECPS with a row of staples/stakes approximately 12"(30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPS back over the seed and compacted soil. Secure RECPS over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECPS.
3. Roll center RECPS in direction of water flow in bottom of channel. RECPS will unroll with appropriate side against the soil surface. All RECPS must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPS end-over-end (Shingle style) with a 4"-6" overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPS.
5. Full length edge of RECPS at top of side slopes must be anchored with a row of staples/stakes approximately 12"(30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPS must be overlapped approximately 2"-5" (Depending on RECPS type) and stapled.
7. In high flow channel applications a staple check slot is recommended at 30 to 40 feet (9-12m) intervals. Use a double row of staples staggered 4"(10cm) apart and 4"(10cm) on center over entire width of the channel.
8. The terminal end of the RECPS must be anchored with a row of staples/stakes approximately 12"(30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.

CRITICAL POINTS
 A. Overlaps and Seams
 B. Projected Water Line
 C. Channel Bottom/Side Slope Vertices

NOTES:
 *Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.
 **In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECPS.

Drawing Not To Scale

NORTH AMERICAN GREEN
 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633
 PH: 800-772-2040
 www.nagreen.com

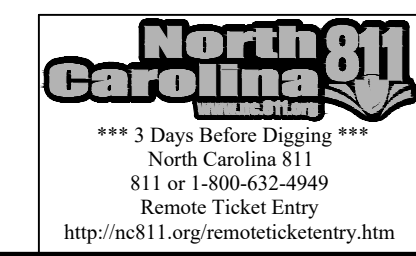
Disclaimer:
 The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

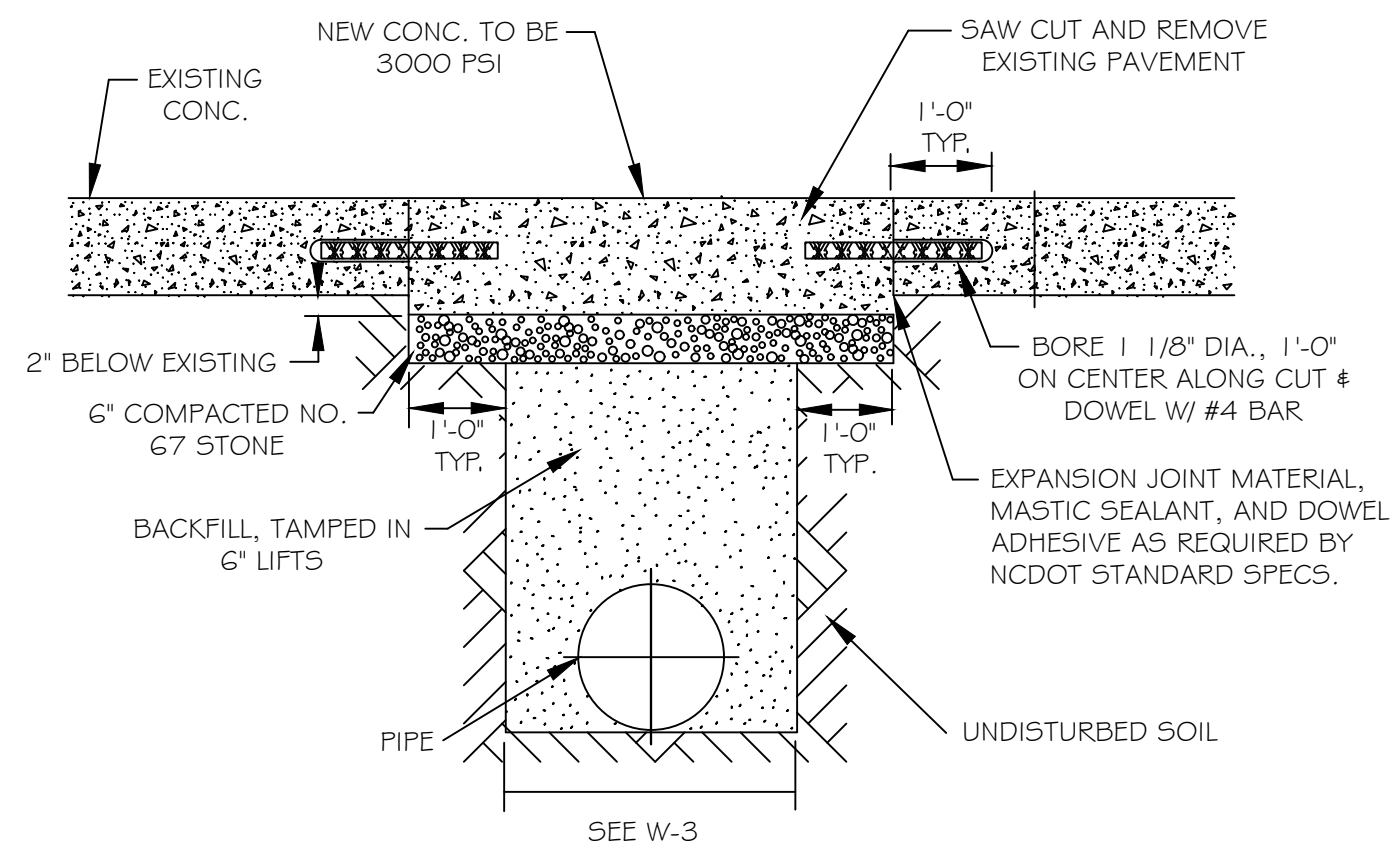
Drawn on: 5-4-17

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING EFFECTIVE: 04/01/19

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/LL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS

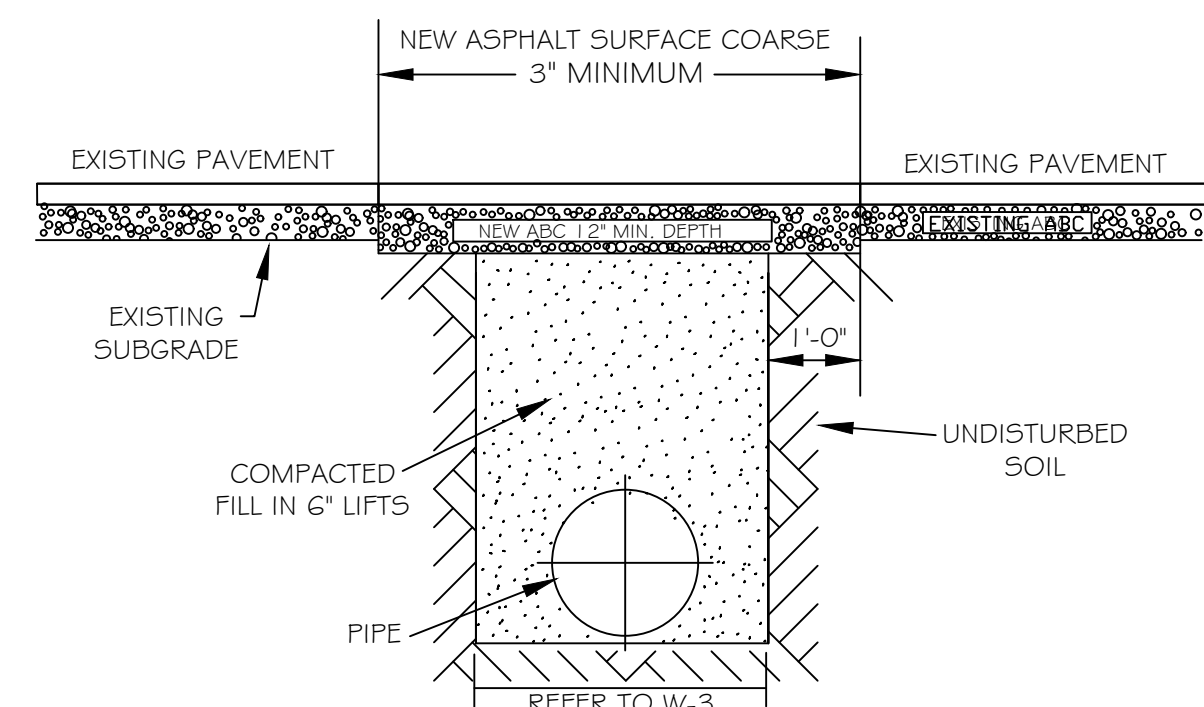
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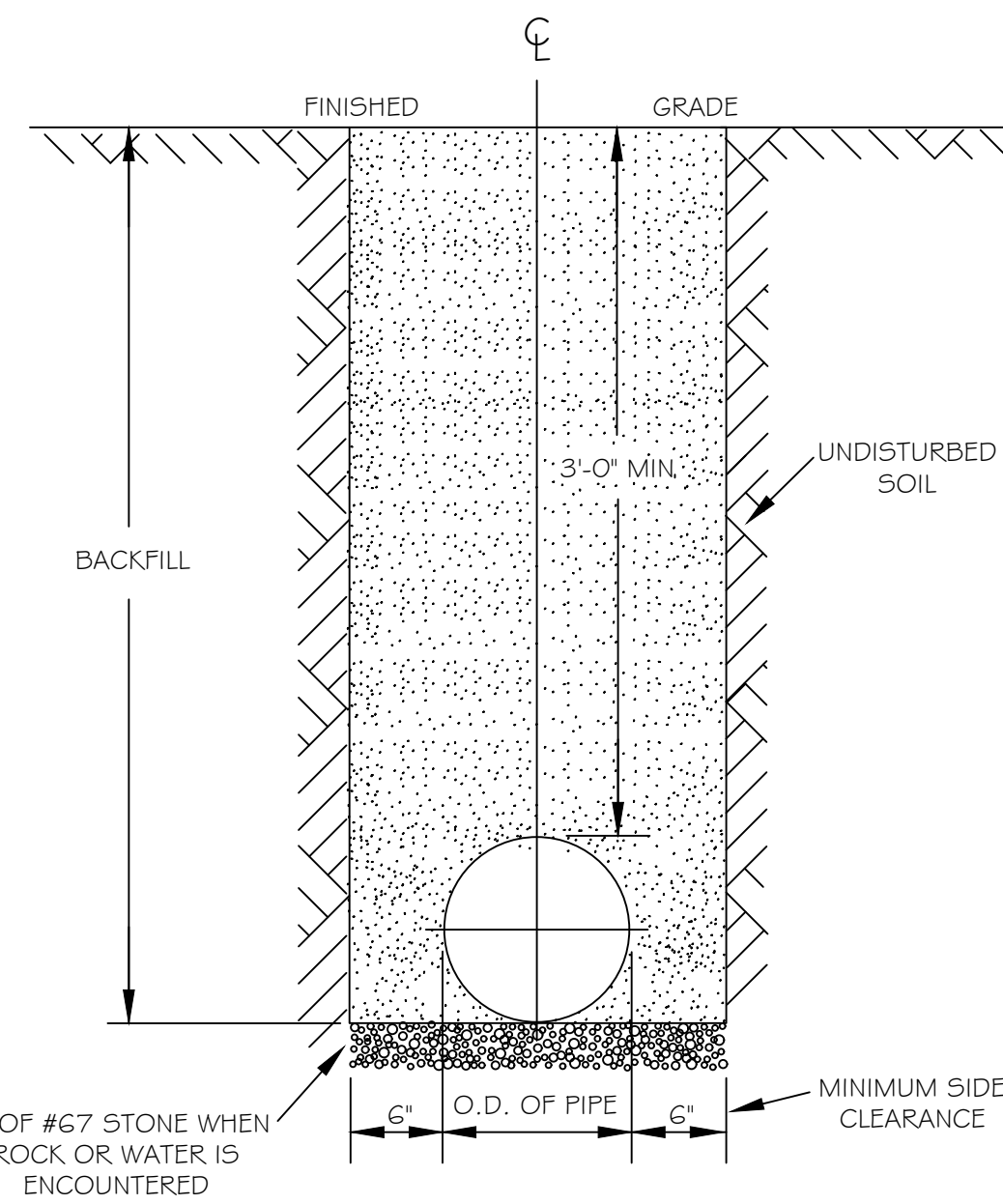
- NOTES:
- SEE CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING W-3 FOR ADDITIONAL DETAILS
 - PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
 - THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
 - THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT. 5. THE FINAL 6" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD CONCRETE PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-1	RRH	3-31-00	A.B.B.	10-29-10
	A.B.B.	2-8-05	MAB	10-31-13



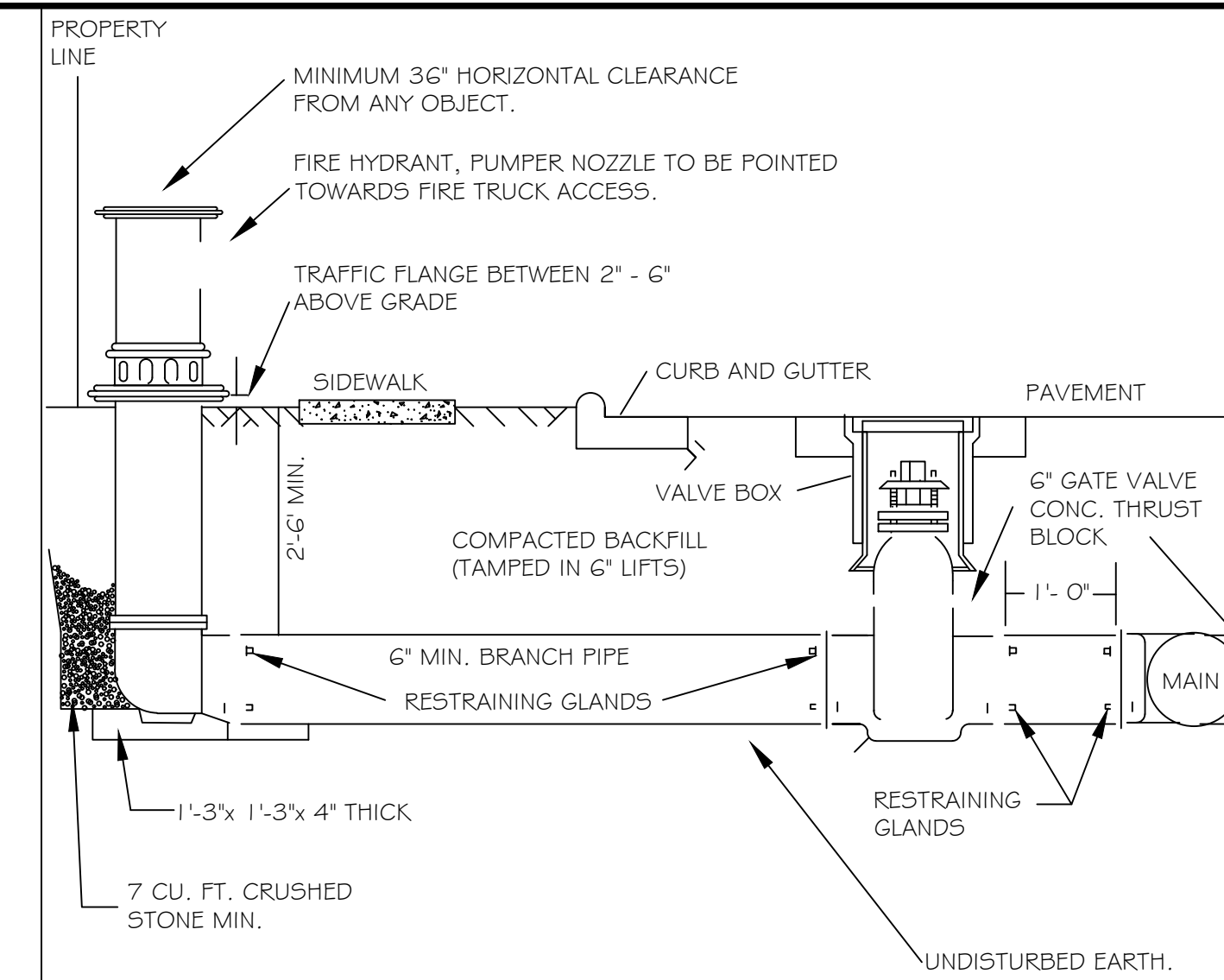
- NOTES:
- THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
 - THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
 - THE FINAL 1" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
 - THE ENTIRE THICKNESS/ VERTICAL EDGE OF CUT SHALL BE TACKED.
 - THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
 - THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
 - REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3. FOR ADDITIONAL DETAILS.
 - NO HAND PATCHING ALLOWED.
 - PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD ASPHALT PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-2	RRH	5-31-00	A.B.B.	4-16-04
	D.W.C.	11-1-99	J.P.S.	10-29-10



- NOTES:
- TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 - NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
 - ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 - BACKFILL SHALL BE TAMPED IN 6" LIFTS.
 - ACHIEVE 95% COMPACTION IN BACKFILL.

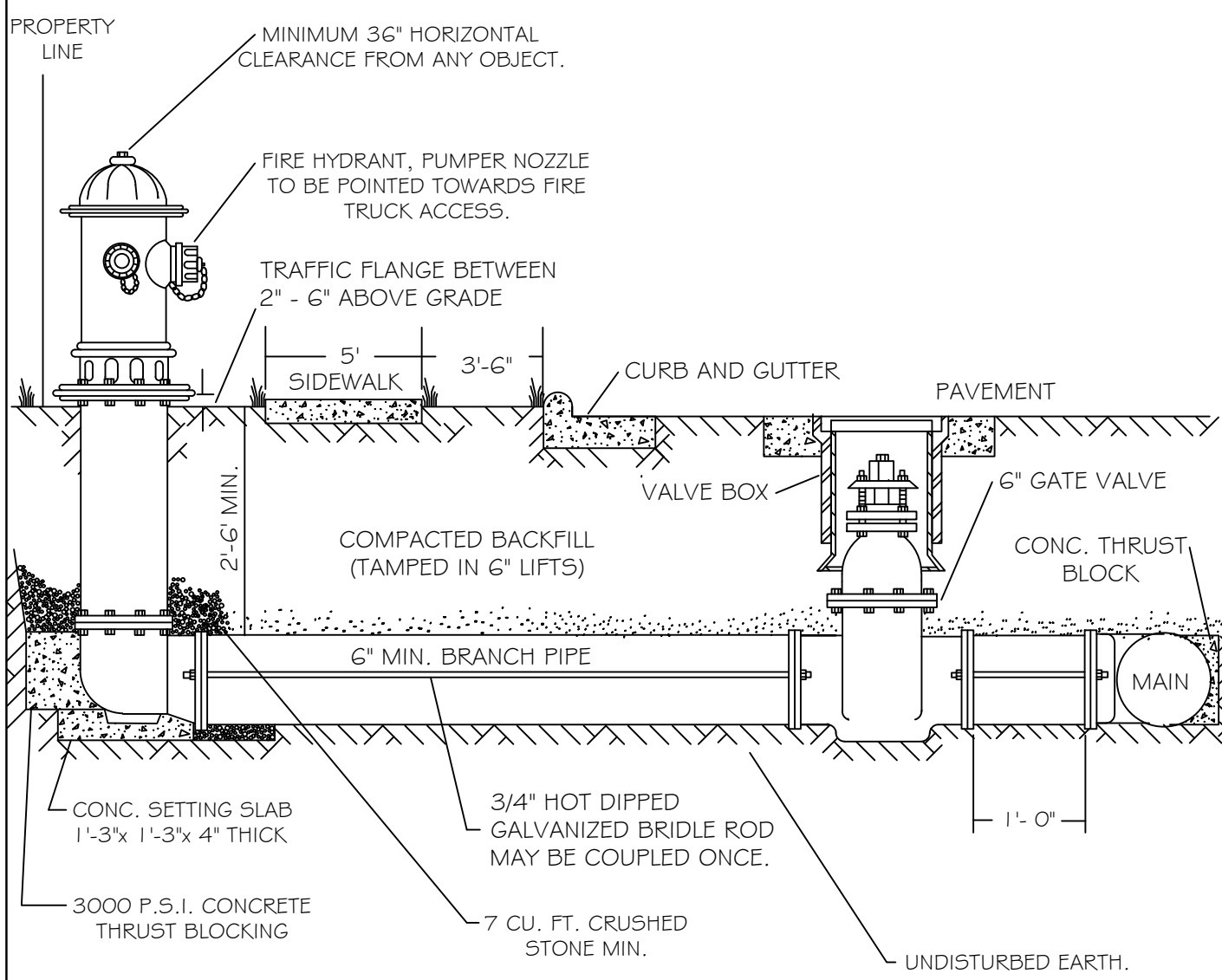
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	D.W.C.	9-3-99	ABB	2-15-05
	RRH	3-31-00	J.P.S.	10-29-10



- NOTES:
- FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M4H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 - BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
 - 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
 - STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED
 - FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
- RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
- FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

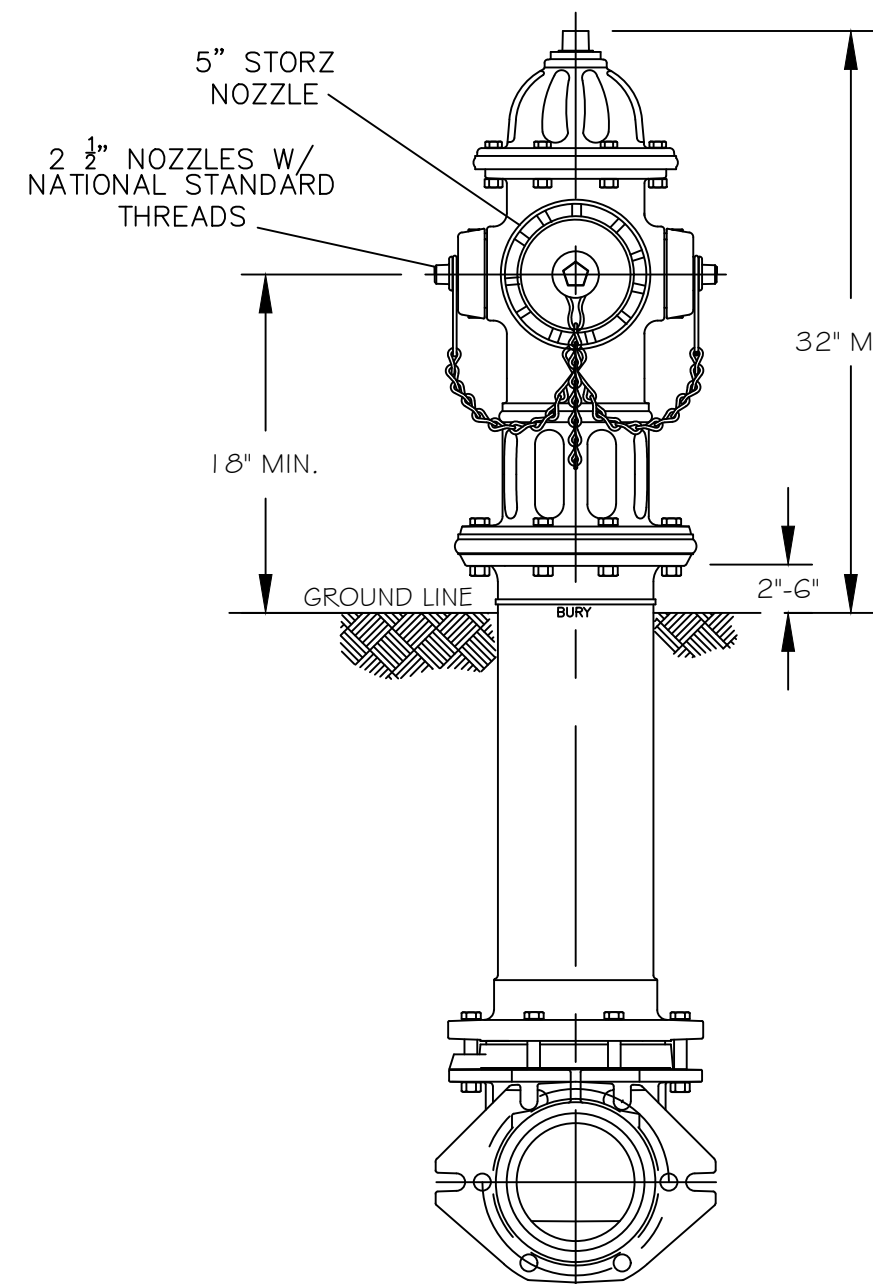
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT INSTALLATION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	ABB	4-6-04	FAP	2/17/09
	DHL	2/14/08		



- NOTES:
- FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M4H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
 - BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
 - 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
 - STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED
 - FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
- RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
- FIRE HYDRANTS TO BE LOCATED IN ROW OR 2 FOOT EASEMENT ADJACENT TO ROW

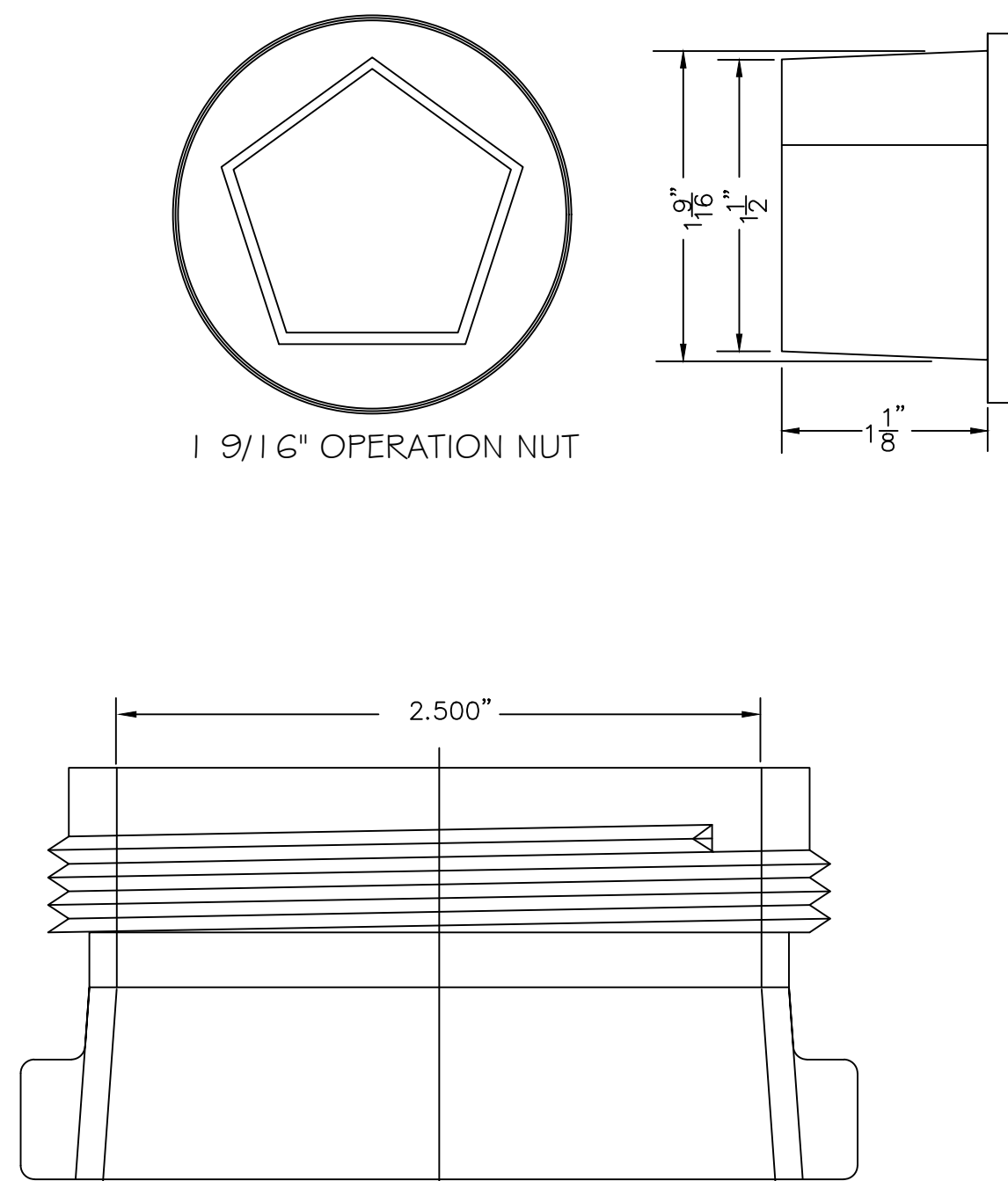
ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT INSTALLATION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4a	ABB	4-6-04		



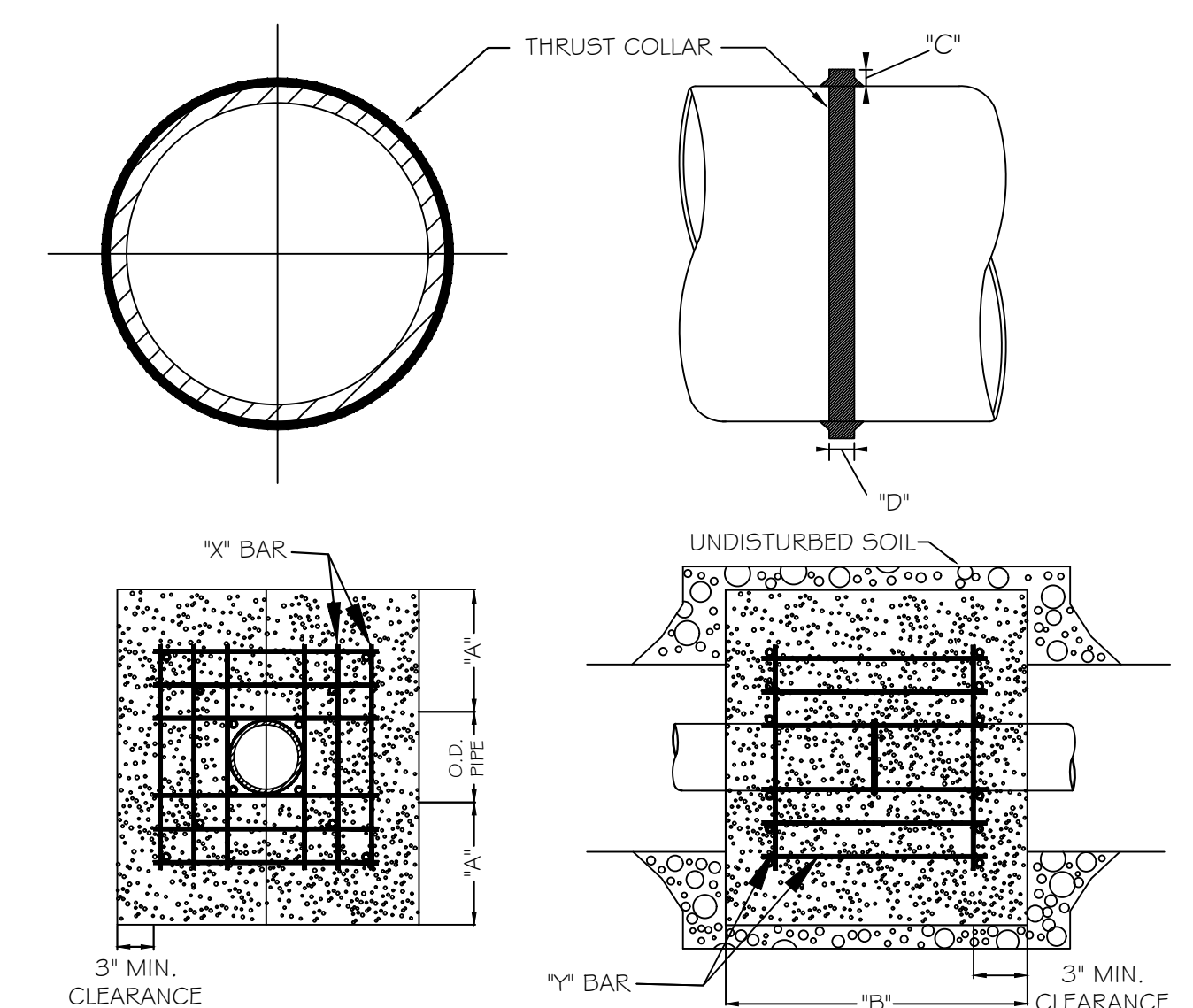
- NOTES:
- ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
 - ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-5	MAB	6-30-16		
	KAT	9-15-17		



2 1/2" NATIONAL STANDARD OUTLET THREADS

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	RRH	5-31-00	DHL	2-18-08
	A.B.B.	4-13-04	J.P.S.	11-1-10

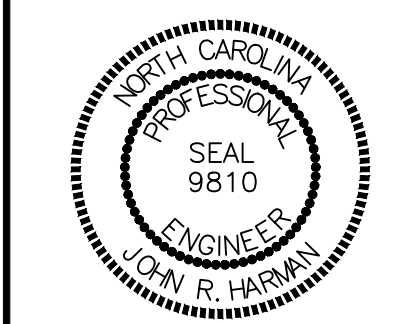
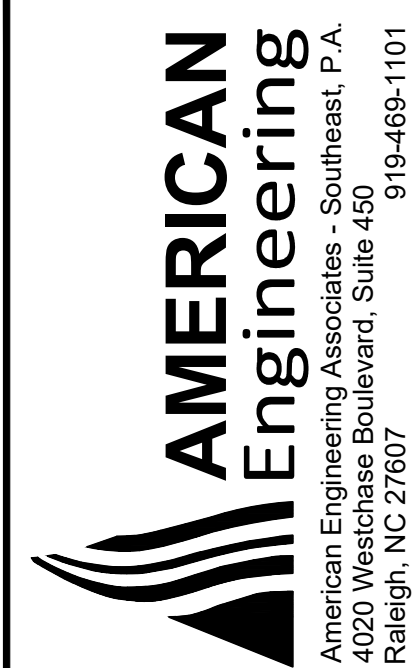


REINFORCING REQUIREMENTS					
ID. PIPE	REBAR SIZE	"X" BAR LENGTH	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 30"	#5	2'-2" O.D. PIPE	1'-1"	11 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0" O.D. PIPE	1'-3"	18 LBS. EACH	X-24, Y-12

THRUST COLLAR AND THRUST SCHEDULE				
ID. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	2"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

- NOTES:
- SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
 - CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
 - REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
 - TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
 - BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
 - THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
THRUST BLOCKING DESIGN DATA FOR WATER MAINS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	1-21-00	J.P.S.	11-1-10
	D.H.L.	6-18-08		



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/27/2024	REVISED FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
 THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
 PHASE 3
 1832 ROLESVILLE ROAD
 WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/ALL/ES/AH/DH
 DATE: NOV 1, 2024

SHEET TITLE:
 KALAS FALLS
 CIVIL DETAILS

SHEET NO.:
 CD6

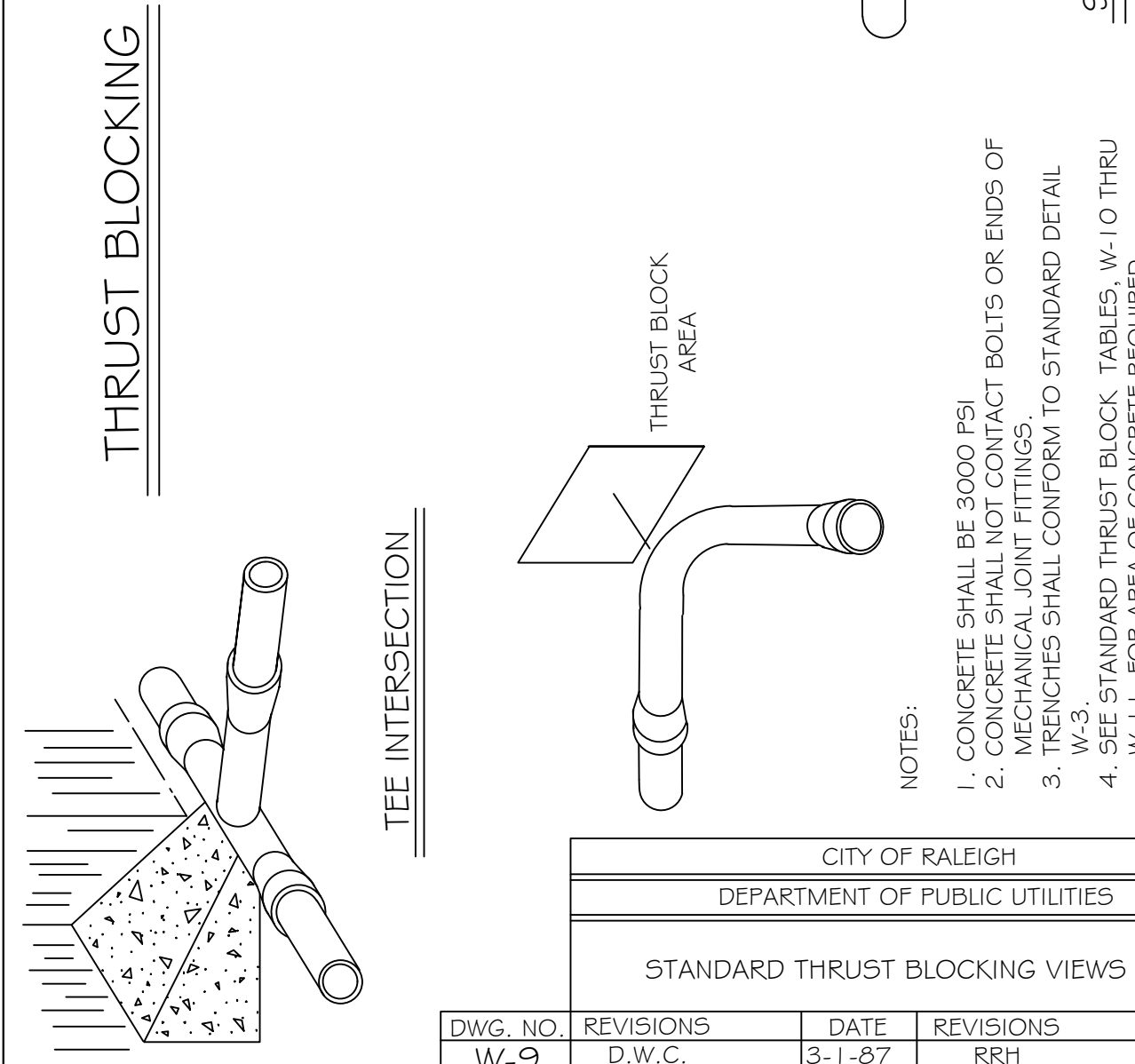
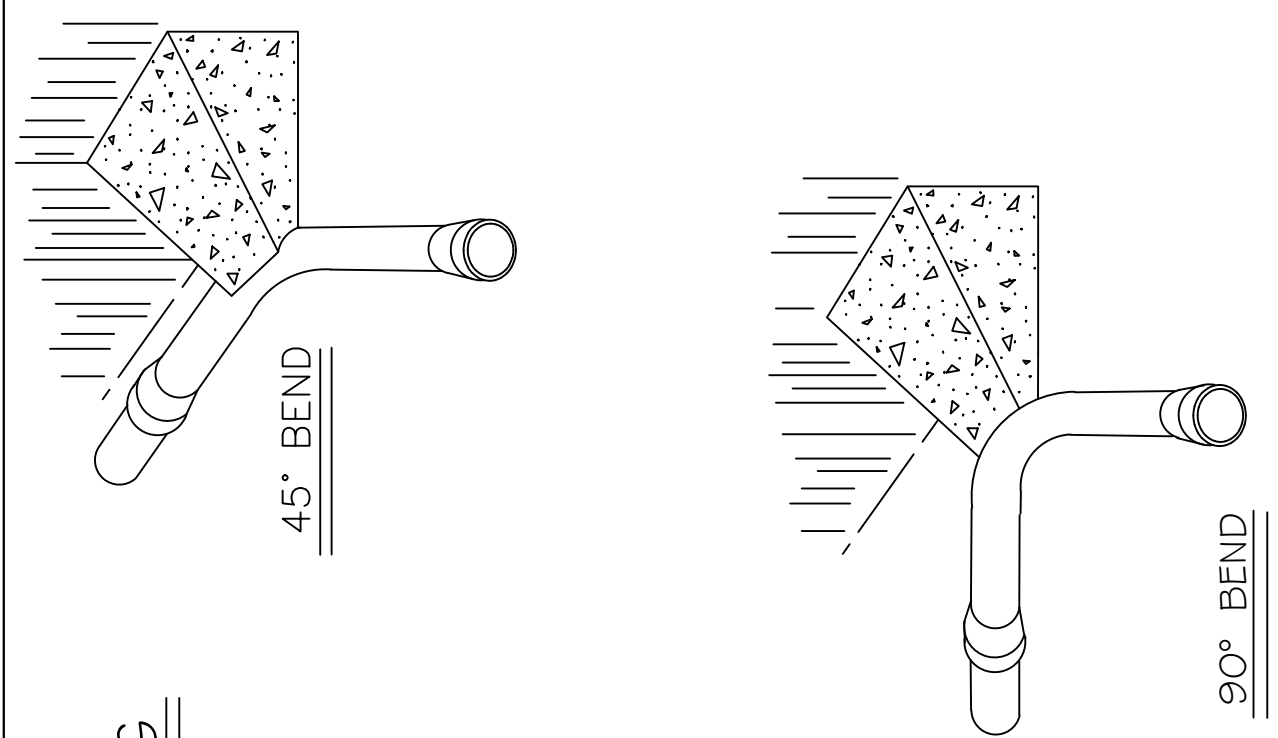
Public Sewer Collection / Extension System
 The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

Public Water Distribution / Extension System
 The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
 Public Utilities Department Permit # _____

City of Raleigh
 Public Utilities Department Permit # _____

North Carolina
 3 Days before Digging
 811 or 1-800-632-4949
 Remote Ticket Entry
<http://nc811.org/remoteticketentry.htm>



- NOTES:
1. CONCRETE SHALL BE 3000 PSI.
 2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
 4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
 5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD THRUST BLOCKING VIEWS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-9	D.W.C.	3-1-87	RRH	3-31-00
		9-7-99	D.H.L.	6-18-08

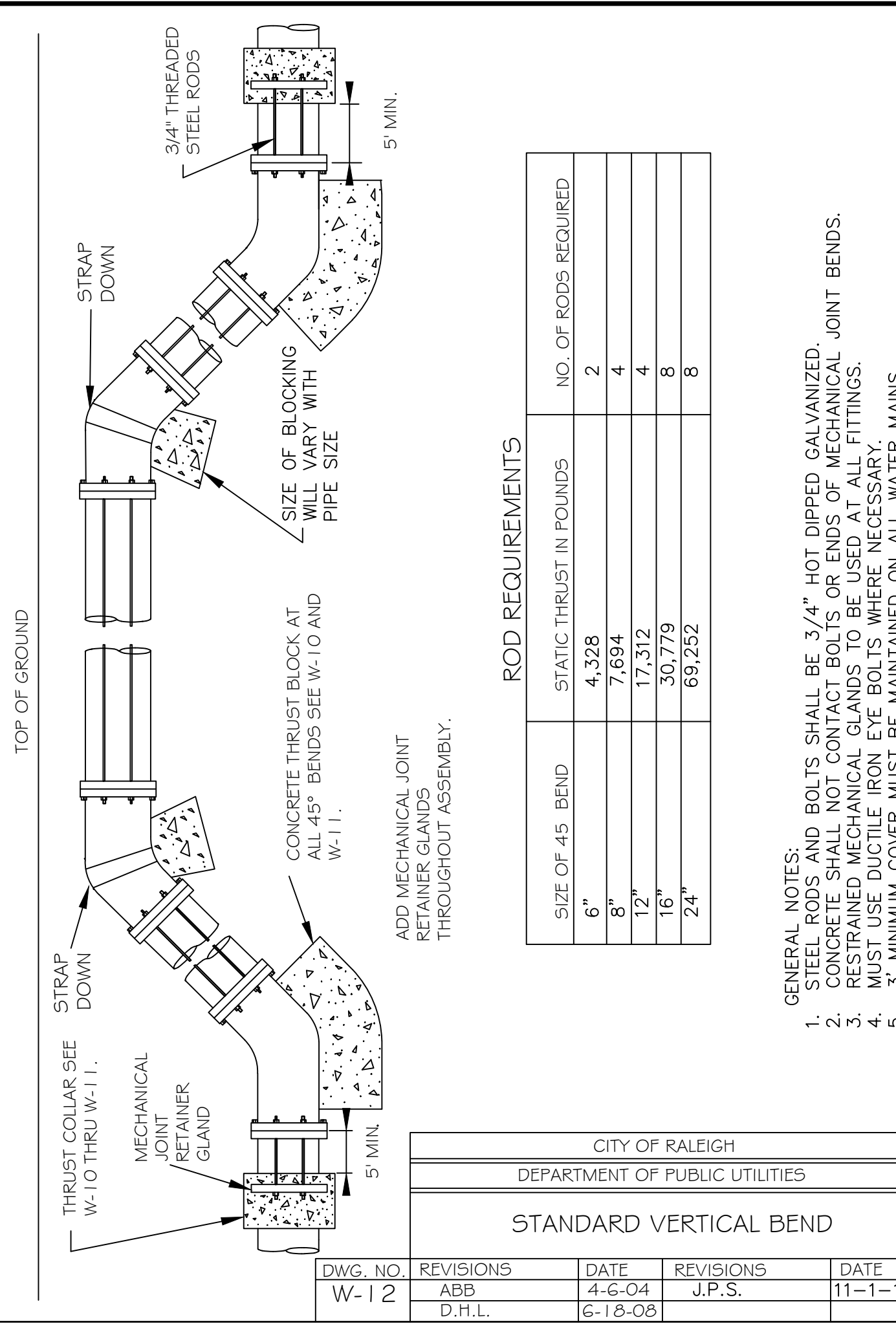
REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.

SIZE AND DEGREE OF BEND	ALL AREAS GIVEN IN SQUARE FEET										
	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY - 4000 LBS/FT ²	SOFT CLAY - 2000 LBS/FT ²	1800 LBS/FT ² COARSE SAND	1000 LBS/FT ² GRAVEL	1000 LBS/FT ² ALWAYS DRY	SAND - COMPACT FIRM 8000 LBS/FT ²	SAND - CLEAN DRY 4000 LBS/FT ²	SOIL - 1000 QUICKSAND - VERY POOR 10,000 LBS/FT ²	ROCK - POOR	10,000 LBS/FT ²
6"											
11 1/4'	1,108	1	1	1	1	1	1	2	1		
22 1/2'	2,207	1	2	2	1	1	1	3	1		
45°	4,328	2	3	3	1	1	2	5	1		
90°	7,996	2	4	5	1	1	2	8	1		
PLUG	5,655	2	3	4	1	1	2	6	1		
8"											
11 1/4'	1,970	1	1	2	1	1	1	2	1		
22 1/2'	3,922	1	2	3	1	1	1	4	1		
45°	7,694	2	4	5	1	1	2	8	1		
90°	14,215	4	8	9	2	2	4	15	2		
PLUG	10,053	3	5	6	2	2	3	10	1		
12"											
11 1/4'	4,433	2	3	3	1	1	2	5	1		
22 1/2'	8,826	3	5	6	2	2	3	9	1		
45°	17,312	5	9	11	3	3	5	18	2		
90°	31,983	8	16	19	4	4	8	32	4		
PLUG	22,619	6	12	14	3	3	6	23	3		
16"											
11 1/4'	7,881	2	4	5	1	1	2	8	1		
22 1/2'	15,691	4	8	10	2	2	4	16	2		
45°	30,779	8	16	19	4	4	8	31	4		
90°	56,861	15	29	35	8	8	15	57	6		
PLUG	40,213	10	21	25	5	5	10	41	5		

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
THRUST BLOCKING DESIGN QUANTITY TABLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		

USE 6" - 90 BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

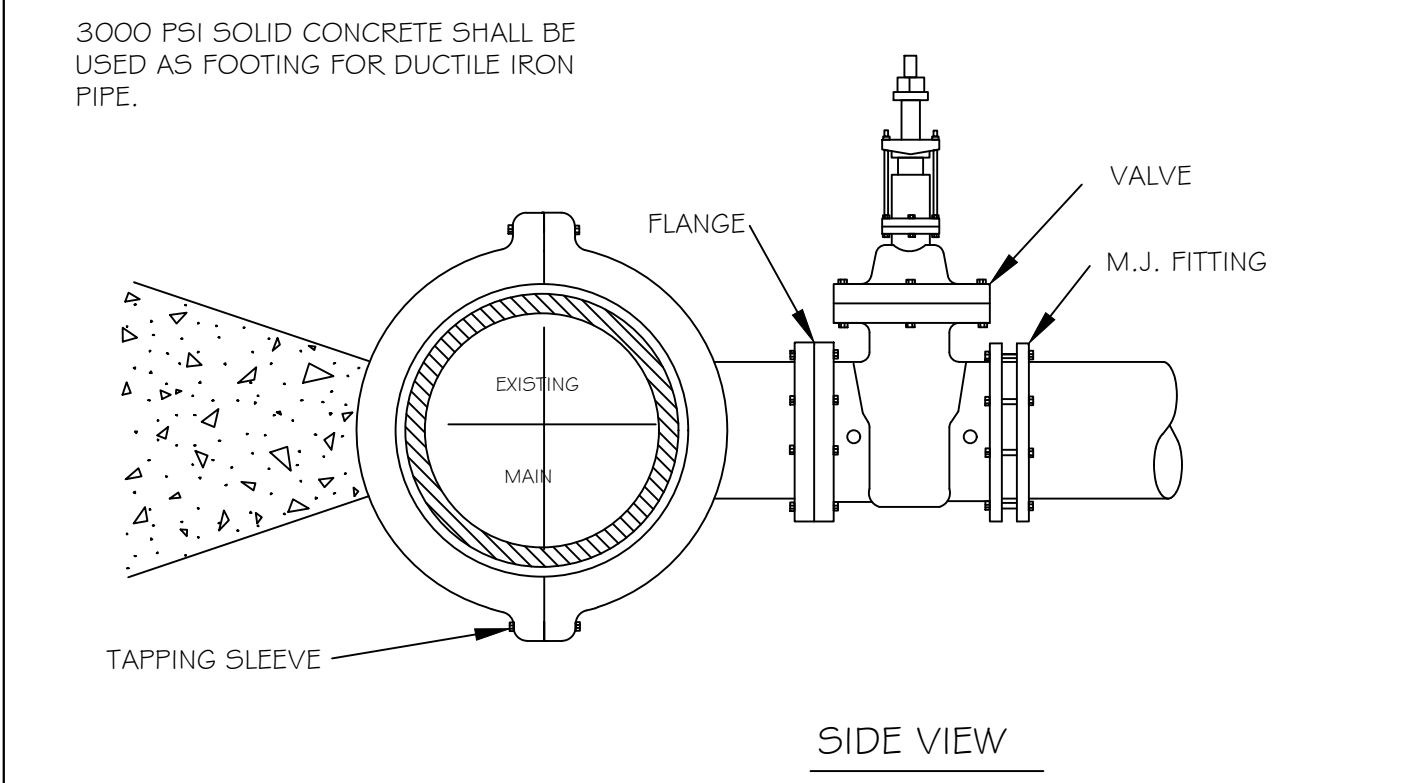
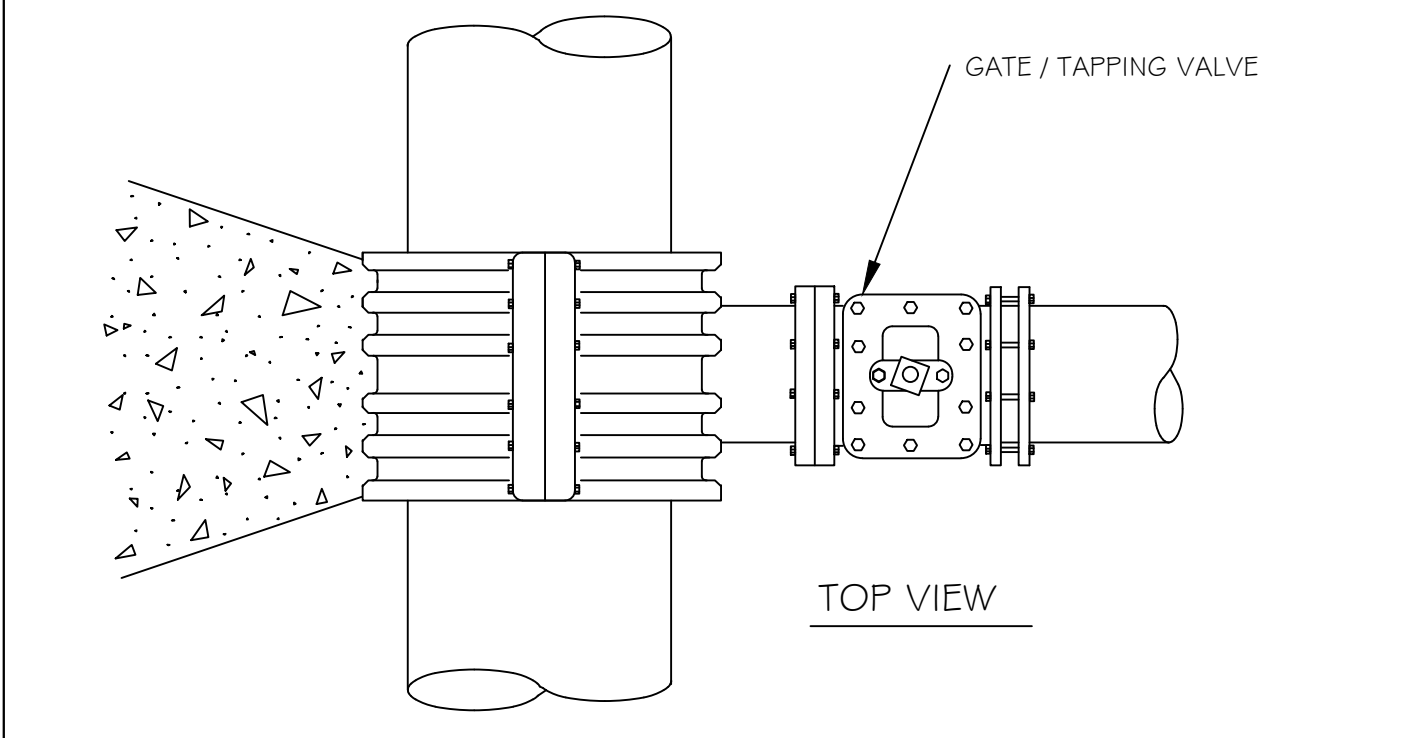


ROD REQUIREMENTS

SIZE OF 45° BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

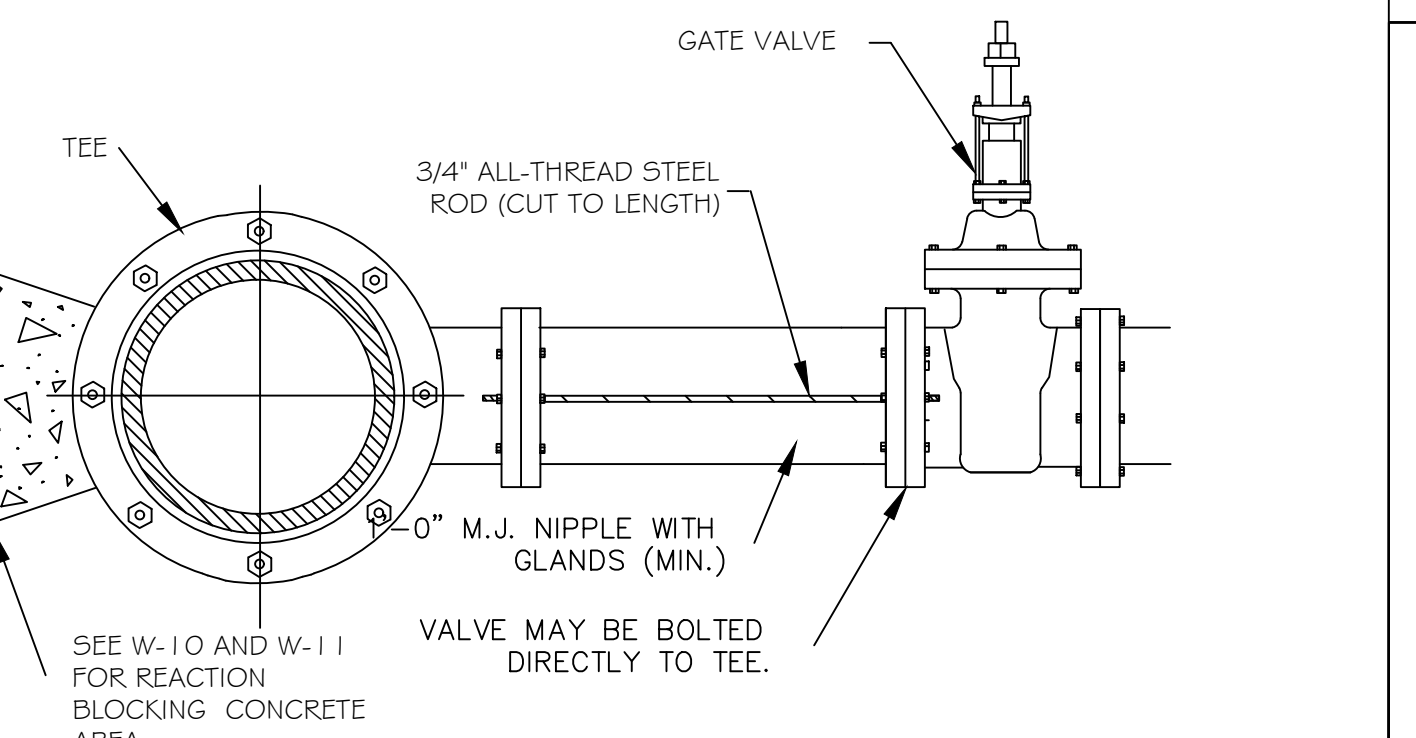
- GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
 2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
 3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
 5. 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD VERTICAL BEND				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-12	ABB	4-6-04	J.P.S.	11-1-10
		6-18-08		



3000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.C.A.	2-31-91	RRH	3-31-00
		9-7-99	J.P.S.	11-1-10

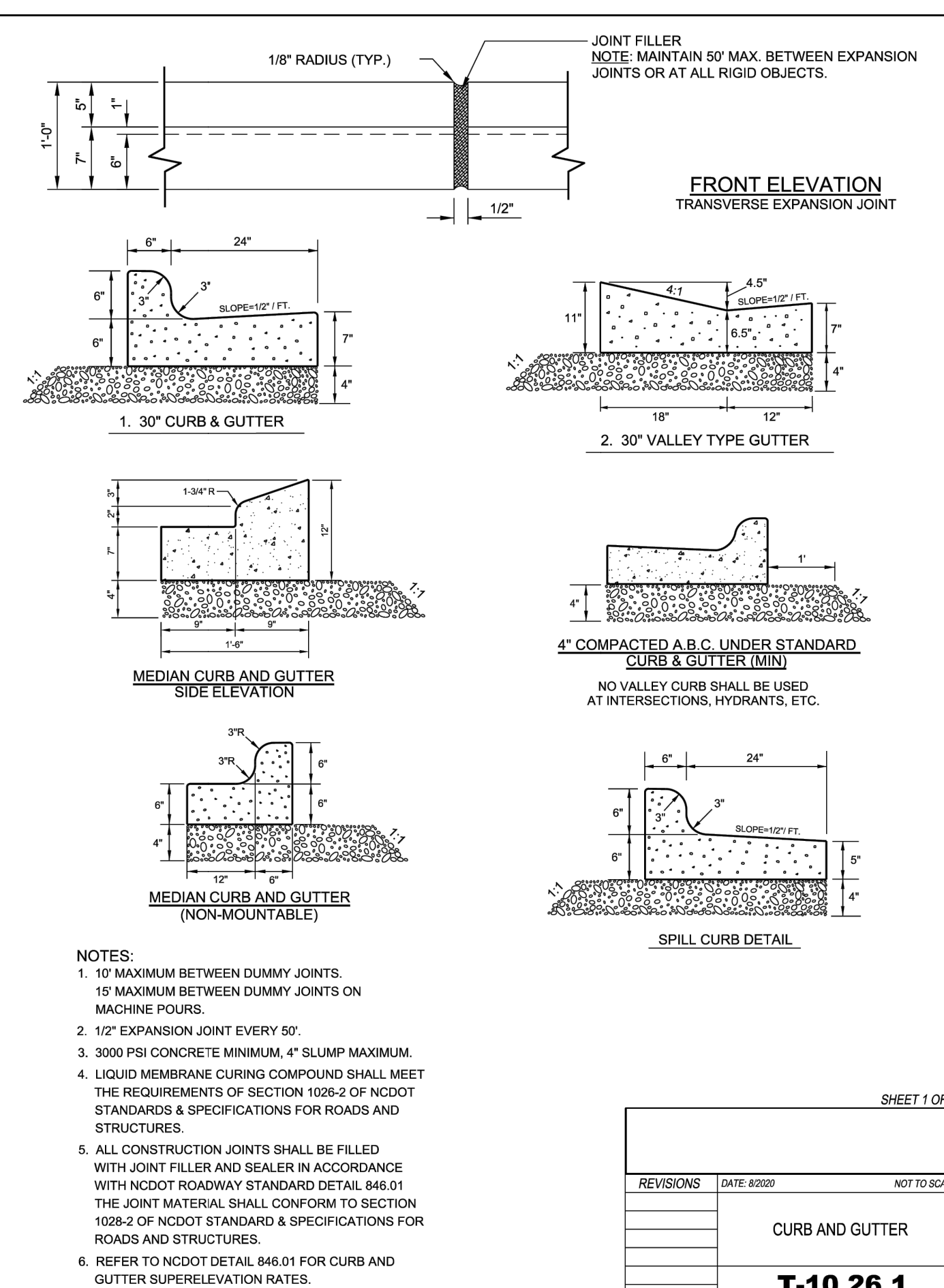


ROD REQUIREMENTS

NO. OF RODS	BRANCH SIZE
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	8
36"	8

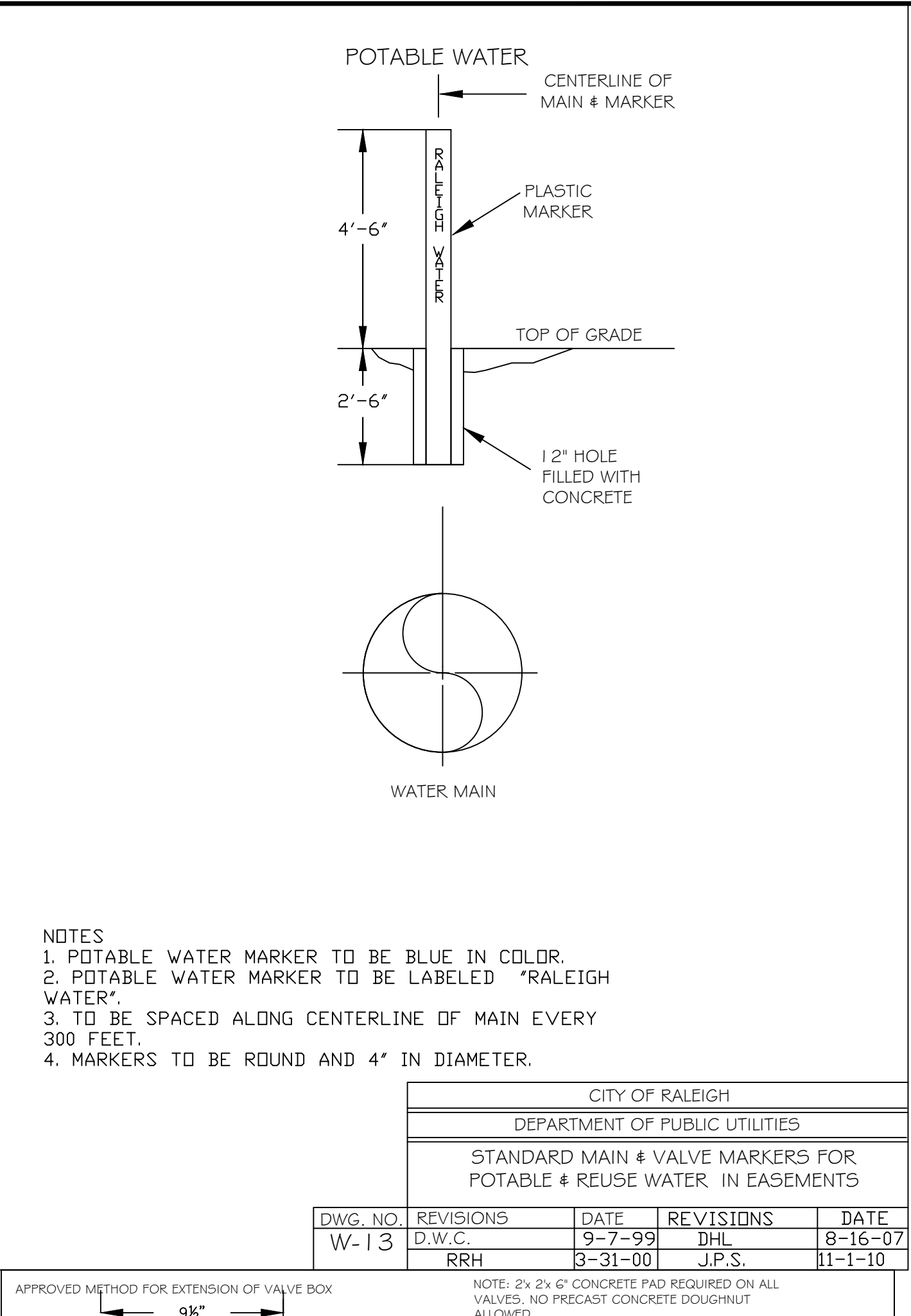
- NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
 2. SEE STANDARD THRUST BLOCK TABLES, W-10 AND W-11 FOR CONCRETE.
 3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
 4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"-24")				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-15	RRH	3-31-00	D.H.L.	6-16-08
		4-19-04	J.P.S.	11-1-10



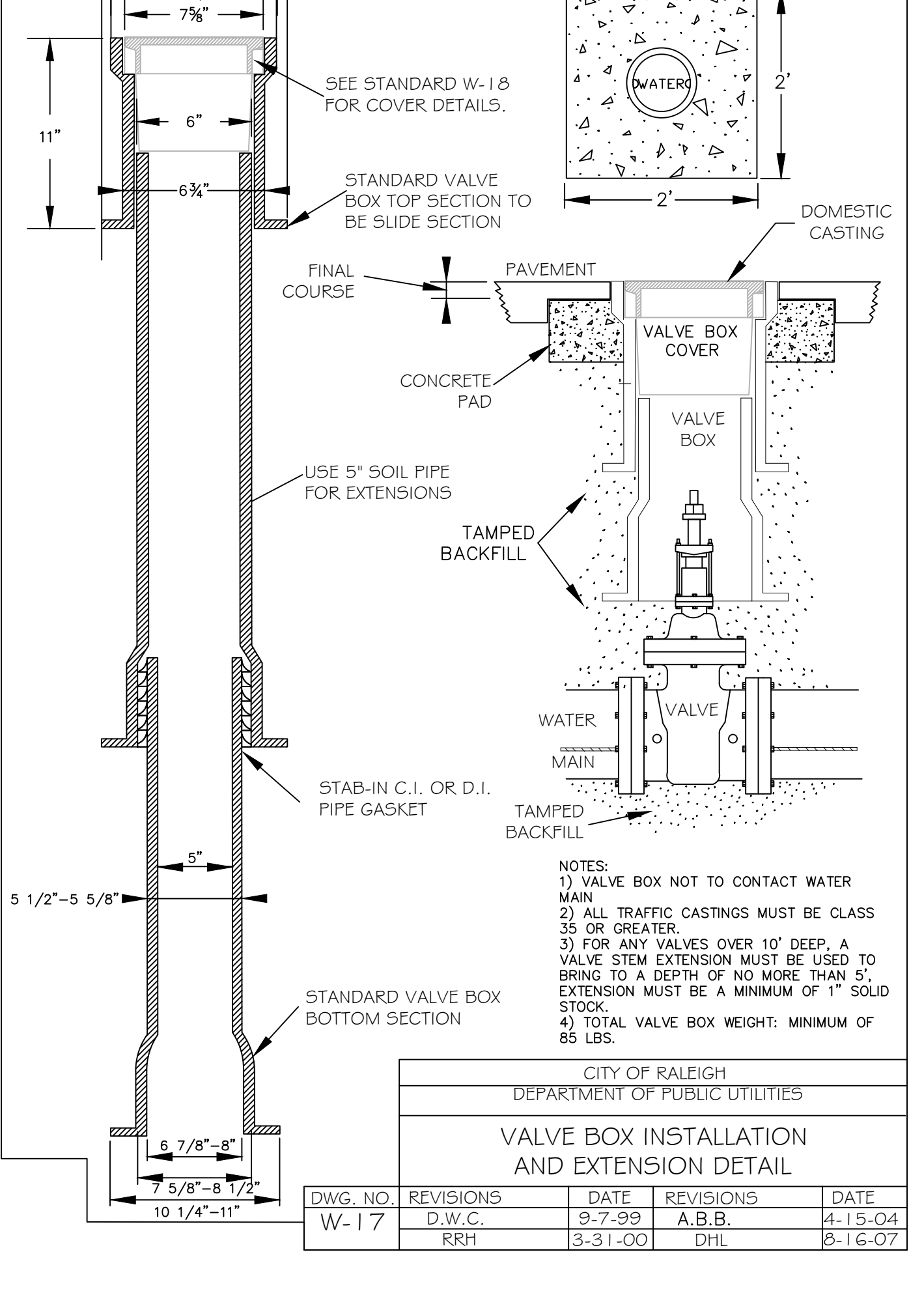
- NOTES:
1. 10" MAXIMUM BETWEEN DUMMY JOINTS.
 2. 1/2" EXPANSION JOINT EVERY 50'.
 3. 3000 PSI CONCRETE MINIMUM. 4" SLUMP MAXIMUM.
 4. LIQUID MEMBRANE CURING COMPOUND SHALL MEET THE REQUIREMENTS OF SECTION 1028-2 OF NCDOT STANDARDS & SPECIFICATIONS FOR ROADS AND STRUCTURES.
 5. ALL CONSTRUCTION JOINTS SHALL BE FILLED WITH JOINT FILLER AND SEALER IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DETAIL 846.01 THE JOINT MATERIAL SHALL CONFORM TO SECTION 1028-2 OF NCDOT STANDARD & SPECIFICATIONS FOR ROADS AND STRUCTURES.
 6. REFER TO NCDOT DETAIL 846.01 FOR CURB AND GUTTER SUPERELEVATION RATES.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
CURB AND GUTTER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-15	RRH	3-31-00	D.H.L.	6-16-08
		4-19-04	J.P.S.	11-1-10



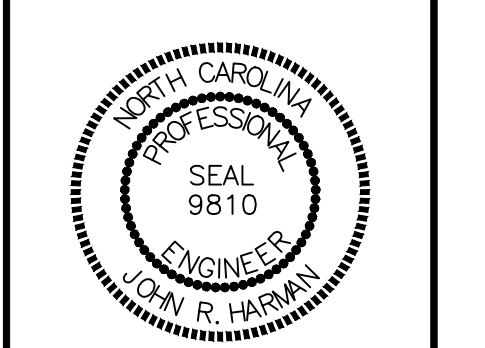
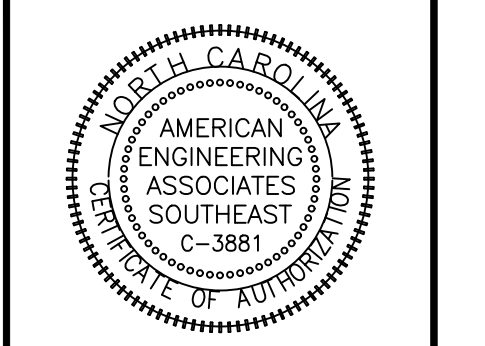
- NOTES:
1. POTABLE WATER MARKER TO BE BLUE IN COLOR.
 2. POTABLE WATER MARKER TO BE LABELED "RALEIGH WATER".
 3. TO BE SPACED ALONG CENTERLINE OF MAIN EVERY 300 FEET.
 4. MARKERS TO BE ROUND AND 4" IN DIAMETER.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MAIN & VALVE MARKERS FOR POTABLE & REUSE WATER IN EASEMENTS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-13	D.W.C.	9-7-99	DHL	8-16-07
		3-31-00	J.P.S.	11-1-10



- NOTES:
- 1) VALVE BOX NOT TO CONTACT WATER MAIN
 - 2) ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
 - 3) FOR ANY VALVES OVER 10" DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5". EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
 - 4) TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
VALVE BOX INSTALLATION AND EXTENSION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	9-7-99	A.B.B.	4-15-04
		3-31-00	DHL	8-16-07



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/8/1991	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2004	WAKE COUNTY AND CITY OF RALEIGH
3	11/07/2004	TOWN OF ROLESVILLE CONSULTANT COMMENTS. CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BHI/JH
DRAWN BY: SMM/LL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:

KALAS FALLS
CIVIL DETAILS
SHEET NO.: CD7

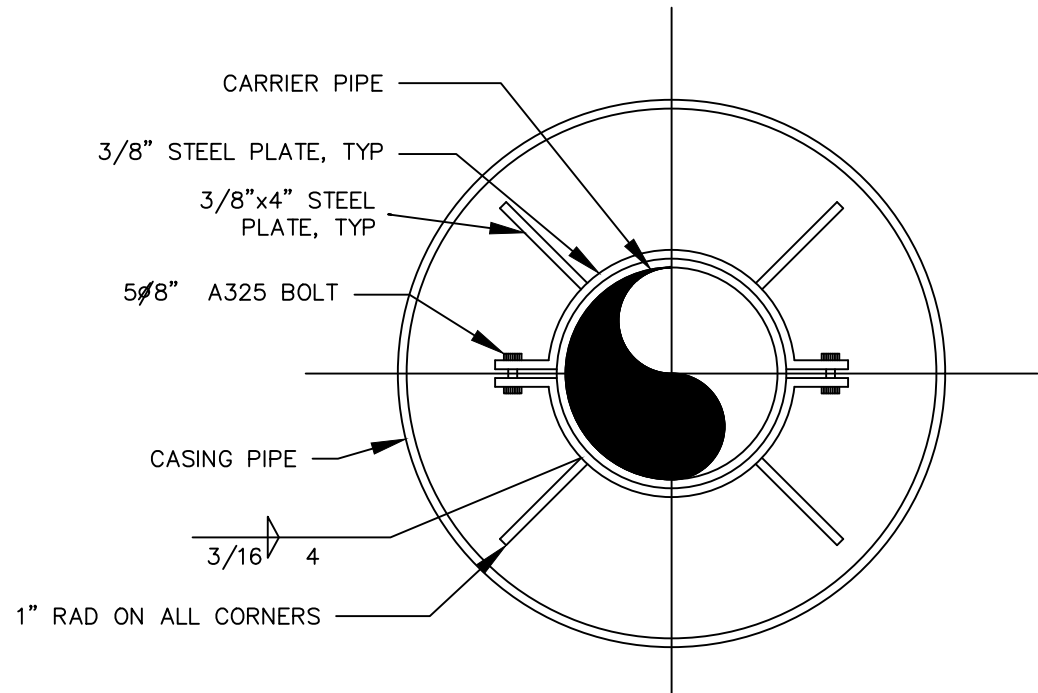
Public Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

Public Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit #

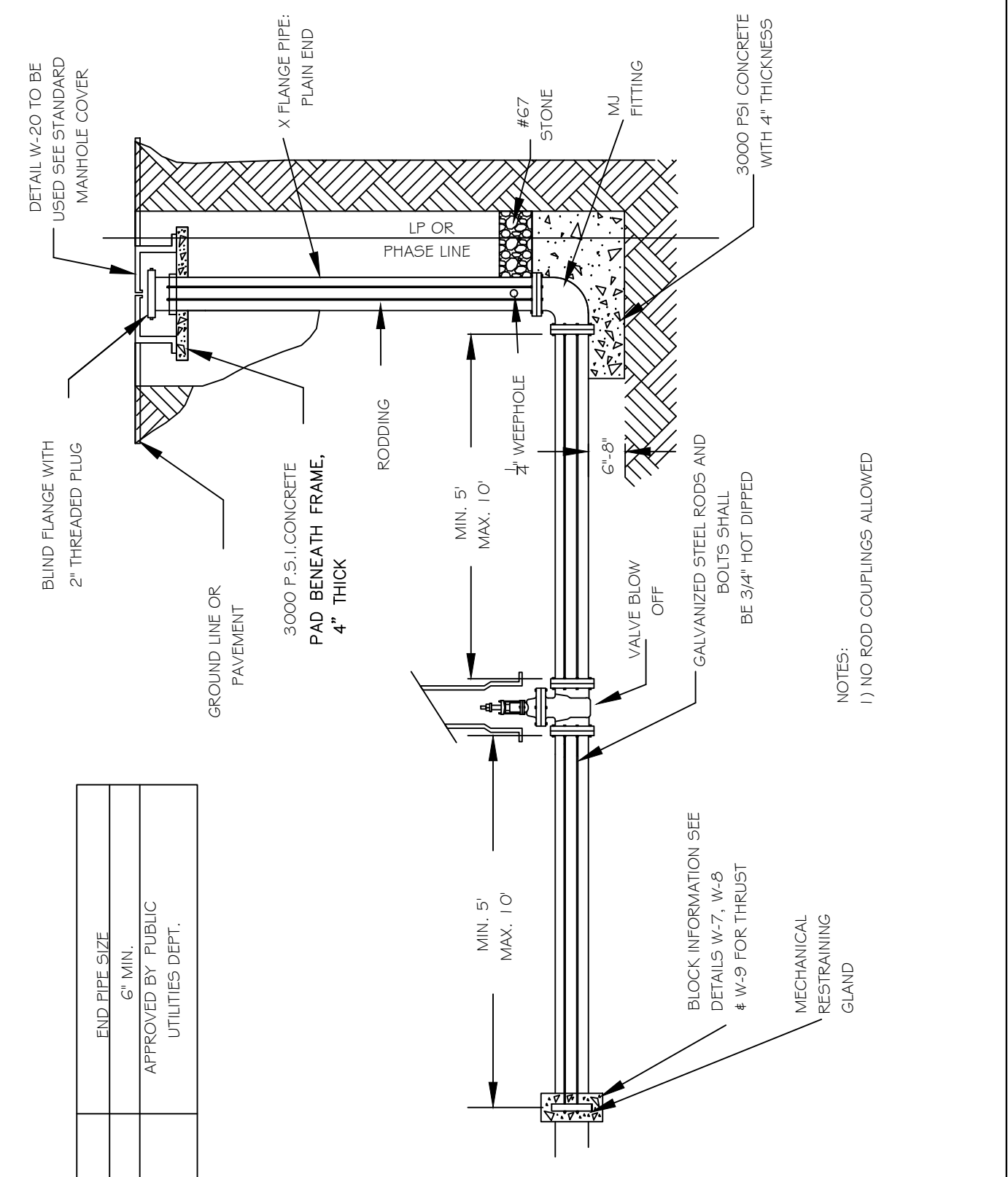
City of Raleigh
Public Utilities Department Permit #

North Carolina
811
Remoteticketentry.com
811 or 1-800-632-4949
Remoteticketentry.com
http://nc811.org/remoteticketentry.htm



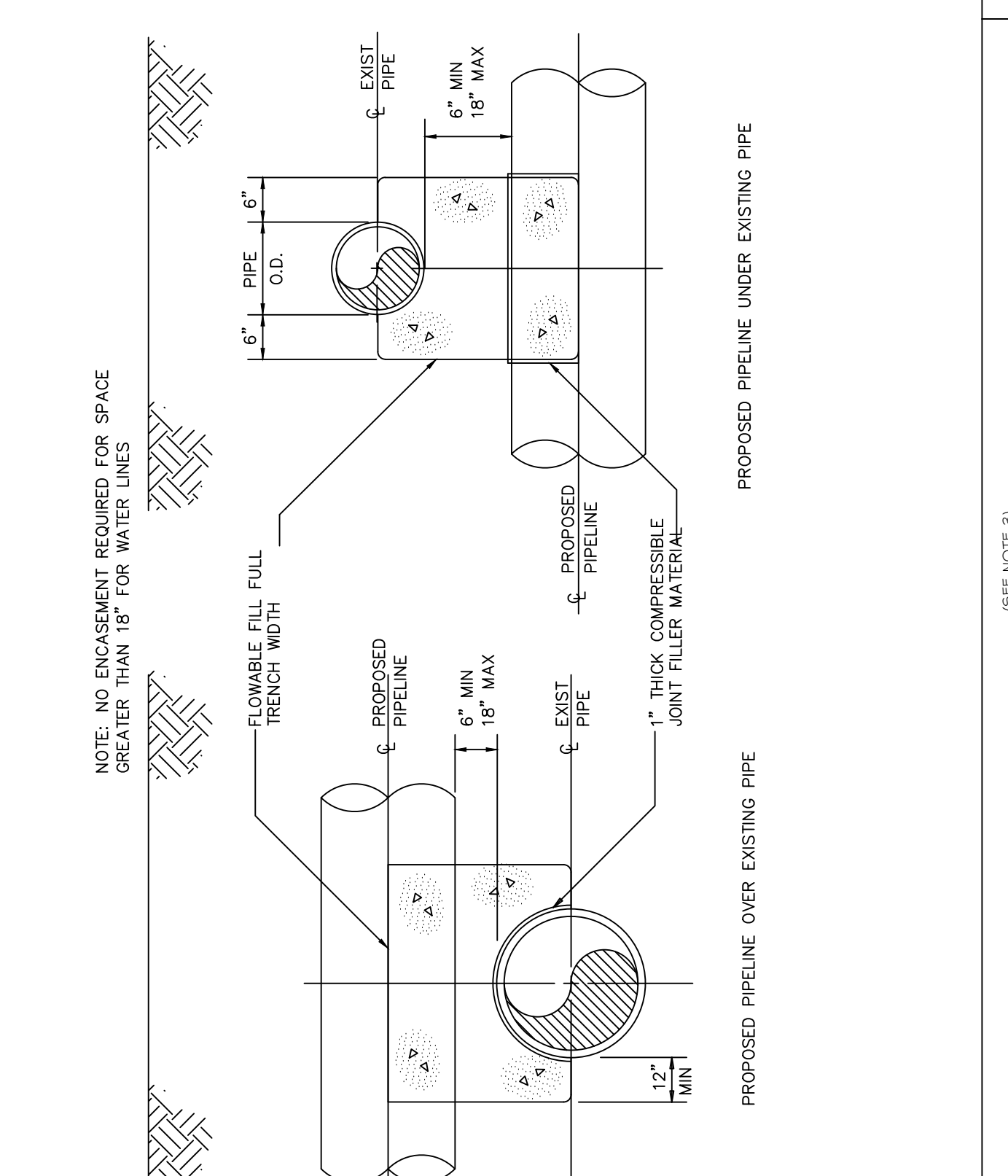
NOTE:
1) USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
PIPE ALIGNMENT GUIDE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-40	RRH	3-31-00		
	A.B.B.	4-16-04		

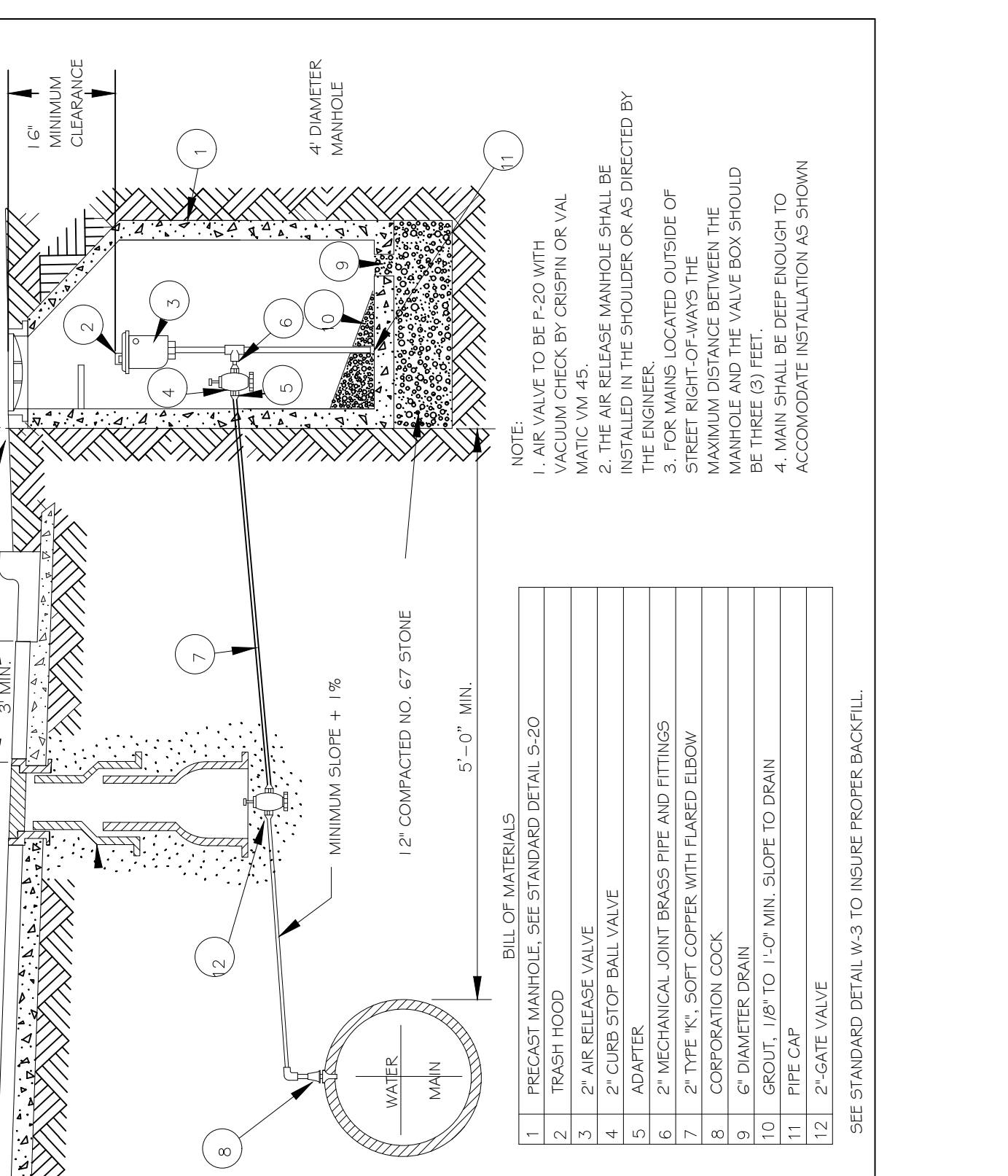


MANHOLE FRAME AND COVER COVER: 120 LBS. MINIMUM	
MANHOLE FRAME SIZE	16" x 12"
PIPE SIZE	6" - 12"

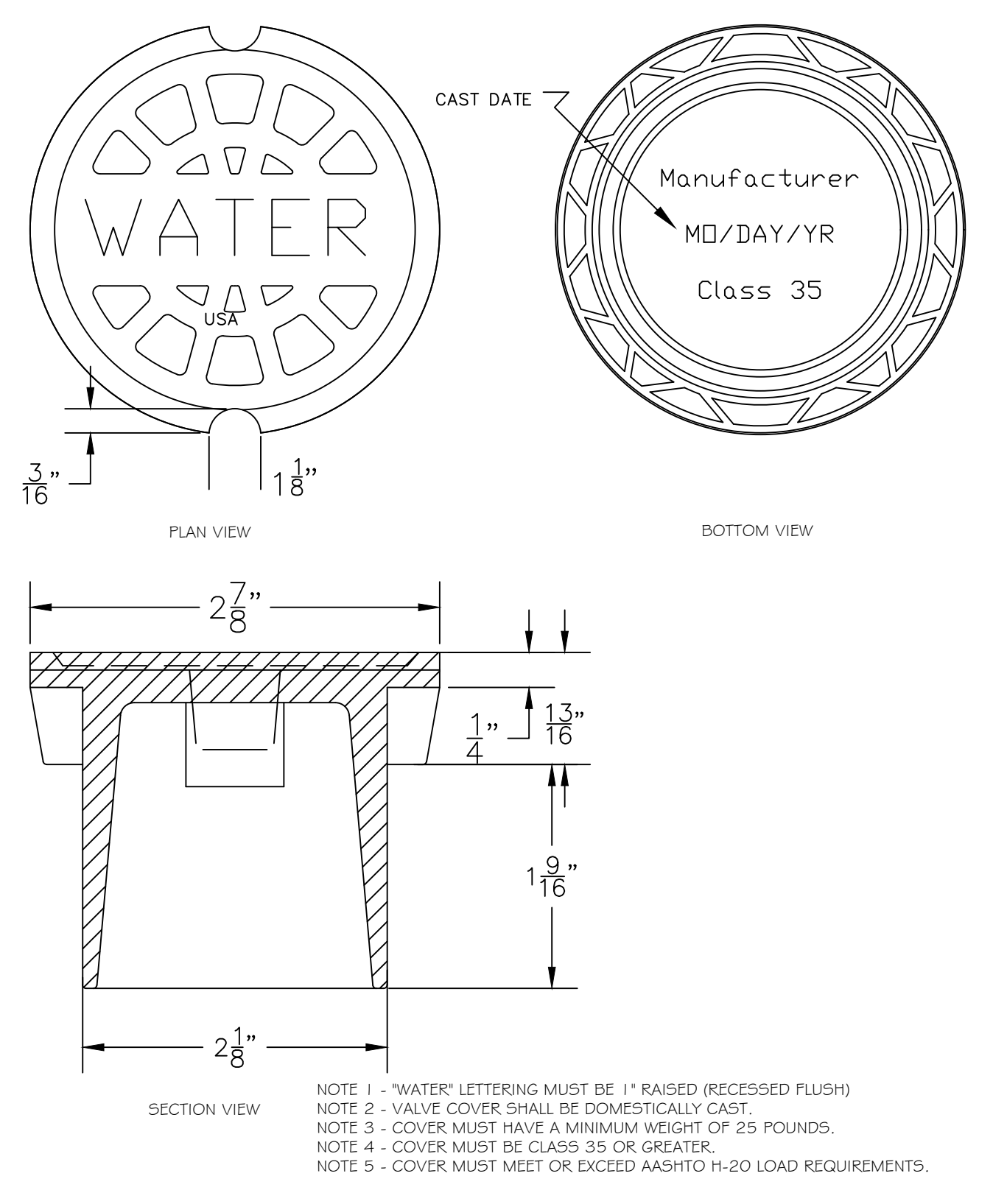
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
TEMPORARY WATER MAIN BLOW OFF ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-21	D.W.C.	12-28-99	A.B.B.	4-12-04
	RRH	3-31-00	DHL	6-16-07



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41	DHL	2-20-08		

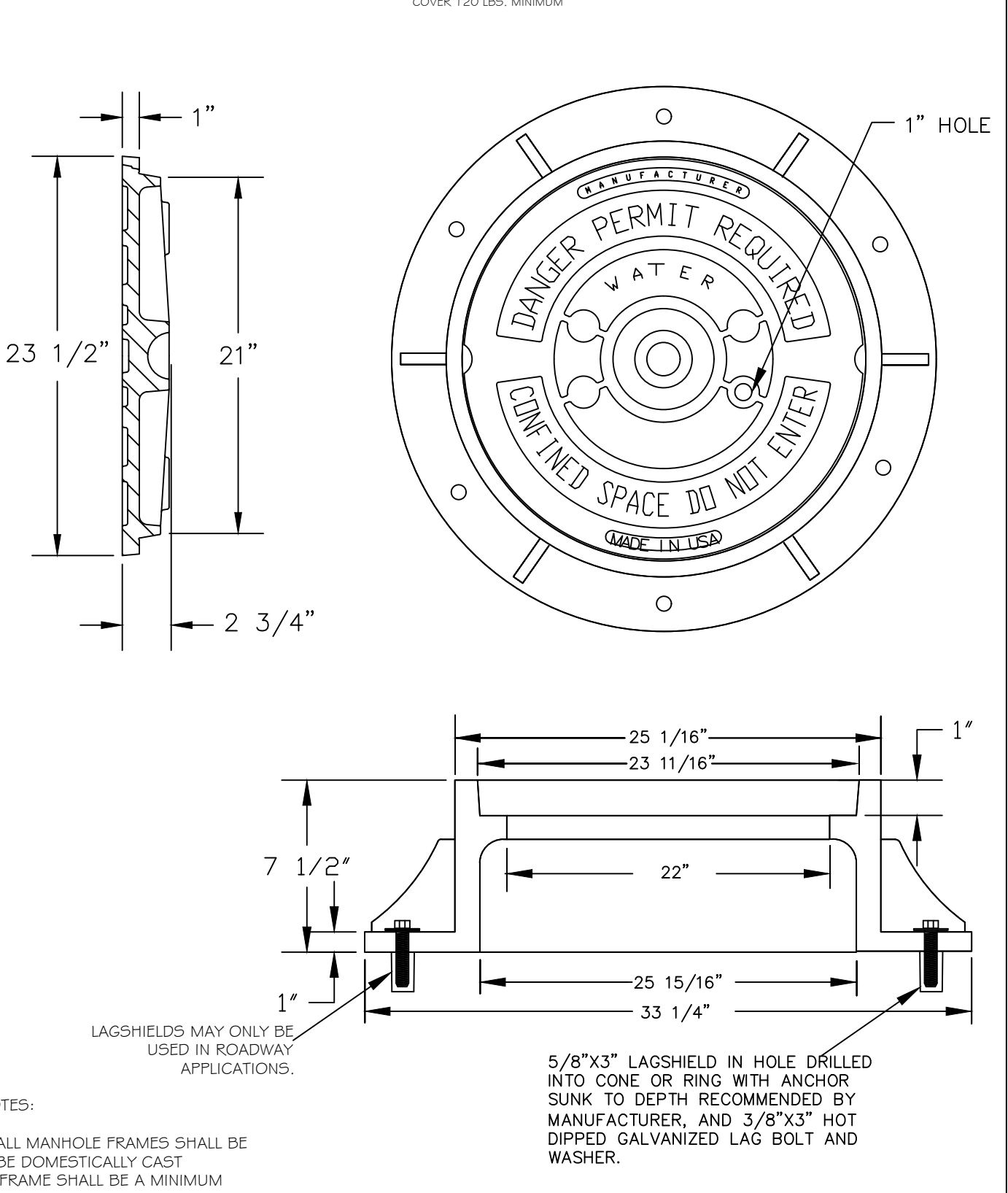


CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD WATER AIR RELEASE VALVE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-19	ABB	10-4-04		
	J.P.S.	11-1-10	RRH	6-7-00



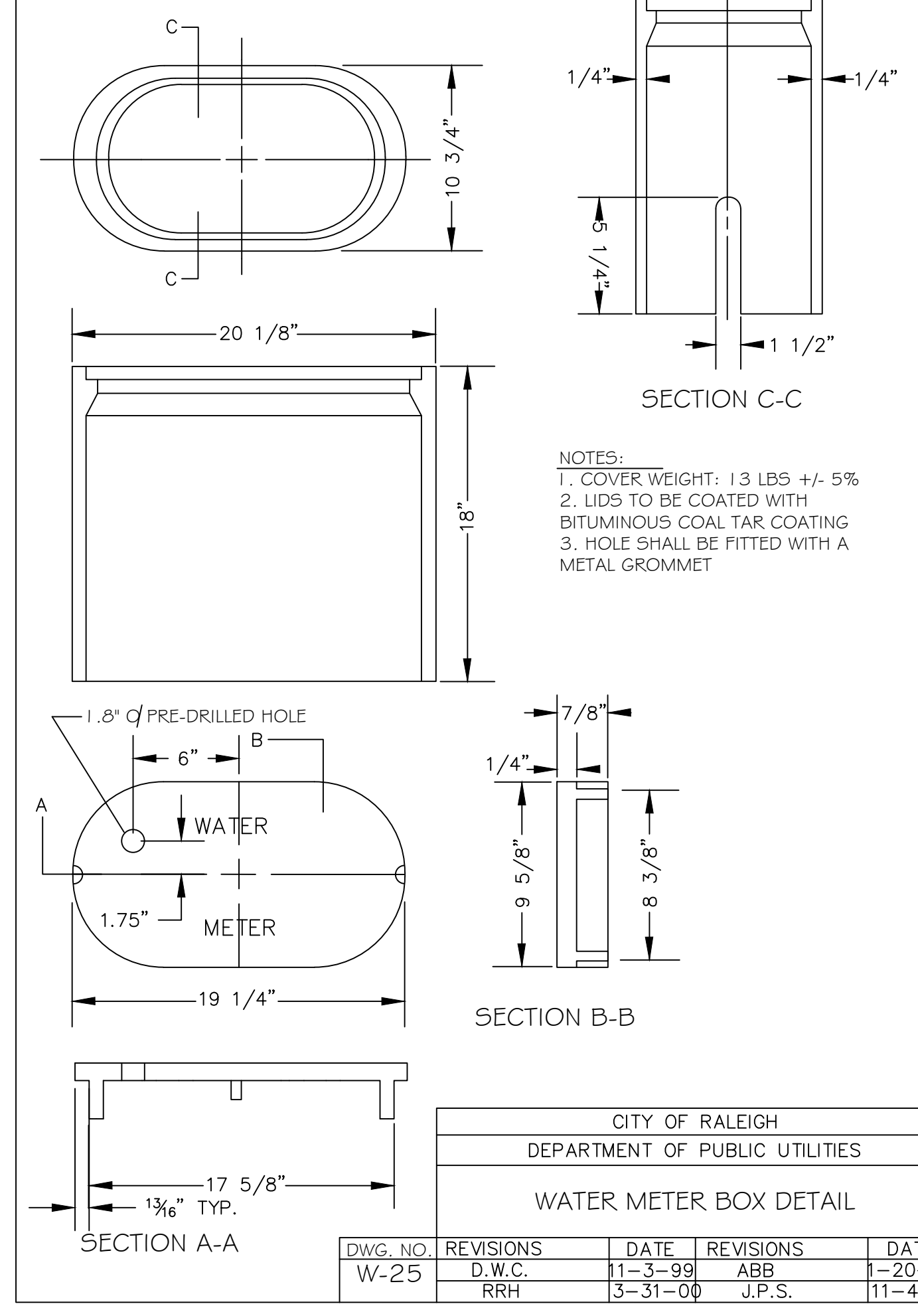
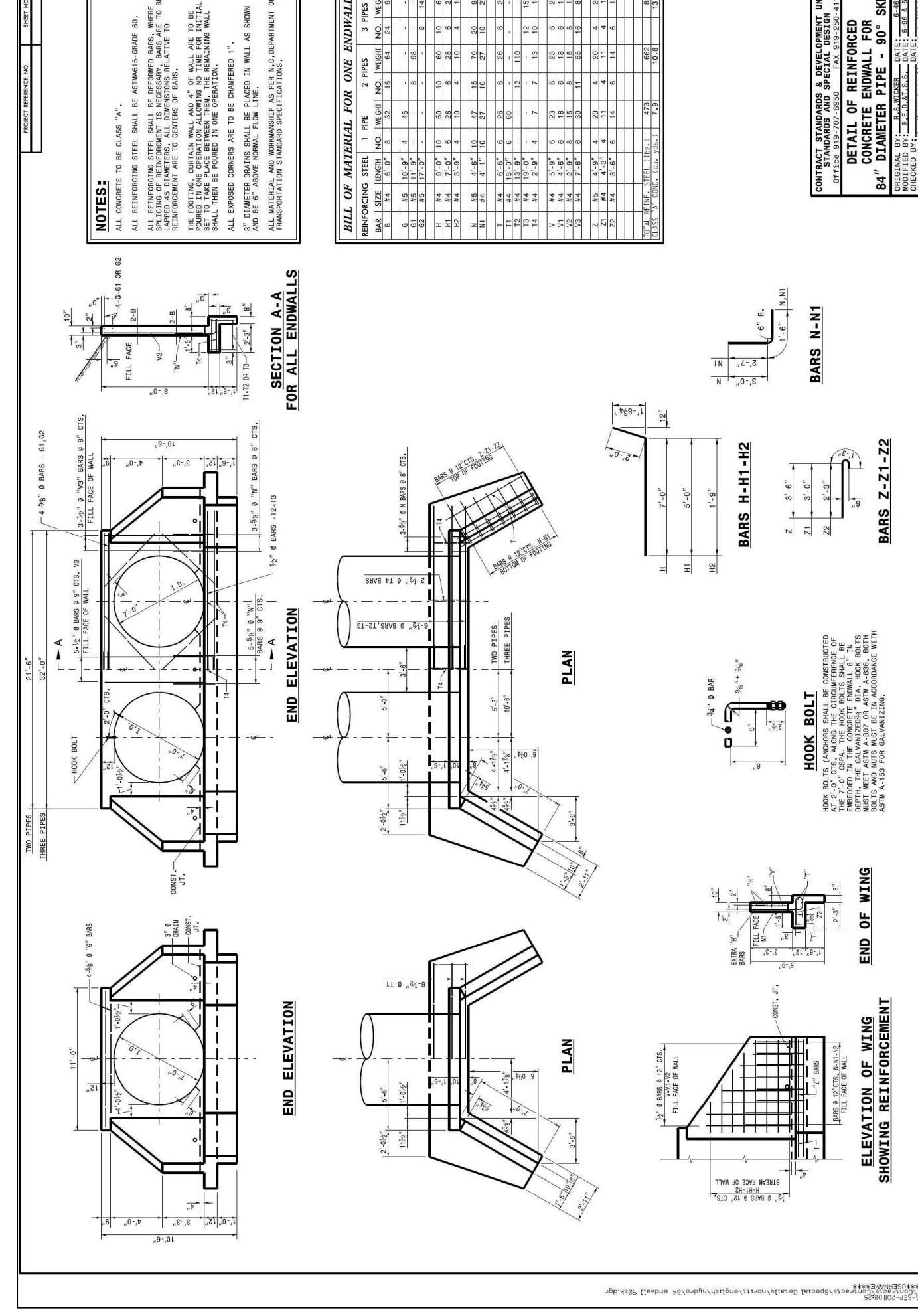
NOTE 1 - WATER LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				

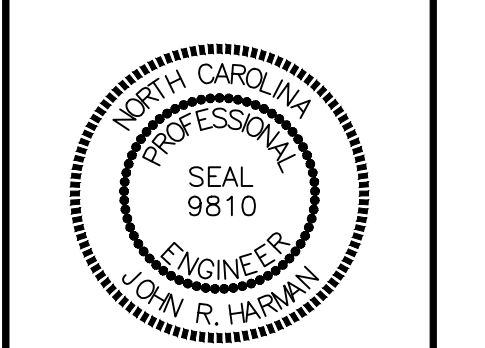
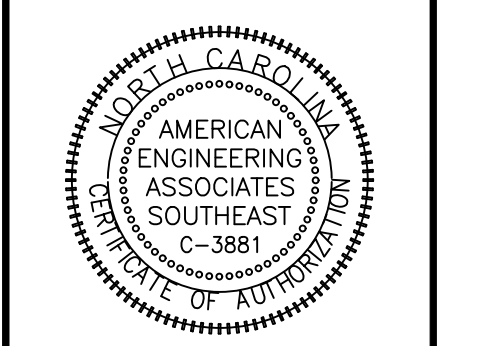


NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH S-29.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-20	A.B.B.	4-8-04		
	D.H.L.	6-18-08		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
WATER METER BOX DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25	D.W.C.	11-3-99	ABB	1-20-05
	RRH	3-31-00	J.P.S.	11-4-10



DETAIL SELECTION ONLY

NO.	DATE	REVISION
1	7/8/2024	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.
2	9/4/2024	WAKE COUNTY AND CITY OF RALEIGH TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/LL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
KALAS FALLS
CIVIL DETAILS

SHEET NO.:
CD8

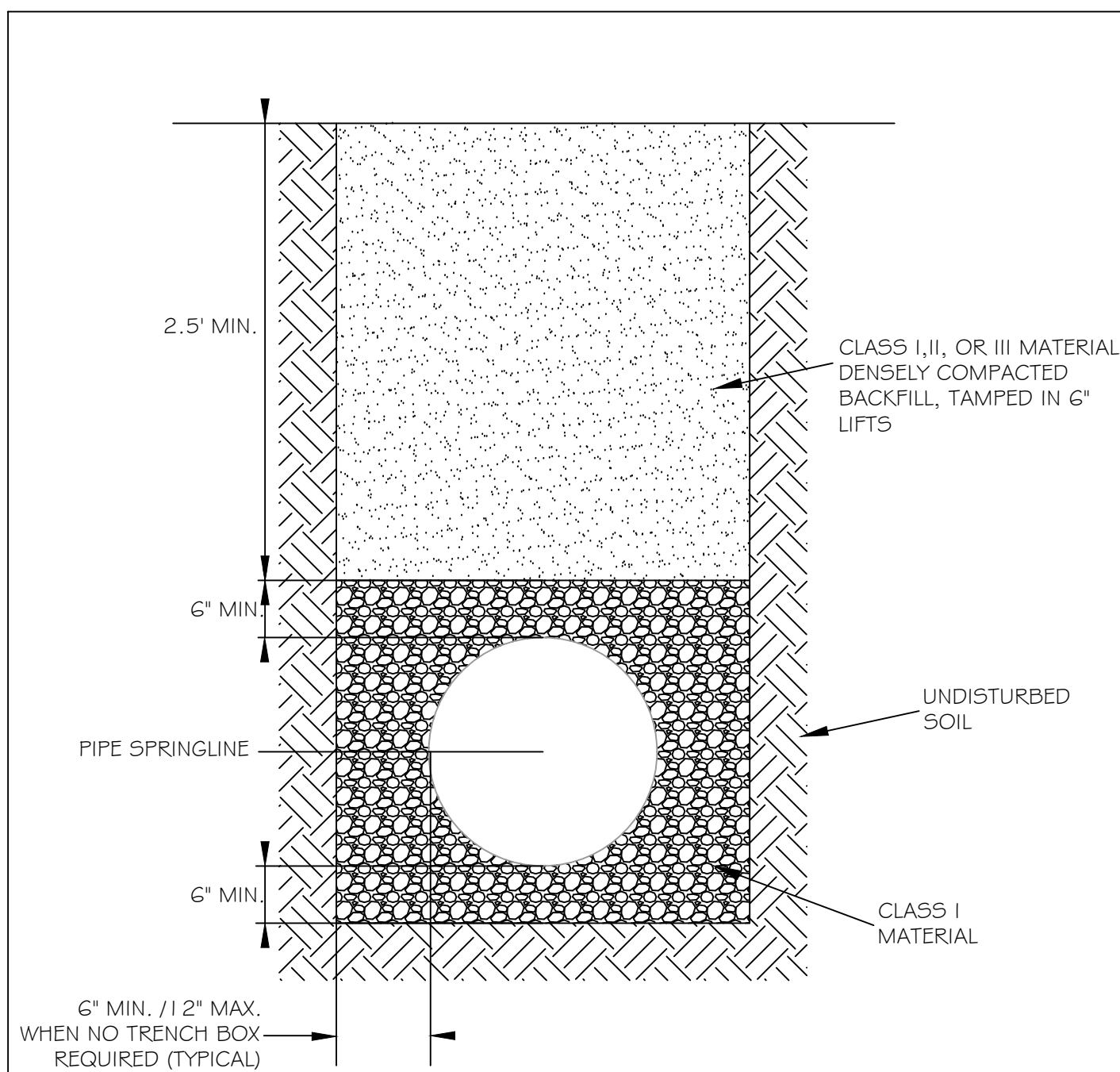
Public Sewer Collection / Extension System
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Public Water Distribution / Extension System
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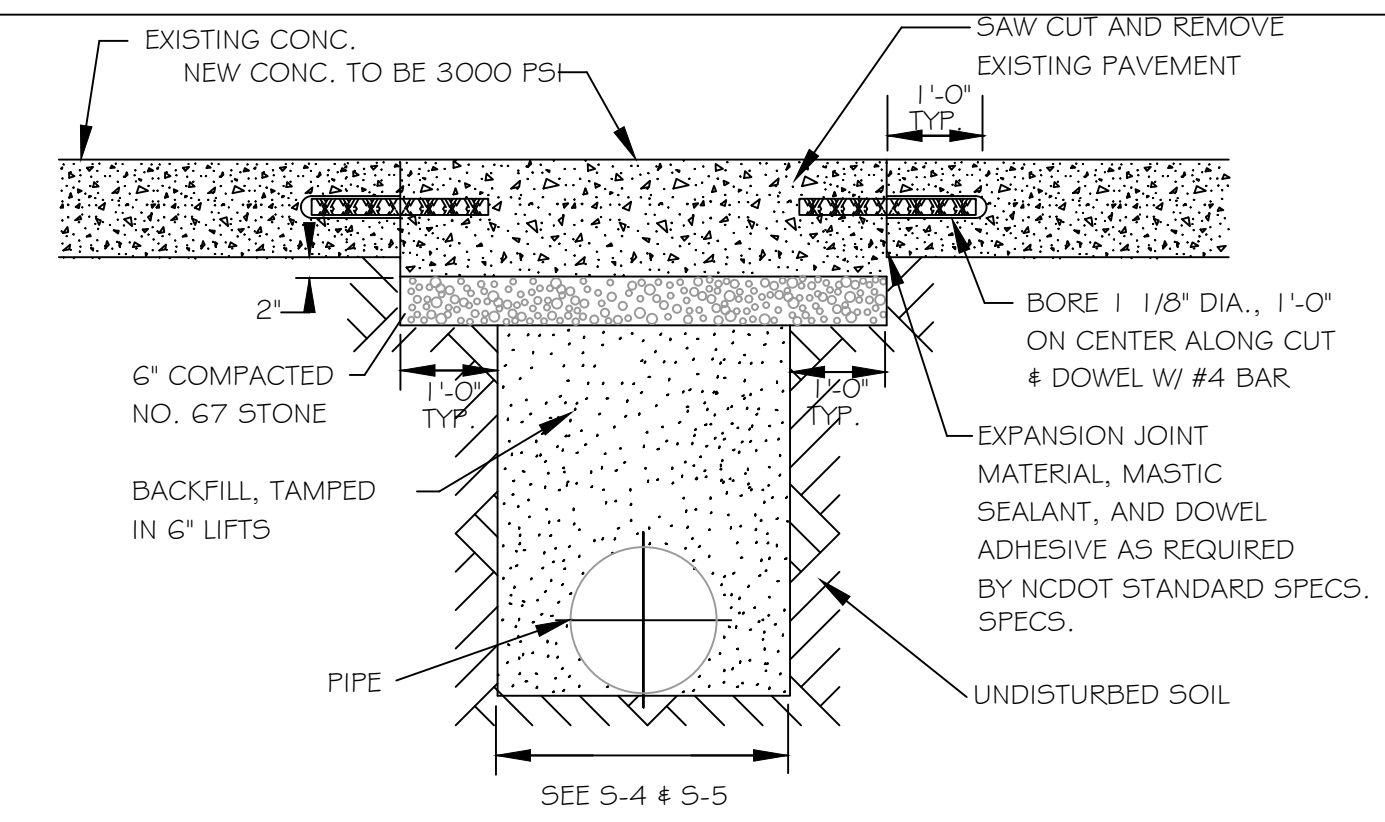
City of Raleigh
Public Utilities Department Permit # _____

City of Raleigh
Public Utilities Department Permit # _____

*** 3 Days before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://811.org/remoteticketentry.htm



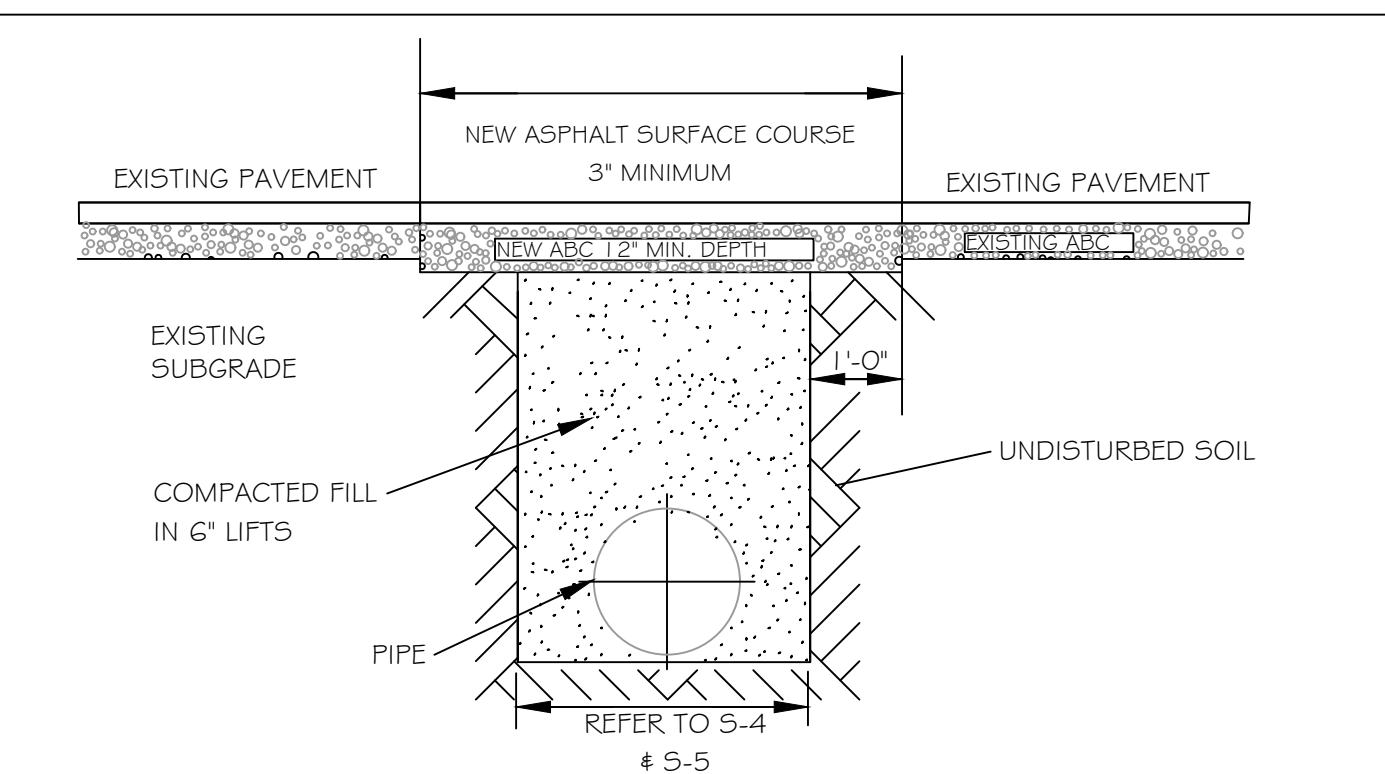
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD BEDDING DETAILS FOR CCFRPM PIPES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-1	J.P.S.	10-8-10		



NOTES:

- See City of Raleigh standards for trenches and pipe bedding (S-4 & S-5) for additional details.
- Pavement cuts over 5'-0\"/>

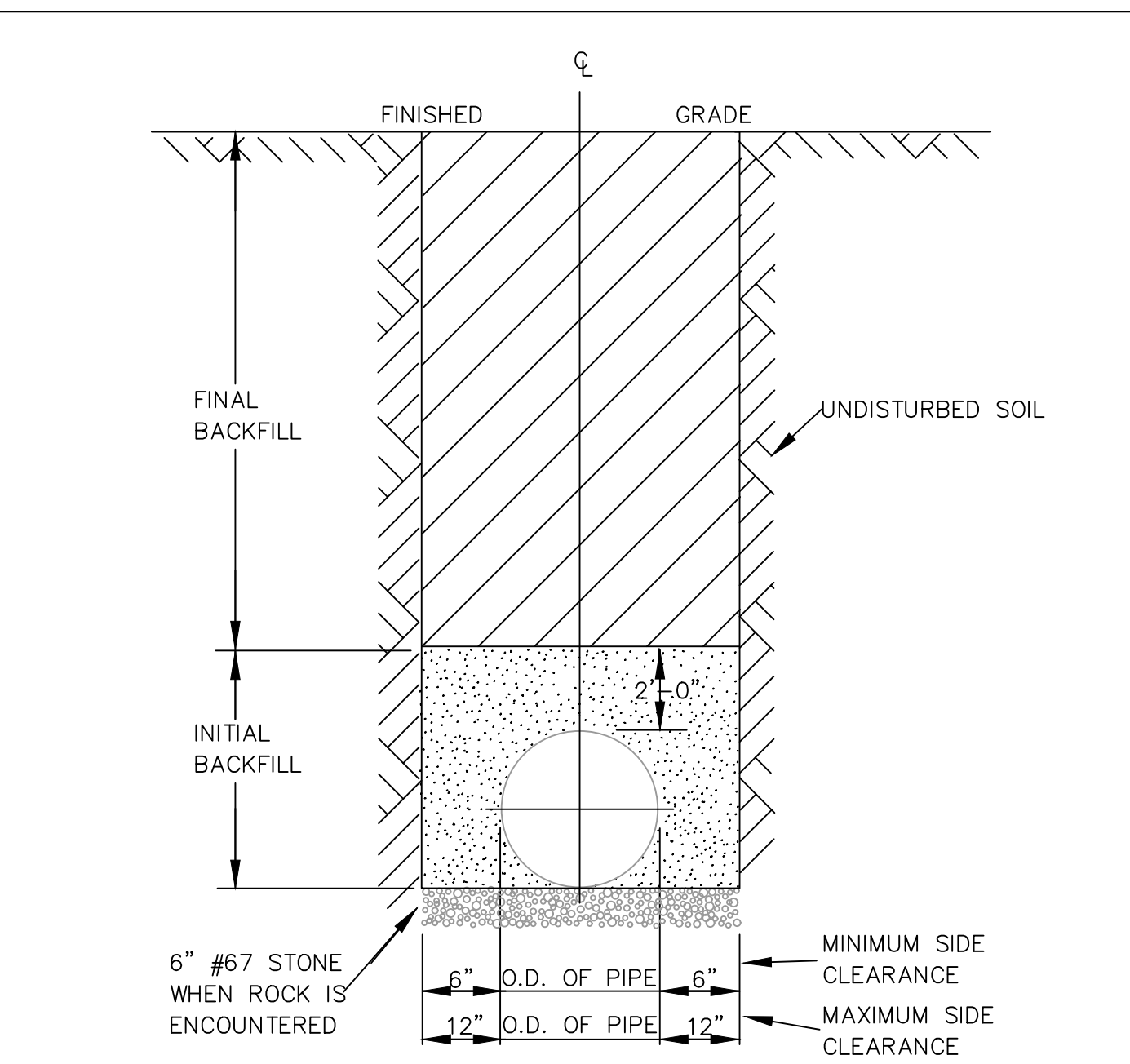
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD CONCRETE PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-2	D.W.C.	6-23-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S.	10-8-10



NOTES:

- IN NCDOT MAINTAINED ROADWAYS ENCROACHMENT PAVEMENT PATCH REQUIREMENTS SHALL TAKE PRECEDENCE.
- THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAWCUT MACHINE.
- THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
- THE FINAL 1\"/>

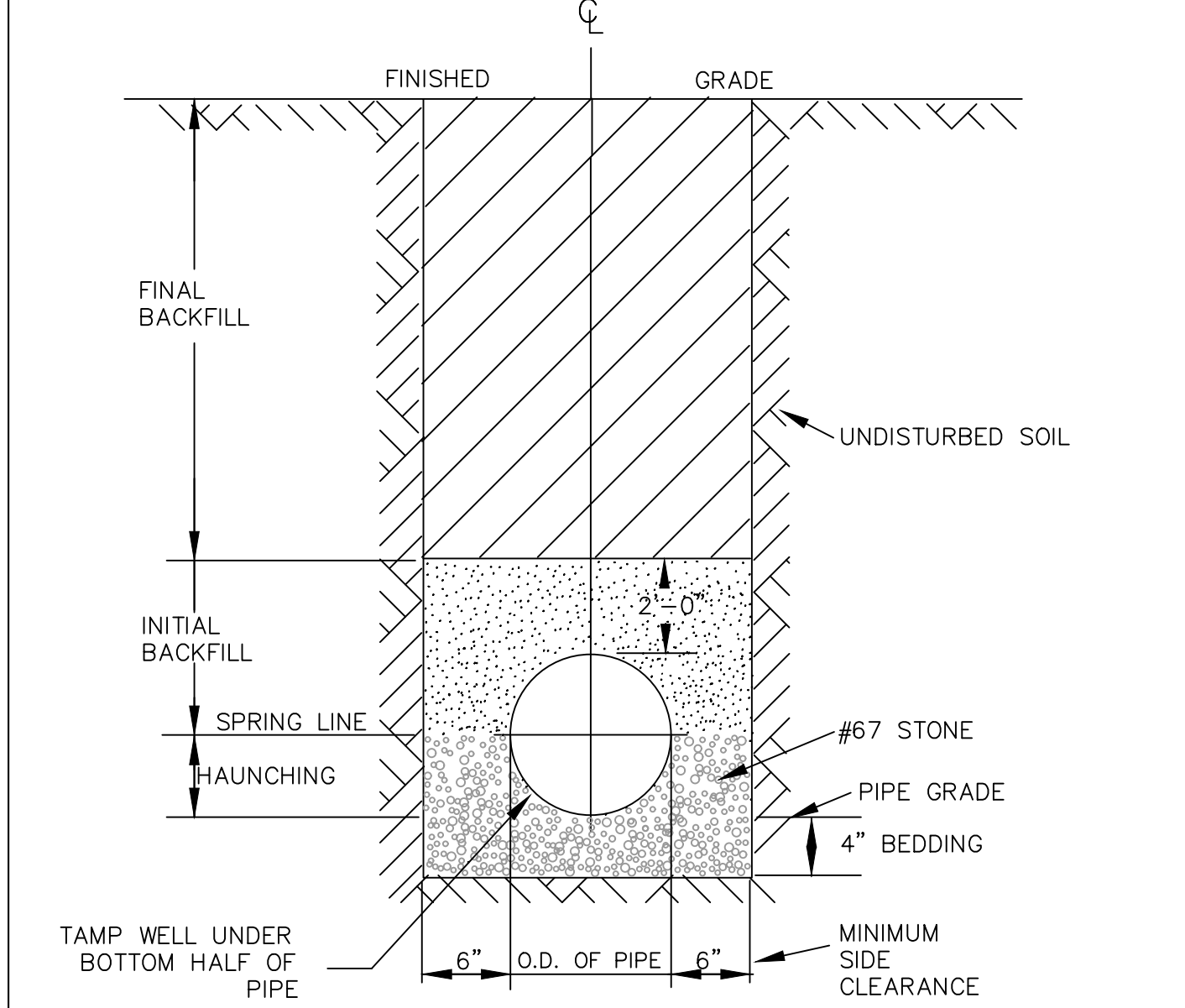
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD ASPHALT PAVEMENT PATCH DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-3	D.W.C.	11-1-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S.	10-8-10



NOTES:

- TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
- NO ROCKS OR BOULDERS 4\"/>

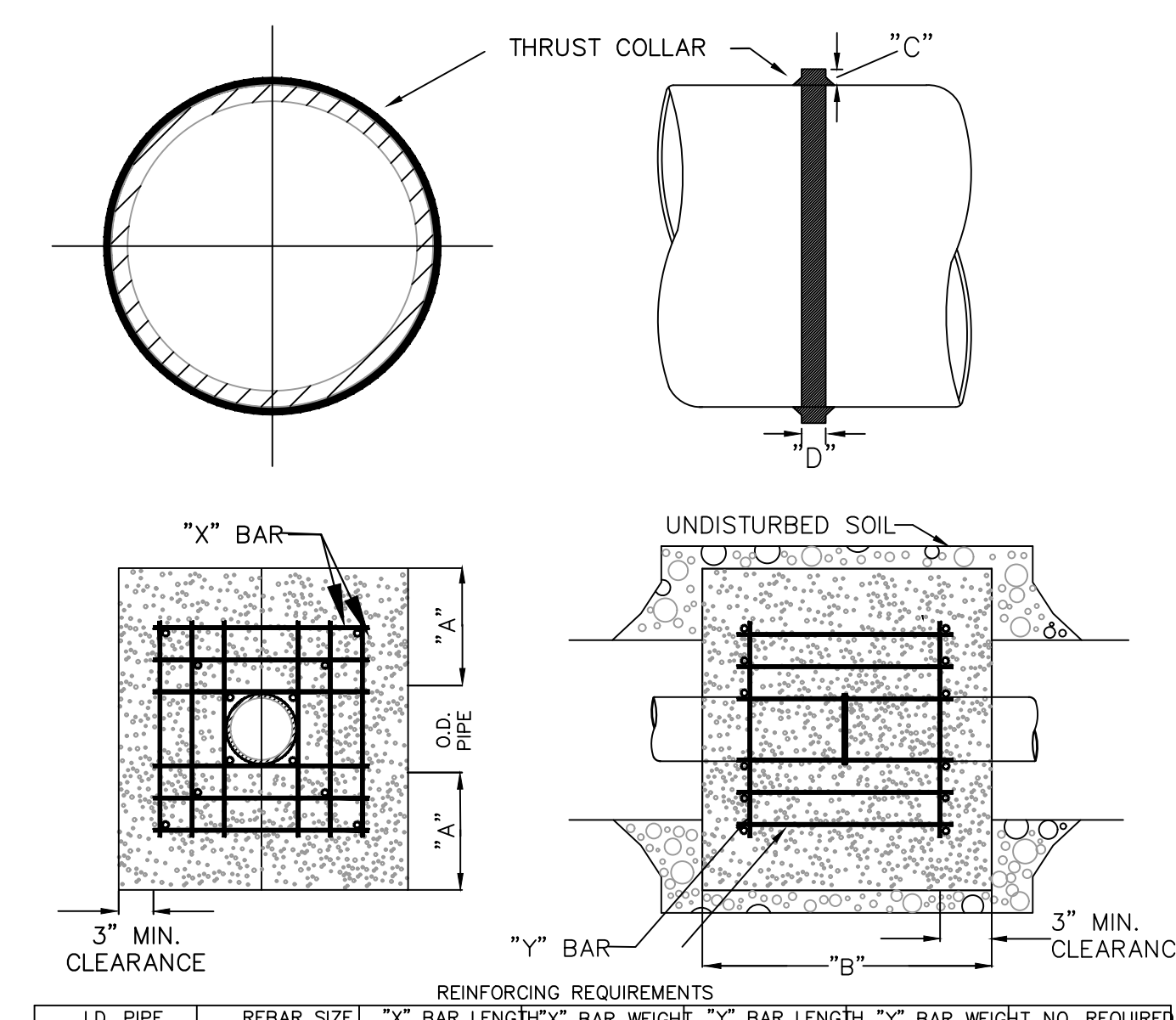
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	8-30-00		



NOTES:

- FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
- NO ROCKS OR BOULDERS 4\"/>

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-82	RRH	3-30-00



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2" + O.D.	PIPE 1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0" + O.D.	PIPE 1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24, Y-12

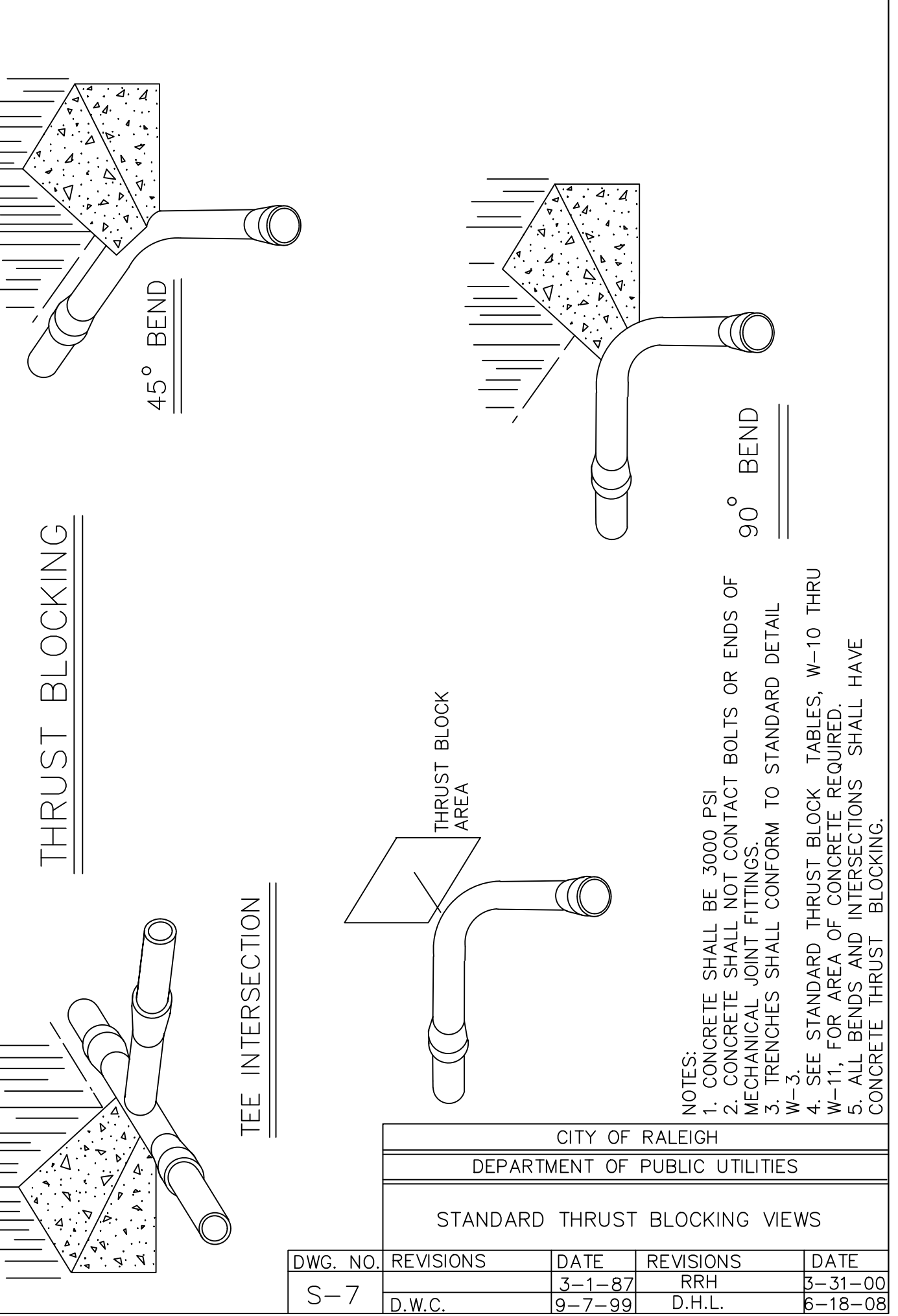
THRUST COLLAR AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

NOTES:

- CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
- REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
- TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
- BACKFILL TAMPED IN 6\"/>

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
RESTRAINING COLLAR DESIGN DATA FOR SEWER FORCE MAIN				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-6	RRH	1-21-00		
	D.H.L.	6-18-08		



GENERAL NOTES:

- ALL MATERIALS UTILIZED ON THESE DETAIL SHEETS SHALL CONFORM TO THE APPROPRIATE SECTIONS OF THE CITY OF RALEIGH PUBLIC UTILITIES HANDBOOK UNLESS NOTED OTHERWISE HEREIN.
- RESTRAINED JOINT PIPE AND FITTINGS SHALL CONSIST OF BOLTED RETAINER RINGS AND WELDED RETAINER BARS OR BOLTLESS TYPE WHICH INCLUDE DUCTILE IRON LOCKING SEGMENTS AND RUBBER RETAINERS. BOLTS FOR RESTRAINED JOINTS (IF APPLICABLE) SHALL CONFORM TO ANSI B18.2. RESTRAINED PIPE AND FITTINGS SHALL BE FLEX-RING OR LOK-RING TYPE JOINTS AS MANUFACTURED BY AMERICAN CAST IRON PIPE CO.; TR FLEX AS MANUFACTURED BY US PIPE, SUPER-LOCK AS MANUFACTURED BY CLOW, BOLT-LOK OR SNAP-LOK AS MANUFACTURED BY GRIFFIN PIPE PRODUCTS, OR EQUAL.

CONCRETE PROPERTIES SHALL BE AS FOLLOWS:

- CONCRETE COMPRESSIVE STRENGTH = 4000 PSI
- NOMINAL SLUMP = 4 INCHES
- WATER/CEMENTITIOUS MATERIALS RATIO = 0.45 (MAX)
- AIR CONTENT = 6% ± 1.5%

CONCRETE SHALL BE COMPOSED OF CEMENT, WATER, COARSE AGGREGATES, FINE AGGREGATES AND AIR. CEMENT SHALL BE TYPE I/II OR II IN ACCORDANCE WITH ASTM C-150. MATERIAL REQUIREMENTS FOR ALL FINE AND COARSE AGGREGATES SHALL CONFORM TO ASTM C-33. COARSE AGGREGATE SHALL BE SIZE NO. 57 OR 67. AN APPROVED CLASS 1 FLYASH MAY BE SUBSTITUTED FOR AN EQUAL AMOUNT OF CEMENT BY WEIGHT UP TO 25%.

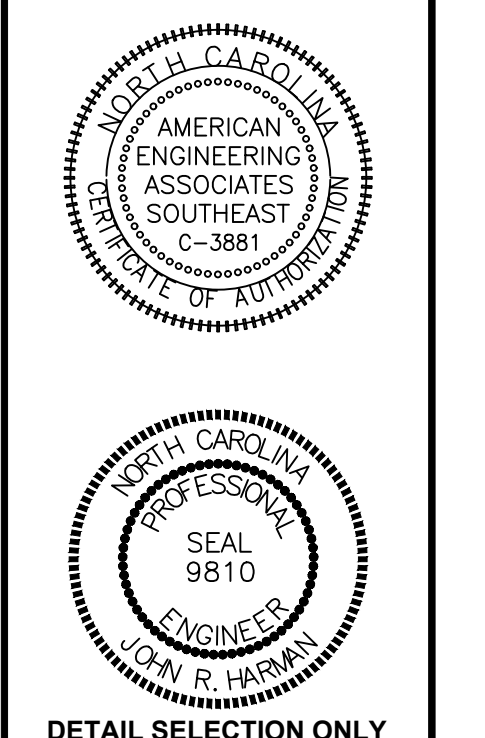
ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".

CONVENTIONAL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 AND SHALL BE PLACED IN ACCORDANCE WITH "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS" (LATEST EDITION) AS PUBLISHED BY THE CONCRETE REINFORCING INSTITUTE. SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".

NEOPRENE BEARING PADS SHALL BE FORMED FROM PREVIOUSLY UNVULCANIZED, 100% VIRGIN NEOPRENE, WITH DUROMETER HARDNESS = 50.

PILES SHALL BE STRUCTURAL STEEL HP12x53 PILES AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36. PILES SHALL BE DRIVEN TO DEPTHS REQUIRED TO OBTAIN AN ULTIMATE BEARING CAPACITY OF NOT LESS THAN TWO TIMES THE DESIGN LOADING OF 30 TONS. PILES SHALL PENETRATE A MINIMUM OF FIFTEEN FEET INTO UNDISTURBED SOIL. IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED. IF REQUESTED BY THE ENGINEER, PILES SHALL BE TESTED TO DETERMINE THE ULTIMATE CAPACITY OF THE PILES. THE METHOD OF LOAD TESTING SHALL CONFORM TO ASTM D1143 AND THE NORTH CAROLINA STATE BUILDING CODE, WHERE PILES ARE EXPOSED, PILES SHALL BE PAINTED AND/OR COATED IN ACCORDANCE WITH THE CITY SPECIFICATIONS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
AERIAL PIPE CROSSING GENERAL NOTES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-10	D.H.L.	6/16/08		



REVISIONS:

NO.	DATE	REVISION
1	7/21/08	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE

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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 1, 2024

SHEET TITLE:
KALAS FALLS CIVIL DETAILS
SHEET NO.: CD9

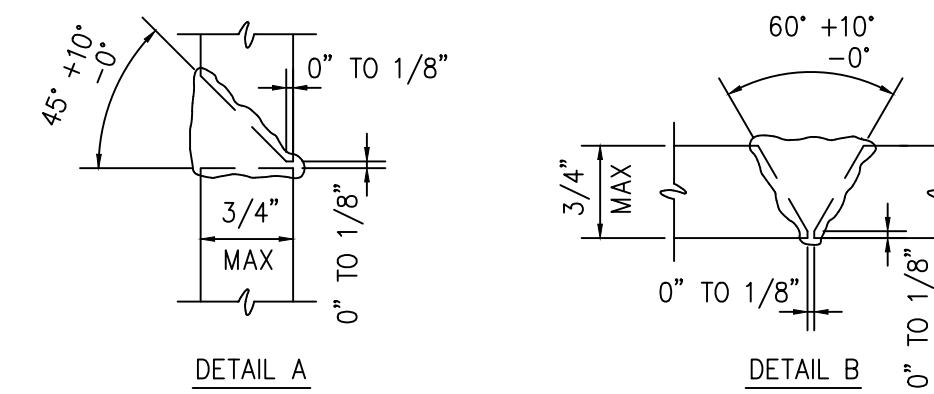
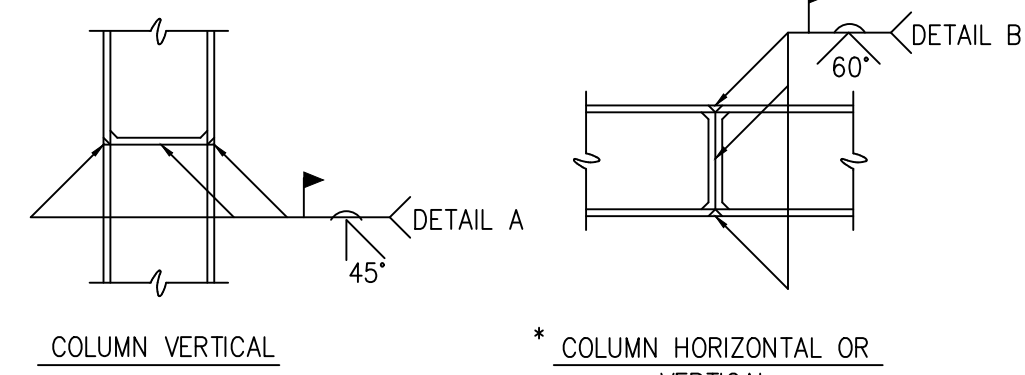
Public Sewer Collection / Extension System
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Public Water Distribution / Extension System
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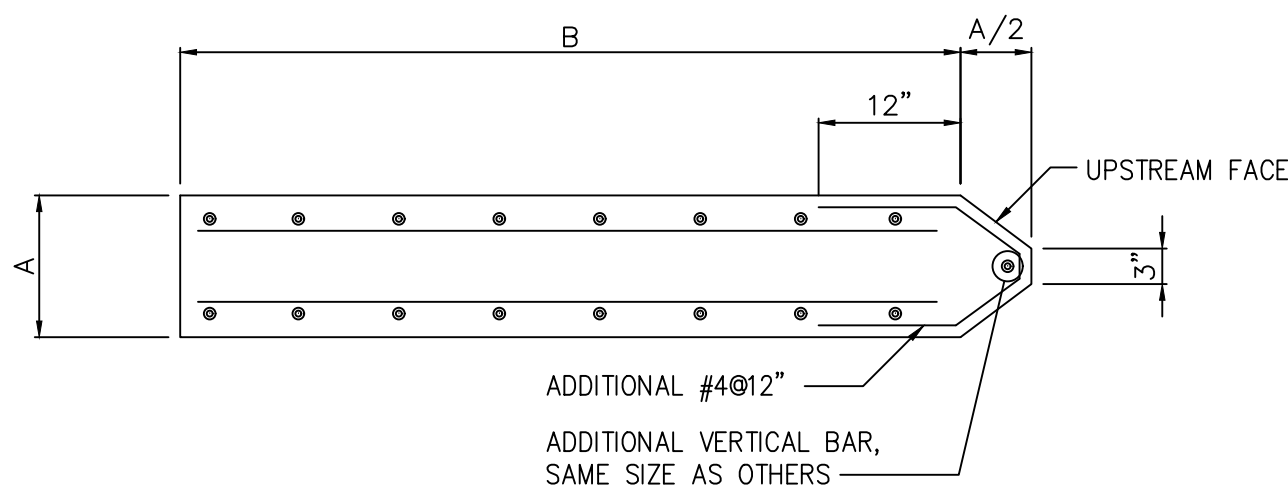
City of Raleigh
Public Utilities Department Permit # _____

City of Raleigh
Public Utilities Department Permit # _____

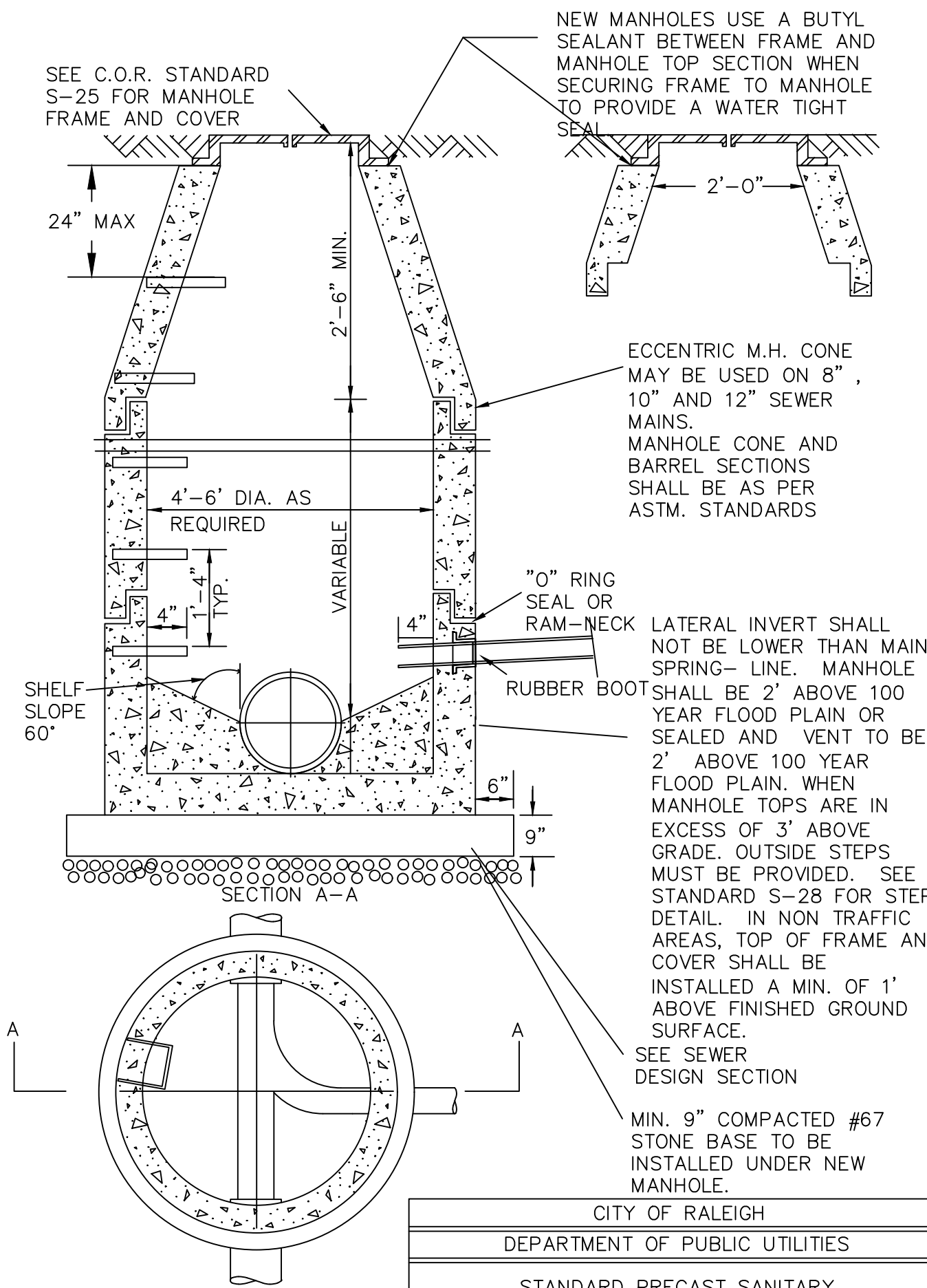
North Carolina 811
*** 3 Days Before Digging ***
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm



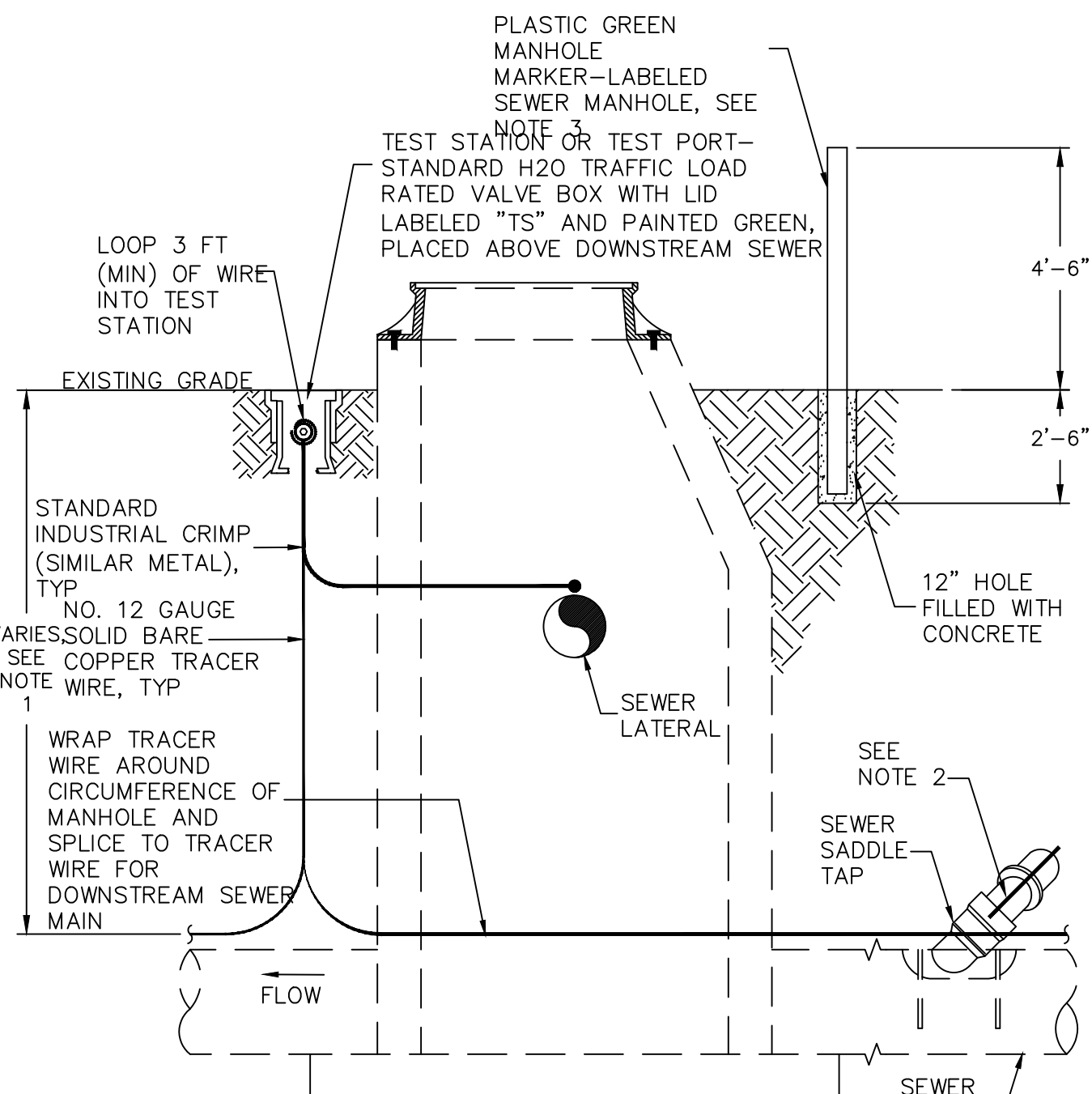
* POSITION OF COLUMN DURING WELDING
STEEL PILE SPLICE



CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
AERIAL PIPE CROSSING			
CONCRETE SUPPORT DETAILS			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-19	D.H.L.	6/16/08	

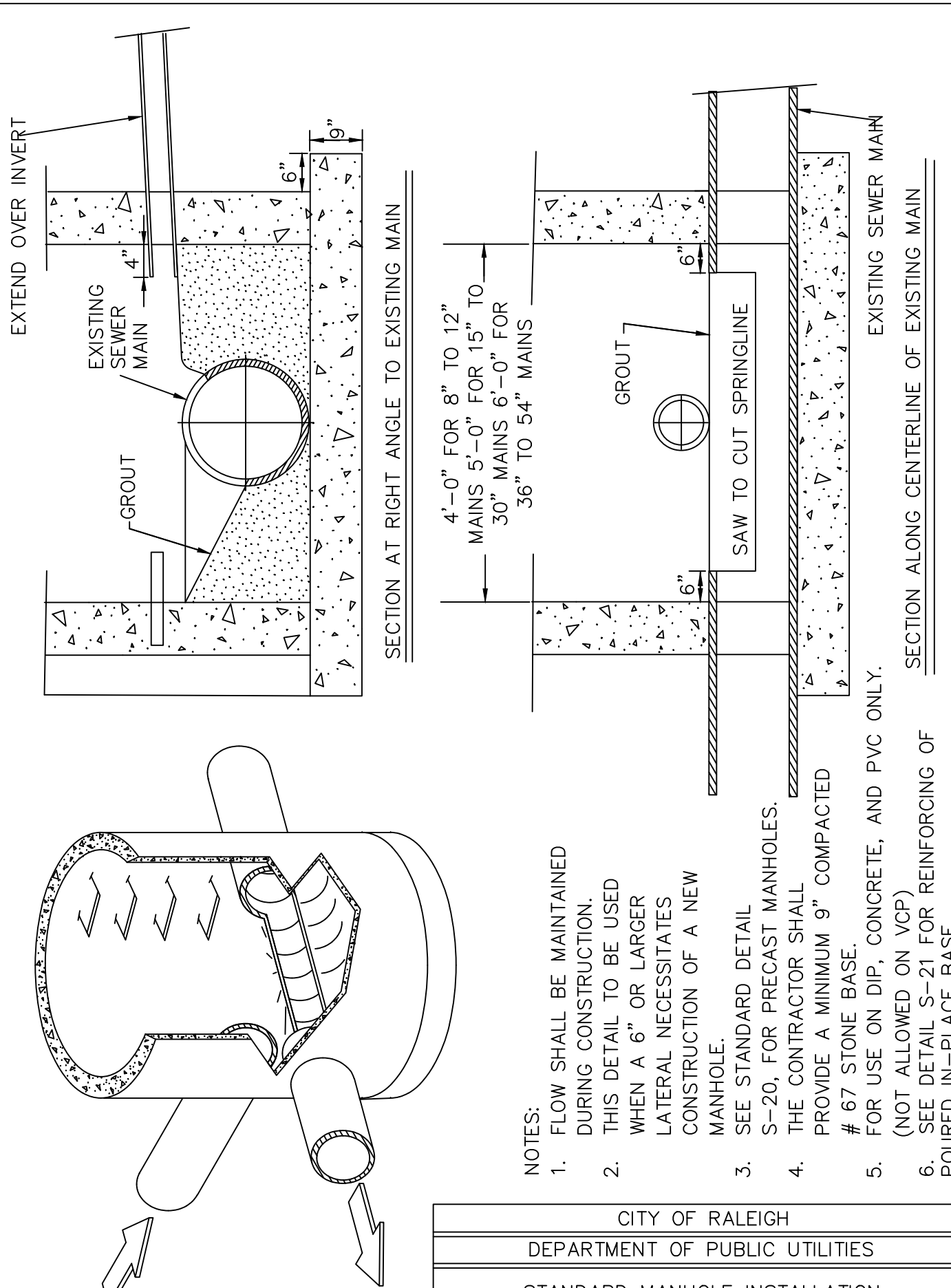


CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD PRECAST SANITARY			
SEWER MANHOLE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-20	Y.C.A.	12-31-92	ABB
	RRH	3-30-00	D.H.L.
		2-21-05	
		6-16-08	



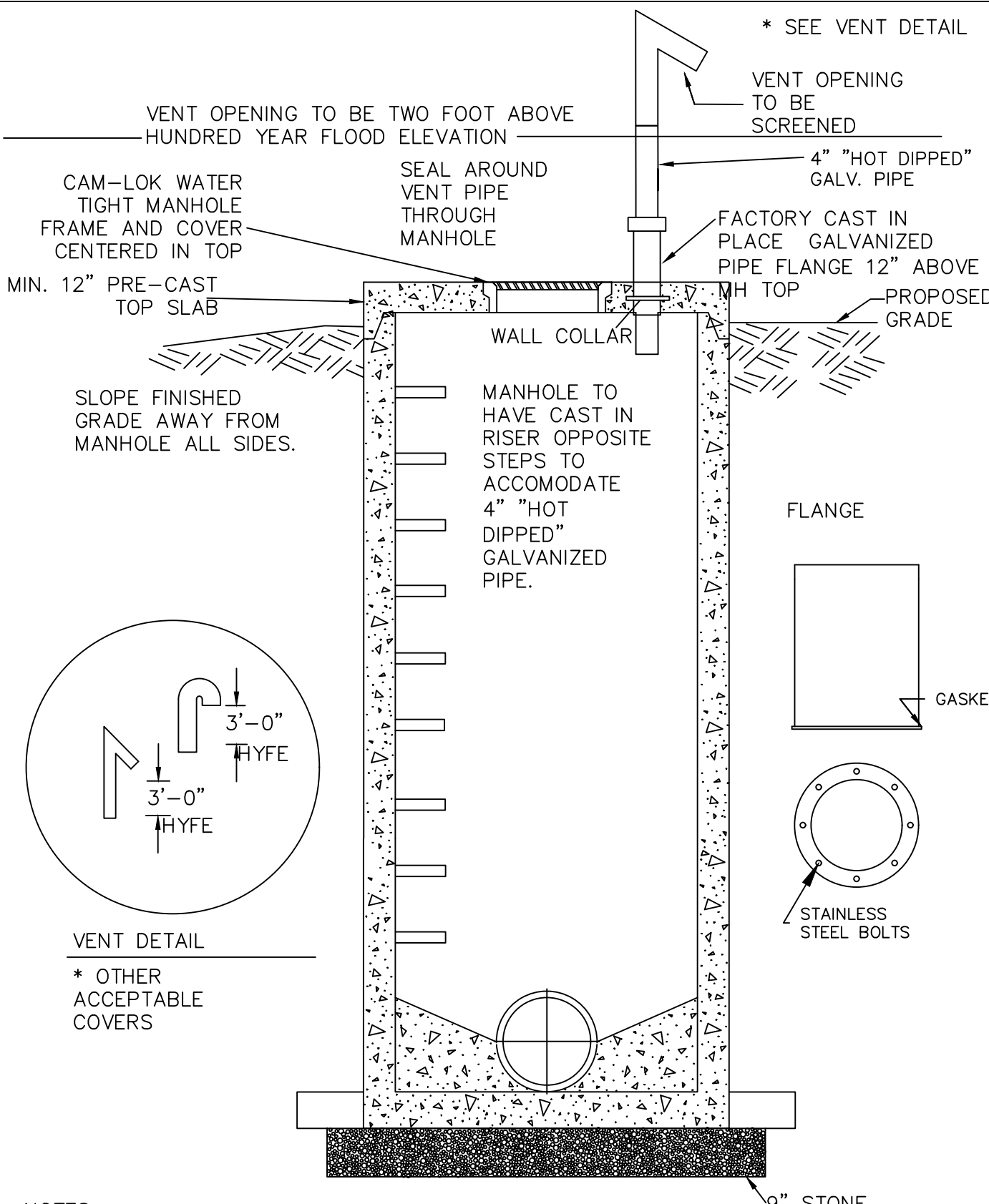
NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE, FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
GRAVITY SEWER MAIN TRACER WIRE			
AND MANHOLE MARKER			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-20A	WKD	09-14	

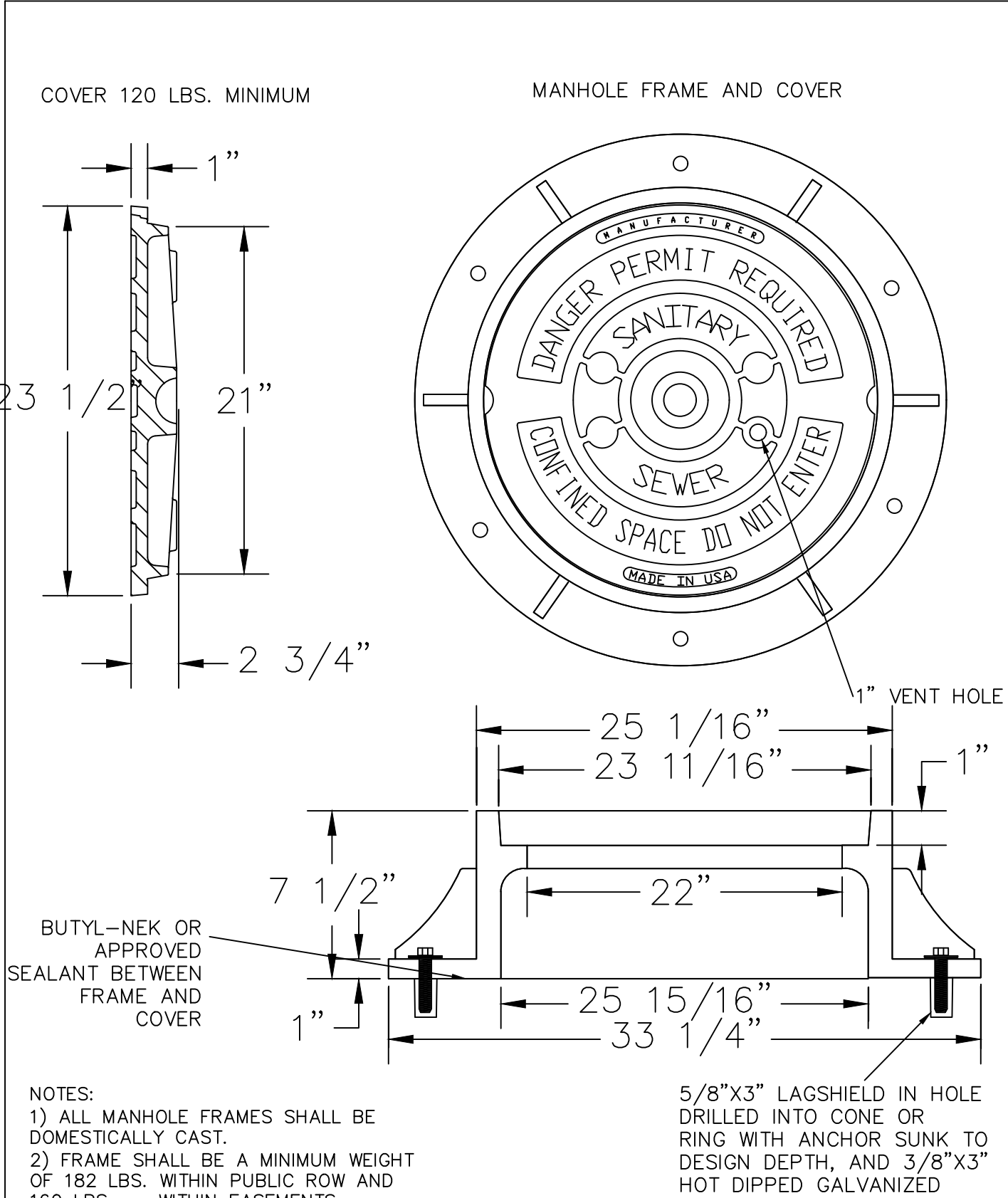


- NOTES:
1. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION.
2. THIS DETAIL TO BE USED WHEN A 6" OR LARGER LATERAL NECESSITATES CONSTRUCTION OF A NEW MANHOLE.
3. SEE STANDARD DETAIL S-20 FOR PRECAST MANHOLES.
4. THE CONTRACTOR SHALL PROVIDE A MINIMUM 9" COMPACTED # 67 STONE BASE.
5. FOR USE ON DIP, CONCRETE, AND PVC ONLY.
6. (NOT ALLOWED ON VCP) (SEE DETAIL S-21 FOR REINFORCING OF POURED IN-PLACE BASE)

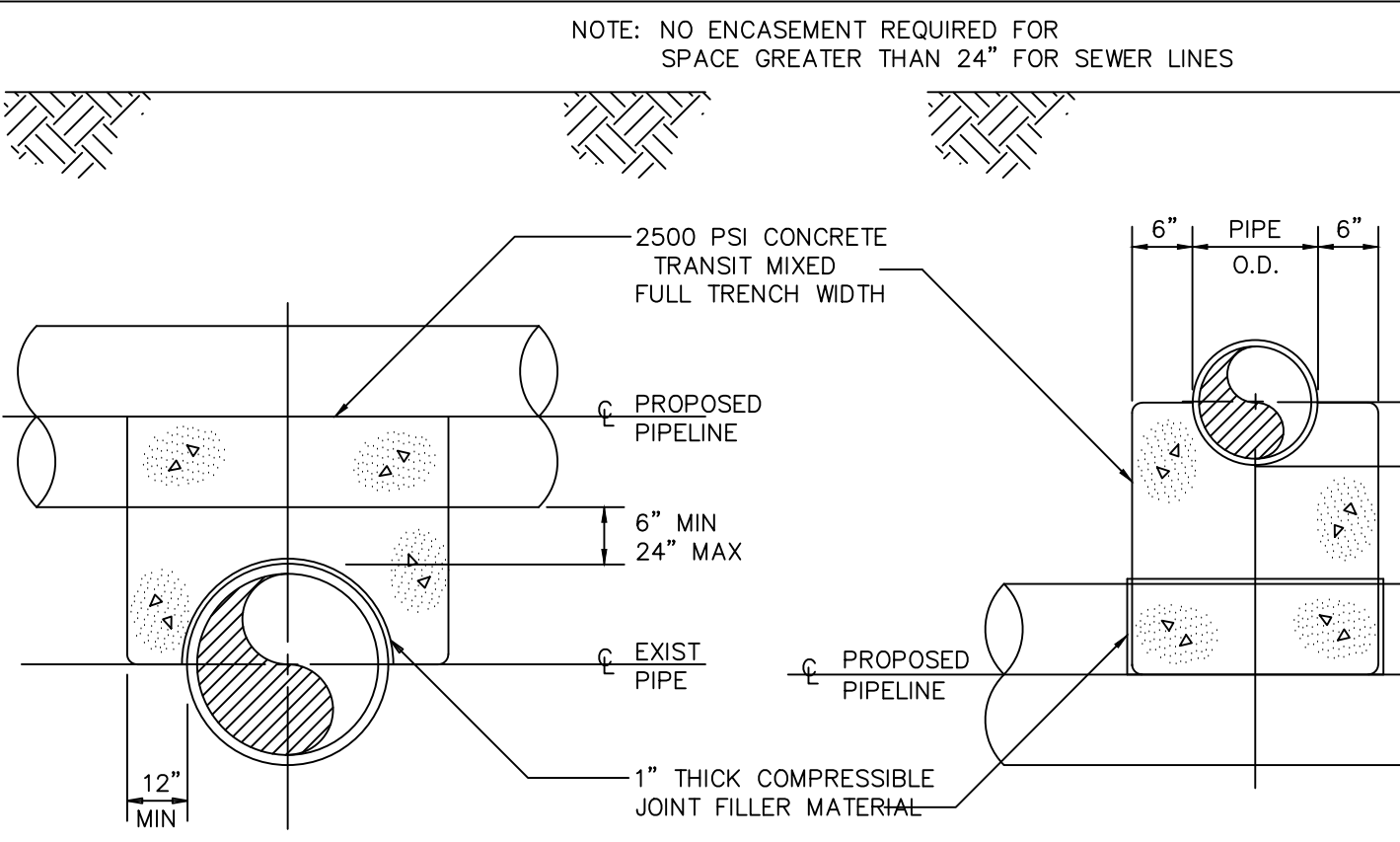
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD MANHOLE INSTALLATION			
OVER EXISTING SEWER MAIN			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-22	Y.C.A.	12-31-91	A.B.B.
	RRH	3-30-00	D.H.L.
		1-19-05	
		6/16/08	



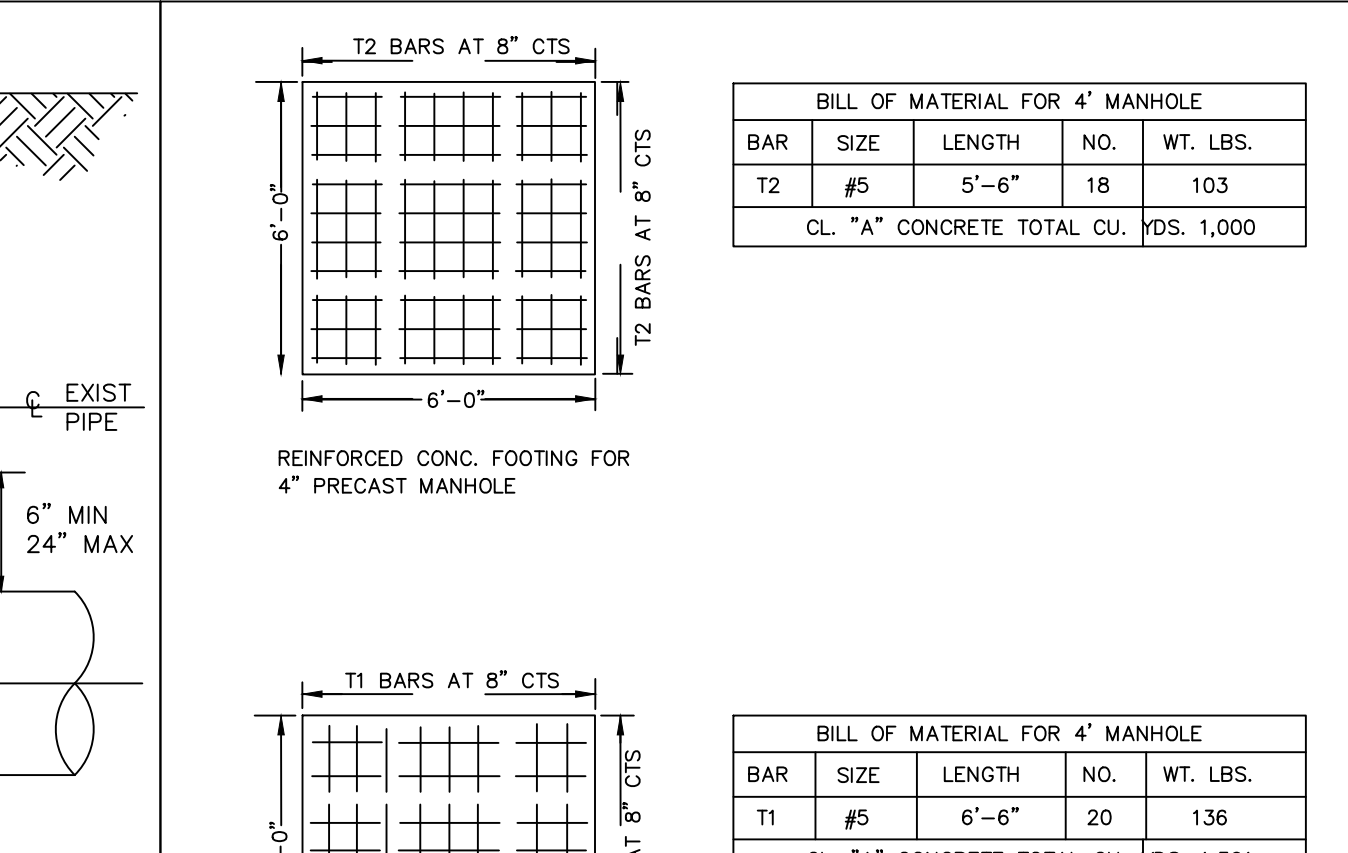
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD SEAL TIGHT			
MANHOLE WITH VENTED			
STACK			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-24	D.W.C.	6-7-99	A.B.B.
	RRH	3-30-00	D.H.L.
		4-15-04	
		6/16/08	



CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD MANHOLE COVER			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-25	3-1-87	3-1-87	A.B.B.
	RRH	3-30-00	D.H.L.
		2-9-05	
		6-18-08	



CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
CONCRETE CRADLE PROTECTION FOR			
SEWER LINE CROSSINGS			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-49	DHL	2-20-08	

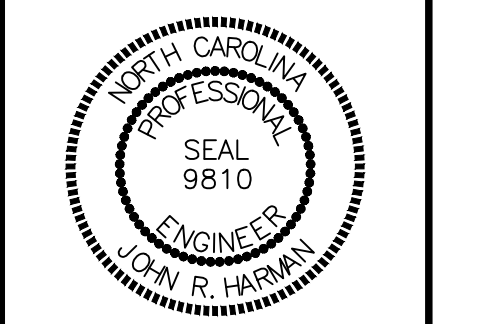
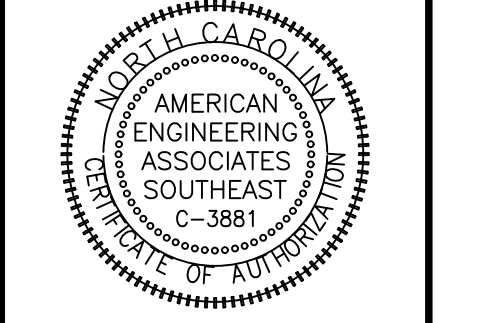


BILL OF MATERIAL FOR 4" MANHOLE				
BAR	SIZE	LENGTH	NO.	WT. LBS.
T2	#5	5'-6"	18	103
CL. "A" CONCRETE TOTAL CU. YDS. 1,000				

BILL OF MATERIAL FOR 4" MANHOLE				
BAR	SIZE	LENGTH	NO.	WT. LBS.
T1	#5	6'-6"	20	136
CL. "A" CONCRETE TOTAL CU. YDS. 1,361				

BILL OF MATERIAL FOR 4" MANHOLE				
BAR	SIZE	LENGTH	NO.	WT. LBS.
T2	#5	7'-6"	24	165
CL. "A" CONCRETE TOTAL CU. YDS. 1,778				

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
EXTENDED BASE OR CAST-IN-PLACE			
REINFORCED CONCRETE BASE			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-21	RRH	3-1-87	ABB
		3-30-00	
		2-9-05	



DETAIL SELECTION ONLY

NO.	DATE	REVISION	DESCRIPTION
1	7/21/08	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.	
2	9/4/2004	WAKE COUNTY AND CITY OF RALEIGH	
3	11/07/2004	TOWN OF ROLESVILLE CONSULTANT COMMENTS	
		EDUCATION DRAWING COMMENT RESPONSES	

STIPULATION FOR REUSE
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER:	9900
CHECKED BY:	BH/JH
DRAWN BY:	SMM/LL/ES/AH/DH
DATE:	NOV 1, 2024
SHEET TITLE:	

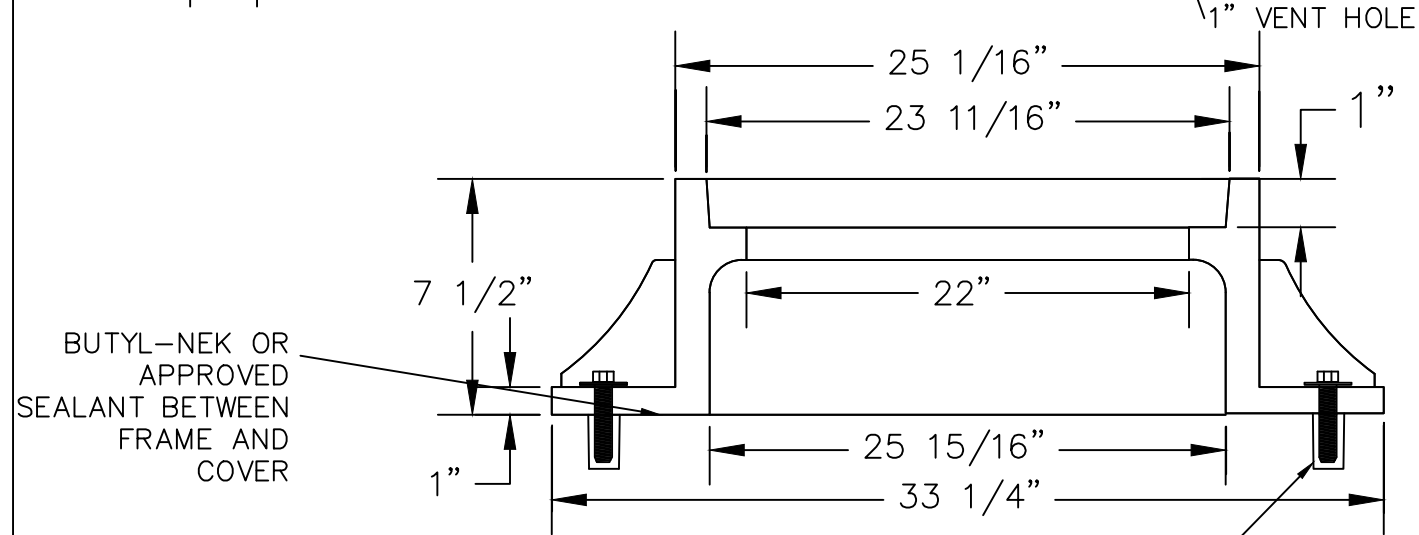
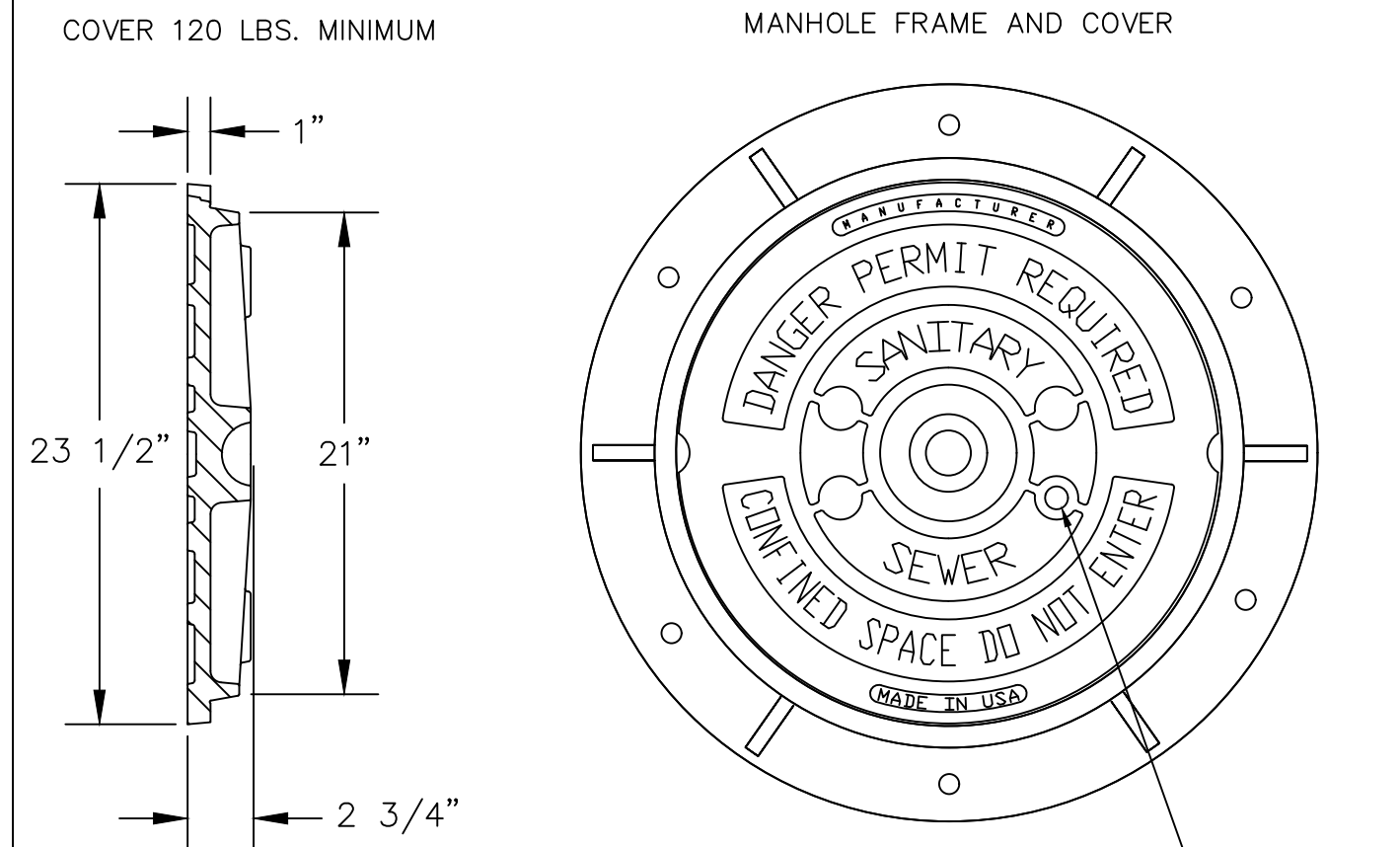
KALAS FALLS
CIVIL DETAILS

SHEET NO.:
CD10

Public Sewer Collection / Extension System
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North Carolina 811
3 Days Before Digging
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm



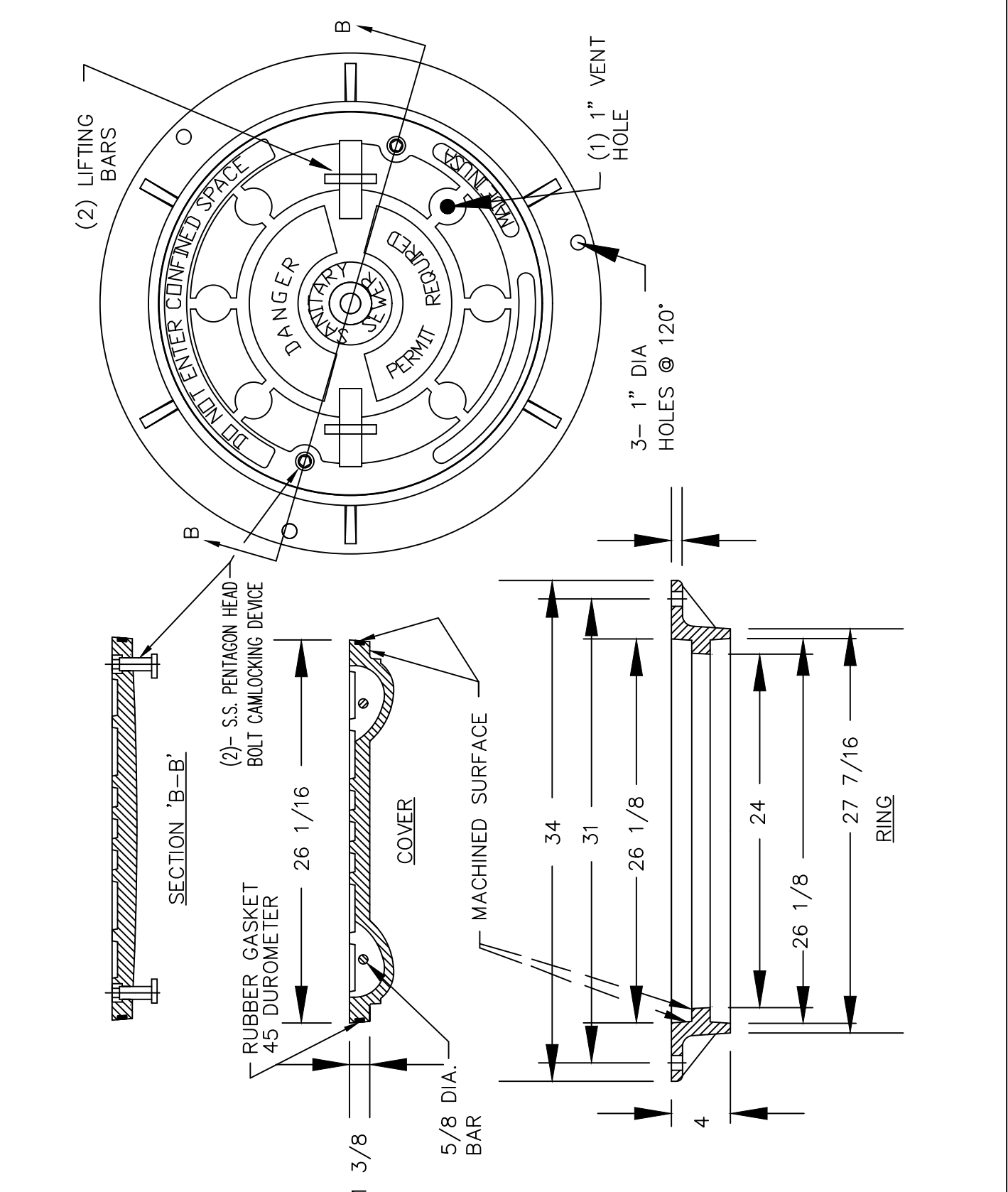
COVER 120 LBS. MINIMUM

MANHOLE FRAME AND COVER

NOTES:
 1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
 2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
 3) COVER SHALL WEIGH A MIN. OF 120 LBS.
 4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

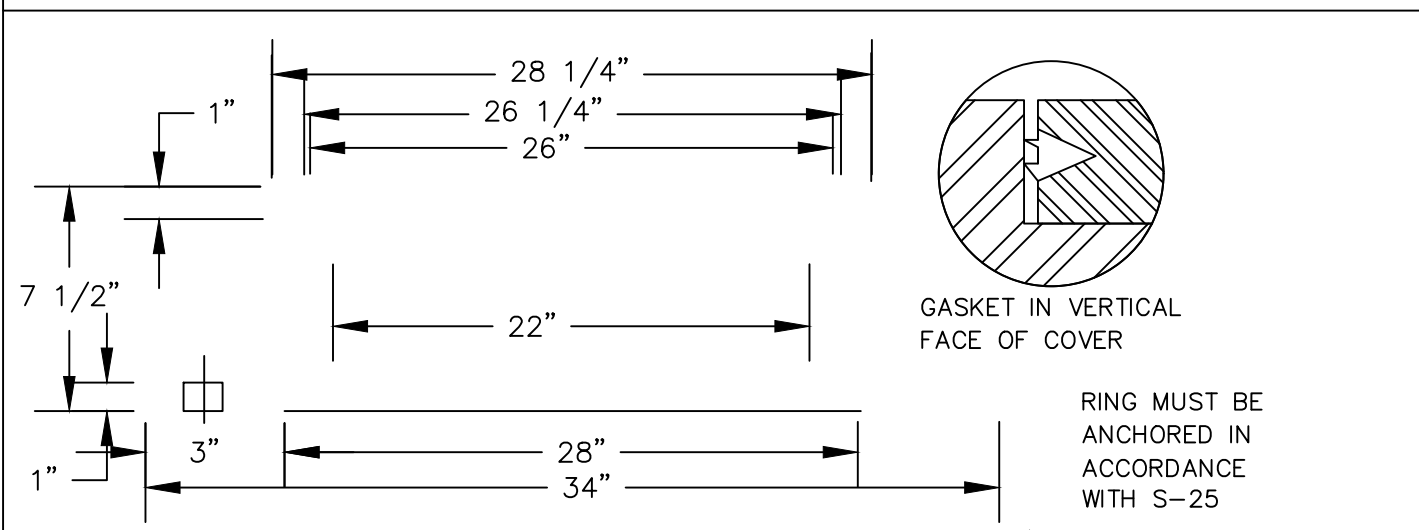
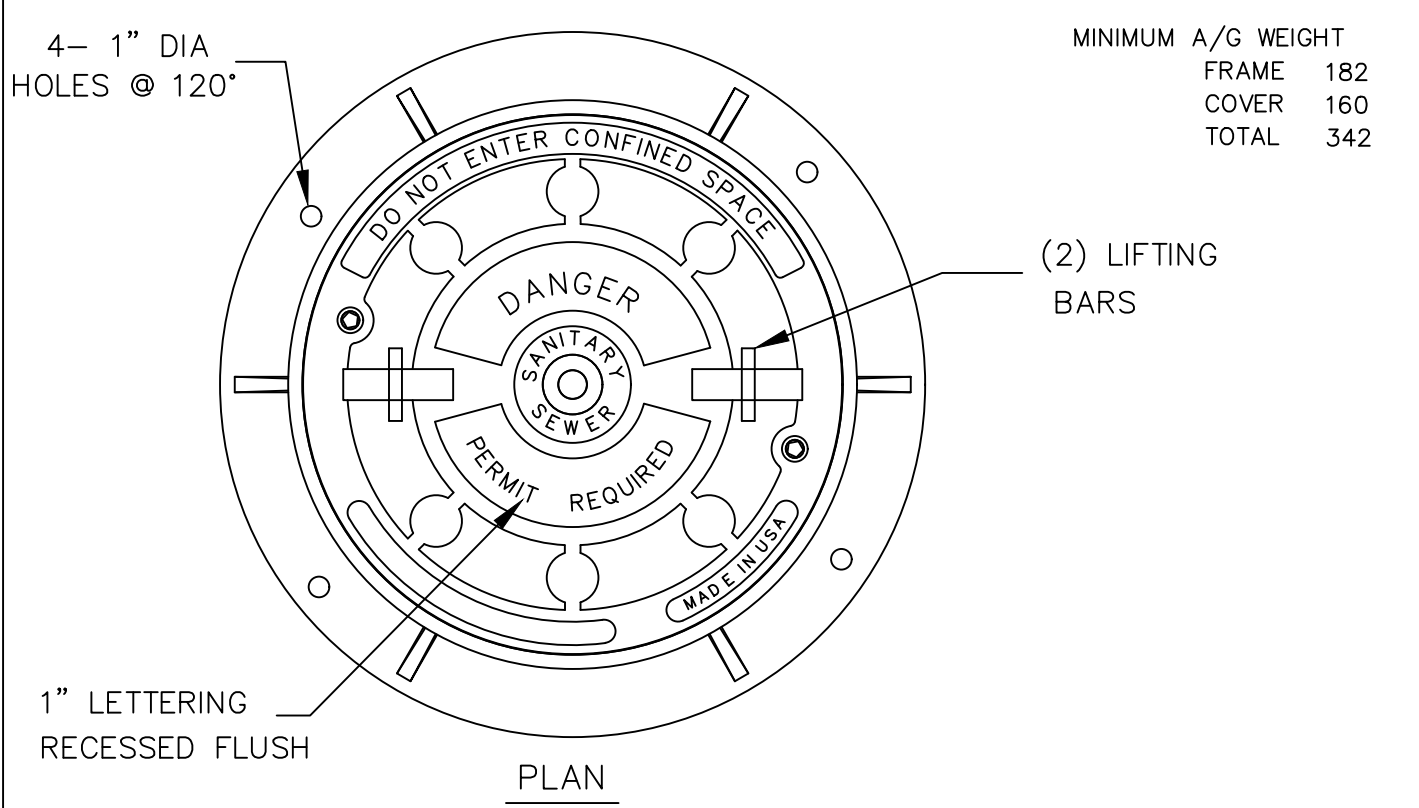
5/8"x3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 3/8"x3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25		3-1-87		2-9-05
		3-1-87 A.B.B.		6-18-08
		3-30-00 D.H.L.		

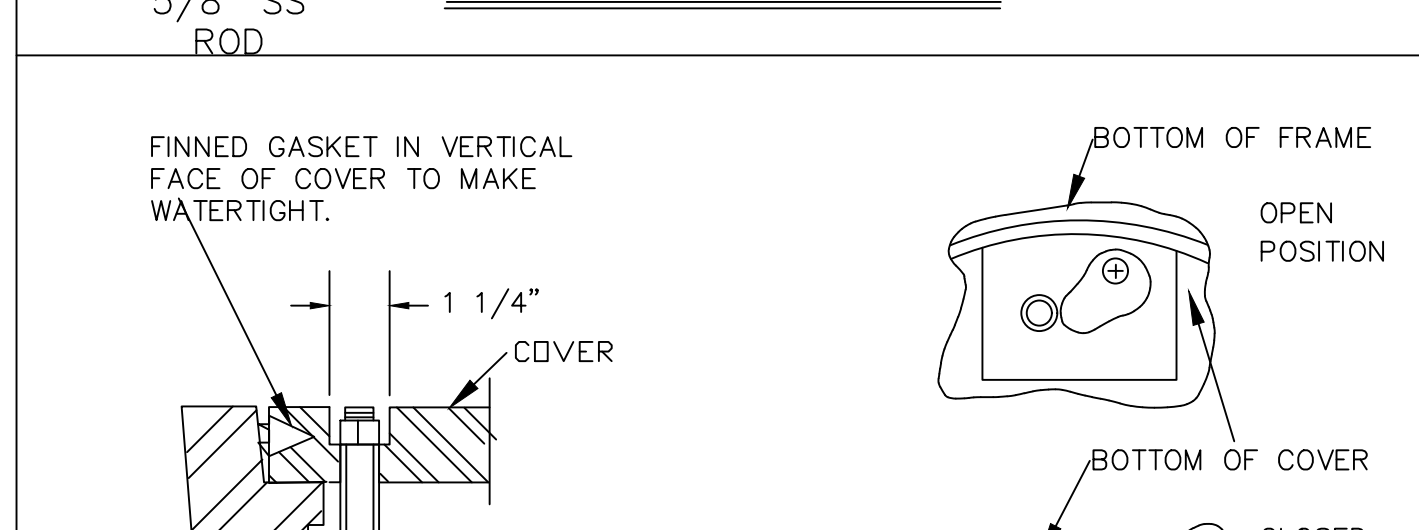
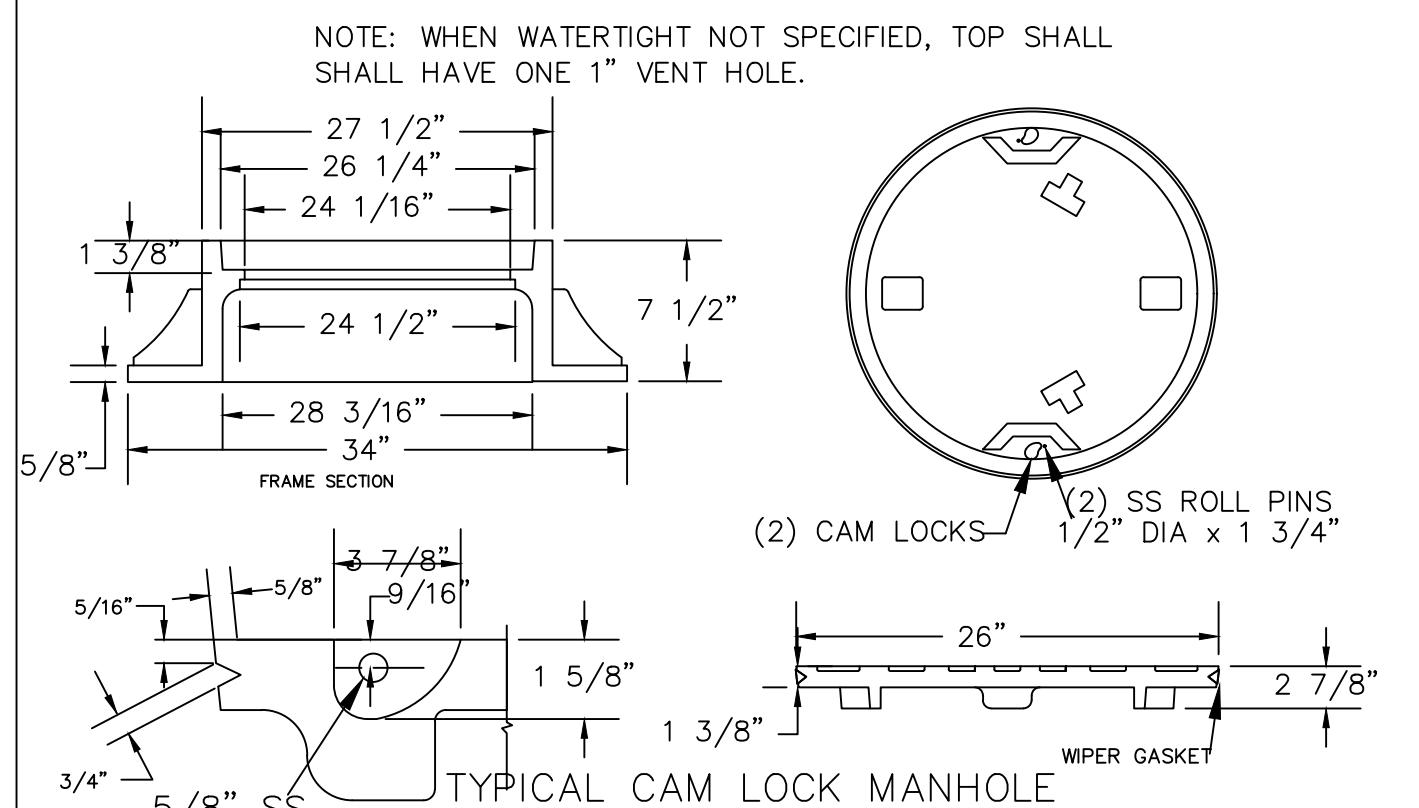


Note: solid cover required when water tight manhole specified.

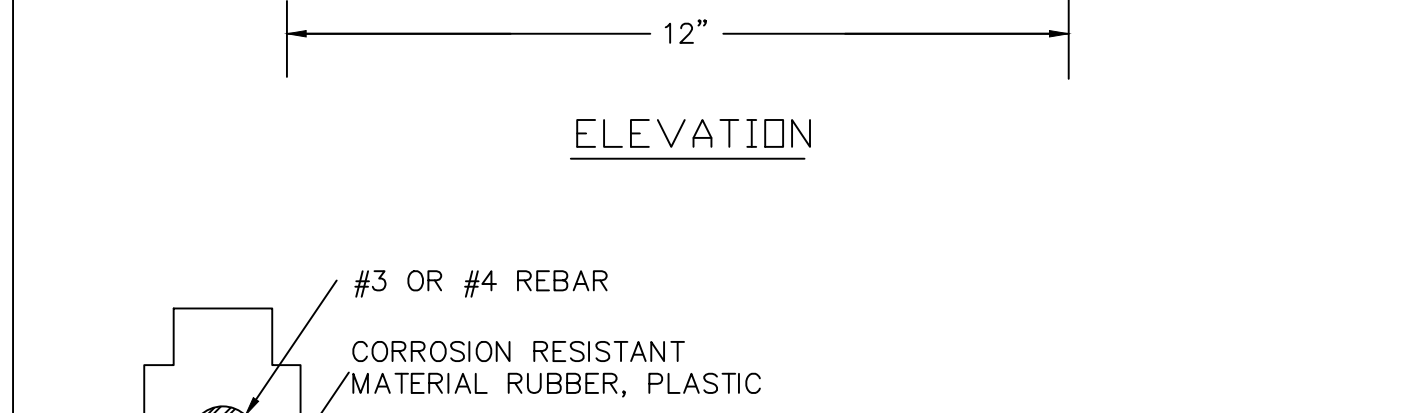
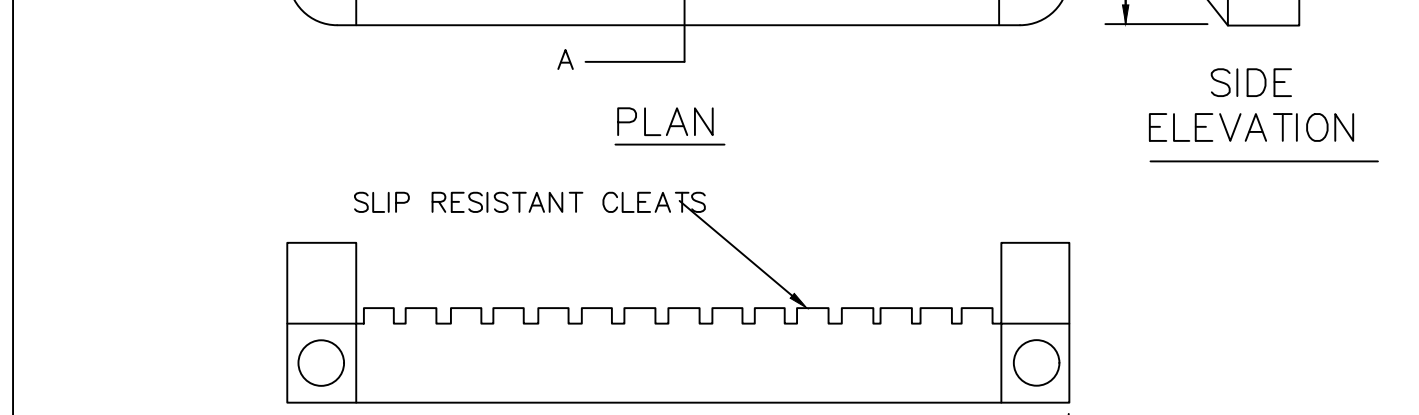
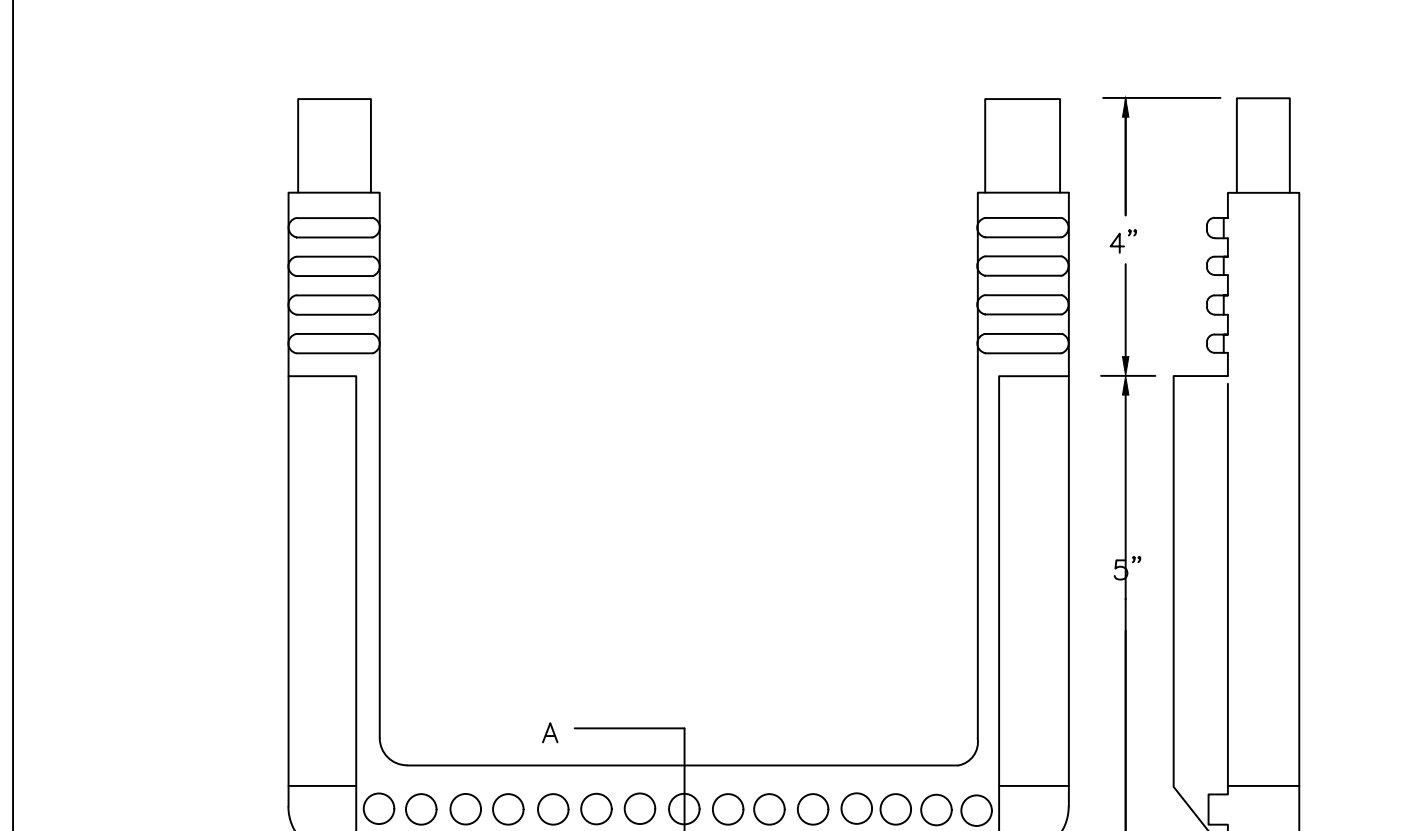
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES FLAT TOP MANHOLE COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25a		3-1-87		2-9-05
		3-1-87 A.B.B.		6-18-08
		3-30-00 D.H.L.		



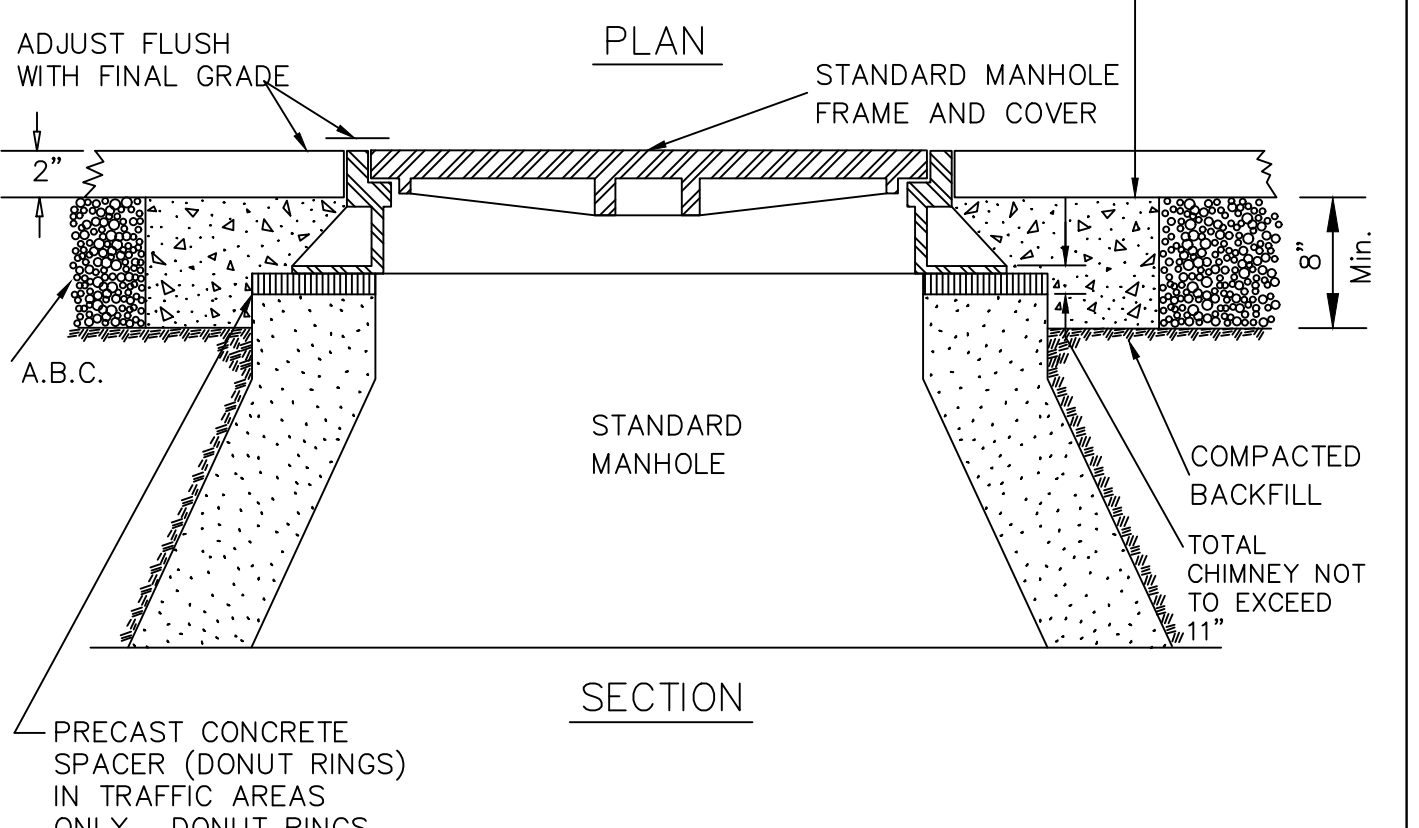
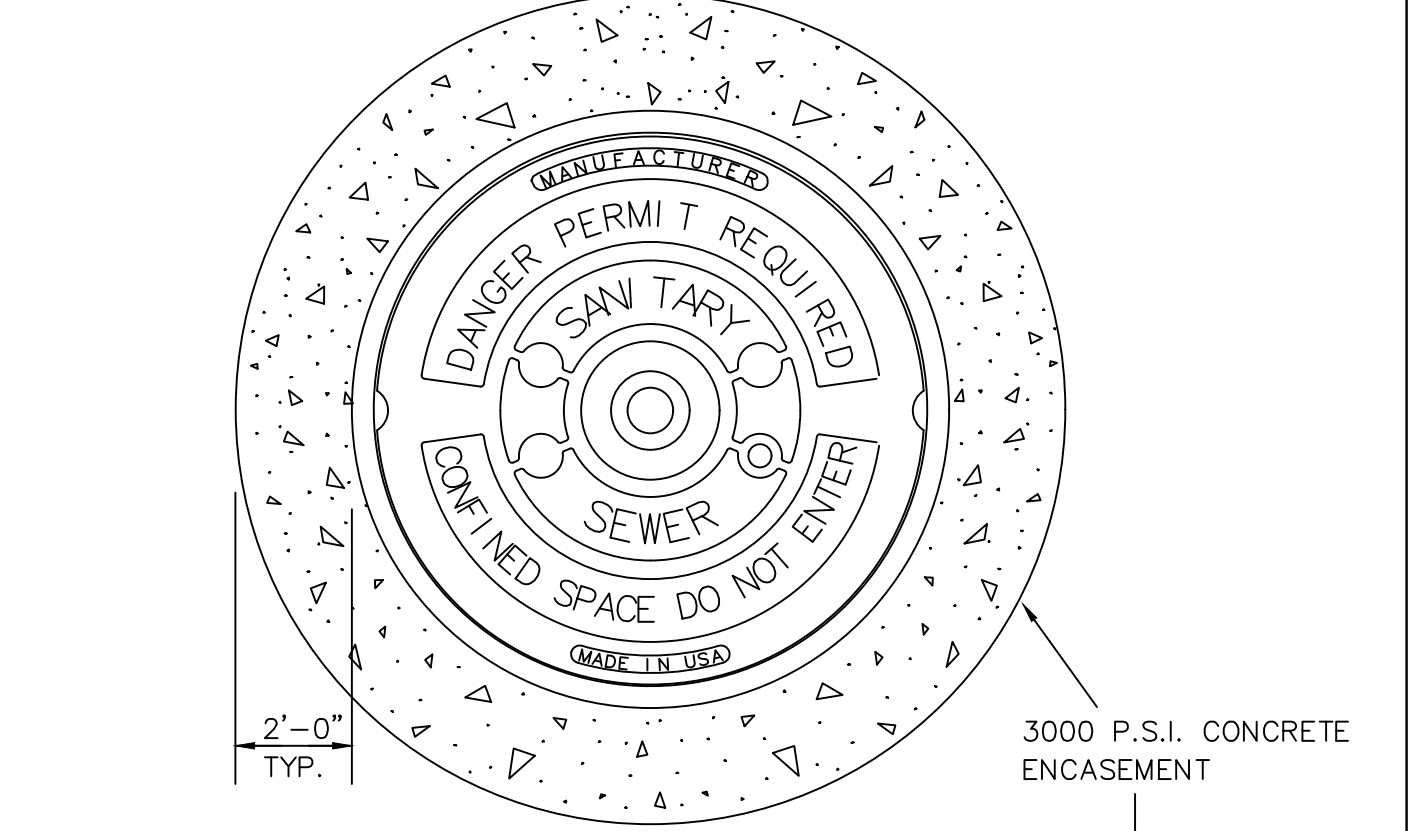
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES MANHOLE FRAME AND WATERTIGHT COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-26		3-1-87		8-29-05
		RRH		6-18-08
		3-30-00 D.H.L.		



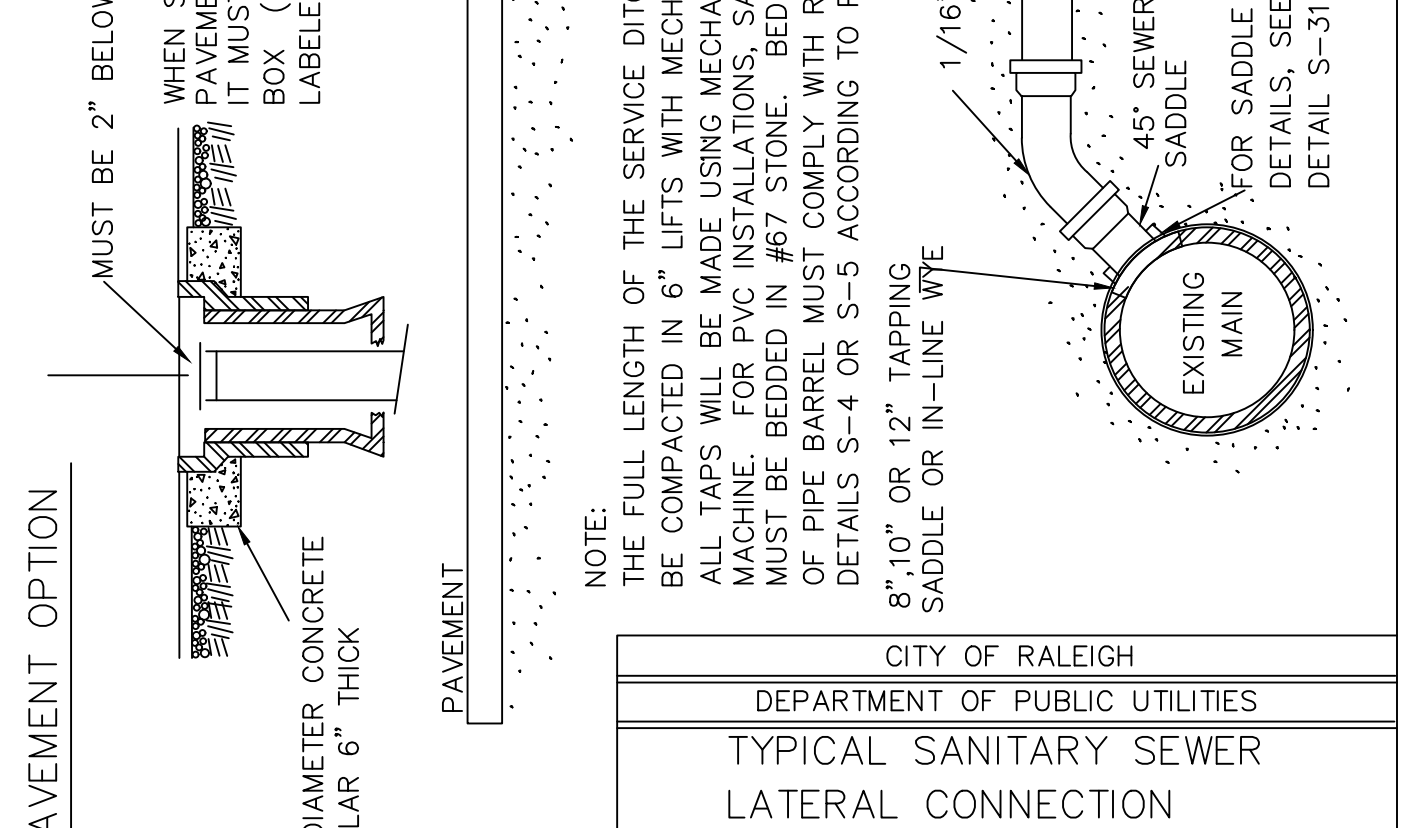
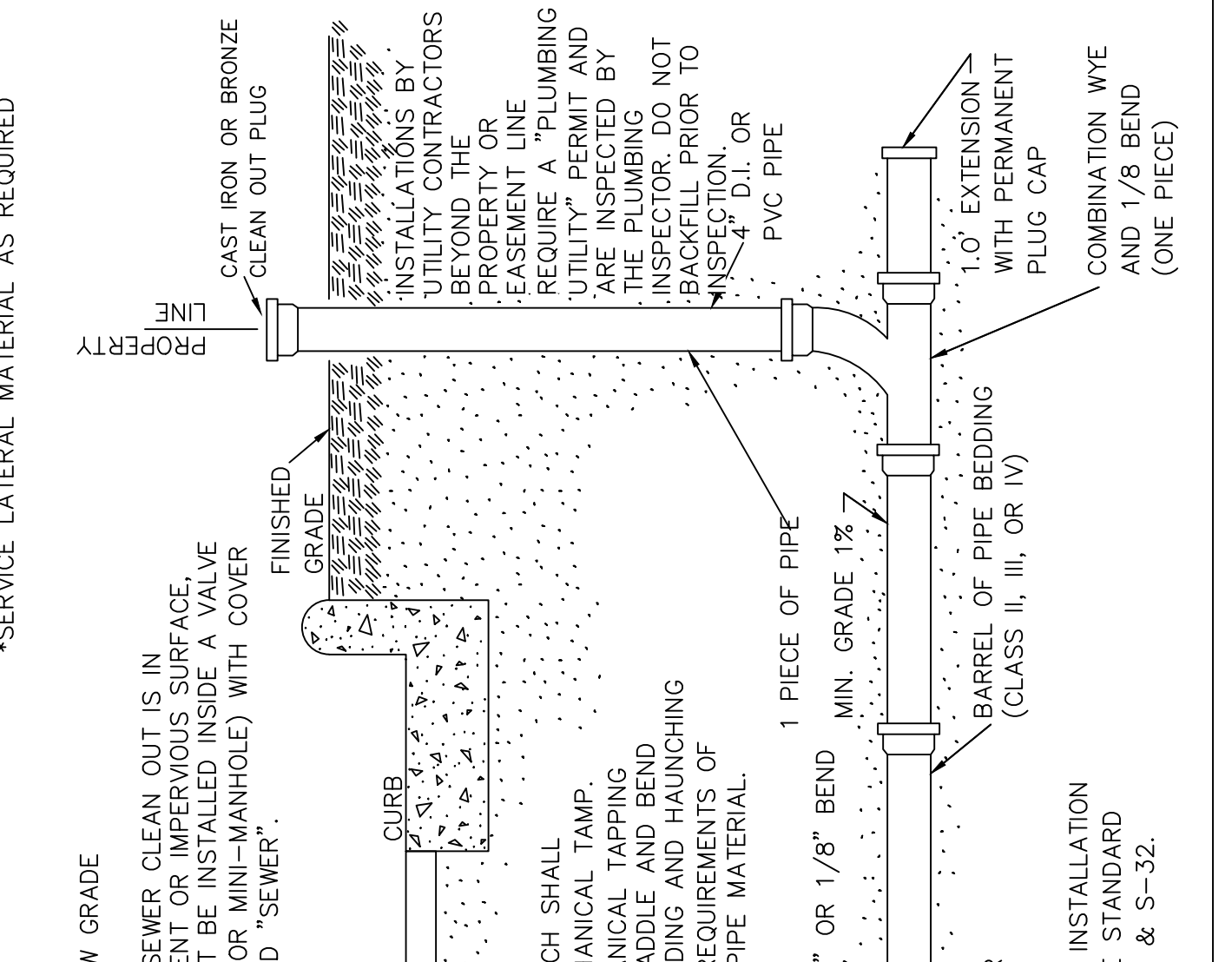
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES WATER-TIGHT MANHOLE FRAME WITH CAM LOCK COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-27		3-30-00		6-18-08
		RRH		
		DHL		



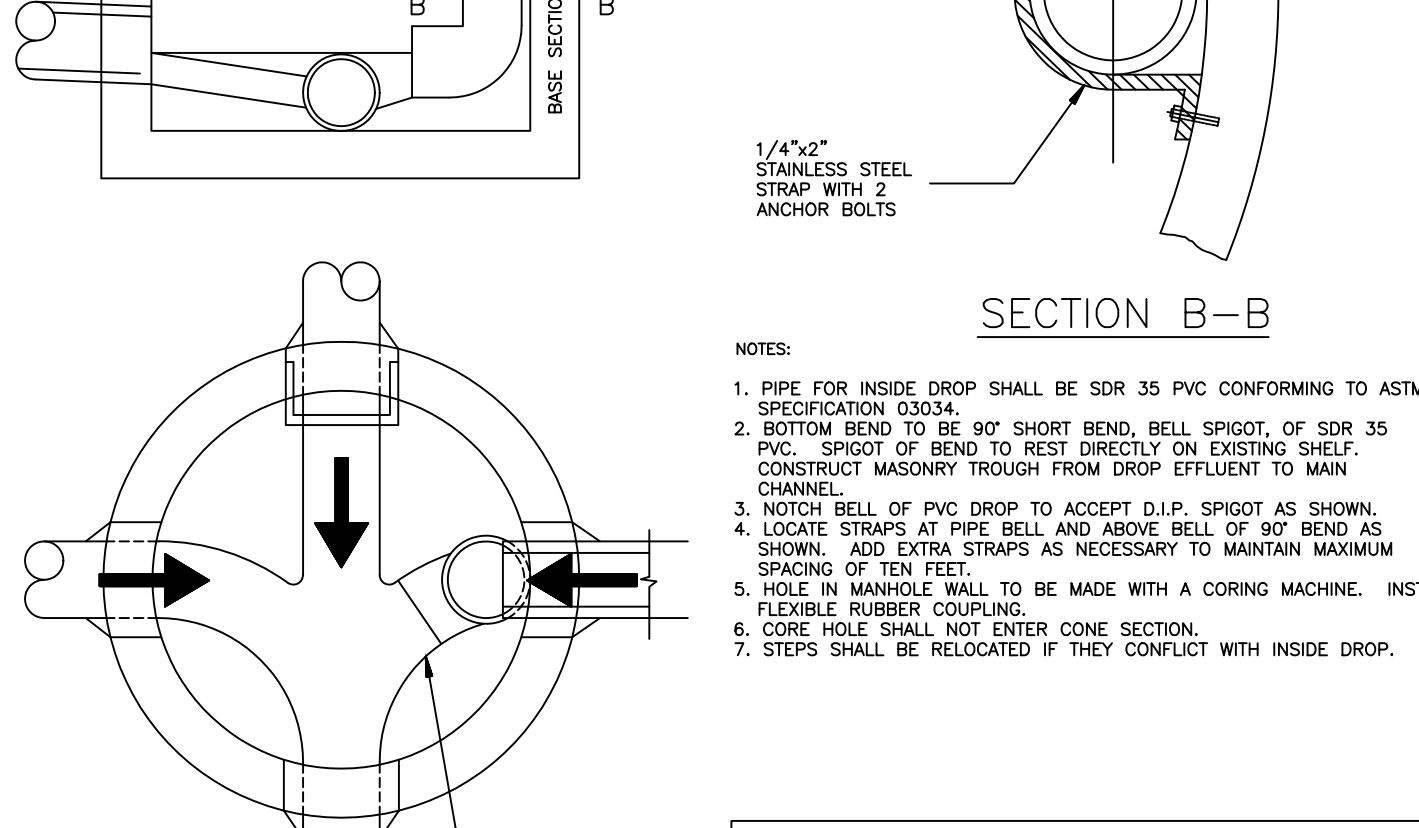
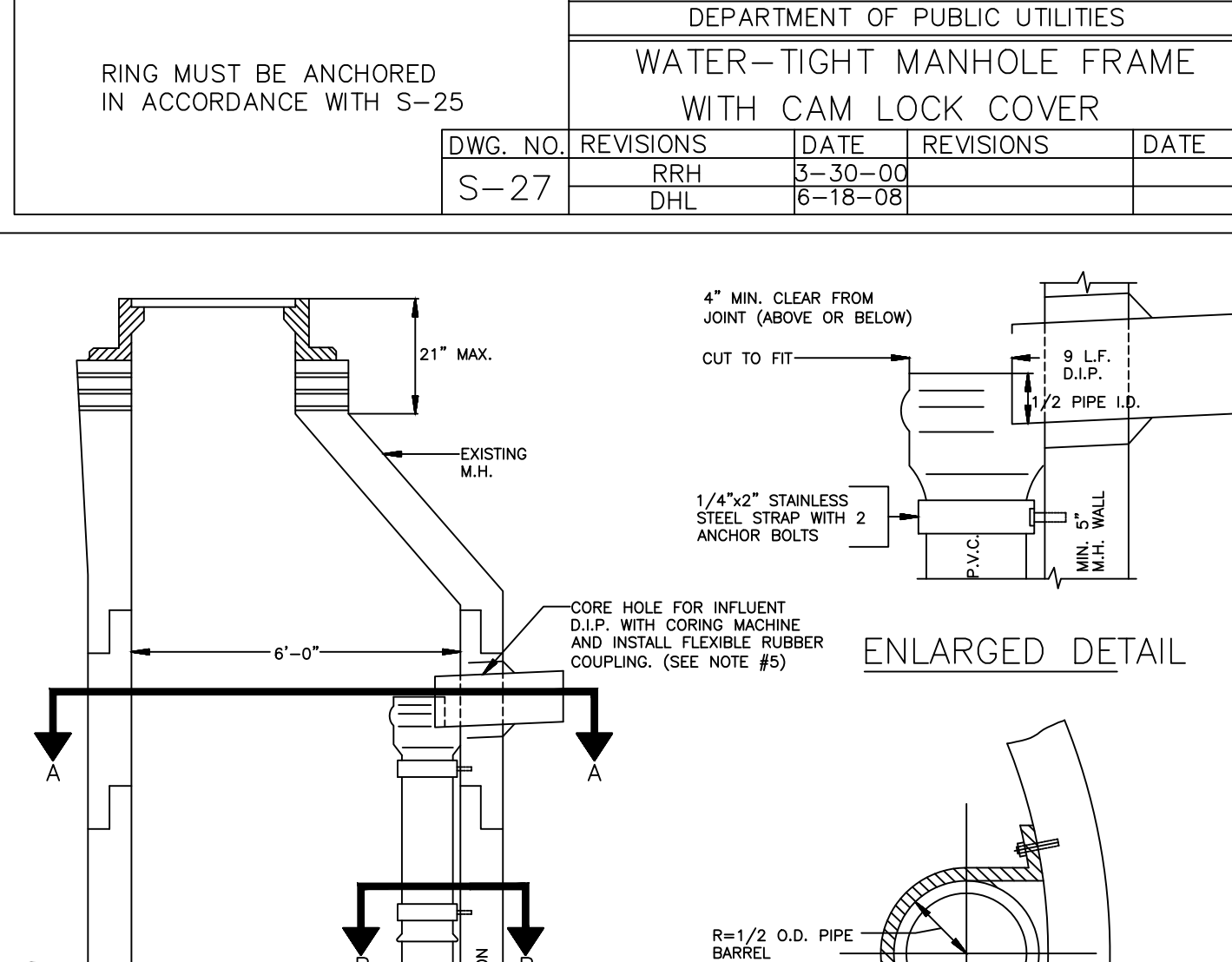
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD SLIP RESISTANT MANHOLE STEP DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28		3-30-00		
		RRH		



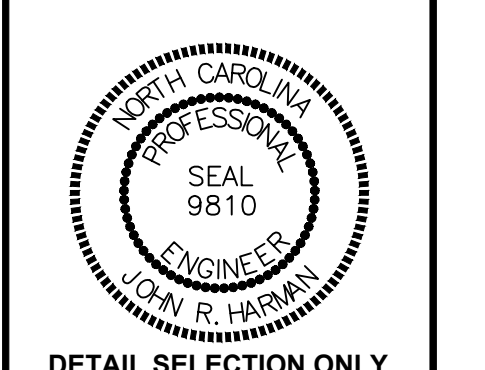
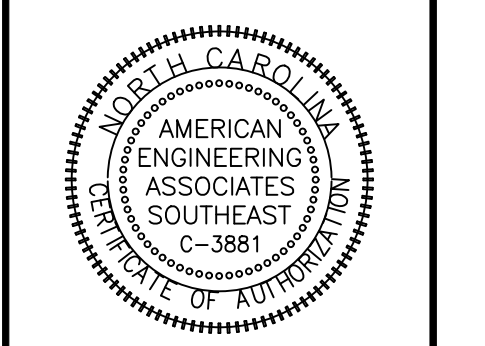
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29		12-31-91		9-20-04
		RRH		11-29-07
		3-30-00 DHL		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES TYPICAL SANITARY SEWER LATERAL CONNECTION				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-30		6-92		4-8-04
		Y.C.A.		6-18-08
		RRH		
		3-30-00 D.H.L.		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES INSIDE DROP MANHOLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-53		11-6-13		
		MAD		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES STIPULATION FOR REUSE				
NO.	DATE	REVISION	DESCRIPTION	BY
1	7/27/2021	RRH	REVIEW FROM TOWN OF ROLESVILLE CONSULTANT.	
2	9/4/2024	RRH	WAKE COUNTY AND CITY OF RALEIGH REVIEW AND CITY OF RALEIGH MAKE COUNTY AND CITY OF RALEIGH CONSULTANT COMMENTS.	
3	11/01/2024	DHL	TOWN OF ROLESVILLE CONSULTANT COMMENTS. DRAWING COMMENT RESPONSES.	

STIPULATION FOR REUSE

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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SM/MALL/ES/AH/DH
 DATE: NOV 1, 2024
 SHEET TITLE:

KALAS FALLS
CIVIL DETAILS

SHEET NO.: CD11

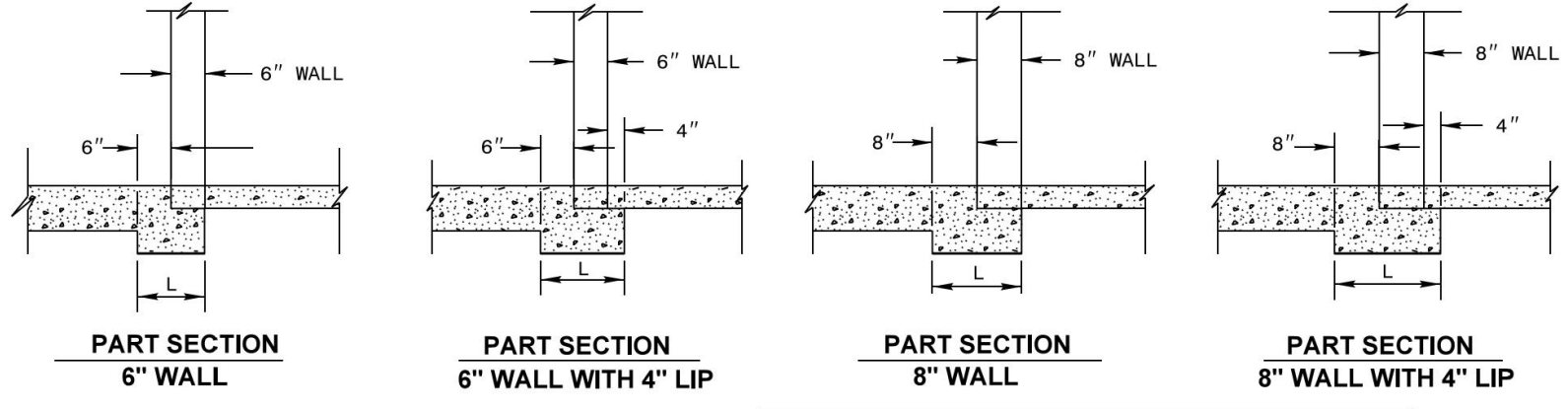
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City of Raleigh
 Public Utilities Department Permit # _____

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 Remote Ticket Entry
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TABLES OF QUANTITIES FOR PIPE SET IN PAD

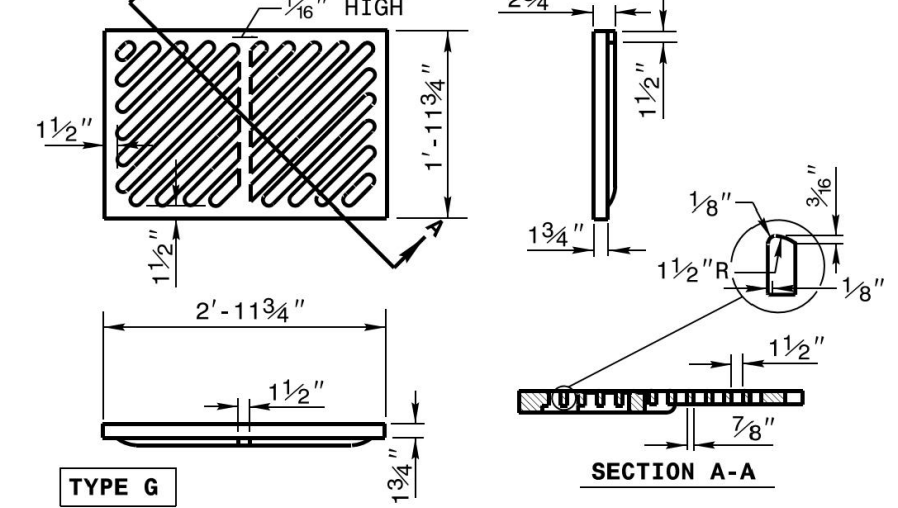
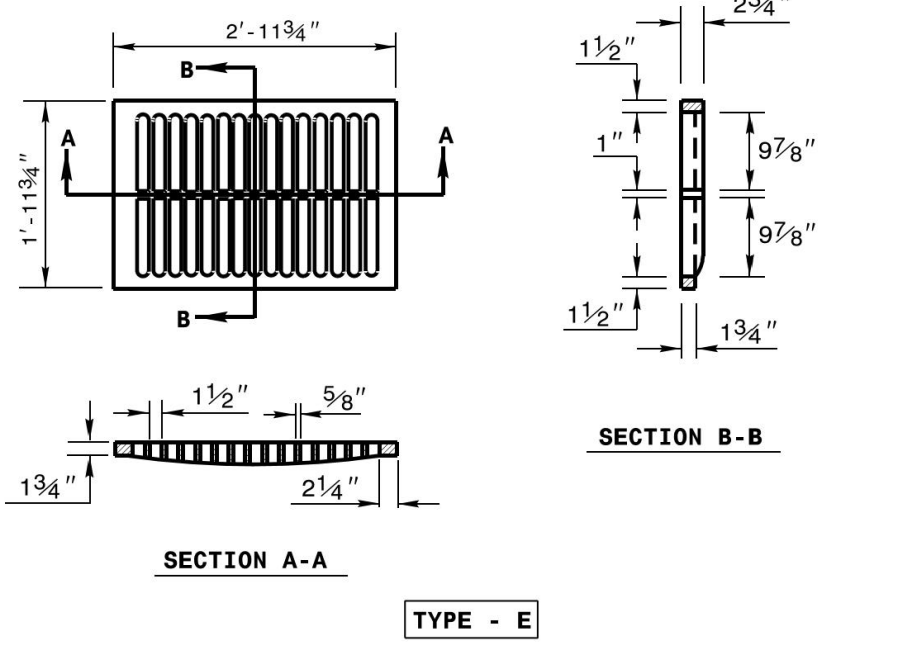
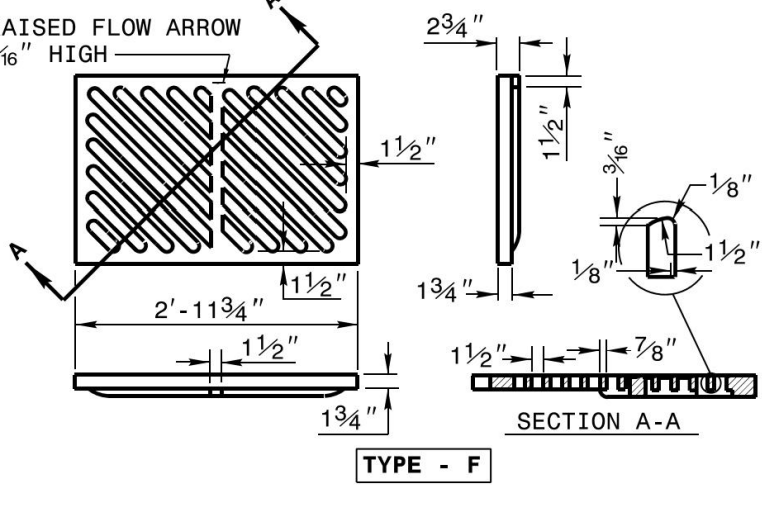
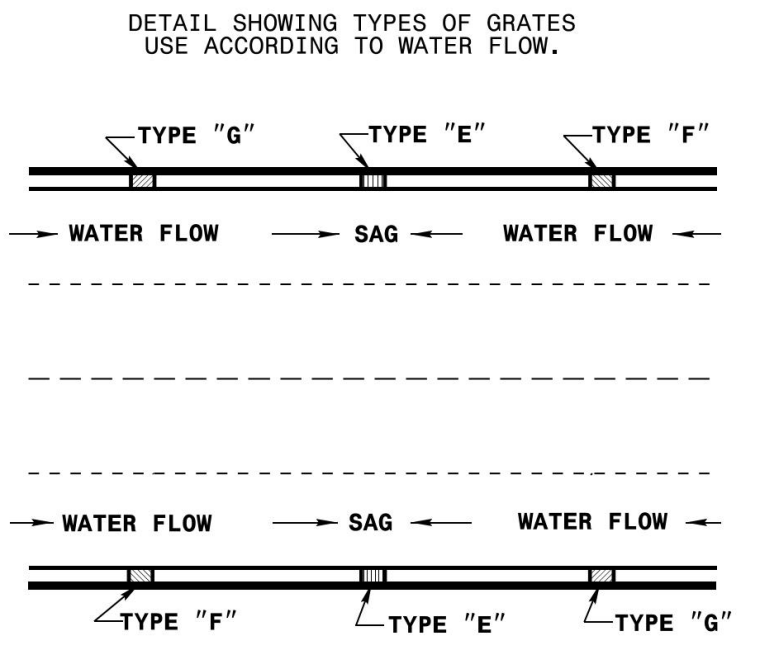
PIPE D	CY QUANTITIES PIEZES & IS					
	12"	16"	20"			
12"	1'-1 7/8"	0'-7 7/8"	0'-2"	0.005	0.007	0.008
15"	1'-3 5/8"	0'-9 1/2"	0'-2"	0.006	0.008	0.010
18"	1'-5 1/4"	0'-10 3/8"	0'-2"	0.007	0.010	0.012
24"	1'-8 3/4"	1'-0 1/4"	0'-3"	0.011	0.014	0.018
30"	2'-0 1/4"	1'-2 3/4"	0'-3 1/2"	0.014	0.018	0.023
36"	2'-3 3/4"	1'-5 3/8"	0'-4"	0.017	0.023	0.025
42"	2'-7 1/8"	1'-7"	0'-5 1/4"	0.025	0.030	0.038
48"	2'-10 5/8"	1'-8 3/4"	0'-5 3/4"	0.028	0.038	0.047
54"	3'-2 1/8"	1'-10 1/2"	0'-6 1/4"	0.035	0.047	0.058
60"	3'-5 5/8"	2'-0 1/4"	0'-6 3/4"	0.042	0.056	0.071
66"	3'-9"	2'-2 1/4"	0'-7 1/4"	0.050	0.067	0.084
72"	4'-0 1/2"	2'-3 3/4"	0'-7 3/4"	0.059	0.078	0.098

GENERAL NOTES:
USE THIS STANDARD WITH ALL DRAINAGE STRUCTURES USING REINFORCED CONCRETE PIPE SET IN BASE SLAB.

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

ROADWAY STANDARD DRAWING FOR
CONCRETE BASE PAD FOR DRAINAGE STRUCTURES

SHEET 1 OF 1
840.00

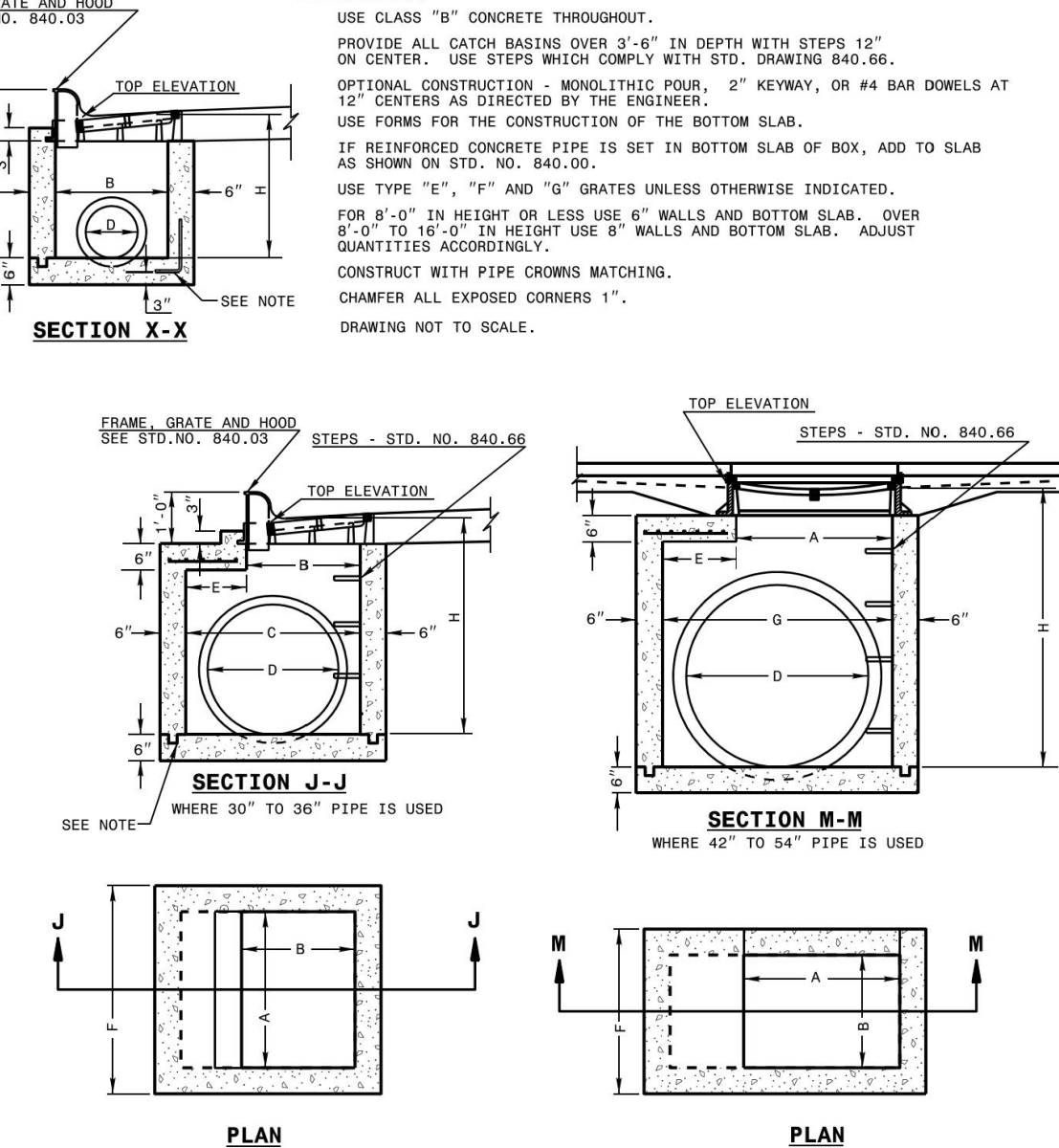
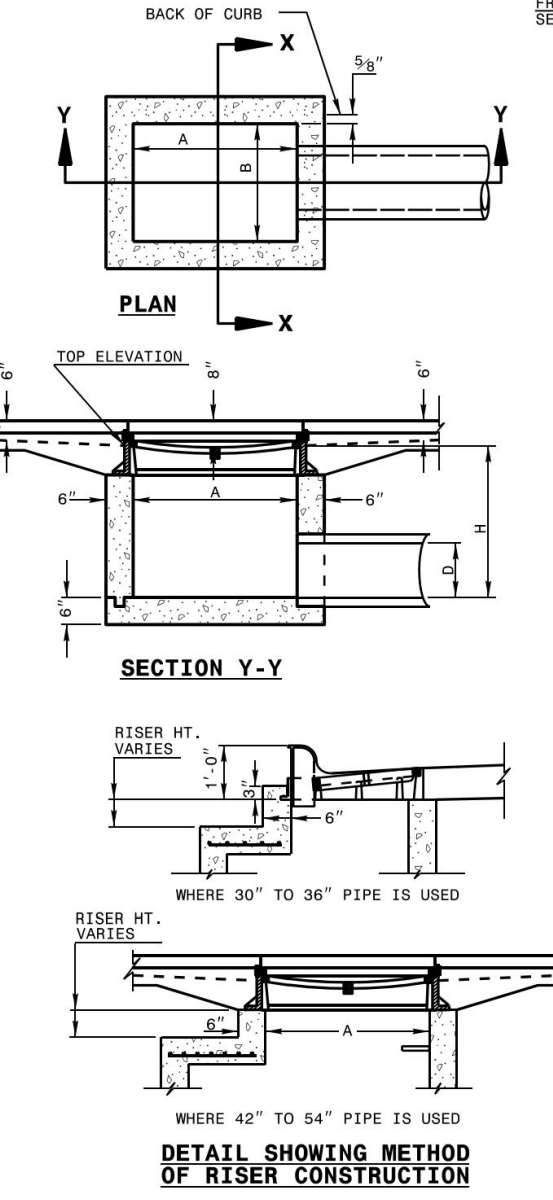


GENERAL NOTES:
CHAMFER ALL EXPOSED CORNERS 1".
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTER AROUND OPENING IN TOP SLAB, ADDITIONAL VERTICAL HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

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

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

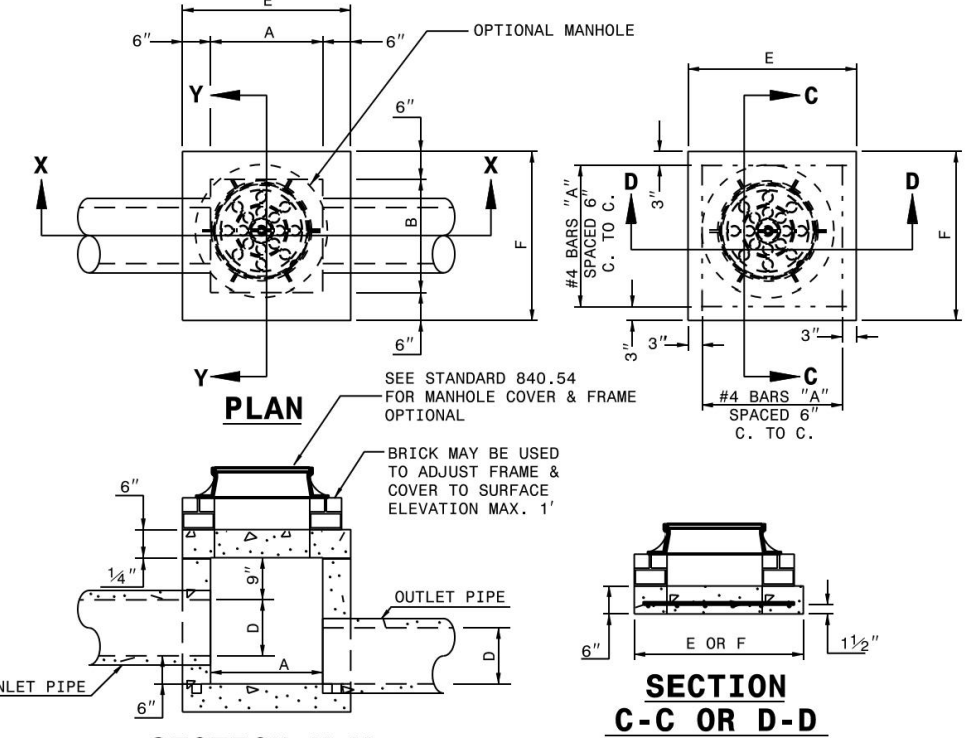
SHEET 2 OF 2
840.03



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

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN 12\"/>

SHEET 1 OF 2
840.02



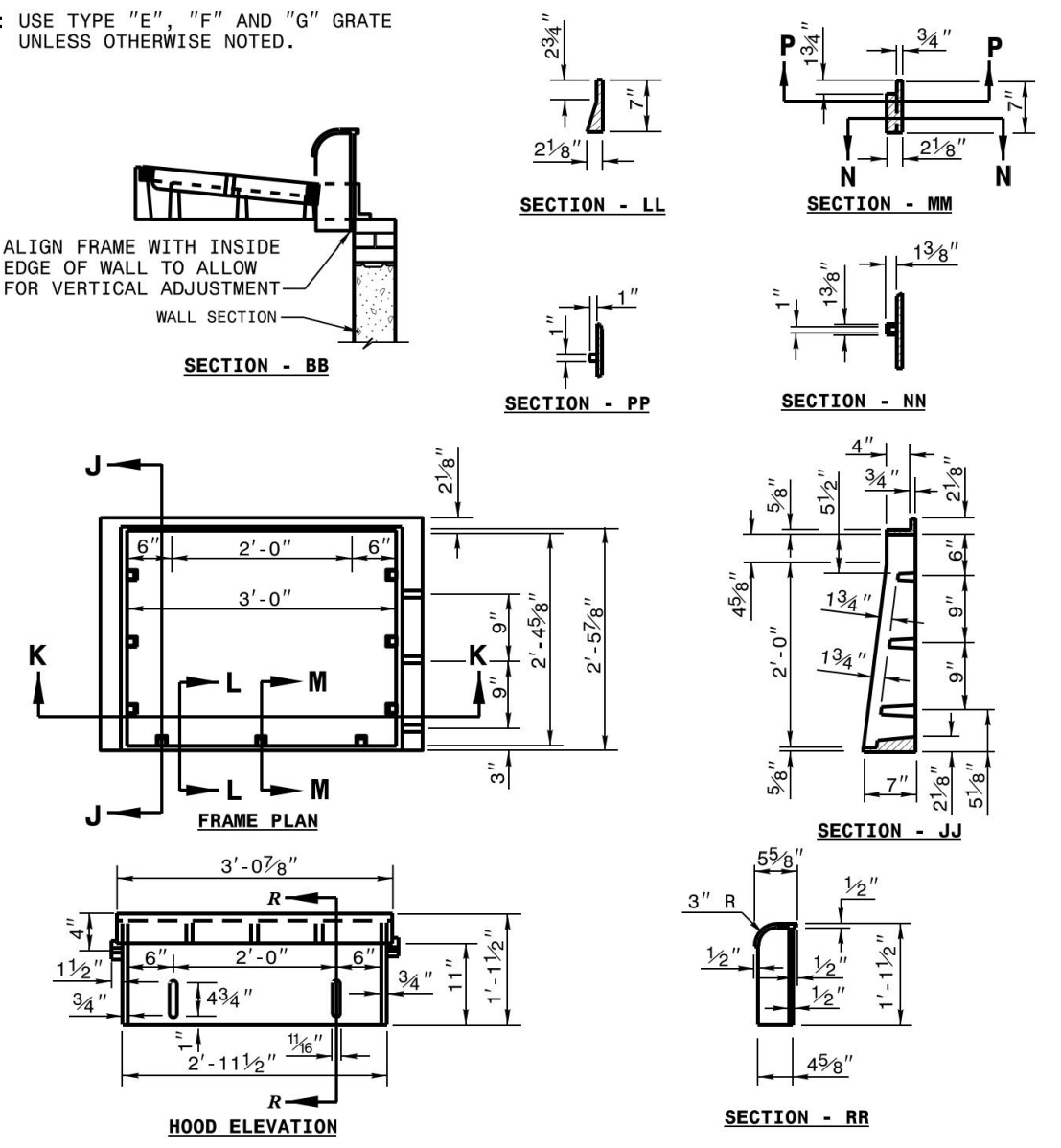
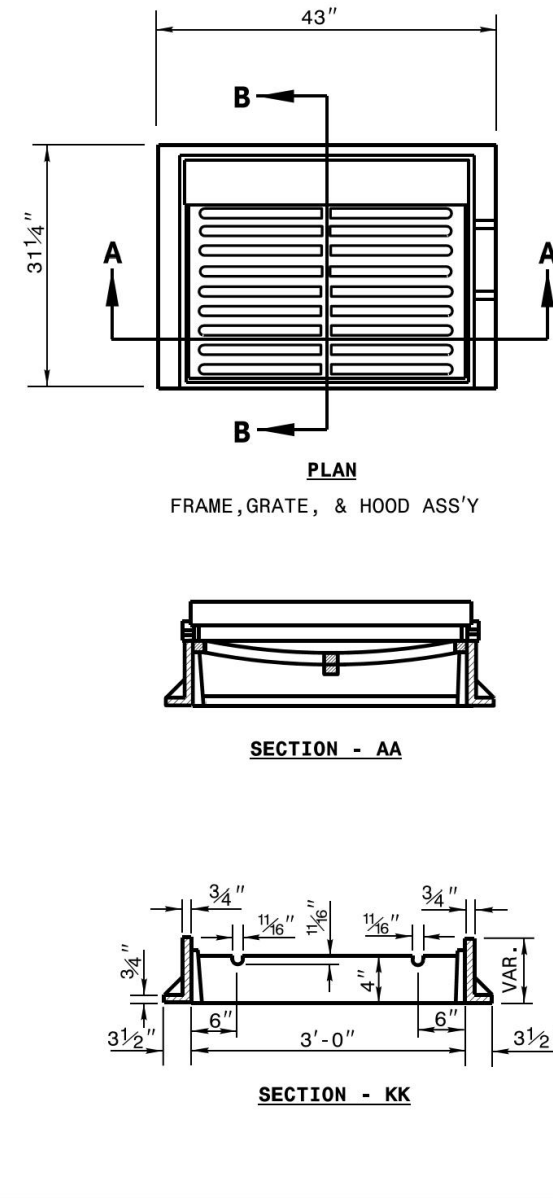
DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

PIPE SPAN	PIPE WIDTH	PIPE HEIGHT	REINFORCEMENT BARS "A"			TOP SLAB DIMENSIONS			TOTAL QUANTITIES BOX AND SLAB	DEDUCTIONS FOR ONE PIPE (CU. YDS.)			
			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH					
12"	2'-0"	2'-0"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	12	2'-6"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.900	0.023	0.036
18"	2'-6"	2'-6"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	16	3'-9"	4'-0"	4'-0"	0.298	0.298	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.541	0.132	0.178
42"	4'-6"	4'-6"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.879	0.160	0.243
48"	5'-0"	5'-0"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-6"	5'-6"	28	6'-9"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.287	0.401
60"	6'-0"	6'-0"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-0"	7'-0"	32	7'-9"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

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

ROADWAY STANDARD DRAWING FOR
CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE) 12\"/>

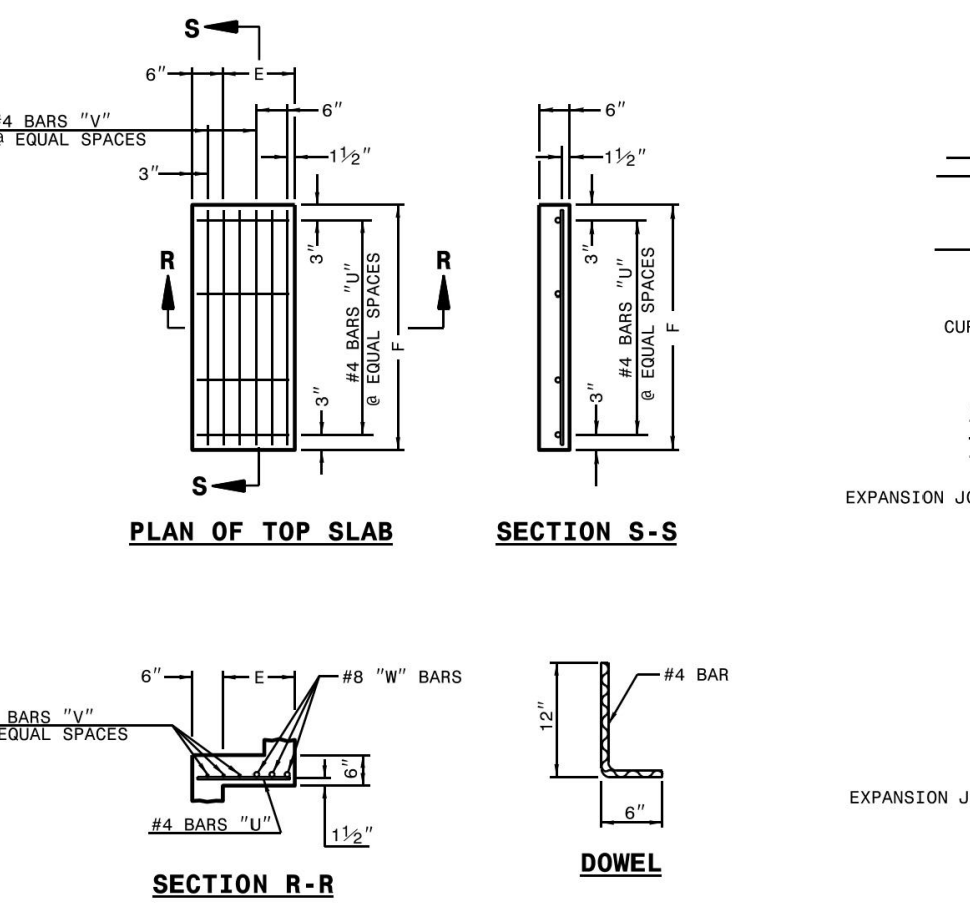
SHEET 1 OF 1
840.31



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

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2
840.03



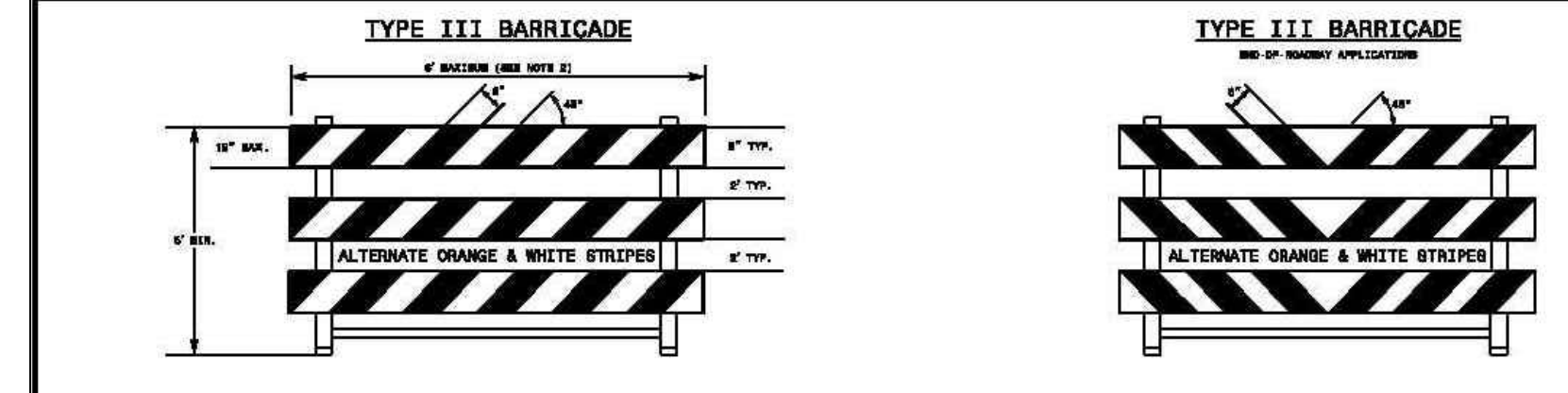
MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER)

PIPE SPAN	PIPE WIDTH	PIPE HEIGHT	COVER DIMENSION			REINFORCEMENT BARS "A"			TOTAL QUANTITIES BOX AND SLAB	DEDUCTIONS FOR ONE PIPE		
			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH				
12"	3'-0"	2'-2"	1	2'-8"	1	2'-8"	1	2'-8"	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"	1	3'-0"	1	3'-0"	1	3'-0"	0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"	1	3'-3"	1	3'-3"	1	3'-3"	0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"	1	3'-9"	1	3'-9"	1	3'-9"	0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	1	4'-3"	1	4'-3"	1	4'-3"	0.235	1.133	0.092	0.127
36"	3'-0"	2'-2"	1	4'-9"	1	4'-9"	1	4'-9"	0.235	1.274	0.132	0.178
42"	3'-0"	2'-2"	1	5'-3"	1	5'-3"	1	5'-3"	0.235	1.426	0.180	0.243
48"	3'-0"	2'-2"	1	5'-9"	1	5'-9"	1	5'-9"	0.235	1.589	0.235	0.317
54"	3'-0"	2'-2"	1	6'-3"	1	6'-3"	1	6'-3"	0.235	1.762	0.287	0.401

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

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN 12\"/>

SHEET 2 OF 2
840.02

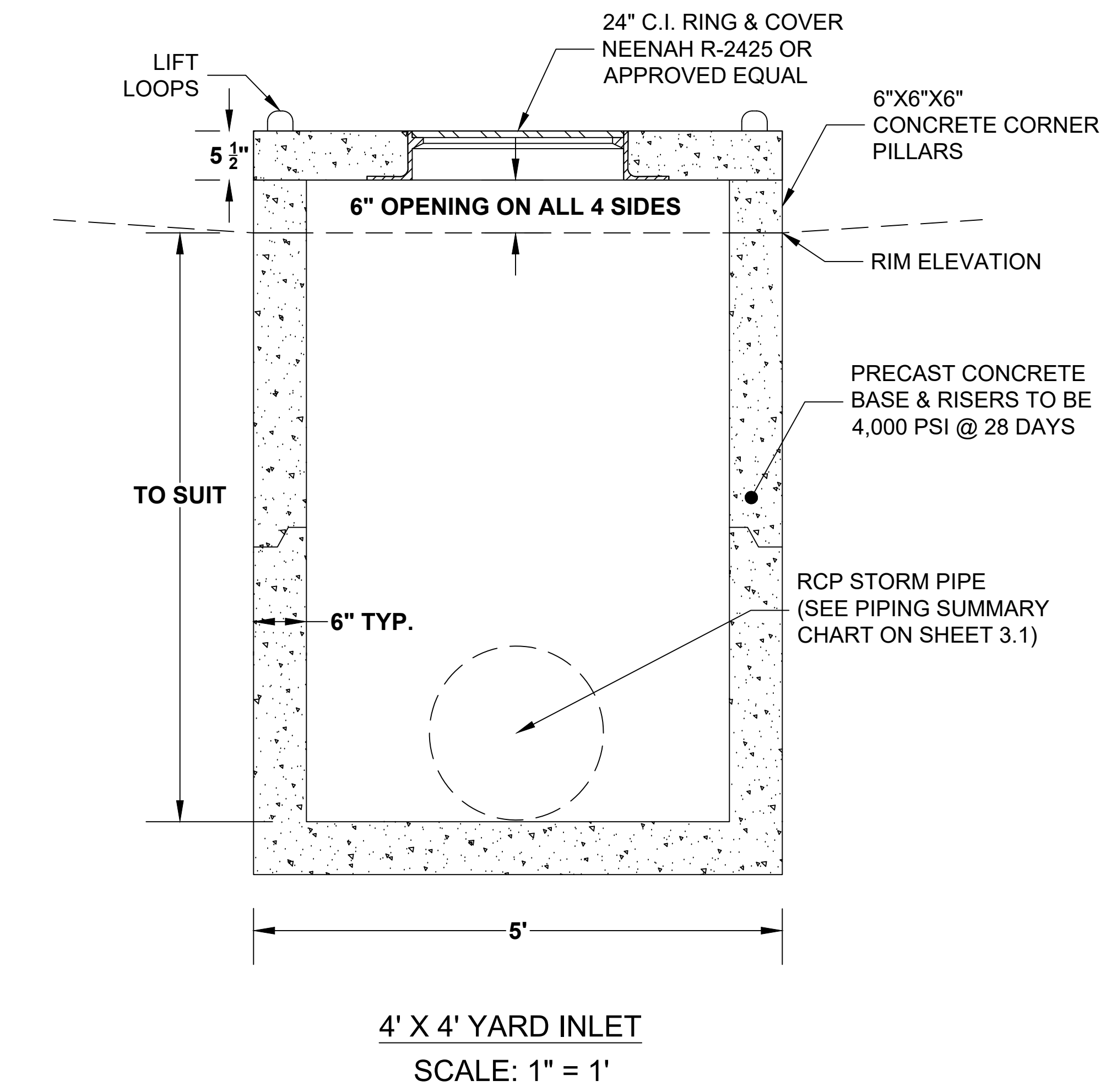


- GENERAL NOTES**
- HORIZONTAL BATTLE FOR BARRICADES MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/ CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NEODY APPROVED MATERIAL.
 - BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 6 FT UNLESS NEODY APPROVED.
 - ONLY NEODY APPROVED COMPOSITE AND ROLL-UP BATTLE MAY BE MOUNTED ON THE BARRICADE BATTLE. MOUNT BATTLE TO BARRICADE BATTLE TO ENSURE BATTLE WILL NOT BECOME DETACHED UNDER NORMAL ROAD AND TRAFFIC CONDITIONS.
 - BATTLE SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE BATTLE UNLESS BATTLE IS REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
 - ASSEMBLY OF THE BARRICADE BATTLE MUST BE SELF CERTIFIED BY THE ASSEMBLER.
 - BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
 - STRIPES ON WORK ZONE BARRICADE BATTLE SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES. SLOPED DOWNWARD TOWARD THE BATTLE. STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
 - USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
 - ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.
 - PLACE BARRICADES ON OTHER APPROVED BALLASTING BEDDING ON THE FEET OF THE FRAME. DO NOT PLACE BARRICADES ON TOP OF A STEEPED HILL OR STABILIZED BAR. DO NOT BALLAST BARRICADES WITH HEAVY OBJECTS SUCH AS ROCKS, CLUMPS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
BARRICADES TYPE-III

SHEET 1 OF 1
1145.01



4' X 4' YARD INLET
SCALE: 1" = 1'

AMERICAN Engineering
American Engineering Associates, Southeast, P.A.
4020 Westbase Boulevard, Suite 450
Raleigh, NC 27607

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RALEIGH, N.C.

NO. DATE REVISION

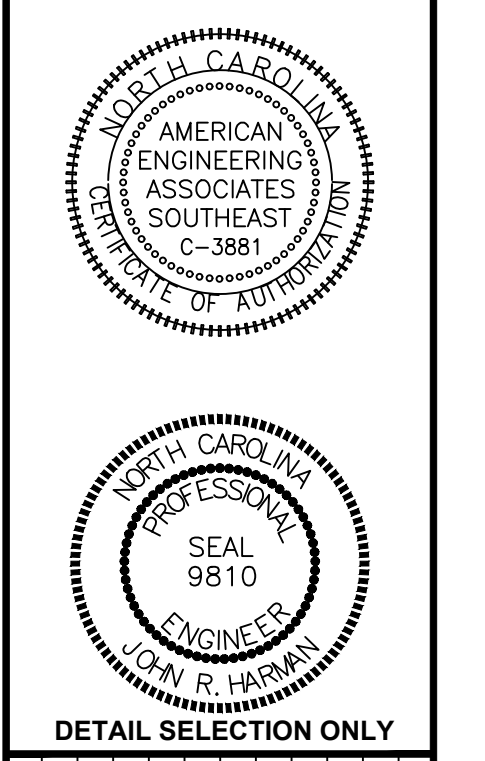
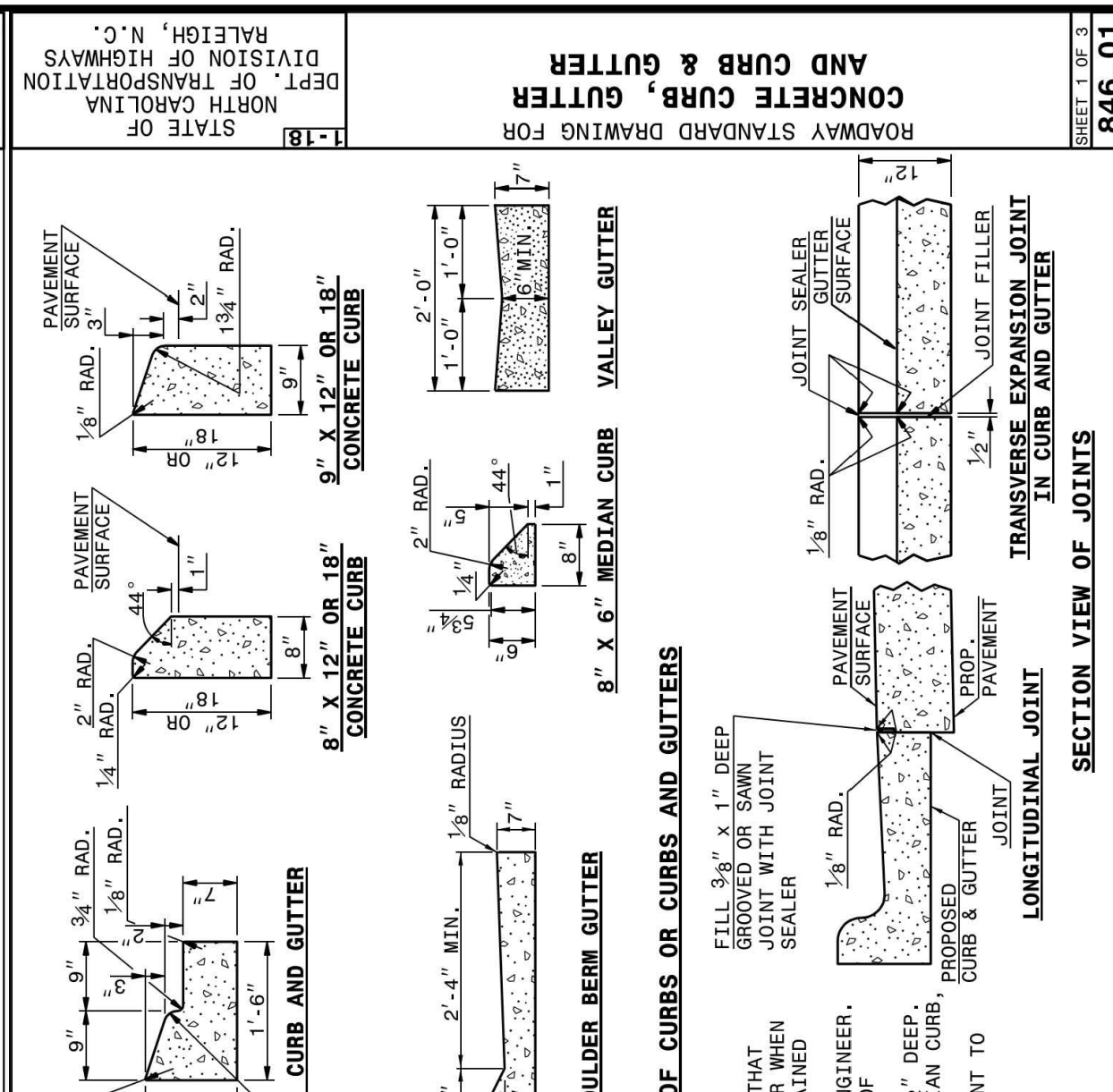
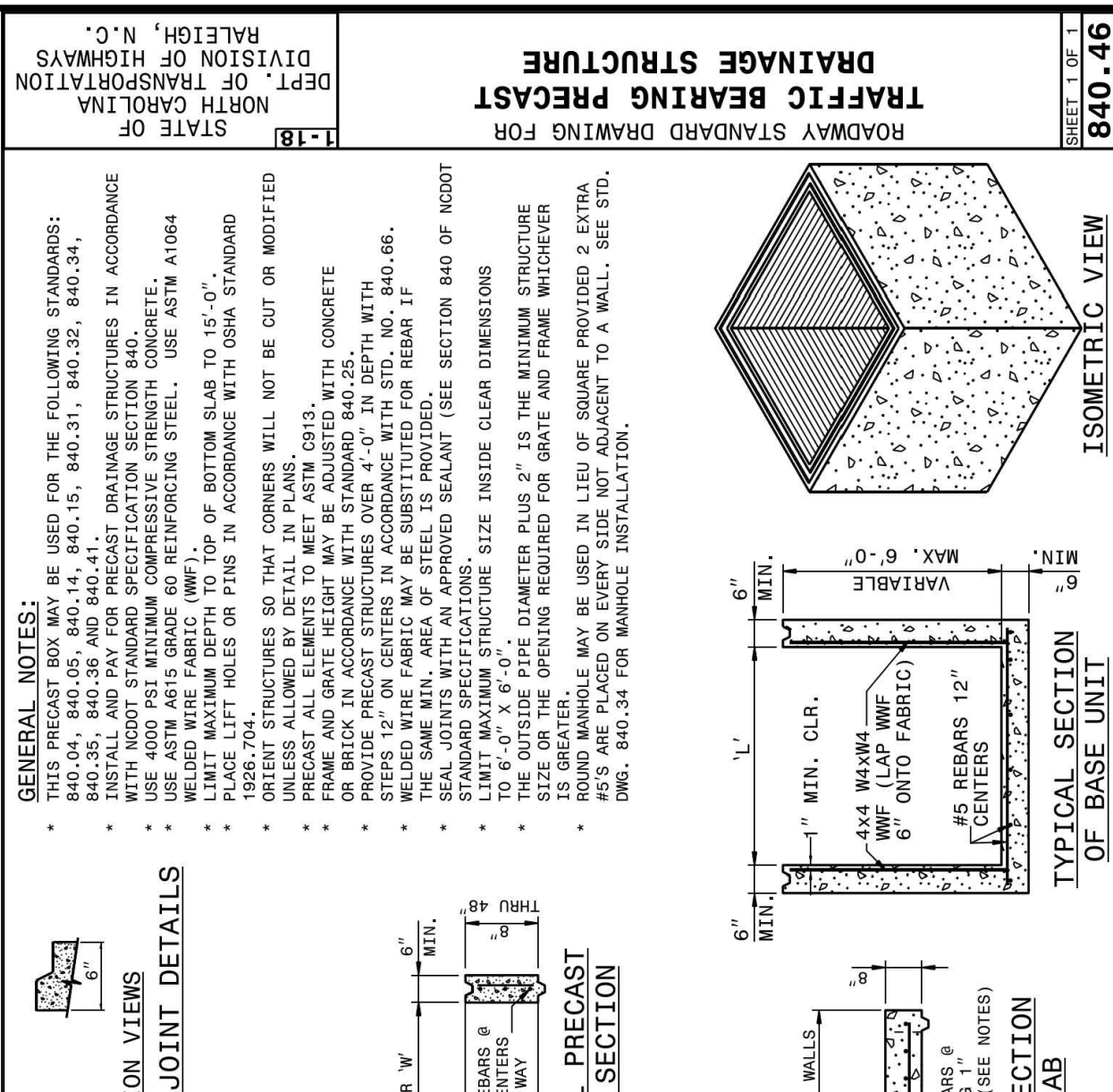
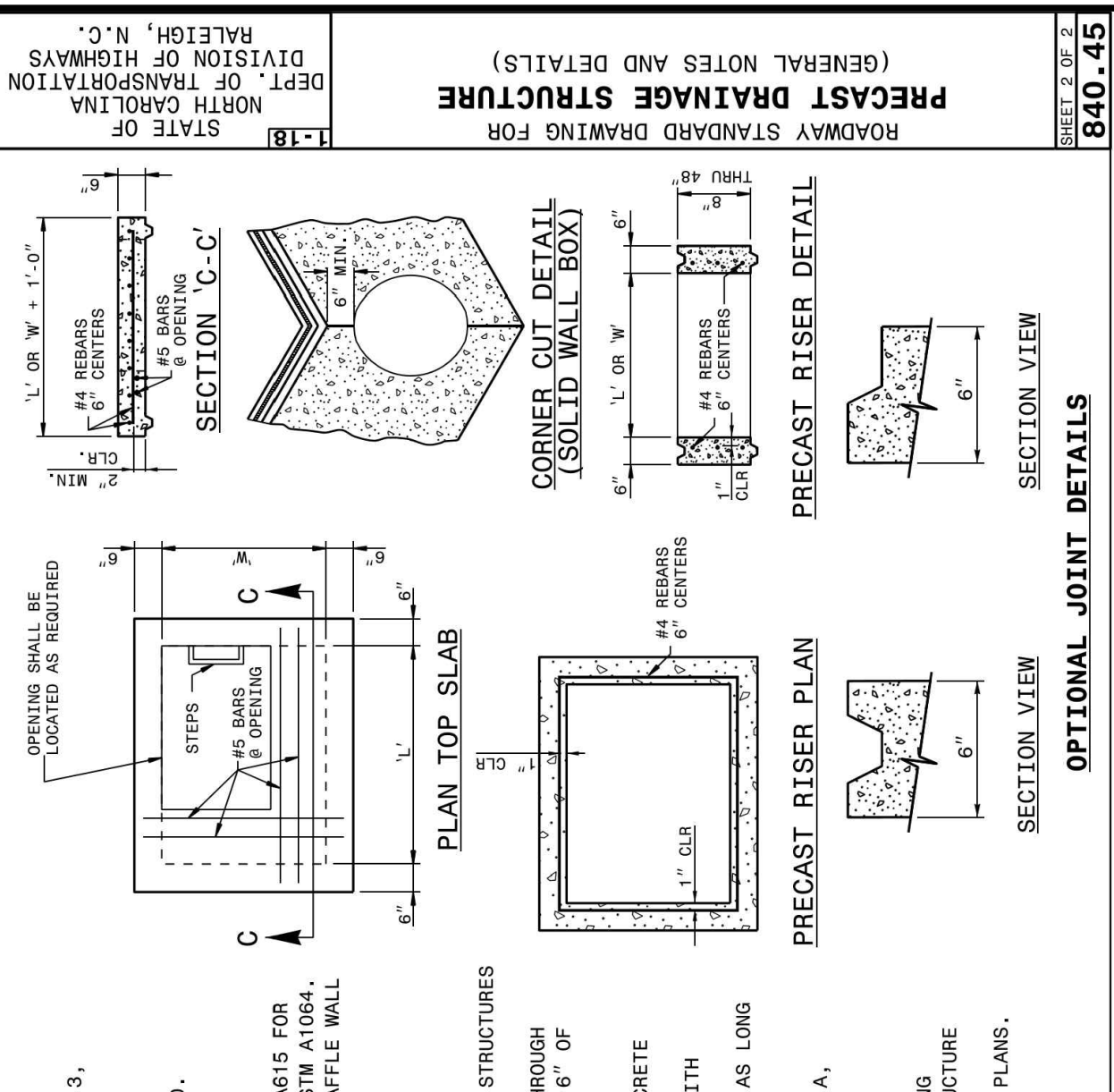
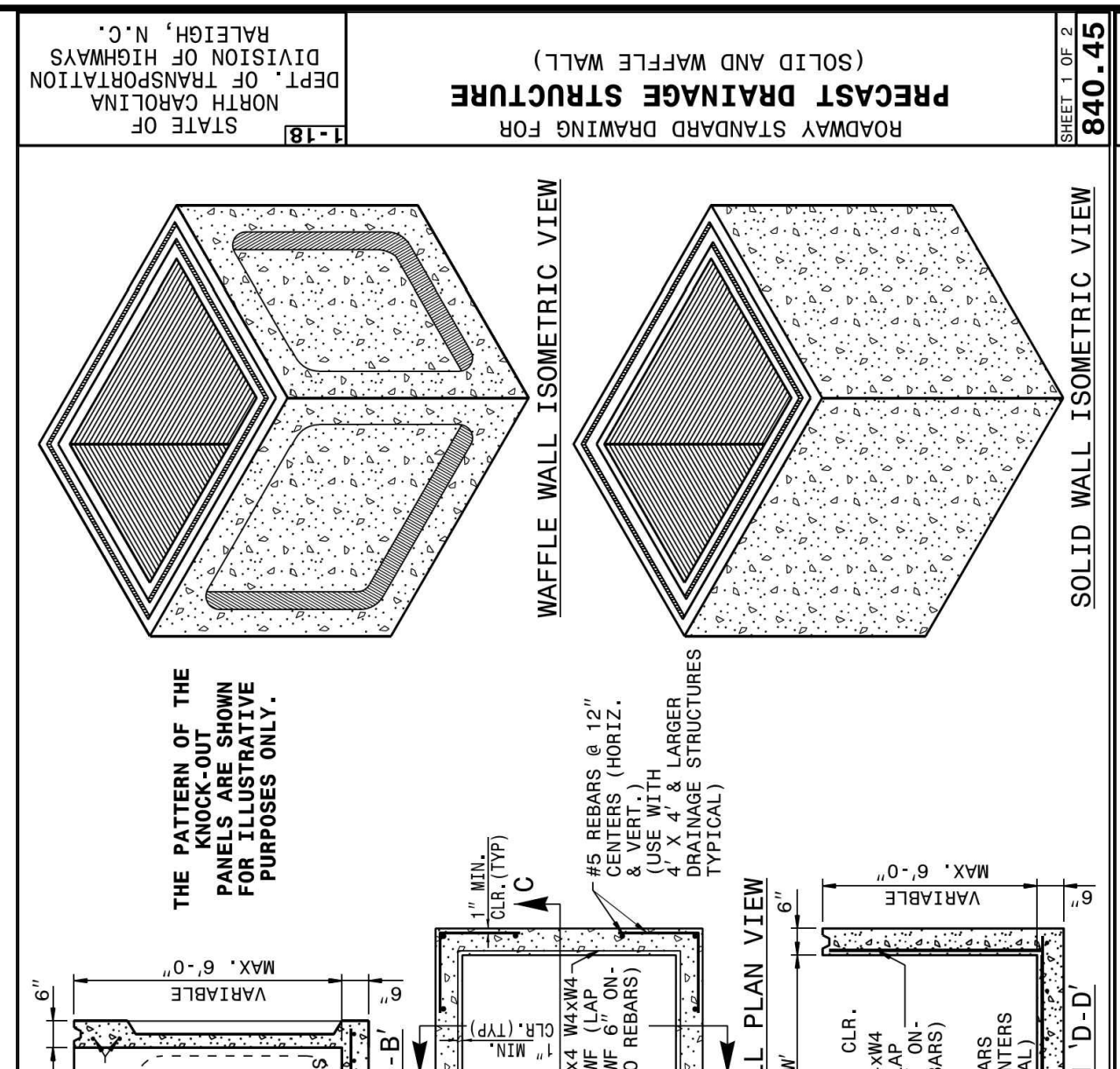
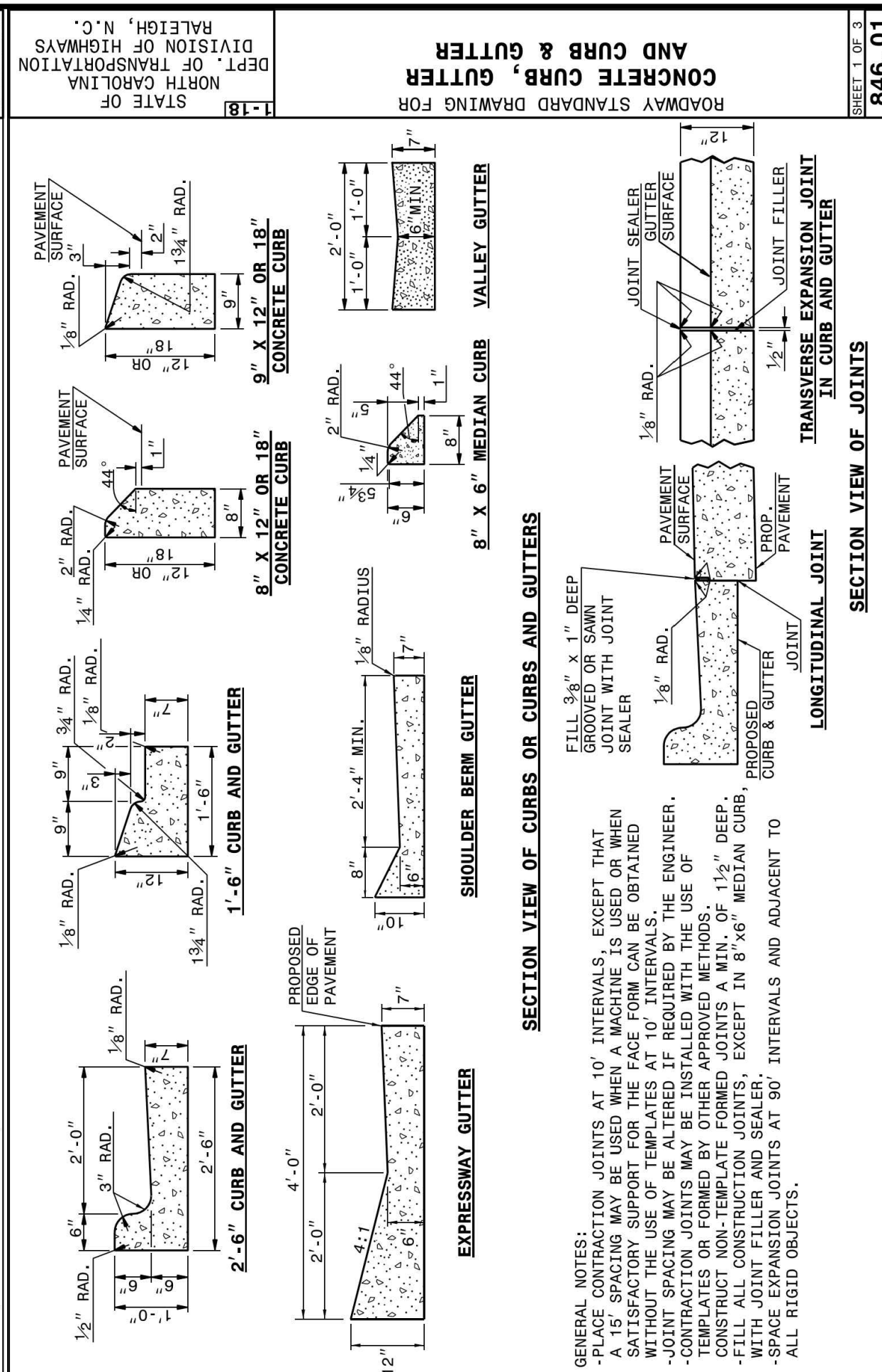
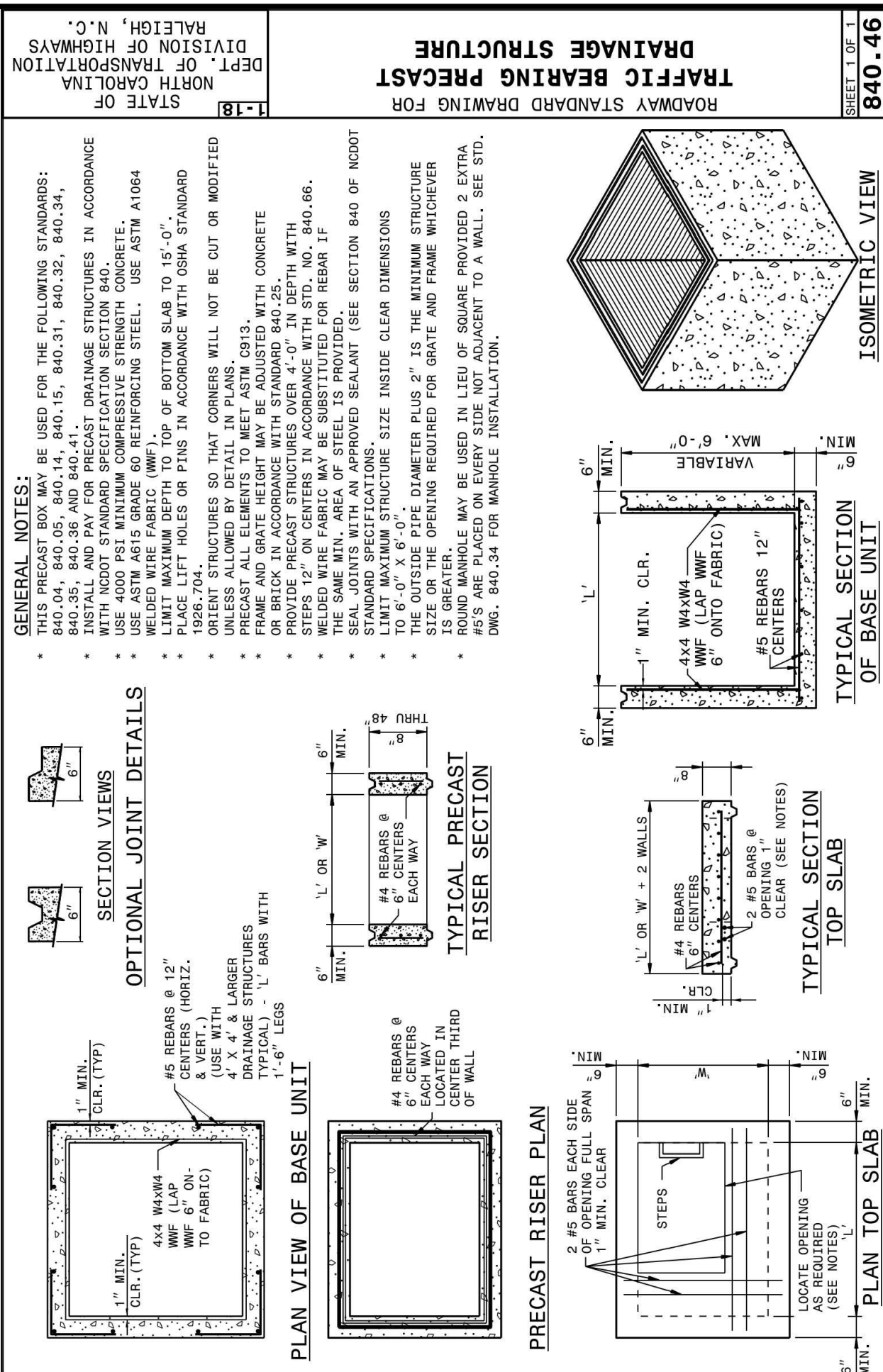
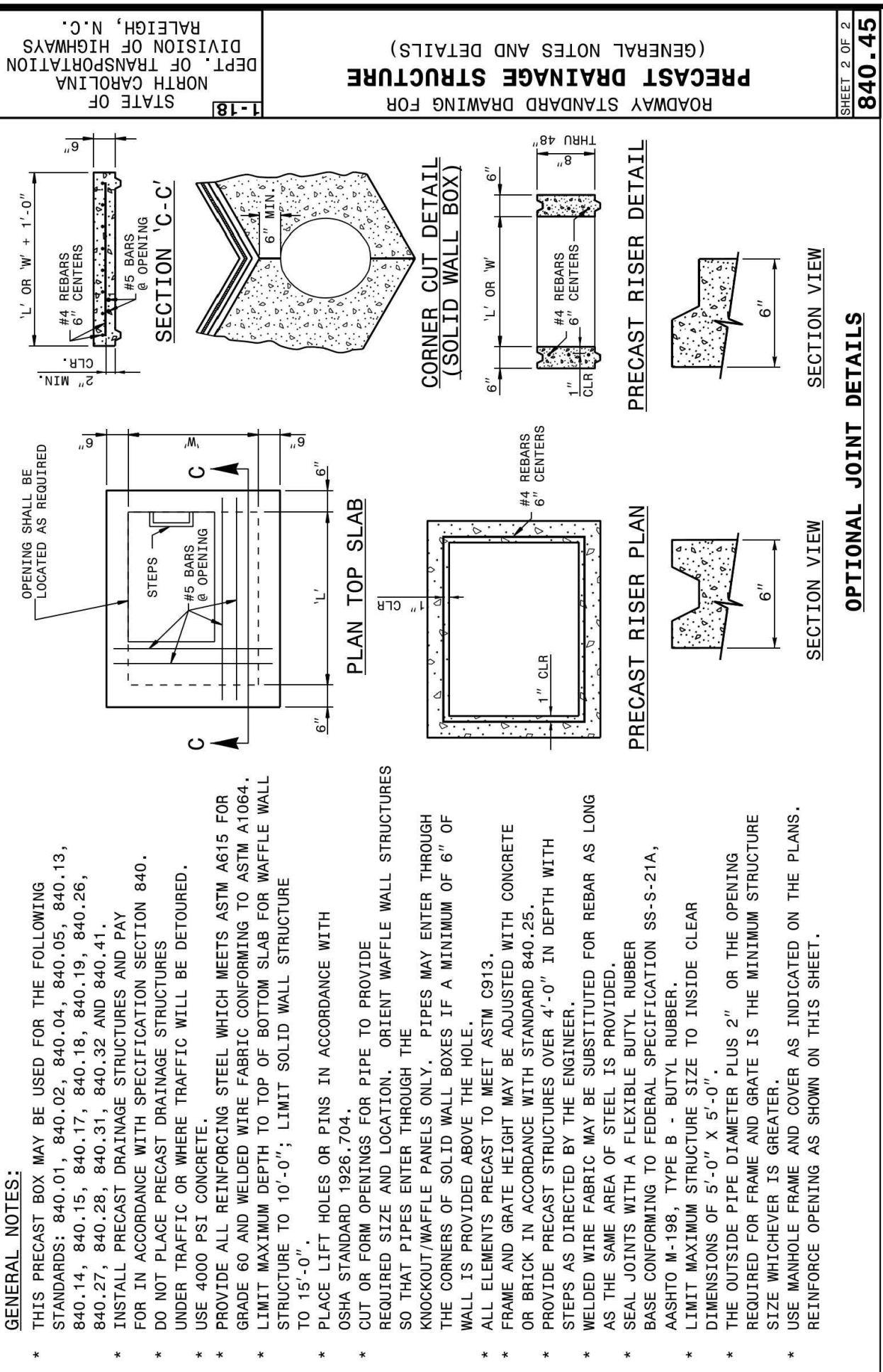
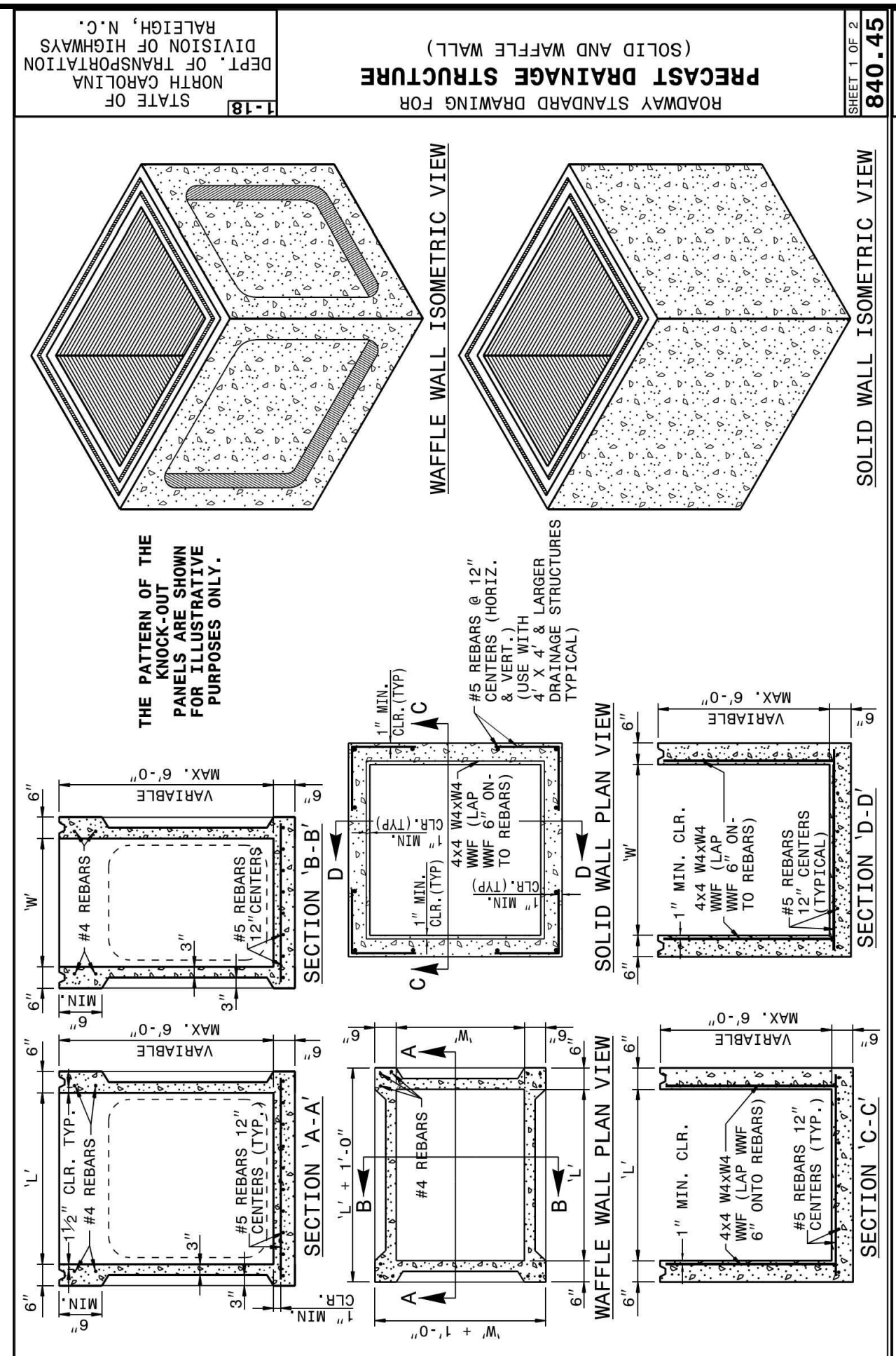
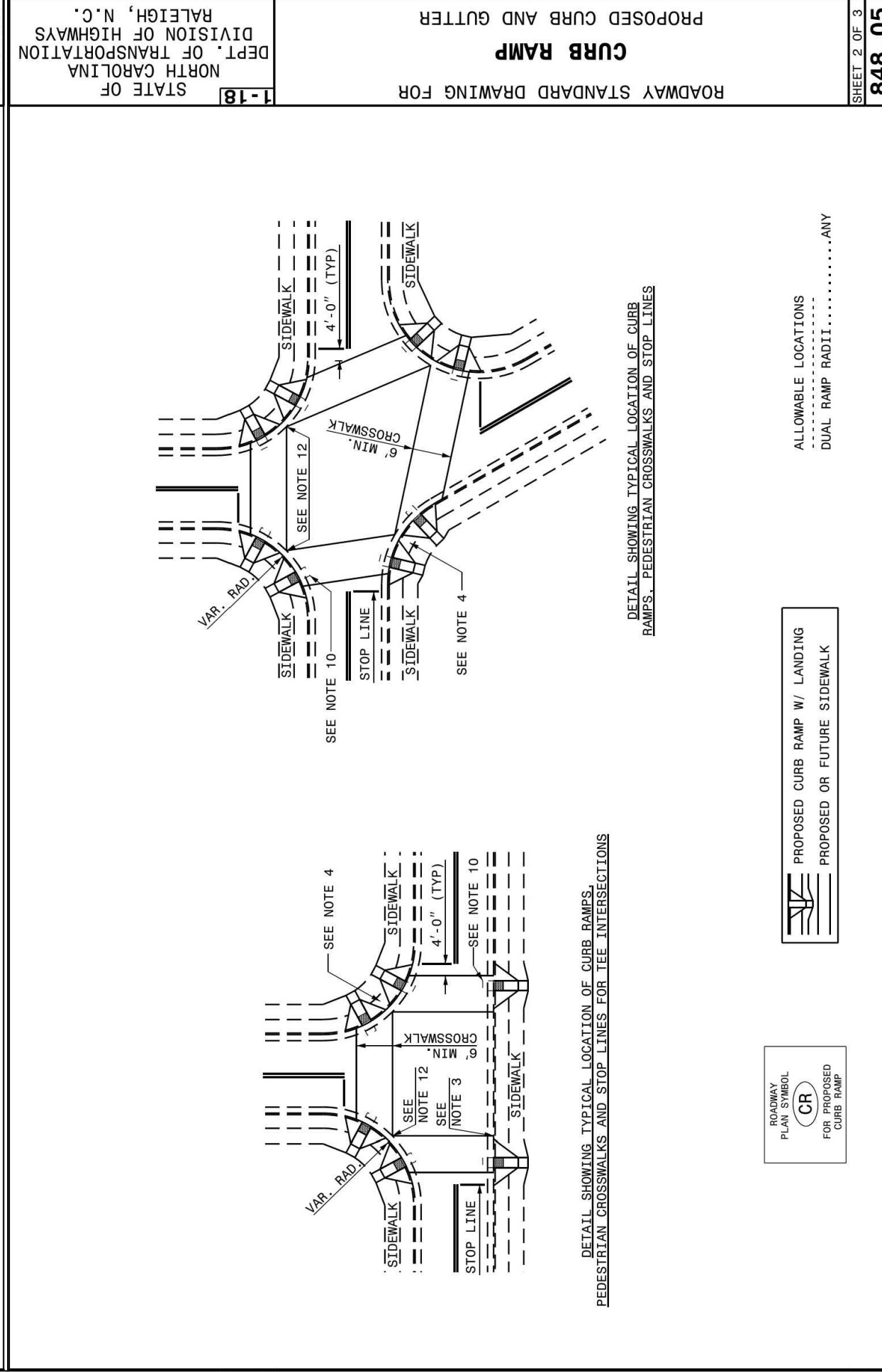
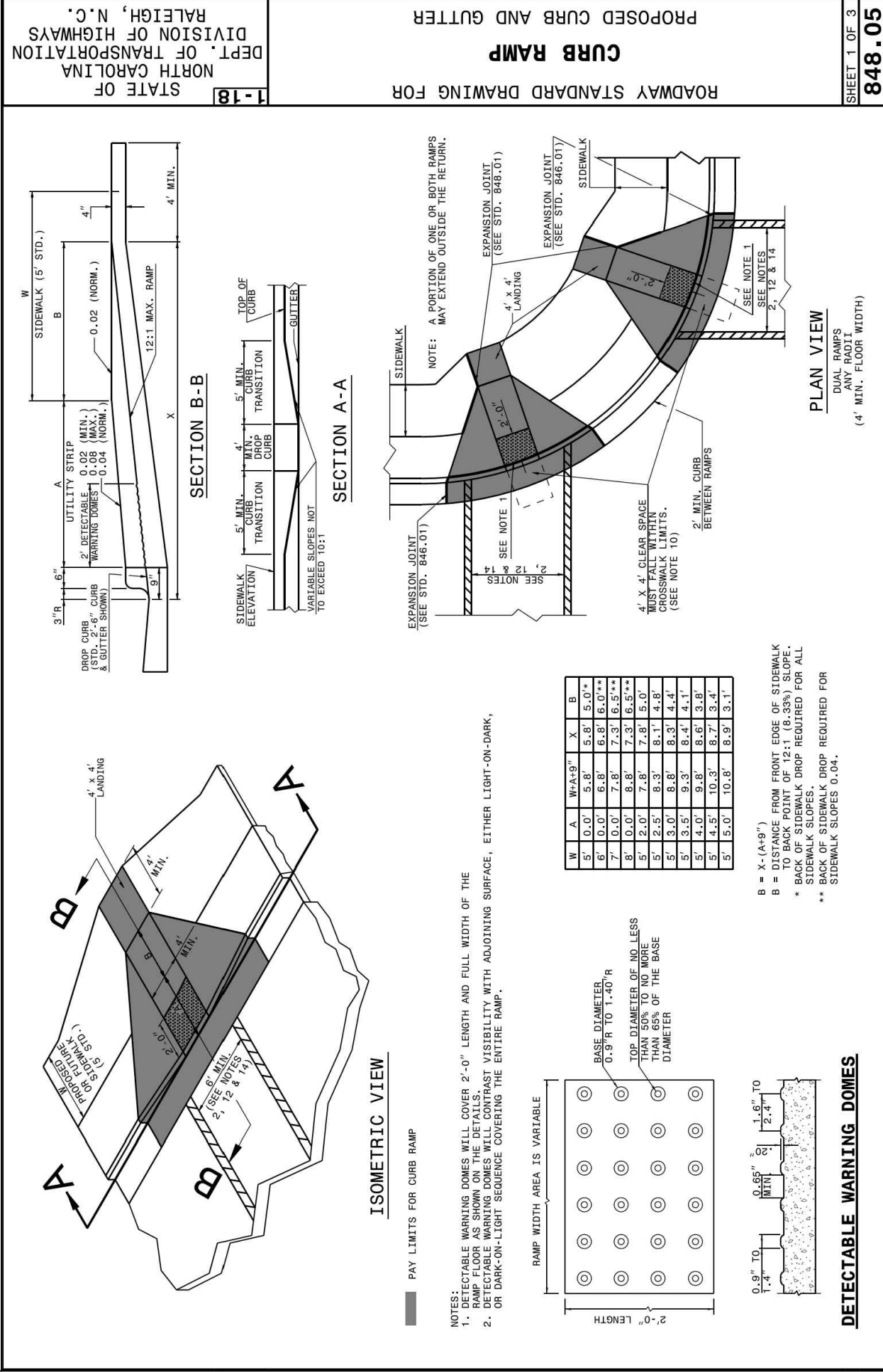
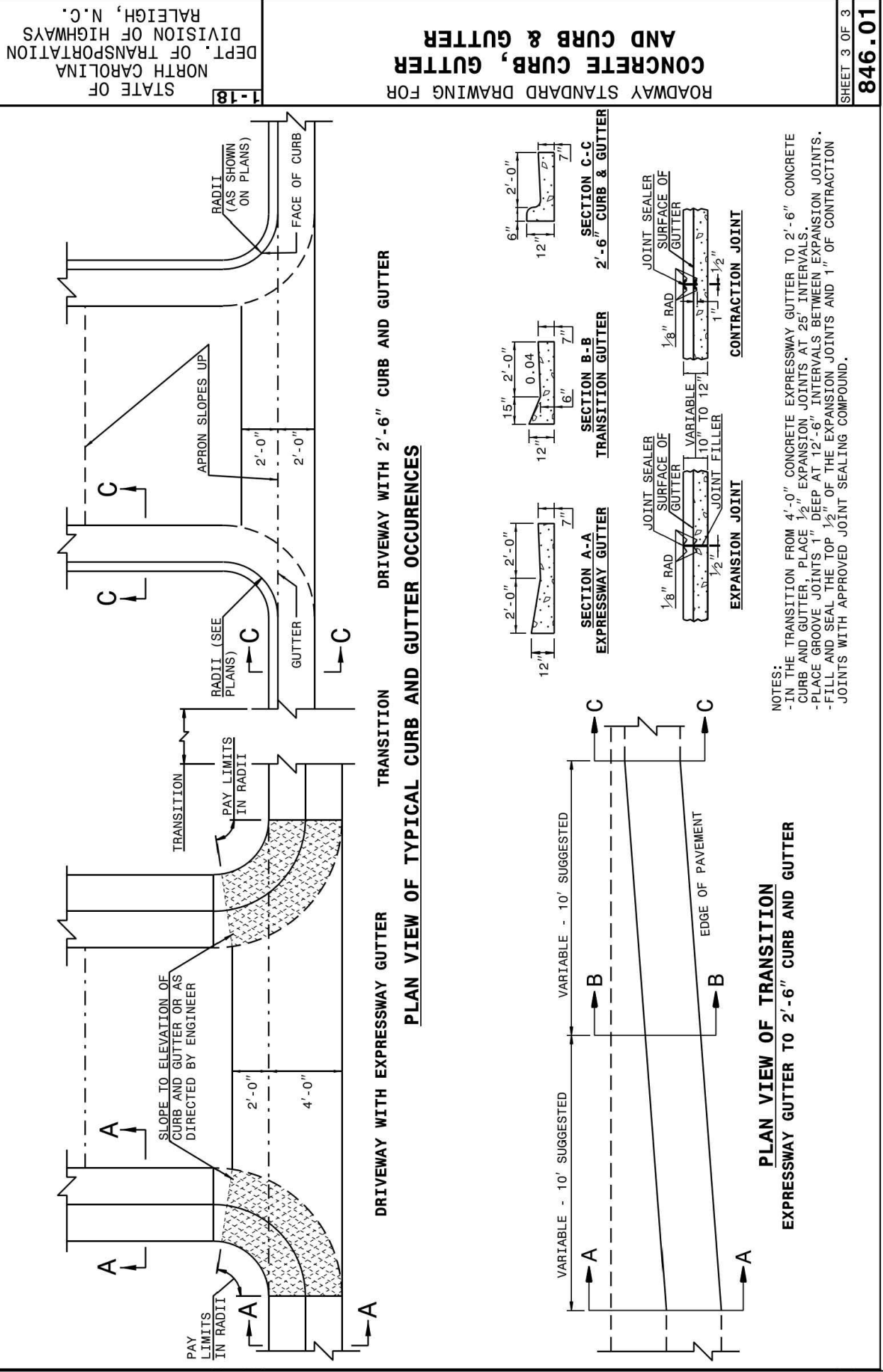
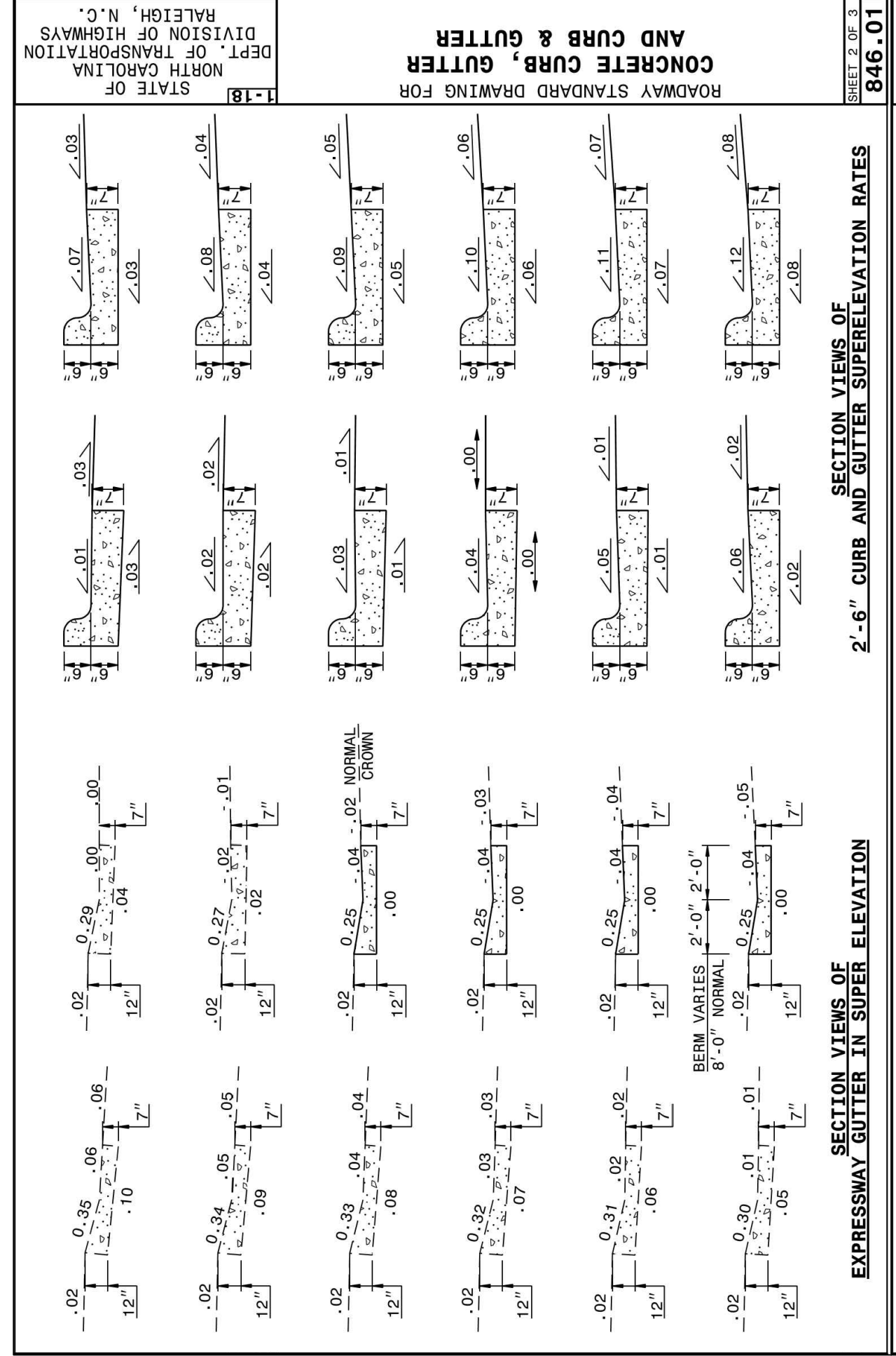
- 7/27/2024 1ST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
- 9/4/2024 TOWN OF ROLESVILLE CONSULTANT COMMENTS.
- 11/07/2024 CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/ALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
KALAS FALLS CIVIL DETAILS
SHEET NO.:
CD13

North Carolina
3 Days before Digging
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm



DETAIL SELECTION ONLY

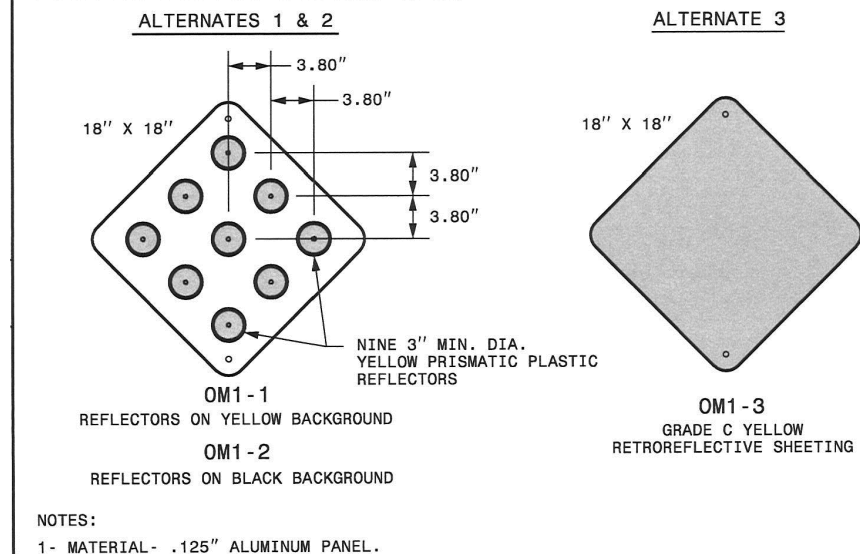
NO.	DATE	REVISION
1	7/27/2024	LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/07/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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JOB NUMBER: 9900
 CHECKED BY: BH/JH
 DRAWN BY: SMM/LL/ES/AH/DH
 DATE: NOV 11, 2024
 SHEET TITLE: KALAS FALLS CIVIL DETAILS
 SHEET NO.: CD14

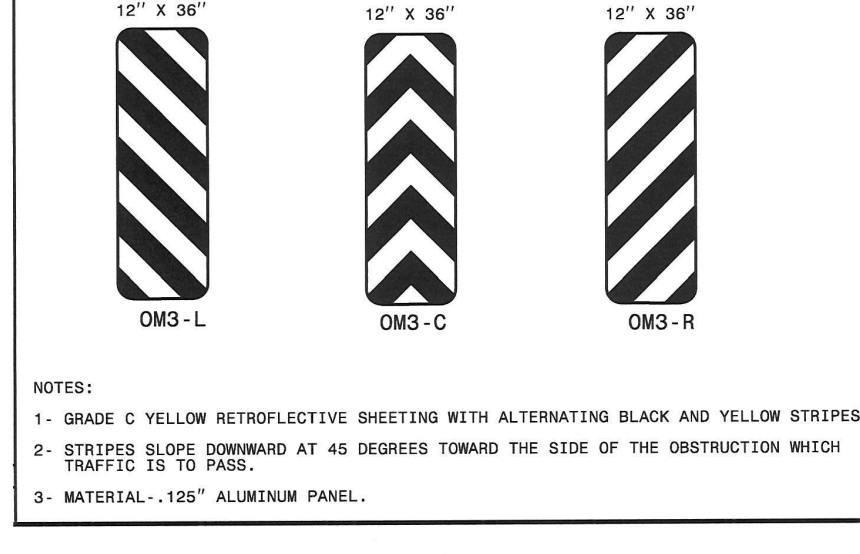


TYPE I OBJECT MARKERS



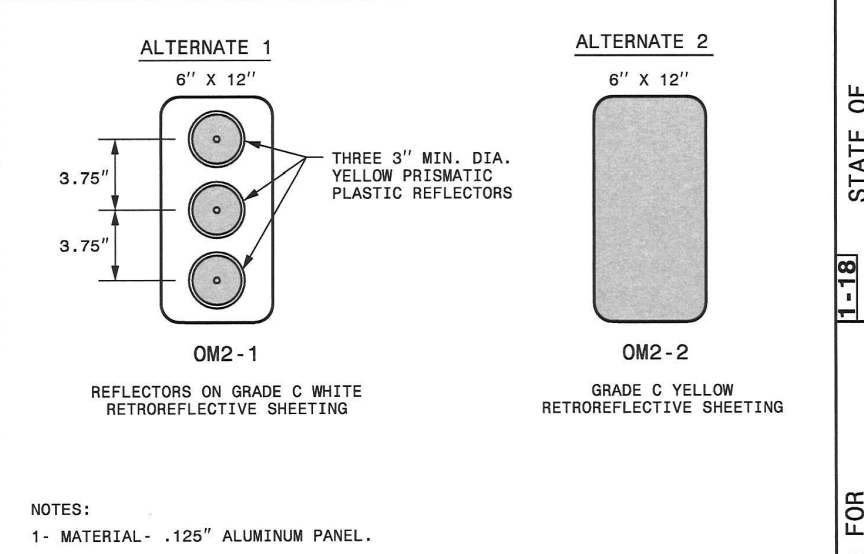
NOTES:
1. MATERIAL - .125" ALUMINUM PANEL.

TYPE 3 OBJECT MARKERS



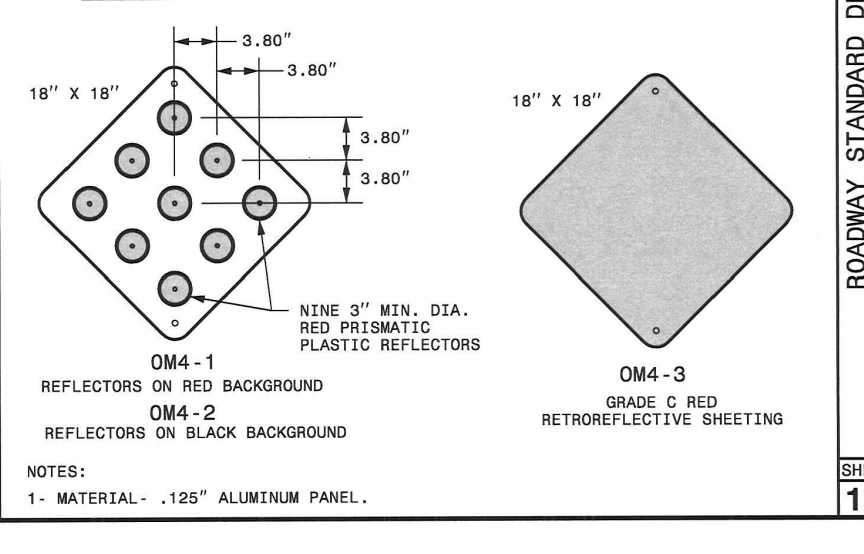
NOTES:
1. GRADE C YELLOW RETROREFLECTIVE SHEETING WITH ALTERNATING BLACK AND YELLOW STRIPES.
2. STRIPES SLOPE DOWNWARD AT 45 DEGREES TOWARD THE SIDE OF THE OBSTRUCTION WHICH TRAFFIC IS TO PASS.
3. MATERIAL - .125" ALUMINUM PANEL.

TYPE 2 OBJECT MARKERS



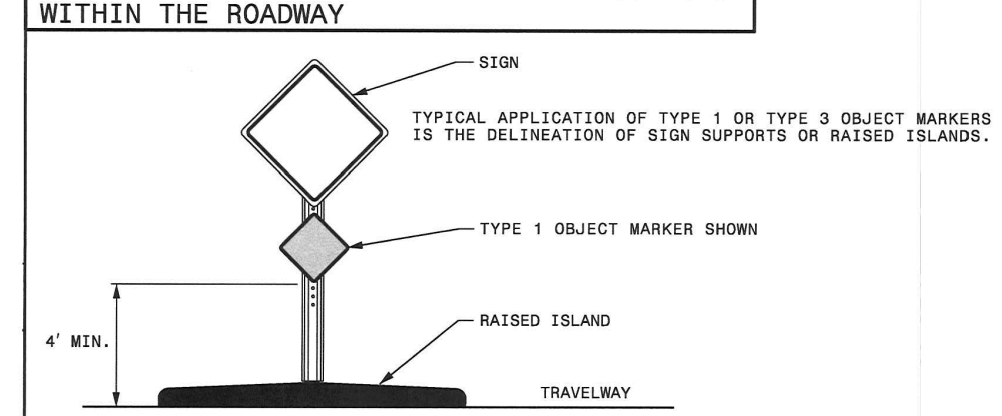
NOTES:
1. MATERIAL - .125" ALUMINUM PANEL.

TYPE 4 OBJECT MARKERS (END OF ROAD)

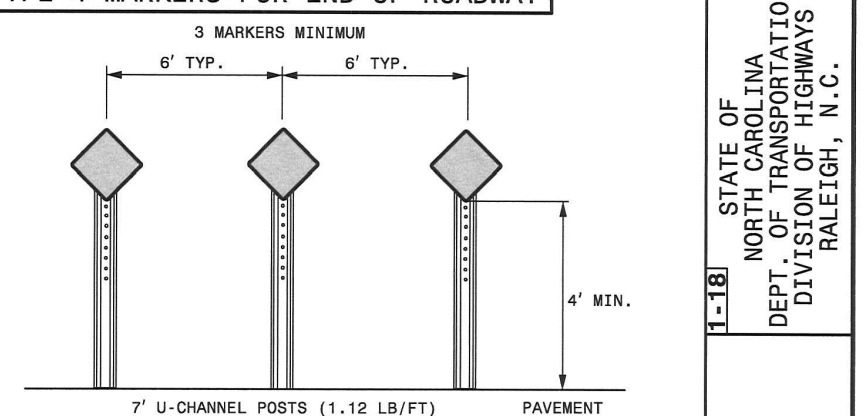


NOTES:
1. MATERIAL - .125" ALUMINUM PANEL.

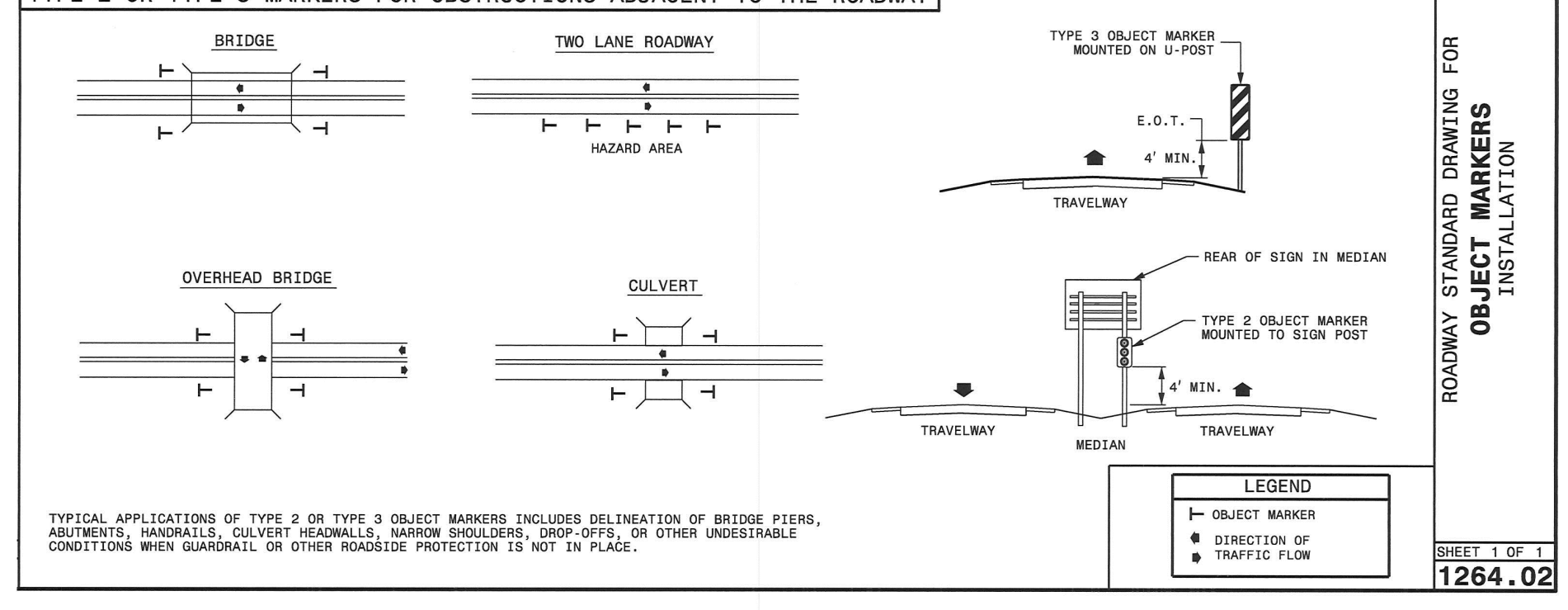
TYPE 1 OR TYPE 3 MARKERS FOR OBSTRUCTIONS WITHIN THE ROADWAY



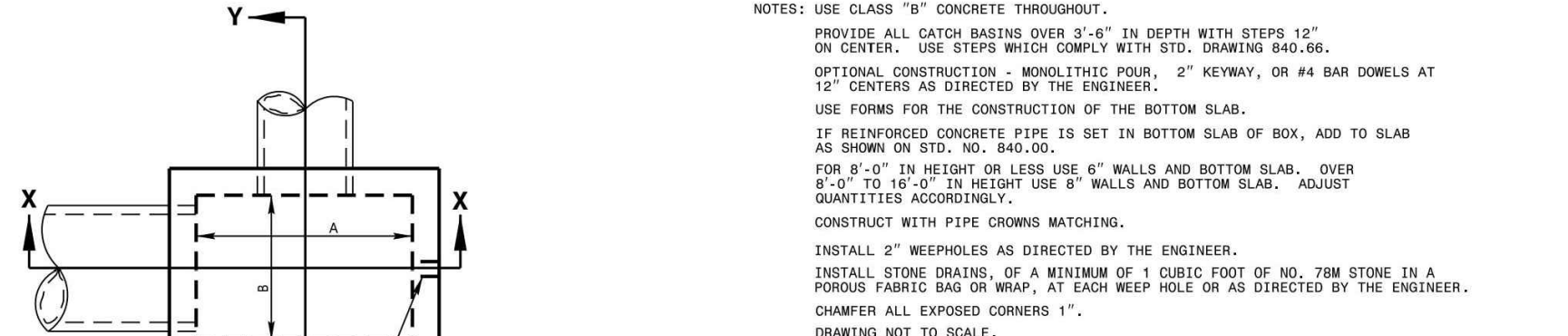
TYPE 4 MARKERS FOR END OF ROADWAY



TYPE 2 OR TYPE 3 MARKERS FOR OBSTRUCTIONS ADJACENT TO THE ROADWAY



TYPICAL APPLICATIONS OF TYPE 2 OR TYPE 3 OBJECT MARKERS INCLUDES DELINEATION OF BRIDGE PIERS, ADJUSTMENTS, HANDRAILS, CULVERT HEADWALLS, NARROW SHOULDERS, DROP-OFFS, OR OTHER UNDESIRABLE CONDITIONS WHEN HANDRAIL OR OTHER PROTECTION IS NOT IN PLACE.



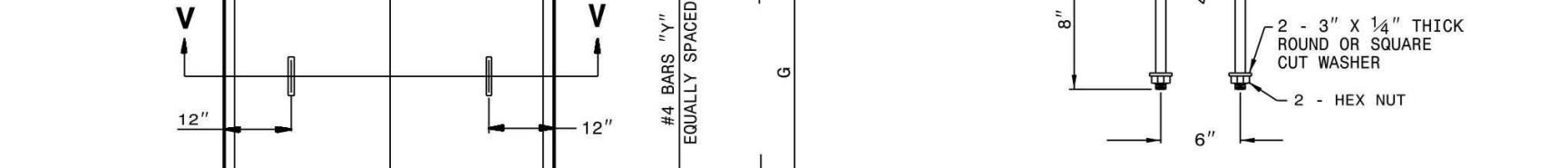
CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE

PIPE	SPAN	WIDTH	HEIGHT	REINFORCING	NO. BARS - X	NO. BARS - Y	NO. BARS - Z	NO. BARS - W	NO. BARS - V	NO. BARS - U	NO. BARS - T	NO. BARS - S	NO. BARS - R	NO. BARS - Q	NO. BARS - P	NO. BARS - O	NO. BARS - N	NO. BARS - M	NO. BARS - L	NO. BARS - K	NO. BARS - J	NO. BARS - I	NO. BARS - H	NO. BARS - G	NO. BARS - F	NO. BARS - E	NO. BARS - D	NO. BARS - C	NO. BARS - B	NO. BARS - A	
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	5'-3"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046												
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	5'-3"	0.181	0.271	0.250	27	1.108	0.023	0.038	0.046												
18"	4'-0"	2'-6"	2'-4"	5	3'-3"	7	4'-6"	2	4'-6"	5'-0"	5'-3"	0.226	0.340	0.284	39	1.376	0.033	0.048	0.053												
24"	4'-0"	2'-6"	2'-10"	5	3'-3"	7	4'-6"	2	4'-6"	5'-0"	5'-3"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.053												
30"	4'-0"	3'-0"	3'-4"	5	4'-3"	8	4'-6"	2	4'-6"	5'-0"	4'-0"	0.273	0.417	0.310	43	1.916	0.092	0.127	0.053												
36"	4'-6"	4'-0"	3'-10"	5	4'-9"	8	5'-3"	2	5'-3"	5'-6"	5'-3"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.059												
42"	4'-6"	4'-6"	4'-10"	5	5'-3"	12	5'-3"	2	5'-3"	5'-6"	5'-3"	0.407	0.613	0.389	64	3.914	0.180	0.243	0.069												
48"	5'-0"	5'-0"	4'-10"	5	5'-3"	13	5'-3"	2	5'-3"	6'-0"	6'-0"	0.444	0.660	0.402	68	3.298	0.233	0.317	0.065												

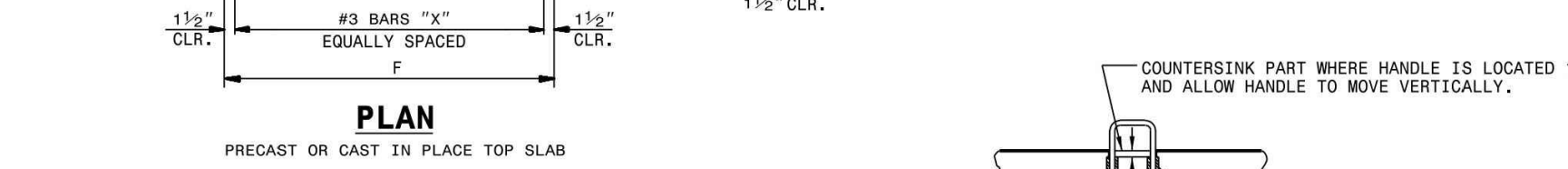
CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE

PIPE	SPAN	WIDTH	HEIGHT	REINFORCING	NO. BARS - X	NO. BARS - Y	NO. BARS - Z	NO. BARS - W	NO. BARS - V	NO. BARS - U	NO. BARS - T	NO. BARS - S	NO. BARS - R	NO. BARS - Q	NO. BARS - P	NO. BARS - O	NO. BARS - N	NO. BARS - M	NO. BARS - L	NO. BARS - K	NO. BARS - J	NO. BARS - I	NO. BARS - H	NO. BARS - G	NO. BARS - F	NO. BARS - E	NO. BARS - D	NO. BARS - C	NO. BARS - B	NO. BARS - A	
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	5'-3"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046												
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	5'-3"	0.181	0.271	0.250	27	1.108	0.023	0.038	0.046												
18"	4'-0"	2'-6"	2'-4"	5	3'-3"	7	4'-6"	2	4'-6"	5'-0"	5'-3"	0.226	0.340	0.284	39	1.376	0.033	0.048	0.053												
24"	4'-0"	2'-6"	2'-10"	5	3'-3"	7	4'-6"	2	4'-6"	5'-0"	5'-3"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.053												
30"	4'-0"	3'-0"	3'-4"	5	4'-3"	8	4'-6"	2	4'-6"	5'-0"	4'-0"	0.273	0.417	0.310	43	1.916	0.092	0.127	0.053												
36"	4'-6"	4'-0"	3'-10"	5	4'-9"	8	5'-3"	2	5'-3"	5'-6"	5'-3"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.059												
42"	4'-6"	4'-6"	4'-10"	5	5'-3"	12	5'-3"	2	5'-3"	5'-6"	5'-3"	0.407	0.613	0.389	64	3.914	0.180	0.243	0.069												
48"	5'-0"	5'-0"	4'-10"	5	5'-3"	13	5'-3"	2	5'-3"	6'-0"	6'-0"	0.444	0.660	0.402	68	3.298	0.233	0.317	0.065												

CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE



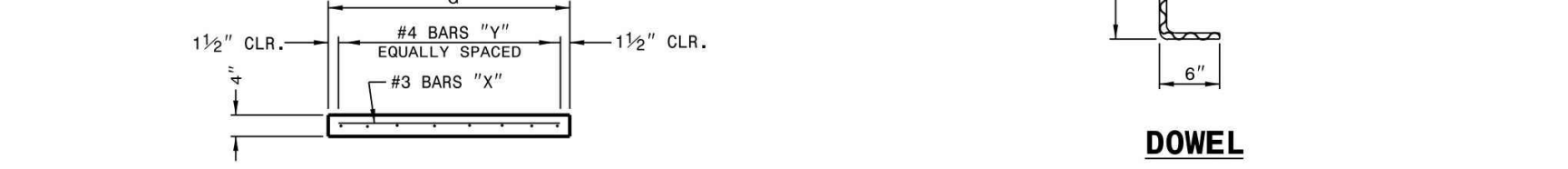
DETAIL OF HANDLE



PLAN



SECTION V-V



SECTION W-W



DOWEL



TYPICAL SECTION



TRANSVERSE EXPANSION JOINT



PLAN VIEW

NOTES:
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET.
2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
3. A 6 INCH DEPTH IS REQUIRED AT LOCATIONS OF DRIVEWAY CROSSINGS, AT STREET INTERSECTIONS (ALONG THE LENGTH OF RADIUS CURB RETURNS), AND IN THE HANDICAP RAMPS.

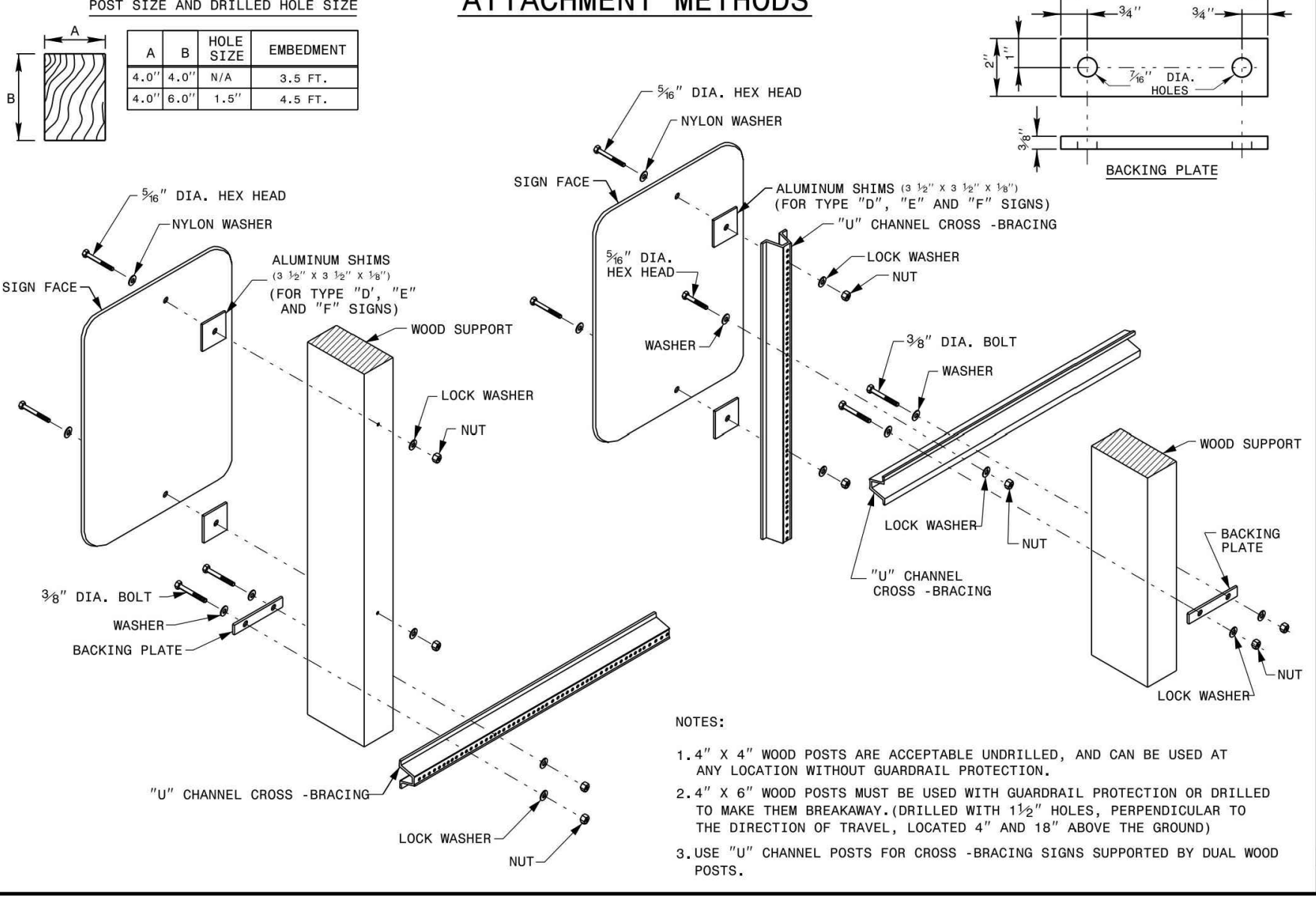
STANDARD CONCRETE SIDEWALK

DETAIL No. 03000.07
SHEET 1 OF 2

POST SIZE AND DRILLED HOLE SIZE

A	B	EMBEDMENT
4.0"	4.0"	3.5 FT.
4.0"	6.0"	4.5 FT.

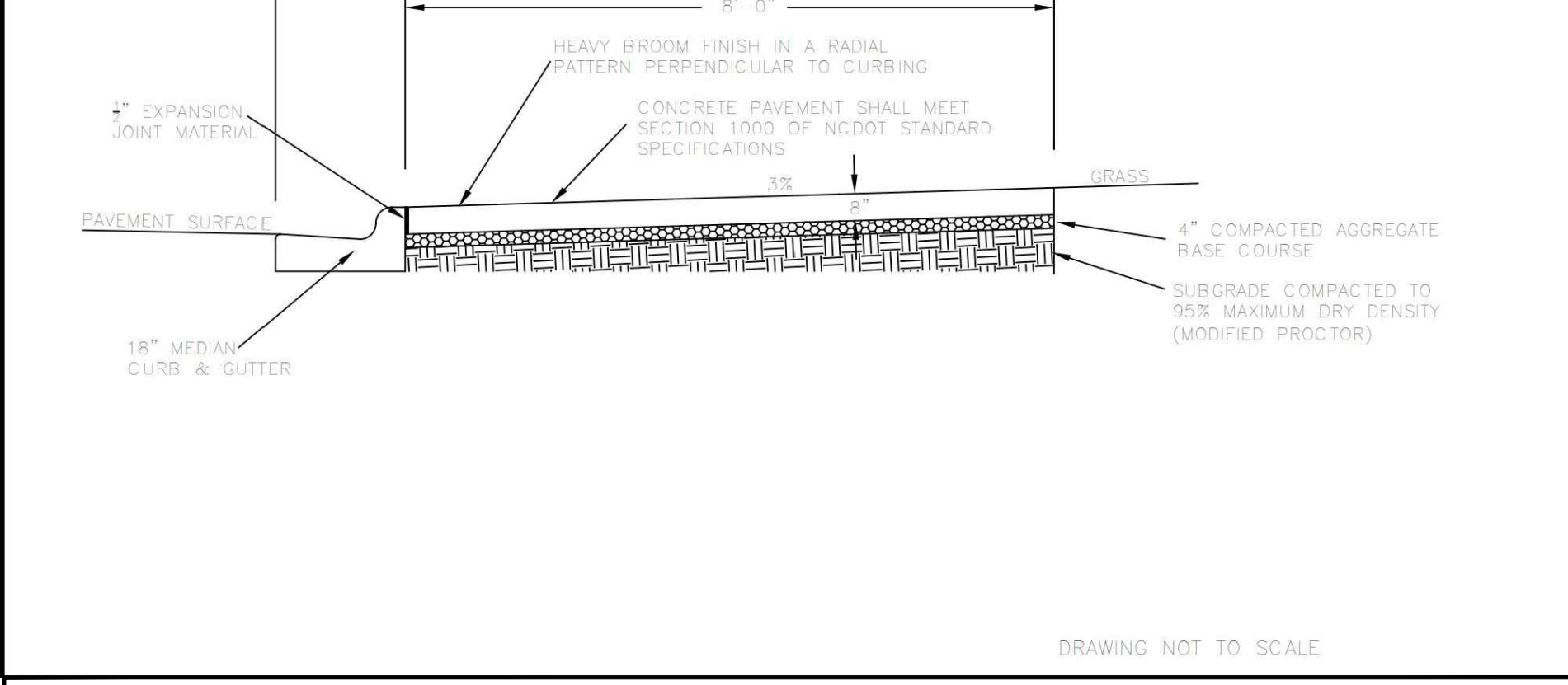
ATTACHMENT METHODS



NOTES:
1. 1/4" X 4" WOOD POSTS ARE ACCEPTABLE UNDRILLED, AND CAN BE USED AT ANY LOCATION WITHOUT GUARDRAIL PROTECTION.
2. 4" X 6" WOOD POSTS MUST BE USED WITH GUARDRAIL PROTECTION OR DRILLED TO MAKE THEM BREAKAWAY (DRILLED WITH 1 1/2" HOLES, PERPENDICULAR TO THE DIRECTION OF TRAVEL, LOCATED 4" AND 18" ABOVE THE GROUND)
3. USE "U" CHANNEL POSTS FOR CROSS-BRACING SIGNS SUPPORTED BY DUAL WOOD POSTS.

ROADWAY STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON WOOD POSTS
SHEET 2 OF 2
903.20

STANDARD 10-FT/STREET-SIDE TRAIL ASPHALT GREENWAY TRAIL

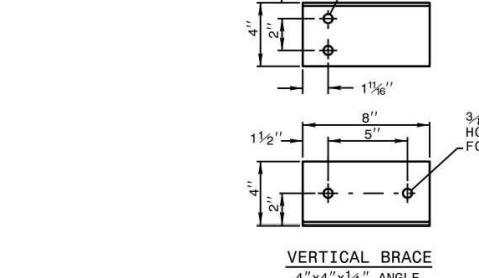


NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
2. NO ABOVE GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE MINIMUM 4 FEET FROM TRAIL EDGE.
3. ALL TRAILS SHALL BE LOCATED MINIMUM 5 FEET FROM THE BACK OF CURB.
4. SIDE SLOPES SHALL NOT EXCEED 3:1. CUT & FILL SLOPES SHALL TIE INTO EXISTING SLOPES TO CREATE AN EVEN TRANSITION.
5. CROSS SLOPE TYPICALLY TO LOW SIDE BUT CROSS SLOPE TO INSIDE OF DOWNHILL CURVES, WITH GRADUAL TRANSITIONS BETWEEN ANY CROSS SLOPE DIRECTION CHANGES.

STANDARD 10-FT/STREET-SIDE TRAIL ASPHALT GREENWAY TRAIL

DETAIL No. 03000.07
SHEET 1 OF 2

VERTICAL BRACE



HORIZONTAL BRACE



NOTES:
1. MAXIMUM SIGN SIZE IS 9.0 SQUARE FEET IN MAXIMUM WIND VELOCITY OF 80 MPH.
2. ERECT TYPE "E" AND "F" SIGNS WITH THE SAME SPECIFICATIONS AS TYPICAL INSTALLATION OF SIGNS MOUNTED ON "U" CHANNEL POSTS.
3. ERECT MILE MARKERS WITH THE SAME SPECIFICATIONS AS WELLPREST DETAILS AND PLACEMENT. SEE ROADWAY STANDARD NUMBER 904.40.
4. APPLICABLE SECTIONS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SHALL BE IN EFFECT.
5. ATTACH THE BRACE TO THE BARRIER BY MEANS OF 1/2" DIAMETER, 2" LONG CONCRETE ANCHORS WITH LOCK WASHERS. USE CONCRETE ANCHORS THAT ARE STAINLESS STEEL OR GALVANIZED IN ACCORDANCE WITH ASTM A-152. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ROADWAY STANDARD DRAWING FOR BARRIER SIGN SUPPORT ASSEMBLY
SHEET 1 OF 1
903.30

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

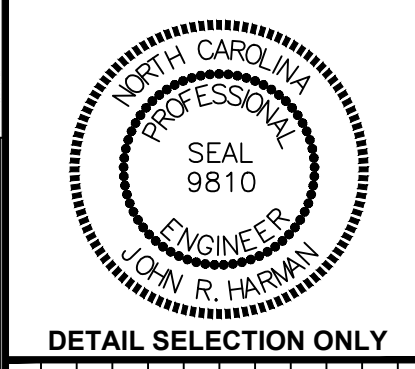
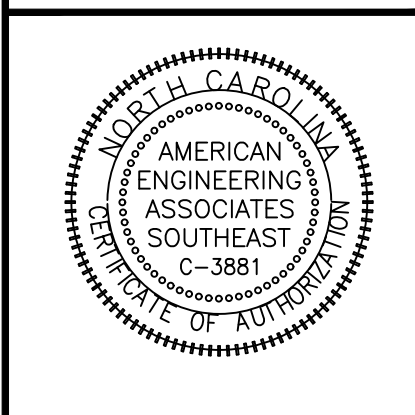
ROADWAY STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE
SHEET 1 OF 2
840.04

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

ROADWAY STANDARD DRAWING FOR
CONCRETE OPEN THROAT CATCH BASIN
12" THRU 48" PIPE
SHEET 2 OF 2
840.04

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

ROADWAY STANDARD DRAWING FOR
STANDARD 10-FT/STREET-SIDE TRAIL ASPHALT GREENWAY TRAIL
SHEET 1 OF 1
903.30



REVISION:
NO. DATE REVISION
1 7/27/2021 LIST REVIEW FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2 9/4/2024 TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3 11/01/2024 CONSTRUCTION DRAWING COMMENT RESPONSES

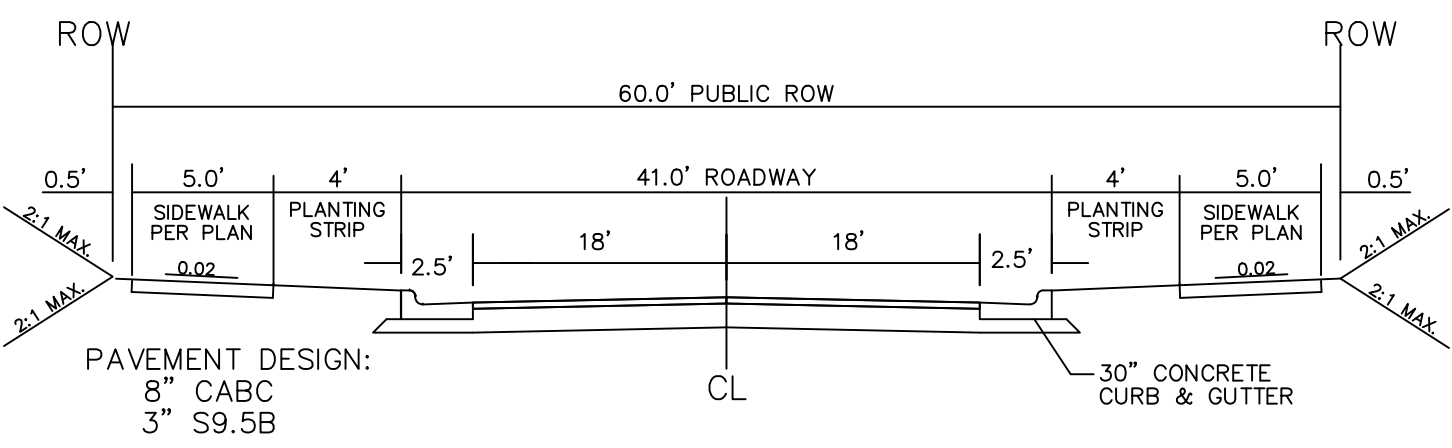
STIPULATION FOR REUSE
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/MALL/ES/AH/DH
DATE: NOV 1, 2024
SHEET TITLE:
**KALAS FALLS
CIVIL DETAILS**

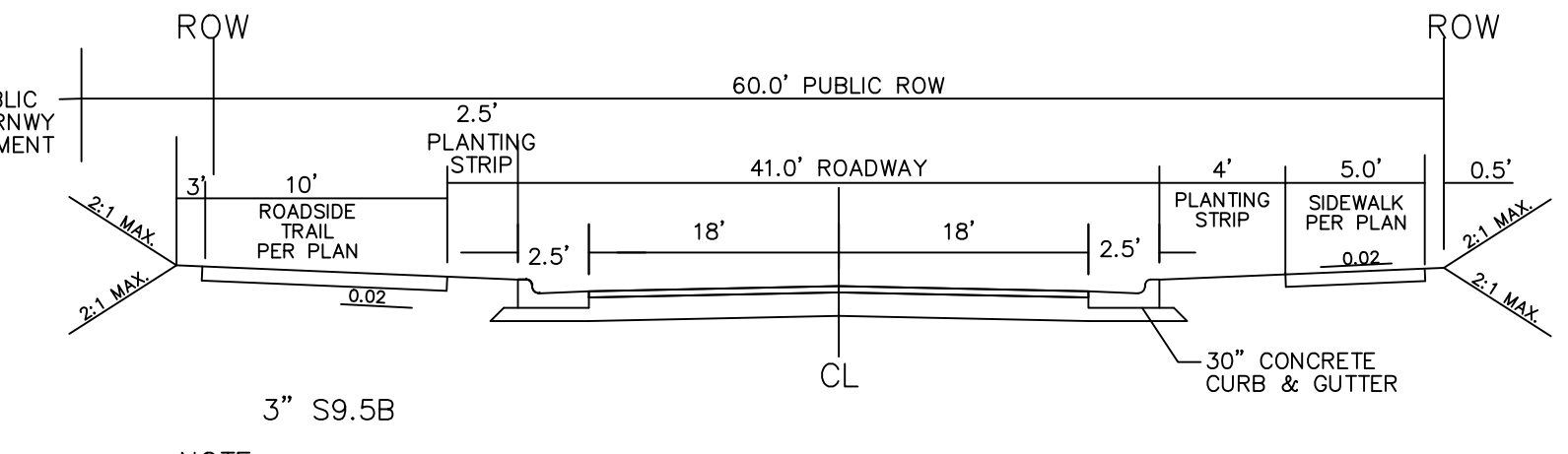
SHEET NO.:
CD18





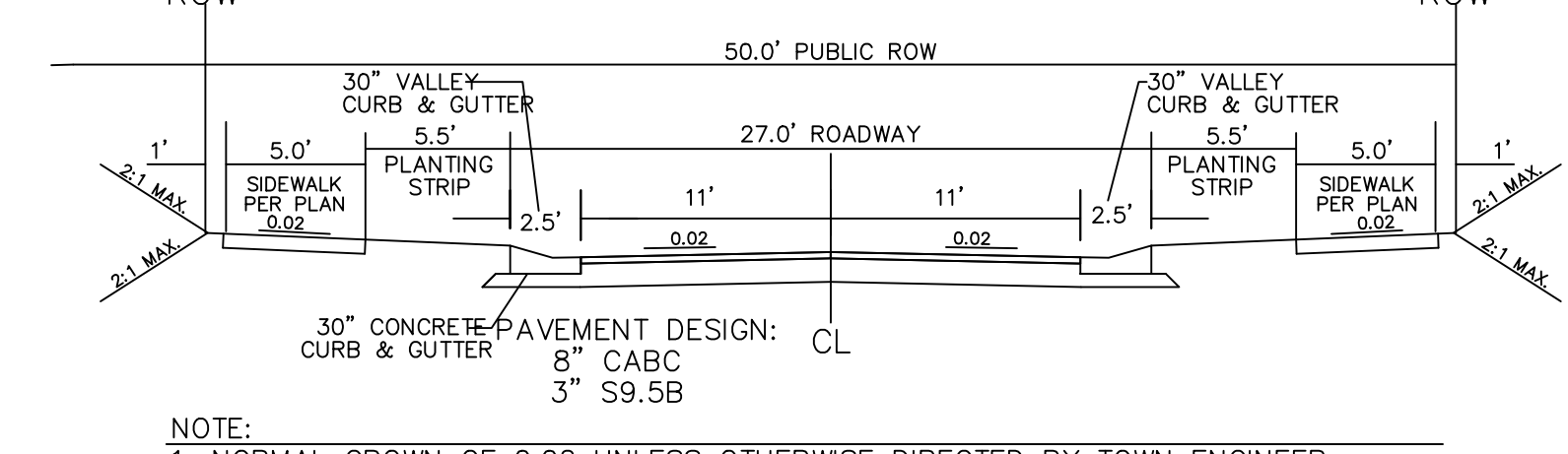
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

41' B-B ON A 60' R/W
TYPICAL SECTION



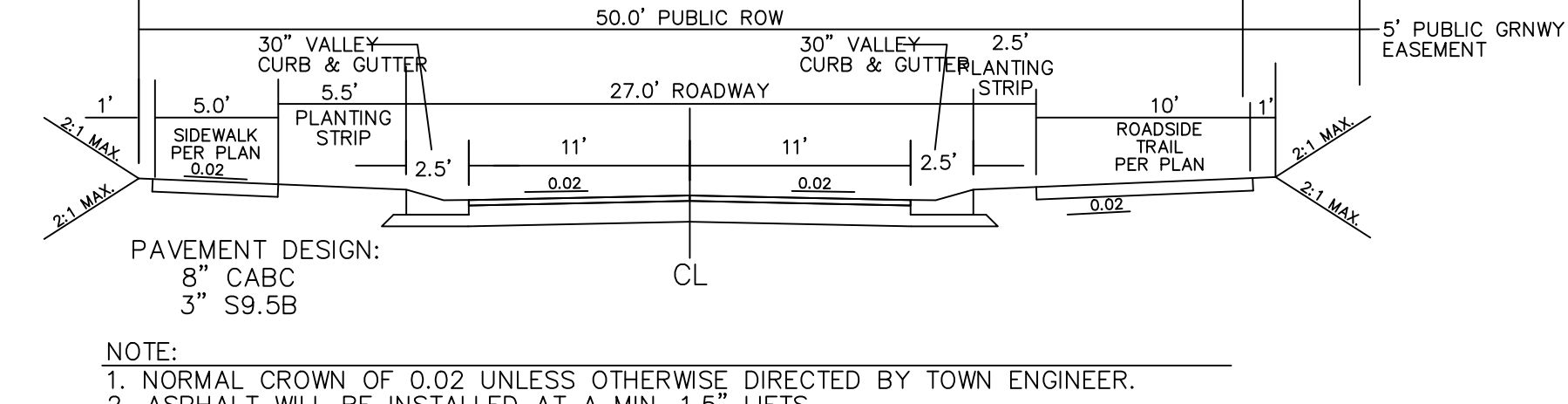
NOTE:
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41' B-B ON A 60' R/W
TYPICAL SECTION



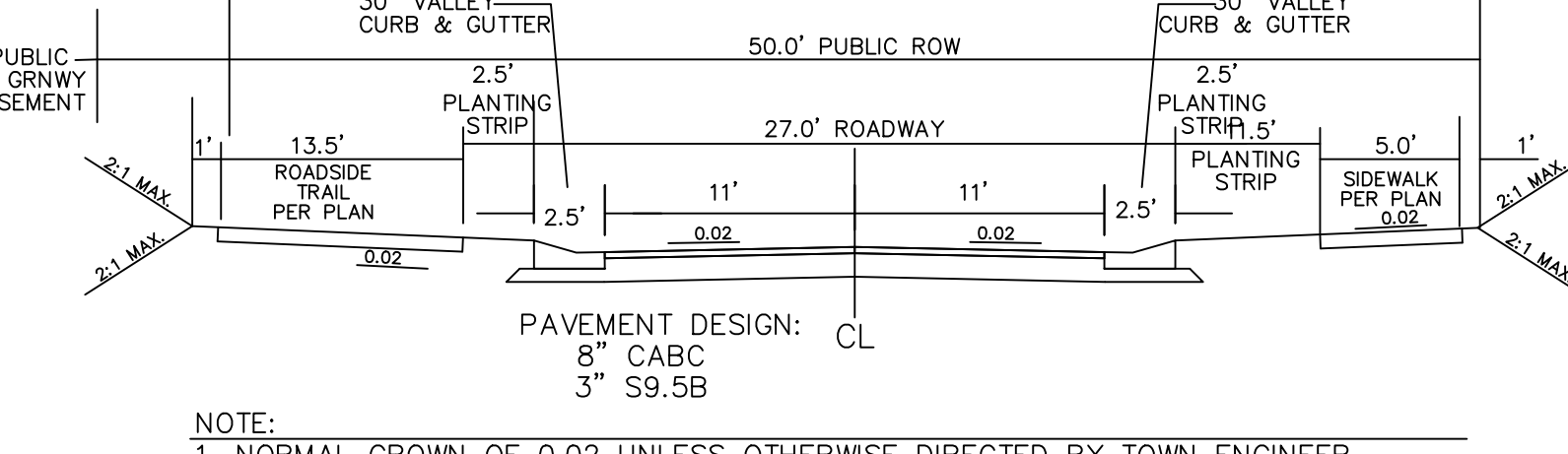
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

27' B-B ON A 50' R/W
TYPICAL SECTION



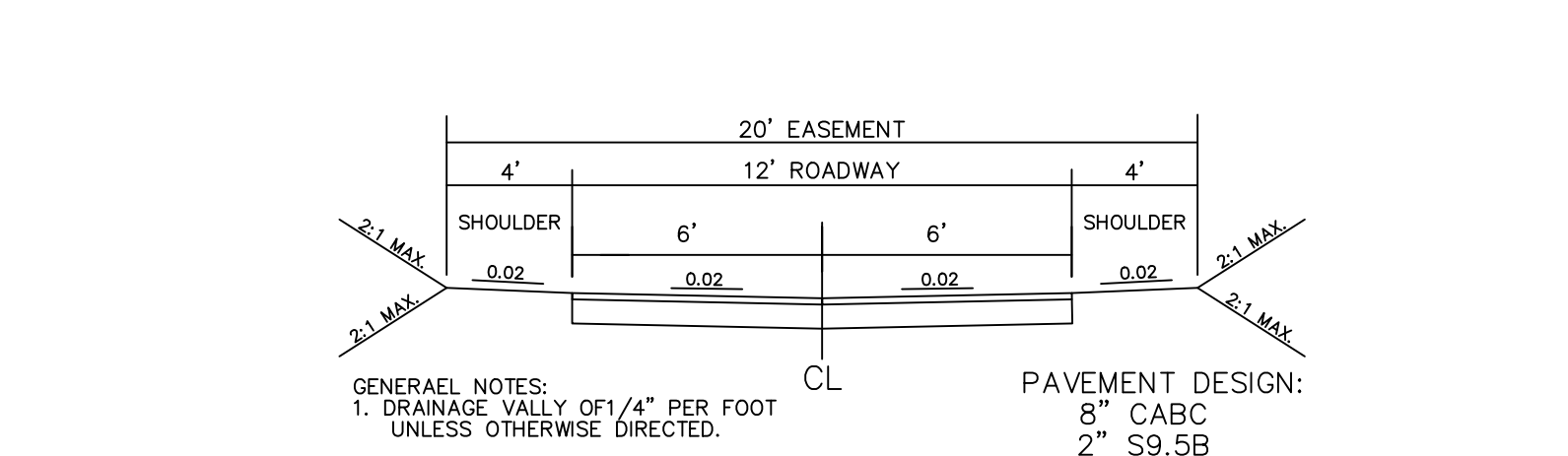
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

27' B-B ON A 50' R/W
TYPICAL SECTION



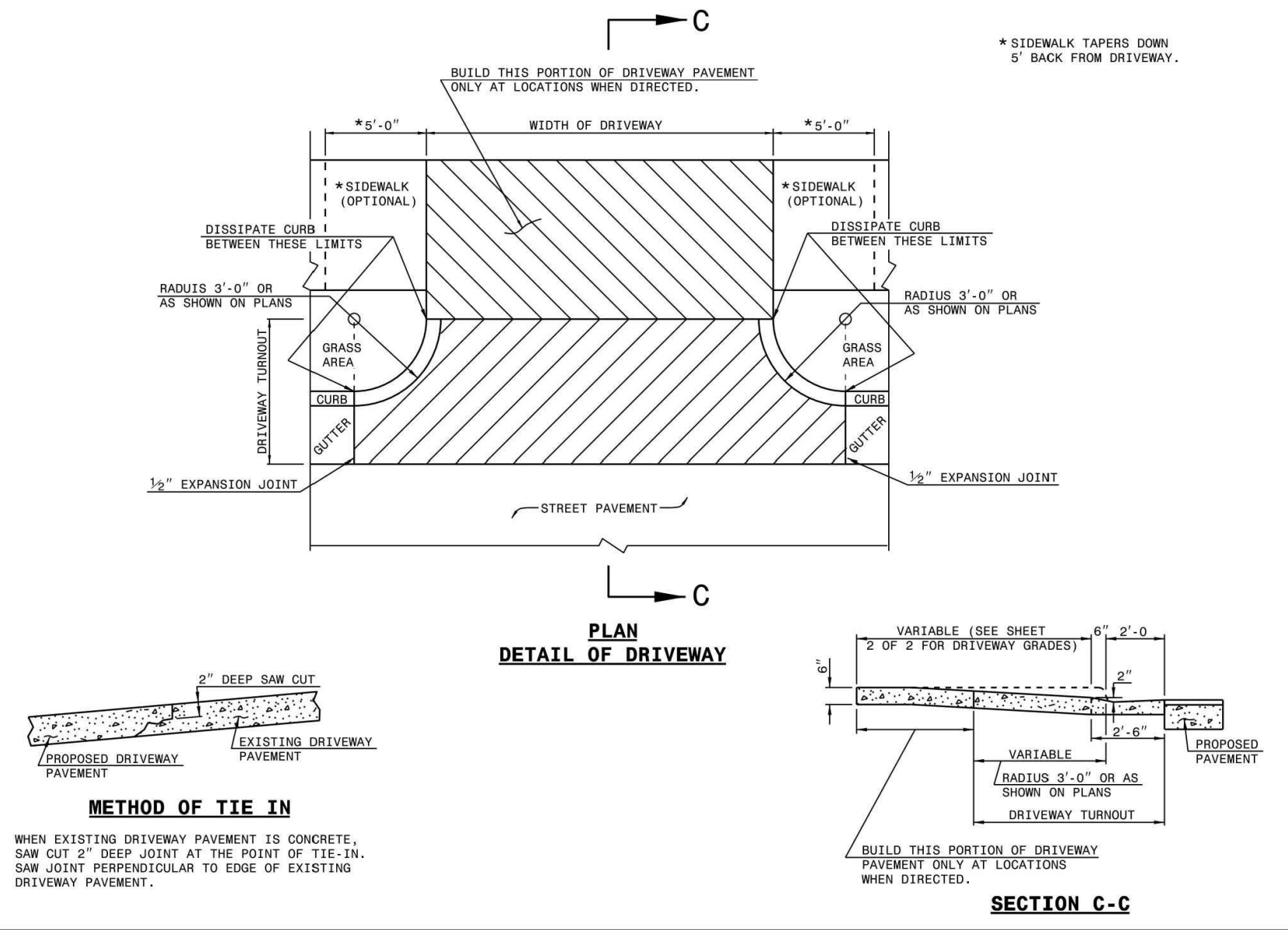
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

27' B-B ON A 50' R/W
TYPICAL SECTION



GENERAL NOTES:
1. DRAINAGE VALLEY OF 1/4" PER FOOT UNLESS OTHERWISE DIRECTED.
2. PAVEMENT DESIGN AS NOTED.
3. SEE DRIVEWAY DETAIL FOR ROAD INTERSECTIONS.

12' E-E IN A 20' EASEMENT
TYPICAL SECTION

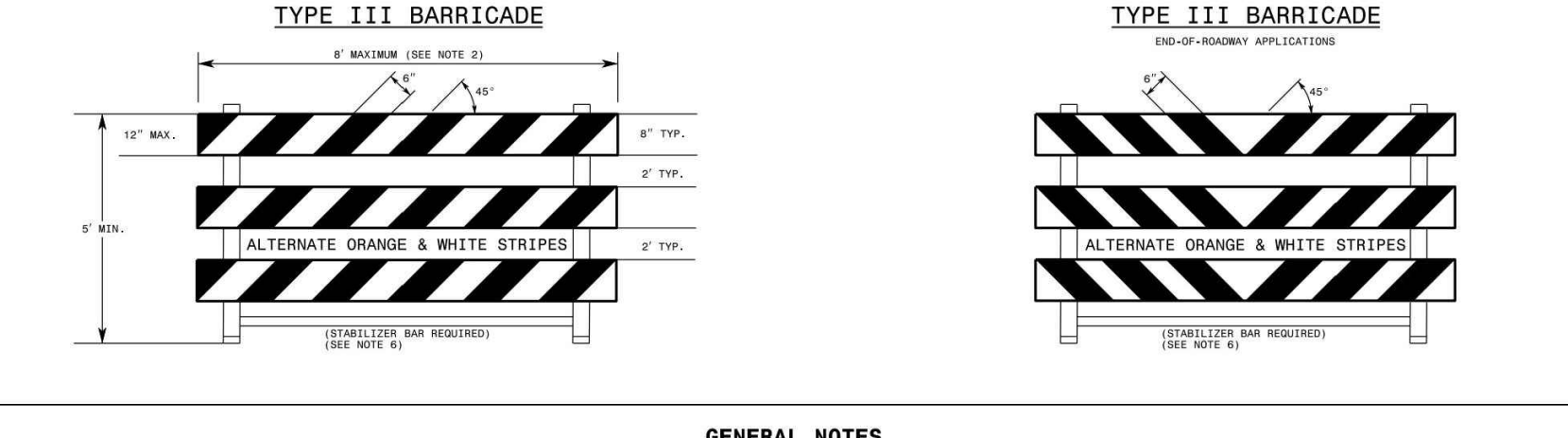
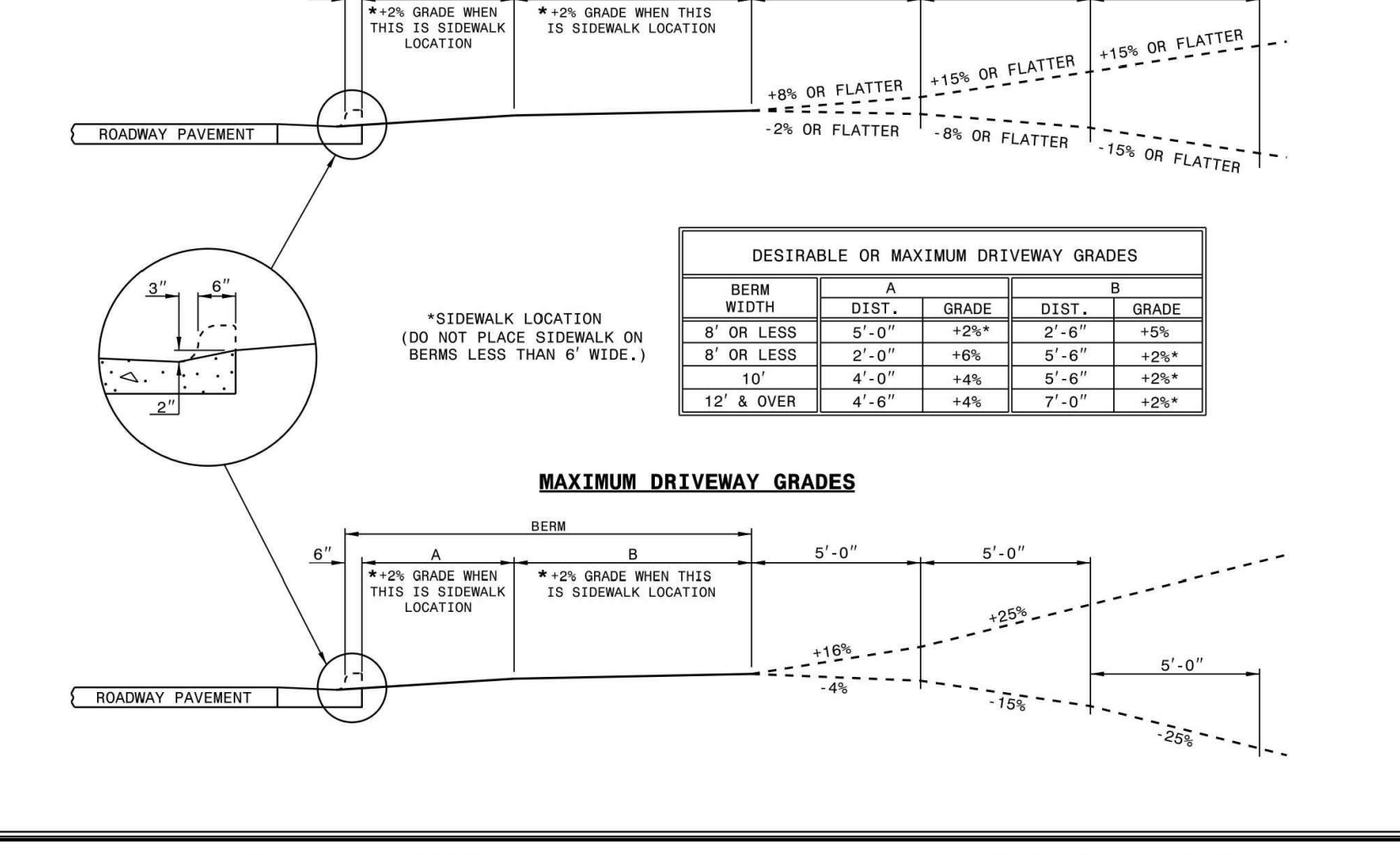


DRIVEWAY TURNOUT RADIUS TYPE

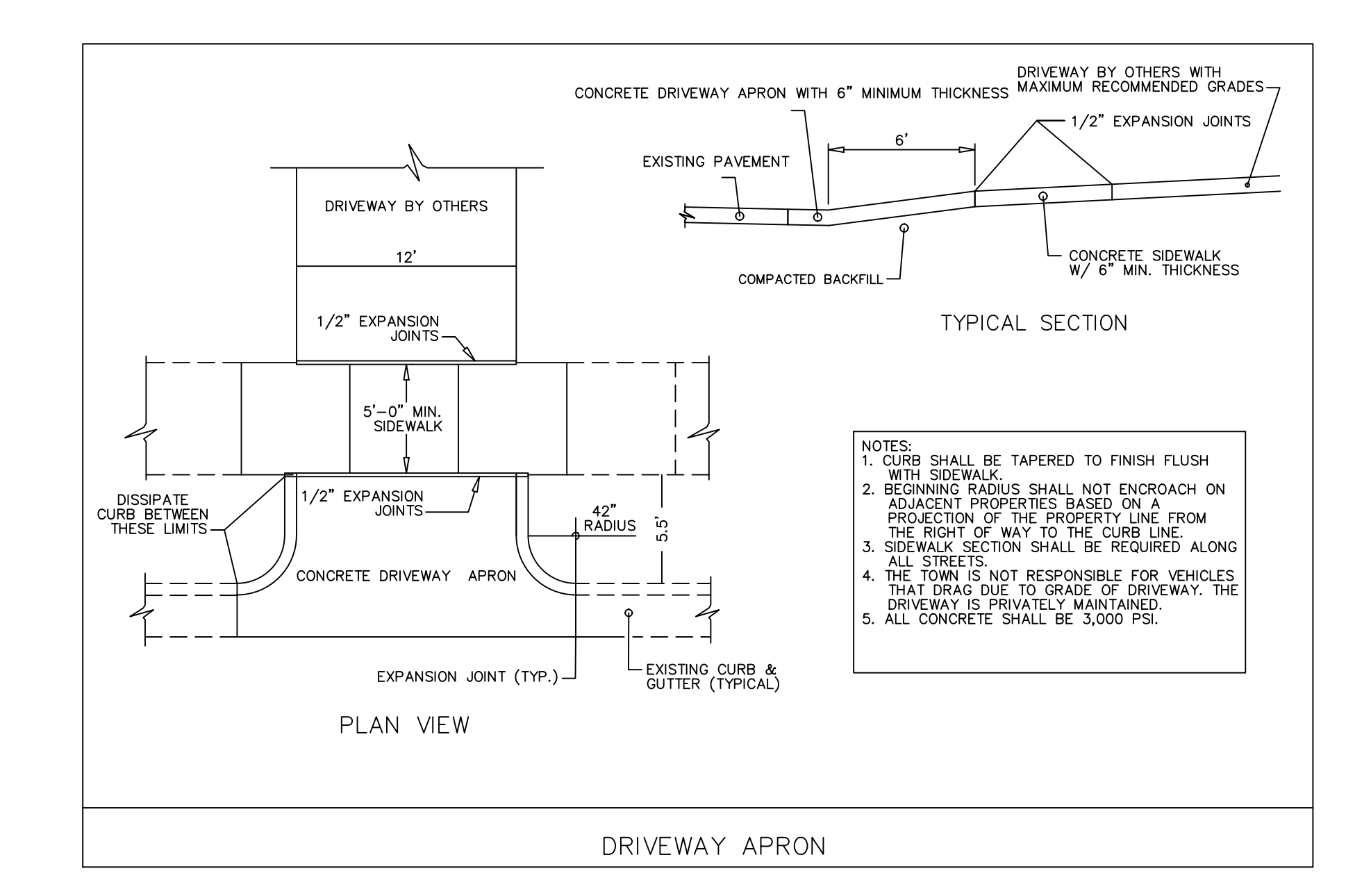
DRIVEWAY APRON

PLAN VIEW

SECTION C-C

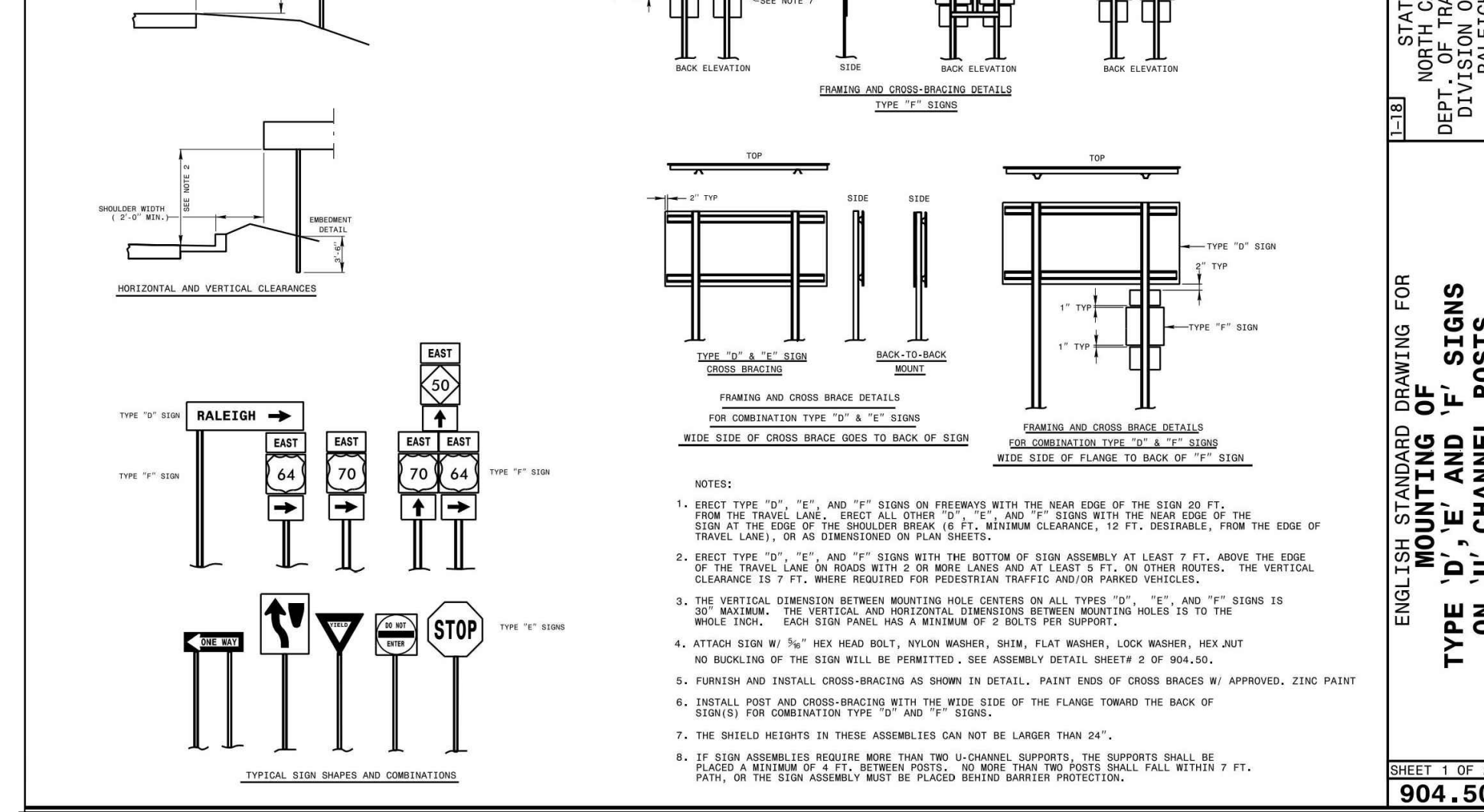


GENERAL NOTES:
1. HORIZONTAL RAILS FOR MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/CONCRETE, EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NGDOT APPROVED MATERIAL.
2. BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCHRP 350 CRASH TESTED FOR CATEGORY II DEVICES AND NGDOT APPROVED.
3. ONLY NGDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.
4. SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS SIGNS R11-3 OR R11-4 ARE REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
5. BARRICADE MUST BE NCHRP 350 FOR CATEGORY II DEVICES AND NGDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.
6. ASSEMBLY OF THE GENERIC BARRICADE MUST BE SELF CERTIFIED BY THE ASSEMBLER.
7. BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY, WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
8. STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE (RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE HIGHWAY TRAFFIC IS TO PASS OR TURN IN DETOURING, WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES).
9. USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
10. ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.
11. PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCHRP 350 APPROVAL LETTER NUMBER ON BARRICADE FRAME.
12. PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS STONES, CHAINS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

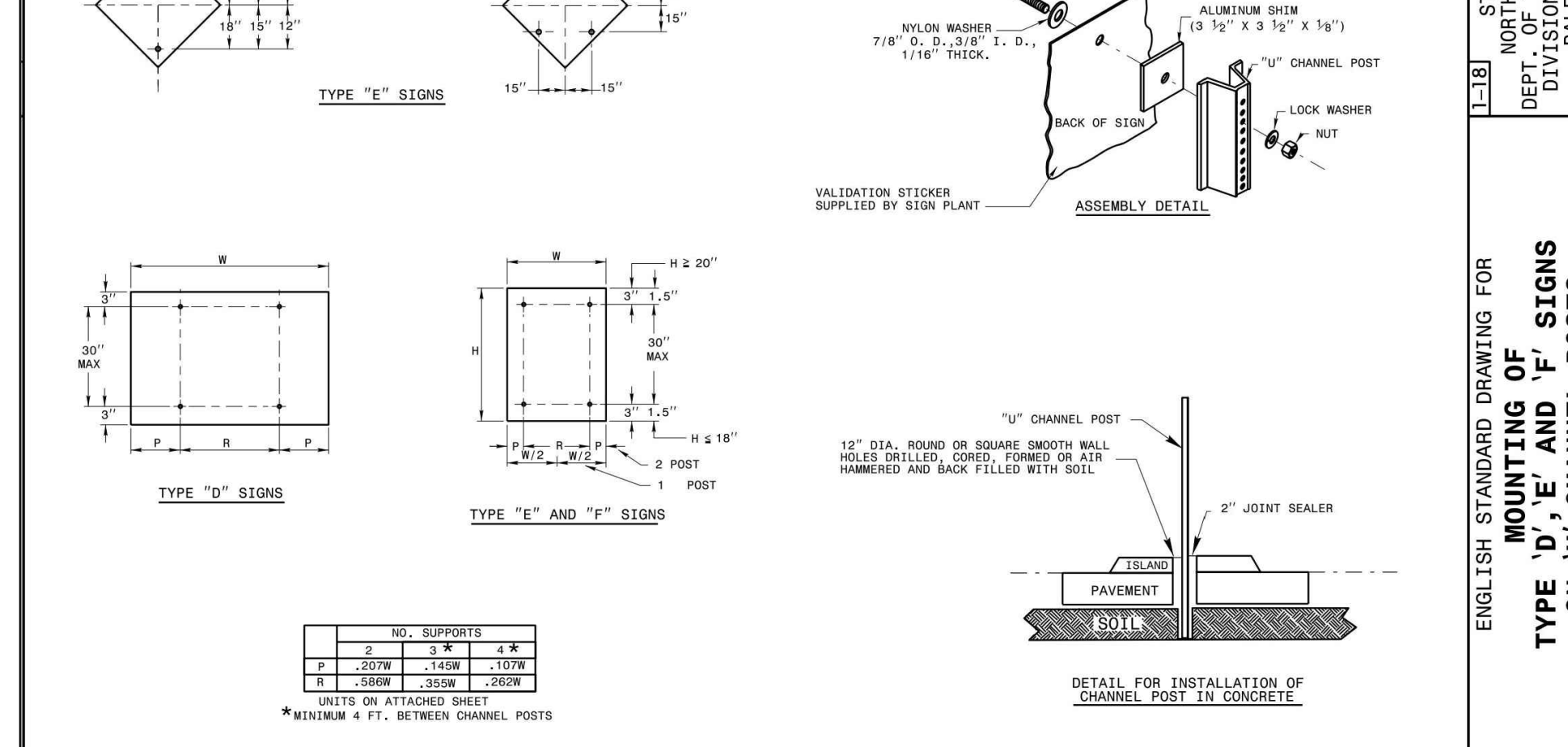


DRIVEWAY APRON

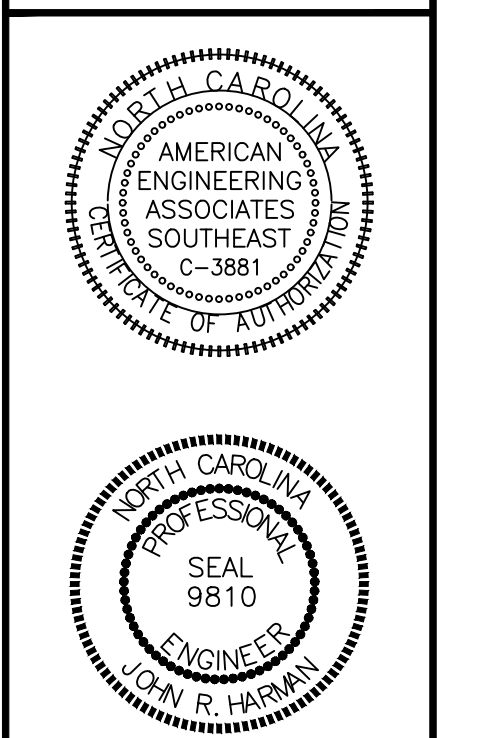
PLAN VIEW



ENGLISH STANDARD DRAWING FOR MOUNTING OF 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS



ENGLISH STANDARD DRAWING FOR MOUNTING OF 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS



REVISIONS:

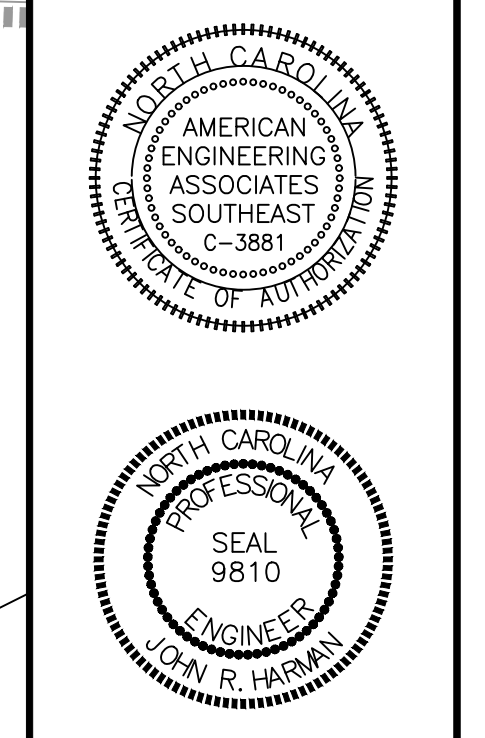
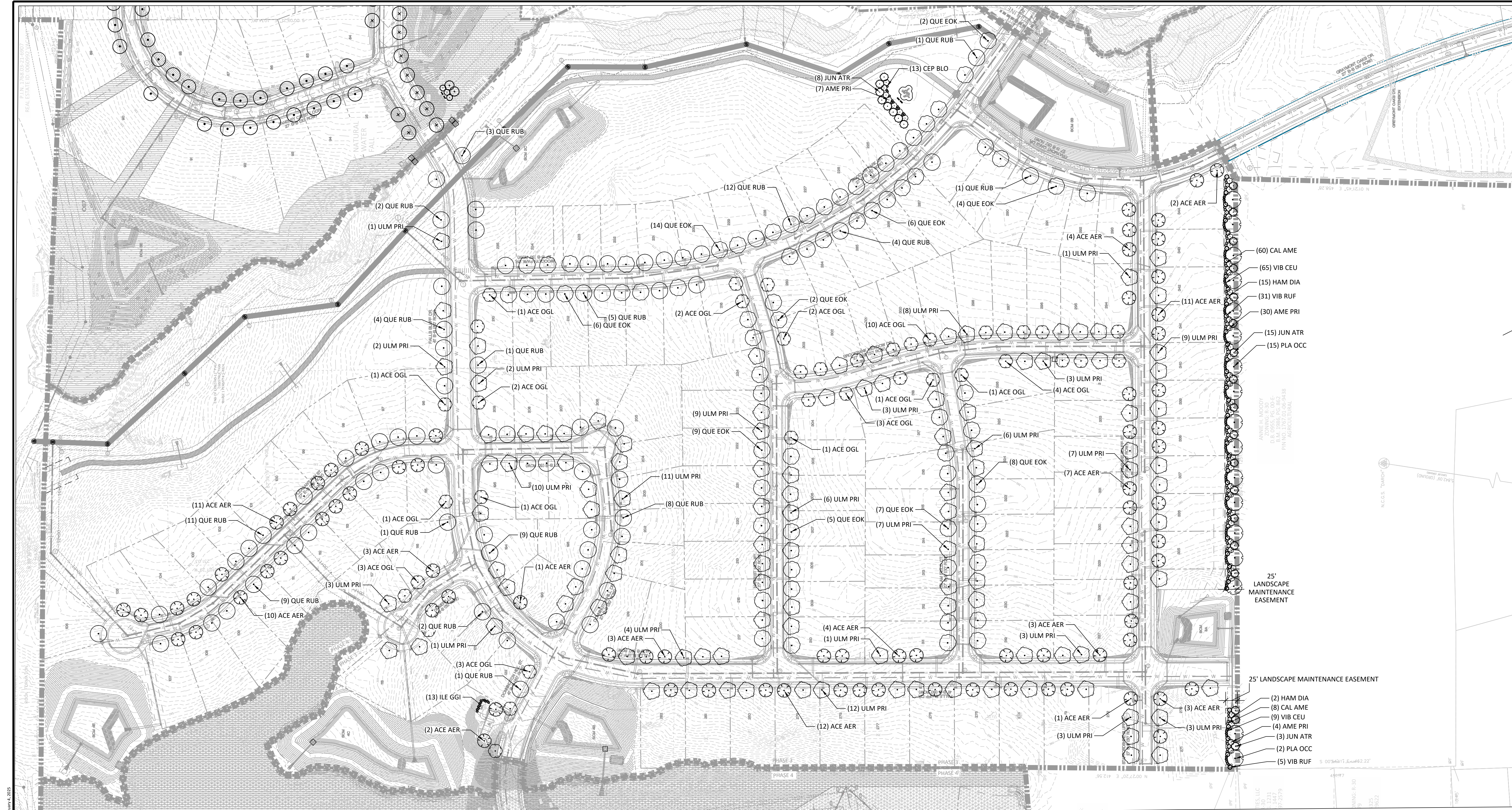
NO.	DATE	REVISION
1	7/8/2024	REVISED FROM TOWN OF ROLESVILLE CONSULTANT, WAKE COUNTY AND CITY OF RALEIGH
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS.
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

STIPULATION FOR REUSE
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KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC

JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SMM/LLS/AH/DH
DATE: NOV 1, 2024
SHEET TITLE: KALAS FALLS CIVIL DETAILS
SHEET NO.: CD19





NO.	DATE	REVISION
1	7/27/2024	ISSUE FROM TOWN OF ROLESVILLE CONSULTANT, MAKE CITY AND COUNTY OF WAKE COUNTY
2	9/4/2024	TOWN OF ROLESVILLE CONSULTANT COMMENTS
3	11/01/2024	CONSTRUCTION DRAWING COMMENT RESPONSES

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**KALAS FALLS
PHASE 3
1832 ROLESVILLE ROAD
WAKE COUNTY, NC**

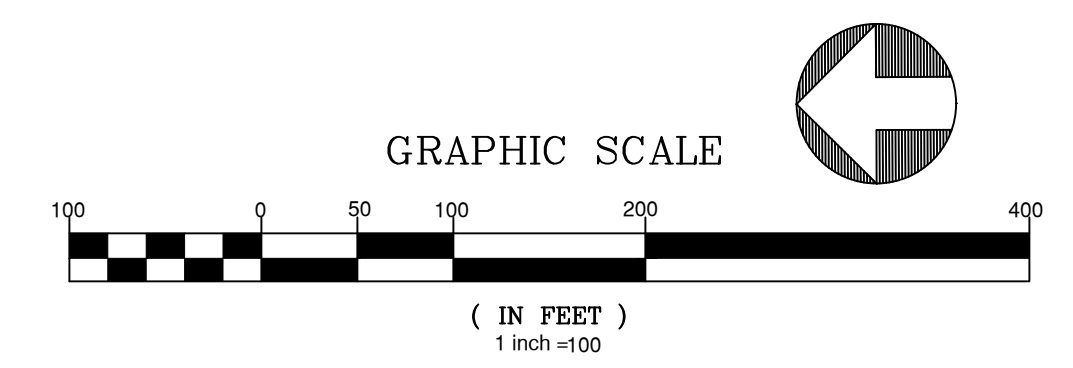
JOB NUMBER: 9900
CHECKED BY: BH/JH
DRAWN BY: SM/MAL/ES/AH/DH
DATE: NOV 1, 2024

**LANDSCAPE
PLAN**

L1

PLANT SCHEDULE

CODE	BOTANICAL / COMMON NAME	CAL	CONT	SIZE	QTY	REMARKS
LARGE TREES						
JUN ATR	Juniperus virginiana 'Minaret' / Minaret Eastern Redcedar	2.5" Cal.	B&B	8' Height Min.	26	Single Stem
PLA OCC	Platanus occidentalis / American Sycamore	2.5" Cal.	B&B	8' Height Min.	17	Single Stem
STREET TREES						
ACE AER	Acer buergerianum 'ABMTF' / Aeryn® Trident Maple	2.5" Cal.	B&B	8' Height Min.	77	Single Stem
ACE OGL	Acer rubrum 'October Glory' / October Glory Red Maple	2.5" Cal.	B&B	8' Height Min.	36	Single Stem
QUE EOK	Quercus phellos 'QPSTA' / Hightower® Willow Oak	2.5" Cal.	B&B	8' Height Min.	63	Single Stem
QUE RUB	Quercus rubra / Northern Red Oak	2.5" Cal.	B&B	8' Height Min.	74	Single Stem
ULM PRI	Ulmus americana 'Princeton' / Princeton American Elm	2.5" Cal.	B&B	8' Height Min.	115	Single Stem
UNDERSTORY TREES						
AME PRI	Amelanchier x grandiflora 'Princess Diana' / Princess Diana Apple Serviceberry	1.5" Cal.		8' Height Min.	41	
SHRUBS						
CAL AME	Calliandra americana / American Beautyberry	18" Height Min.	3 gal		68	Fully Rooted
CEP BLO	Cephalanthus occidentalis 'Balloptics' / Fiber Optics® Buttonbush	18" Height Min.	3 gal		13	Fully Rooted
HAM DIA	Hamamelis x intermedia 'Diane' / Diane Witch Hazel	18" Height Min.	3 gal		17	Fully Rooted
ILE GGI	Ilex glabra 'SMNIGAB17' / Gem Box® Inkberry Holly	18" Height Min.	3 gal		13	Fully Rooted
VIB RUF	Viburnum rufidulum / Southern Rusty Blackhaw	18" Height Min.	3 gal		36	Fully Rooted
VIB CEU	Viburnum x 'SpG-3-024' / Moonlit Lace® Viburnum	18" Height Min.	3 gal		74	Fully Rooted



2:\Projects\9900\Working\Drawings\Phase 3\Phase 3 Landscape Plan.dwg

