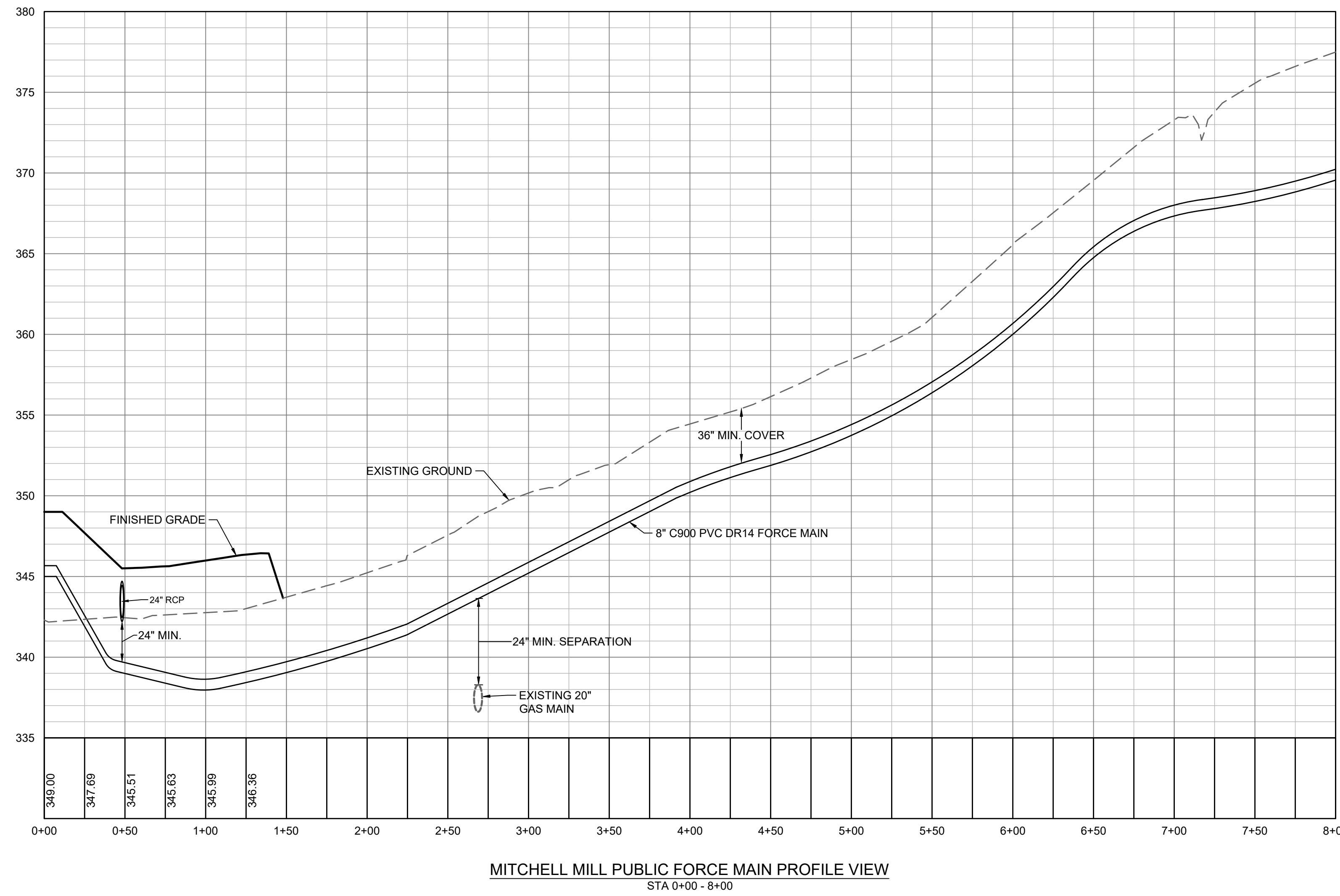


MITCHELL MILL PUBLIC FORCE MAIN PLAN VIEW  
STA 0+00 - 8+00



MITCHELL MILL PUBLIC FORCE MAIN PROFILE VIEW  
STA 0+00 - 8+00



01/02/2024

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06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
07/22/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

DATE  
09/17/2021

DRAWN BY  
R. WINGATE

DESIGNED BY  
P. BARBEAU

CHECKED BY  
P. BARBEAU

SCALE  
AS SHOWN



NORTH CAROLINA LICENSE NO. C-1652  
**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**MITCHELL MILL FORCE MAIN PLAN AND PROFILE**

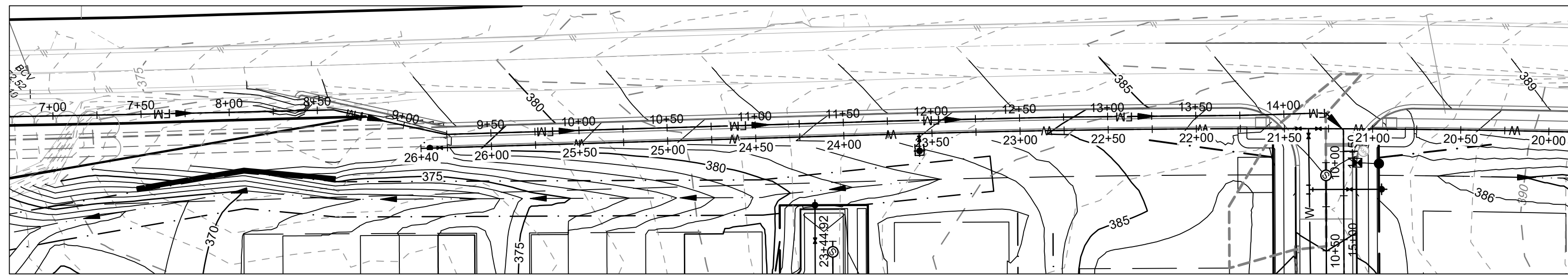
JOB NO.  
43398

SHEET NO.  
C5.7

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

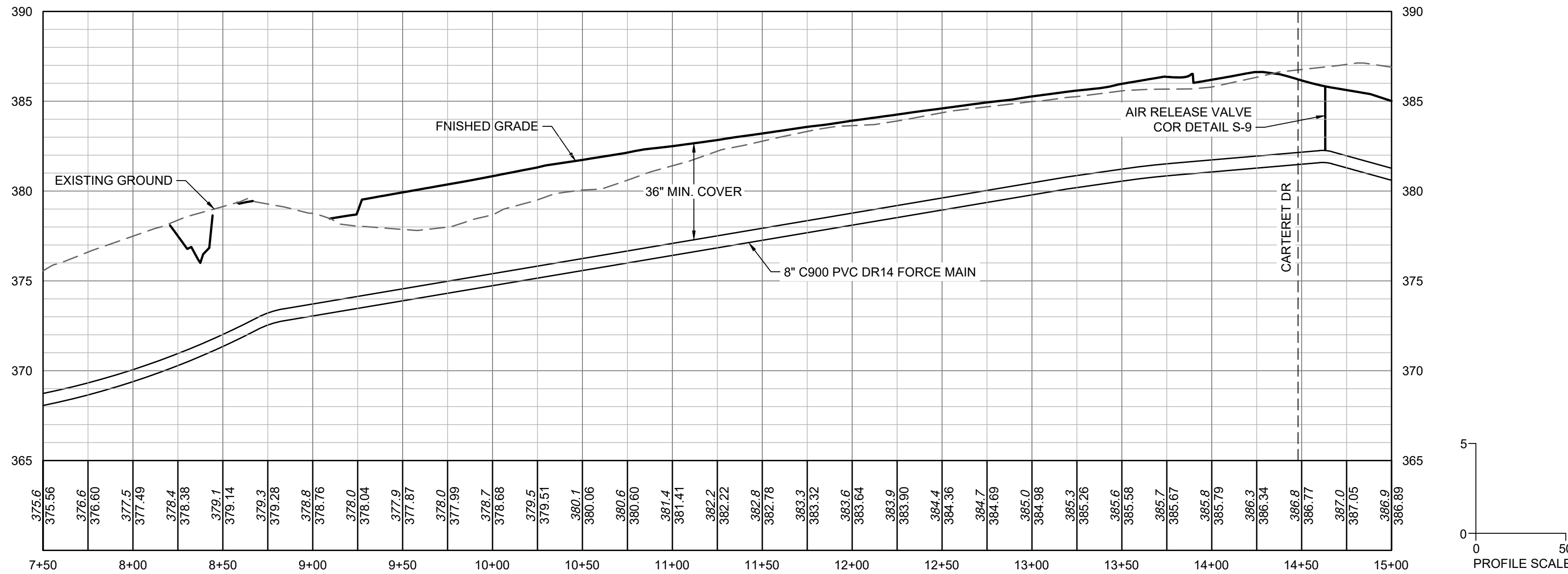
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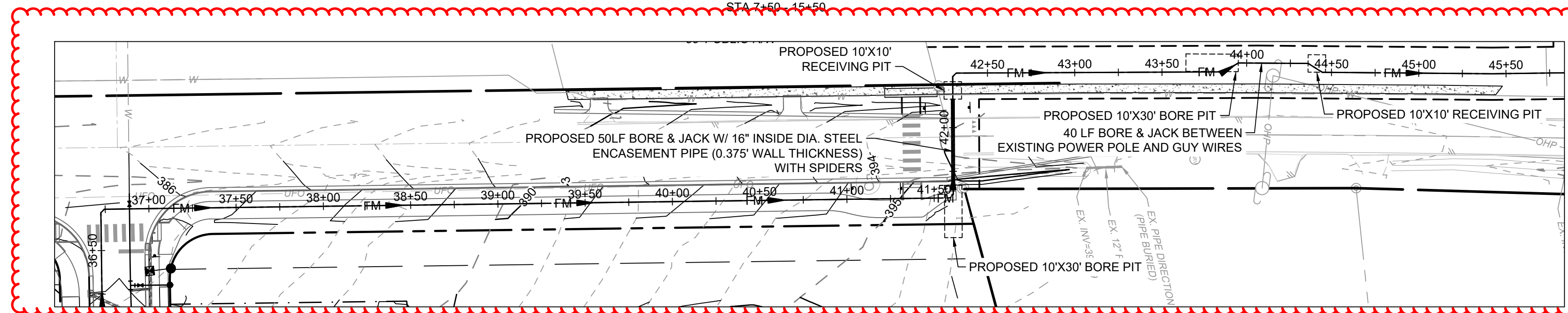
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STA 0+00 - 8+00

SCALE 1"=50'  
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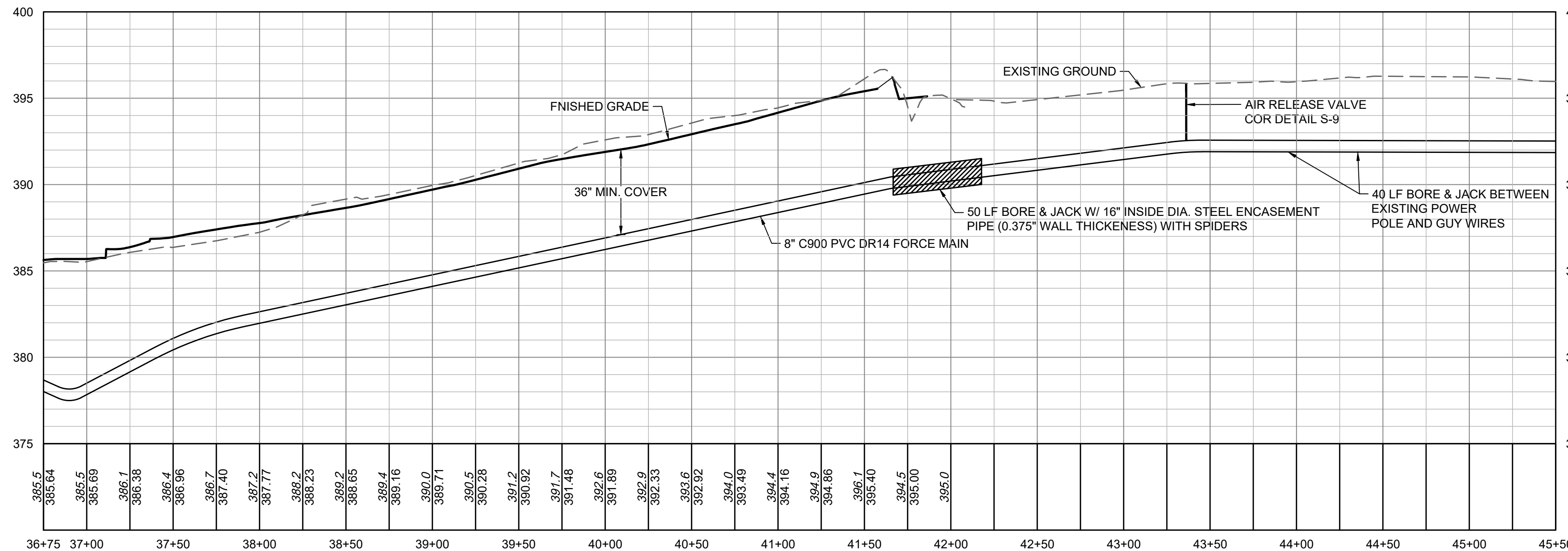


MITCHELL MILL PUBLIC FORCE MAIN PROFILE VIEW  
STA 7+50 - 15+50

5  
0  
PROFILE SCALE



ROLESVILLE RD PUBLIC FORCE MAIN PLAN VIEW  
STA 0+00 - 8+00



ROLESVILLE RD PUBLIC FORCE MAIN PROFILE VIEW  
STA 7+50 - 15+50

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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09/06/2023  
01/02/2024

REVISION DESCRIPTION  
REVISIONS PER WAKE COUNTY COMMENTS  
CONSTRUCTION DOCUMENT SUBMITTAL  
REVISIONS PER NCDOT COMMENTS  
REVISIONS PER CITY OF RALEIGH COMMENTS  
REVISIONS TO APPROVED PLANS

DATE  
09/17/2021

DRAWN BY  
R. WINGATE

DESIGNED BY  
P. BARBEAU

CHECKED BY  
P. BARBEAU

SCALE  
AS SHOWN

**TIMMONS GROUP**  
NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

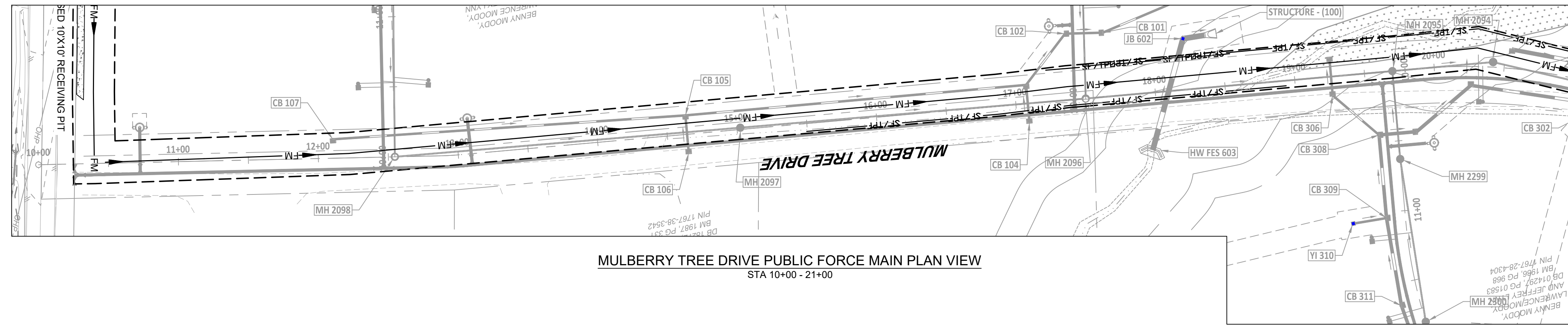
**MITCHELL MILL AND ROLESVILLE FORCE MAIN PLAN AND PROFILE**

JOB NO.  
43398

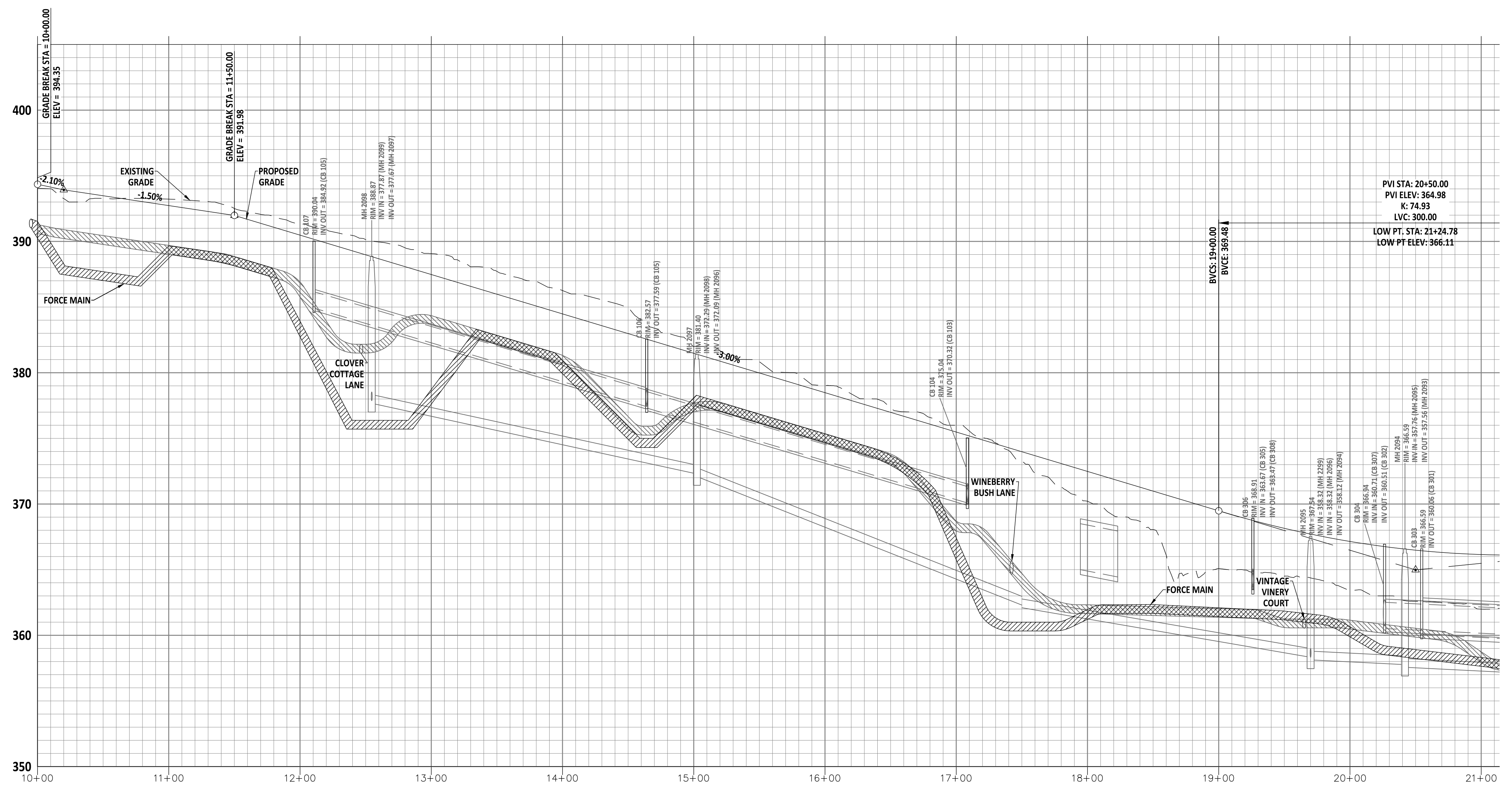
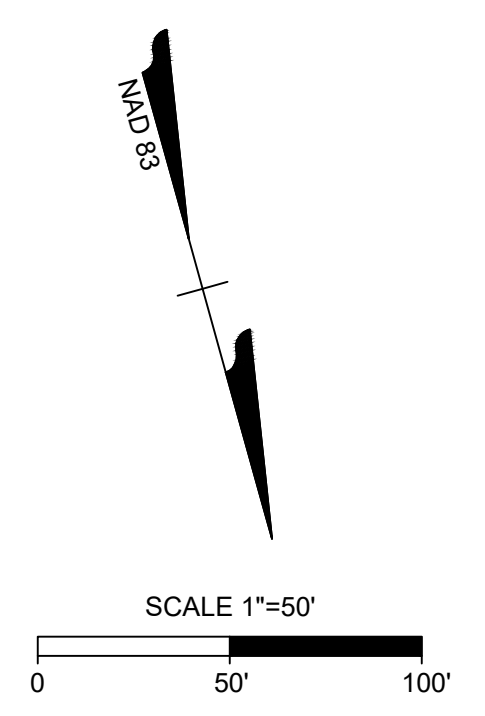
SHEET NO.  
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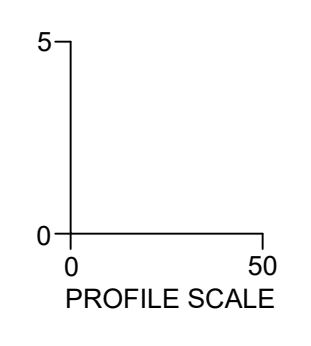




MULBERRY TREE DRIVE PUBLIC FORCE MAIN PLAN VIEW  
STA 10+00 - 21+00



MULBERRY TREE DRIVE PUBLIC FORCE MAIN PROFILE  
VIEW  
STA 10+00 - 21+00



01/02/2024

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04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

09/17/2021  
DRAWN BY  
**R. WINGATE**  
DESIGNED BY  
**P. BARBEAU**  
CHECKED BY  
**P. BARBEAU**

SCALE  
AS SHOWN

NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

**MULBERRY TREE DRIVE FORCE MAIN PLAN AND PROFILE**

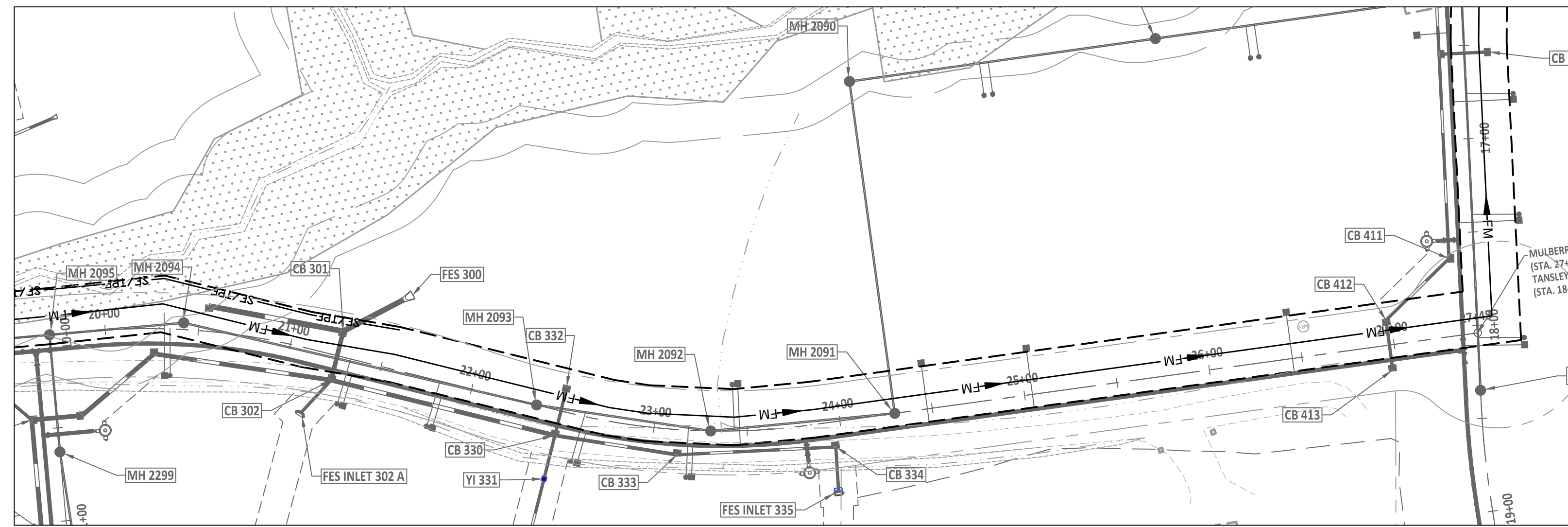
JOB NO.	43398
SHEET NO.	C5.9

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

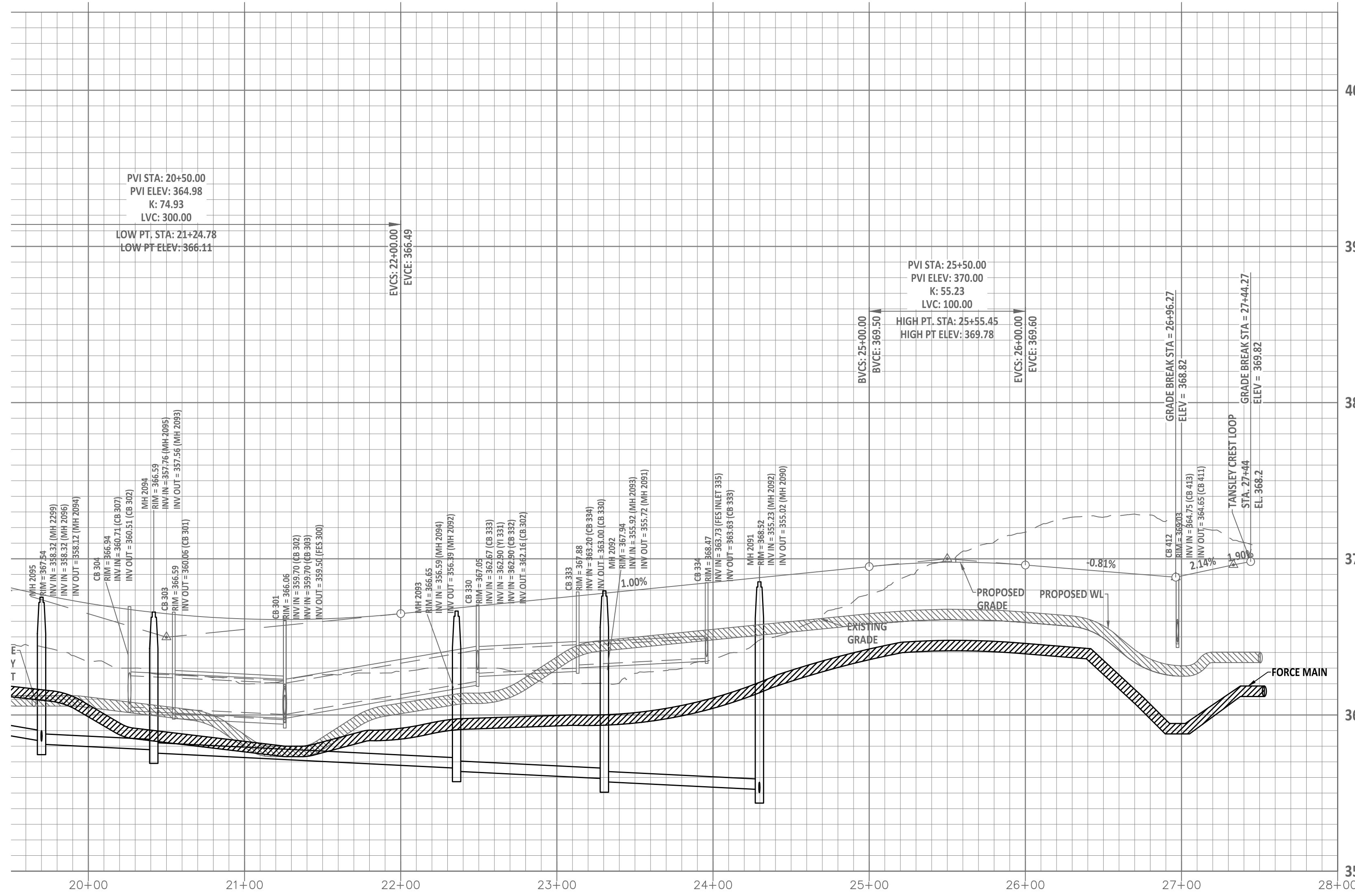
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S:\324\3398-Wheeler\_T\NetDWG\SheetCD\43398-C5.6-FORCPRDF.dwg | Printed on 12/22/2023 1:48 PM | by April Blye



AMAZON TR PUBLIC FORCE MAIN PLAN VIEW  
STA 19+50 - 28+00



AMAZON TR PUBLIC FORCE MAIN PROFILE VIEW  
STA 19+50 - 28+00

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

DATE  
09/17/2021

DRAWN BY  
R. WINGATE

DESIGNED BY  
P. BARBEAU

CHECKED BY  
P. BARBEAU

SCALE  
AS SHOWN

**TIMMONS GROUP**  
NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

**MULBERRY TREE DRIVE FORCE MAIN PLAN AND PROFILE**

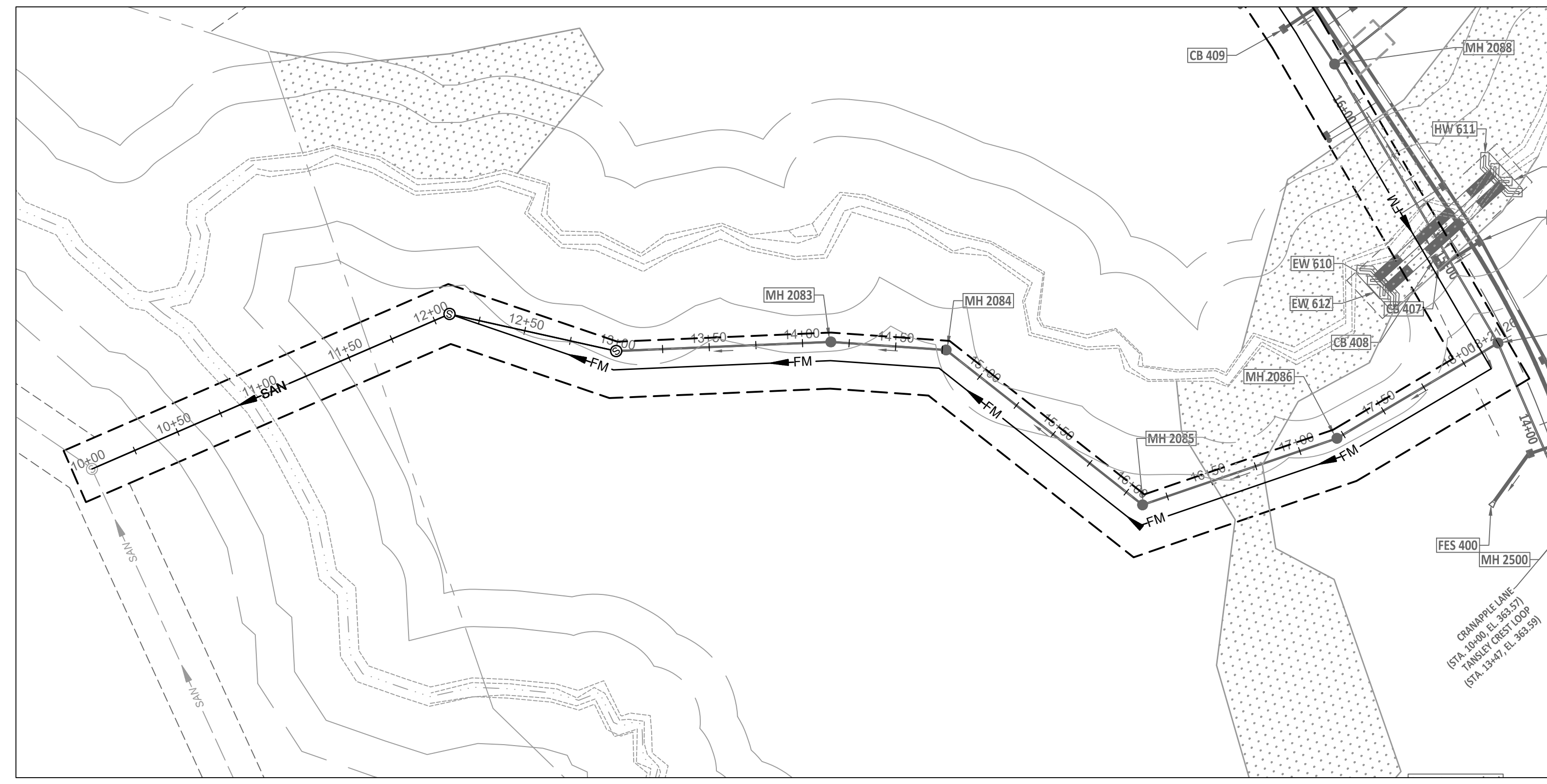
JOB NO.  
43398

SHEET NO.  
C5.10

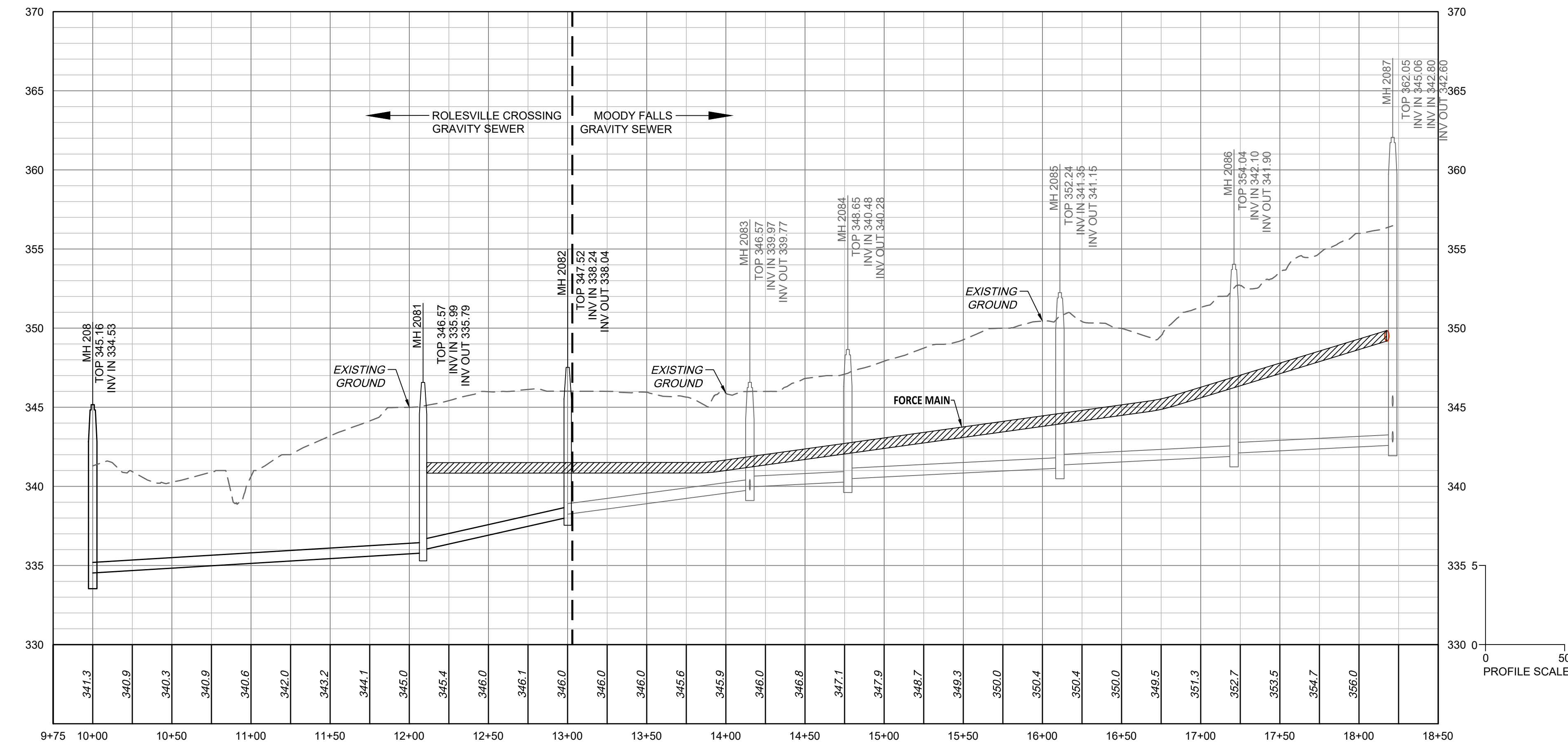
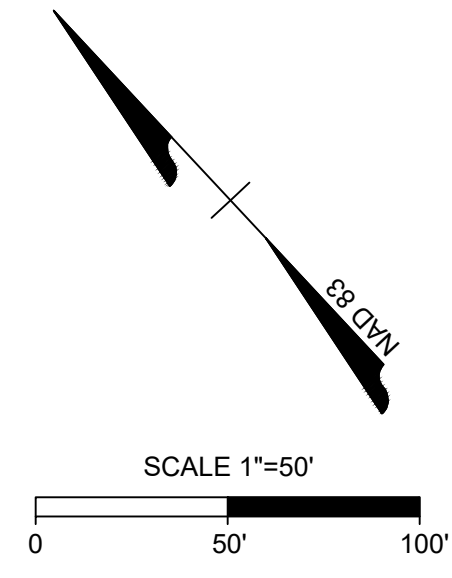
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TANSLEY CREST LOOP PUBLIC FORCE MAIN PLAN VIEW  
STA 10+00 - 18+25



TANSLEY CREST LOOP PUBLIC FORCE MAIN PROFILE VIEW  
STA 10+00 - 18+25



01/02/2024

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04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

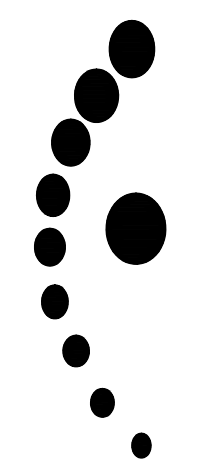
DATE  
09/17/2021

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R. WINGATE

DESIGNED BY  
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CHECKED BY  
P. BARBEAU

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**TIMMONS GROUP**  
NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

**TANSLEY CREST LOOP FORCE MAIN PLAN AND PROFILE**

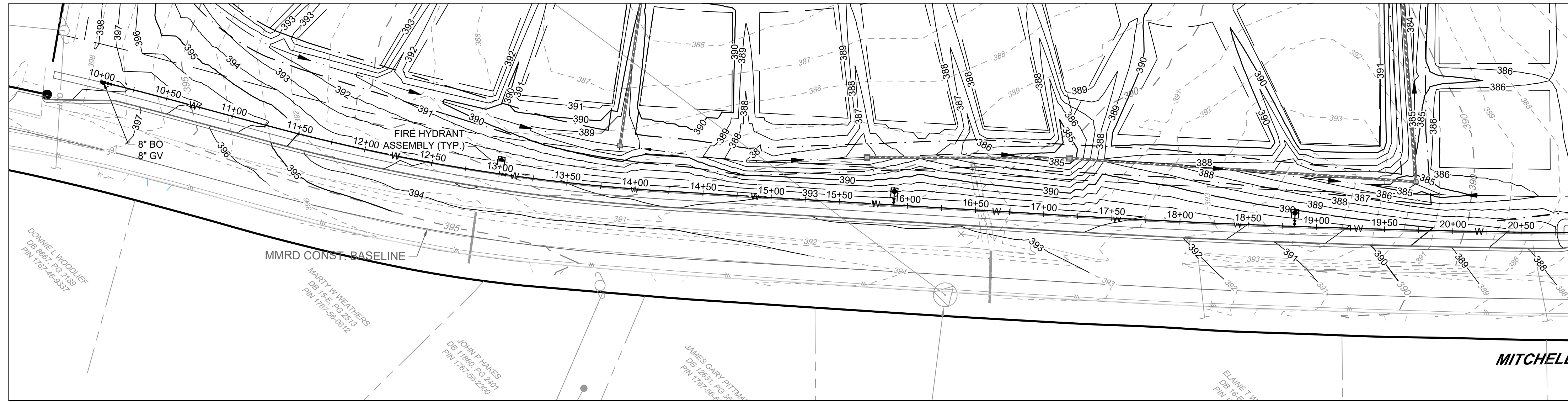
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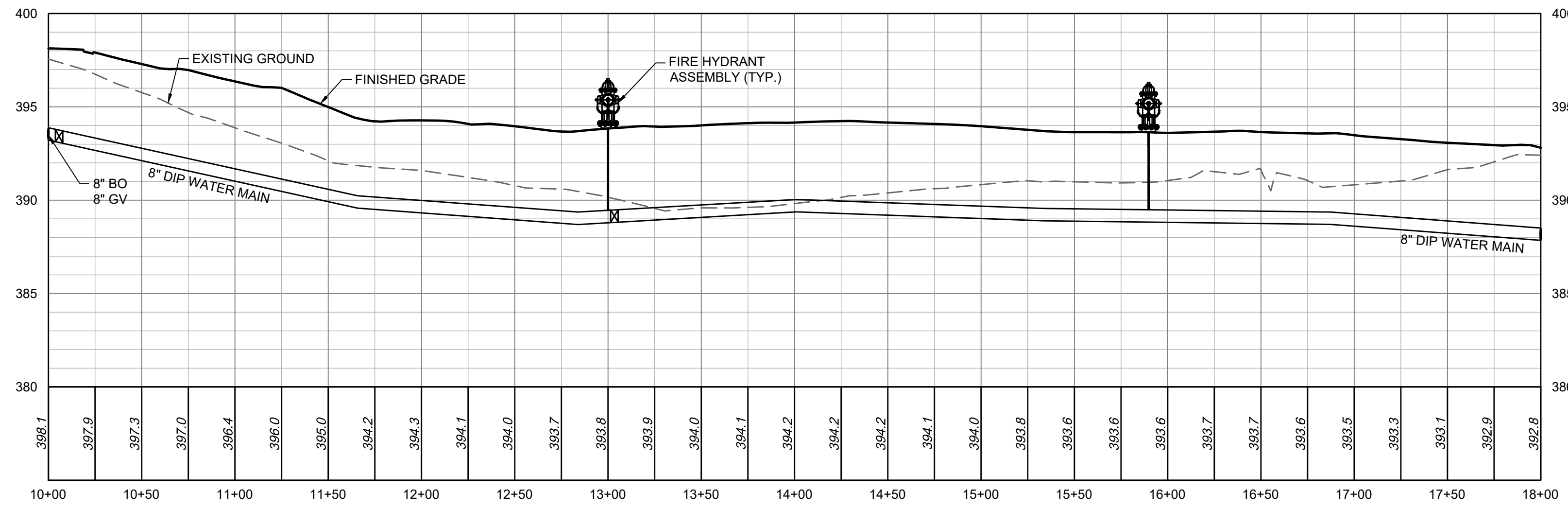
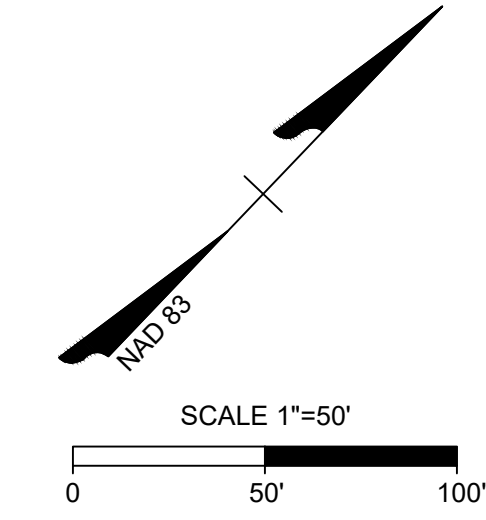
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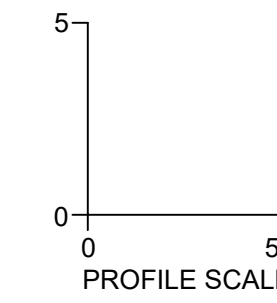




MITCHELL MILL PUBLIC WATER MAIN PLAN VIEW  
STA 10+00 - 18+00



MITCHELL MILL PUBLIC WATER MAIN PROFILE VIEW  
STA 10+00 - 18+00



01/02/2024

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CONSTRUCTION DOCUMENT SUBMITTAL  
REVISIONS PER NCDOT COMMENTS  
REVISIONS PER CITY OF RALEIGH COMMENTS  
REVISIONS TO APPROVED PLANS

DATE  
09/17/2021

DRAWN BY  
R. WINGATE

DESIGNED BY  
P. BARBEAU

CHECKED BY  
P. BARBEAU

SCALE  
AS SHOWN

**TIMMONS GROUP** . . . . .  
NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

**MITCHELL MILL WATER MAIN PLAN AND PROFILE**

JOB NO.  
43398

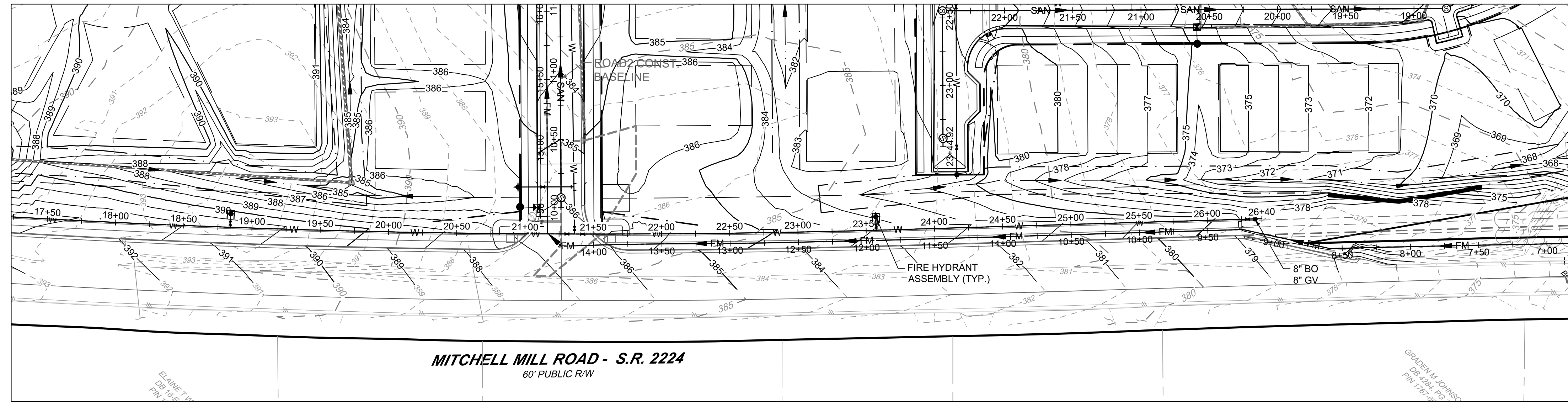
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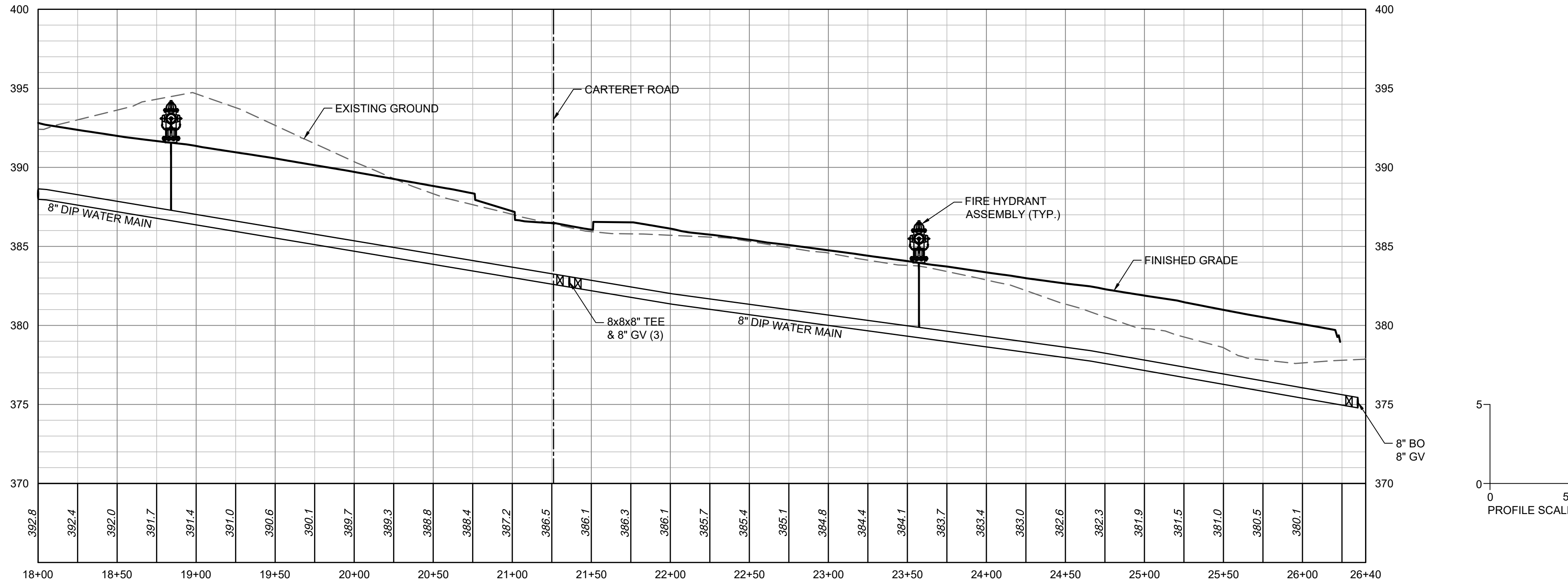
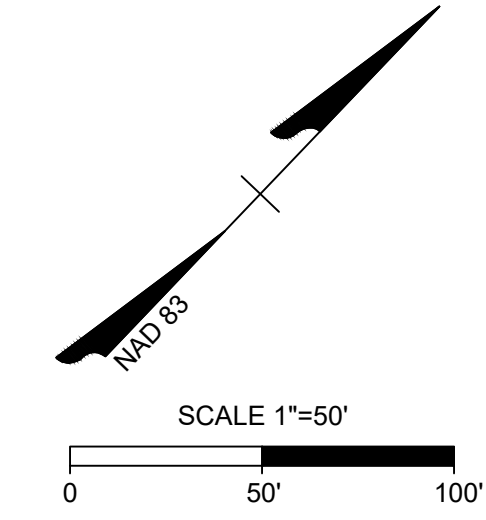
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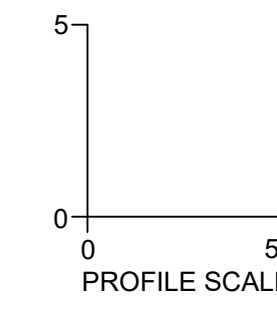


MITCHELL MILL ROAD - S.R. 2224  
60' PUBLIC R/W

MITCHELL MILL PUBLIC WATER MAIN PLAN VIEW  
STA 18+00 - 26+40



MITCHELL MILL PUBLIC WATER MAIN PROFILE VIEW  
STA 18+00 - 26+40



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REVISIONS PER WAKE COUNTY COMMENTS  
CONSTRUCTION DOCUMENT SUBMITTAL  
REVISIONS PER NCDOT COMMENTS  
REVISIONS PER CITY OF RALEIGH COMMENTS  
REVISIONS TO APPROVED PLANS

DATE  
09/17/2021

DRAWN BY  
R. WINGATE

DESIGNED BY  
P. BARBEAU

CHECKED BY  
P. BARBEAU

SCALE  
AS SHOWN

**TIMMONS GROUP**  
NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

**MITCHELL MILL WATER MAIN PLAN AND PROFILE**

JOB NO.  
43398

SHEET NO.  
C5.13

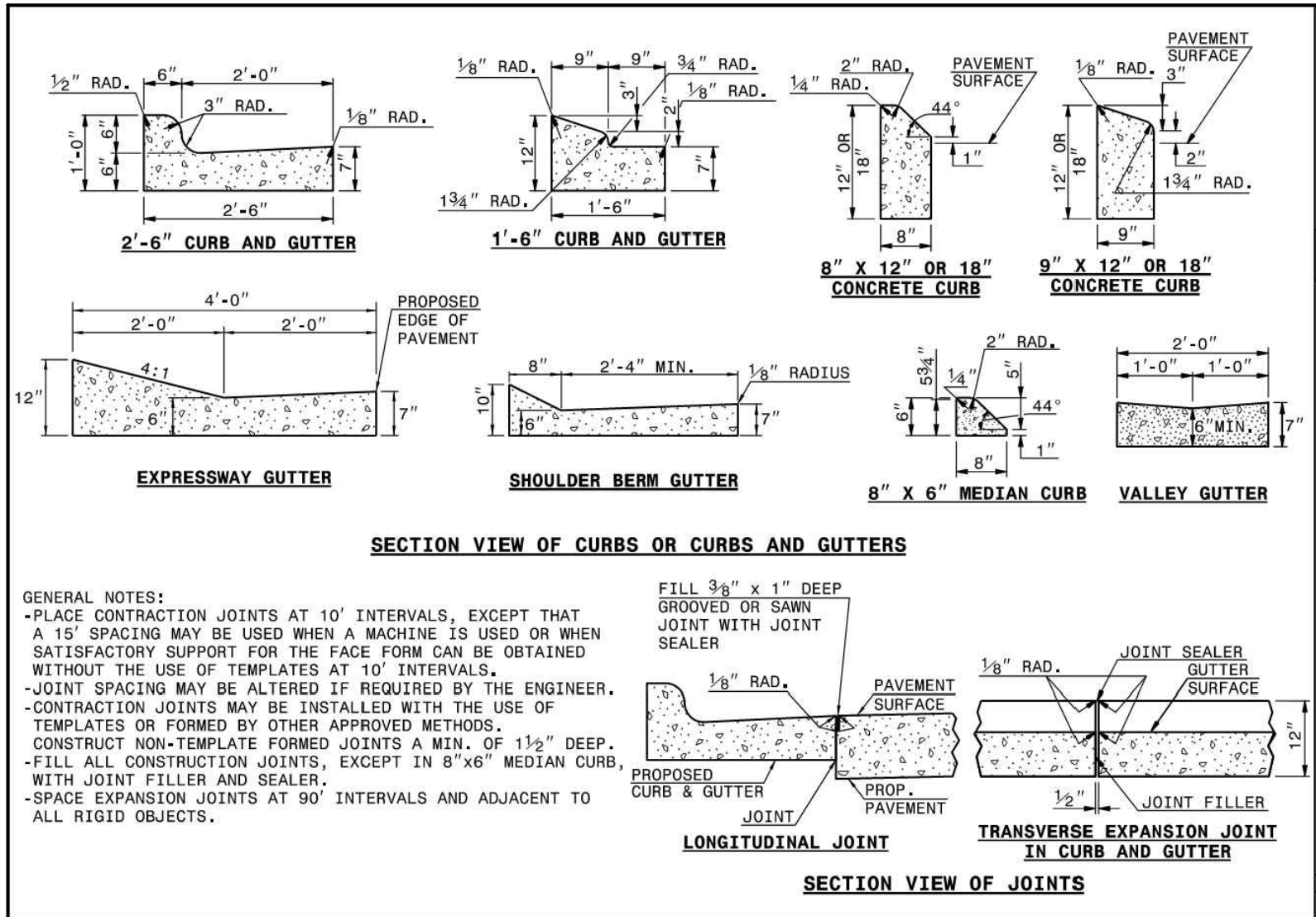
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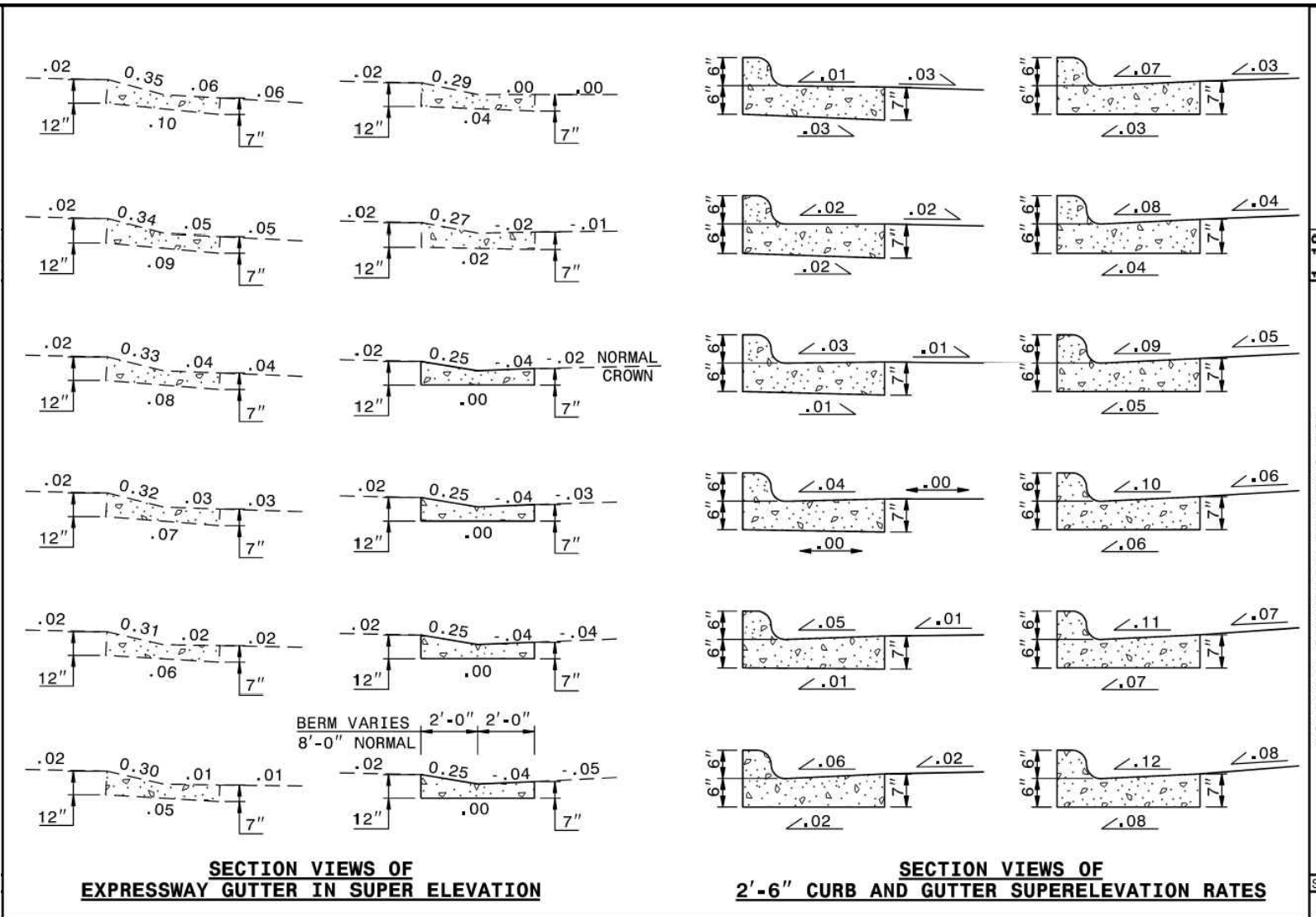






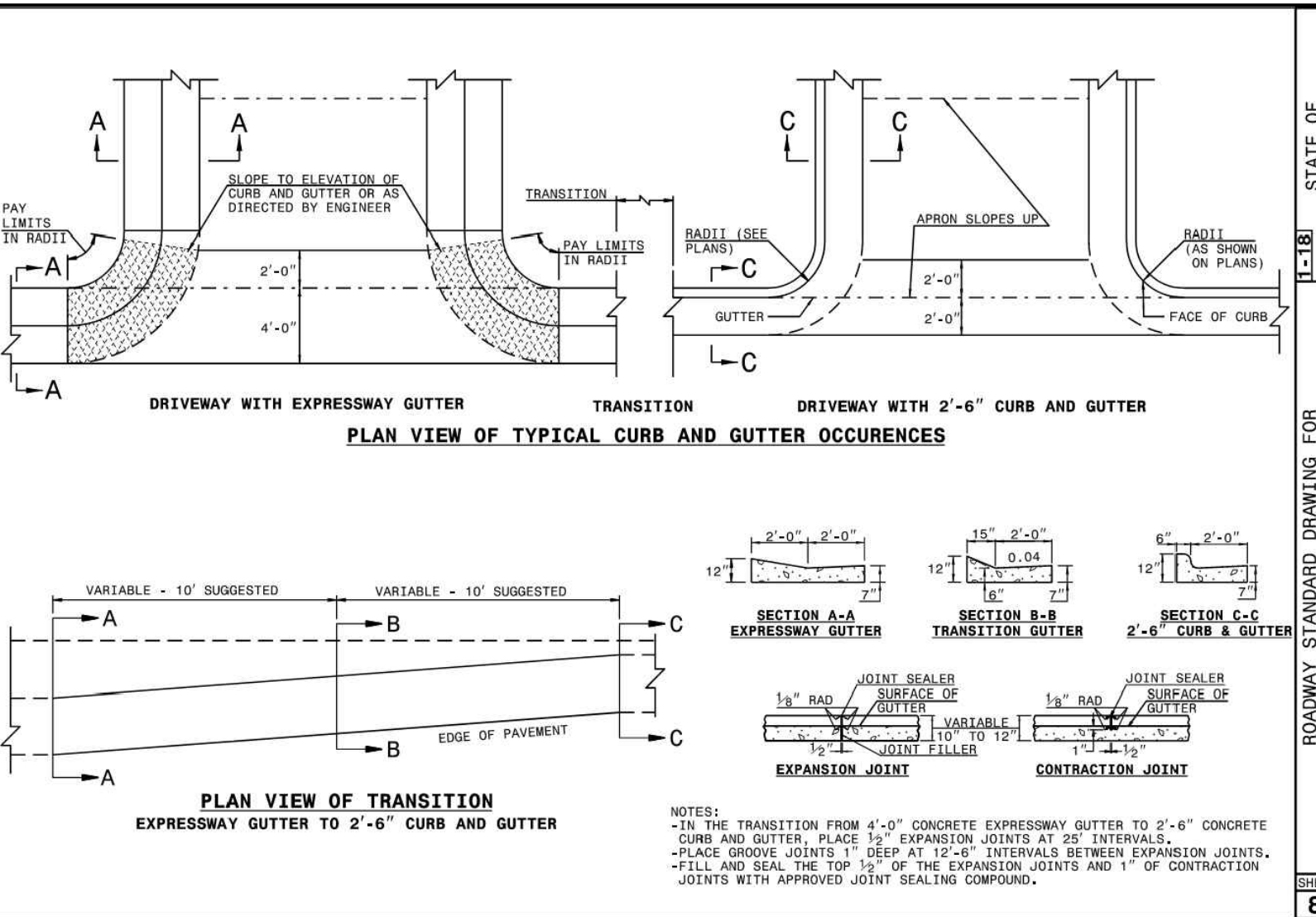
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CONCRETE CURB, GUTTER  
AND CURB & GUTTER

SHEET 1 OF 3  
848.01



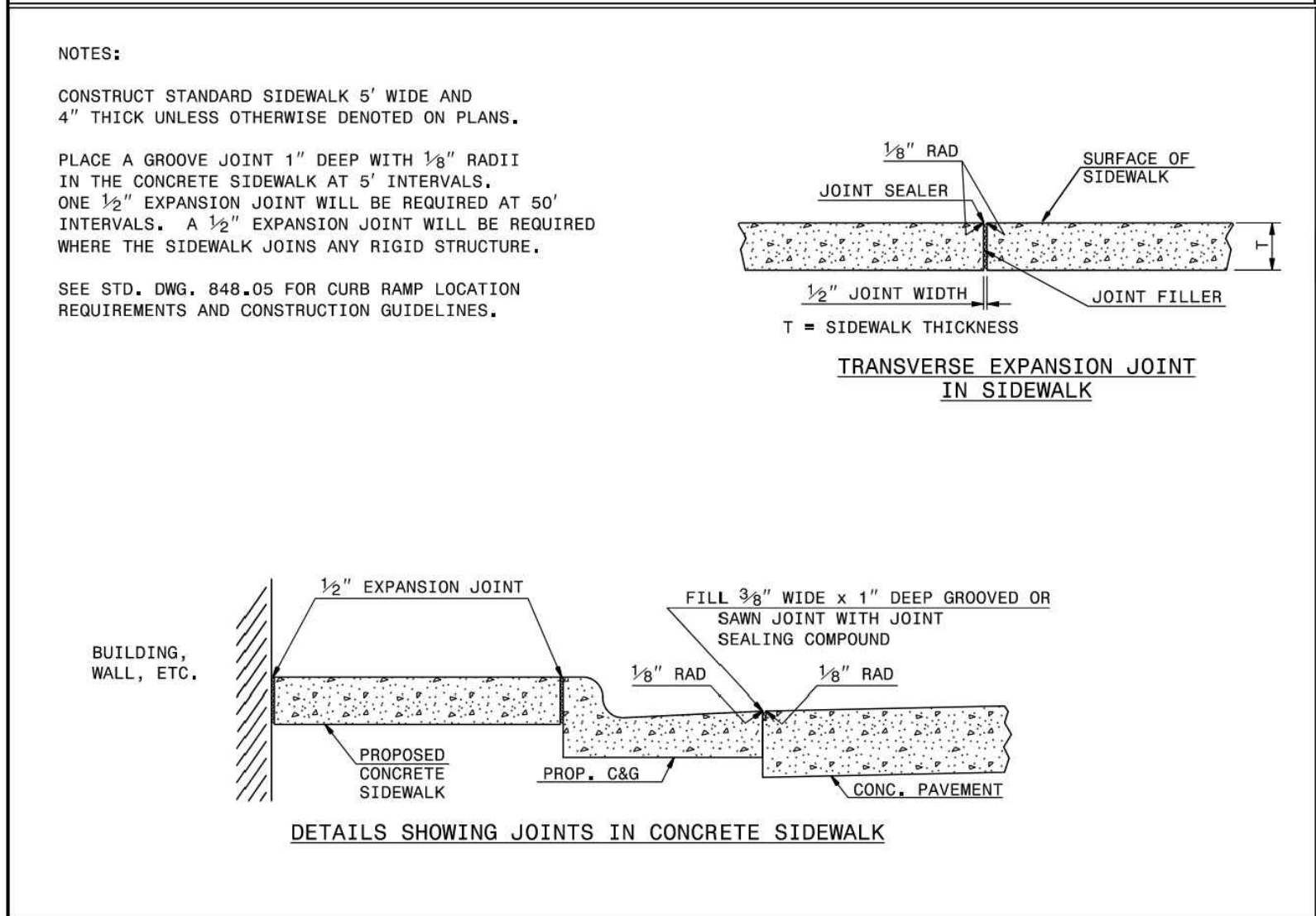
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CONCRETE CURB, GUTTER  
AND CURB & GUTTER

SHEET 2 OF 3  
848.01



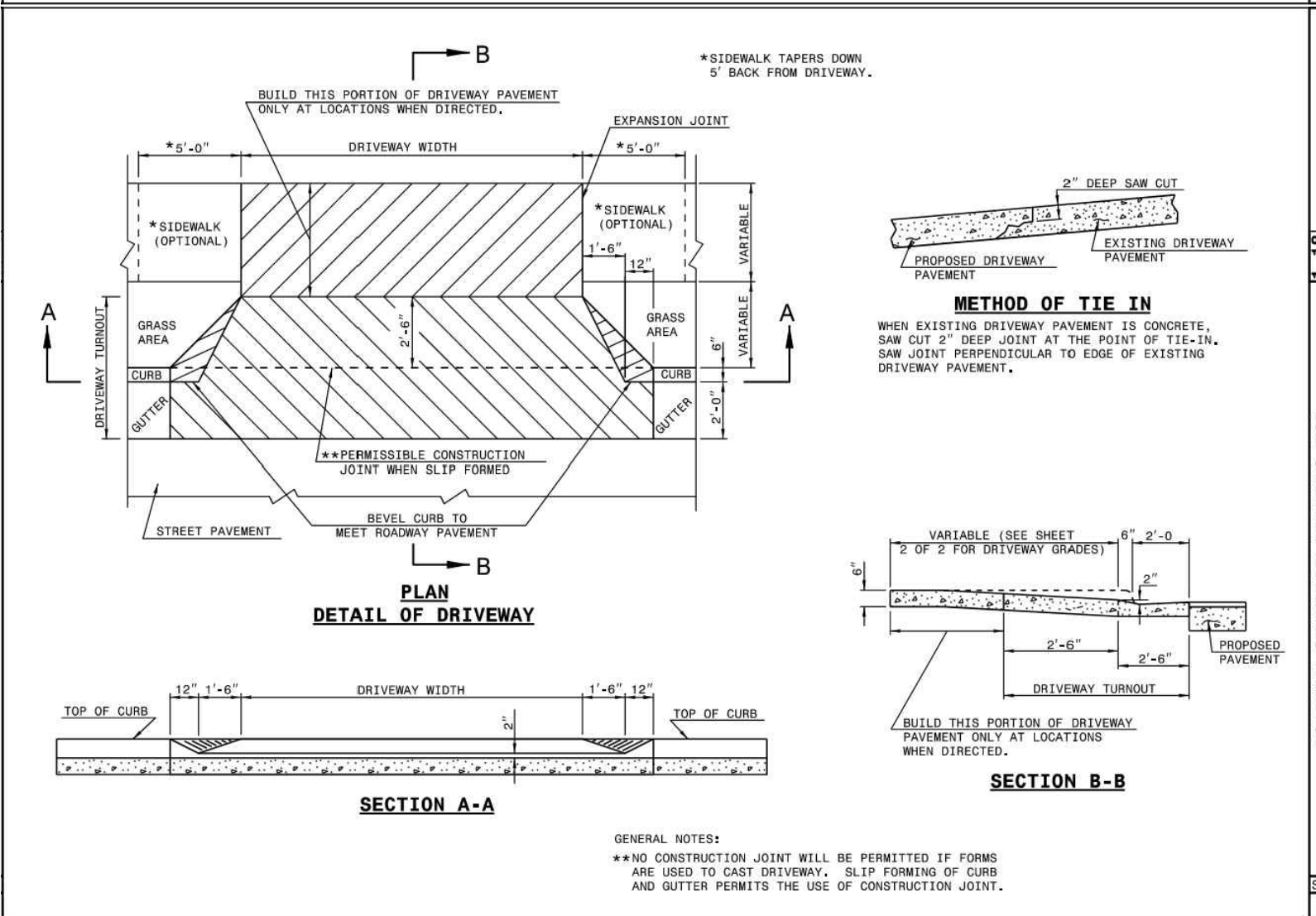
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CONCRETE CURB, GUTTER  
AND CURB & GUTTER

SHEET 3 OF 3  
848.01



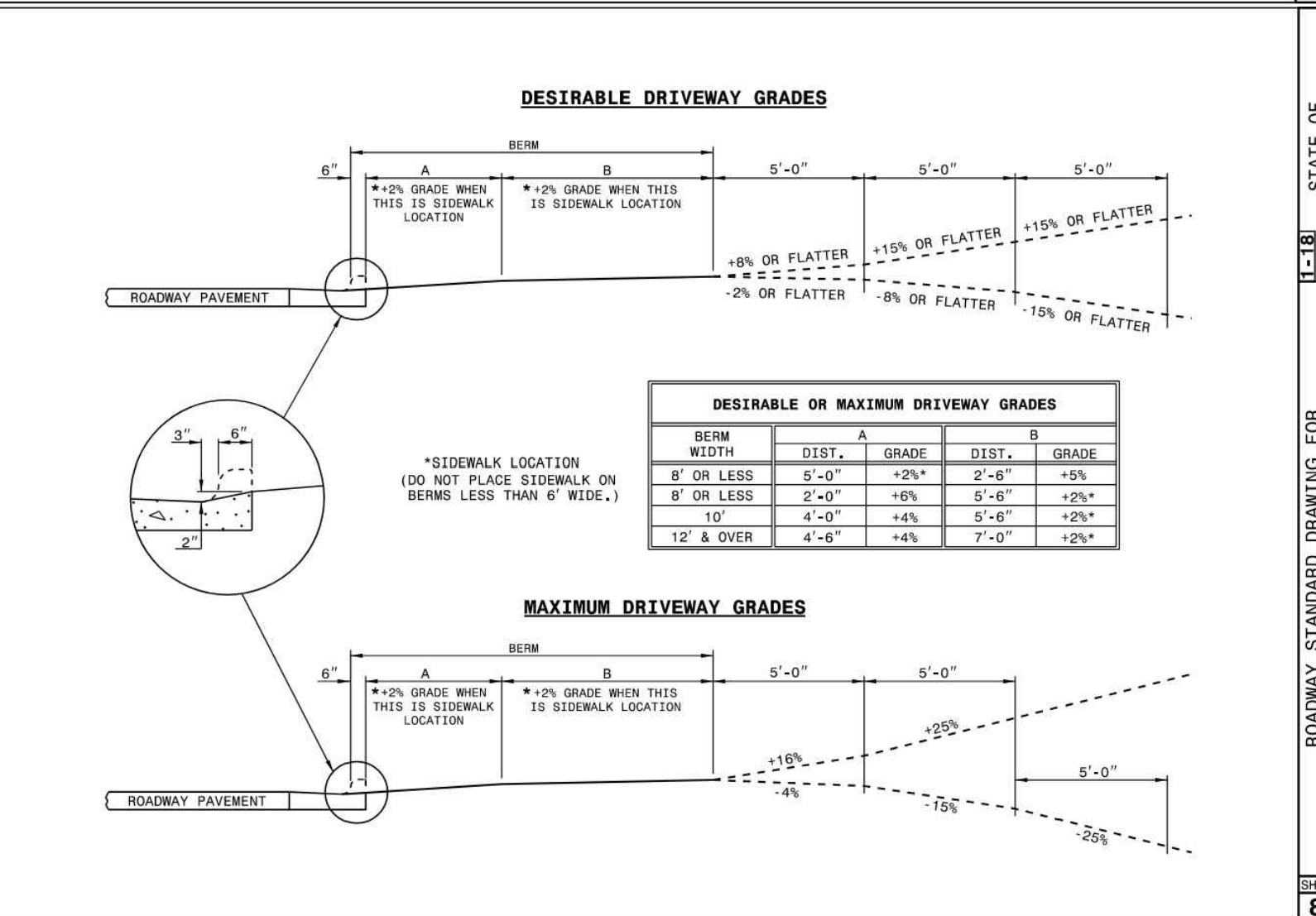
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CONCRETE SIDEWALK

SHEET 1 OF 1  
848.01



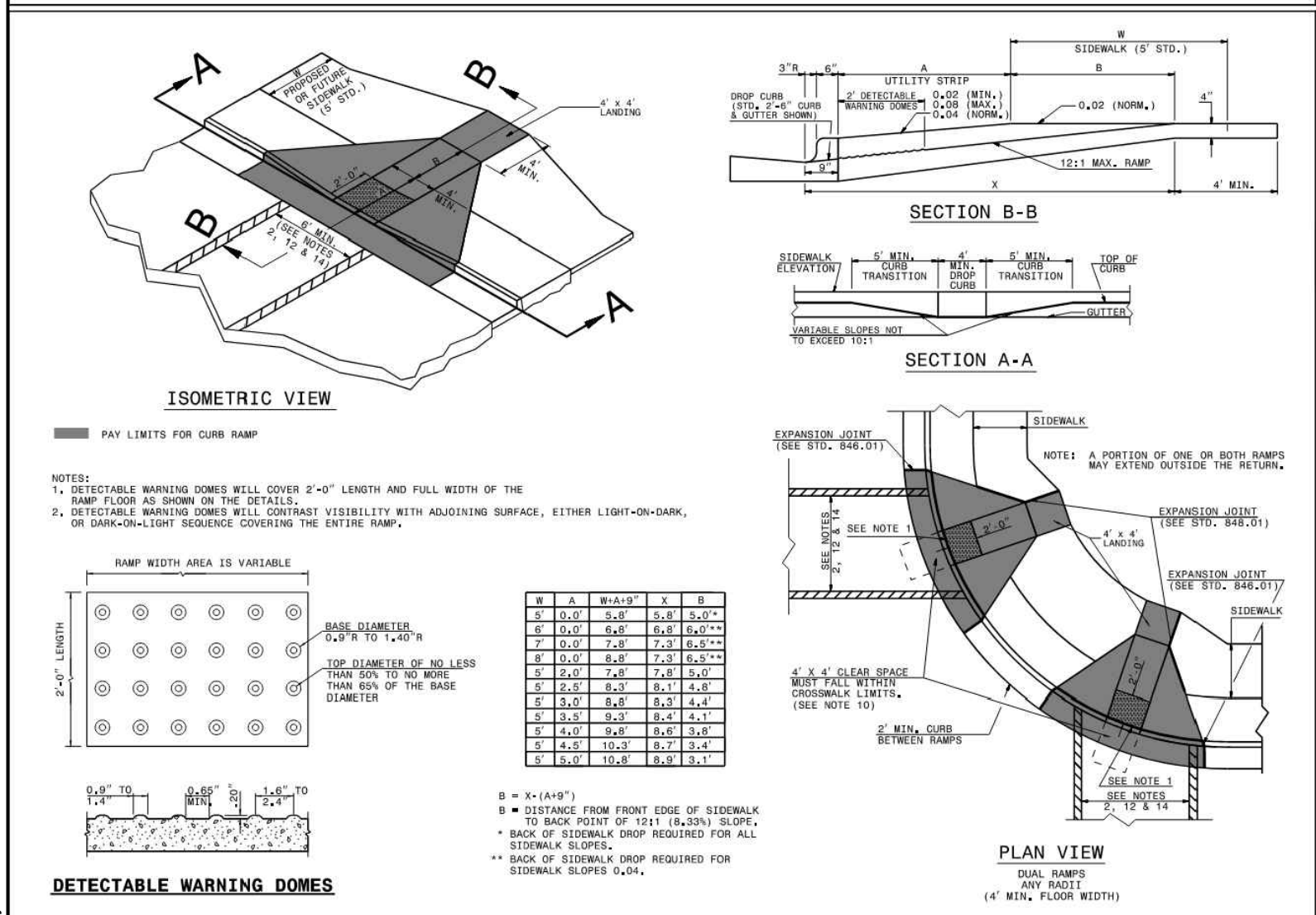
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DRIP CURB TYPE

SHEET 1 OF 2  
848.03



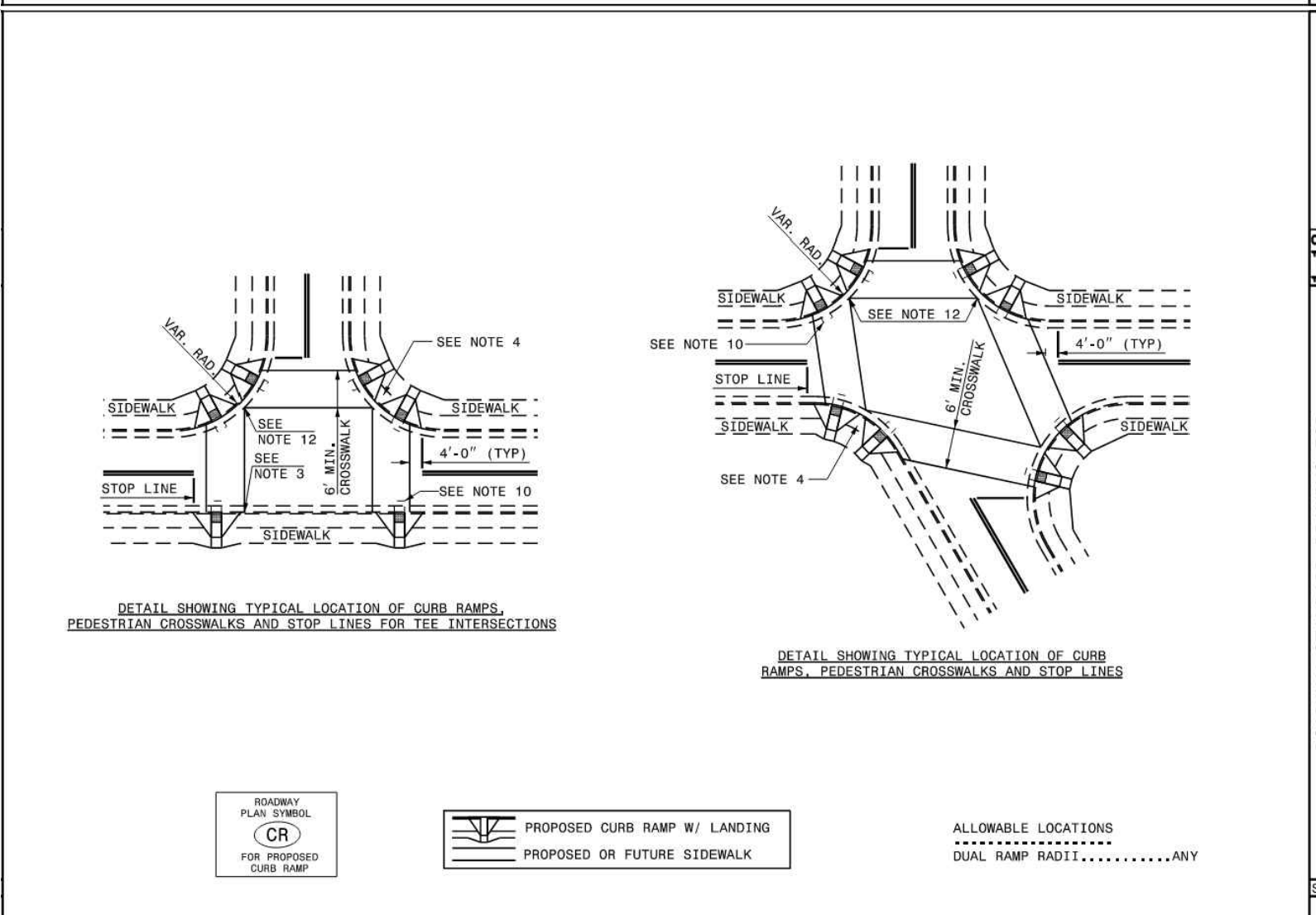
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DRIVEWAY TURNOUT

SHEET 2 OF 2  
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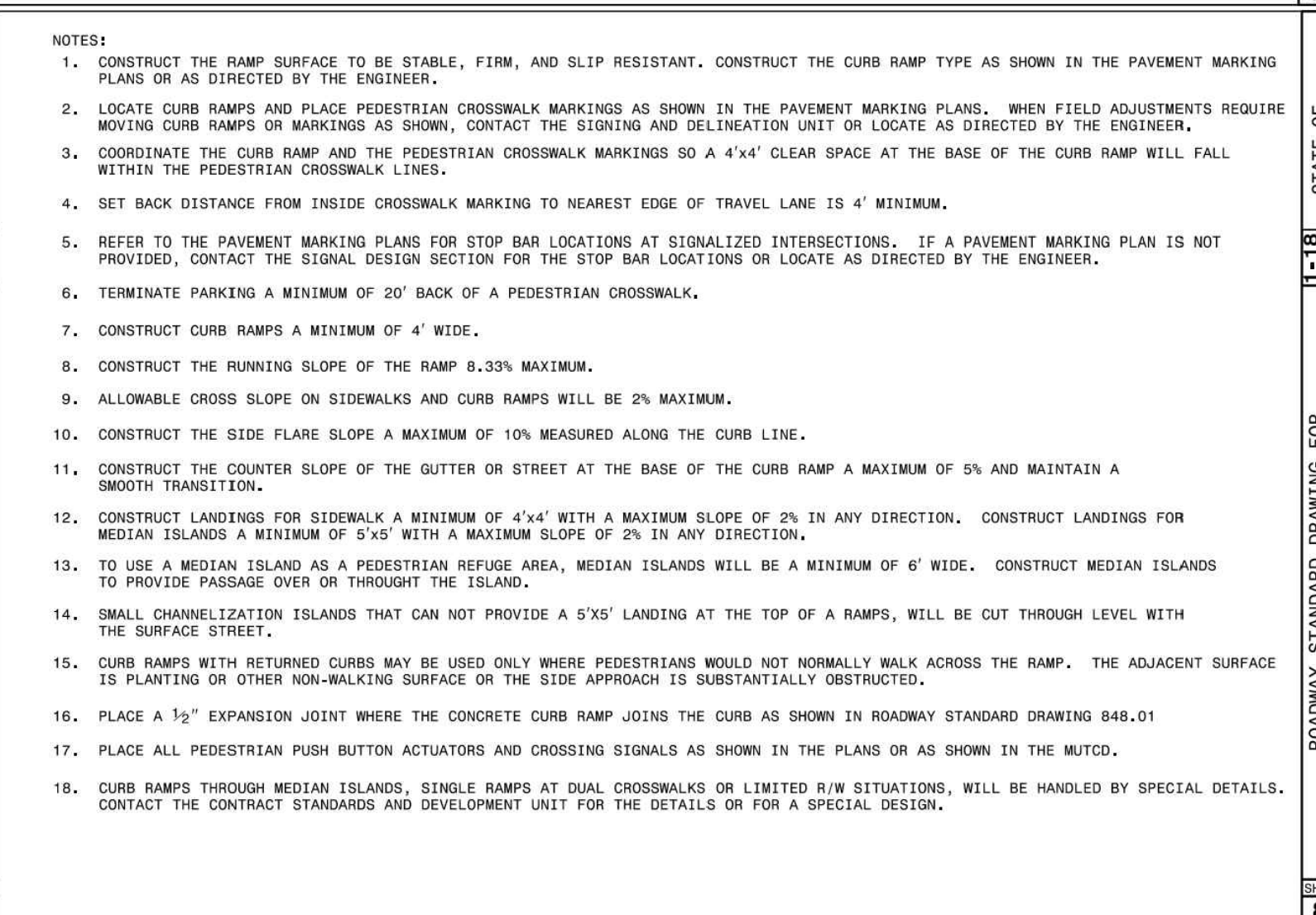
ROADWAY STANDARD DRAWING FOR  
CURB RAMP AND GUTTER

SHEET 1 OF 3  
848.05



ROADWAY STANDARD DRAWING FOR  
CURB RAMP  
PROPOSED CURB AND GUTTER

SHEET 2 OF 3  
848.05



ROADWAY STANDARD DRAWING FOR  
CURB RAMP  
NOTES

SHEET 3 OF 3  
848.05



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REVISION DESCRIPTION  
REVISE PER WAKE COUNTY COMMENTS  
CONSTRUCTION DOCUMENT SUBMITTAL  
REVISE PER NC DOT COMMENTS  
REVISE PER CITY OF RALEIGH COMMENTS  
REVISE TO APPROVED PLANS

DATE  
09/17/2021

DRAWN BY  
R. WINGATE

DESIGNED BY  
P. BARBEAU

CHECKED BY  
P. BARBEAU

SCALE  
AS SHOWN

**TIMMONS GROUP**

NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08  
WAKE COUNTY - NORTH CAROLINA

**SITE DETAILS**

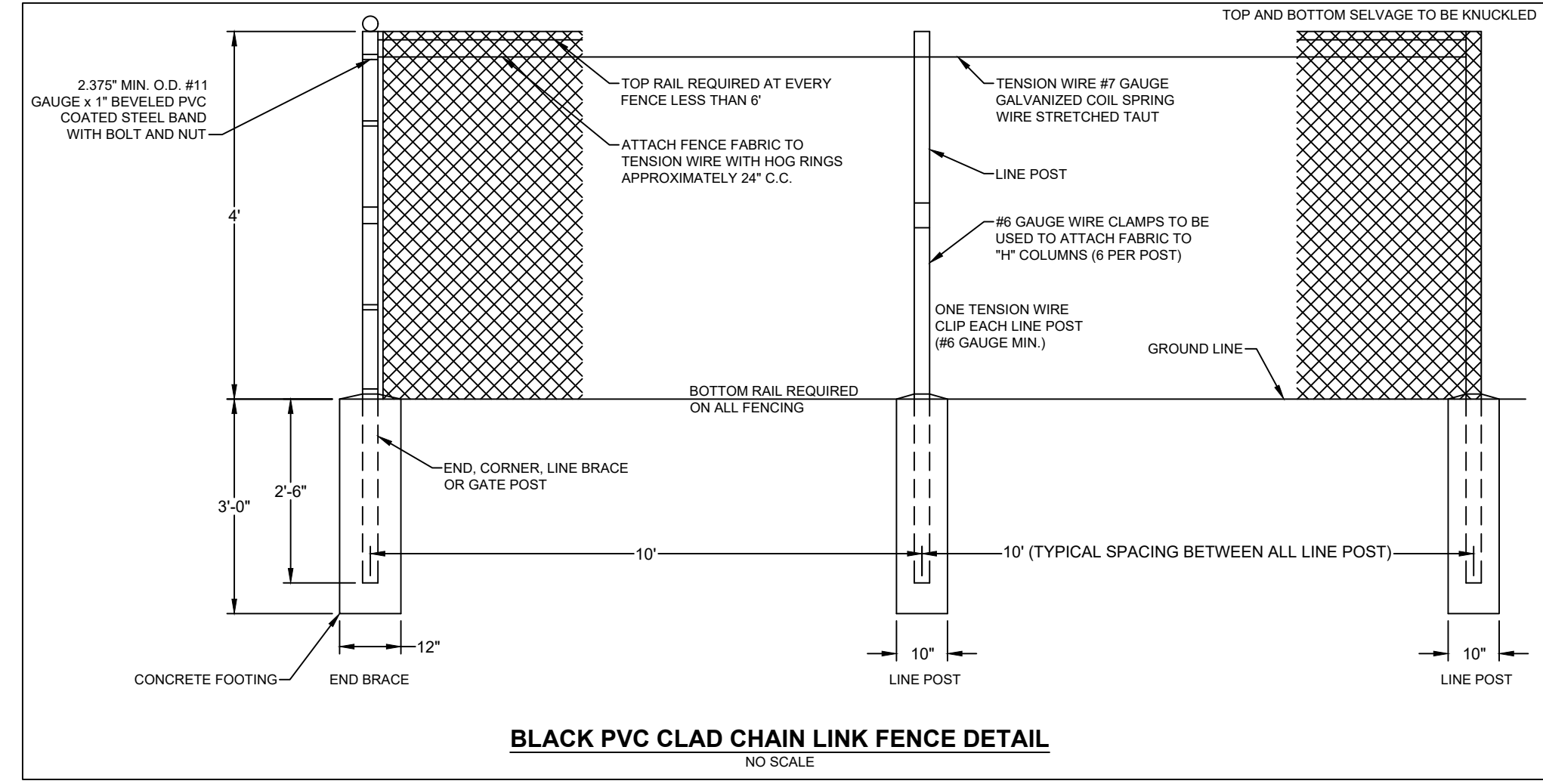
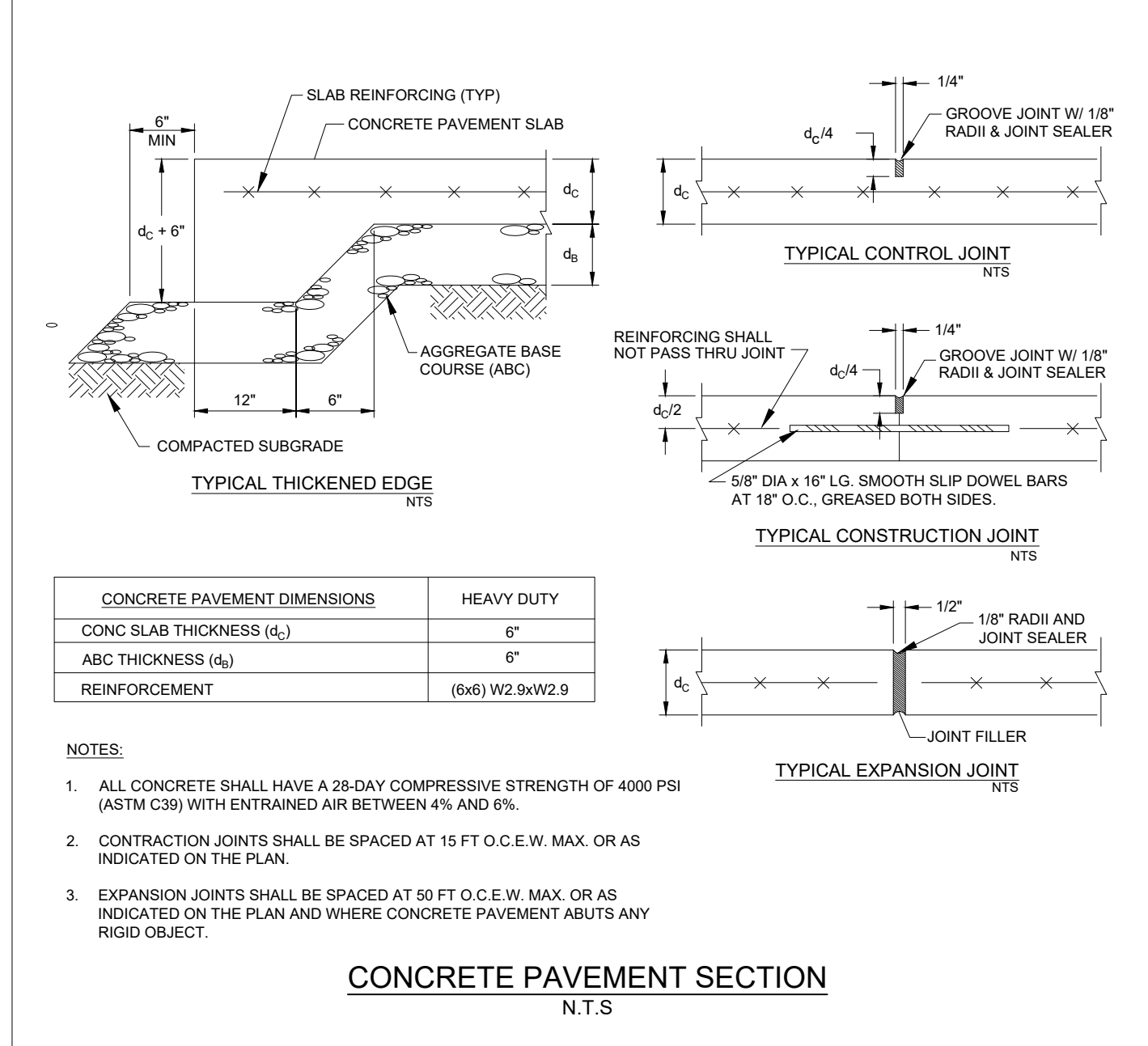
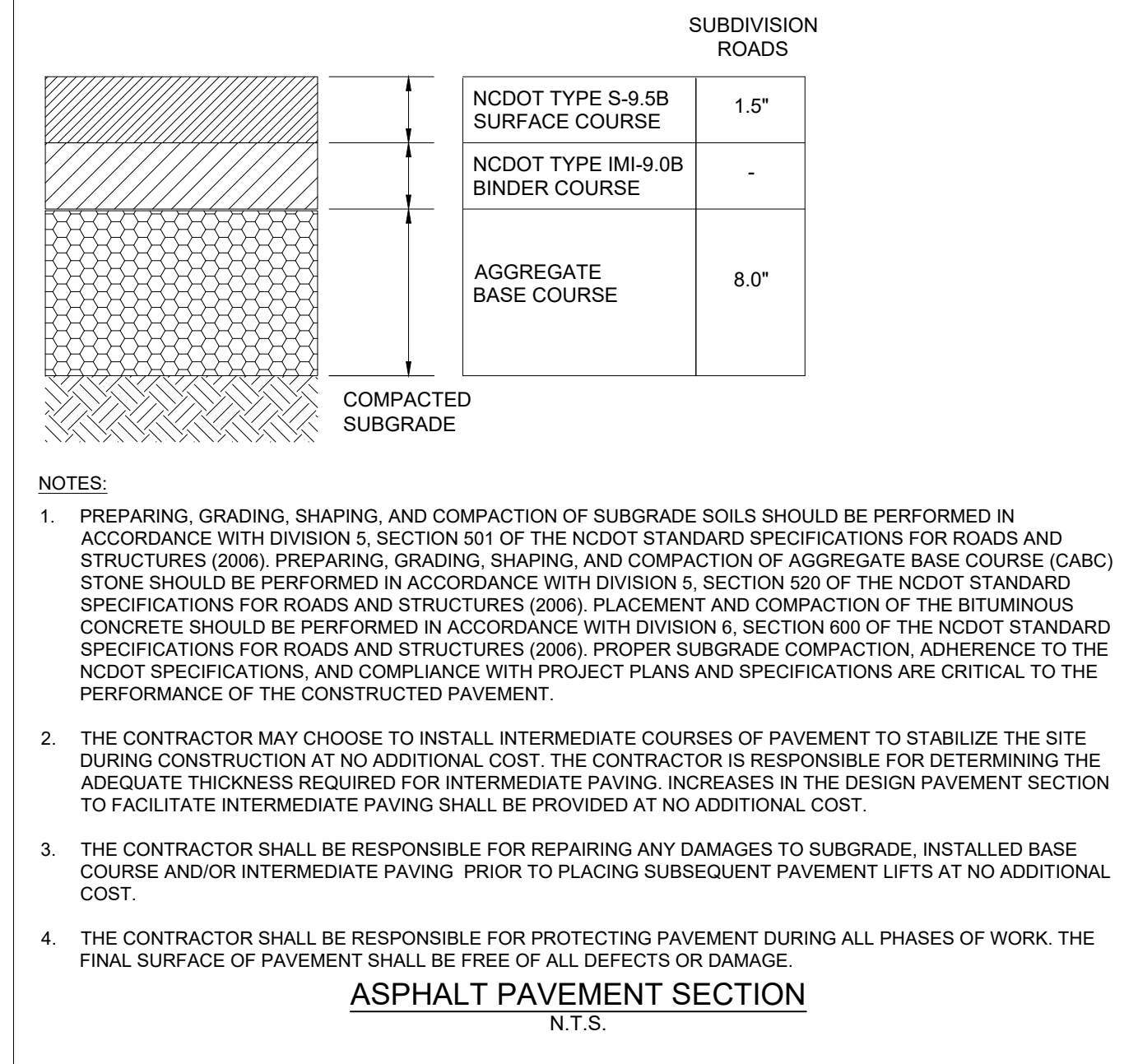
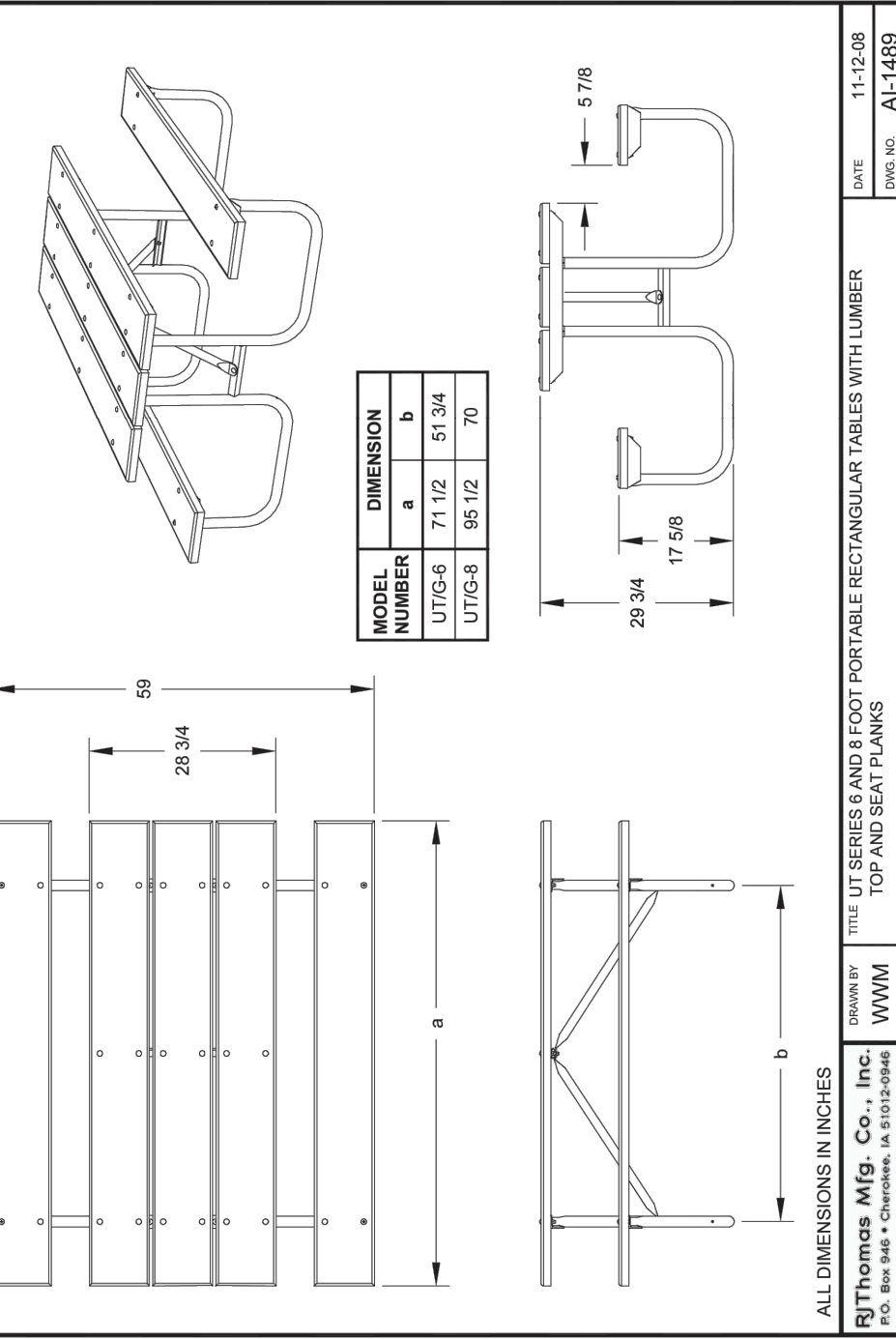
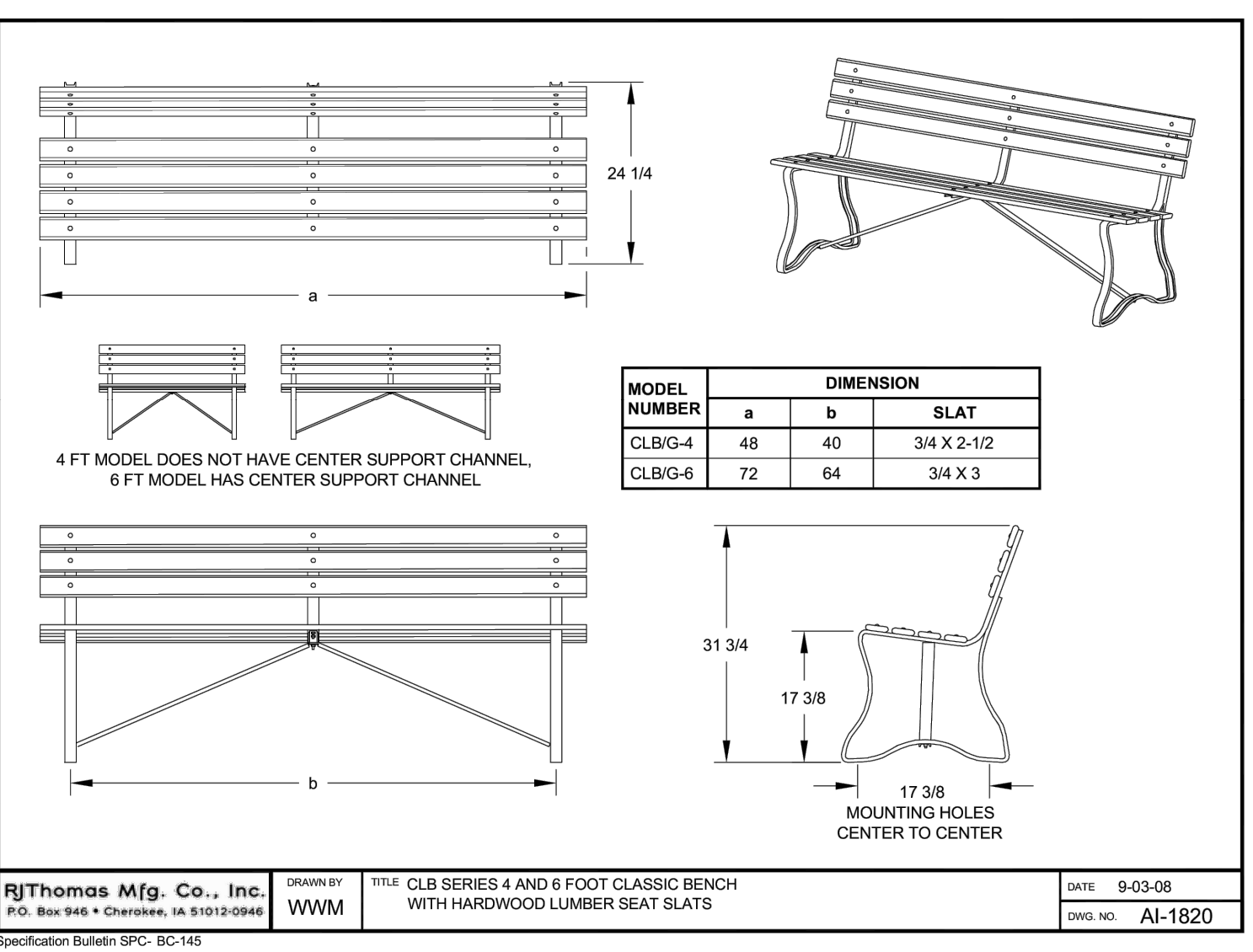
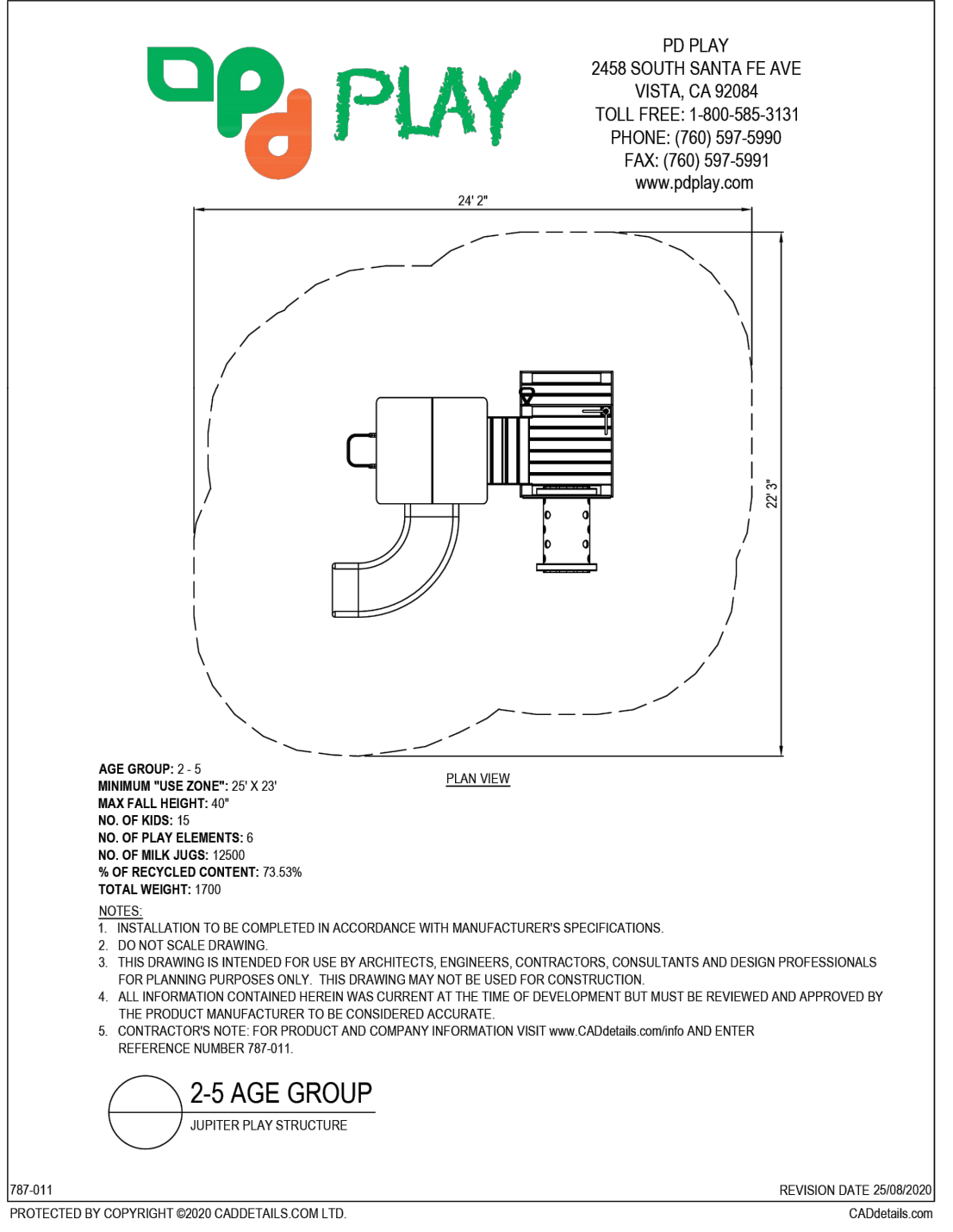
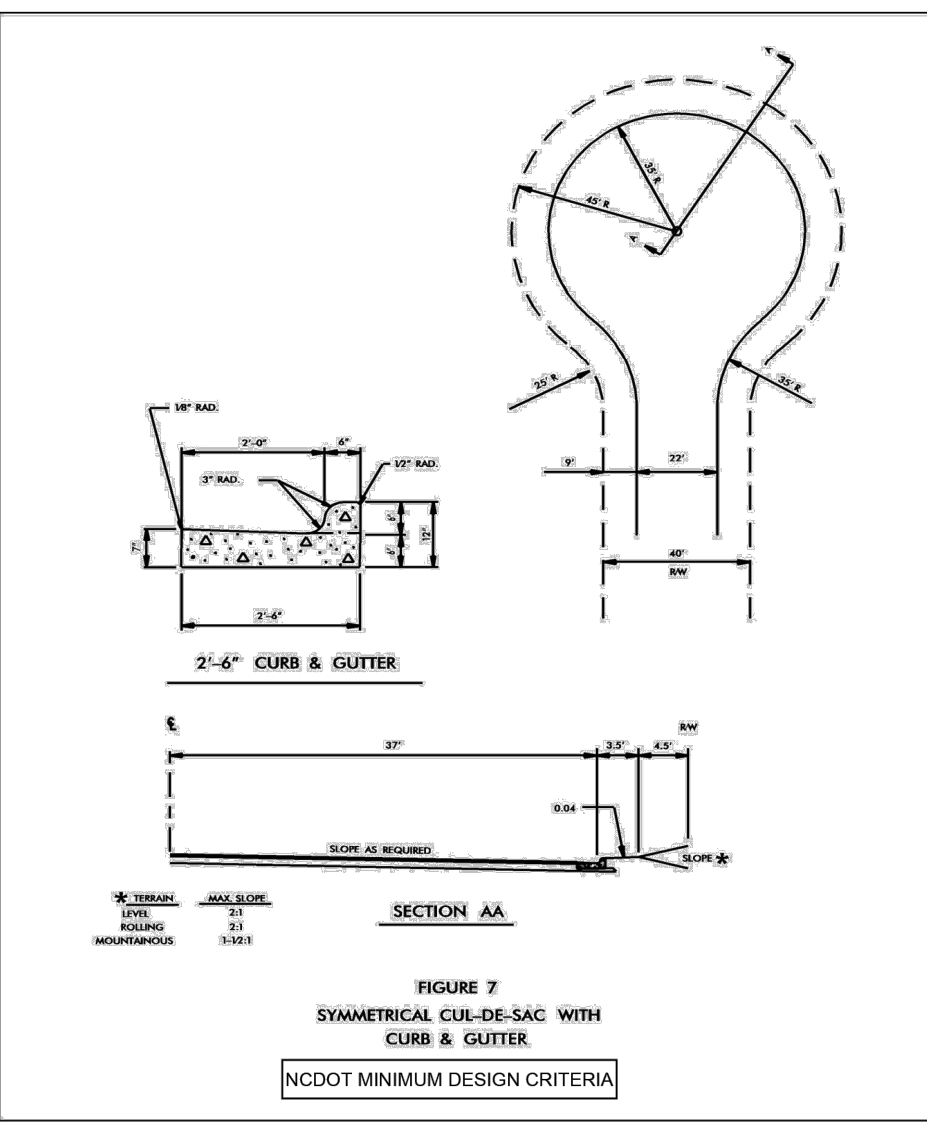
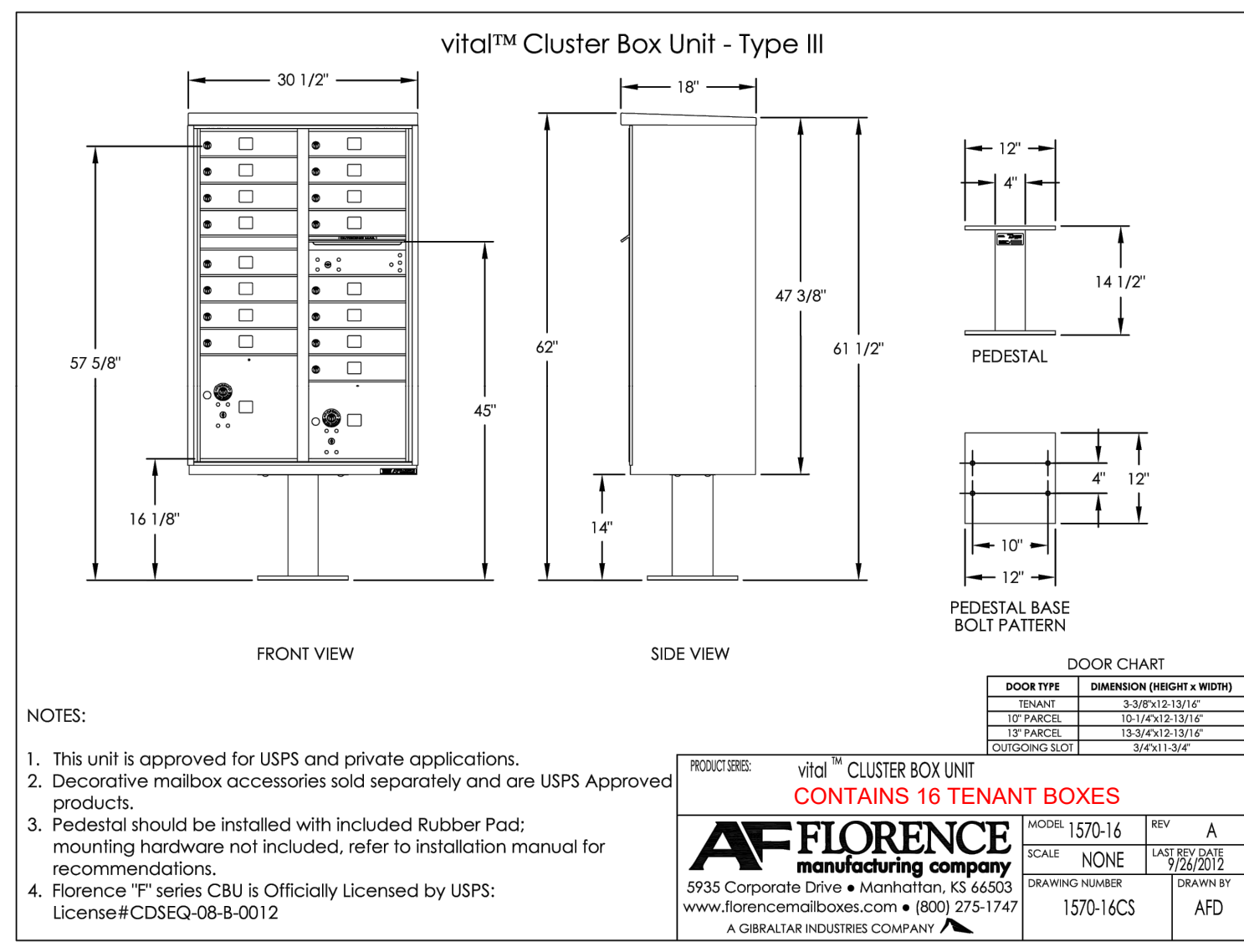
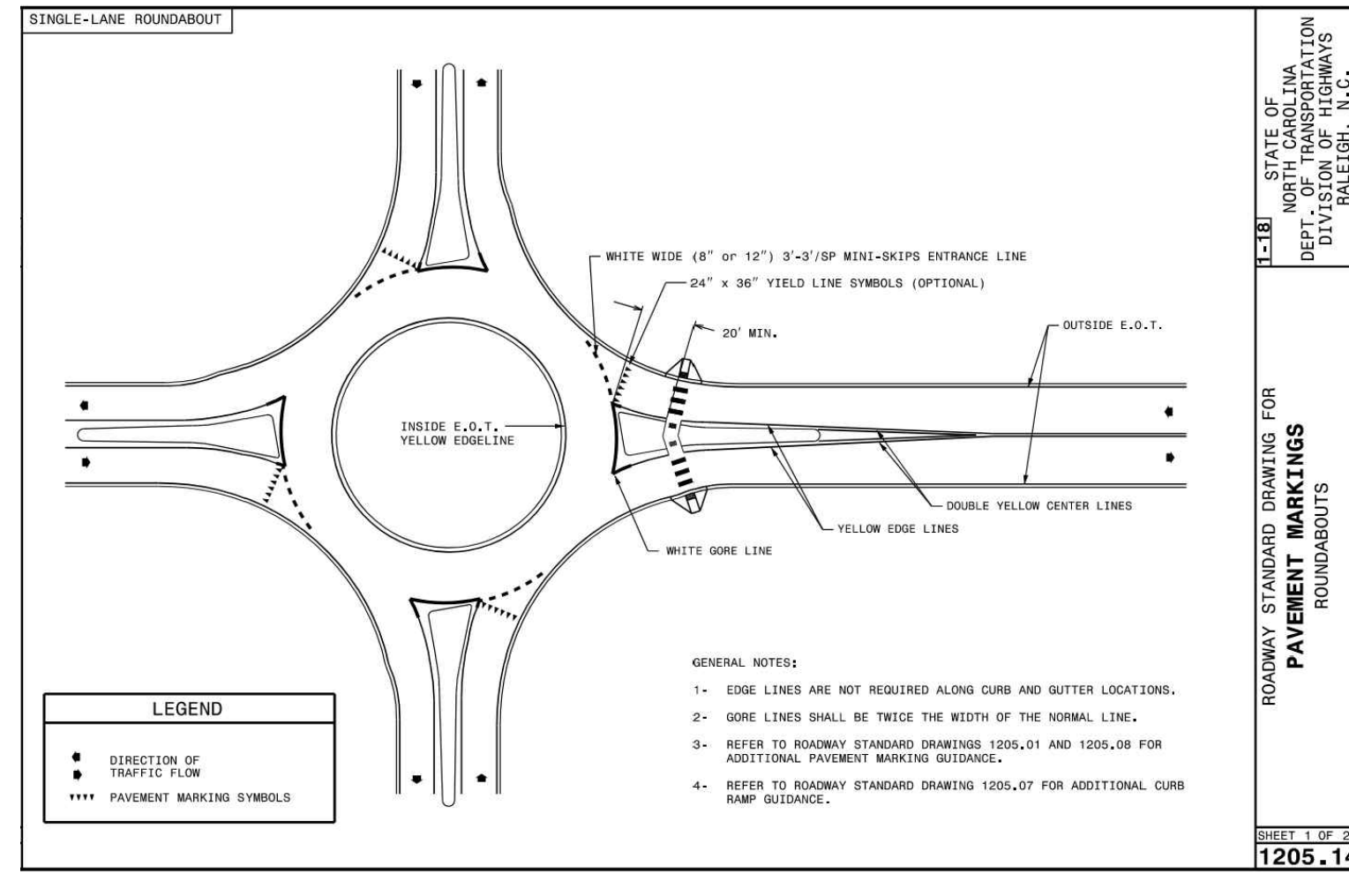
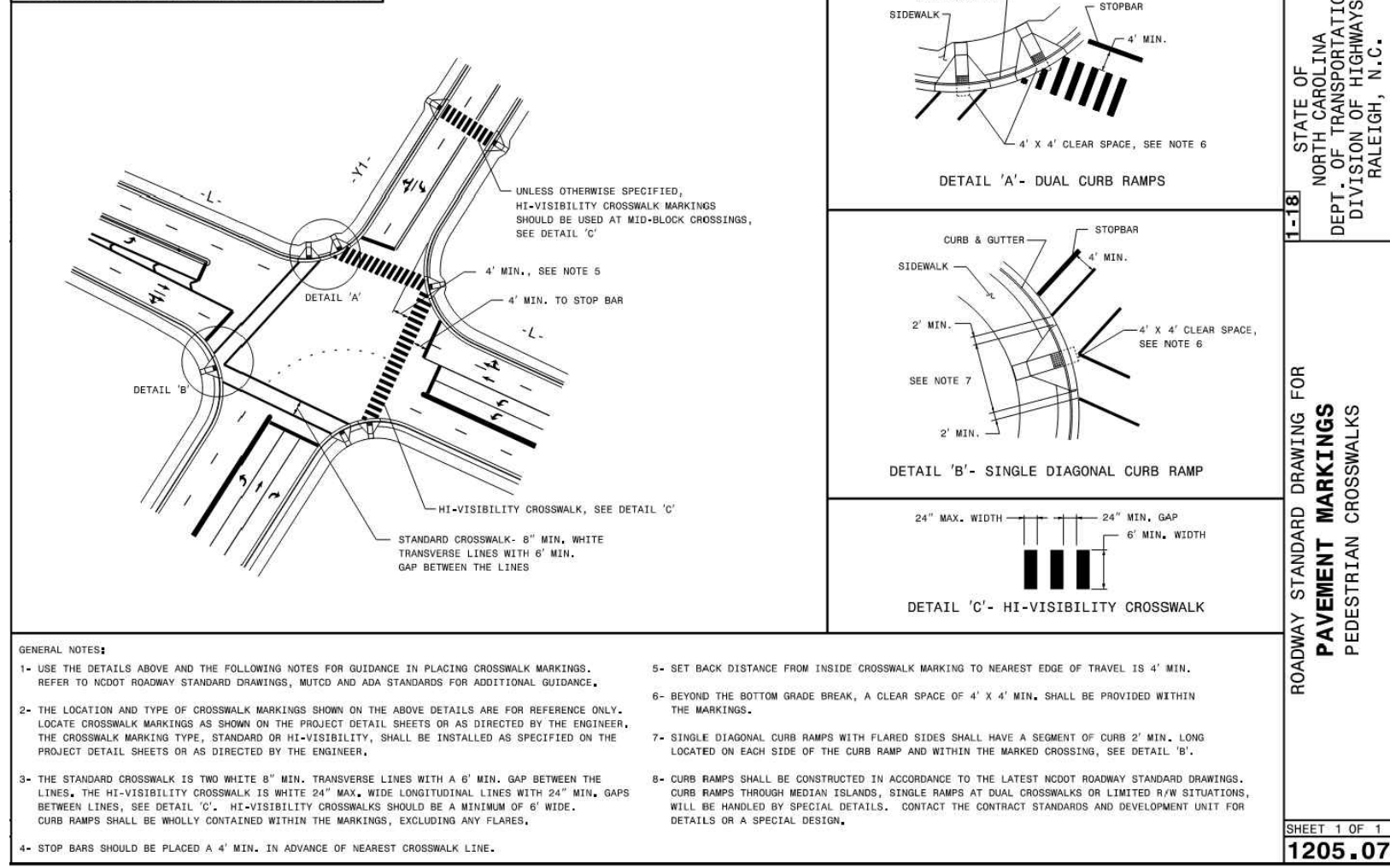
JOB NO.  
43398

SHEET NO.  
C7.0

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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ROLESVILLE CROSSING - CD 21-08  
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SITE DETAILS

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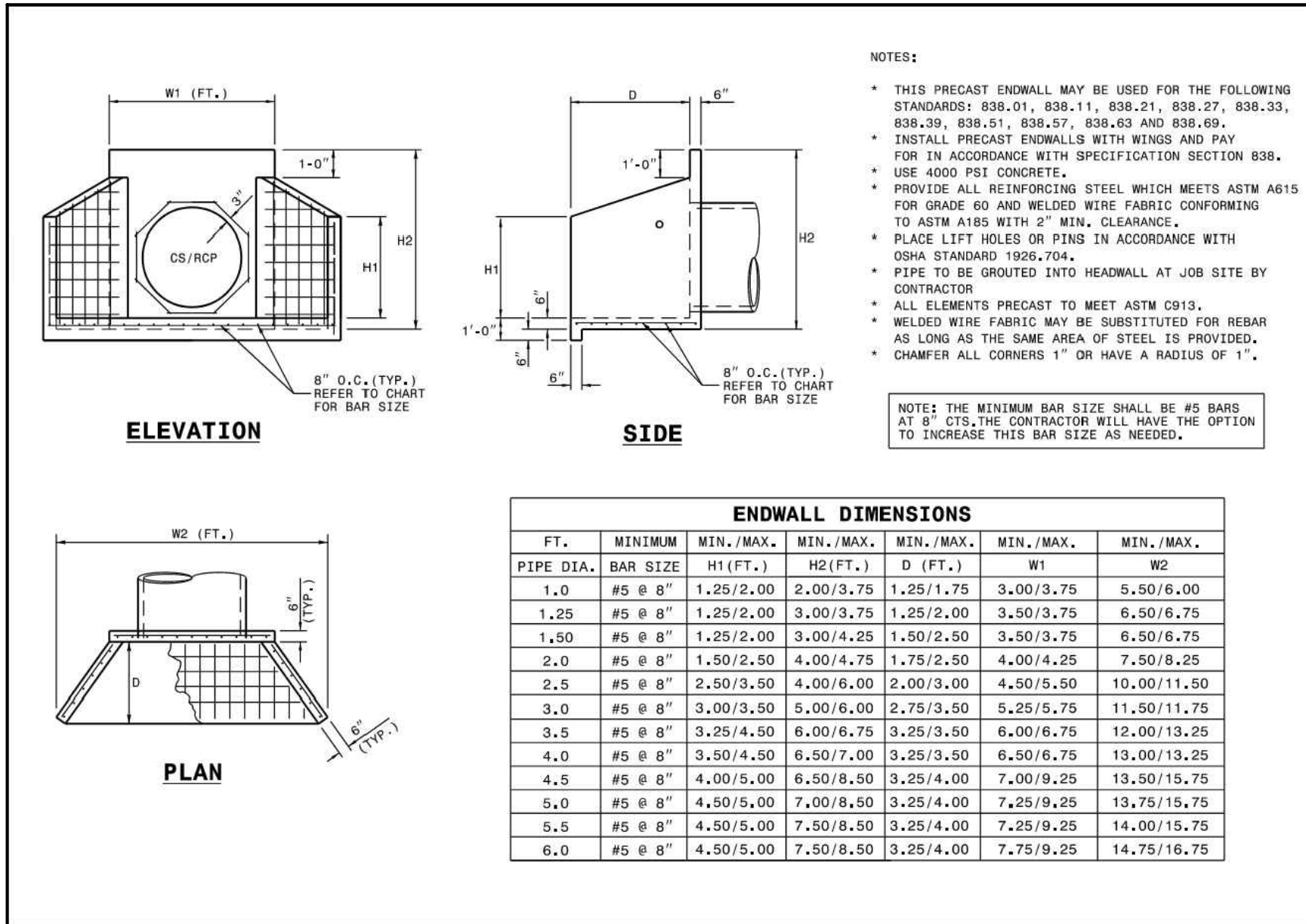
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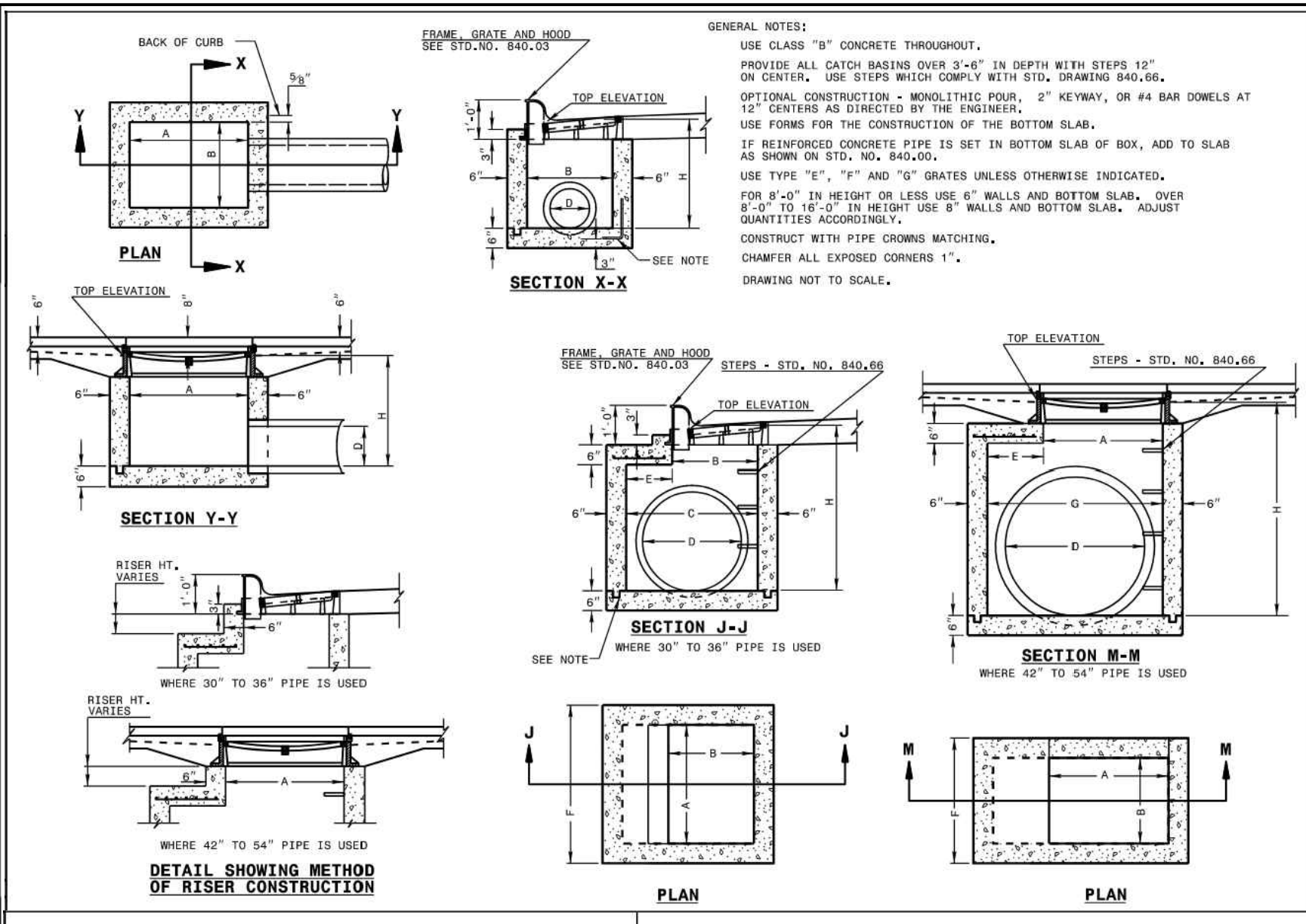




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ROADWAY STANDARD DRAWING FOR  
**PRECAST CONCRETE ENDWALL**  
FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

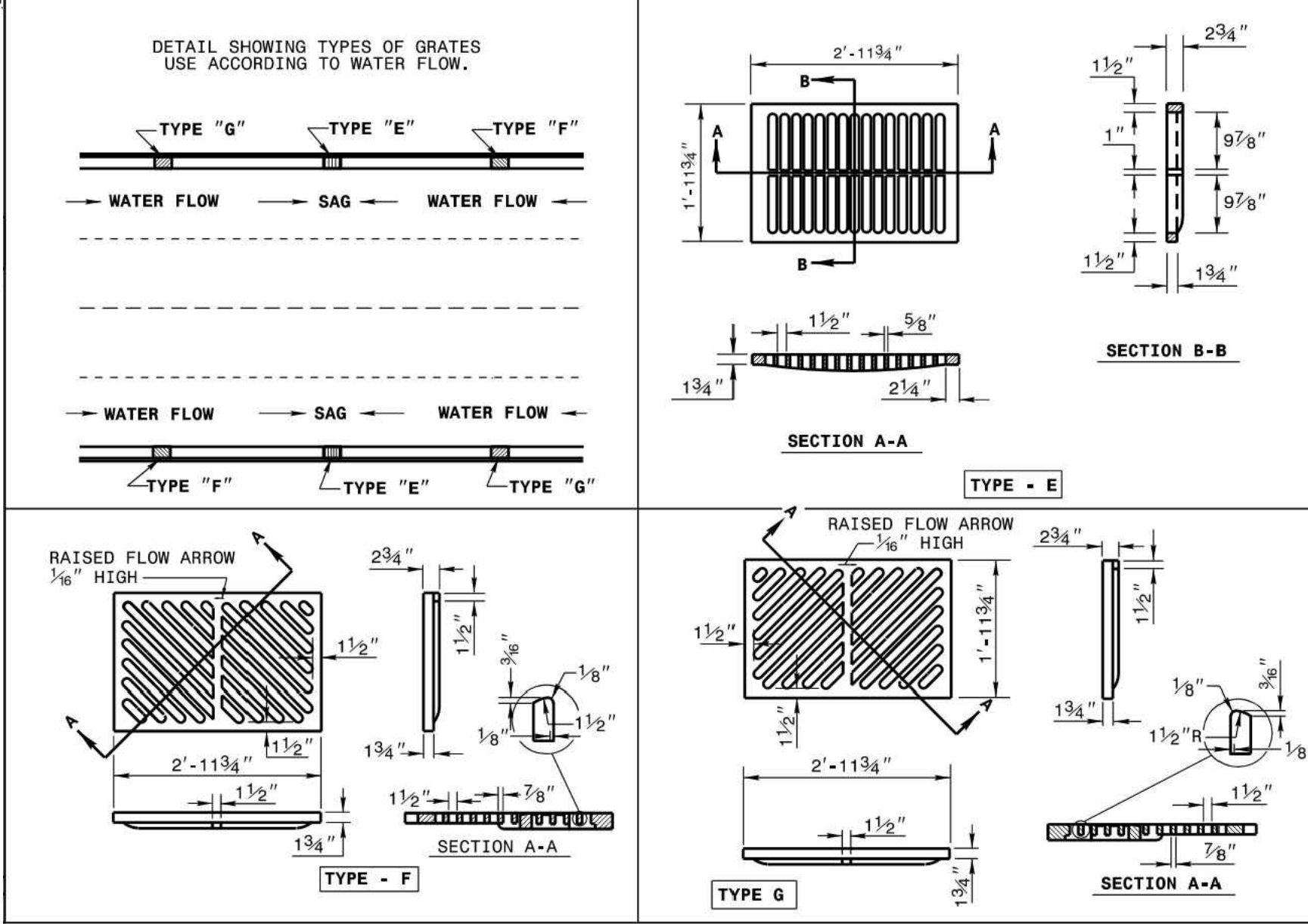
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**838.80**



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ROADWAY STANDARD DRAWING FOR  
**CONCRETE CATCH BASIN**  
12" THRU 54" PIPE

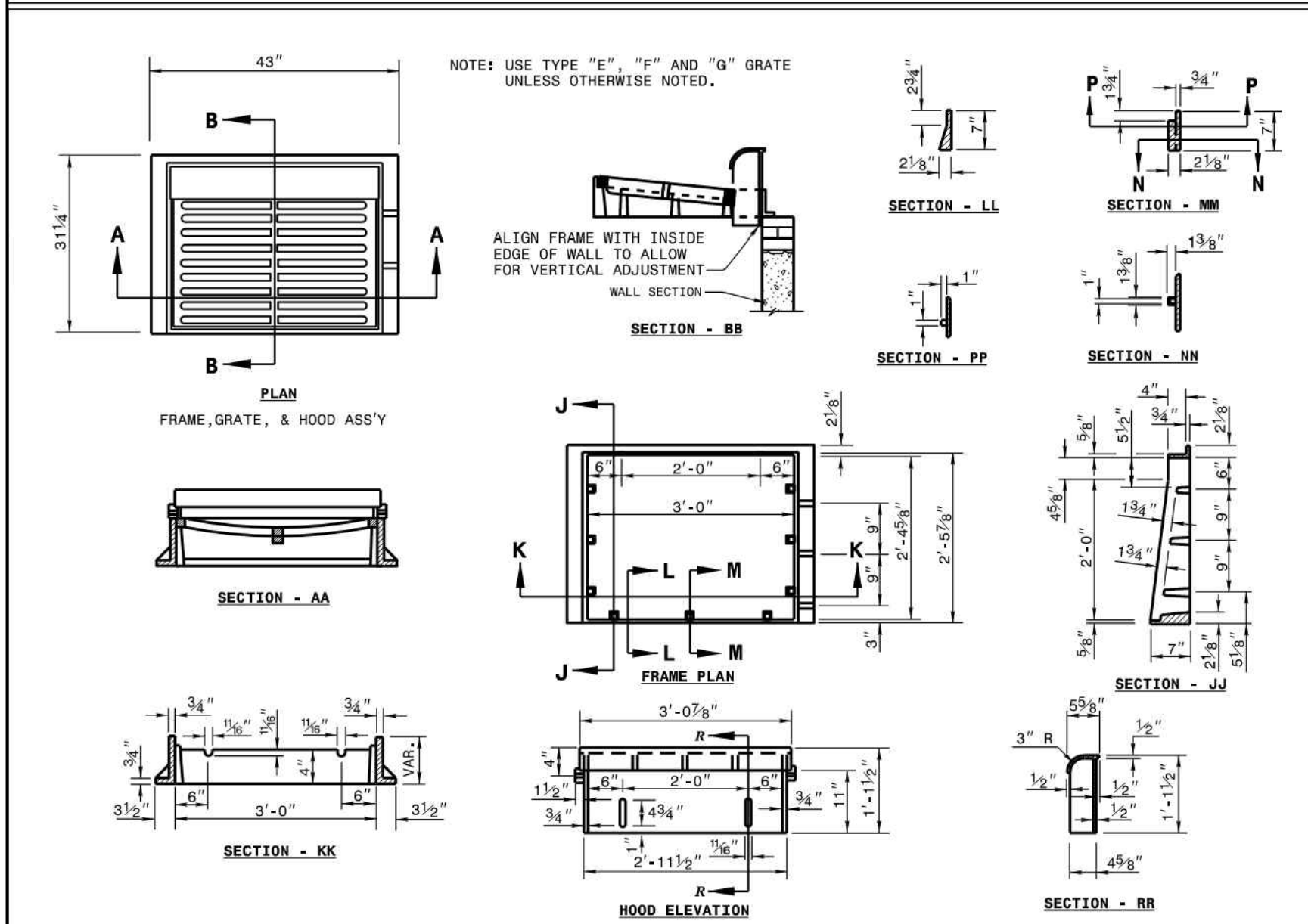
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**840.02**



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

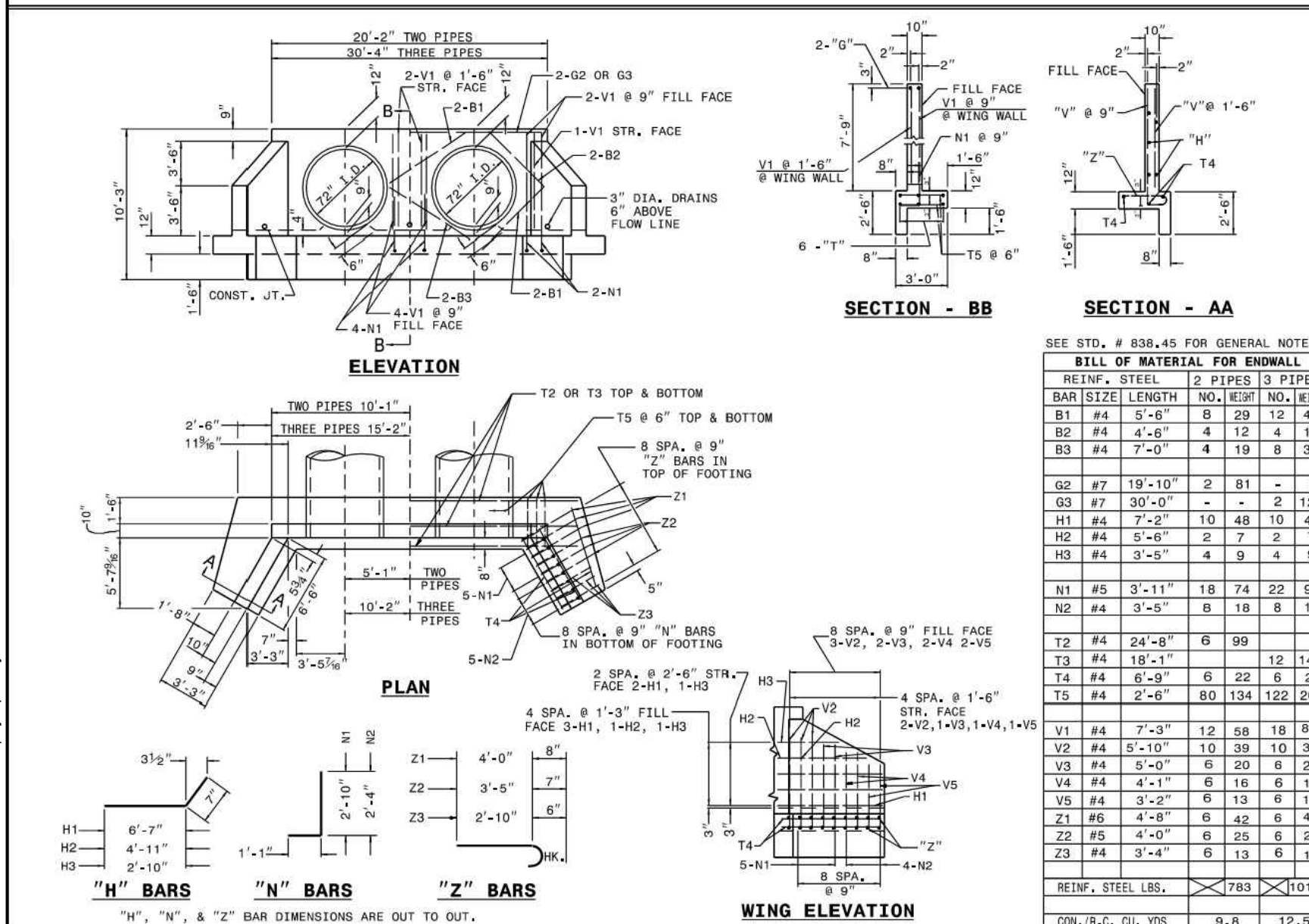
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ROADWAY STANDARD DRAWING FOR  
**FRAME, GRATES, AND HOOD**  
FOR USE ON STANDARD CATCH BASIN

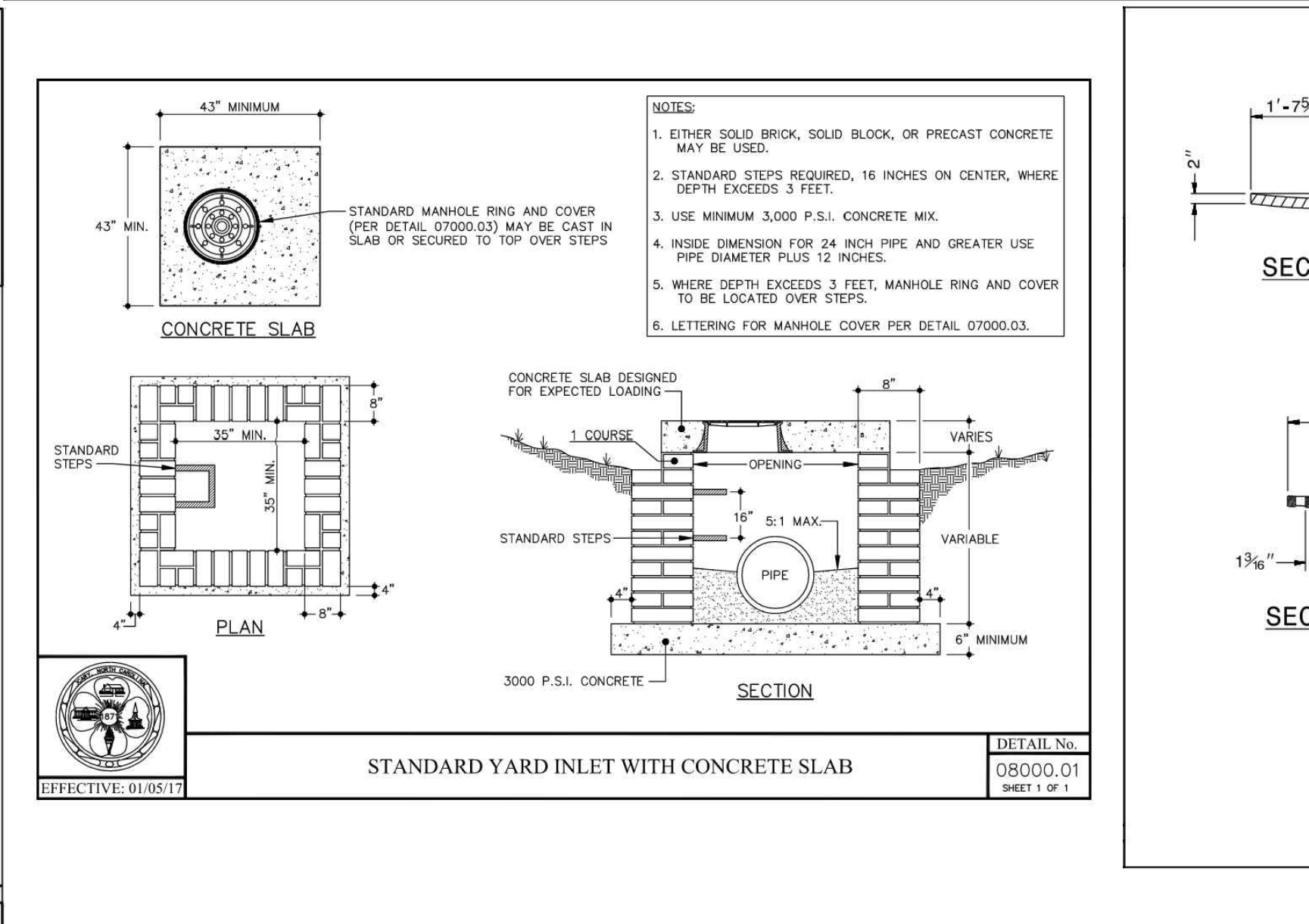
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**840.03**



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ROADWAY STANDARD DRAWING FOR  
**REINFORCED CONCRETE ENDWALL**  
FOR DOUBLE AND TRIPLE 72" PIPE 90° SKEW

SHEET 2 OF 2  
**838.40**



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ROADWAY STANDARD DRAWING FOR  
**DROP INLET FRAME AND GRATES**  
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1  
**840.16**



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ROADWAY STANDARD DRAWING FOR  
**CONCRETE DROP INLET**  
12" THRU 30" PIPE

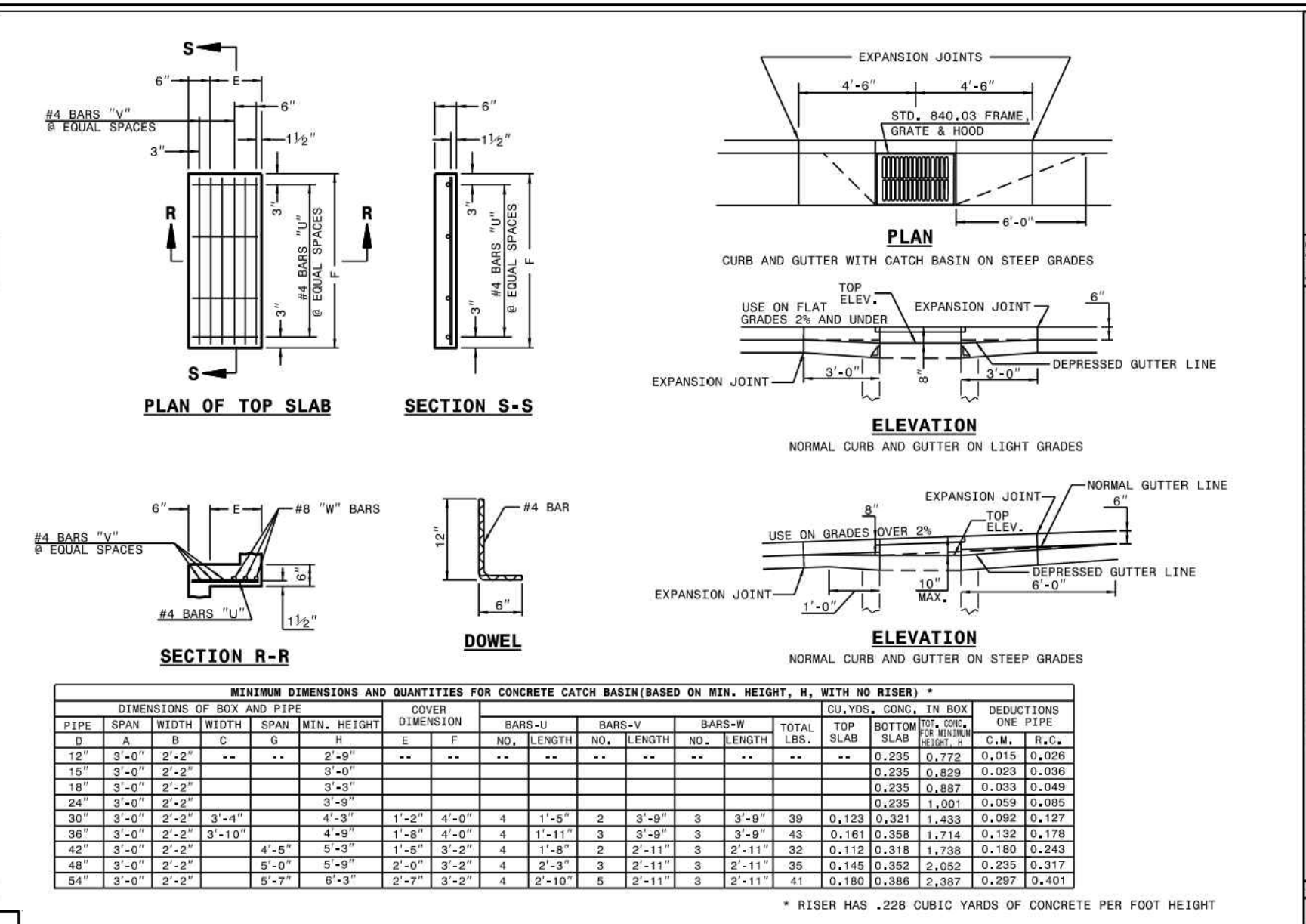
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ROADWAY STANDARD DRAWING FOR  
**CONCRETE CATCH BASIN**  
12" THRU 54" PIPE

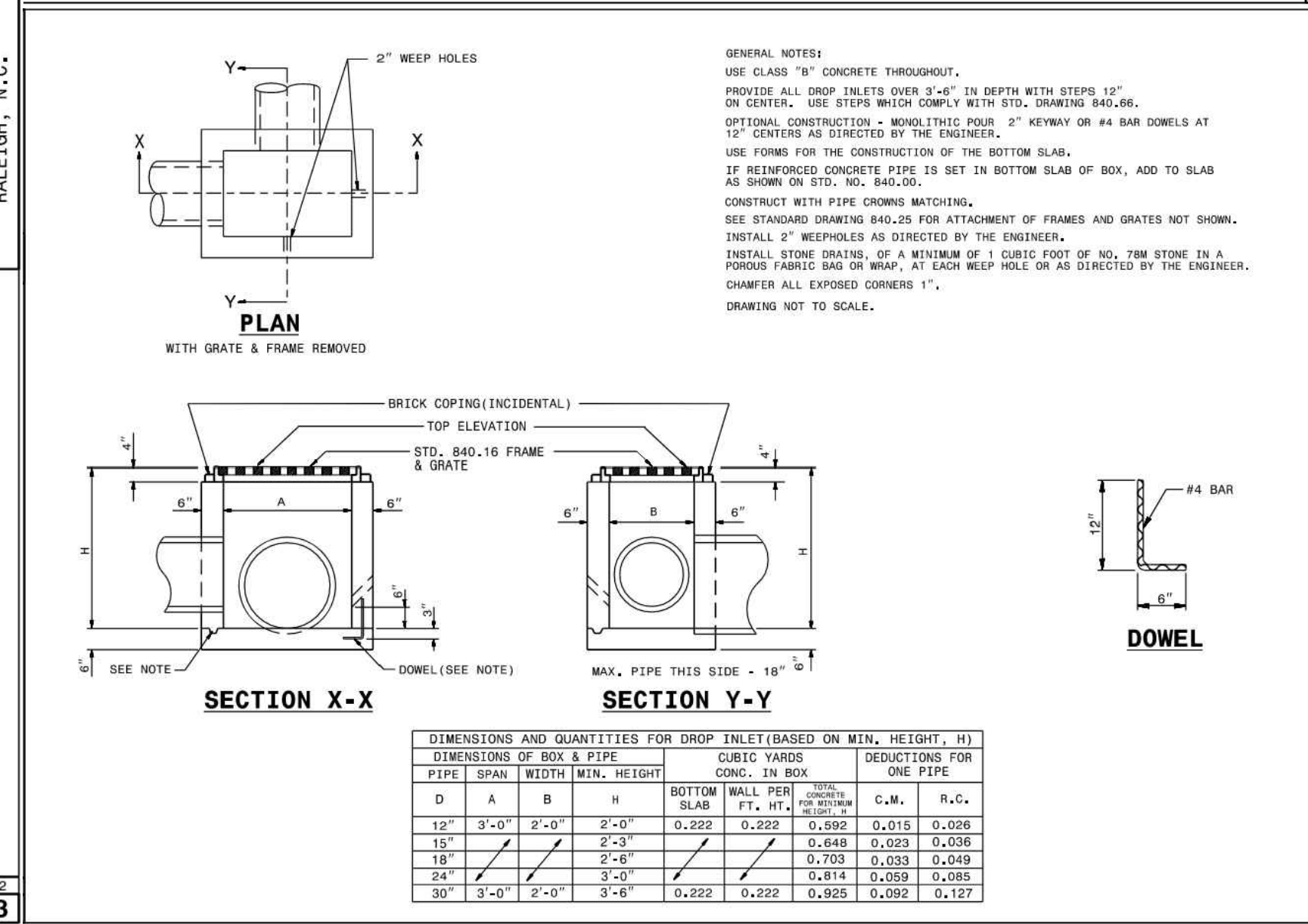
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12" THRU 54" PIPE

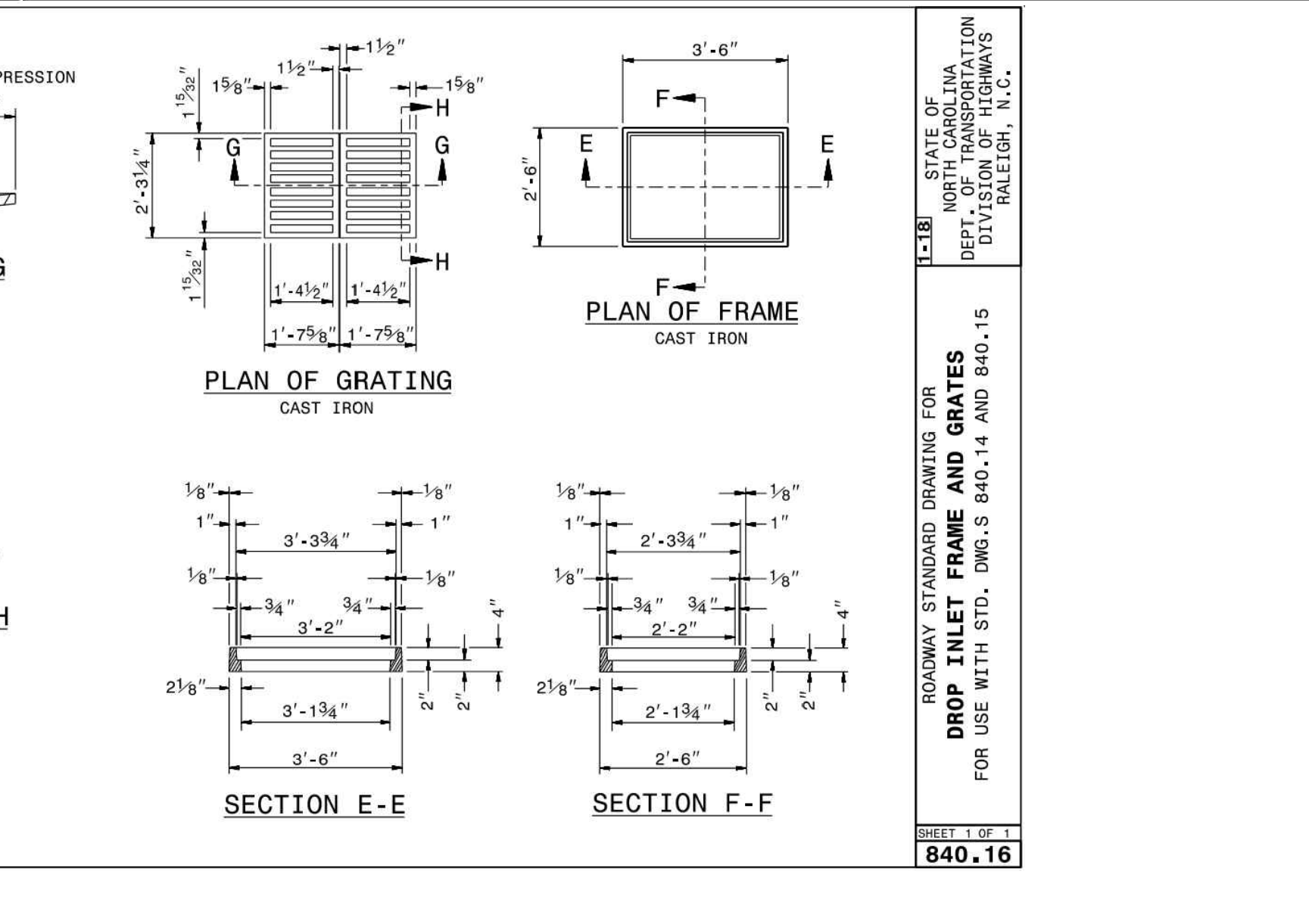
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**840.02**



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**CONCRETE DROP INLET**  
12" THRU 30" PIPE

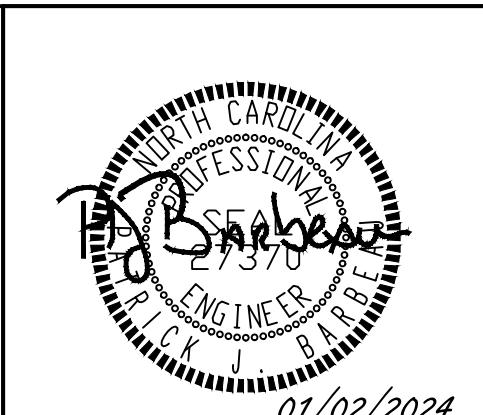
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**840.14**



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ROADWAY STANDARD DRAWING FOR  
**DROP INLET FRAME AND GRATES**  
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1  
**840.16**



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CHECKED BY: P. BARBEAU  
SCALE: AS SHOWN

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NORTH CAROLINA LICENSE NO. C-1652

## ROLESVILLE CROSSING - CD 21-08

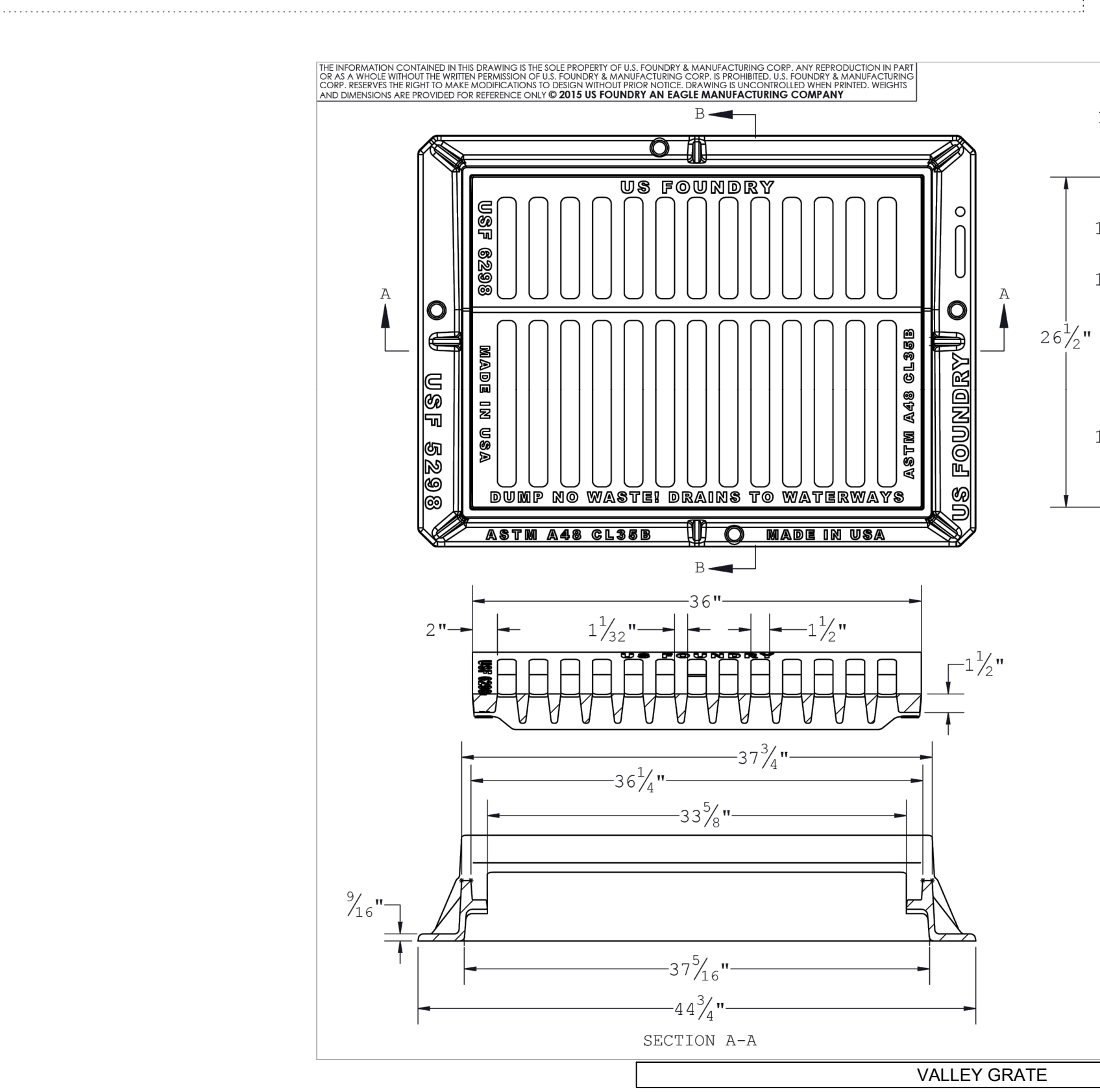
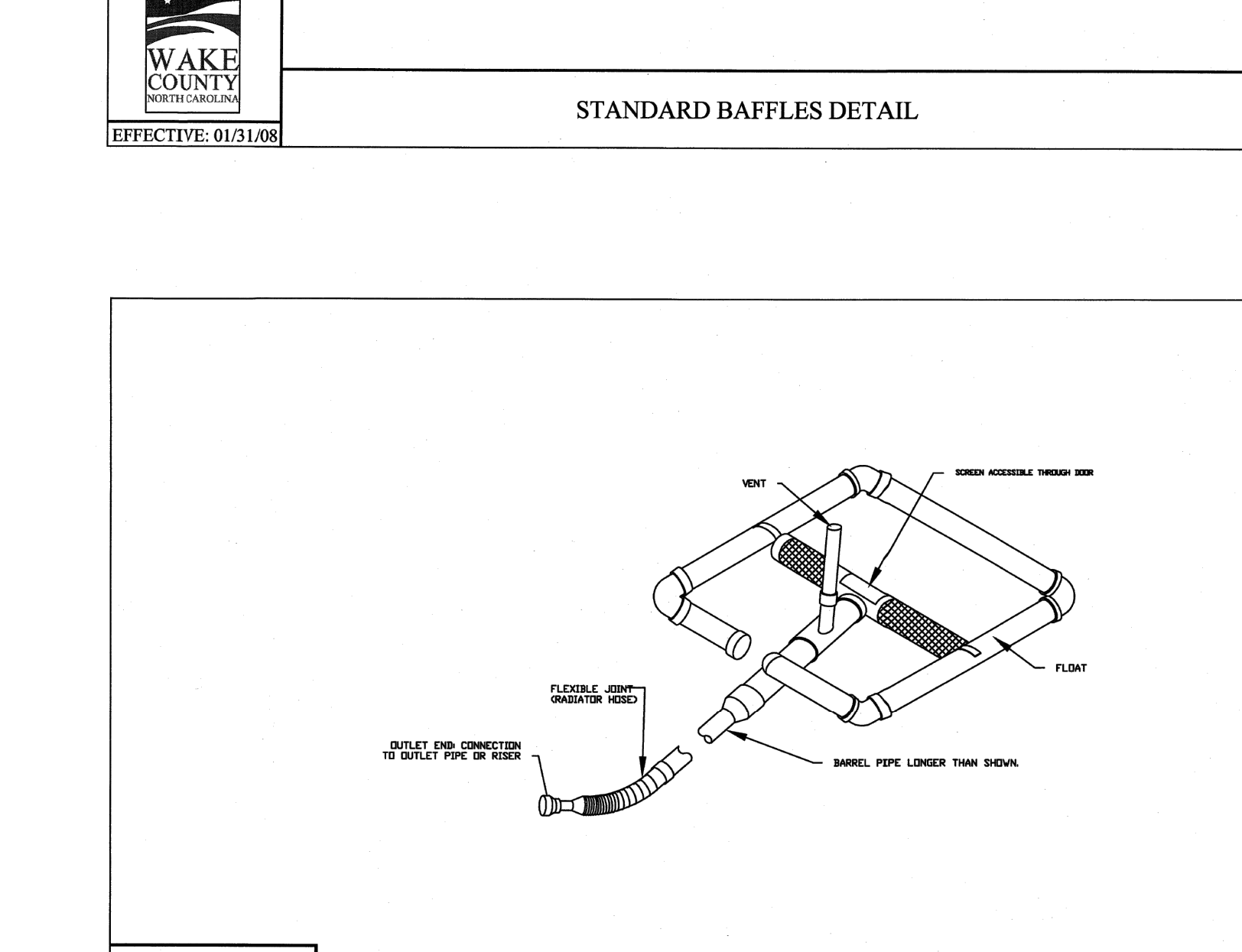
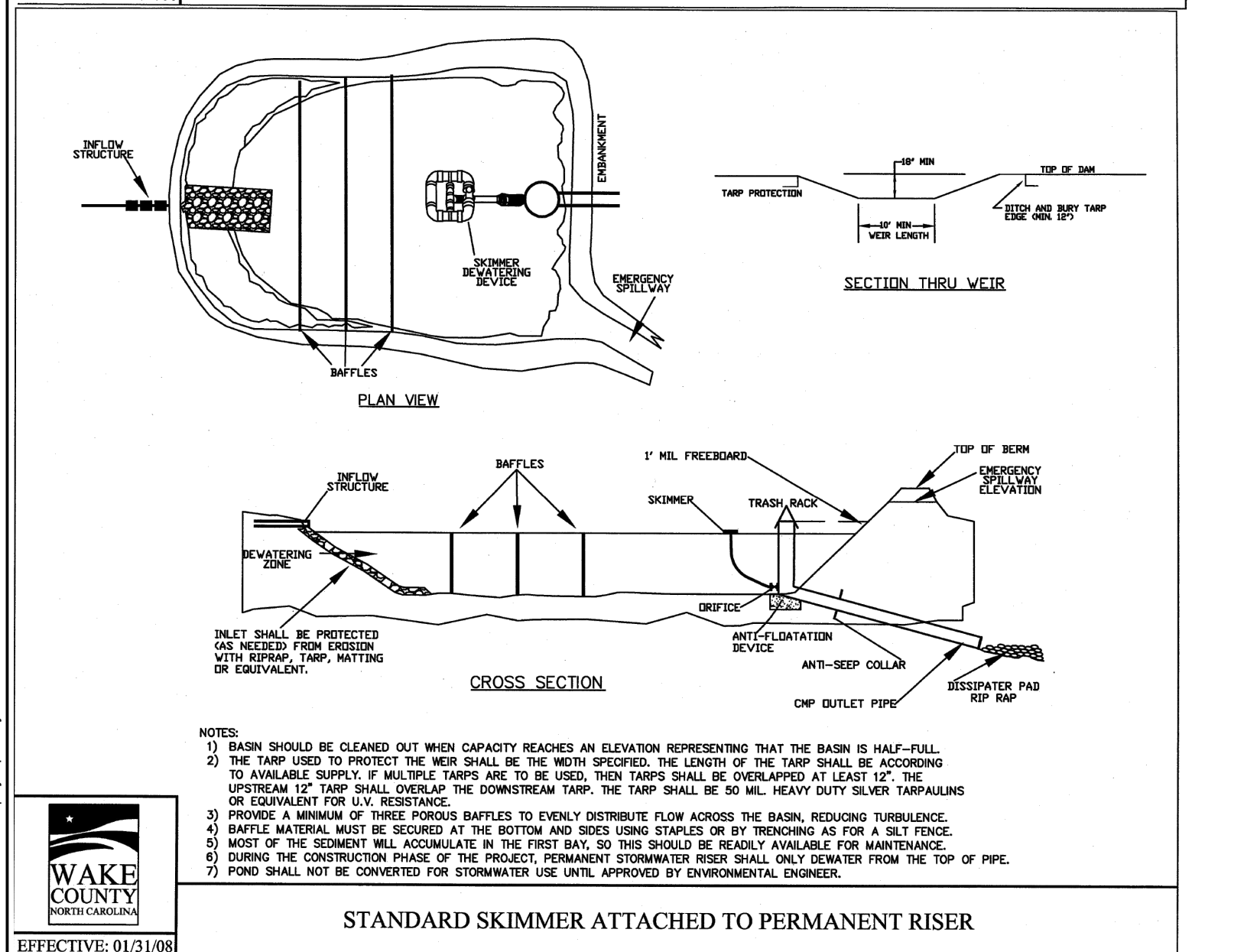
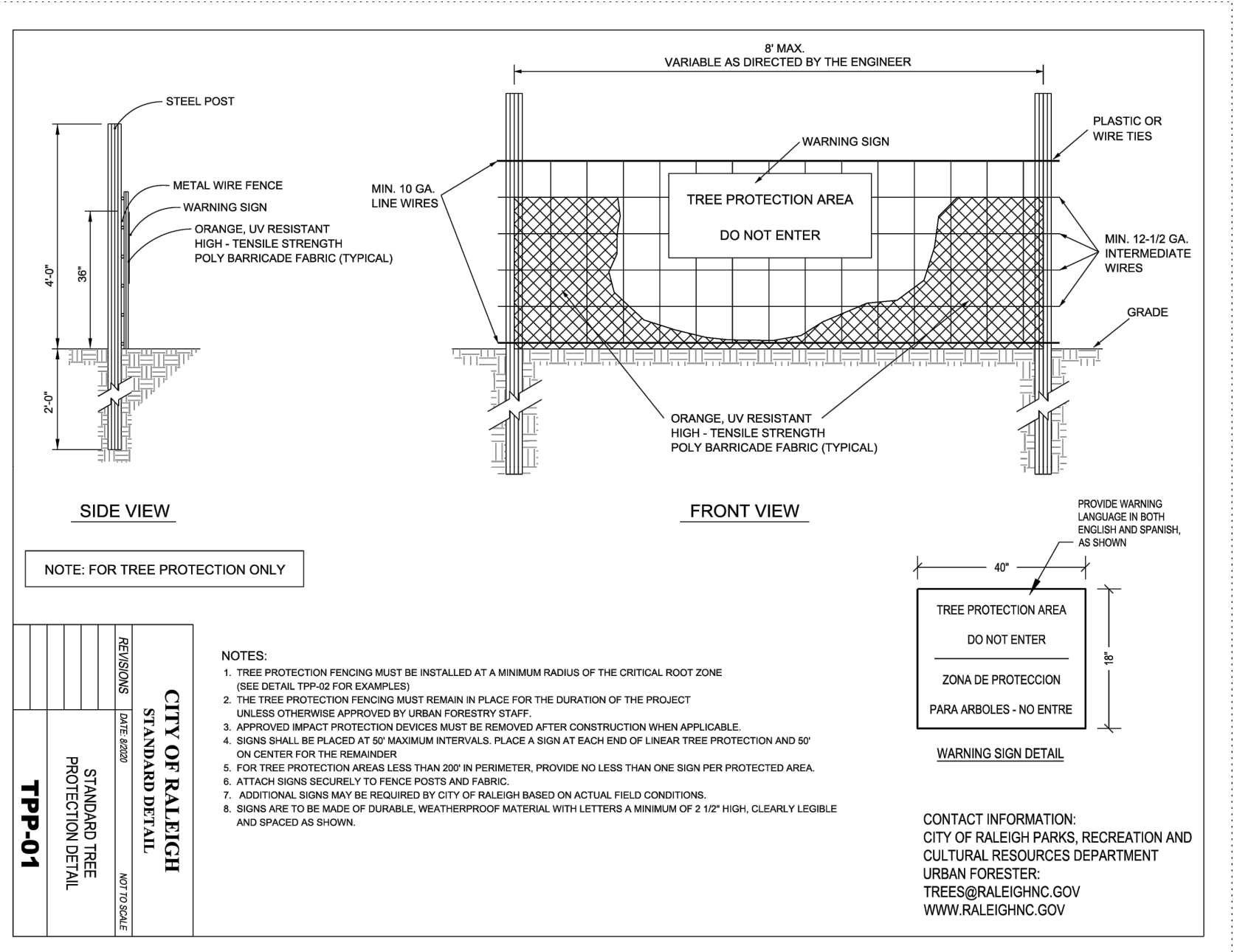
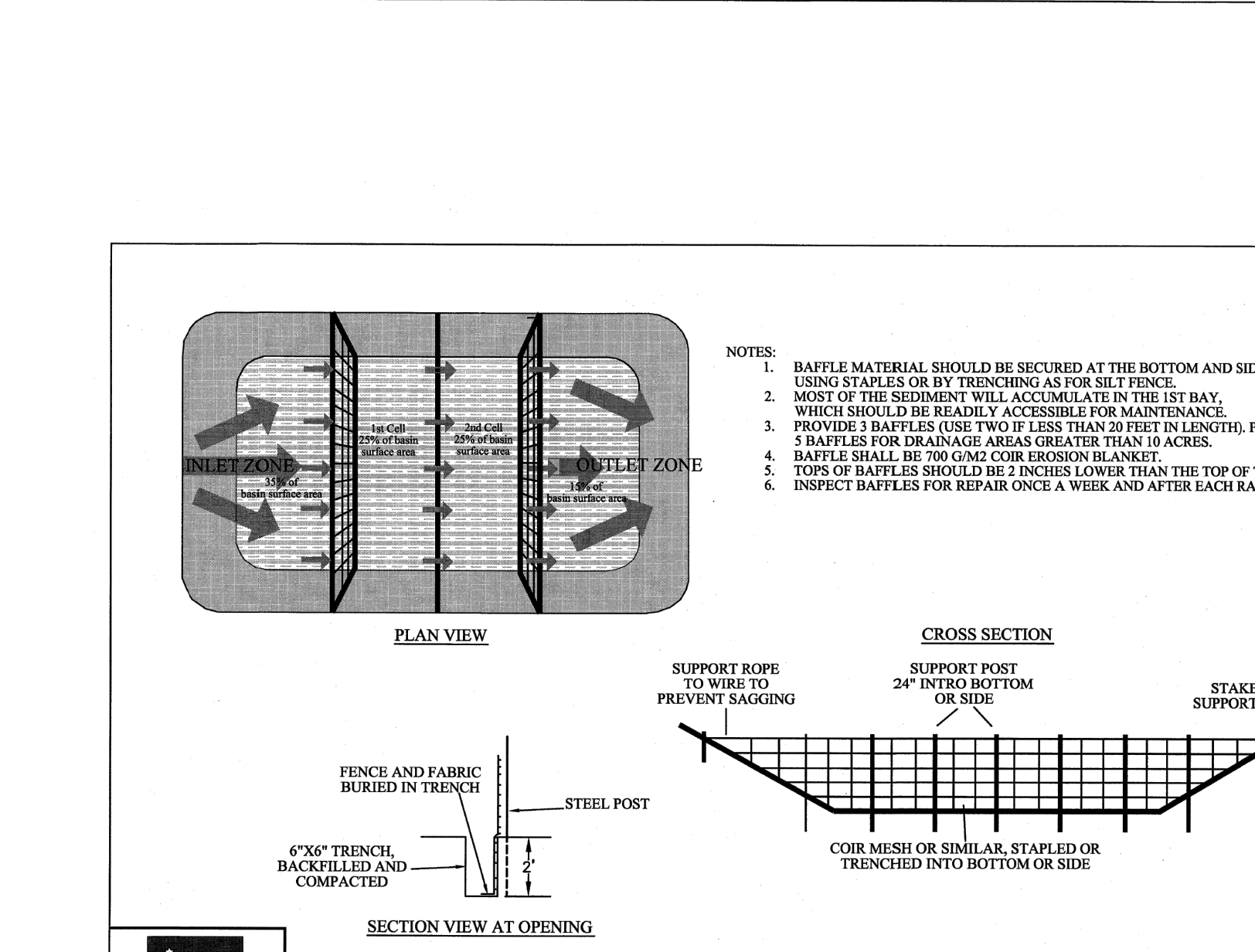
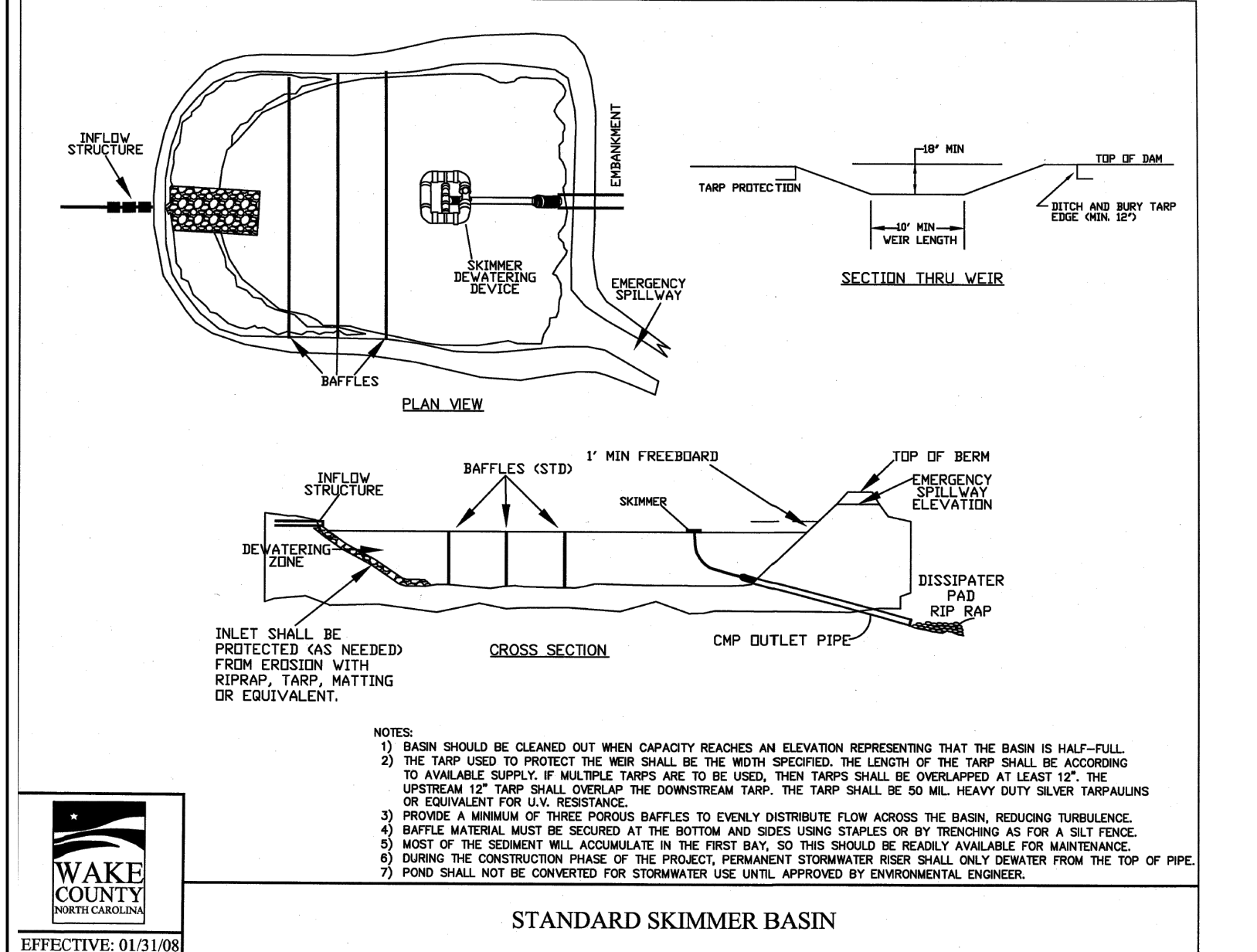
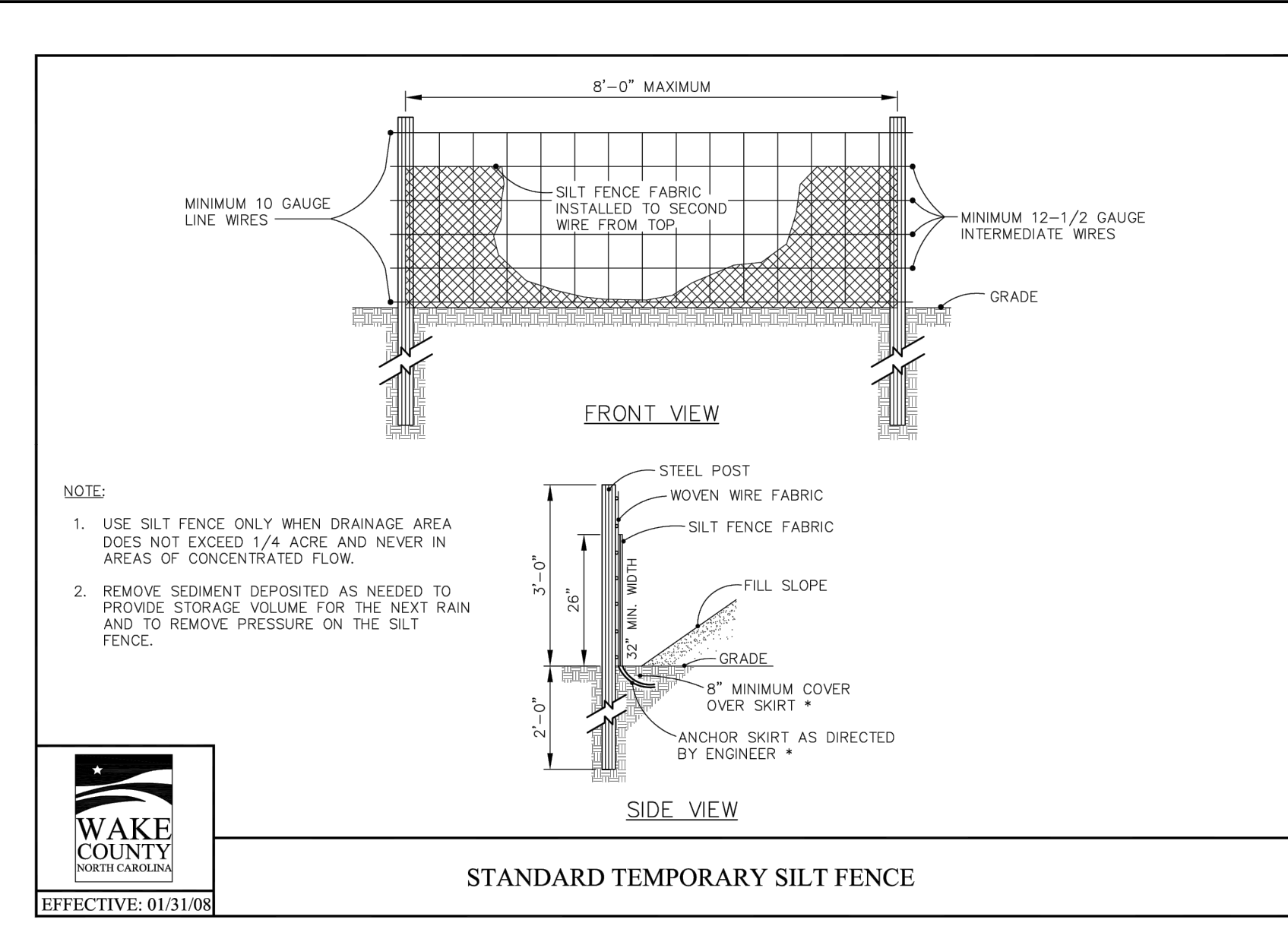
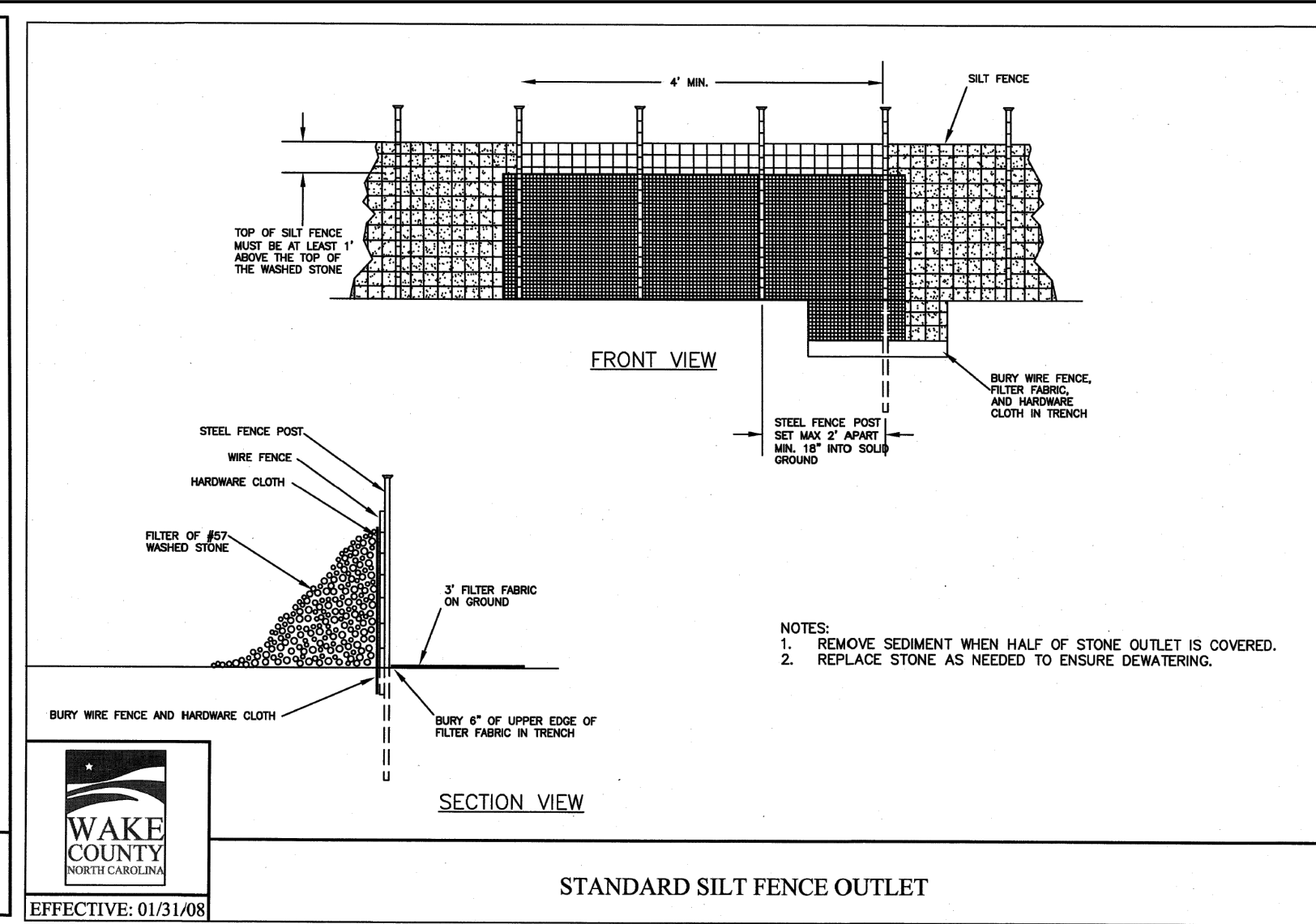
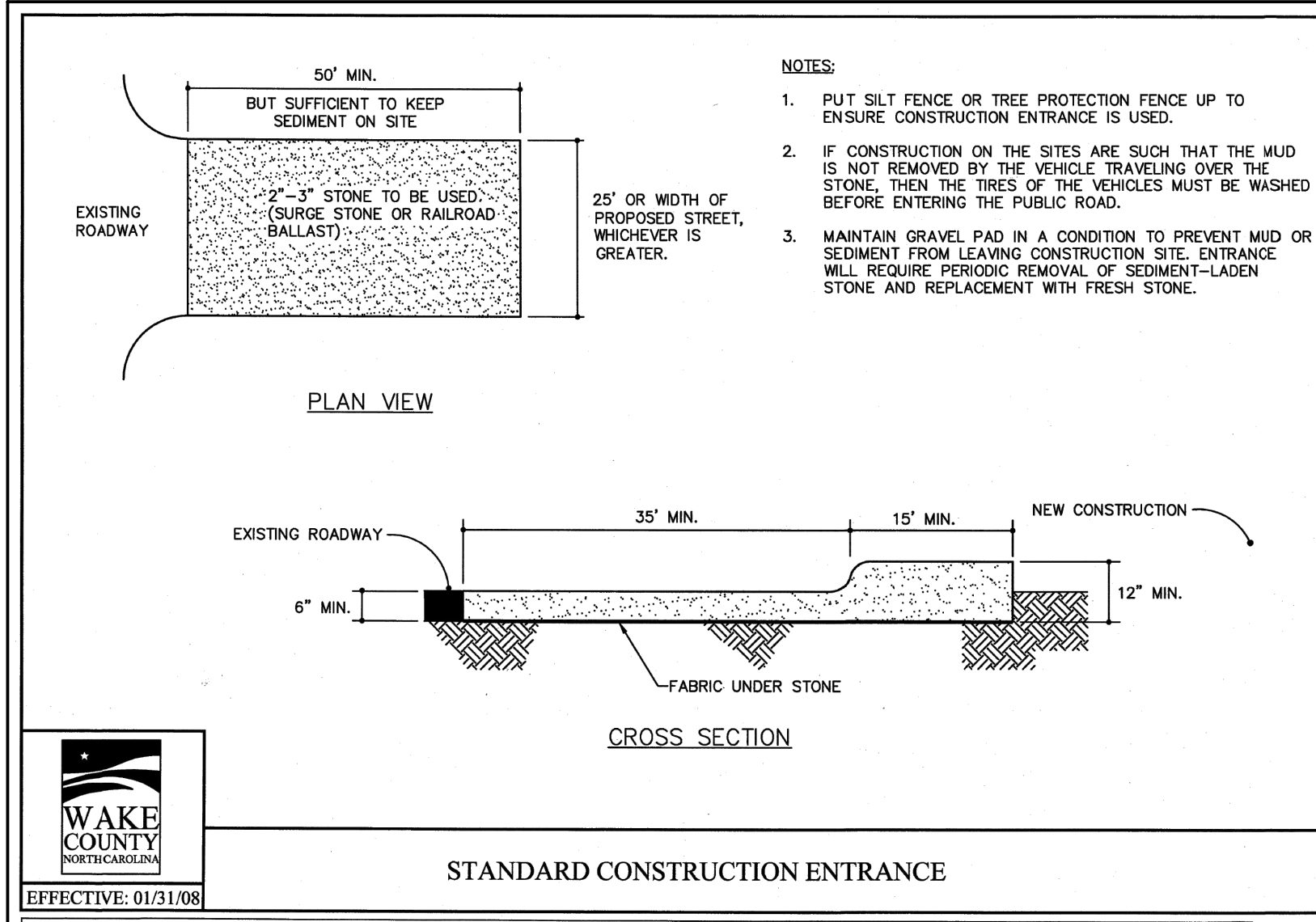
WAKE COUNTY - NORTH CAROLINA

### STORM DRAINAGE DETAILS

JOB NO. 43398  
SHEET NO. C7.2

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDOT AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS





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3	04/06/2023	REVISED PER NCDOT COMMENTS
4	09/06/2023	REVISED PER CITY OF RALEIGH COMMENTS
5	01/02/2024	REVISED TO APPROVED PLANS

LOAD CLASSIFICATION	Heavy Duty	FLOW AREA	424.5
MATERIAL	Gray Cast Iron	ASTM	A48 Class 35B
ITEM	8030402	DATE	9/25/2014
Frame	8076798	DRAWN BY	ULS/OD
Grate	8040190	REV	0
Assembly		DATE	
REV		BY	
DATE		CHKD	
BY		DATE	
0			4149



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NORTH CAROLINA LICENSE NO. C-1652

## ROLESVILLE CROSSING - CD 21-08

WAKE COUNTY - NORTH CAROLINA

### EROSION CONTROL & STORM DRAINAGE DETAILS

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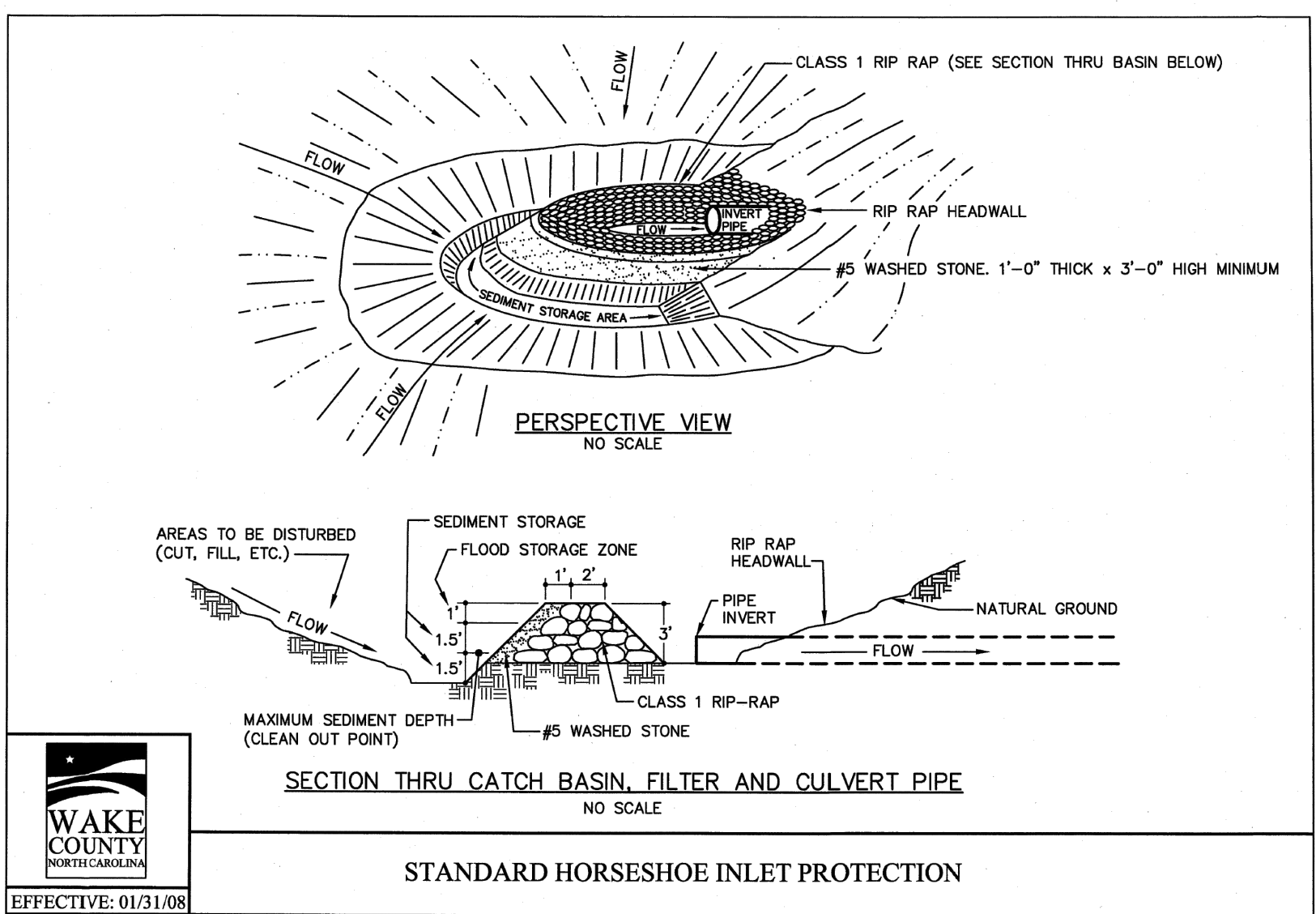
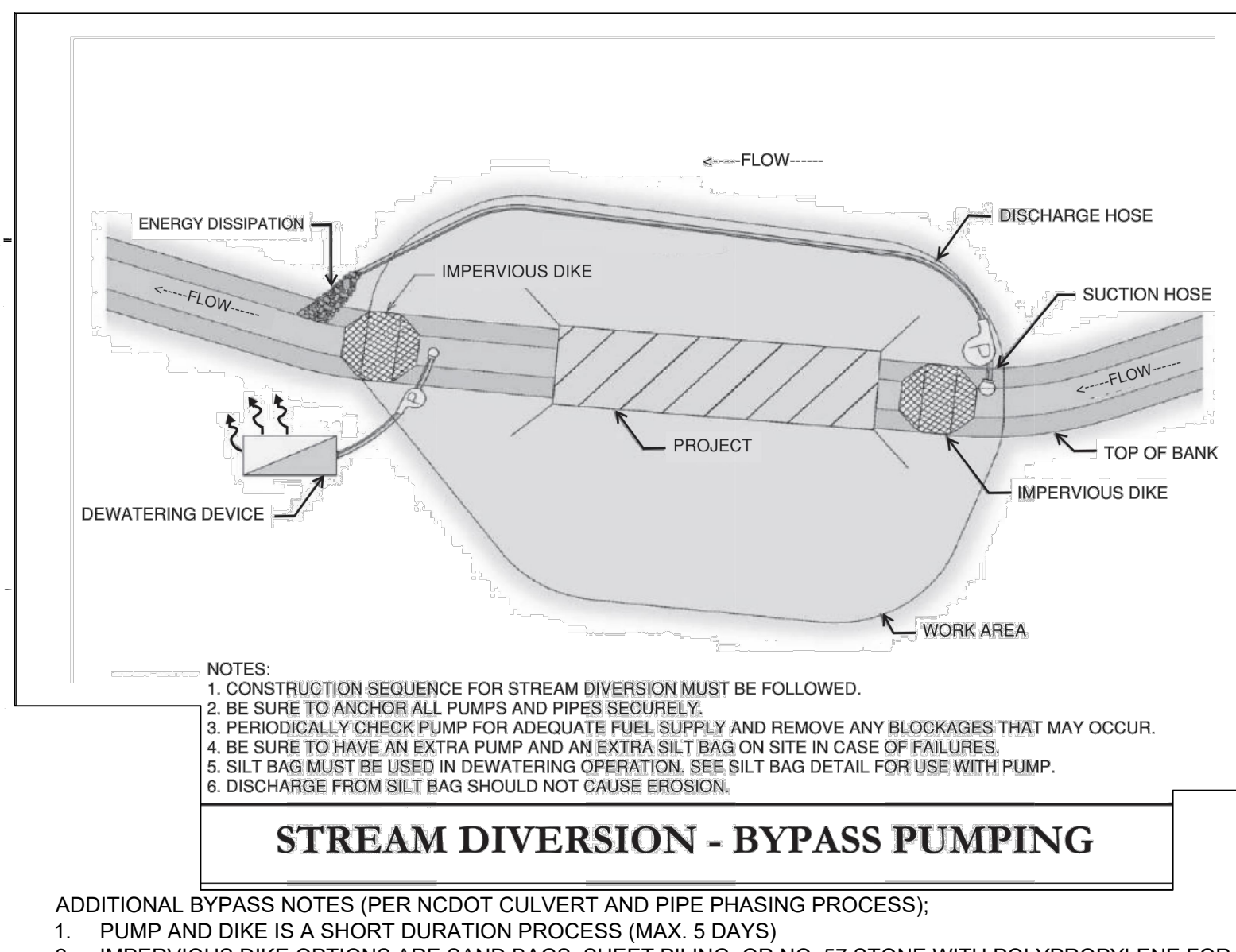
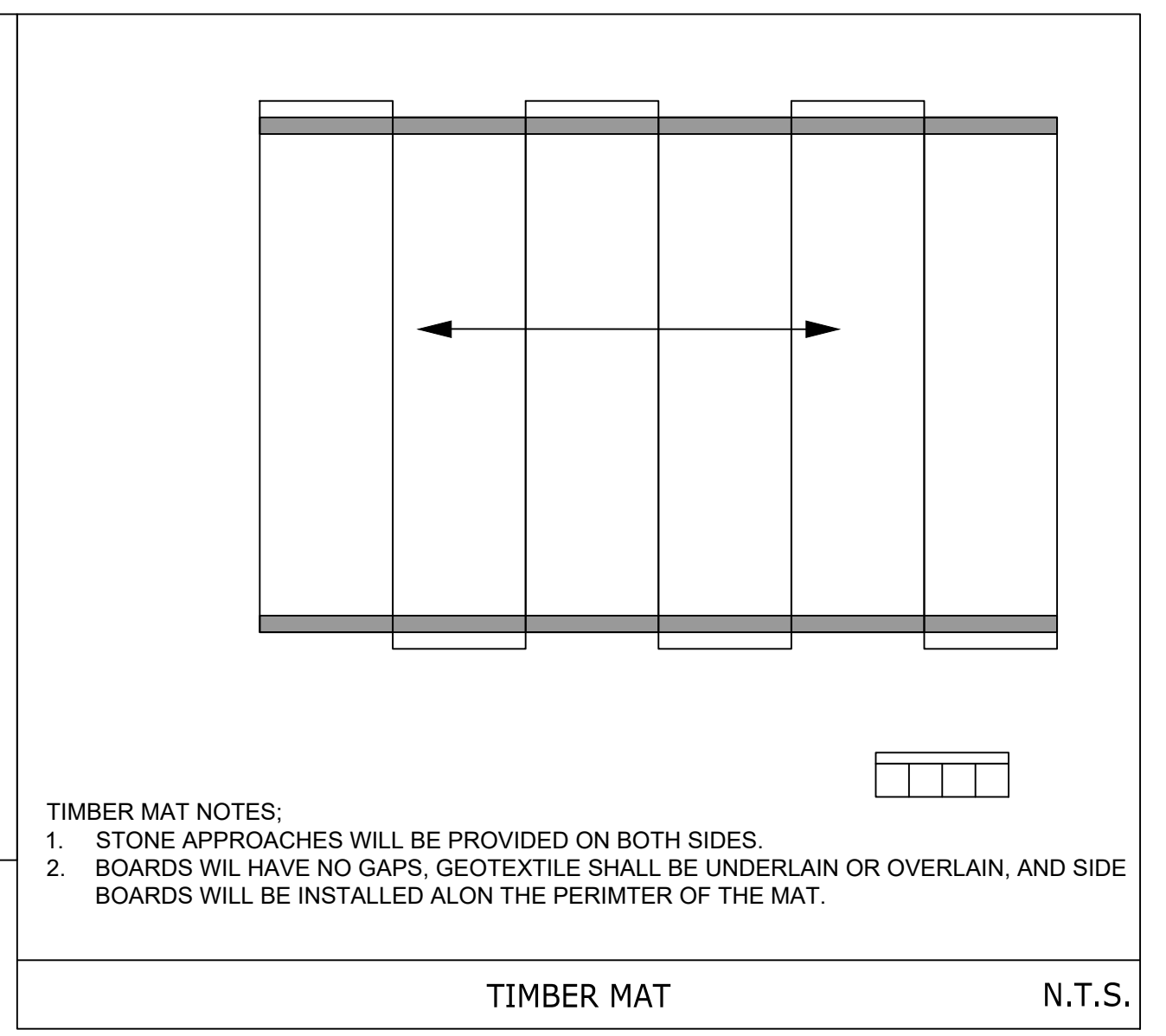
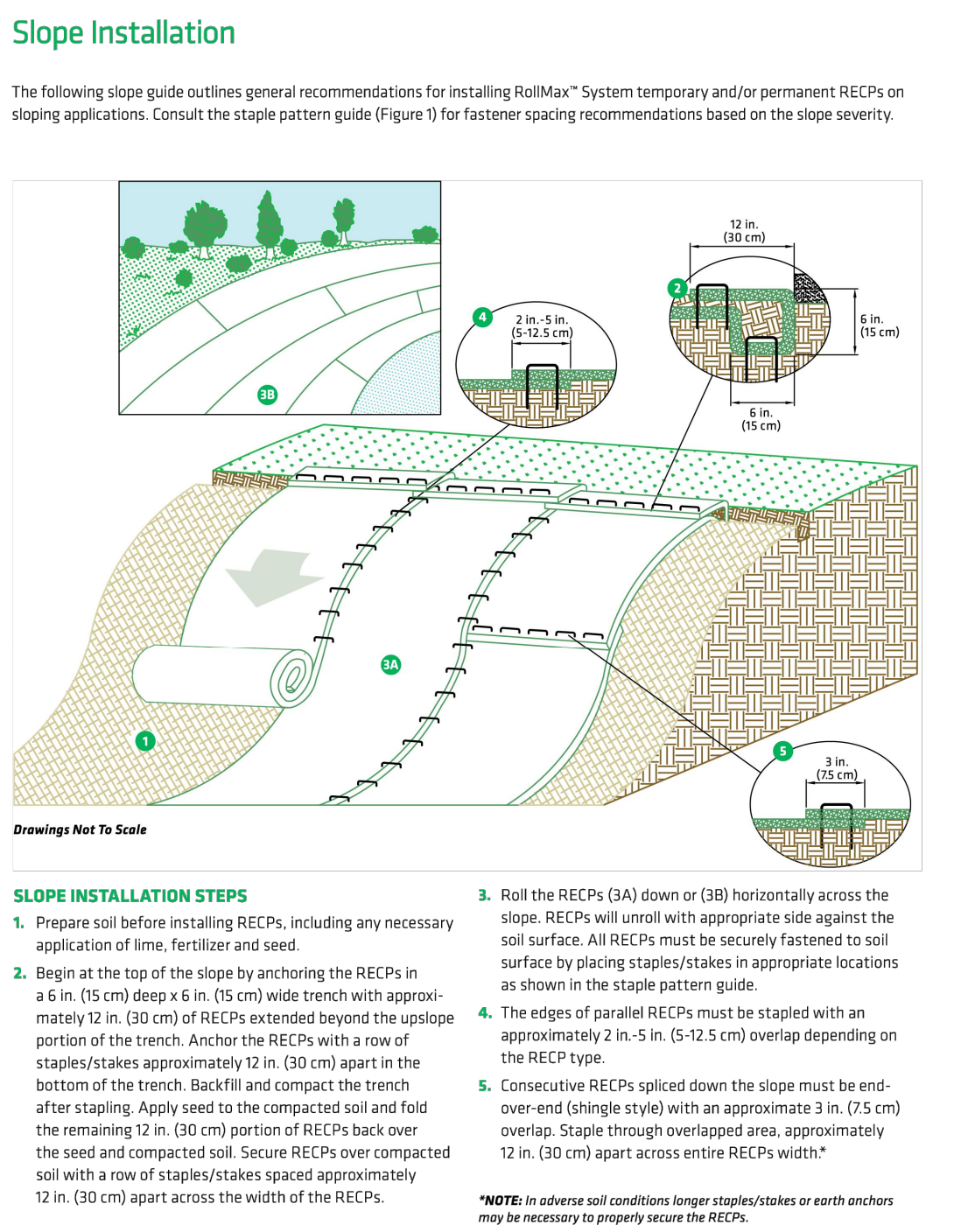
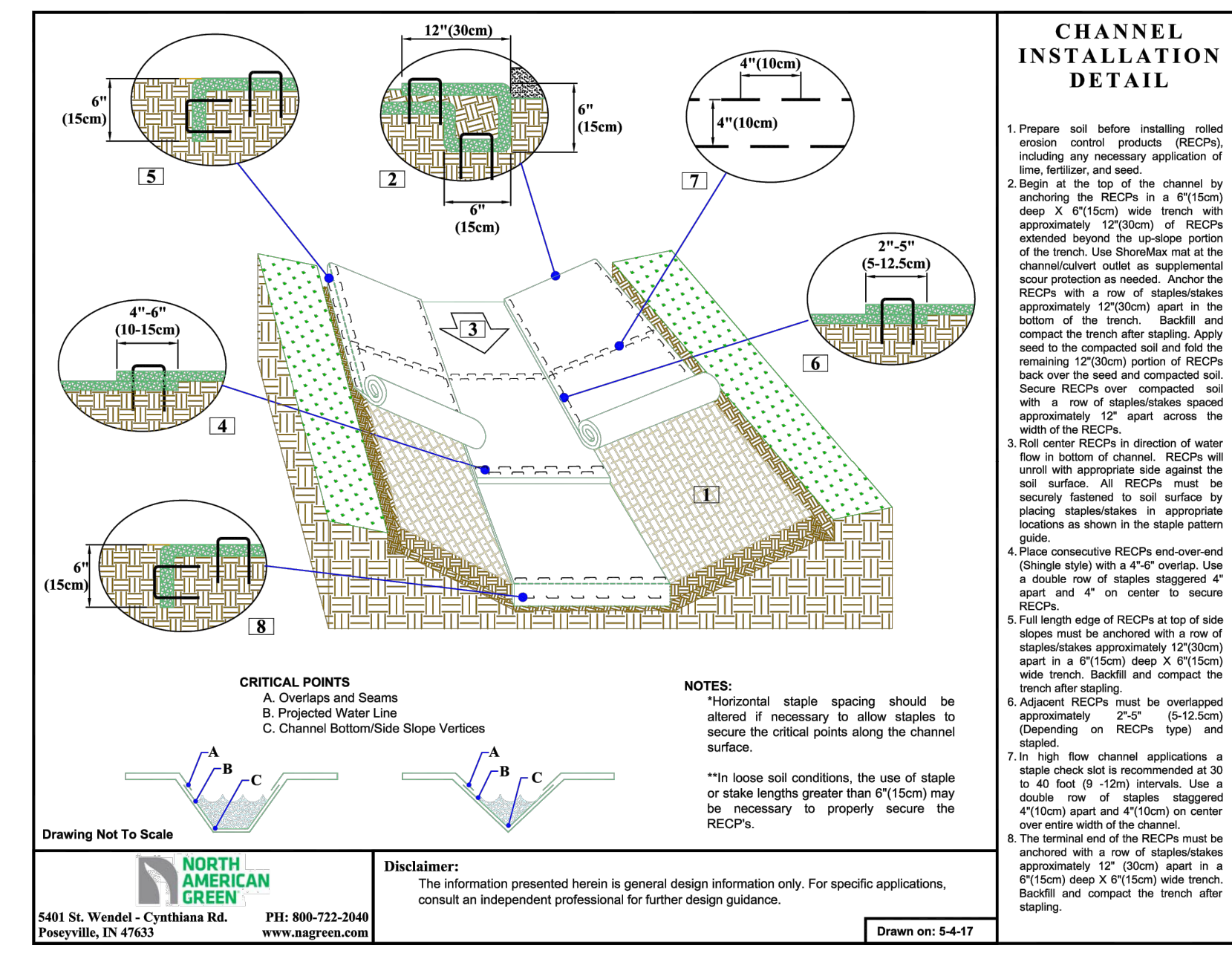
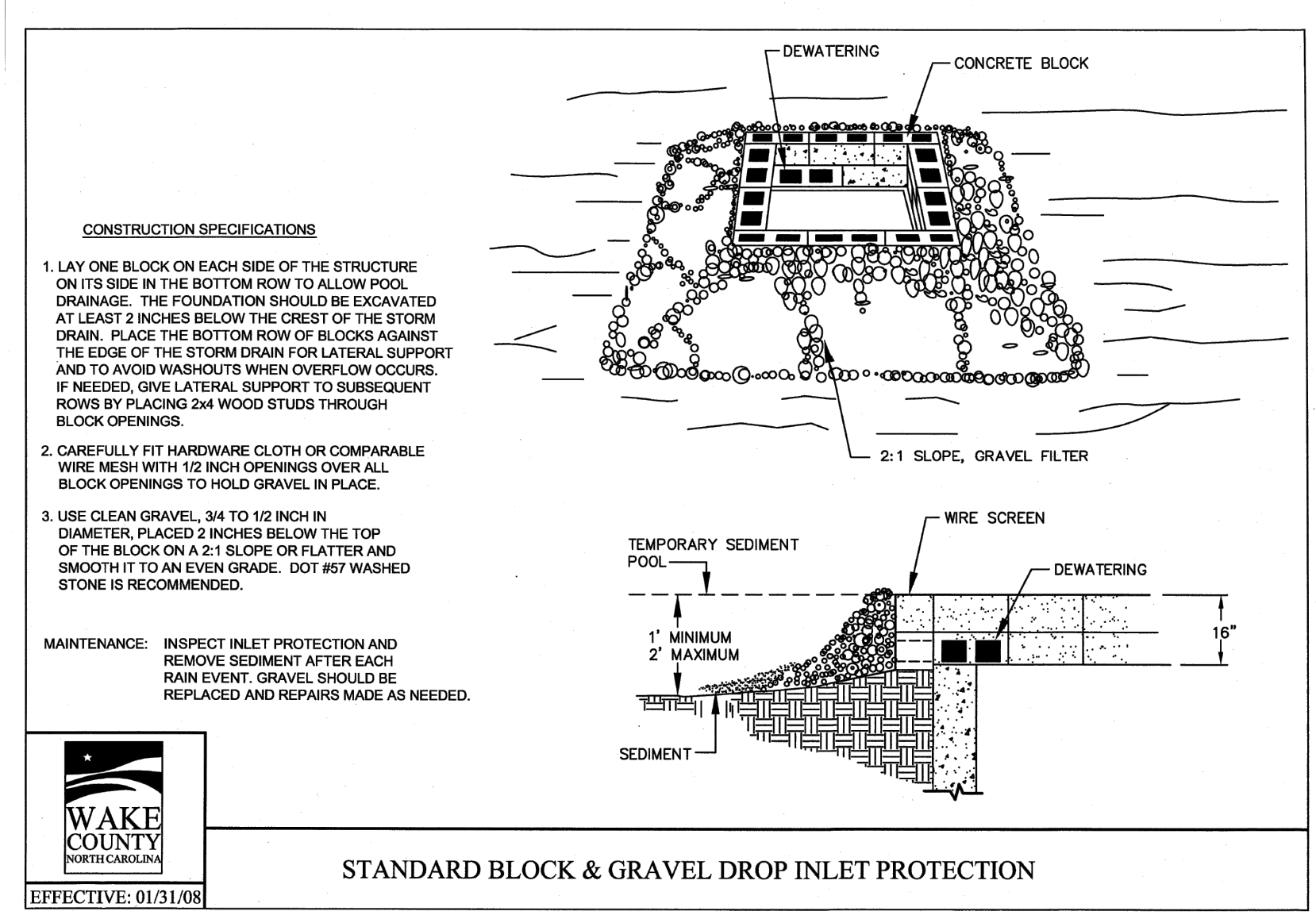
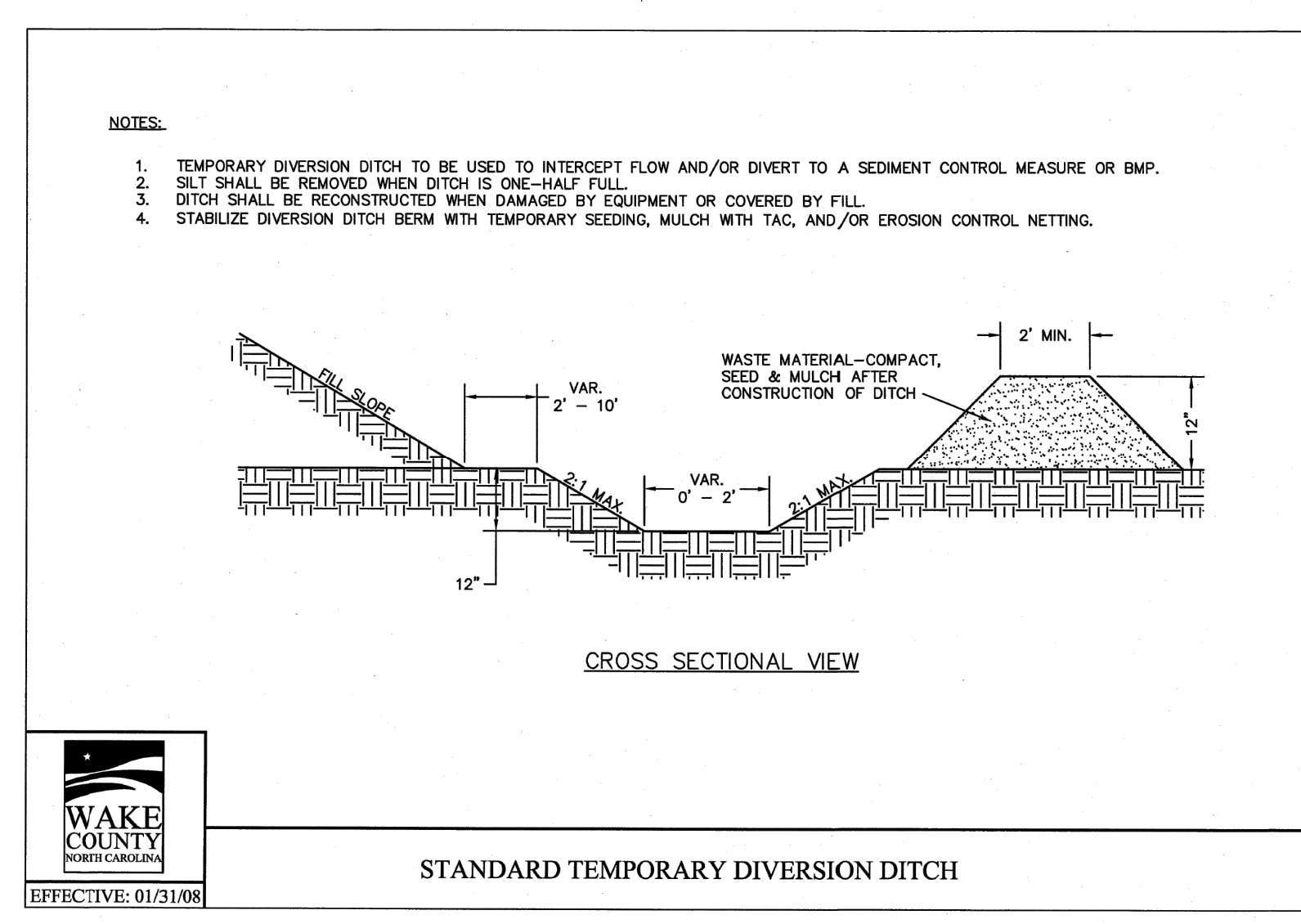
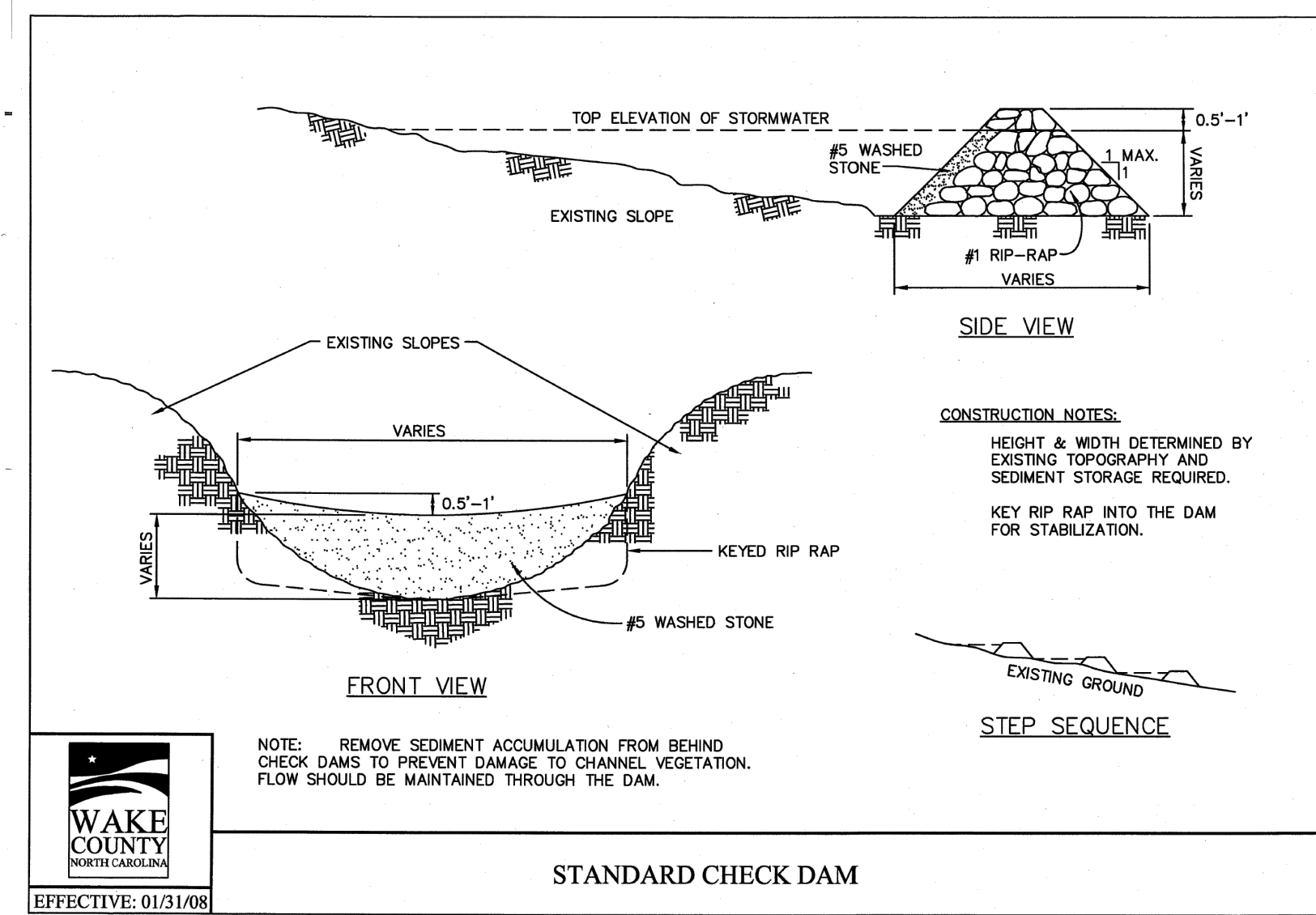
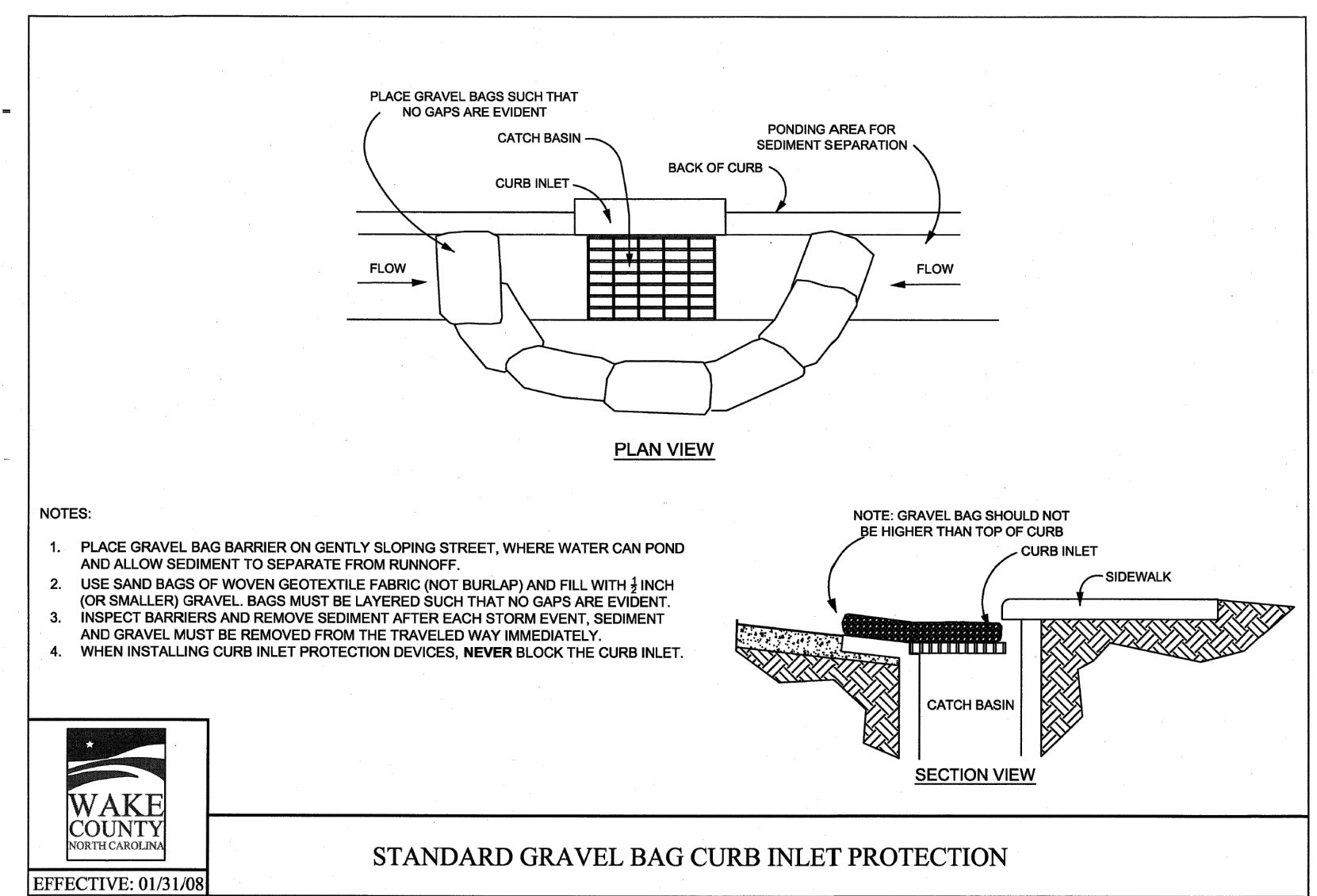
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**ROLESVILLE CROSSING - CD 21-08**  
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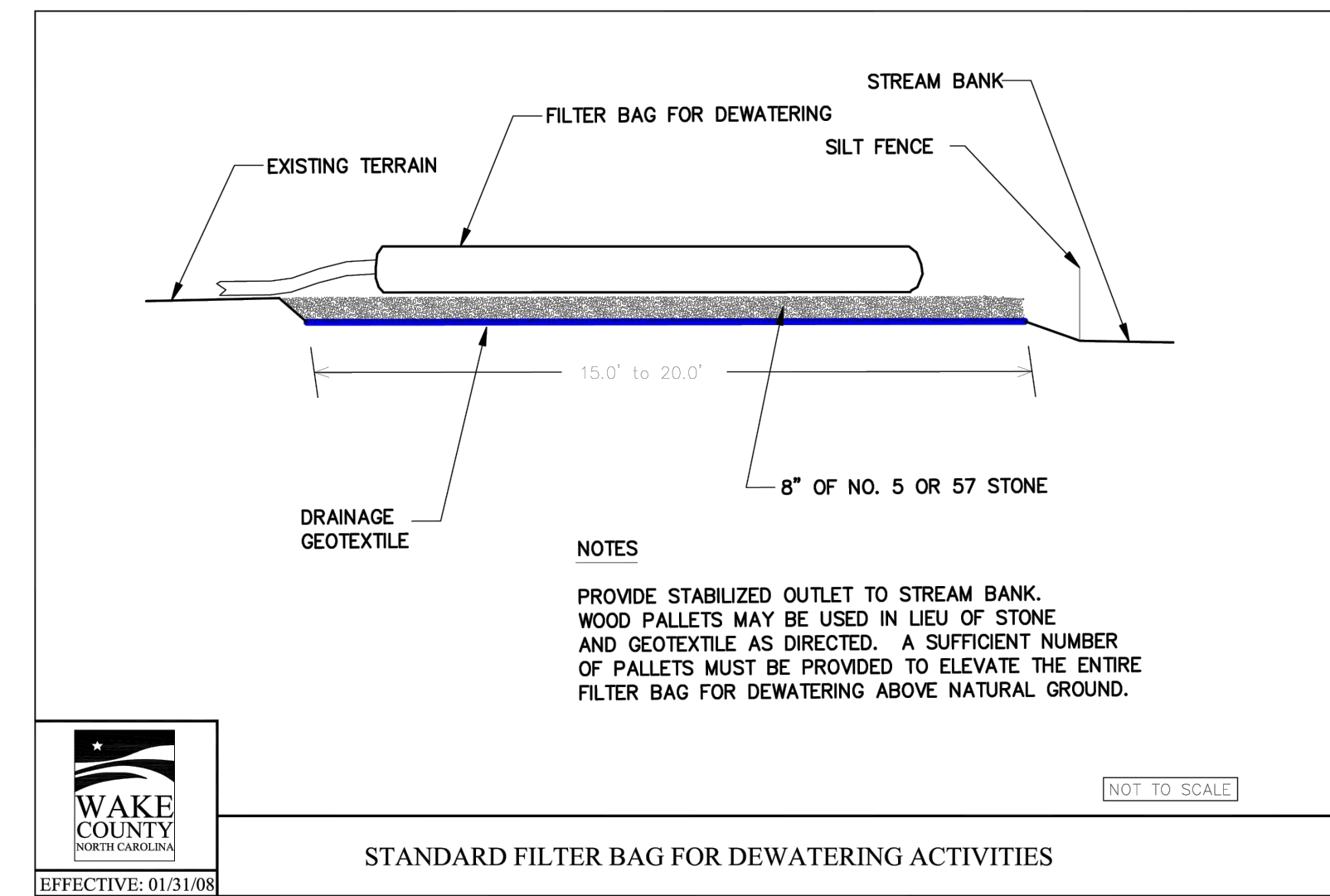
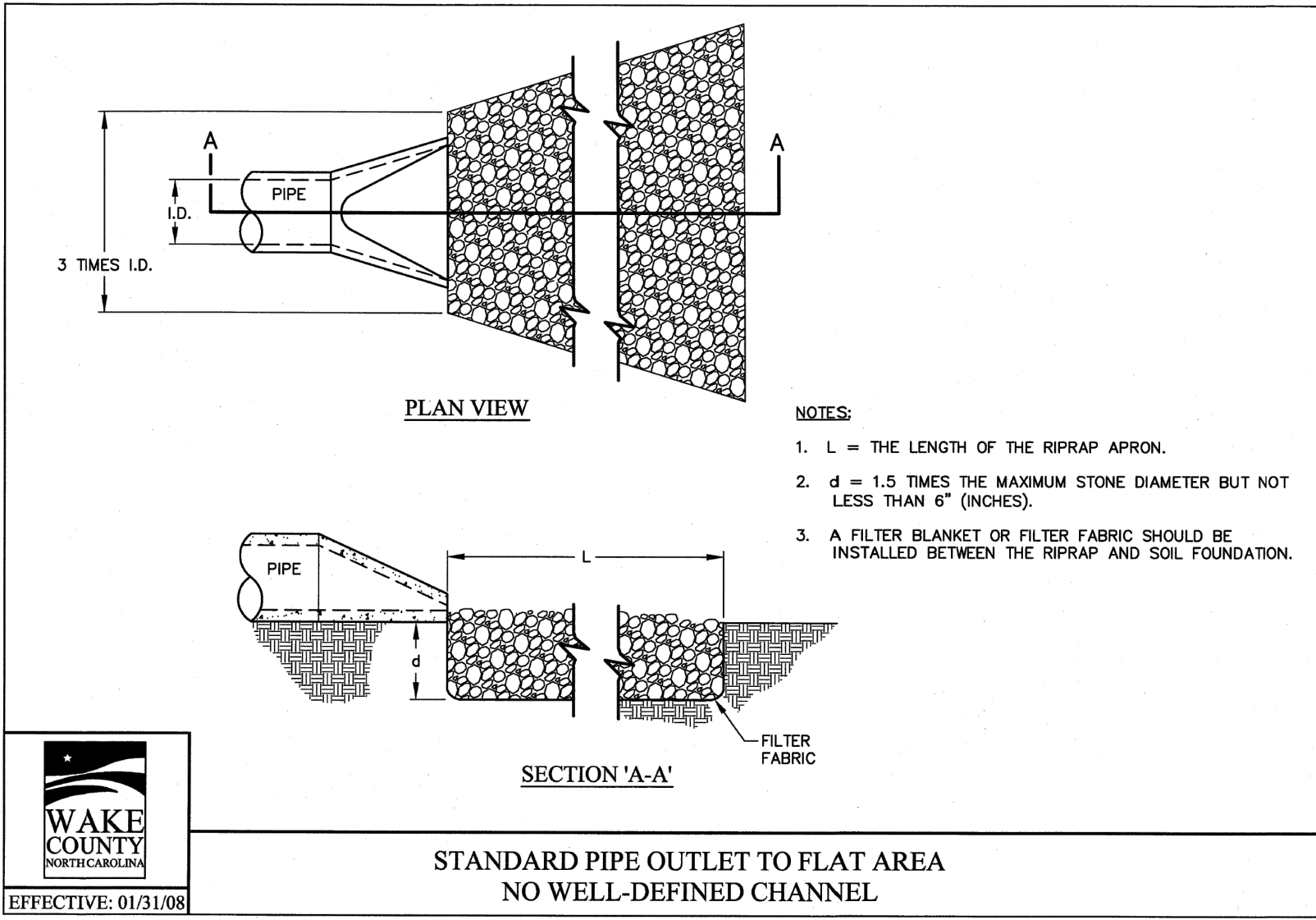
EROSION CONTROL DETAILS  
 JOB NO. 43398  
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ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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*Practice Standards and Specifications*

**6.87**

**CHECK DAM WITH A WEIR**

**Definition** A small stone dam structure with a weir outlet with a sediment storage area on the upper side.

**Purpose** To reduce erosion in a drainage channel by restricting the velocity of flow. This structure also has some ability to provide sediment control.

**Conditions Where Practice Applies** This temporary practice may be used in the following locations:

- At outlets of temporary diversions, graded channels, and temporary slope drains;
- In small natural drainage turnouts; and
- In locations where the dams can be easily cleaned and maintained on a regular basis.

**Do not use a check dam with a weir in intermittent or perennial streams.**

**Planning Considerations** Check dams are an expedient way to reduce gullying in the bottom of channels that will be filled or stabilized at a later date. The dams should only be used while permanent stabilization measures are being put into place.

Check dams installed in grass-lined channels may kill the vegetative lining if submergence after it rains is too long and/or sedimentation is excessive. All stone and riprap must be removed if mowing is planned as part of vegetative maintenance.

**Design Criteria** The following criteria should be used when designing a check dam with a weir:

- Keep the weir at least 9 inches lower than the outer edges at natural ground elevation. The weir length is variable to the size of the drainage area and peak runoff. The weir length may be sized as:  
$$L (ft) = \frac{Q \text{ peak } (cfs)}{0.88}$$
- Keep the side slope of the stone at 2:1 or flatter.
- The apron length (lower side of dam) should be approximately three times the height of the dam with a minimum length of 4 feet. Stabilize outflow areas along the channel to resist erosion.
- The maximum spacing between dams places the toe of the upstream dam at the same elevation as the top of the downstream dam (Figure 6.84a).
- Use NC DOT Class B stone and line the upstream side of the dam with NC DOT #5 or #57 stone.
- Key the stone into the ditch banks and extend it beyond the abutments a minimum of 1.5 feet to avoid washouts from overflow around the dams.
- Sediment storage area should be sized for the anticipated volume of sedimentation.

Rev. 6/06 6.87.1

**6**

**Construction Specifications**

- Place structural stone (Class B) to the lines and dimensions shown on the plan on a filter fabric foundation. The crest width of the dam should be a minimum of 2 feet.
- Keep the center stone section at least 9 inches below the end where the dam abuts the channel banks.
- Place sediment control stone (#5 or #57) on the upstream side of the dam that is a minimum of 1 foot thick.
- Provide an apron that is 3 times the height of the dam. The apron width is at least 4 feet long. Undercut the apron so that the top of the apron is flush with the surrounding grade.
- Extend the stone at least 1.5 feet beyond the ditch bank to keep water from cutting around the ends of the check dam.
- Excavate sediment storage area to the dimensions shown on the plan.

**Maintenance** Inspect check dams and channels at least weekly and after each significant (1/2 inch or greater) rainfall event and repair immediately. Clean out sediment, straw, limbs, or other debris that could clog the channel when needed.

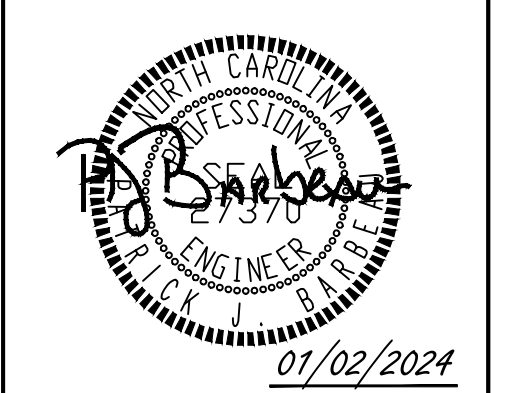
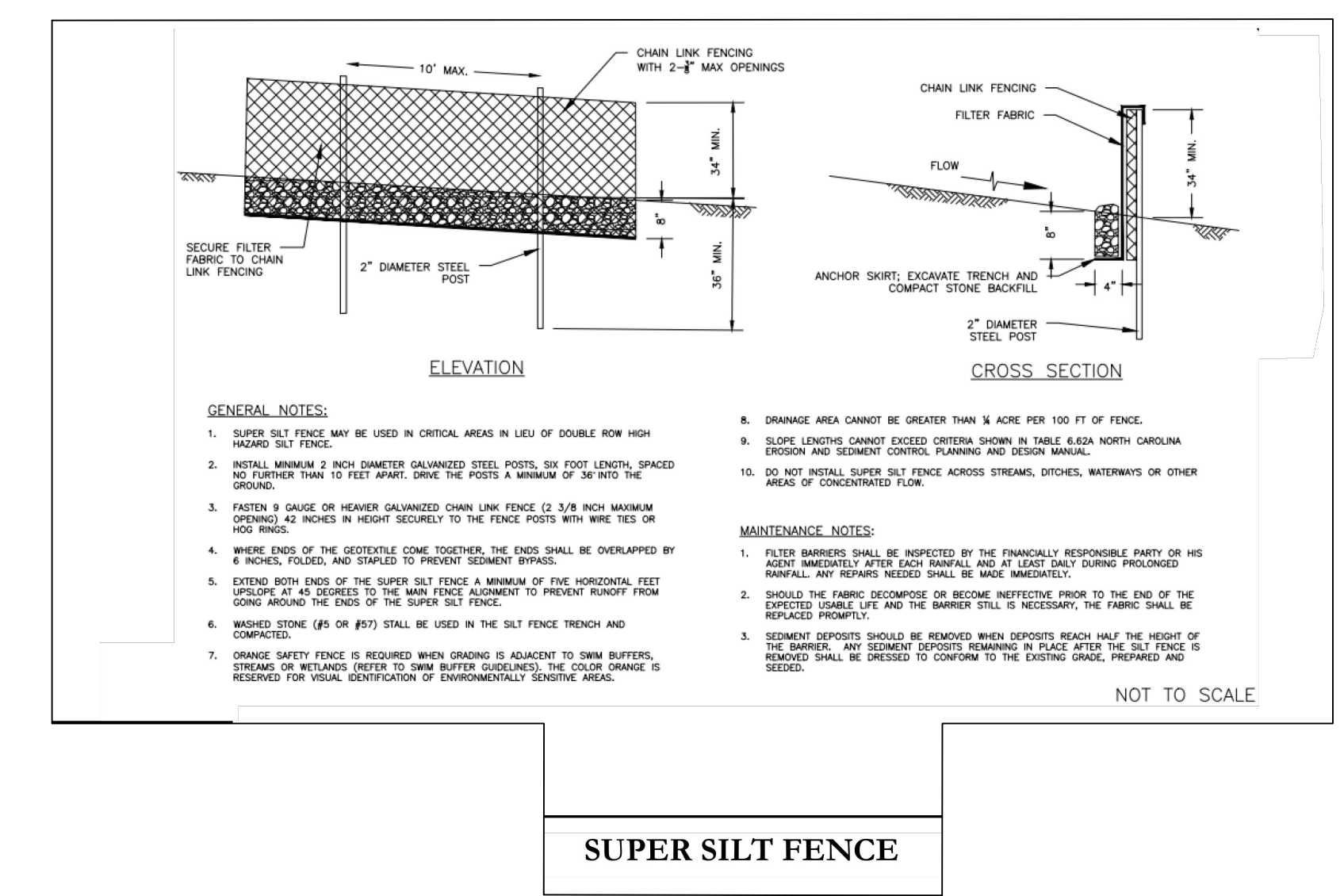
Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as, installing a protective riprap liner in that portion of the channel (Practice 6.31, *Riprap-line and Paved Channels*).

Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to dams as needed to maintain design height and cross section.

**References** *Runoff Conveyance Measures*  
6.31, Riprap-lined and Paved Channels

*North Carolina Department of Transportation*  
Standard Specifications for Roads and Structures

6.87.2 Rev. 6/06



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DESIGNED BY  
**P. BARBEAU**  
CHECKED BY  
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NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
WAKE COUNTY - NORTH CAROLINA

**EROSION CONTROL NOTES AND DETAILS**

JOB NO.  
**43398**

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**GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCGO1 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 NCGO1 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 -10 days for Falls Lake Watershed
(d) Slopes 3:1 to 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -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"> <li>Temporary grass seed covered with straw or other mulches and tackifiers</li> <li>Hydroseeding</li> <li>Roll erosion control products with or without temporary grass seed</li> <li>Appropriately applied straw or other mulch</li> <li>Plastic sheeting</li> </ul>	<ul style="list-style-type: none"> <li>Permanent grass seed covered with straw or other mulches and tackifiers</li> <li>Geotextile fabrics such as permanent soil reinforcement matting</li> <li>Hydroseeding</li> <li>Strips or other permanent plantings covered with mulch</li> <li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li> <li>Structural methods such as concrete, asphalt or retaining walls</li> <li>Roll erosion control products with grass seed</li> </ul>

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

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

**EQUIPMENT AND VEHICLE MAINTENANCE**

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- 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**

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- 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.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

**PAINT AND OTHER LIQUID WASTE**

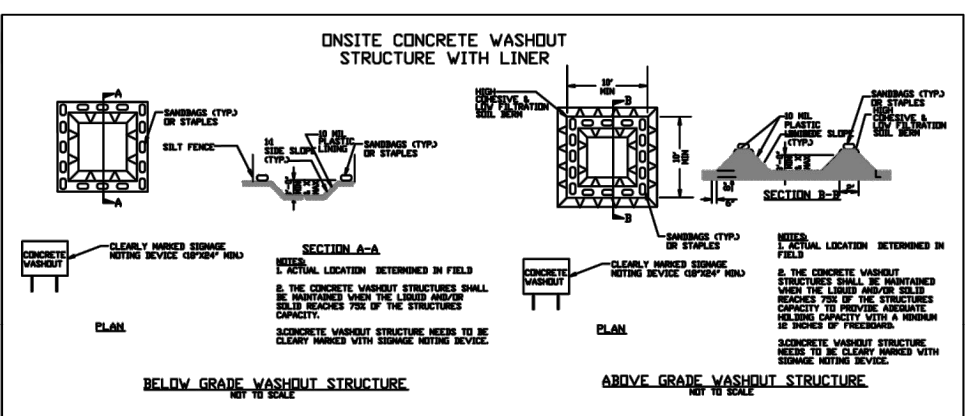
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled,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

**PORTABLE TOILETS**

- 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.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- 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**

- 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.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- 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**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- 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 10 feet perimeter silt fence.
- 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.
- 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.
- 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 would receive spills or overflow.
- 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.
- 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.
- Remove loadings 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.
- At the completion of the concrete work, remove remaining loadings 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**

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- 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.
- 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.
- Do not stockpile these materials onsite.

**HAZARDOUS AND TOXIC WASTE**

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

**SEEDING SCHEDULE**  
 (REVISED: 1-1-86)

**SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)**

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUN 1 - AUG 15	TALL FESCUE AND ***BROWN TOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
MAR 1 - JUN 1	SERICEA LESPEDEZA (SCARIFIED) &	50 LBS/ACRE
(MAR 1 - APR 15)	ADD TALL FESCUE	120 LBS/ACRE
(MAR 1 - JUN 30)	OR ADD WEEPING LOVEGRASS	10 LBS/ACRE
(MAR 1 - JUN 30)	OR ADD HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUN 1 - SEP 1	***TALL FESCUE AND ***BROWN TOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SEP 1 - MAR 1	SERICEA LESPEDEZA (UNHULLED-UNSCARIFIED) AND TALL FESCUE	70 LBS/ACRE 120 LBS/ACRE
(NOV 1 - MAR 1)	ADD ABRUZZI RYE	25 LBS/ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUEDED 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" IN HEIGHT BEFORE MOWING. OTHERWISE FESCUE MAY BE SHADDED OUT.

**SEEDING PREPARATION**

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

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

**NCGO1 GROUND STABILIZATION AND MATERIALS HANDLING**

EFFECTIVE: 04/01/19

**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-day rainfall information is available, record the cumulative rain measurement for those un-attended days (use 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-monitoring device approved by the Division.
(2) E&S 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. Indication 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 (SDCs)	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 (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 visible sedimentation or a stream has visible 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(g) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&S measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, 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 III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION B: RECORDKEEPING**

**1. E&S Plan Documentation**

The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S 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&S measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S plan.	Initial and date each E&S measure on a copy of the approved E&S plan or complete, date and sign an inspection report that lists each E&S measure shown on the approved E&S plan. This documentation is required upon the initial installation of the E&S measures or if the E&S measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S 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&S plan.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&S measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S measures.	Initial and date a copy of the approved E&S 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&S 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:

- 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"> <li><b>Within 24 hours</b>, an oral or electronic notification.</li> <li><b>Within 7 calendar days</b>, 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.</li> <li>If the stream is named on the <i>NC 303(d) list</i> 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 or state impaired-waters conditions.</li> </ul>
(b) Oil spills and release of hazardous substances per item 2(b)-(c) above	<ul style="list-style-type: none"> <li><b>Within 24 hours</b>, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.</li> <li><b>A report at least ten days before the date of the bypass</b>, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.</li> <li><b>Within 24 hours</b>, an oral or electronic notification.</li> <li><b>Within 7 calendar days</b>, a report that includes an evaluation of the quality and effect of the bypass.</li> </ul>
(c) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li><b>Within 24 hours</b>, an oral or electronic notification.</li> <li><b>Within 7 calendar days</b>, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(l)(6)].</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>
(d) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(k)(7)]	<ul style="list-style-type: none"> <li><b>Within 24 hours</b>, an oral or electronic notification.</li> <li><b>Within 7 calendar days</b>, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(l)(6)].</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>

**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&S 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&S 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, weir 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.

**NCGO1 SELF-INSPECTION, RECORDKEEPING AND REPORTING**

EFFECTIVE: 04/01/19



THIS DRAWING PREPARED AT THE  
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 TEL 919.866.9511 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
07/22/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

DATE: 09/17/2021  
 DRAWN BY: R. WINGATE  
 DESIGNED BY: P. BARBEAU  
 CHECKED BY: P. BARBEAU  
 SCALE: AS SHOWN

**TIMMONS GROUP**  
 NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 WAKE COUNTY - NORTH CAROLINA

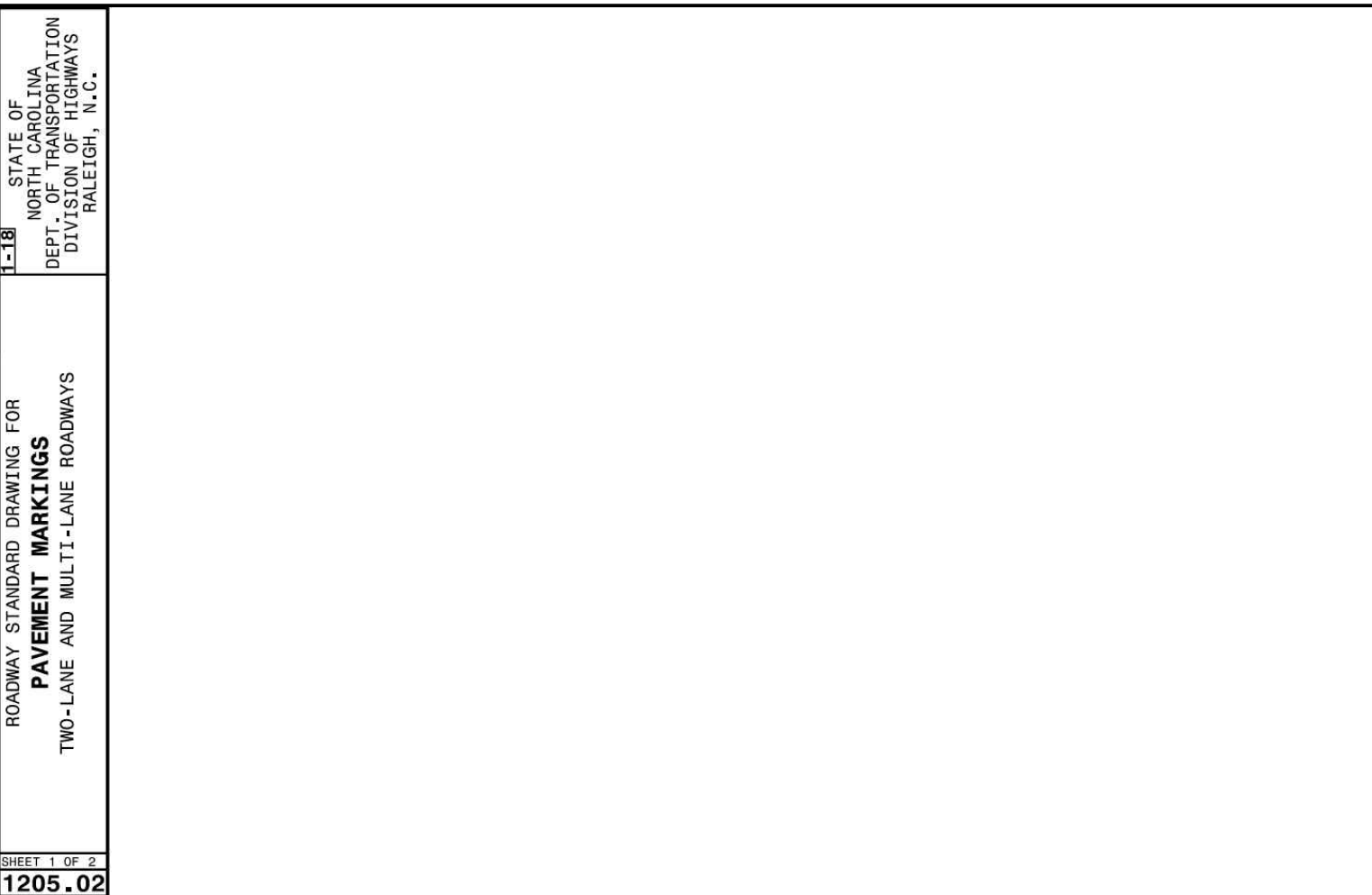
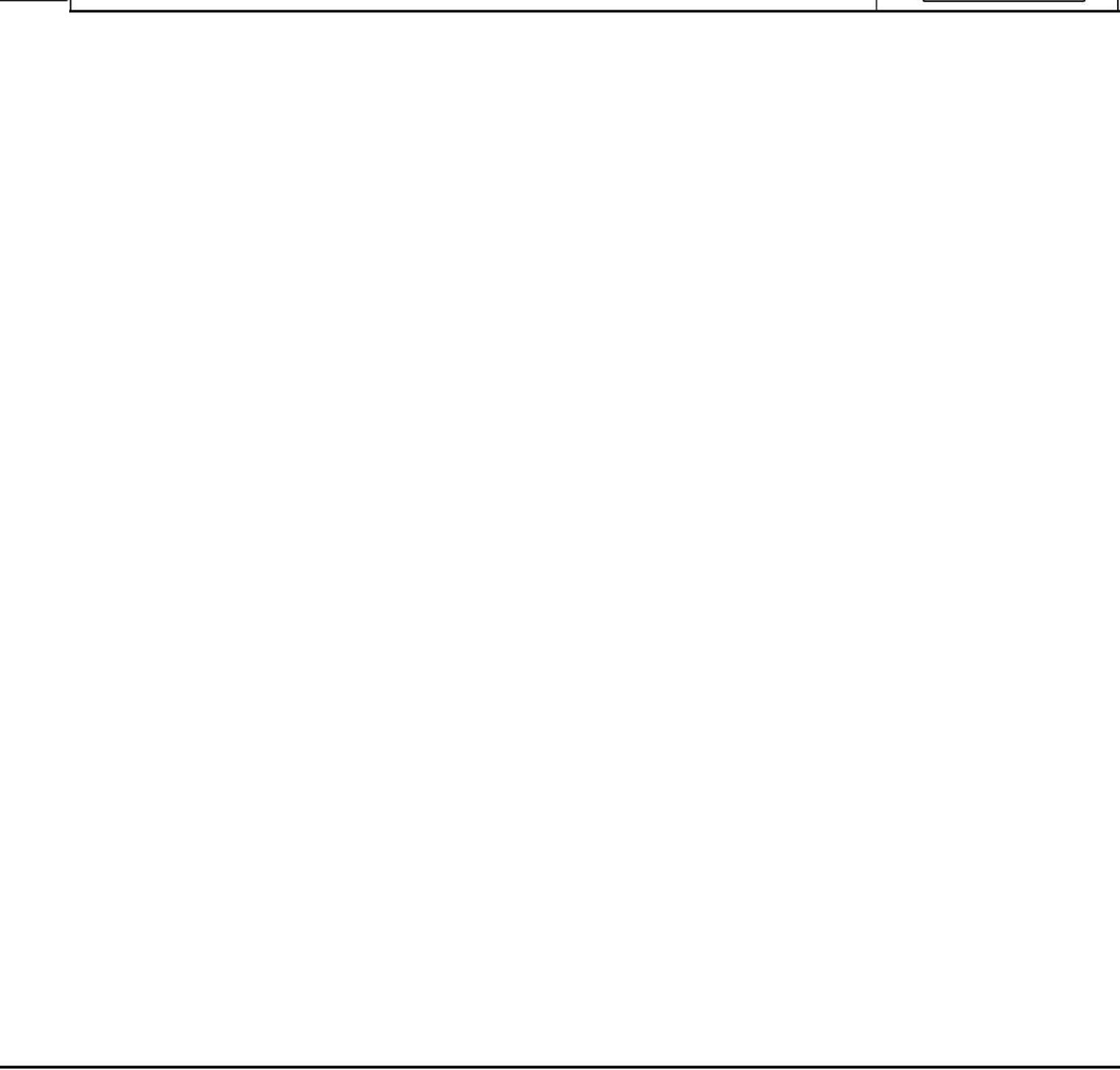
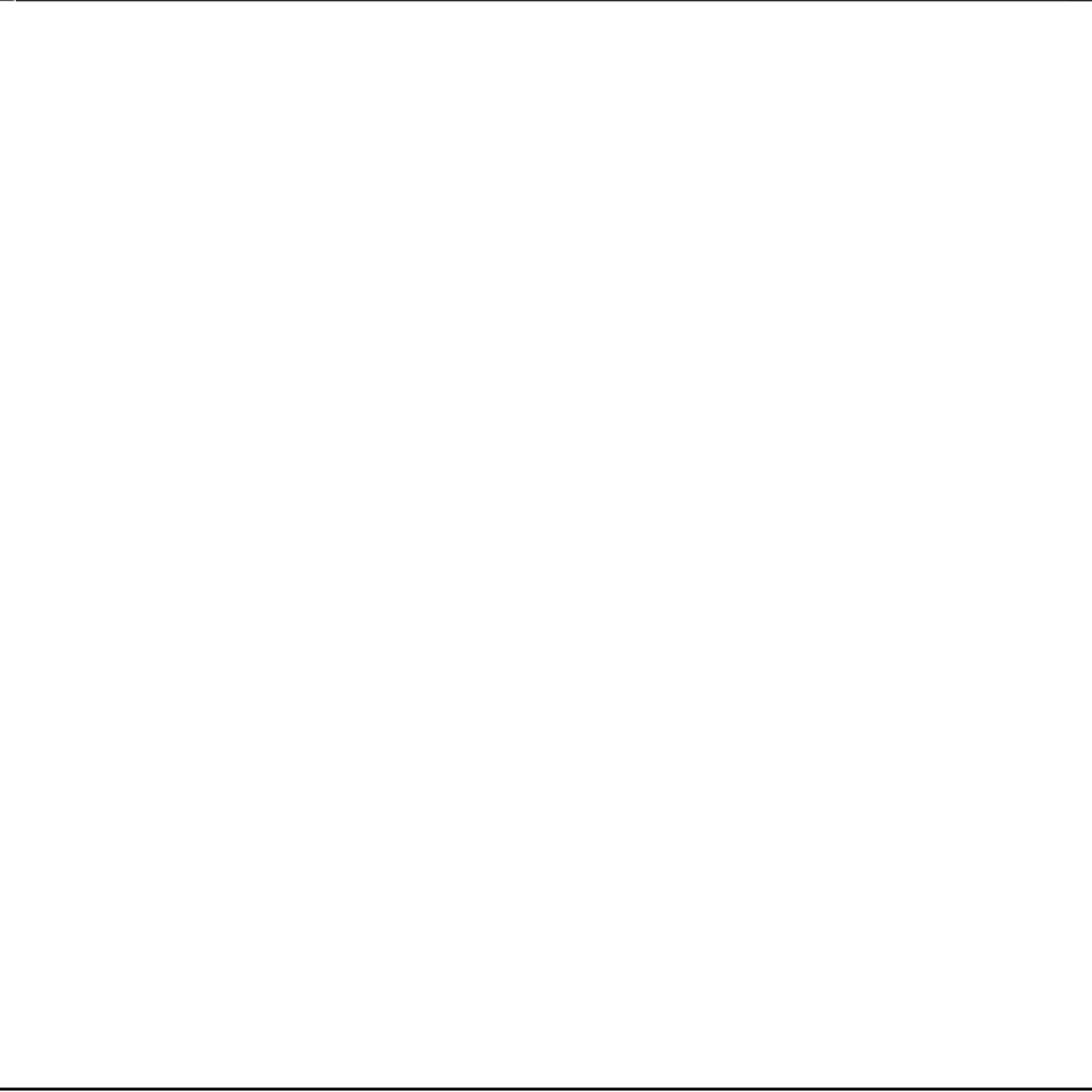
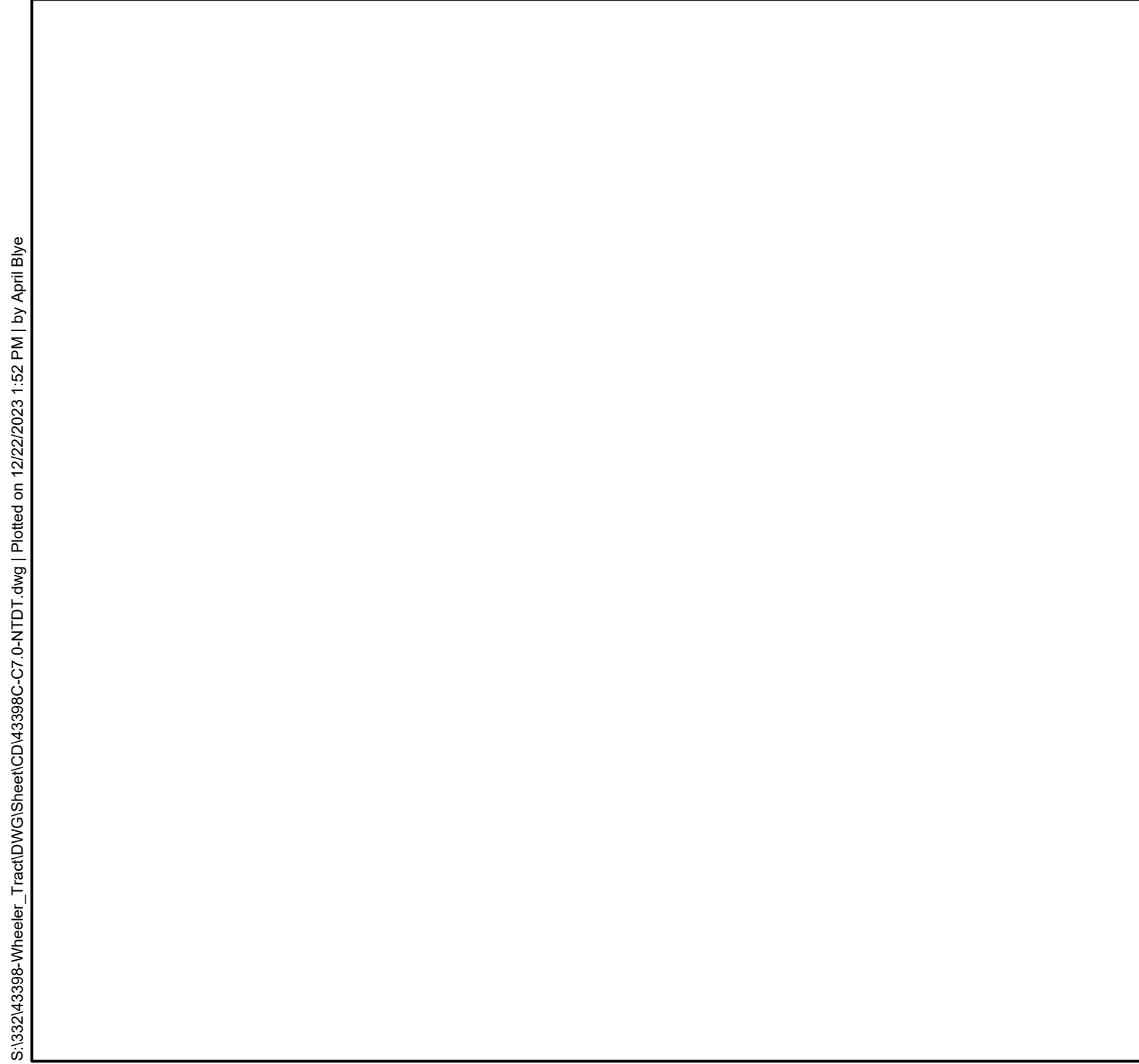
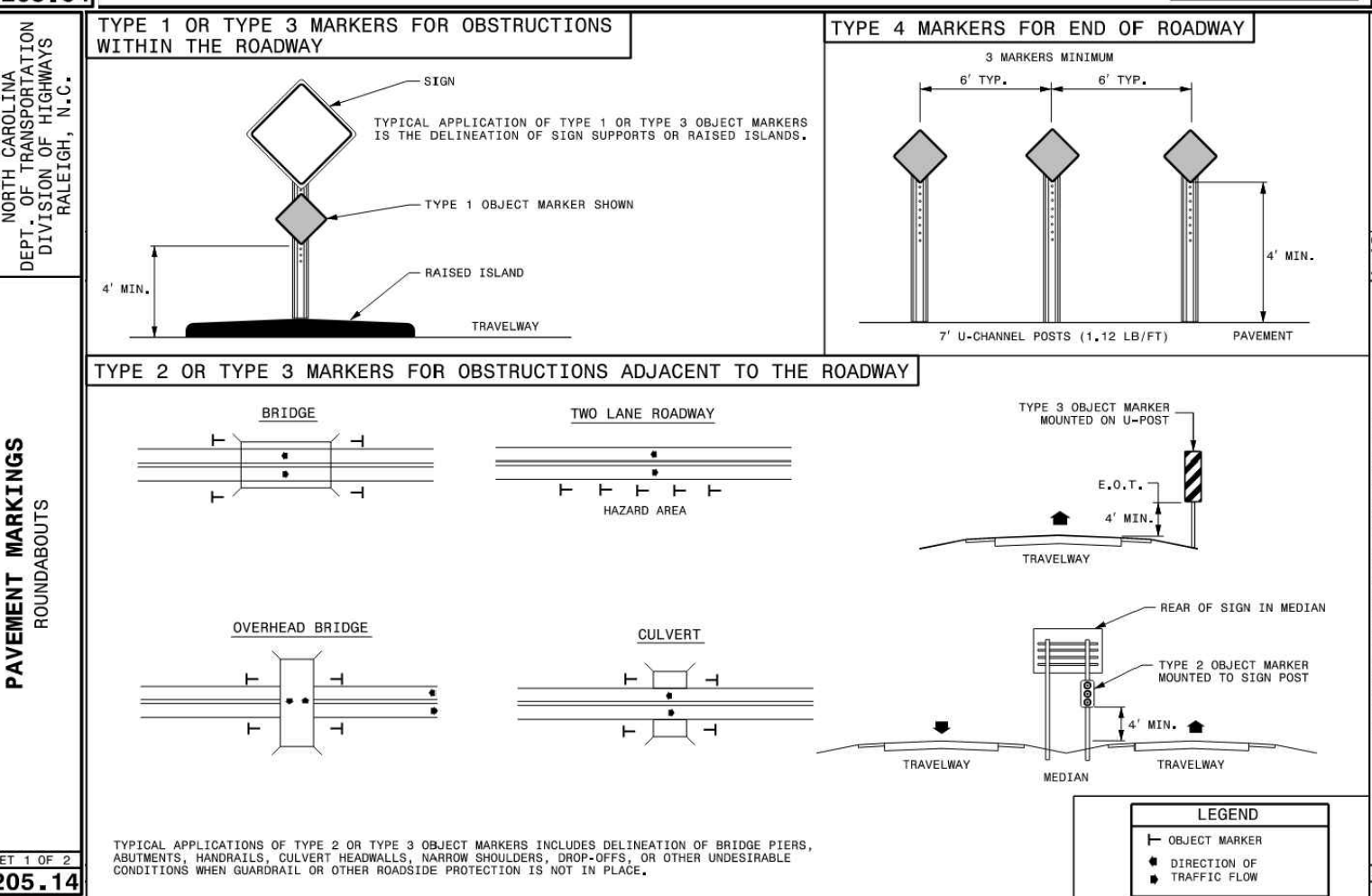
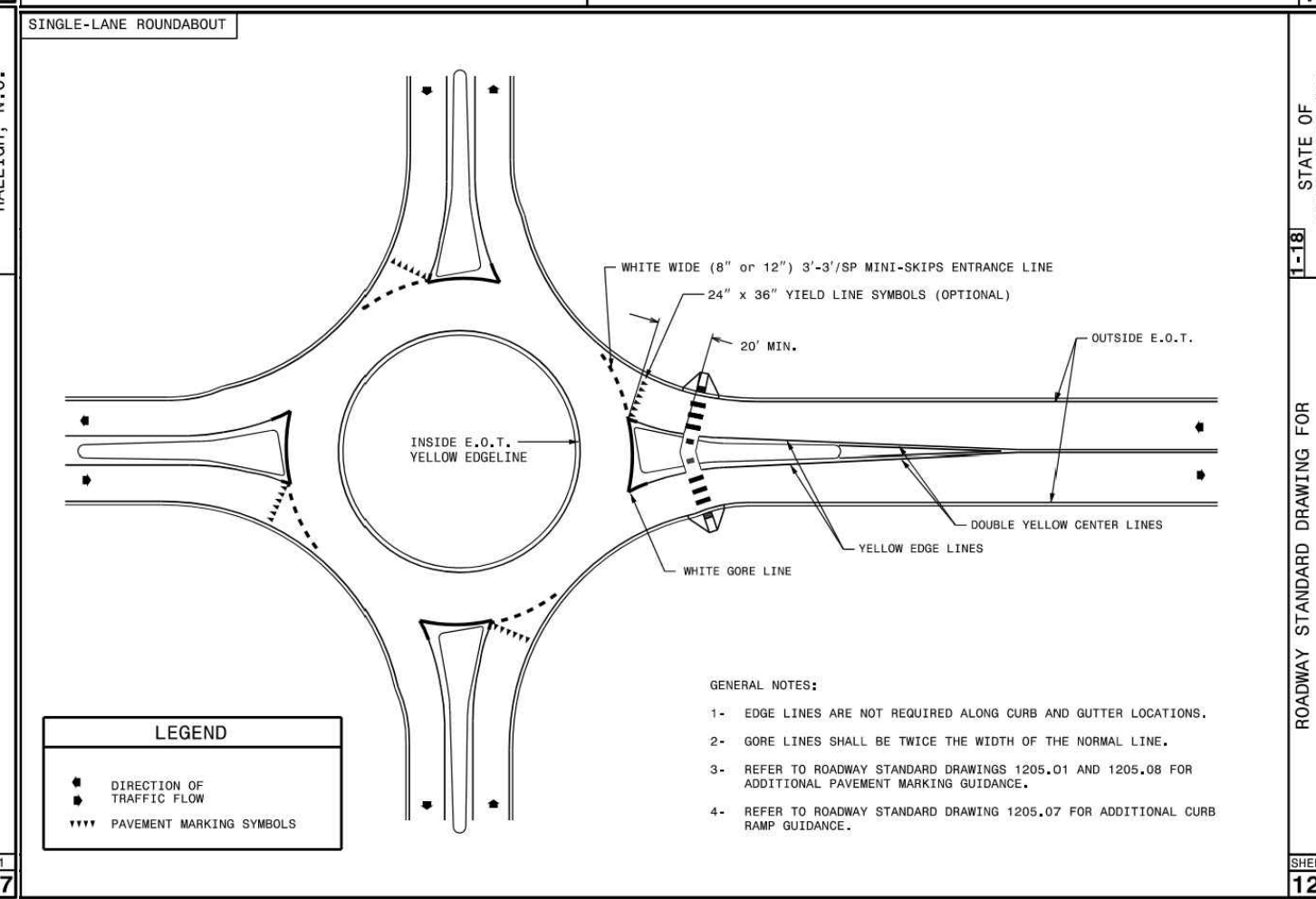
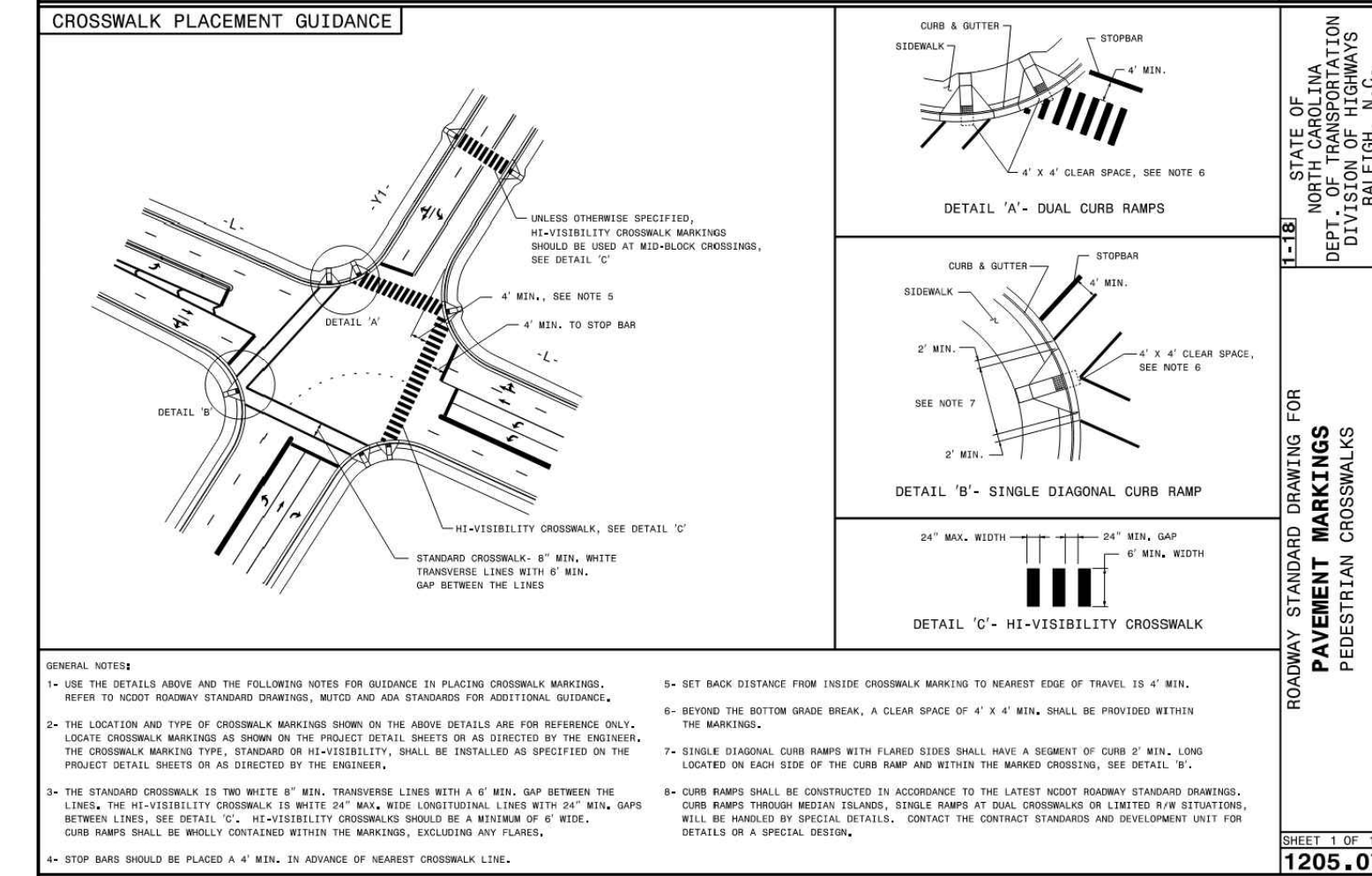
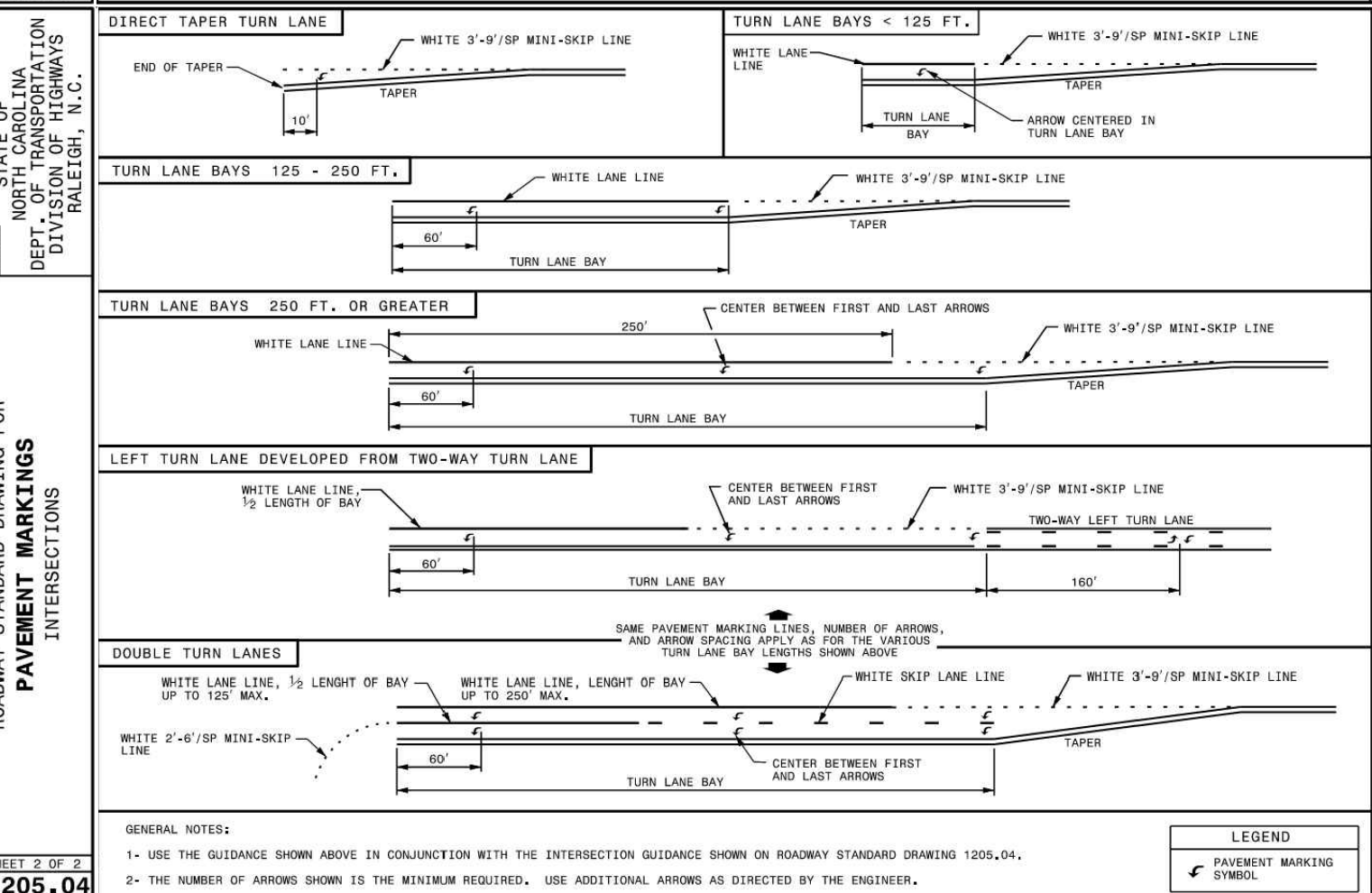
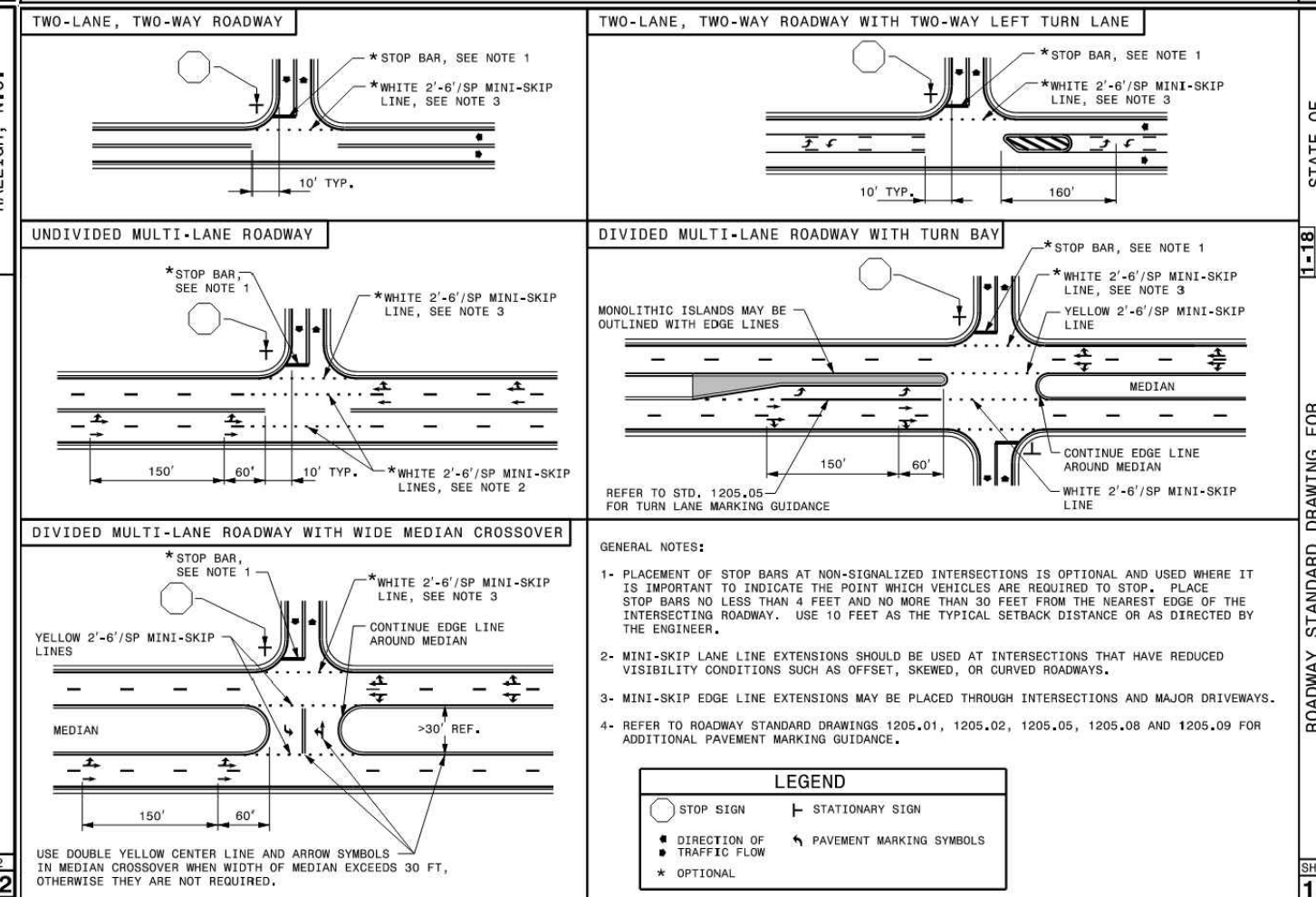
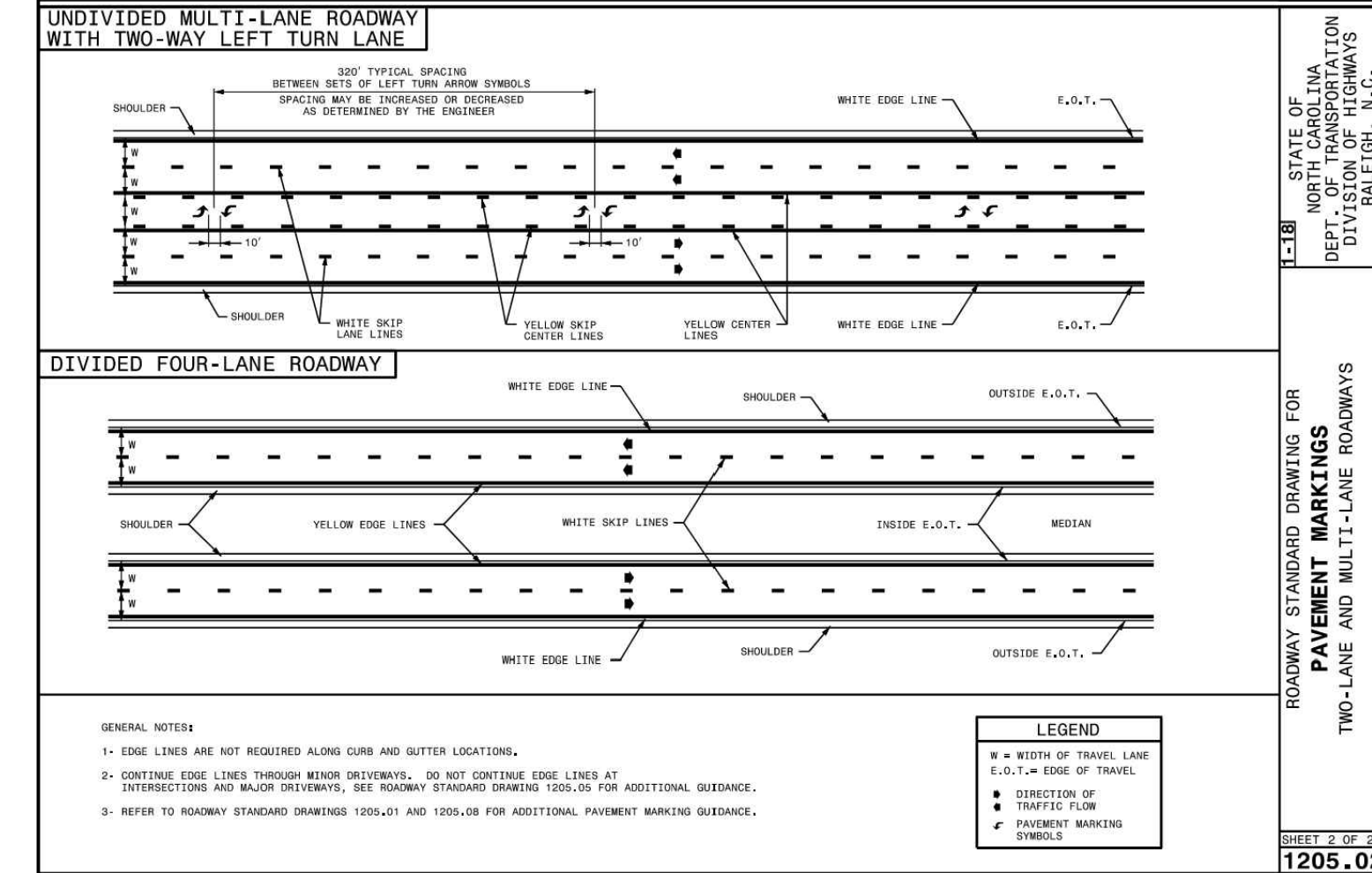
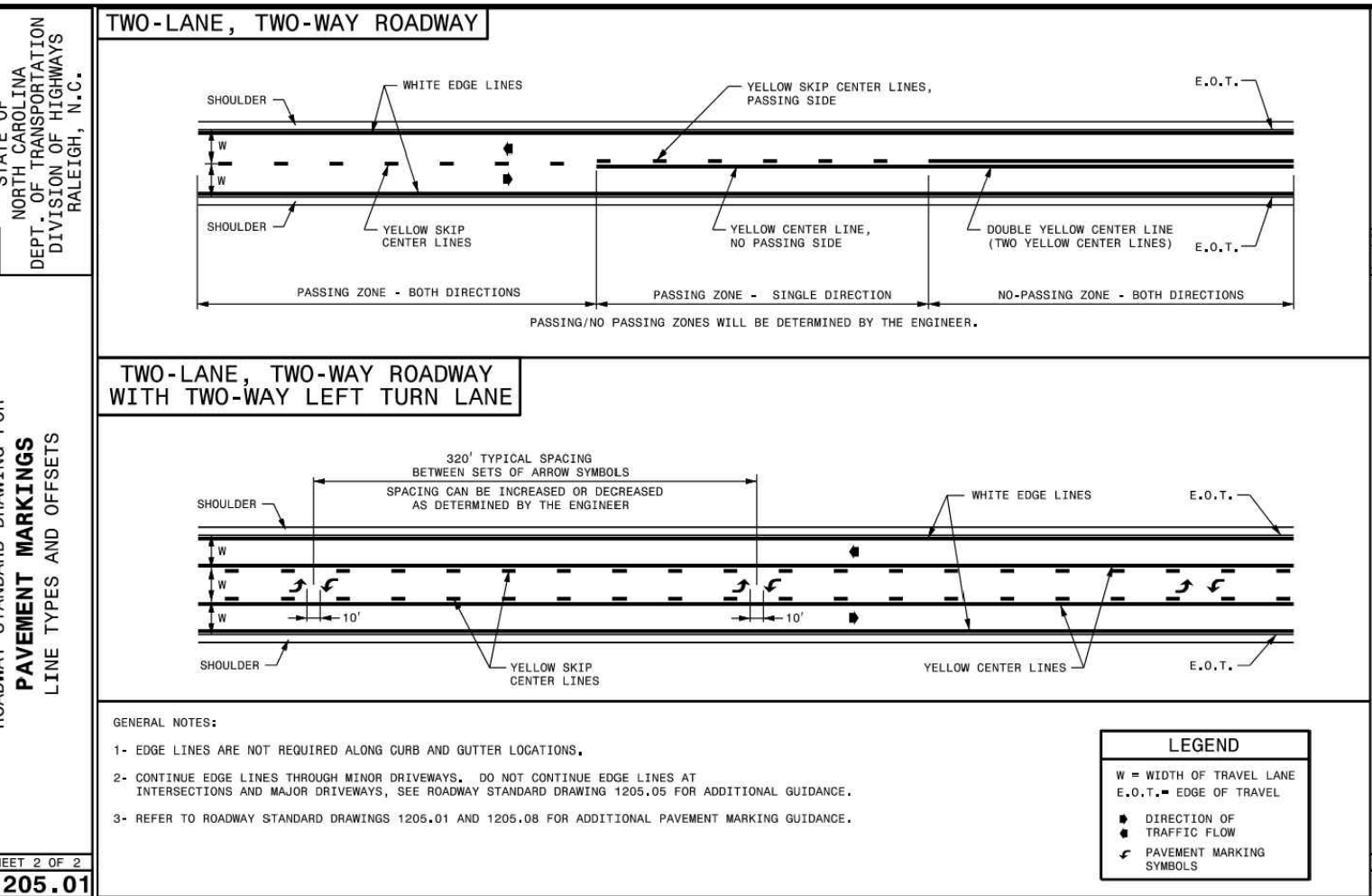
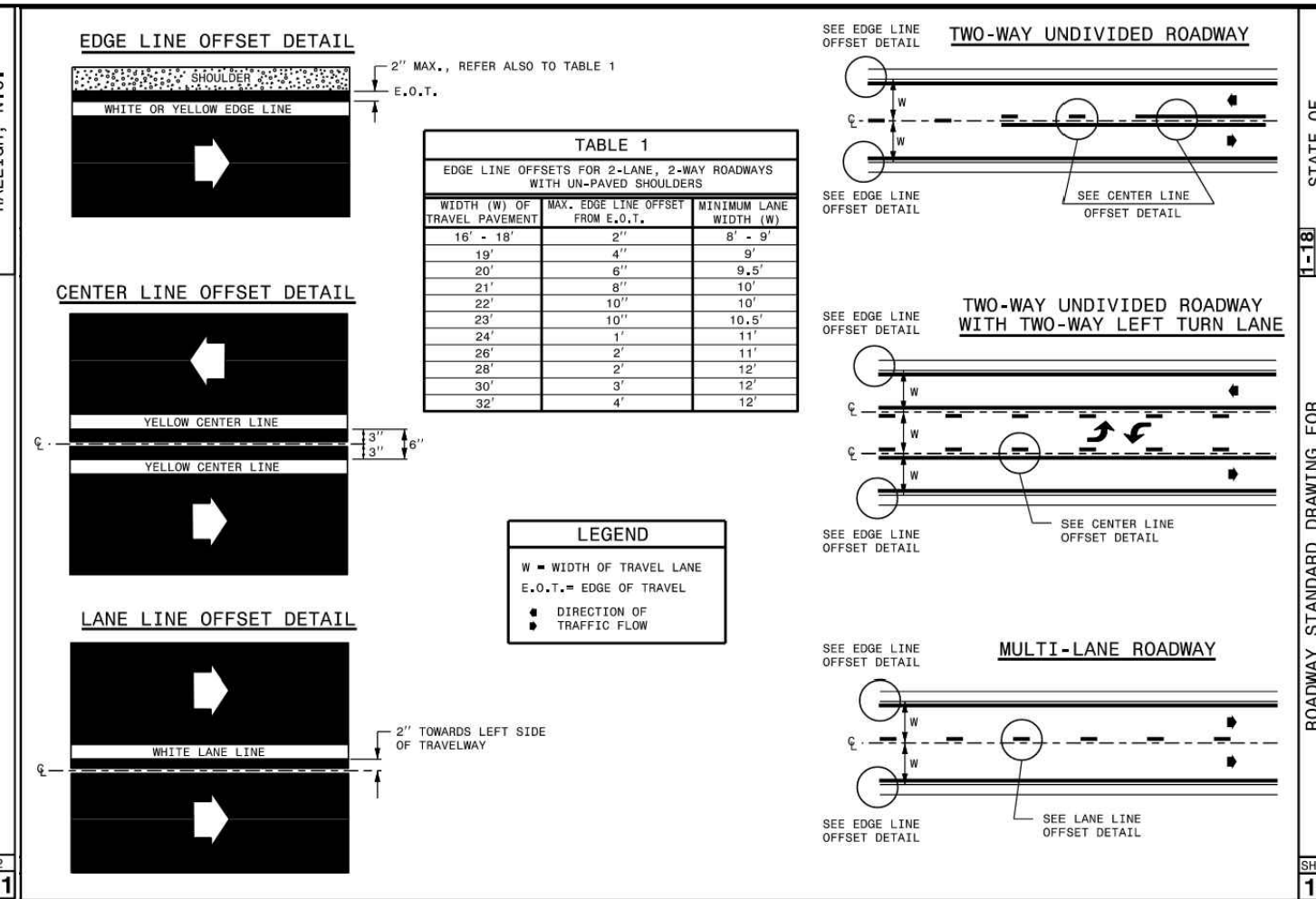
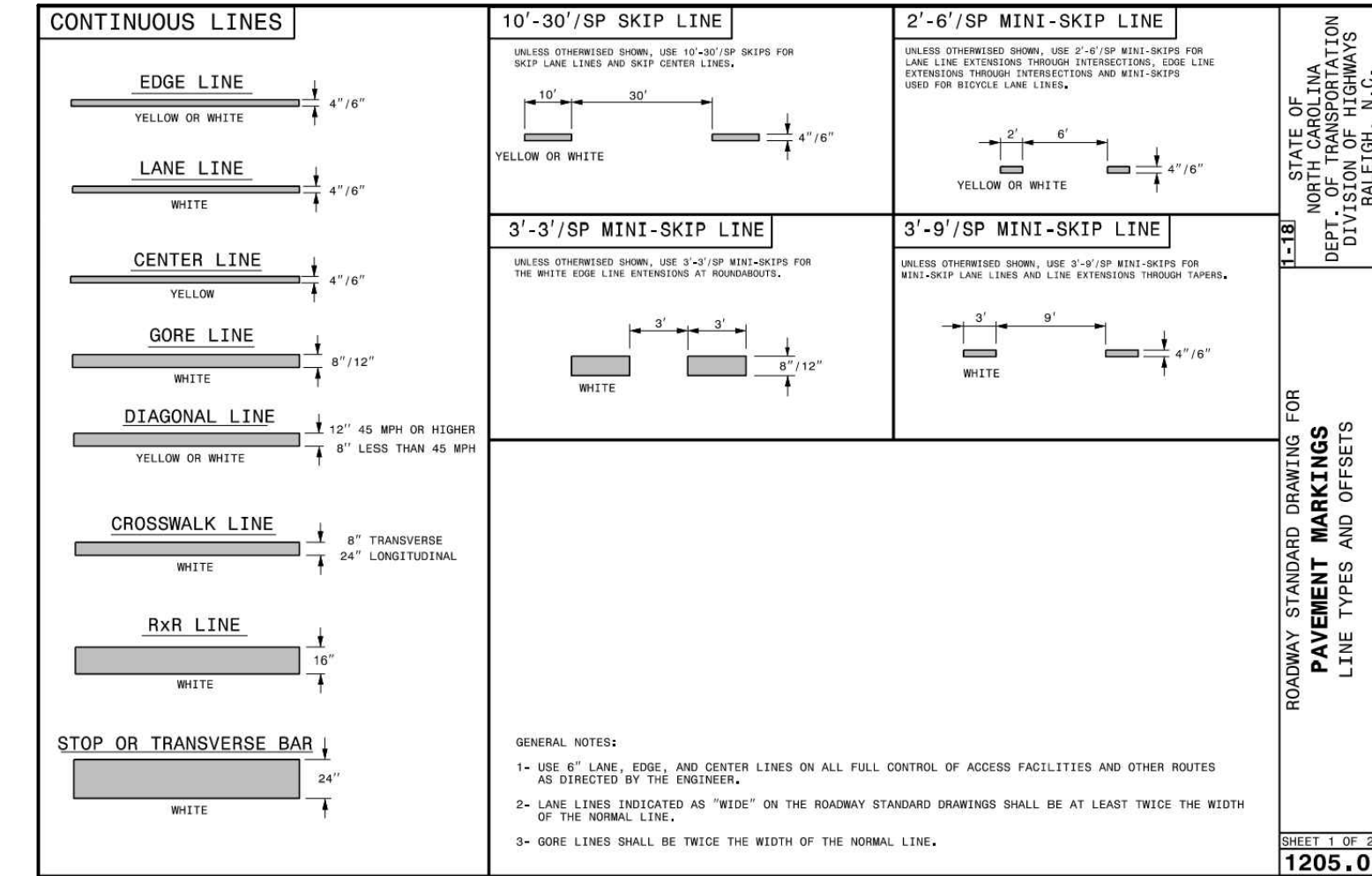
**EROSION CONTROL NOTES AND DETAILS**

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JOB NO.	43398
SHEET NO.	C7.6

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS





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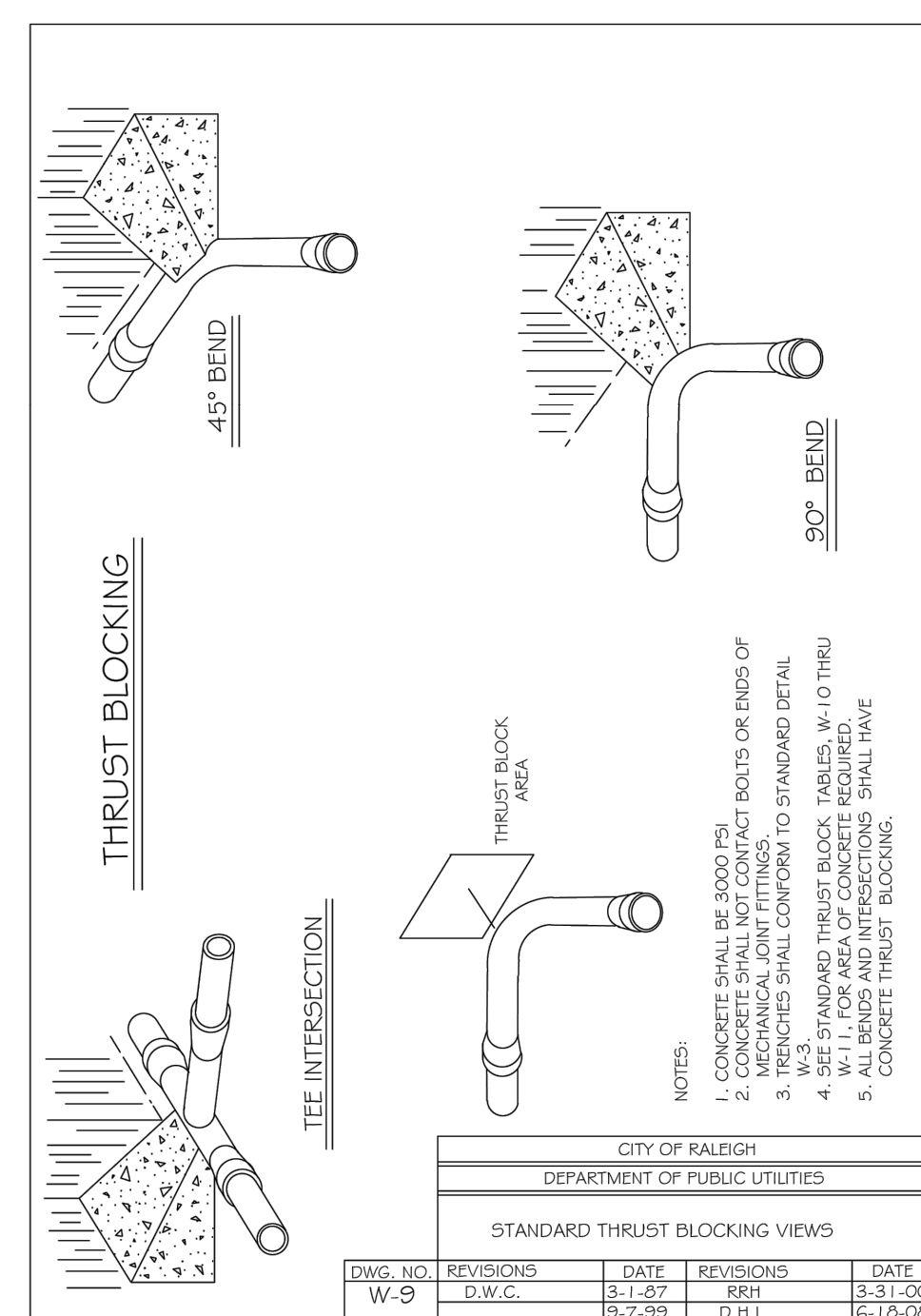
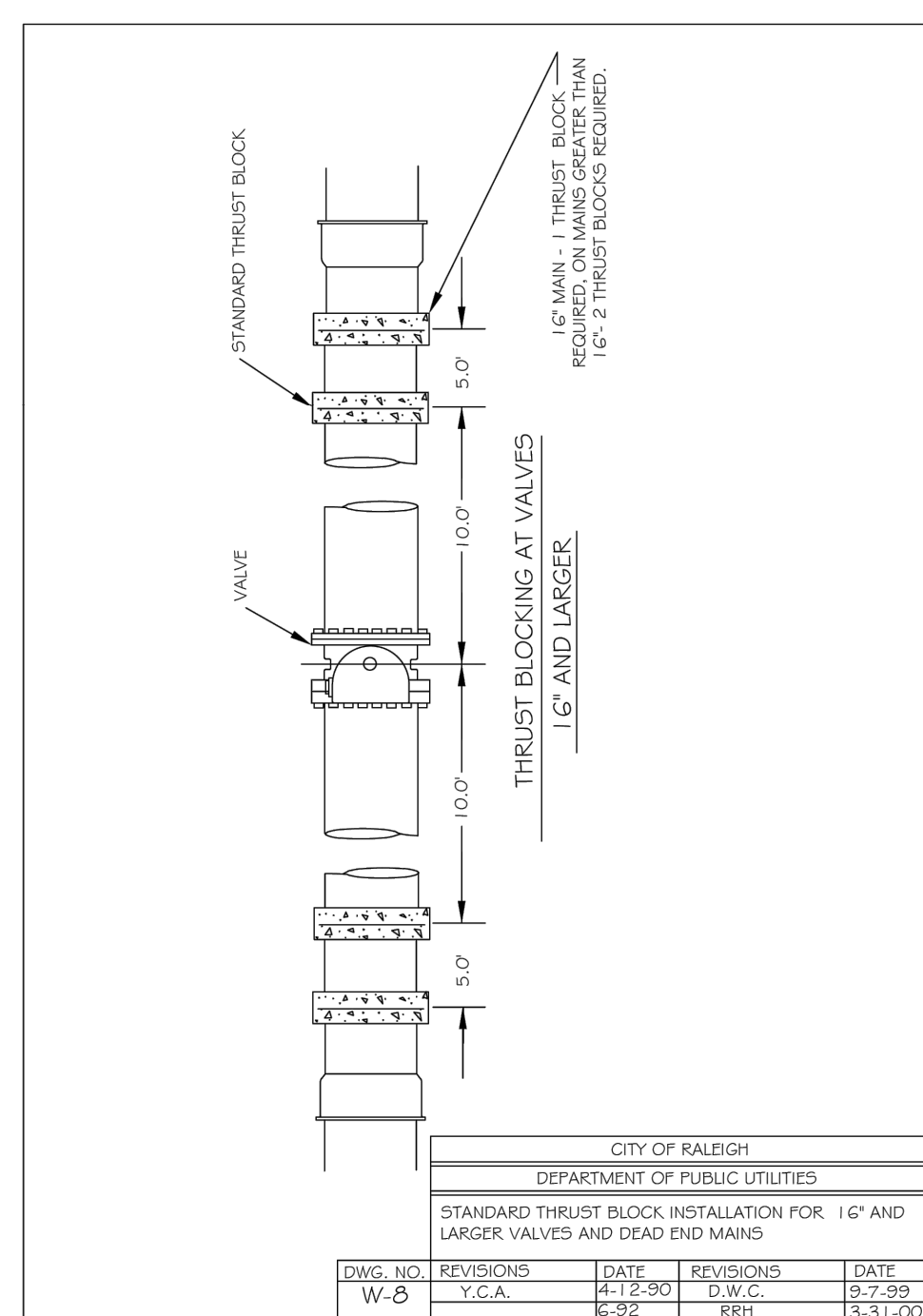
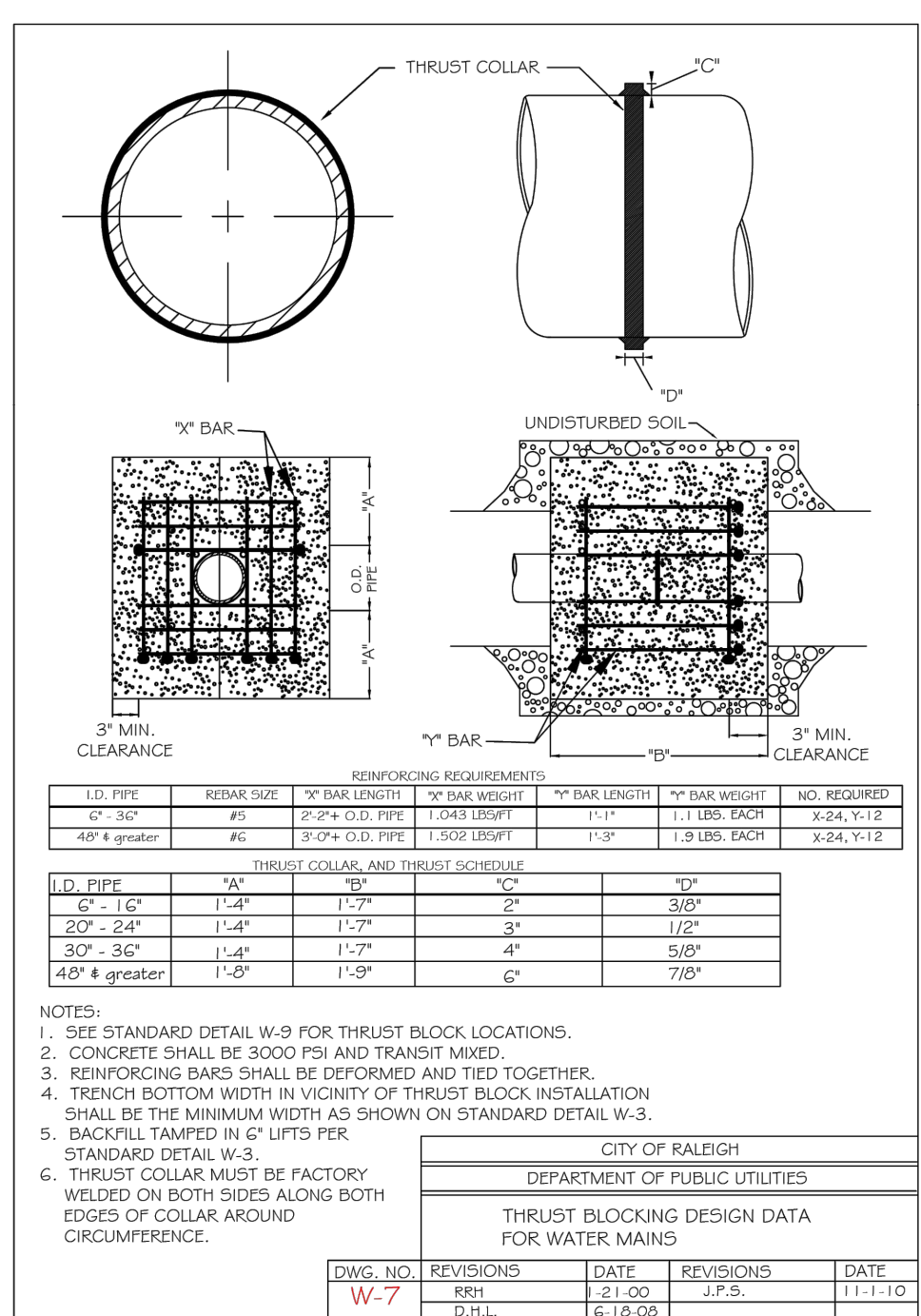
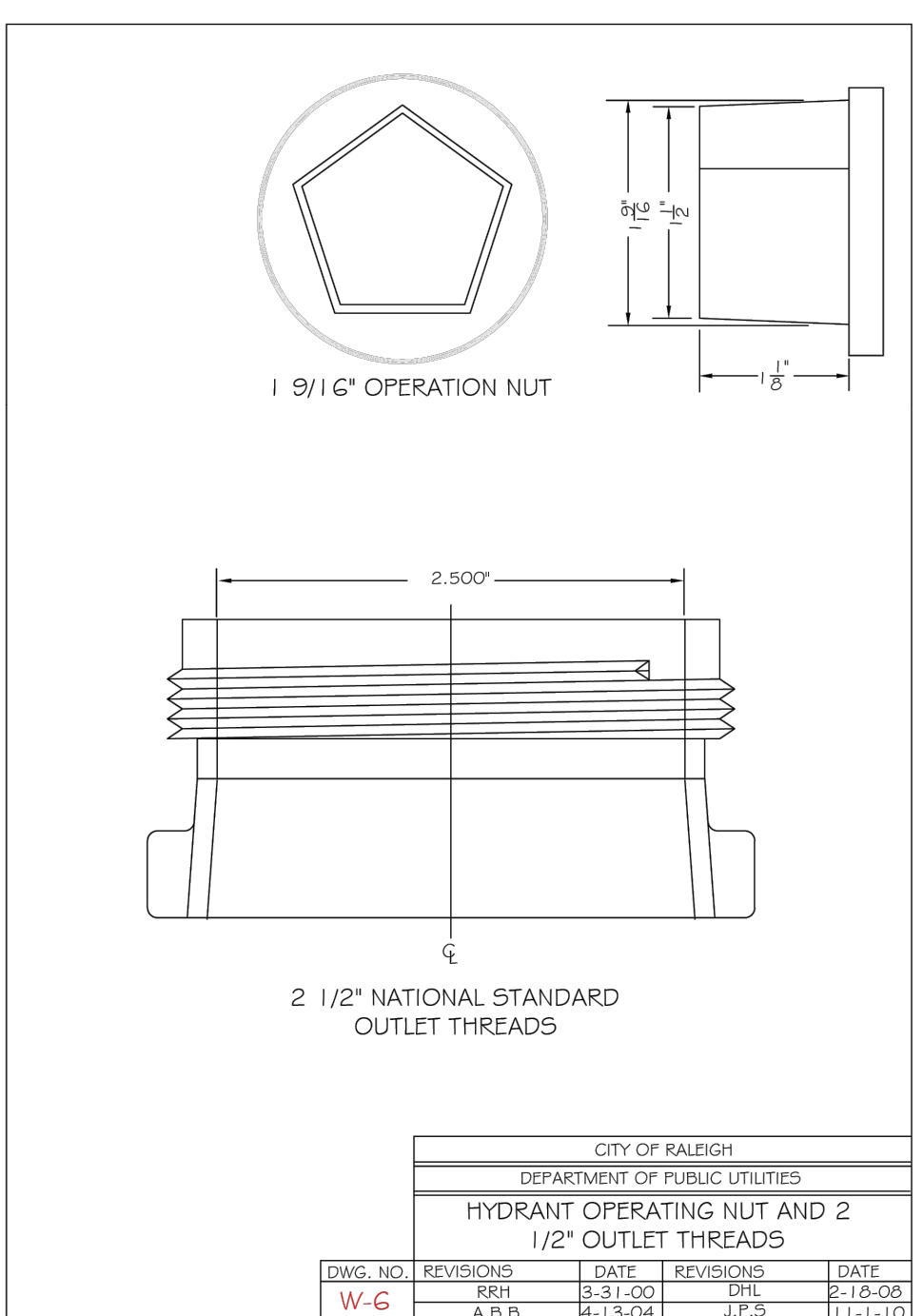
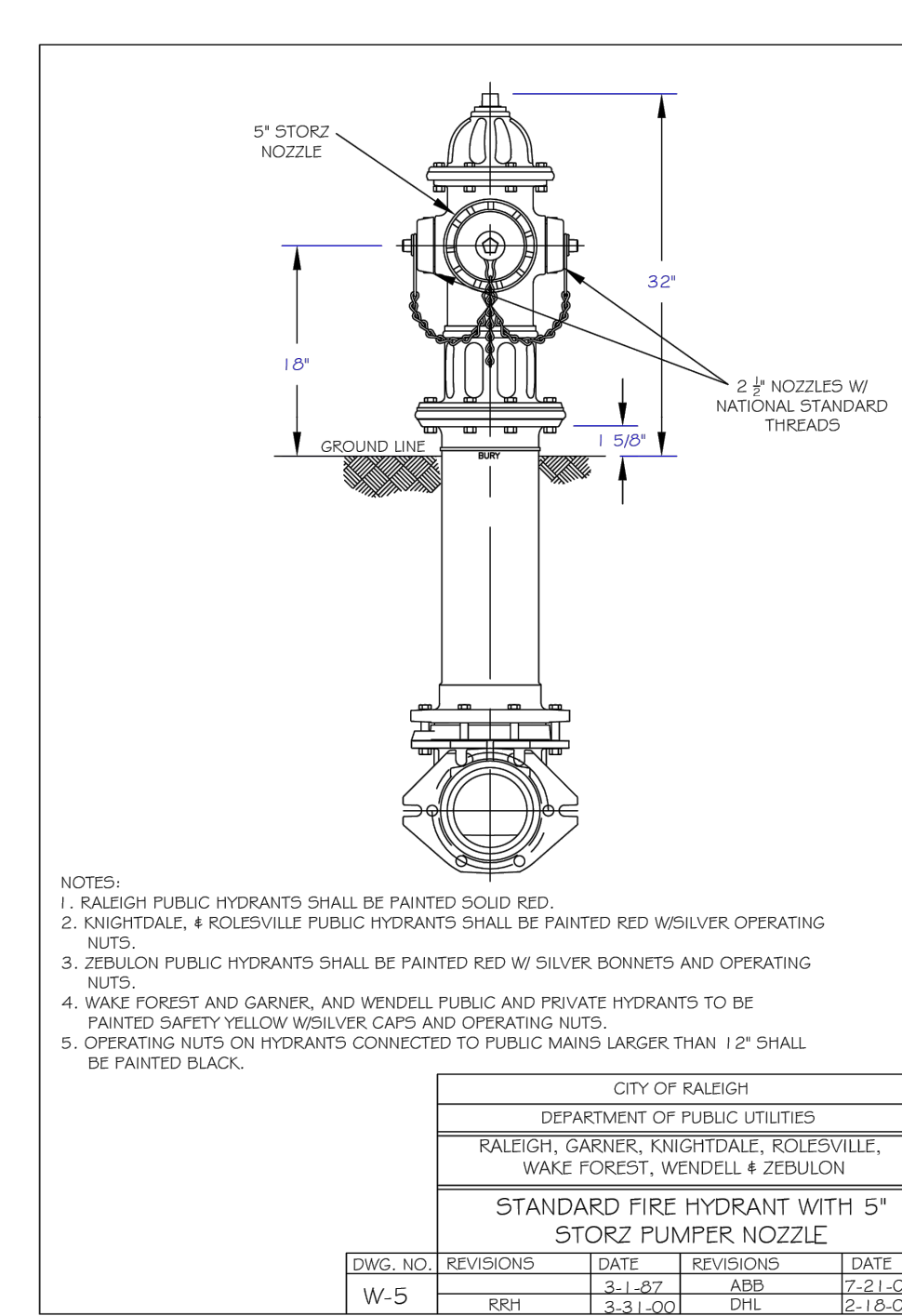
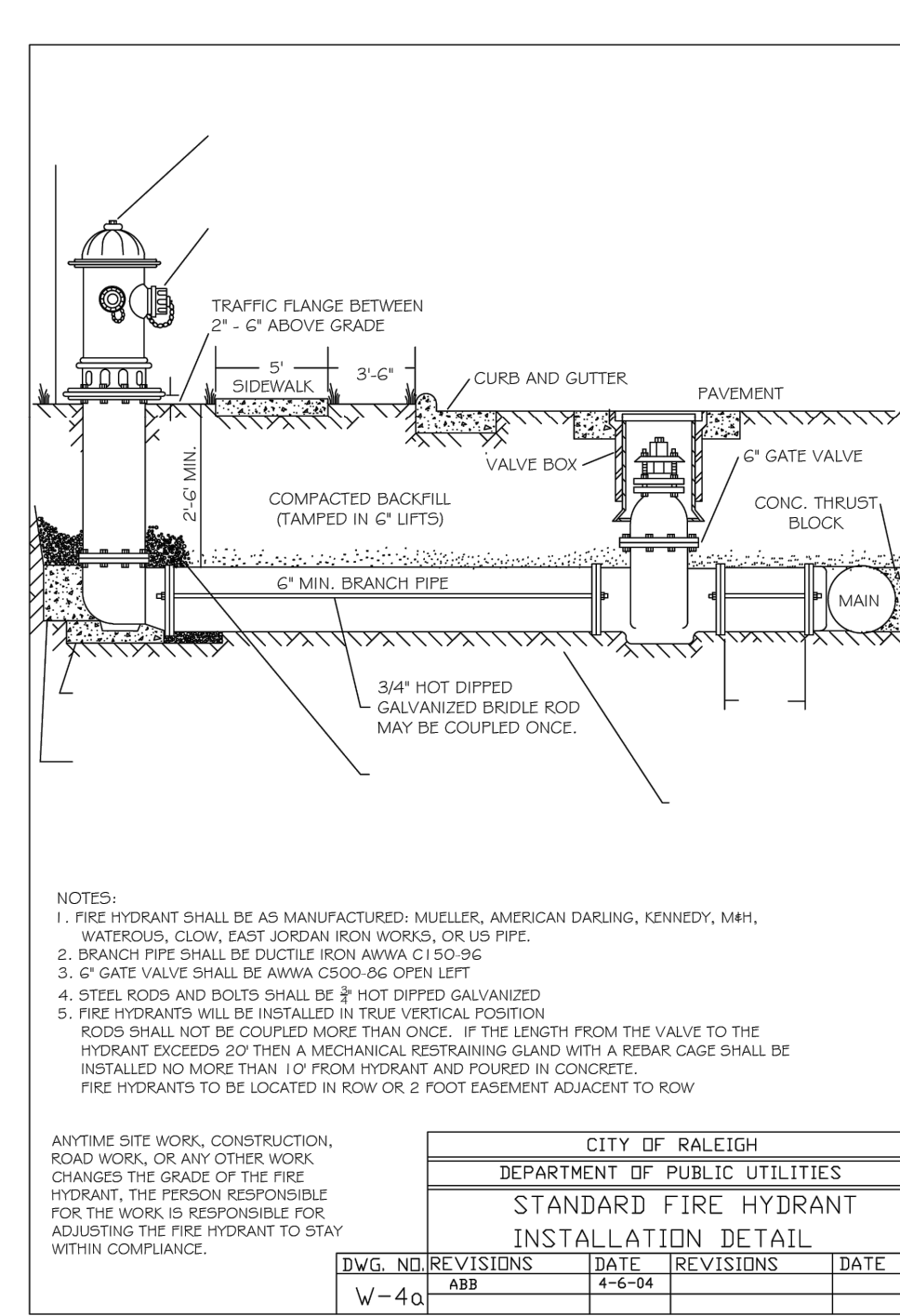
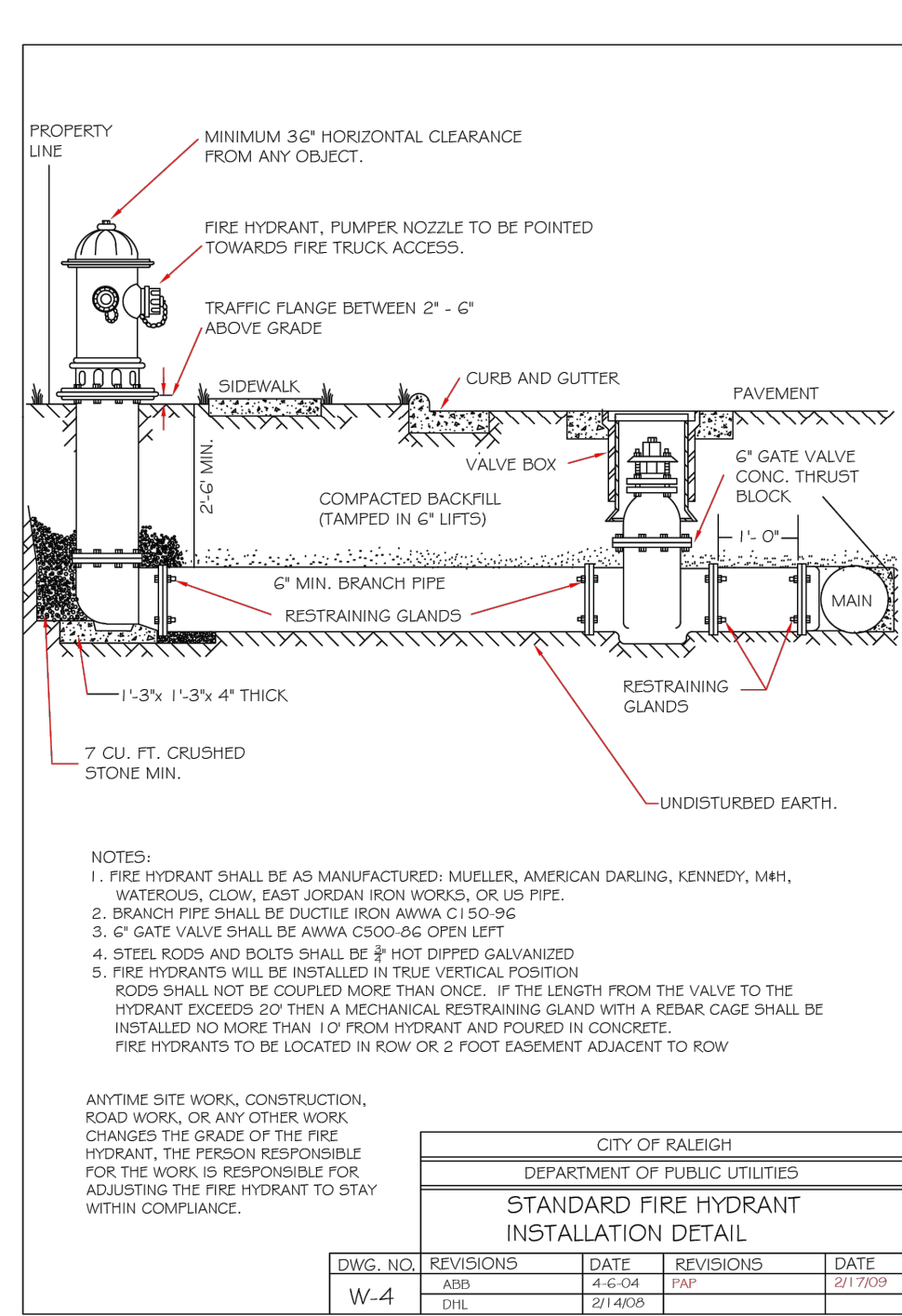
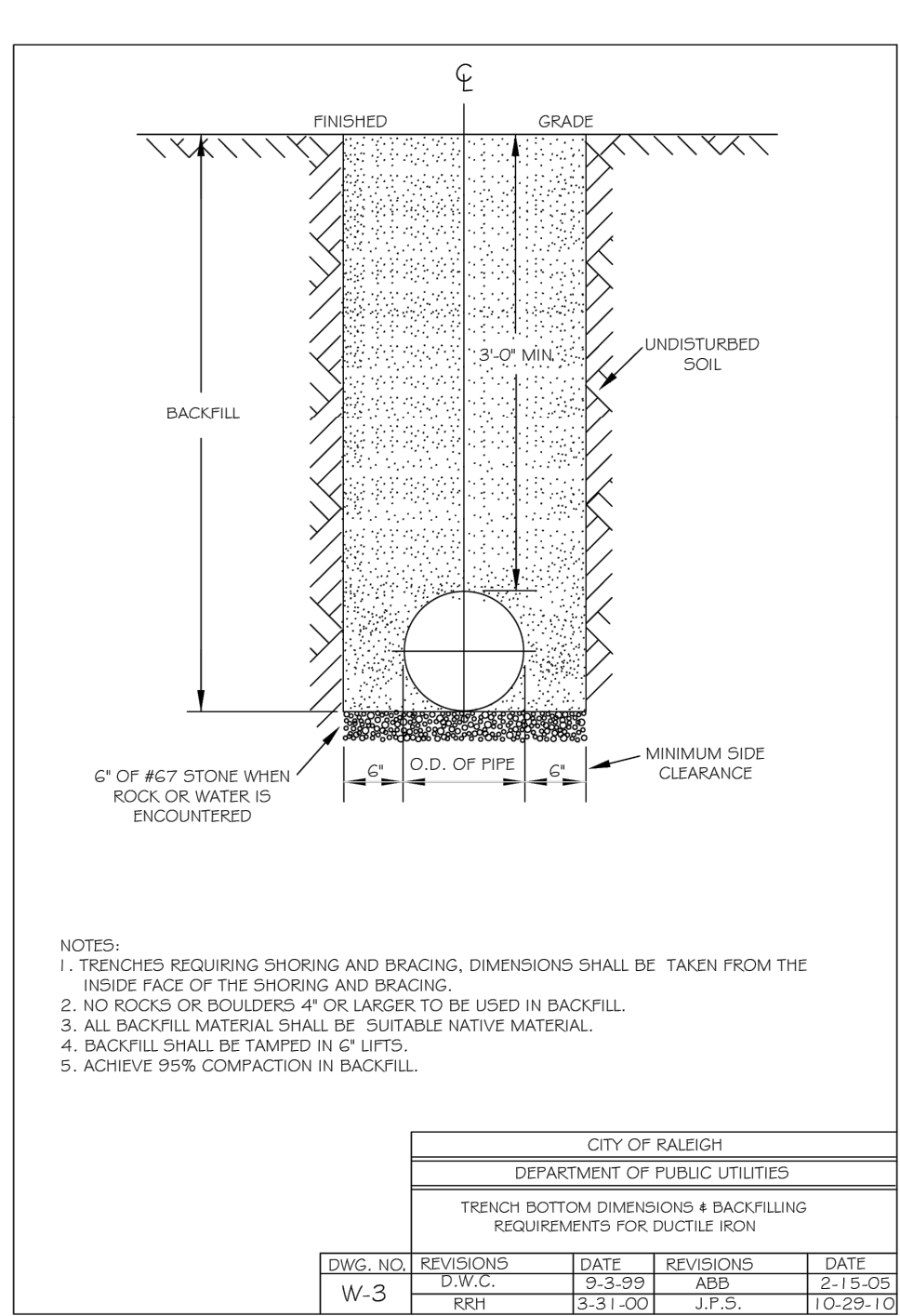
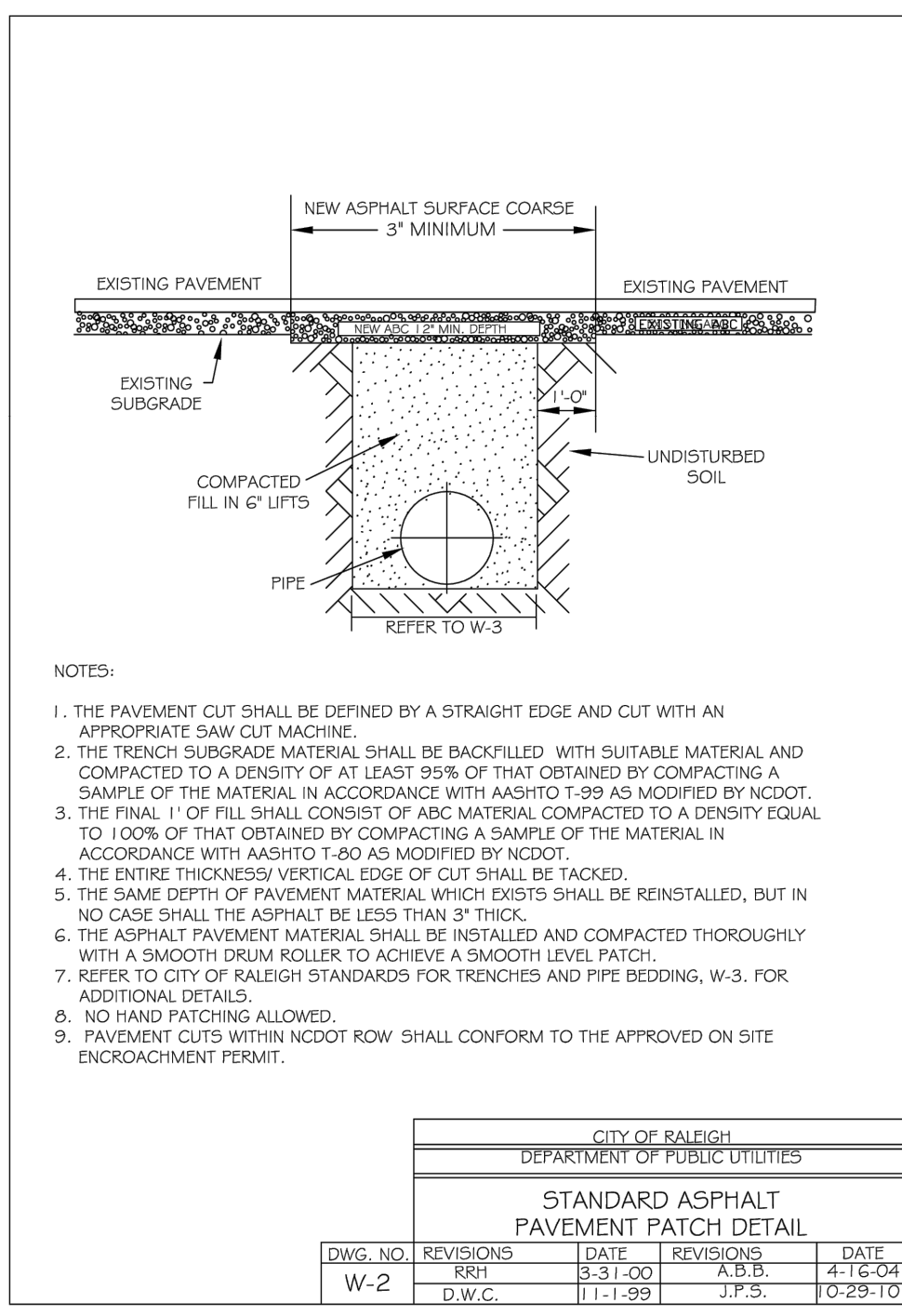
NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 WAKE COUNTY - NORTH CAROLINA  
 NCDOT DETAILS

JOB NO. 43398  
 SHEET NO. C7.7

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDOT AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS





**REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS**

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	3/4\"/>
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"	4,326	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

**THRUST BLOCKING DESIGN QUANTITY TABLE**

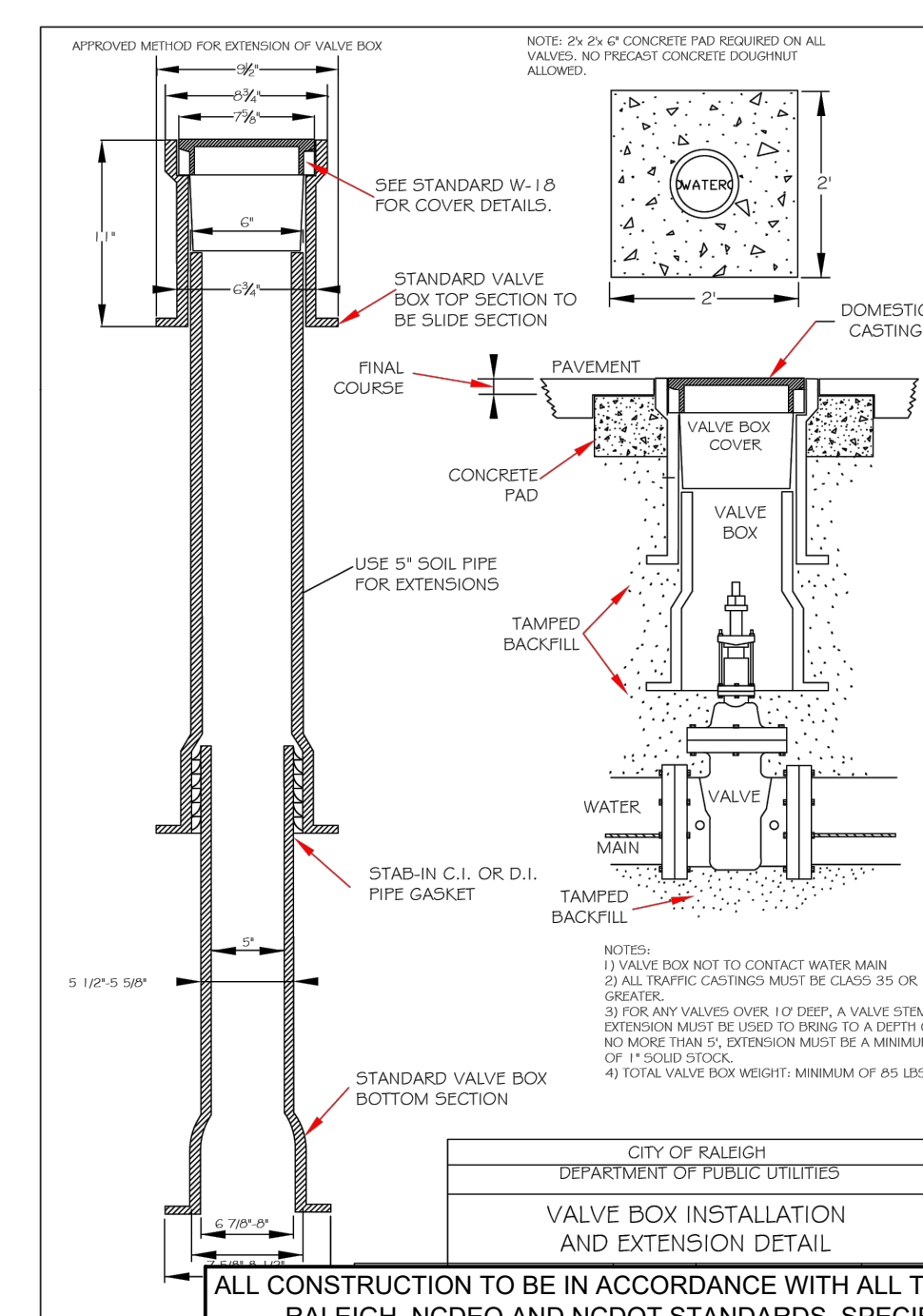
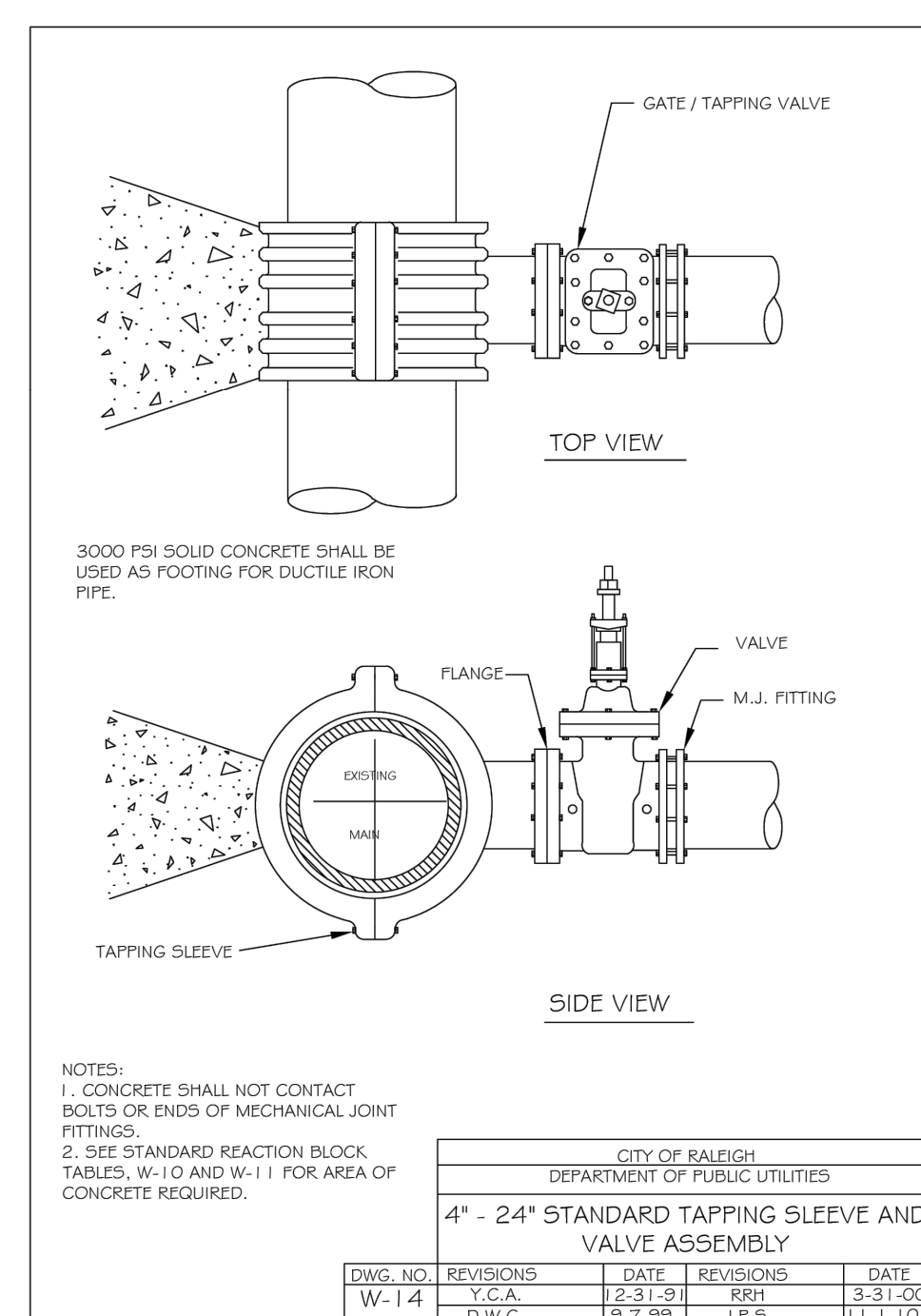
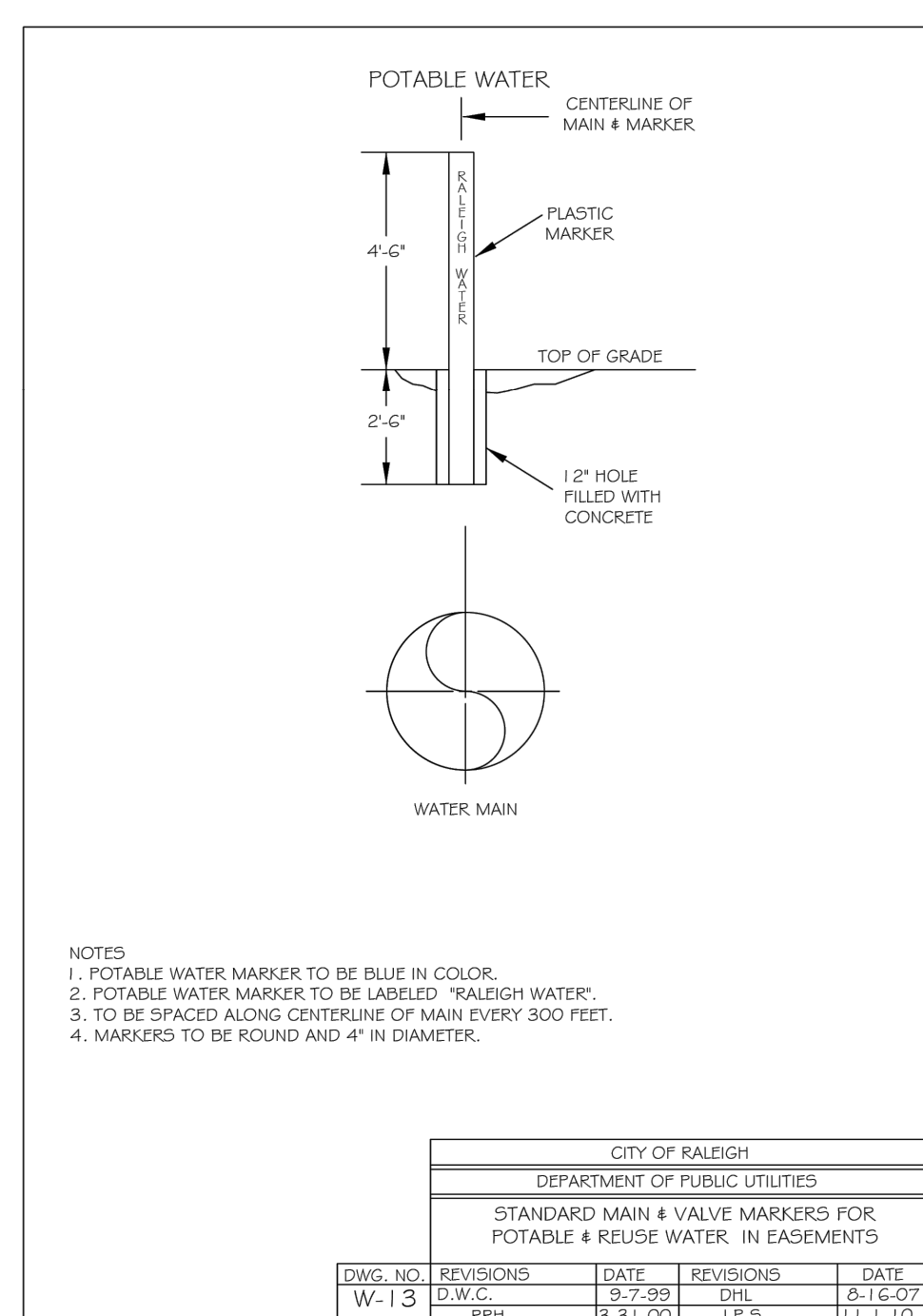
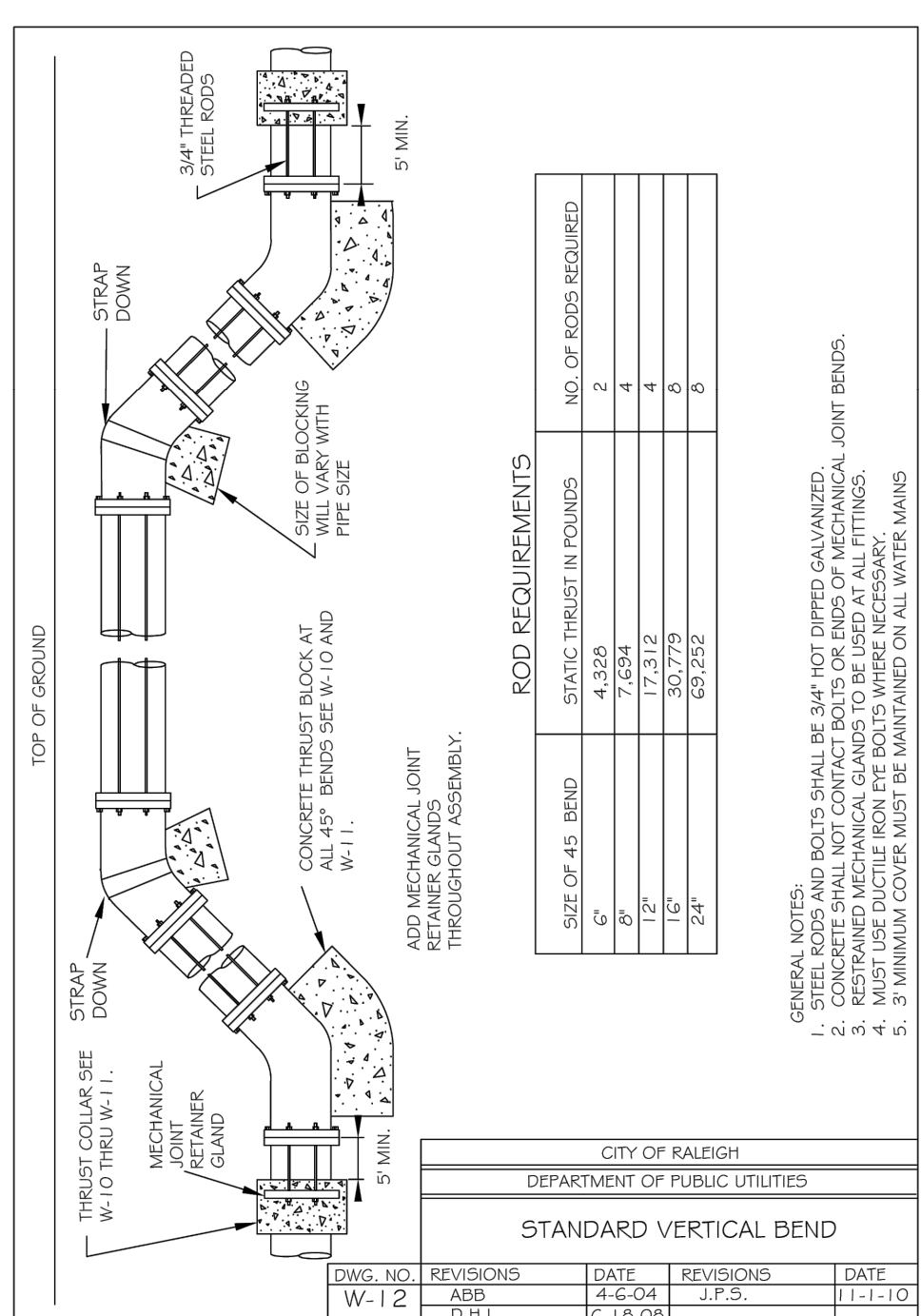
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		

**REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS**

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	3/4\"/>
11 1/4"	17,734	5 9 11 3 3 5 10 2
22 1/2"	35,305	9 16 22 5 5 9 36 4
45"	69,252	16 35 42 9 9 16 70 7
90"	127,936	32 64 77 16 16 32 128 13
PLUG	90,478	23 46 55 12 12 23 91 10

**THRUST BLOCKING DESIGN QUANTITY TABLE**

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-11	D.W.C.	6-23-99		



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DATE: 09/17/2021  
 DRAWN BY: R. WINGATE  
 DESIGNED BY: P. BARBEAU  
 CHECKED BY: P. BARBEAU  
 SCALE: AS SHOWN

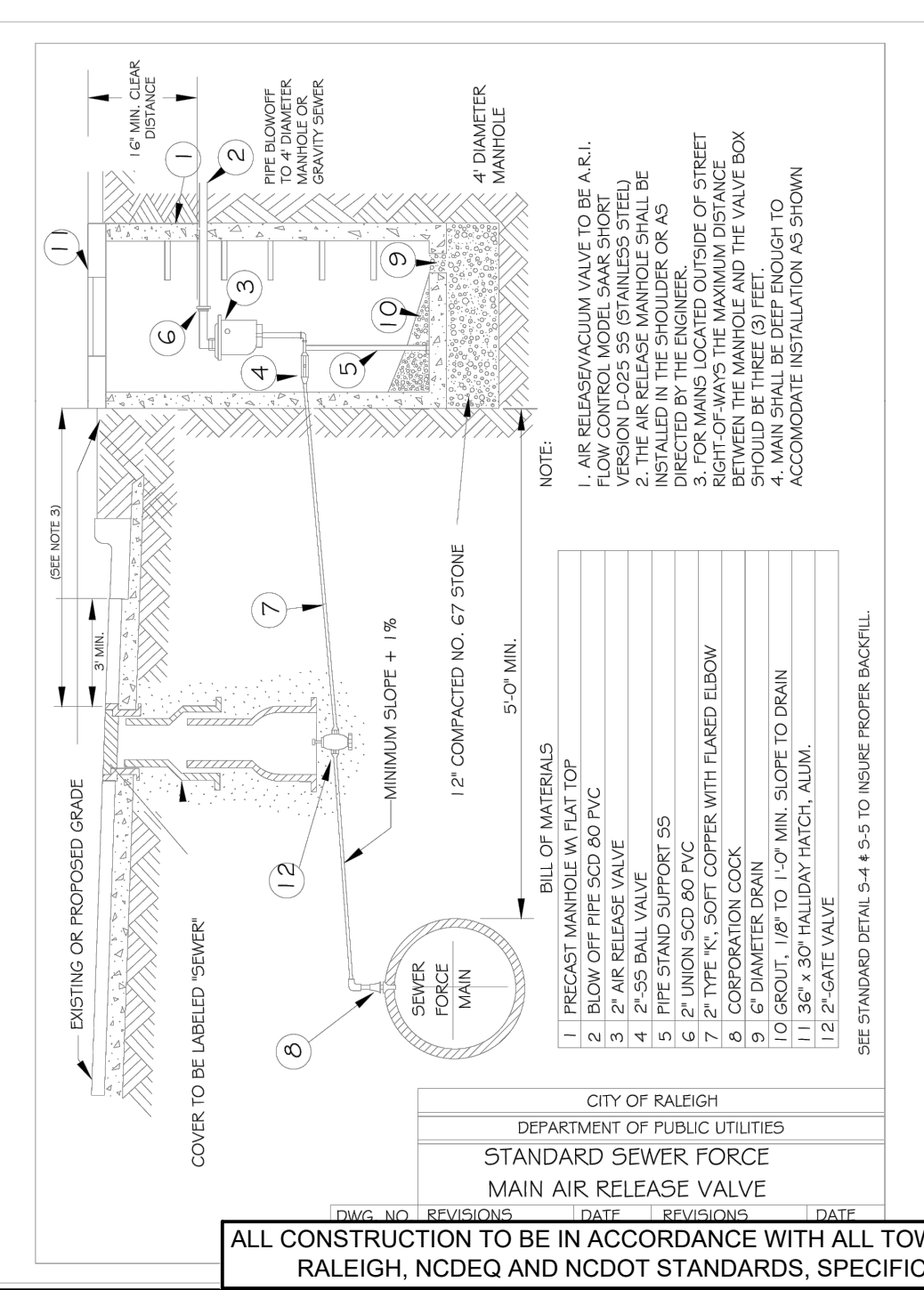
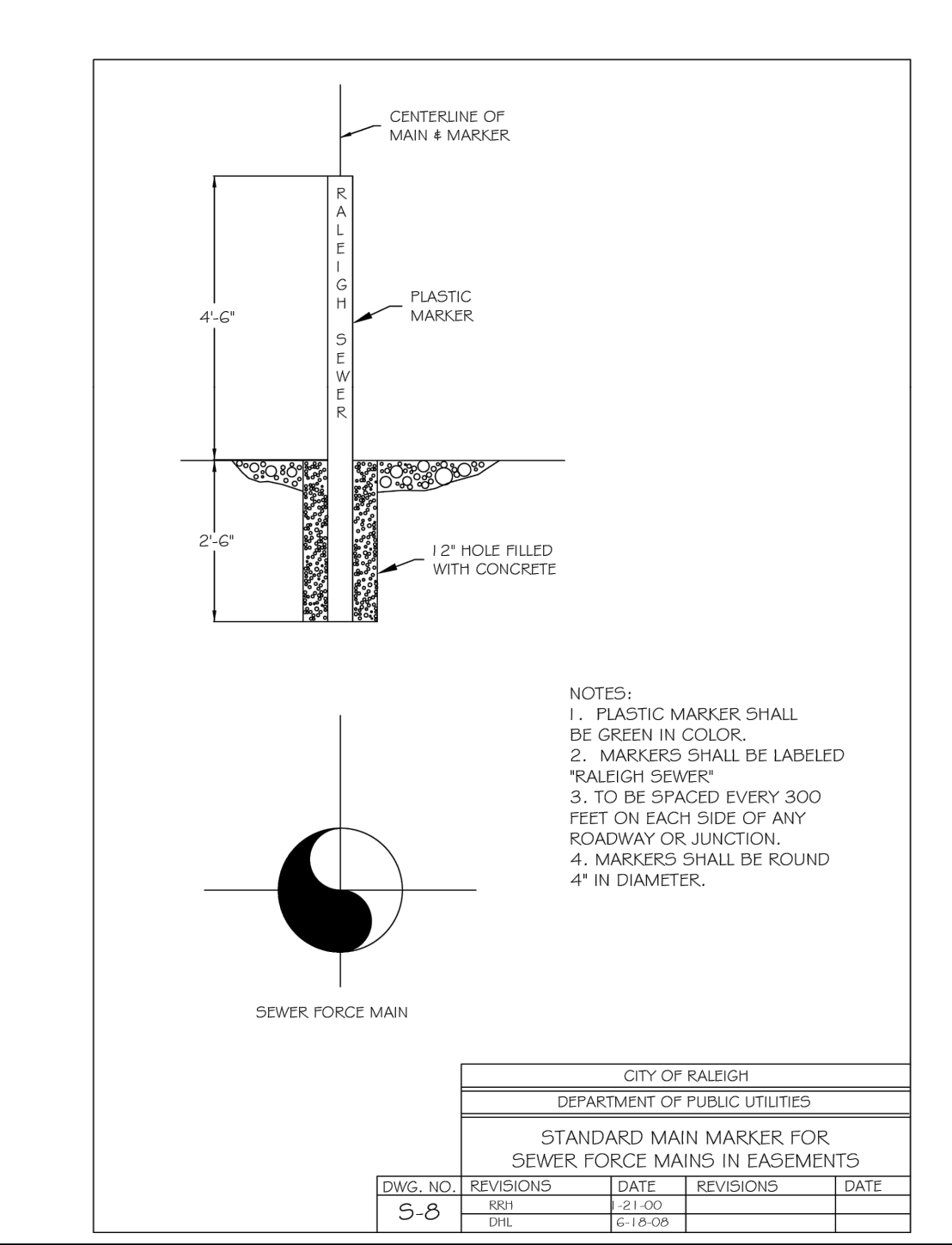
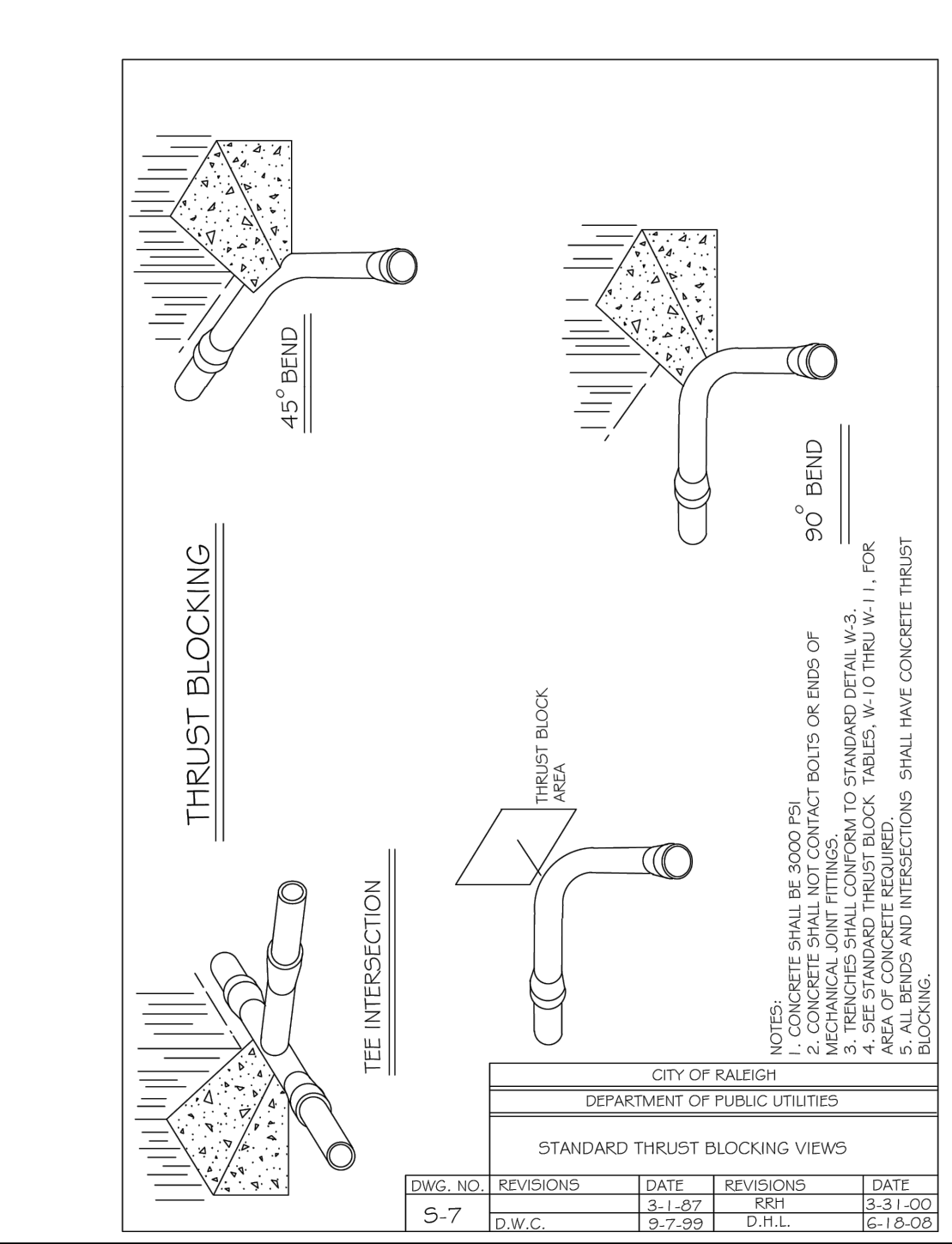
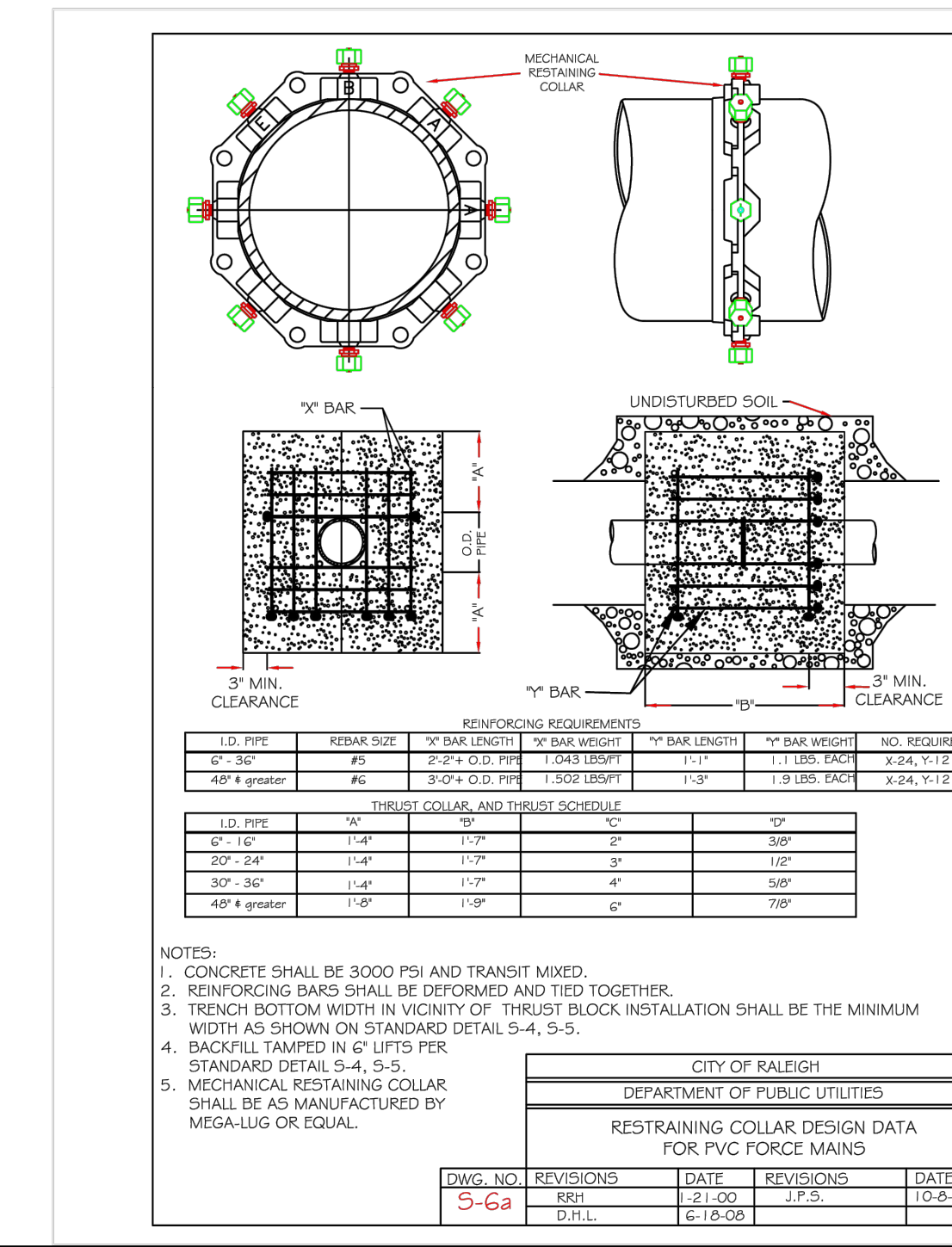
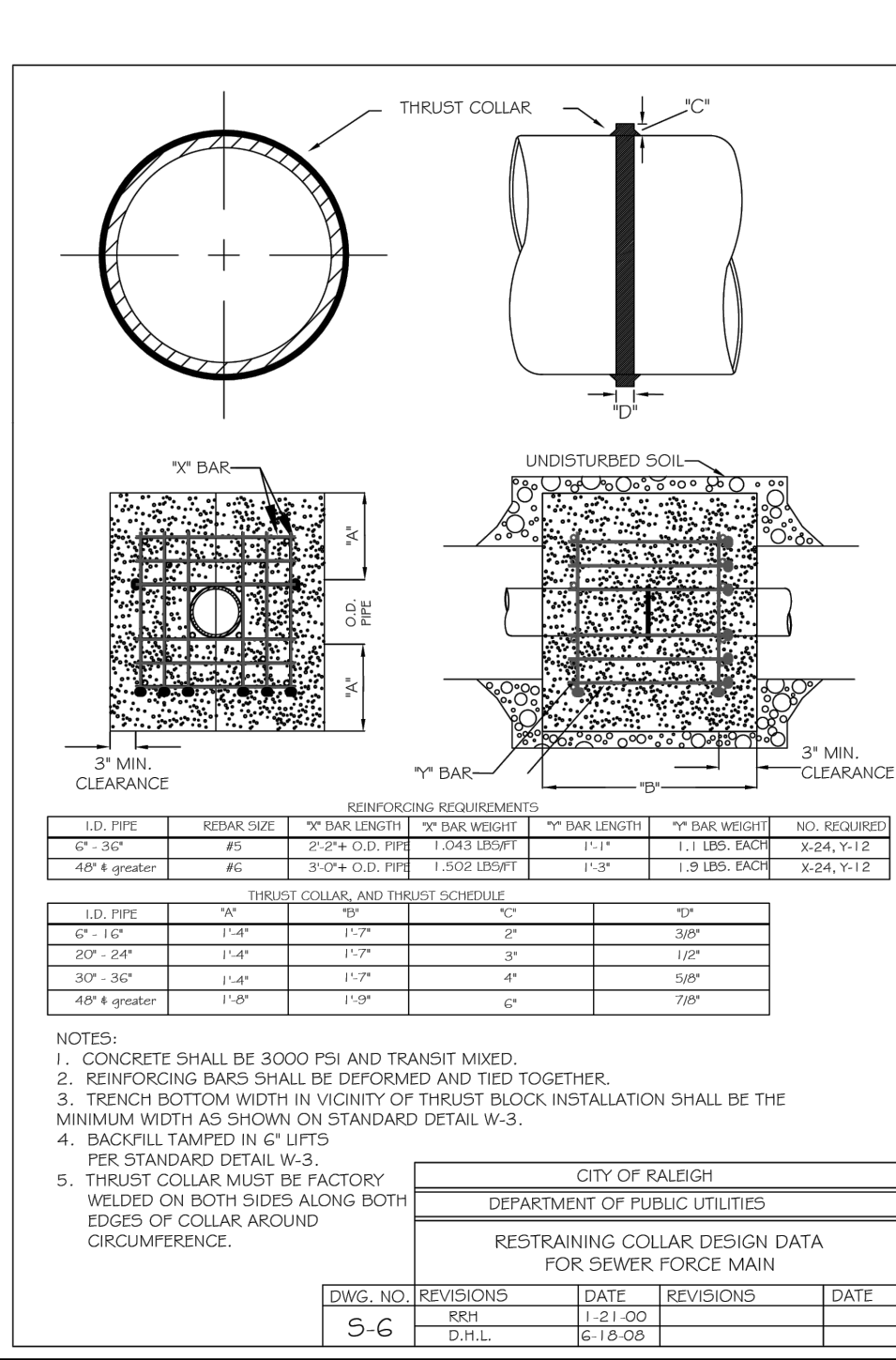
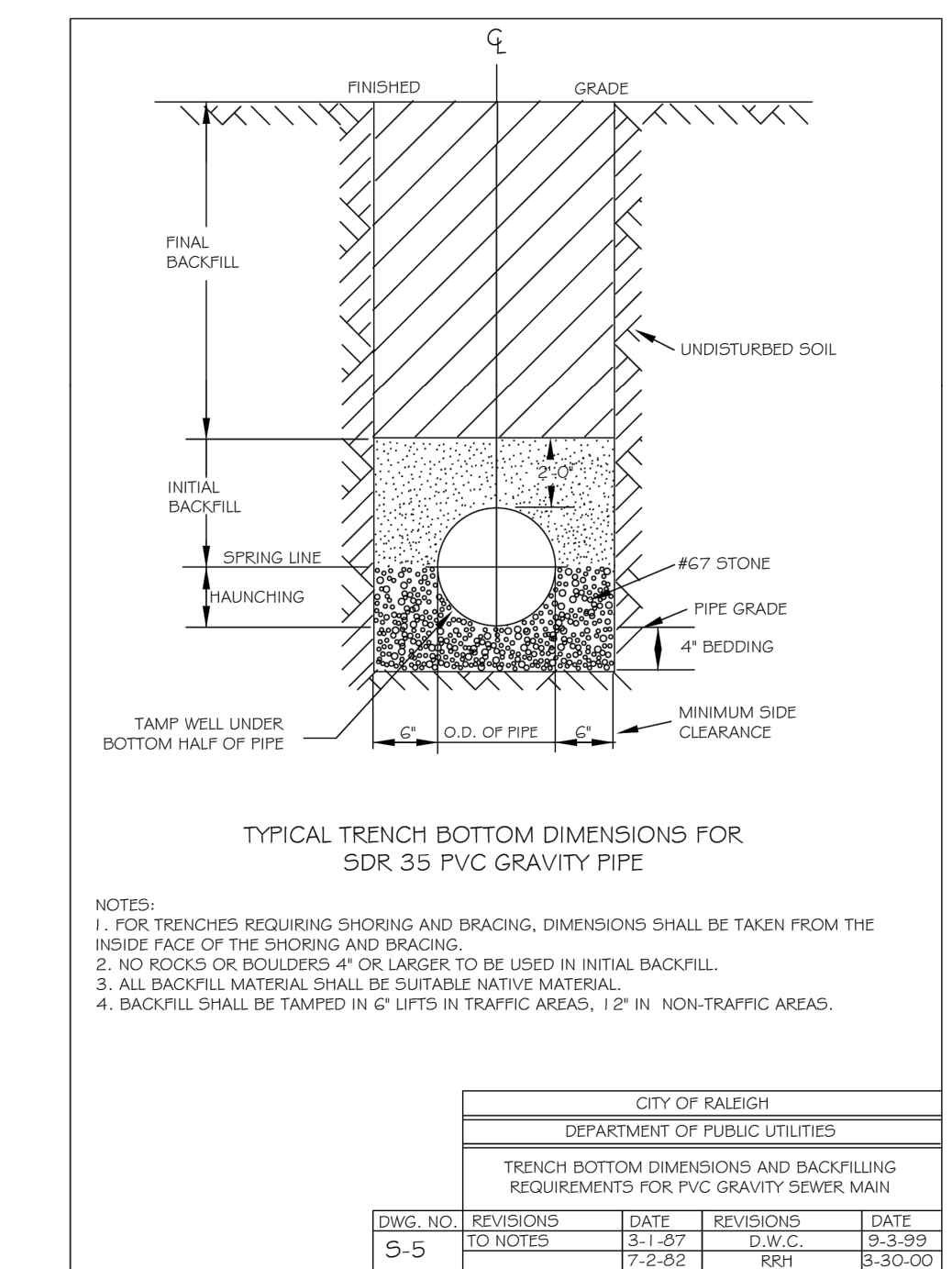
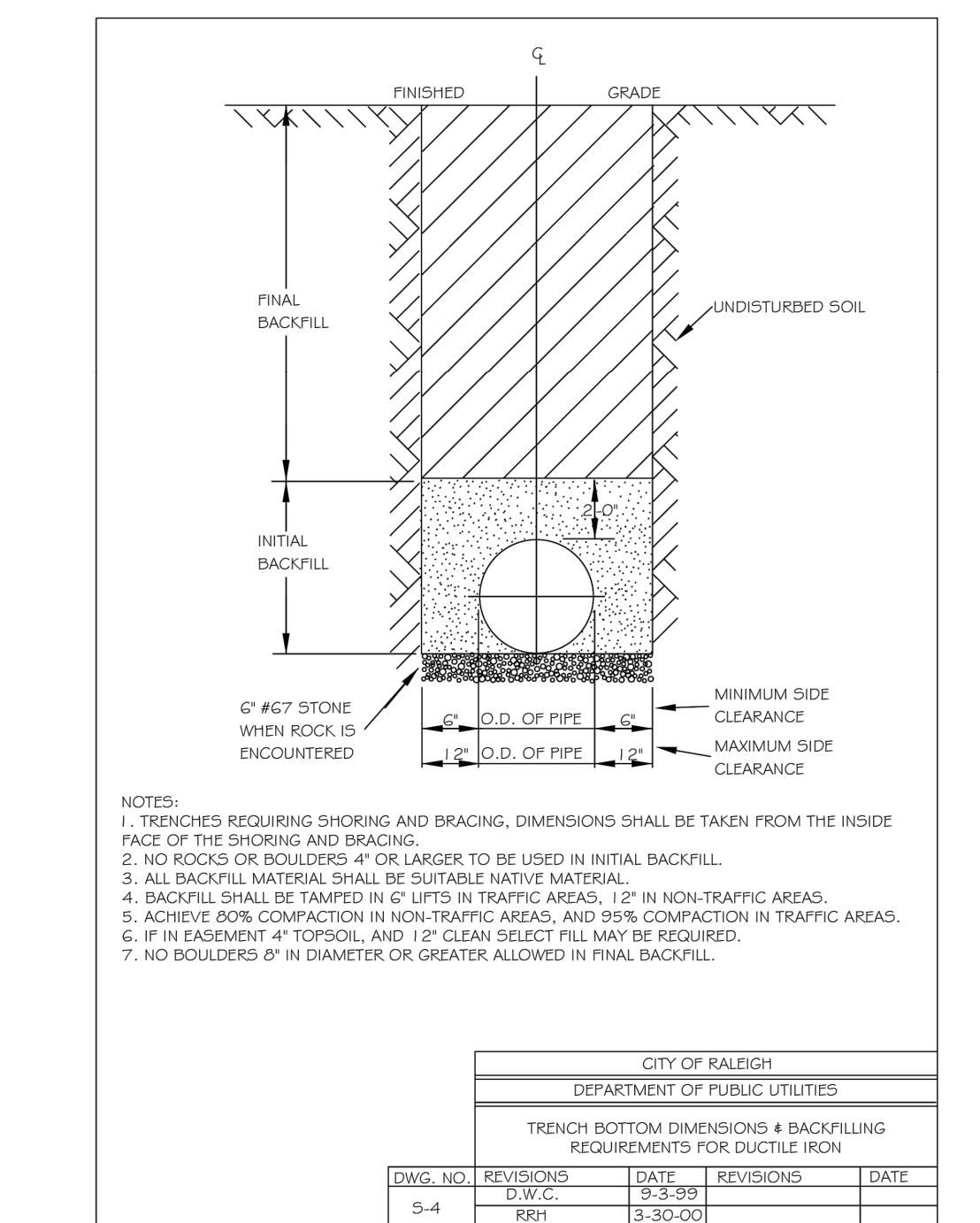
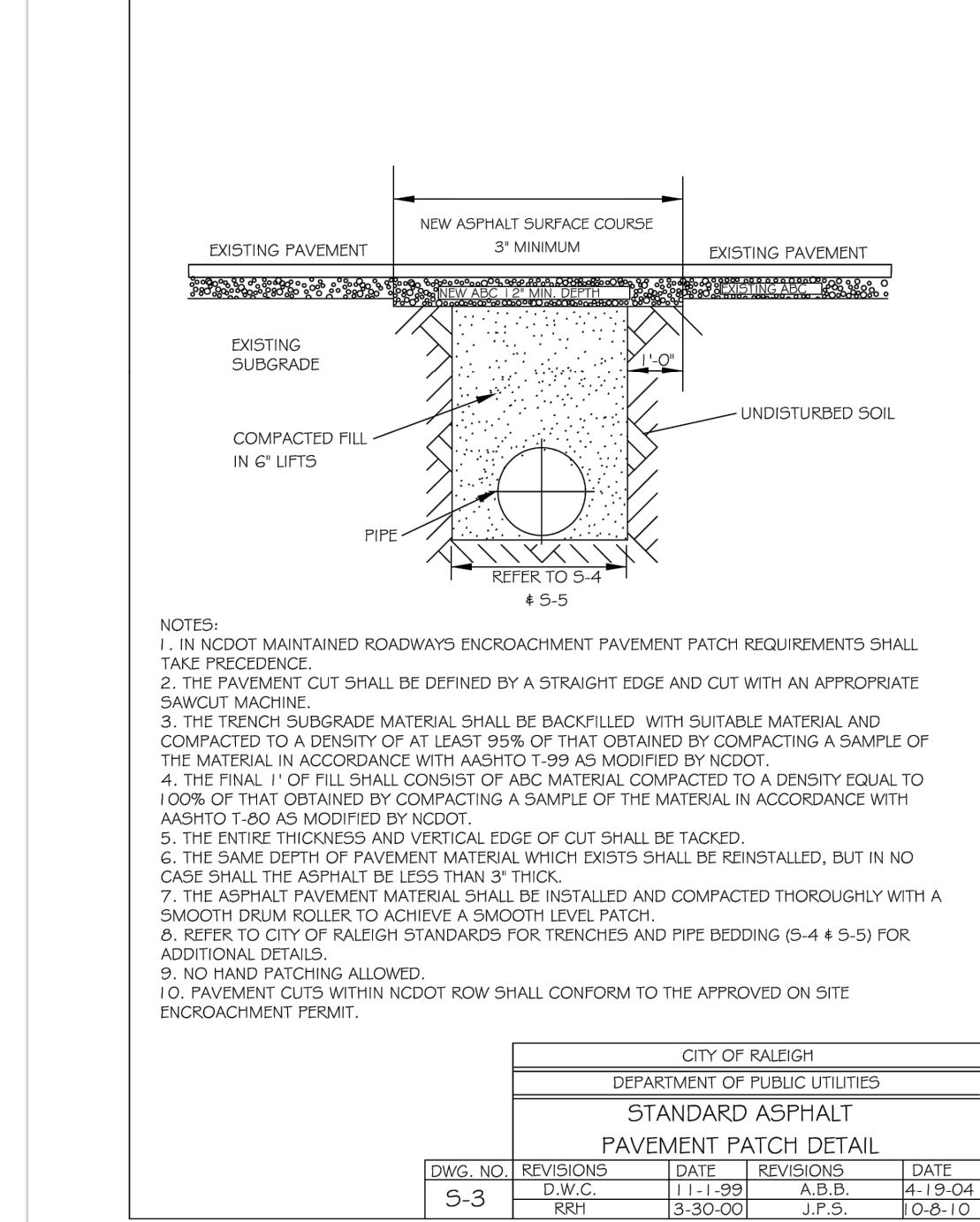
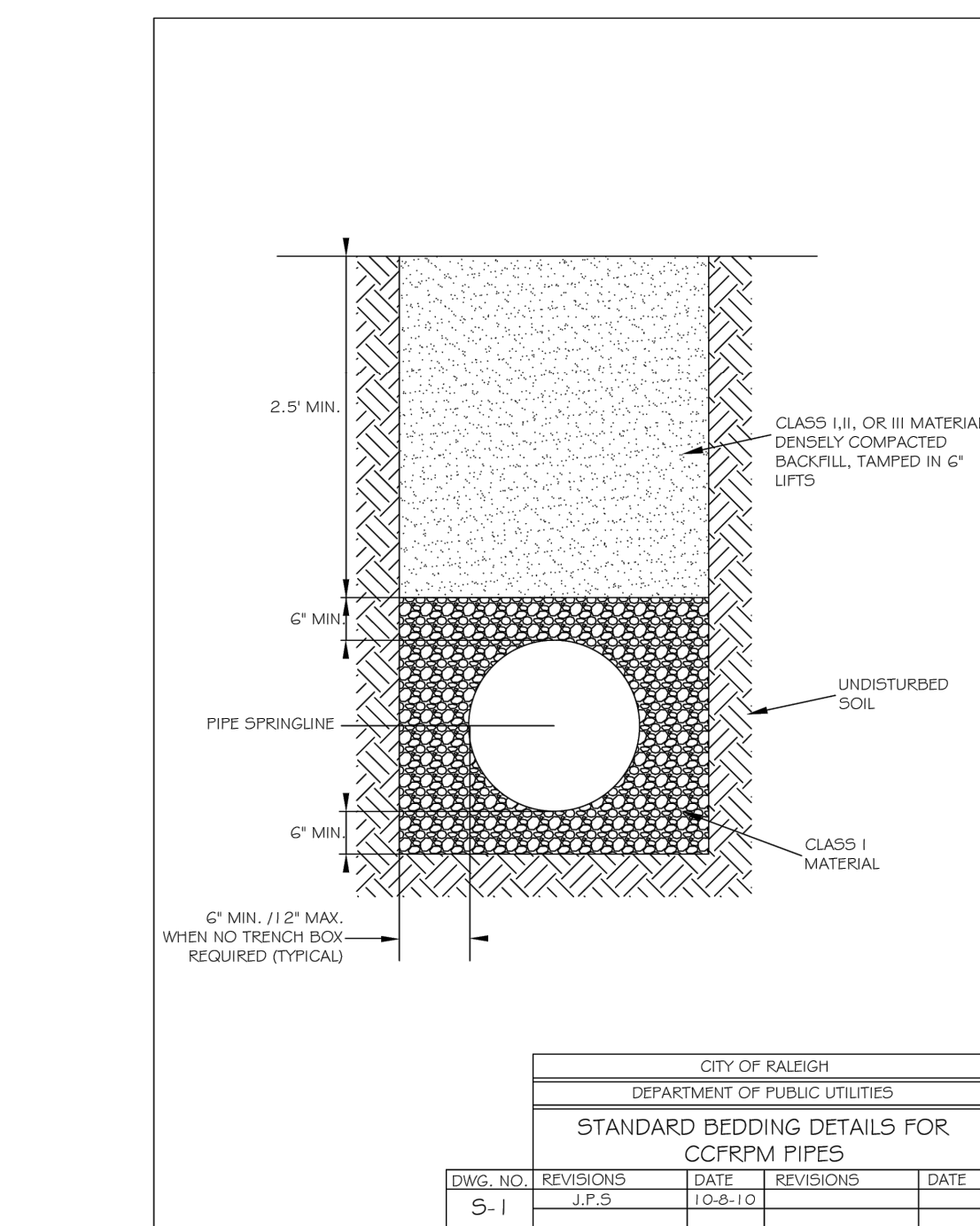
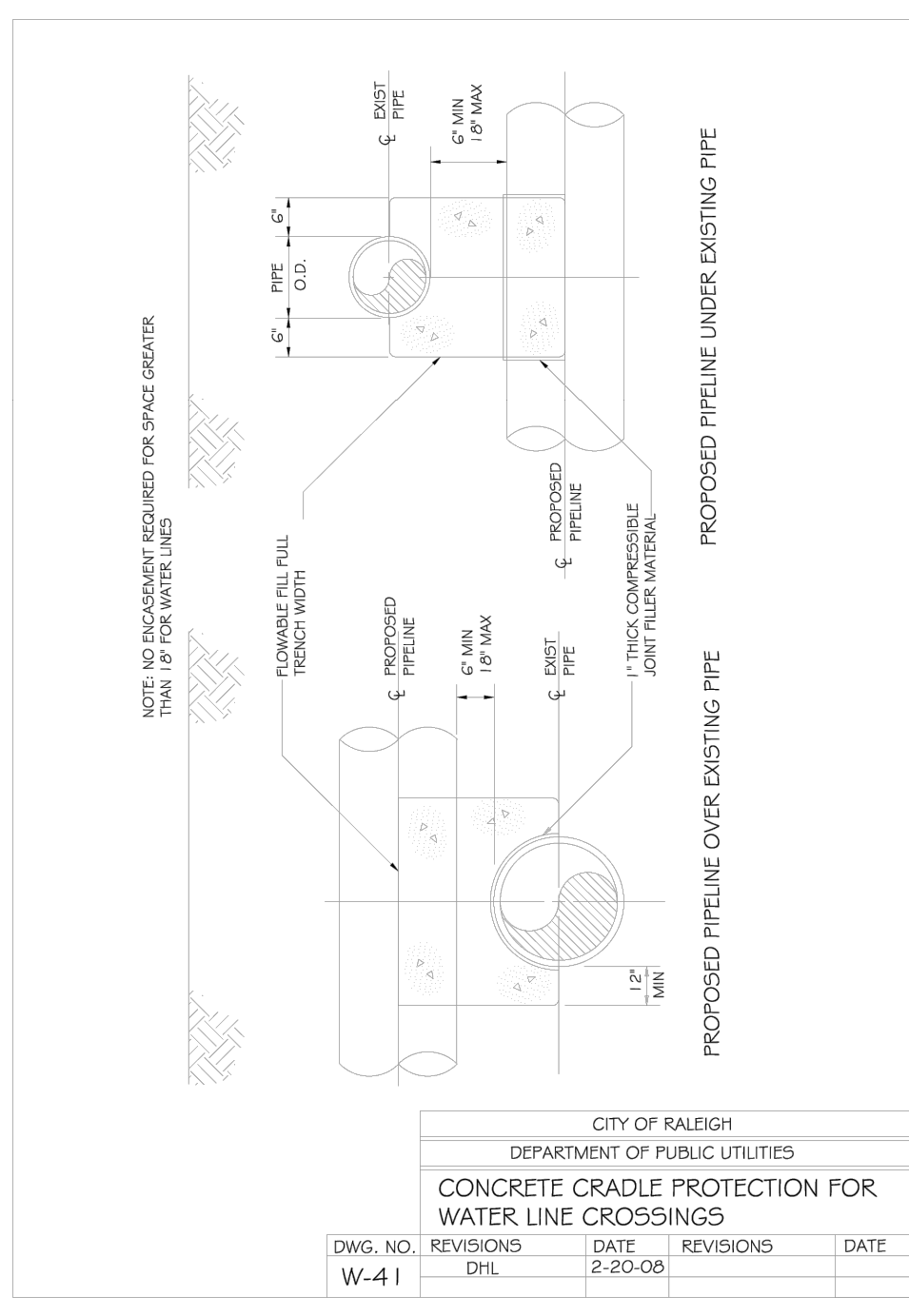
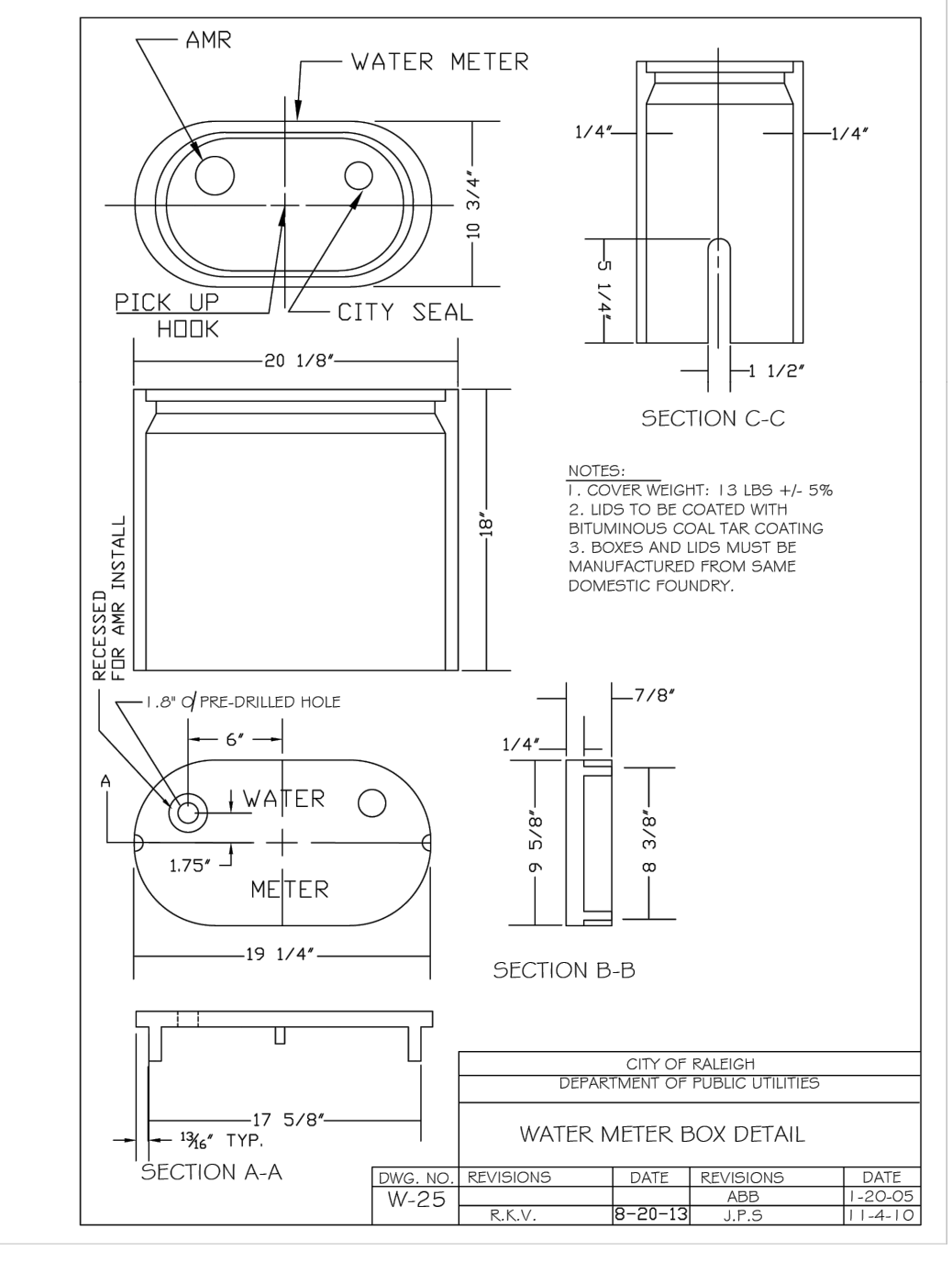
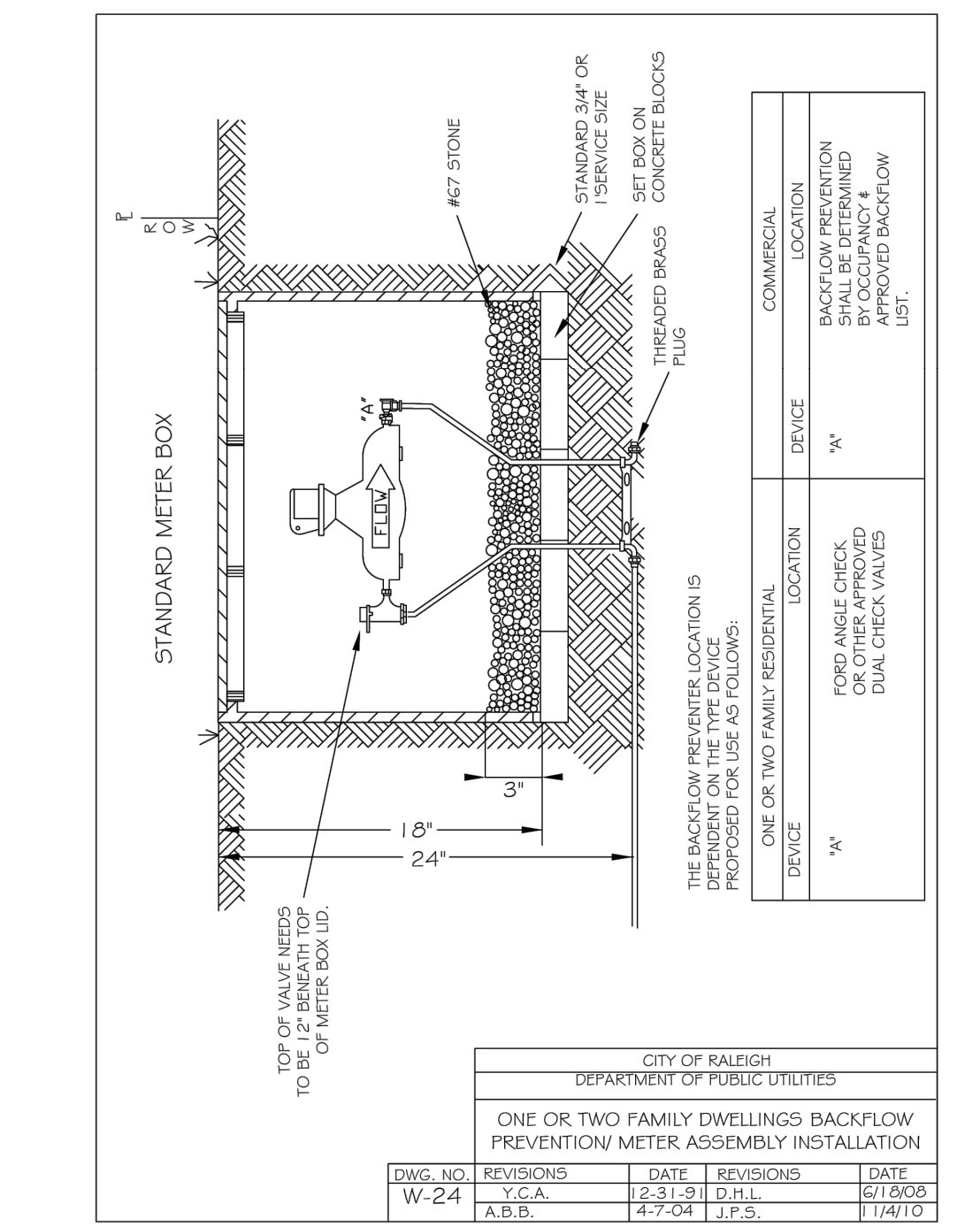
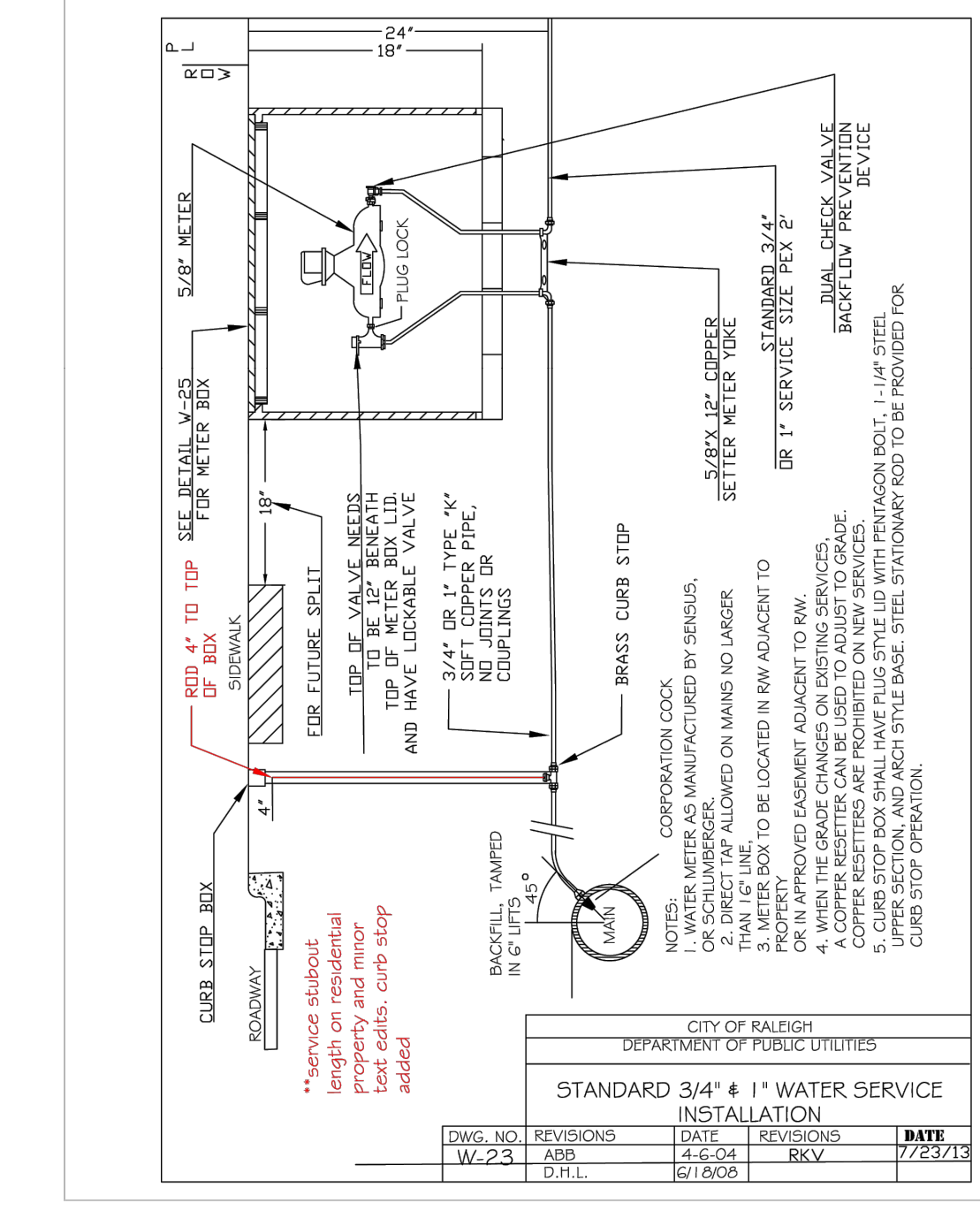
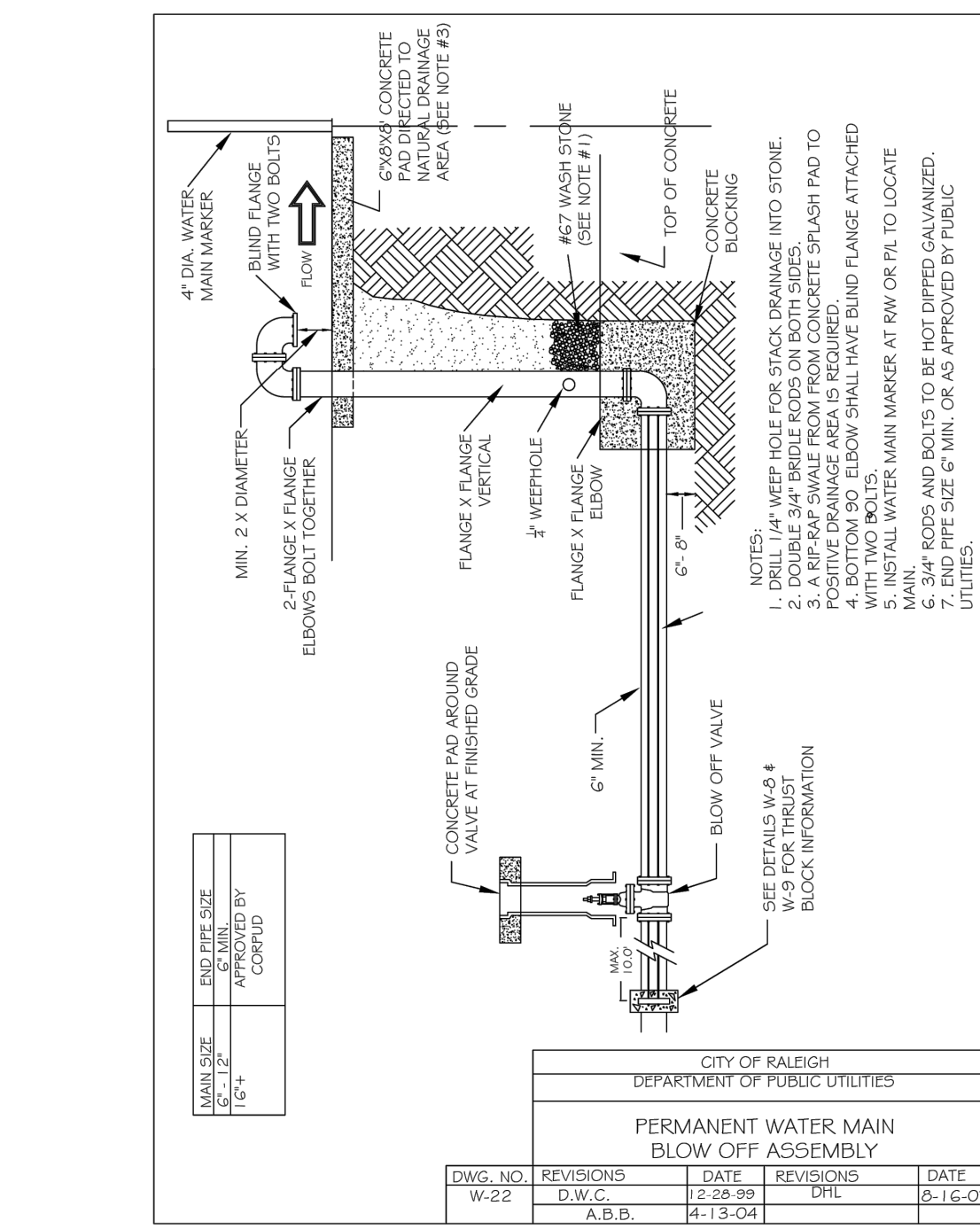
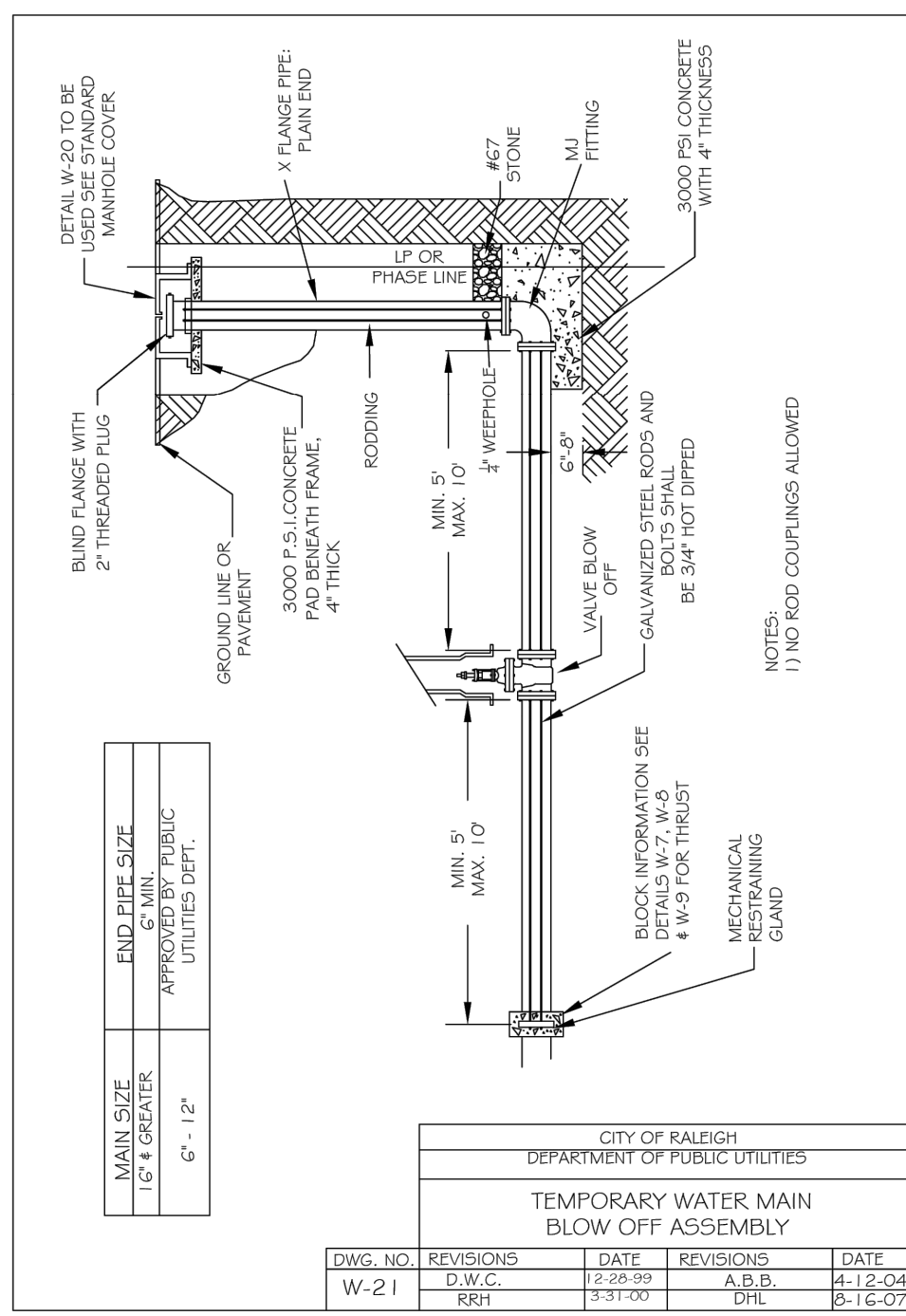
**TIMMONS GROUP**  
 NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 WAKE COUNTY - NORTH CAROLINA  
 UTILITY DETAILS

JOB NO. 43398  
 SHEET NO. C7.8

S:\3324\3398\Wheeler\_T\TrenchDWG\SheetCD143398-C7-D\NTD1.dwg [Printed on 12/22/2023 1:53 PM] by April Blye





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 DESIGNED BY: P. BARBEAU  
 CHECKED BY: P. BARBEAU  
 SCALE: AS SHOWN

# TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

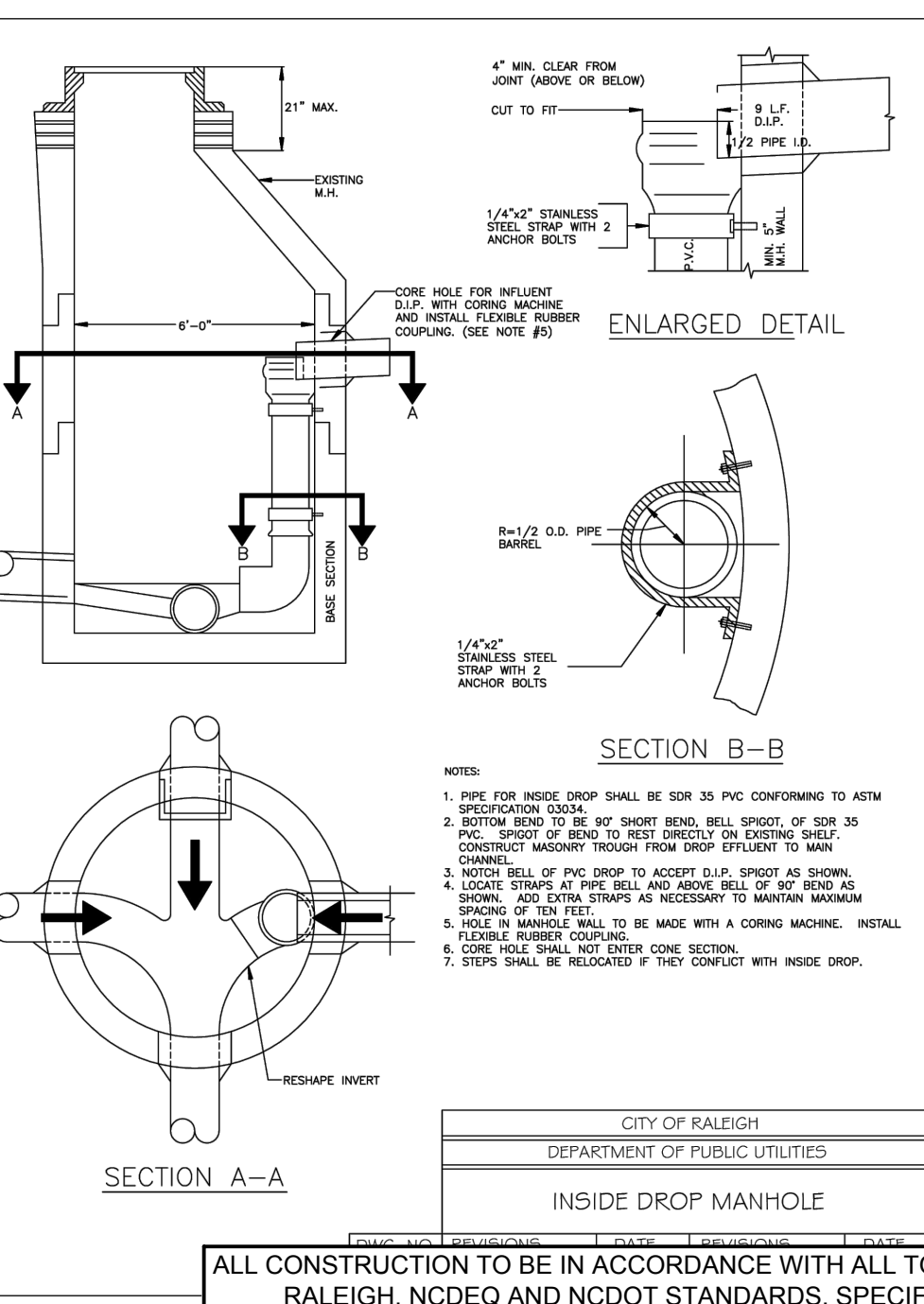
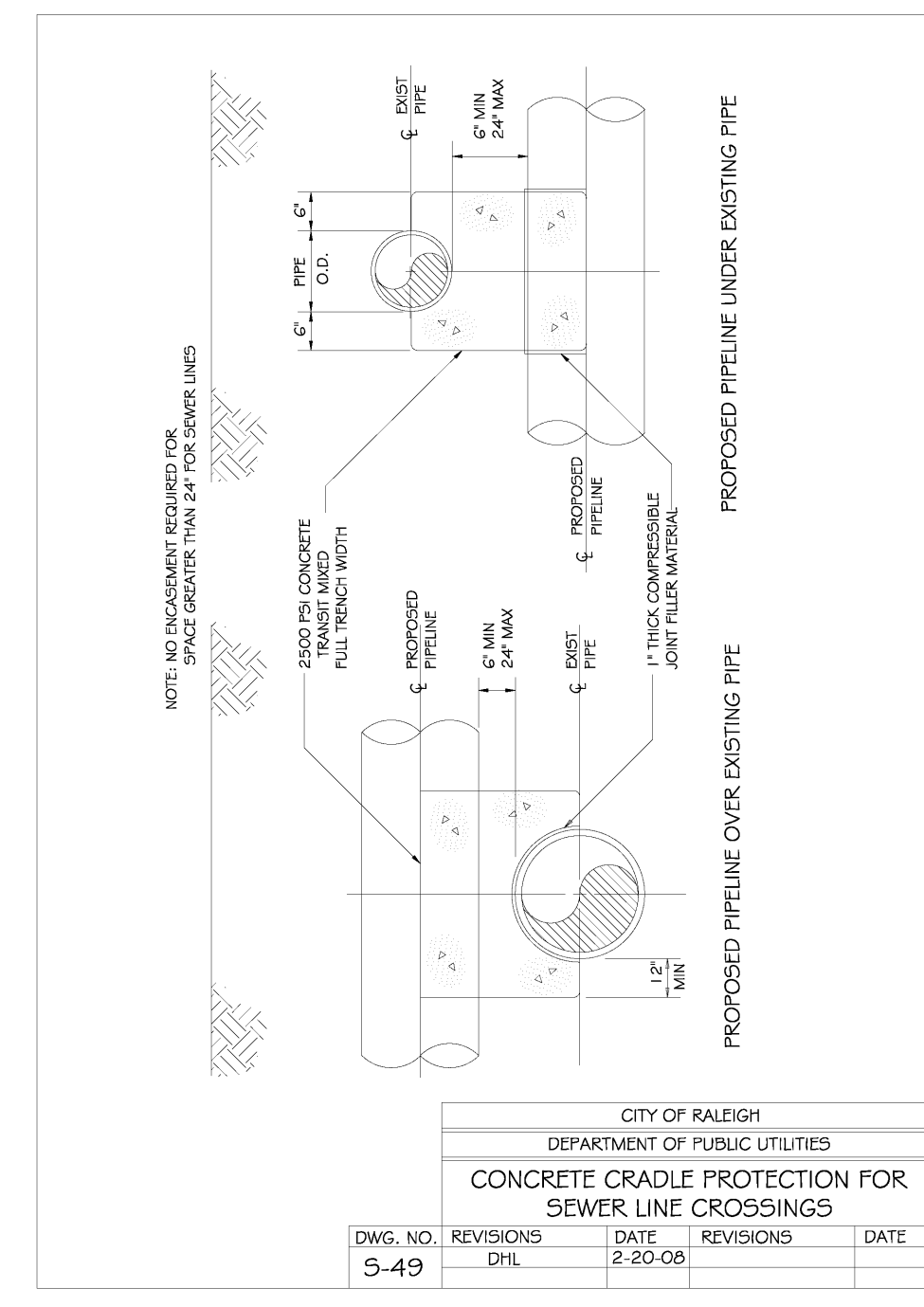
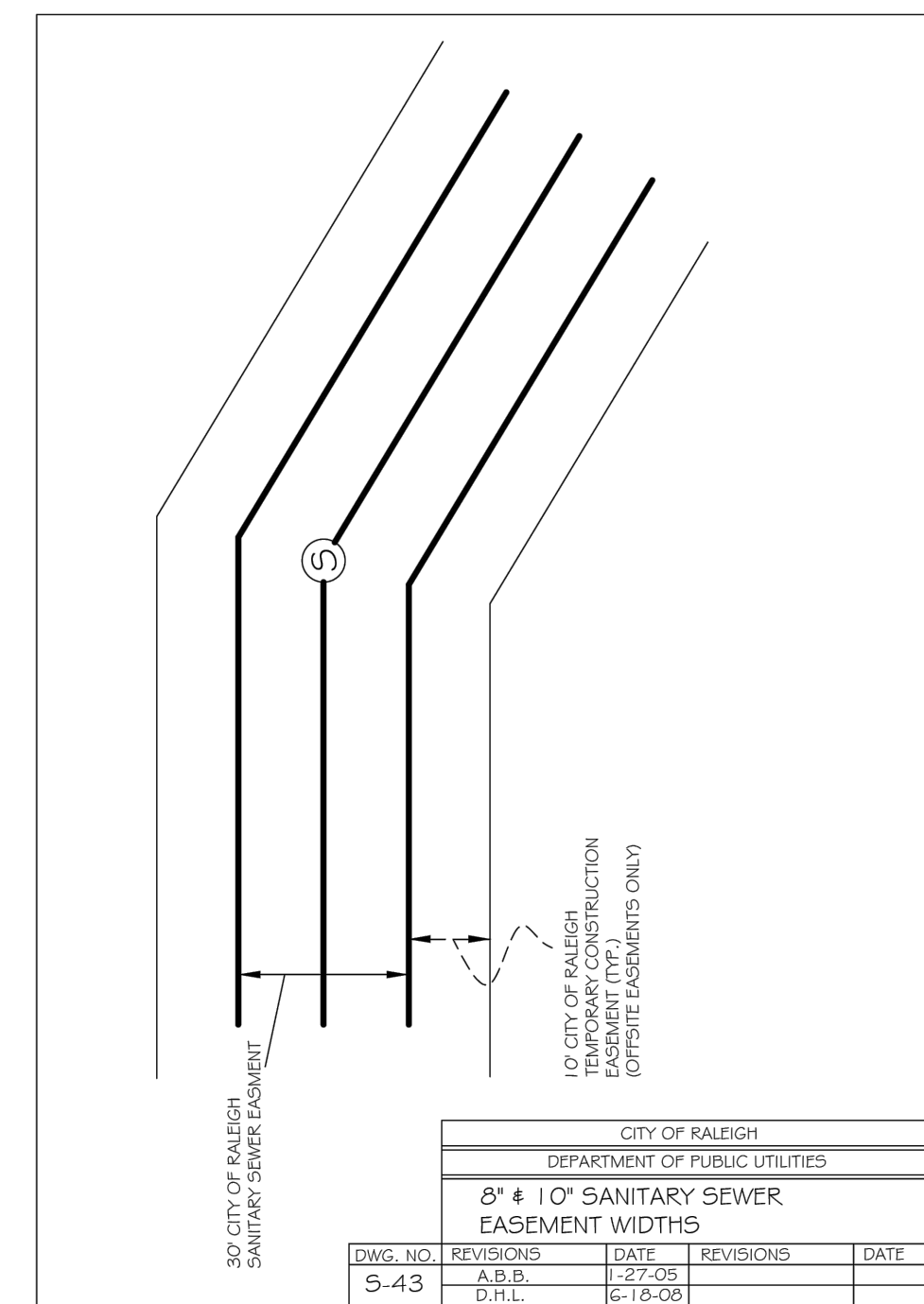
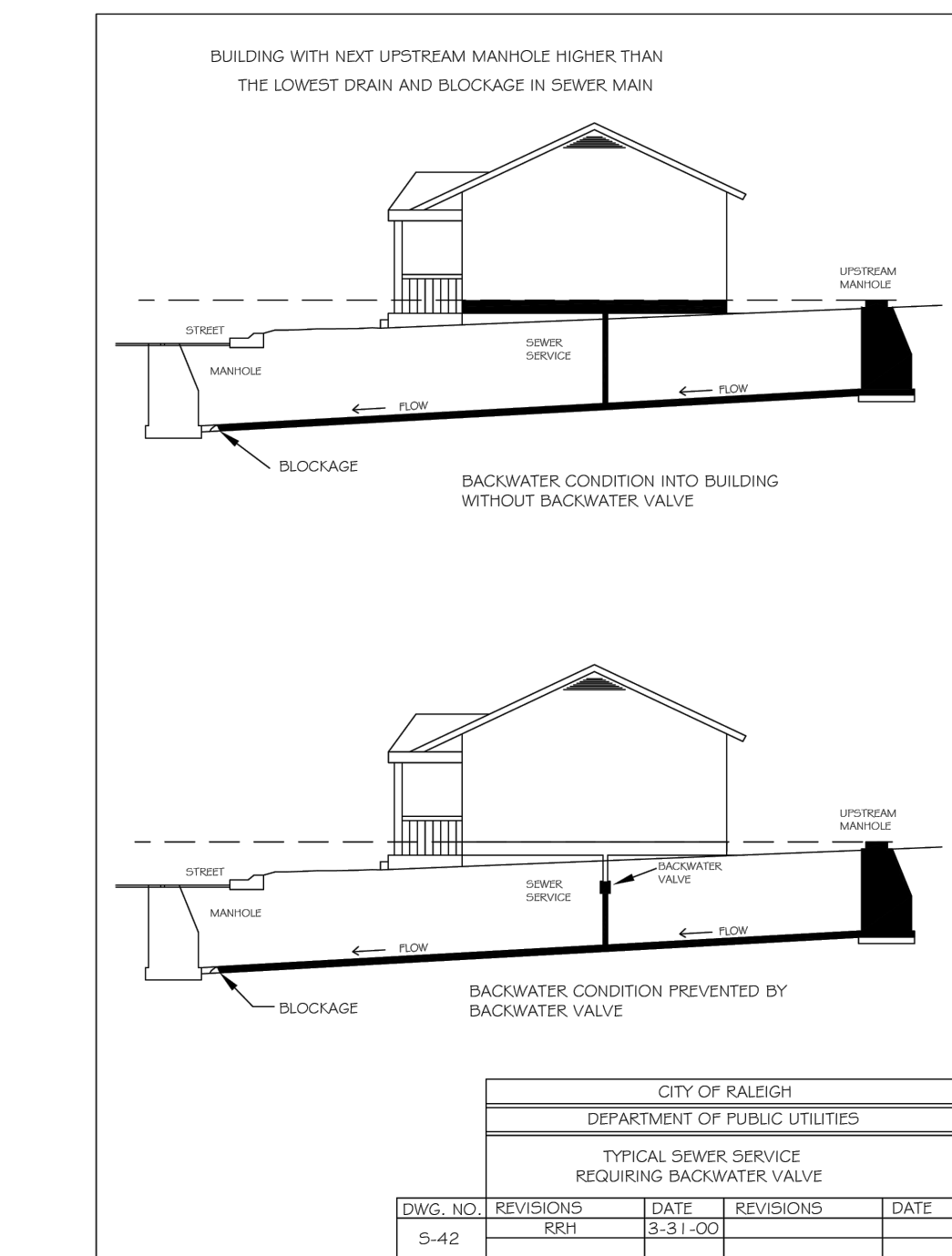
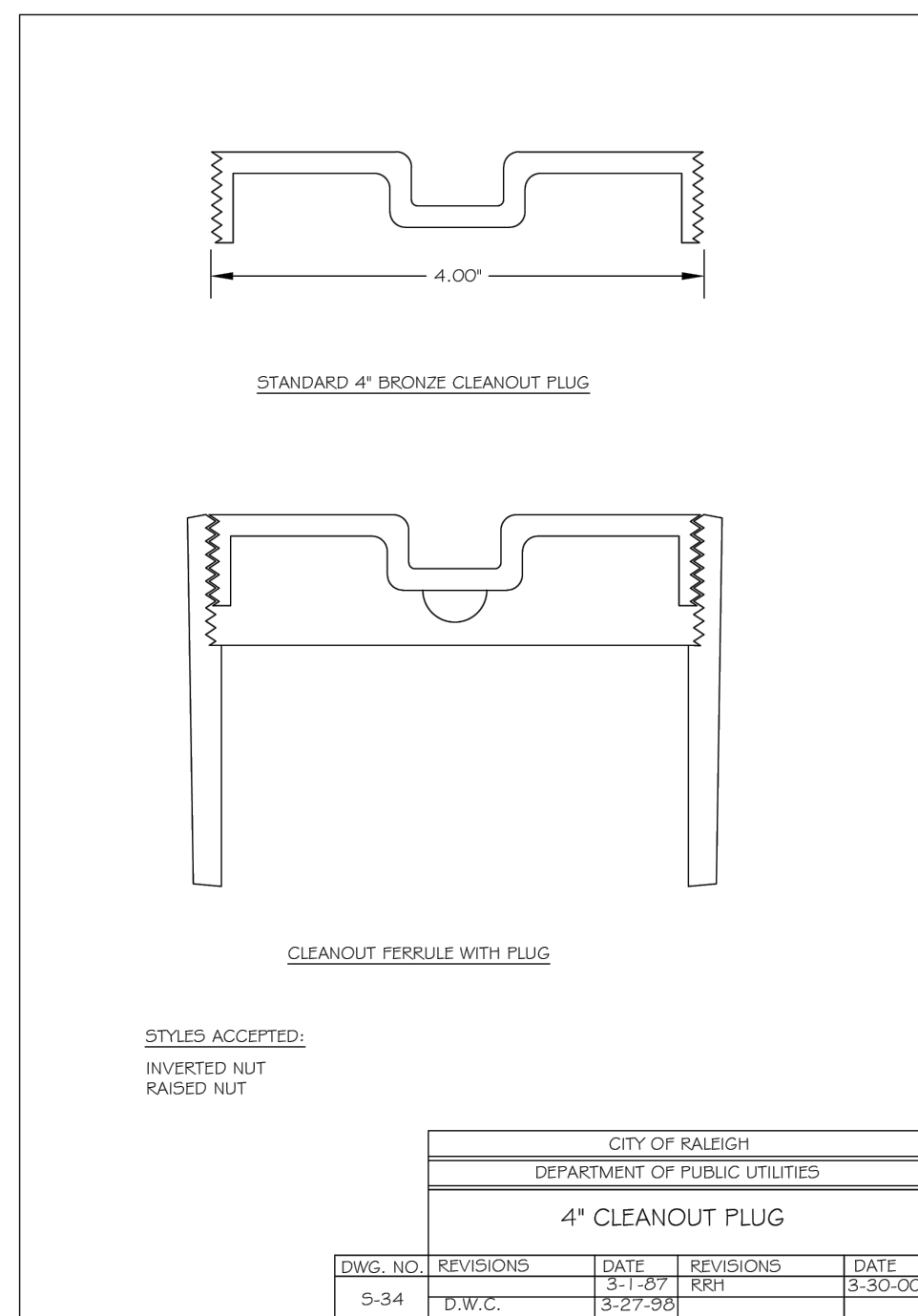
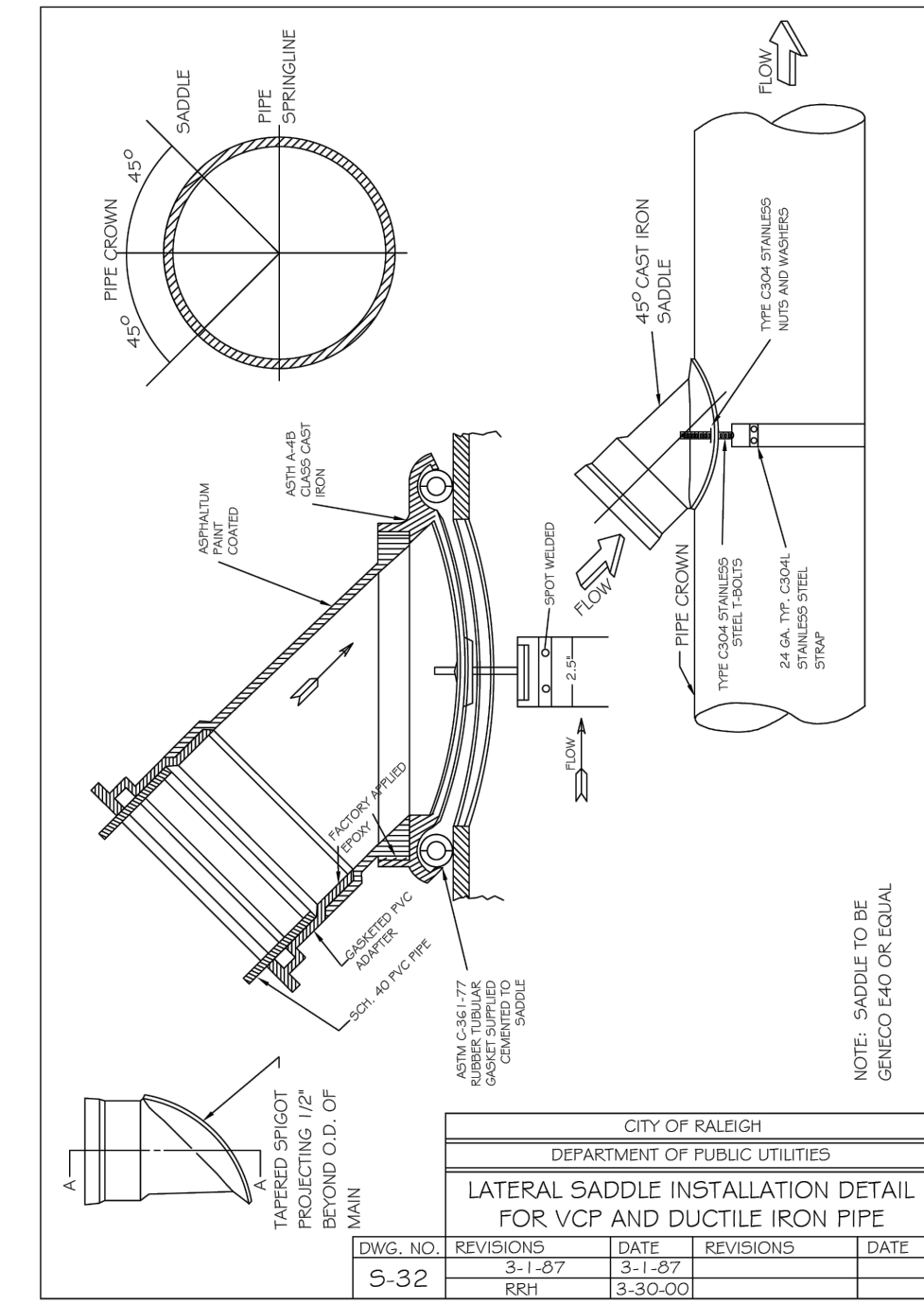
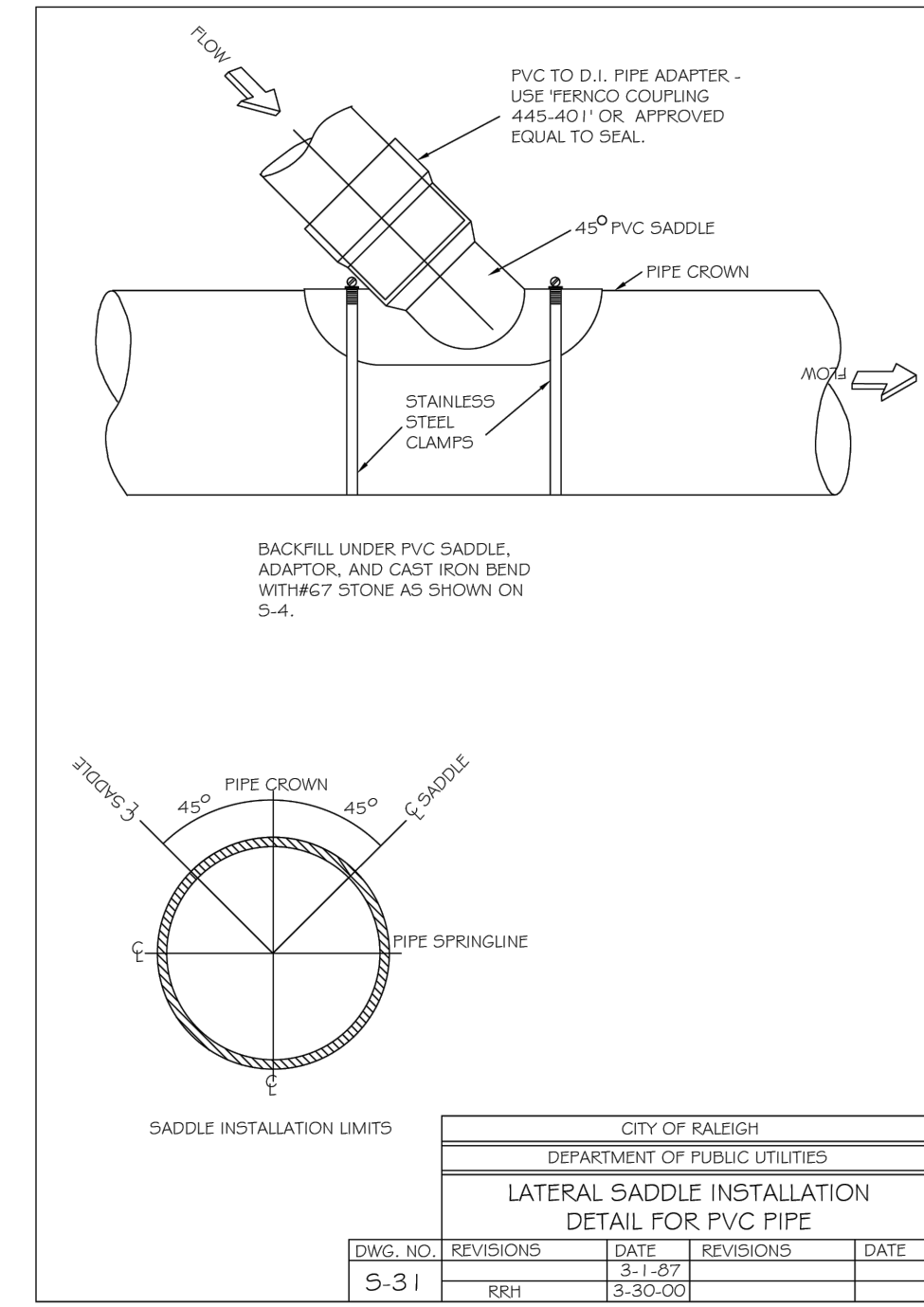
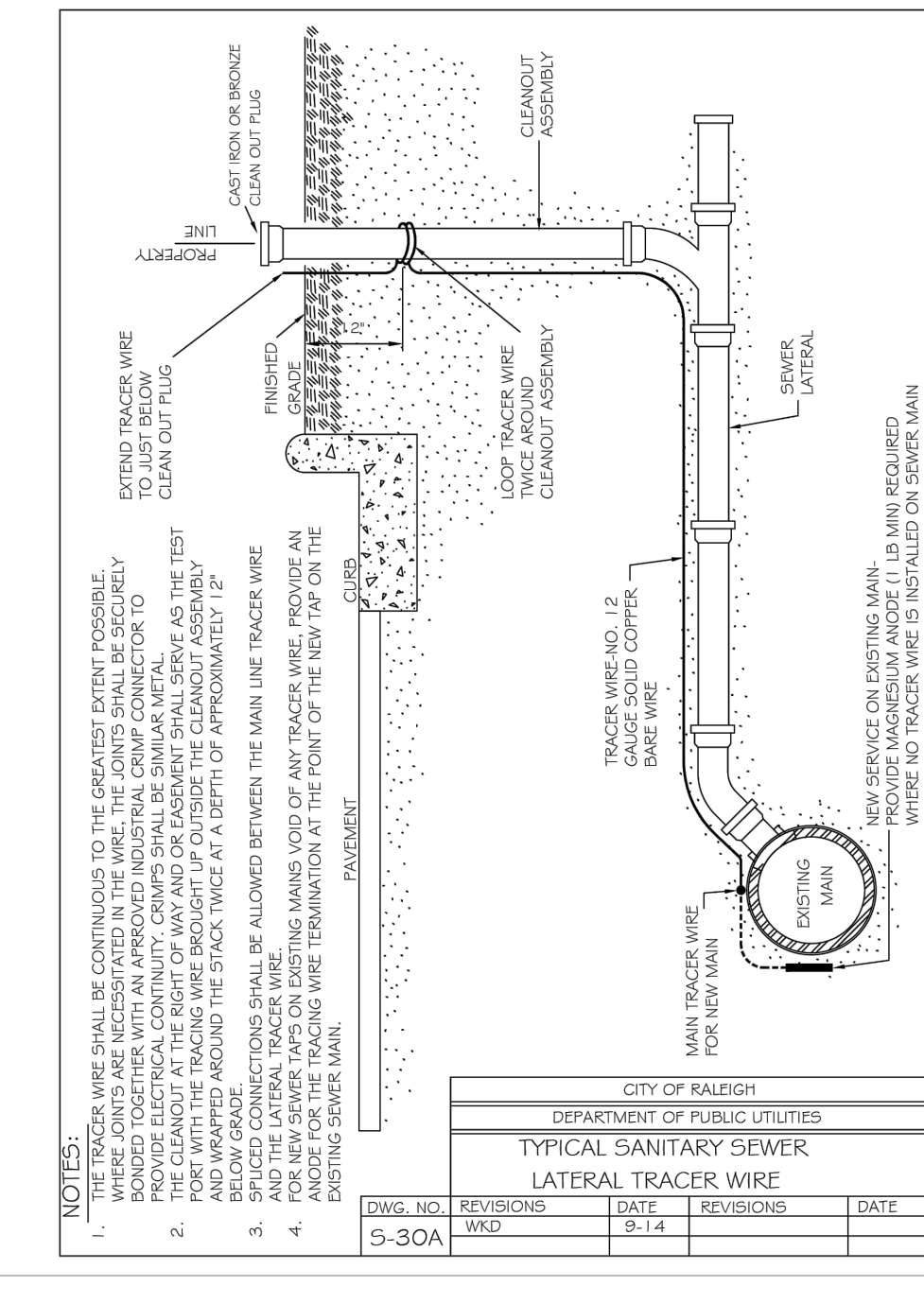
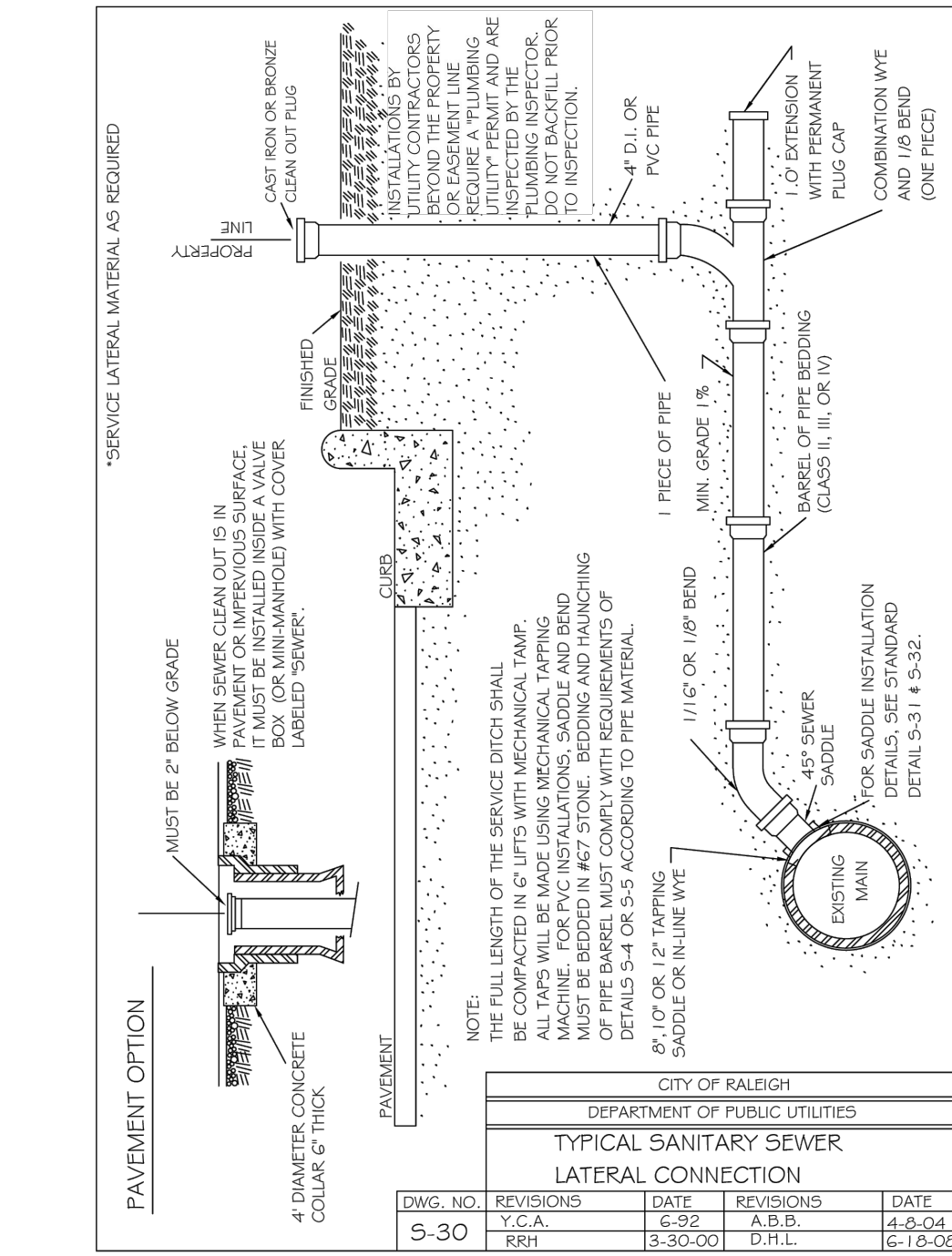
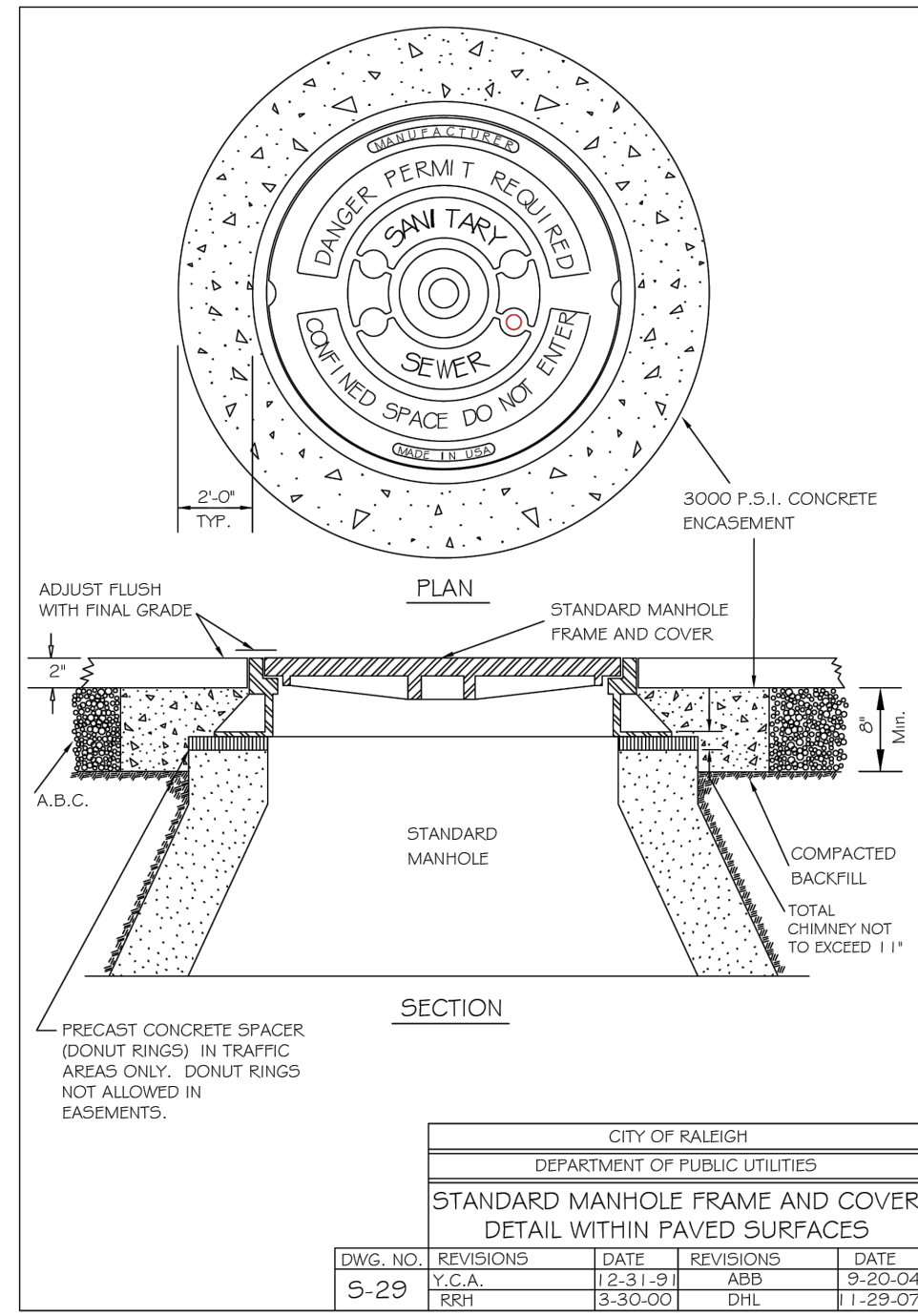
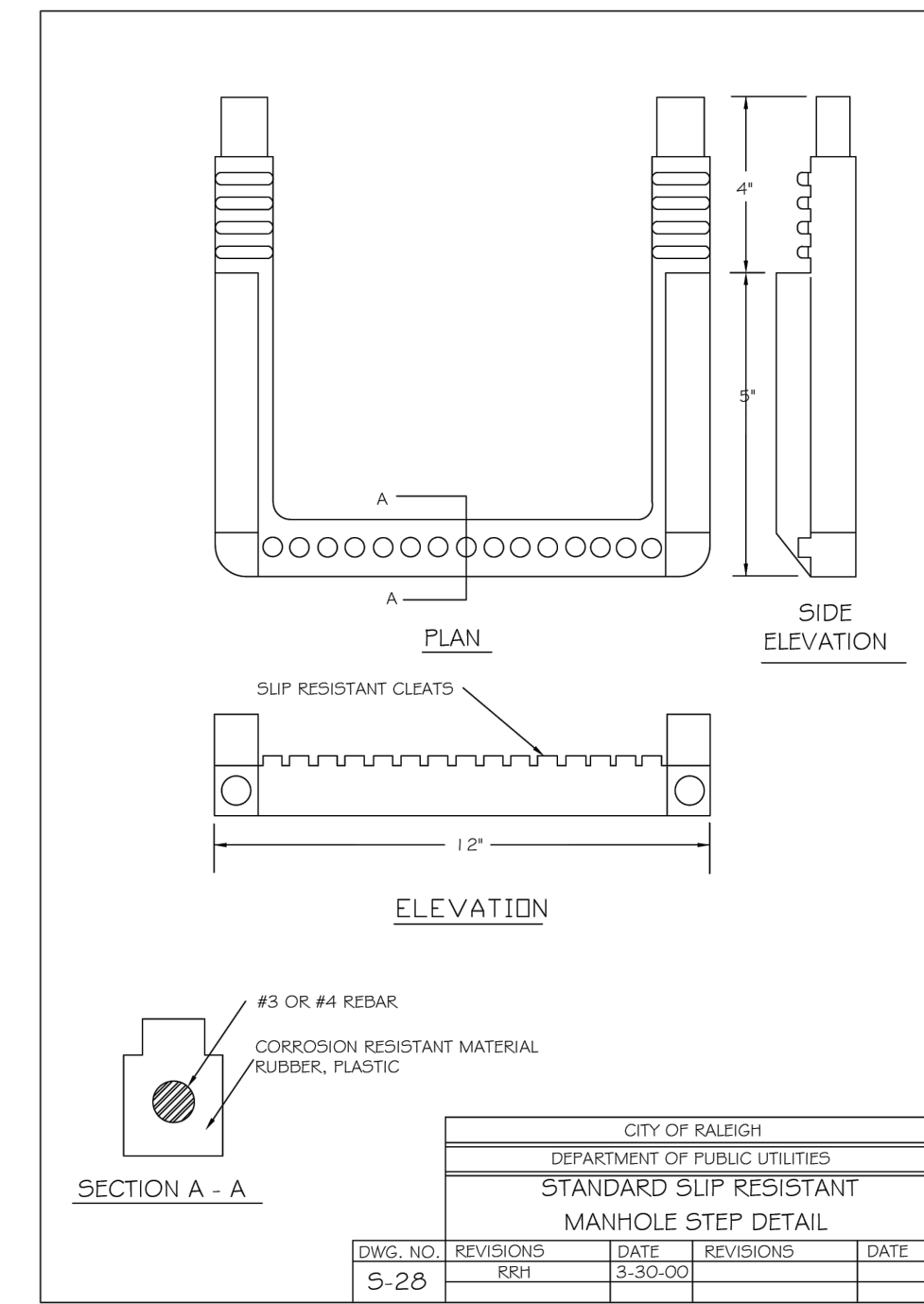
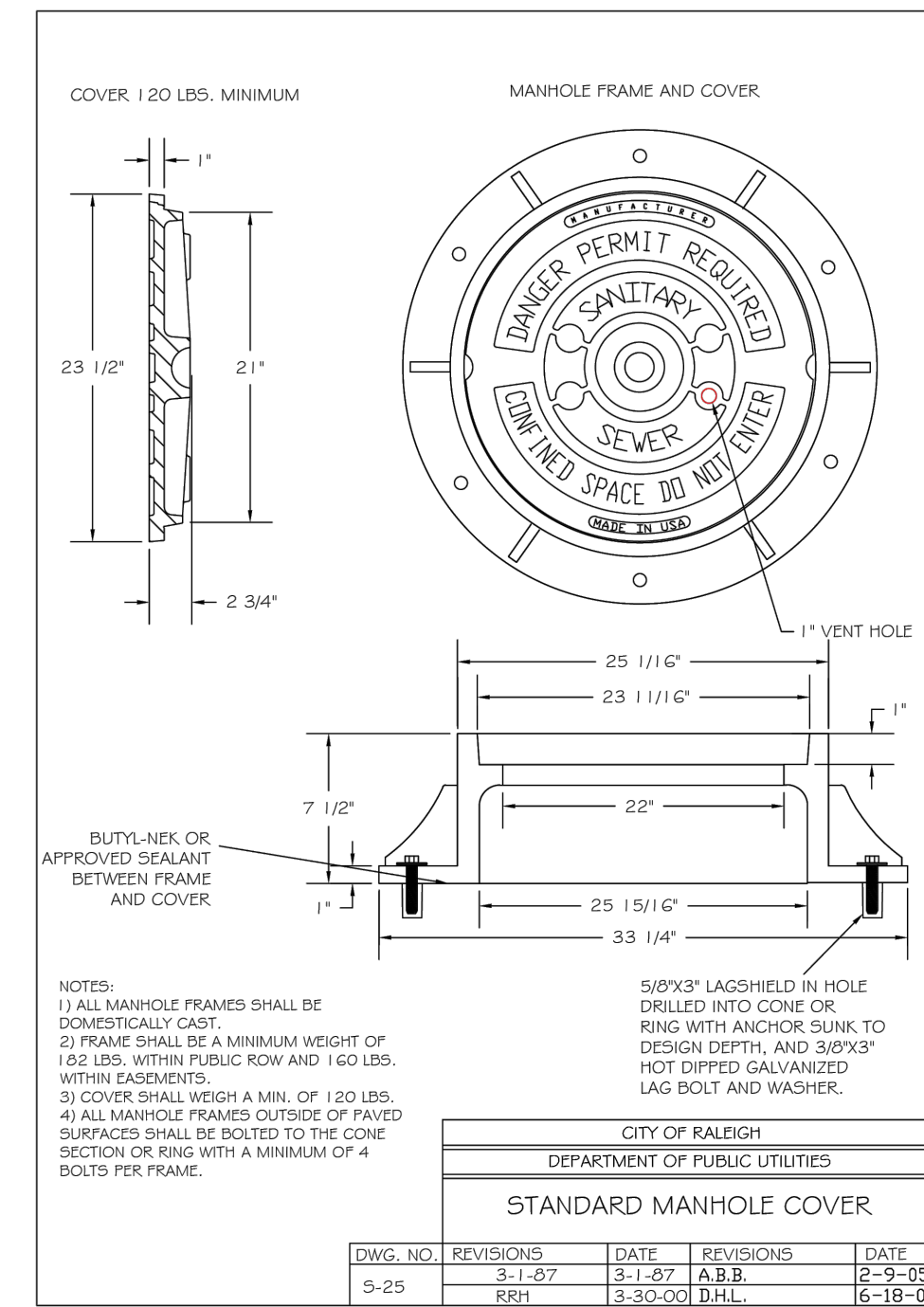
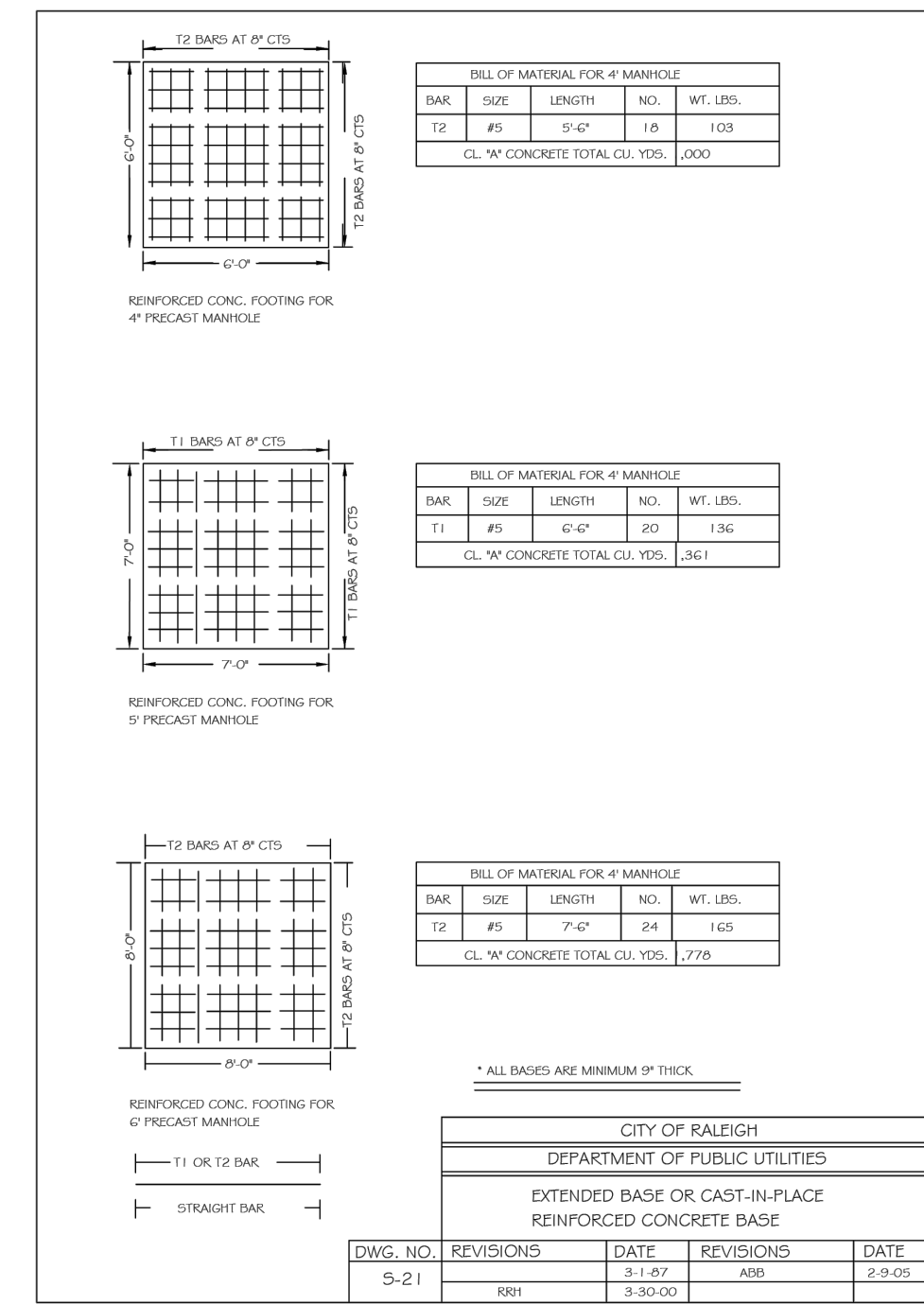
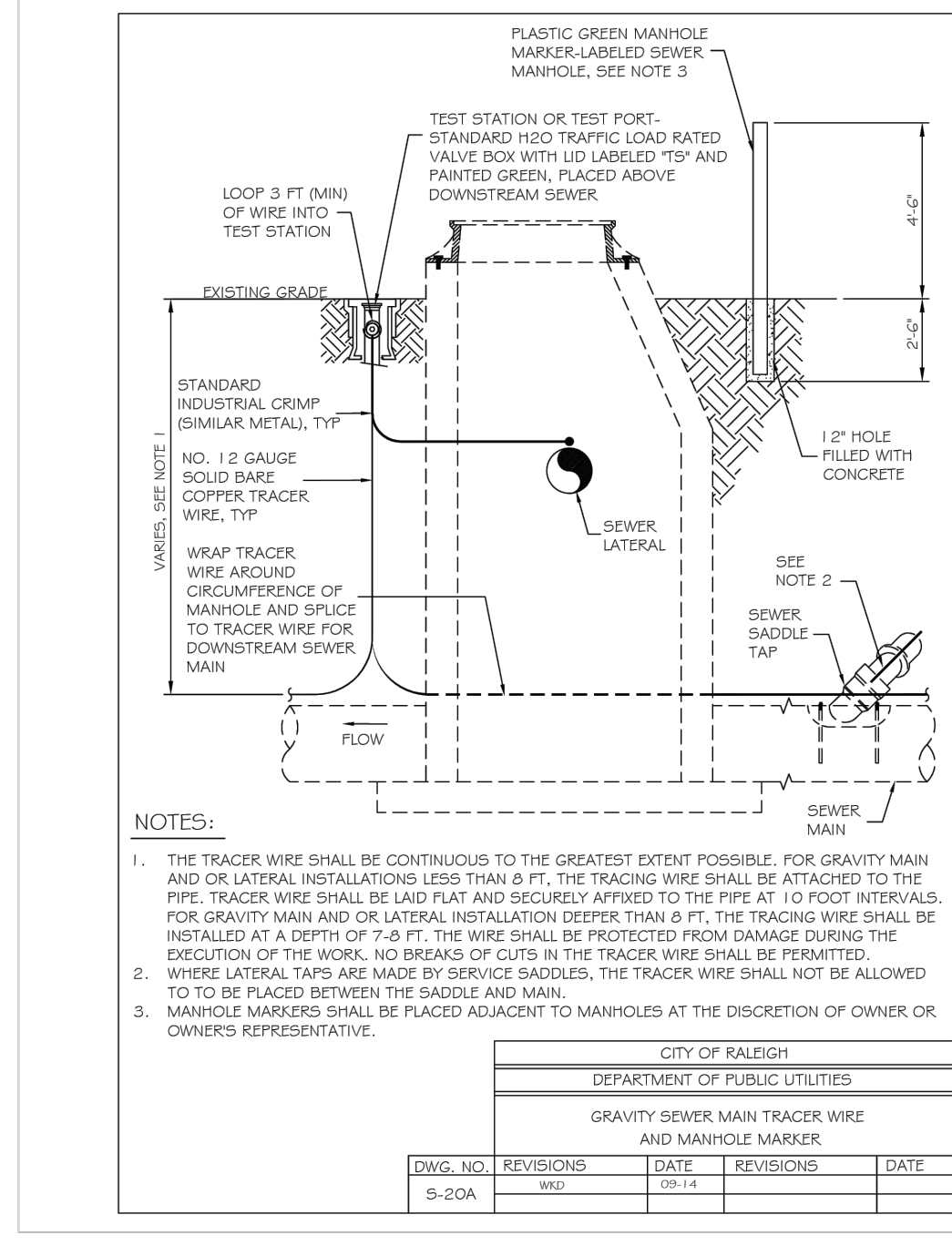
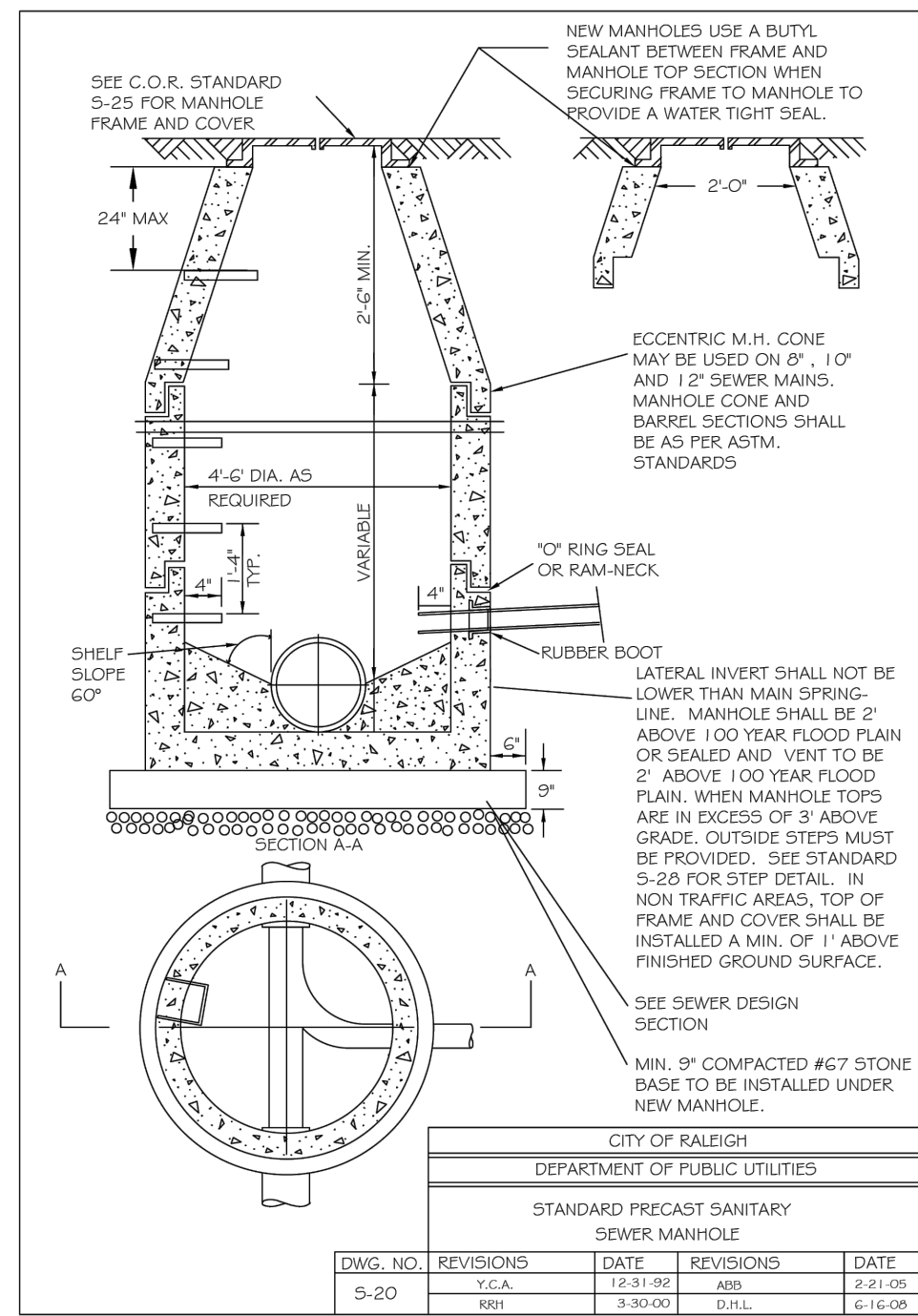
## ROLESVILLE CROSSING - CD 21-08

WAKE COUNTY - NORTH CAROLINA

### UTILITY DETAILS

JOB NO. 43398  
 SHEET NO. C7.9





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DESIGNED BY: P. BARBEAU  
CHECKED BY: P. BARBEAU  
SCALE: AS SHOWN

# TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

## ROLESVILLE CROSSING - CD 21-08

WAKE COUNTY - NORTH CAROLINA

### UTILITY DETAILS

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SHEET NO. C7.10

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDD AND NCDDT STANDARDS, SPECIFICATIONS, AND DETAILS





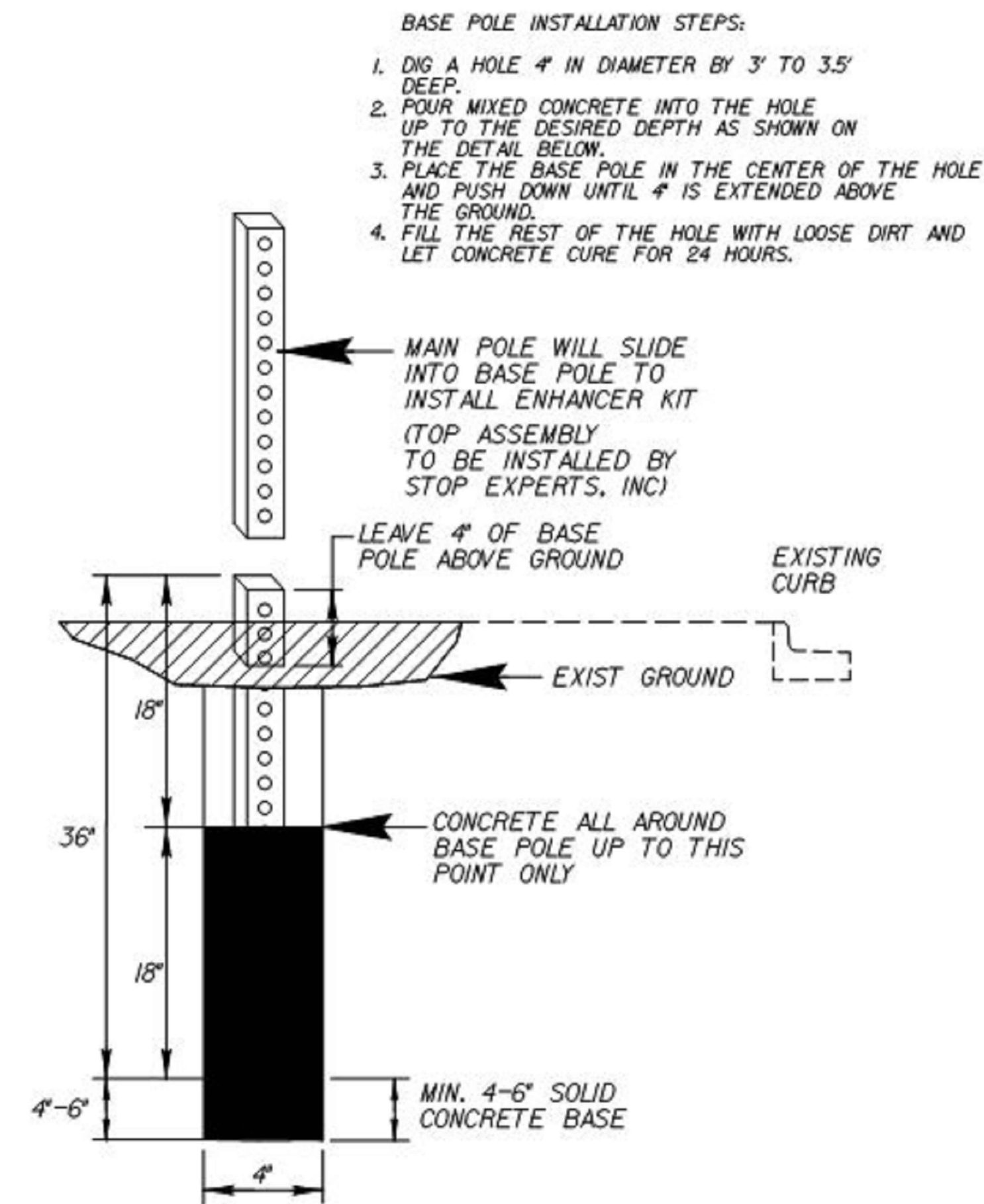
**ROADWAY STANDARD DRAWINGS:**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO.	TITLE
654.01	PAVEMENT REPAIRS
848.05	CURB RAMP - PROPOSED CURB AND GUTTER
904.50	MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1250.01	PAVEMENT MARKER SPACING
1743.02	PEDESTALS - NORMAL DUTY TYPE II

**NOTES**

- REFER TO "ROAD STANDARD DRAWINGS NCDOT" DATED JANUARY 2018, "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
- RRFB SHALL BE MOUNTED TO POWDER COATED BLACK AND THE CONTROLLER BOX SHALL BE LOCATED BEHIND THE SIGNS AND MOUNTED ON A TYPE II PEDESTAL (4.5" OD ALUMINUM POLES WITH TRANSFORMER BASES). REFER TO THE NCDOT ROADWAY STANDARD DRAWING 1743.02.



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DATE	REVISION DESCRIPTION
06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
07/22/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

DATE: 09/17/2021  
 DRAWN BY: R. WINGATE  
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 SCALE: AS SHOWN

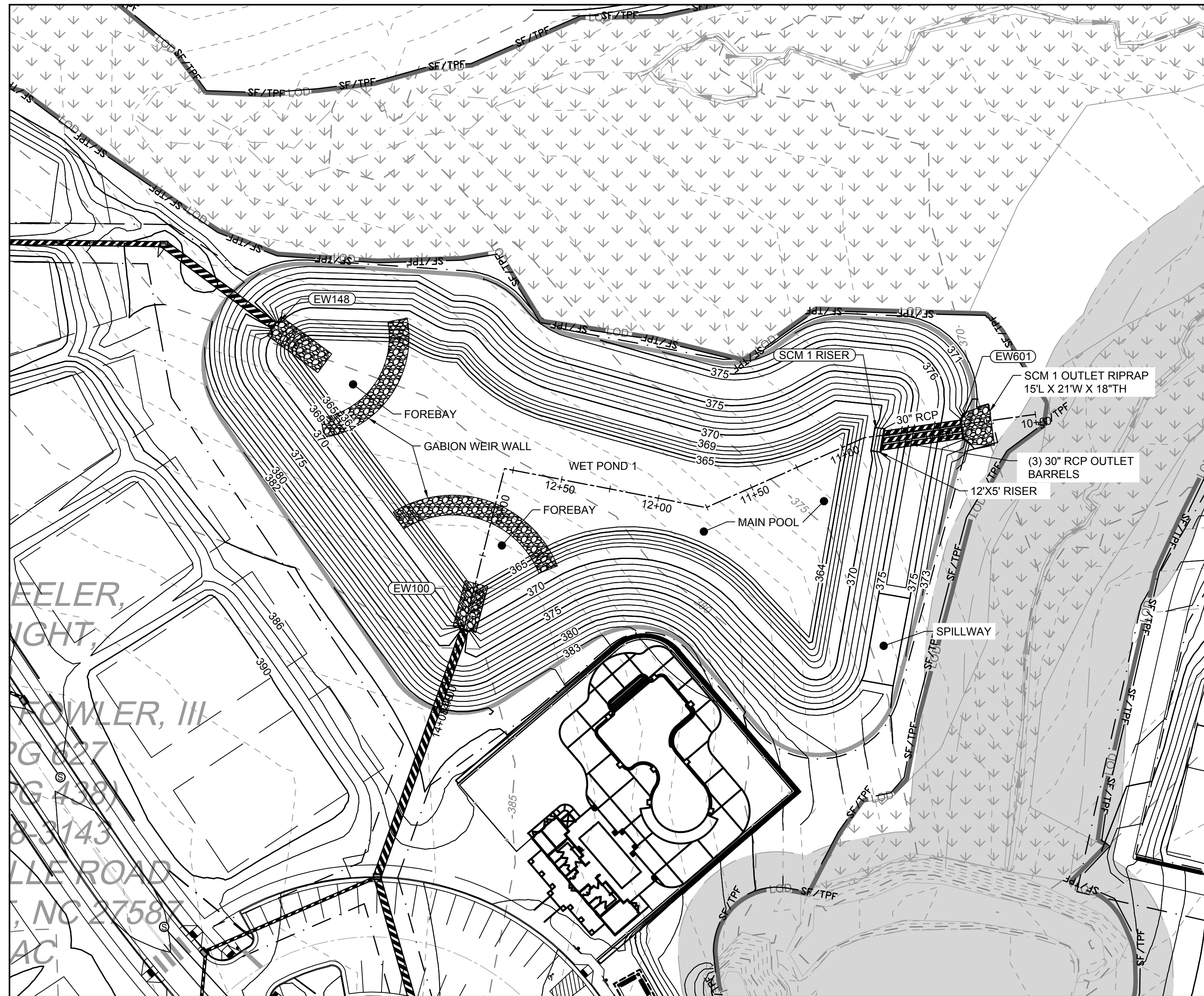
**TIMMONS GROUP**  
 NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**SITE DETAILS**

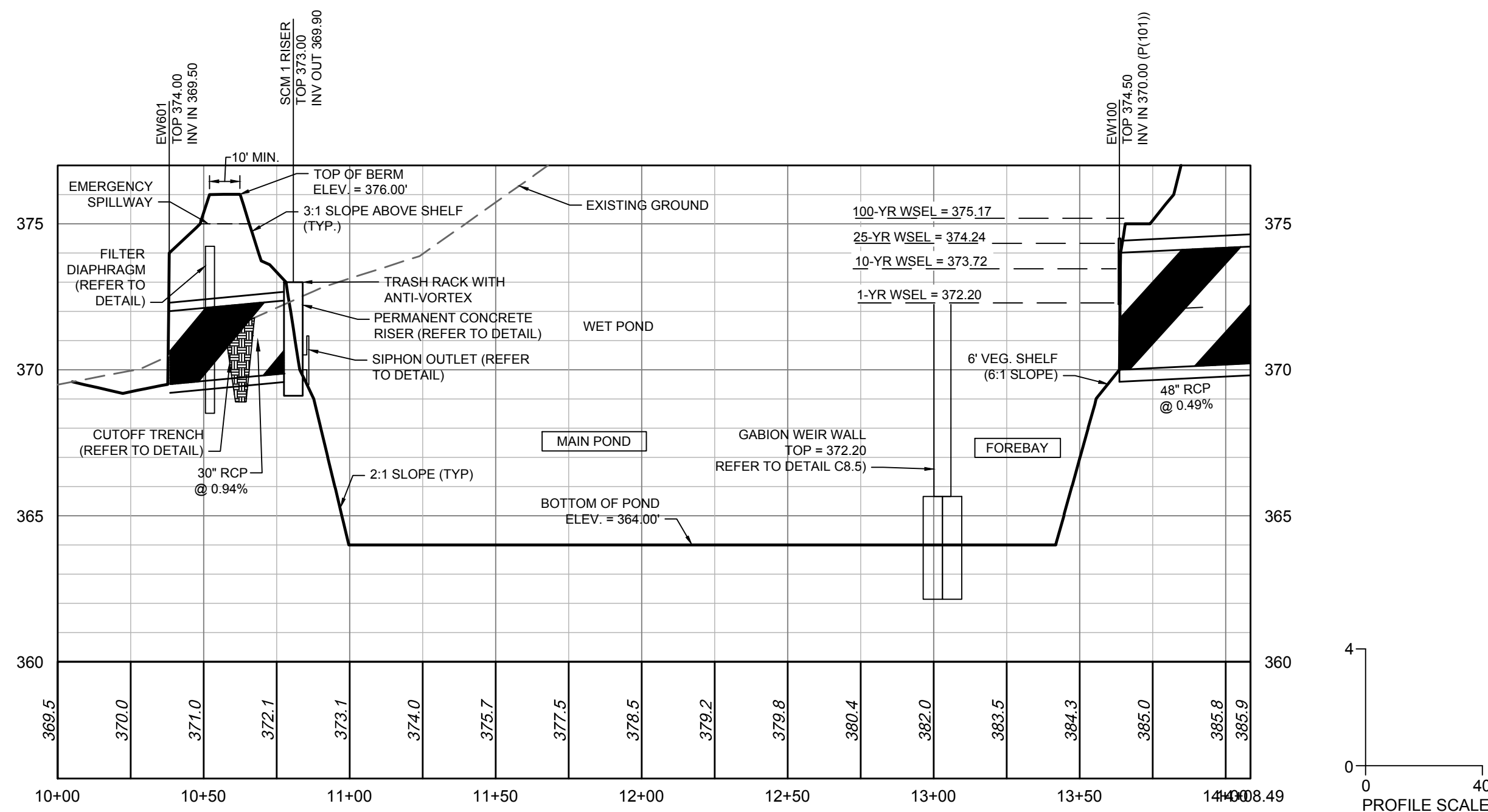
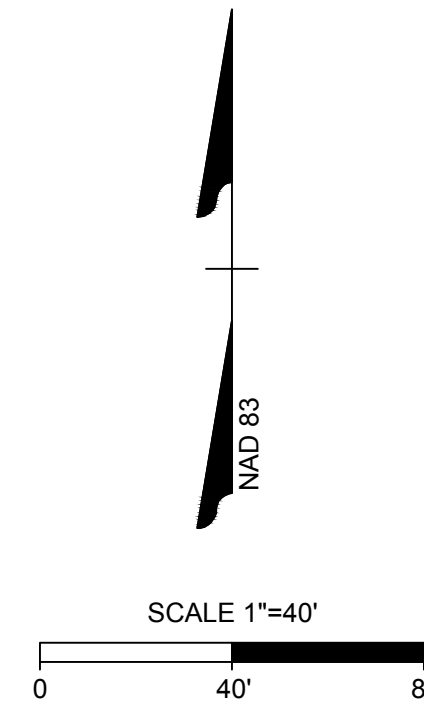
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**43398**  
 SHEET NO.  
**C7.11**

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS





WET POND PLAN VIEW



WET POND PROFILE VIEW

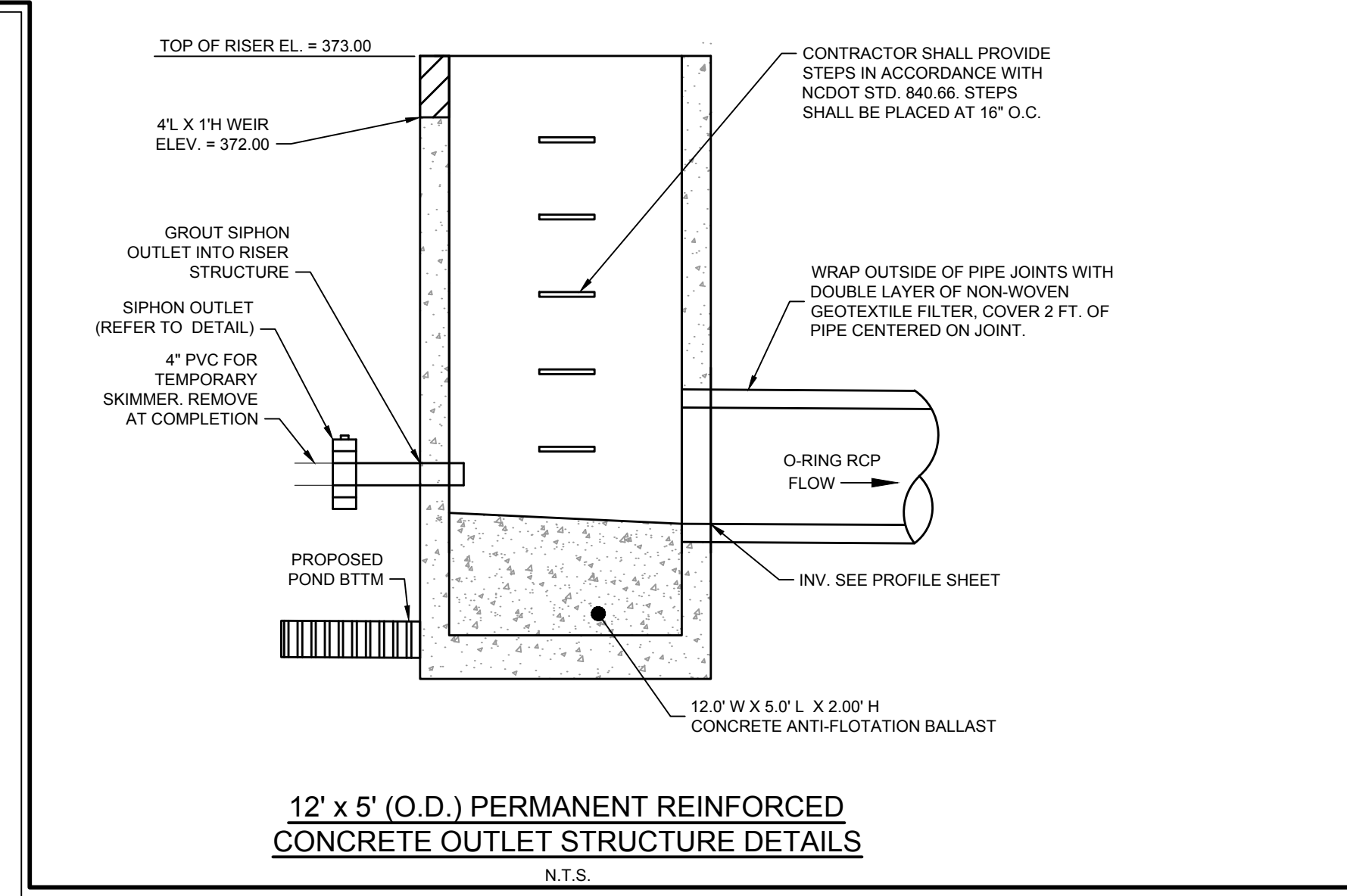
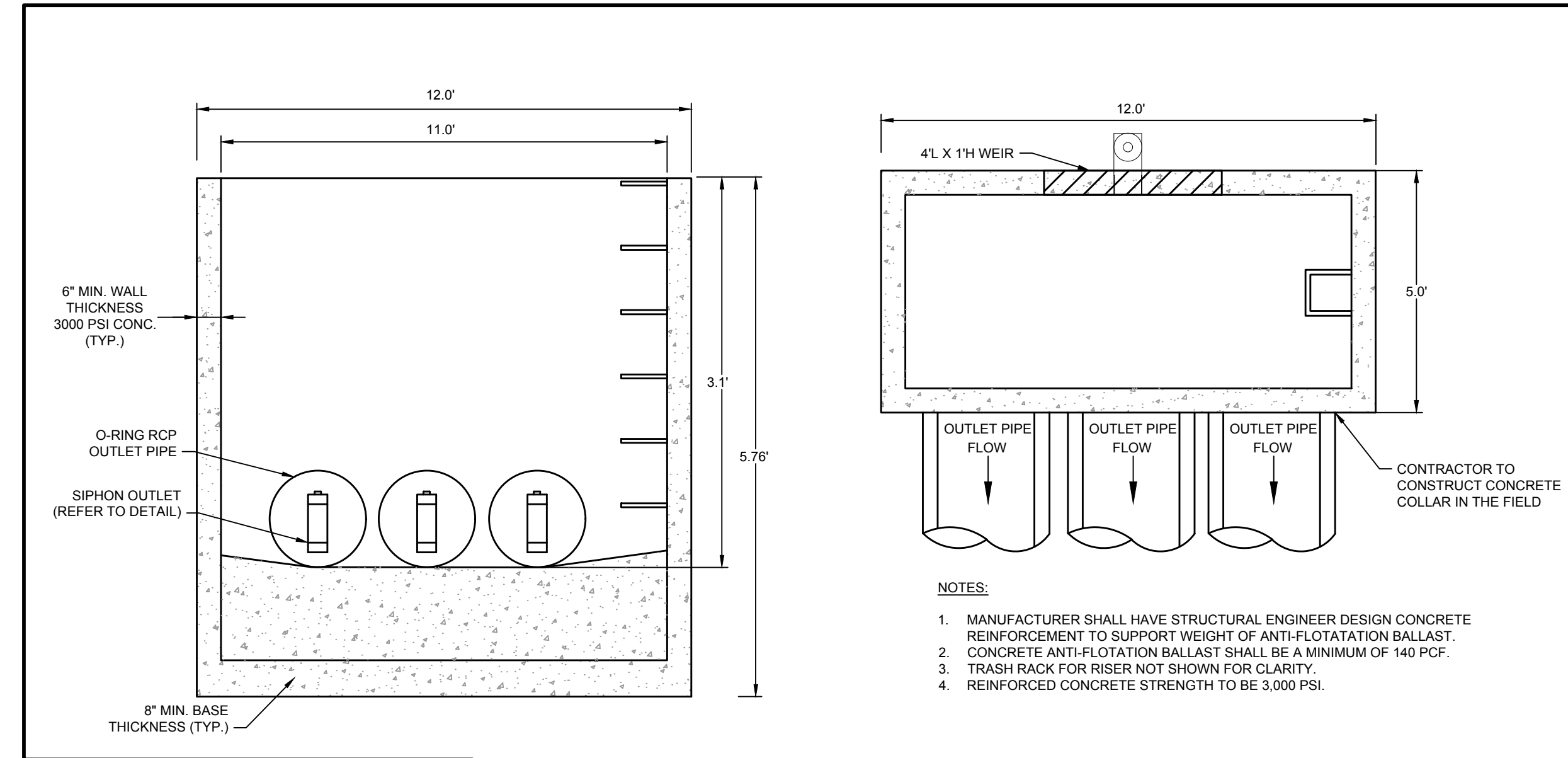
**POND VEGETATED SHELF PLANT LIST**

MINIMUM REQUIRED PLANT DENSITY = 50 PLANTS PER 200 SQUARE FEET OF VEGETATED SHELF  
 (5,104 SF / 200 SF) \* 50 PLANTS = 1,276 MINIMUM PLANTS REQUIRED.

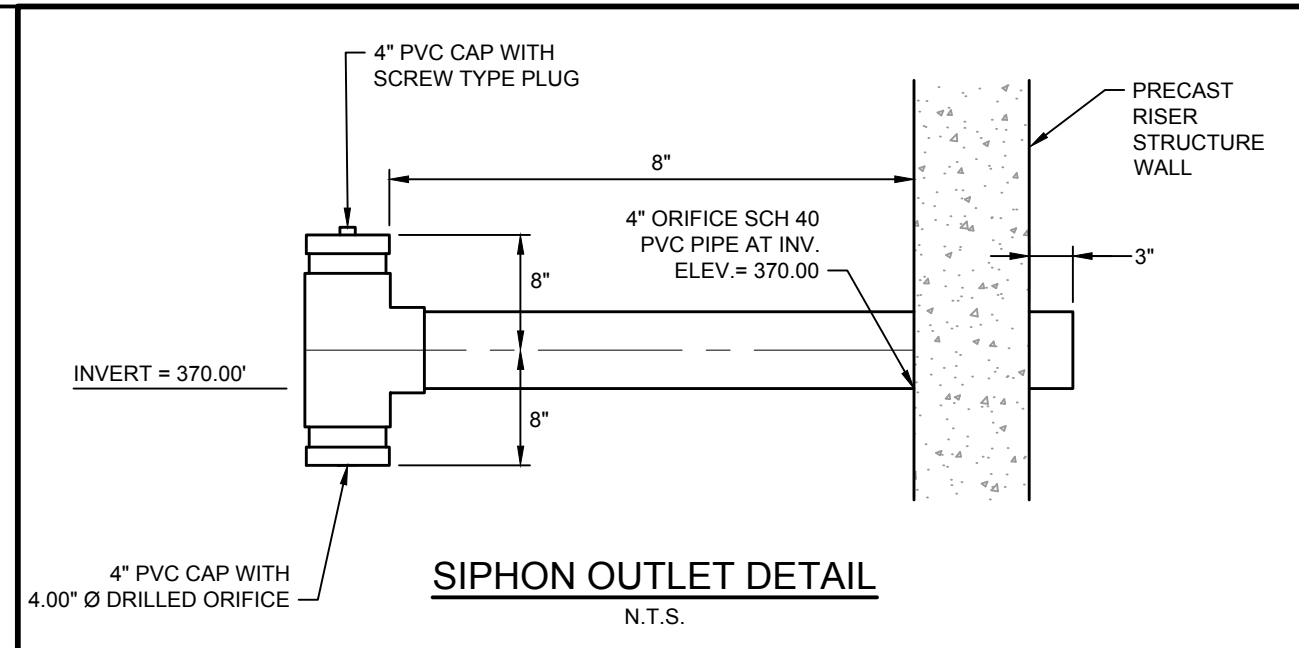
THE FOLLOWING PLANTS SHALL BE PLANTED ON THE 6-FOOT WIDE VEGETATED SHELF BETWEEN THE ELEVATIONS OF 369.0 - 370.0:

QUA.	BOTANICAL NAME	COMMON NAME	SPACING	NOTES
212	EUPATORIADELPHUS FISTULOSUS	JOE PYE WEED	4' O.C.	PLANT IN GROUPS OF 5
212	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	4' O.C.	PLANT IN GROUPS OF 5
213	LOBELIA CARDINALIS	CARDINAL FLOWER	4' O.C.	PLANT IN GROUPS OF 5
213	EUPATORIADELPHUS MACULATUS	SPOTTED TRUMPETWEED	4' O.C.	PLANT IN GROUPS OF 5
213	ASCLEPIAS INCARNATA	SWAMP MILKWEED	4' O.C.	PLANT IN GROUPS OF 5
213	SACCHARUM BALDWINII	NARROW PLUMEGRASS	4' O.C.	PLANT IN GROUPS OF 5

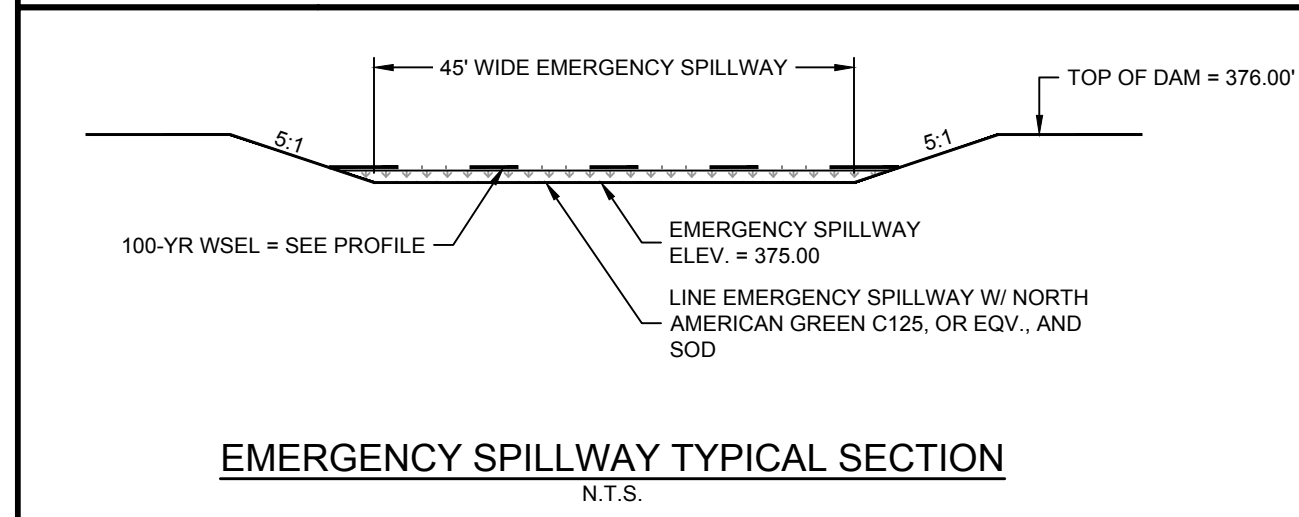
NURSERY SOURCES:  
 MELLOW MARSH FARM (919) 742-1200  
 CURE NURSERY (919) 542-6186



12' x 5' (O.D.) PERMANENT REINFORCED CONCRETE OUTLET STRUCTURE DETAILS N.T.S.



SIPHON OUTLET DETAIL N.T.S.



EMERGENCY SPILLWAY TYPICAL SECTION N.T.S.



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 07/22/2022  
 04/06/2023  
 09/06/2023  
 01/02/2024

DATE: 09/17/2021

DRAWN BY: A. BROWN

DESIGNED BY: P. BARBEAU

CHECKED BY: P. BARBEAU

SCALE: AS SHOWN

**TIMMONS GROUP**

NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

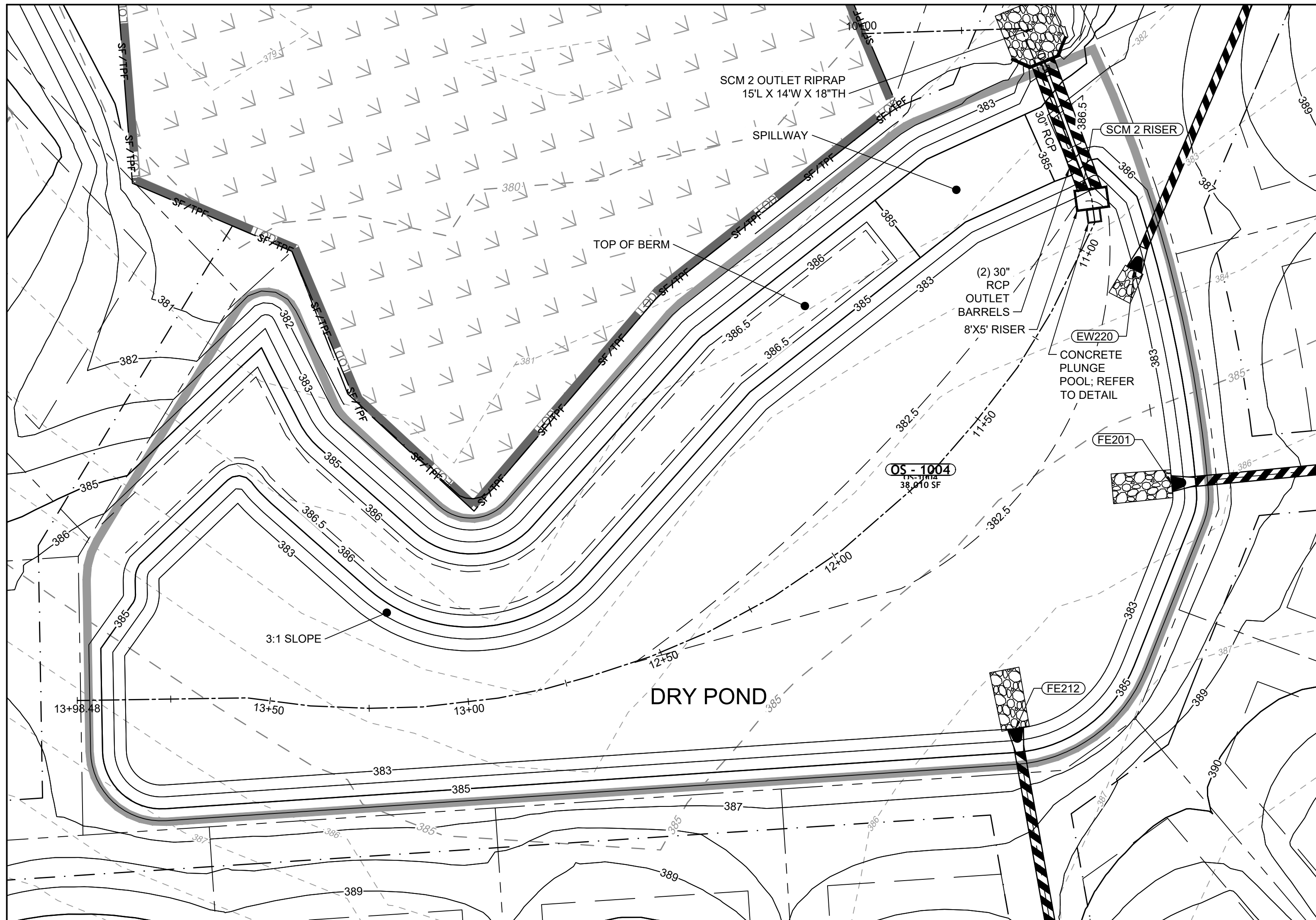
SCM 1 DETAILS

JOB NO. 43398

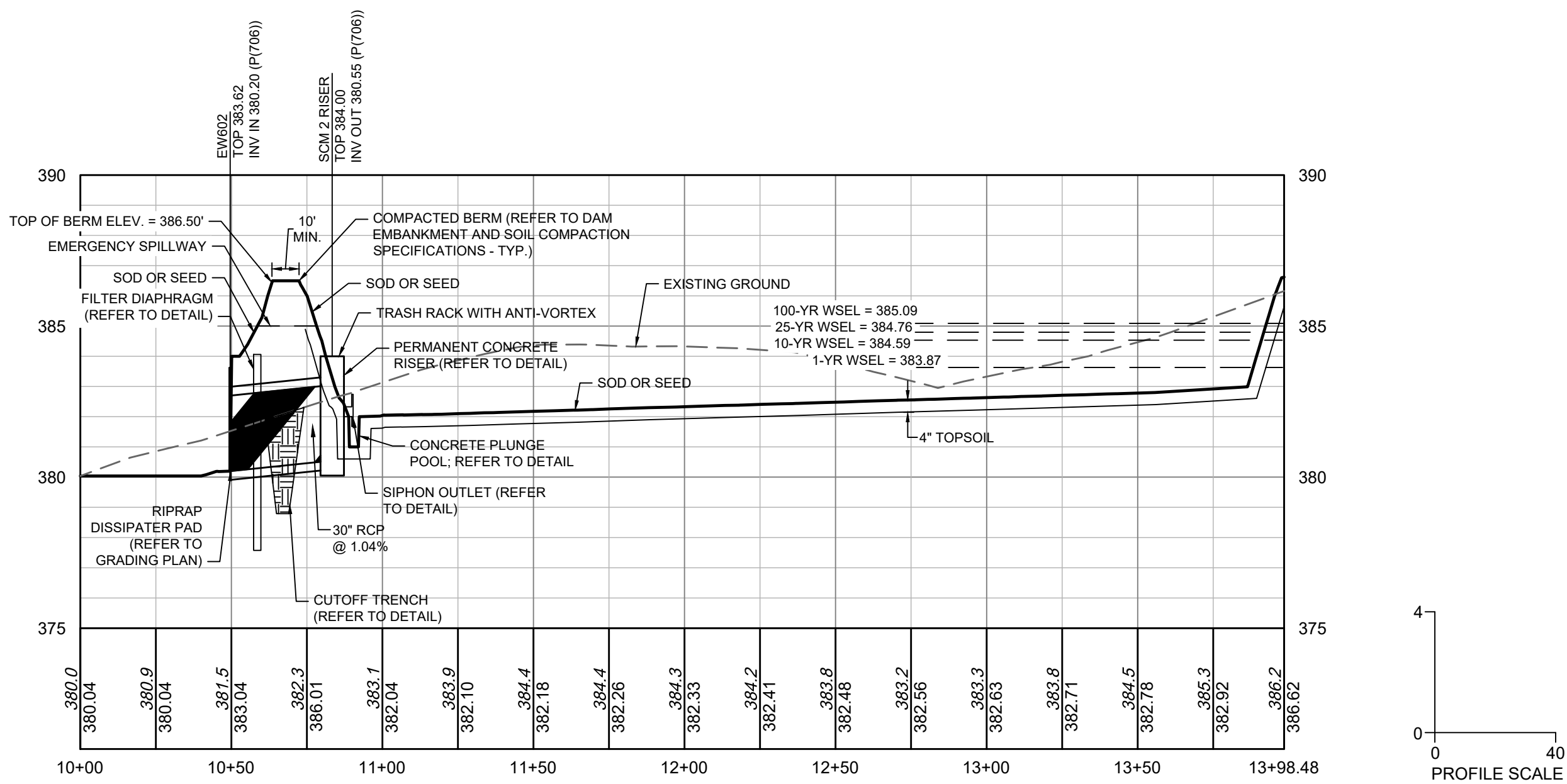
SHEET NO. C8.0

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

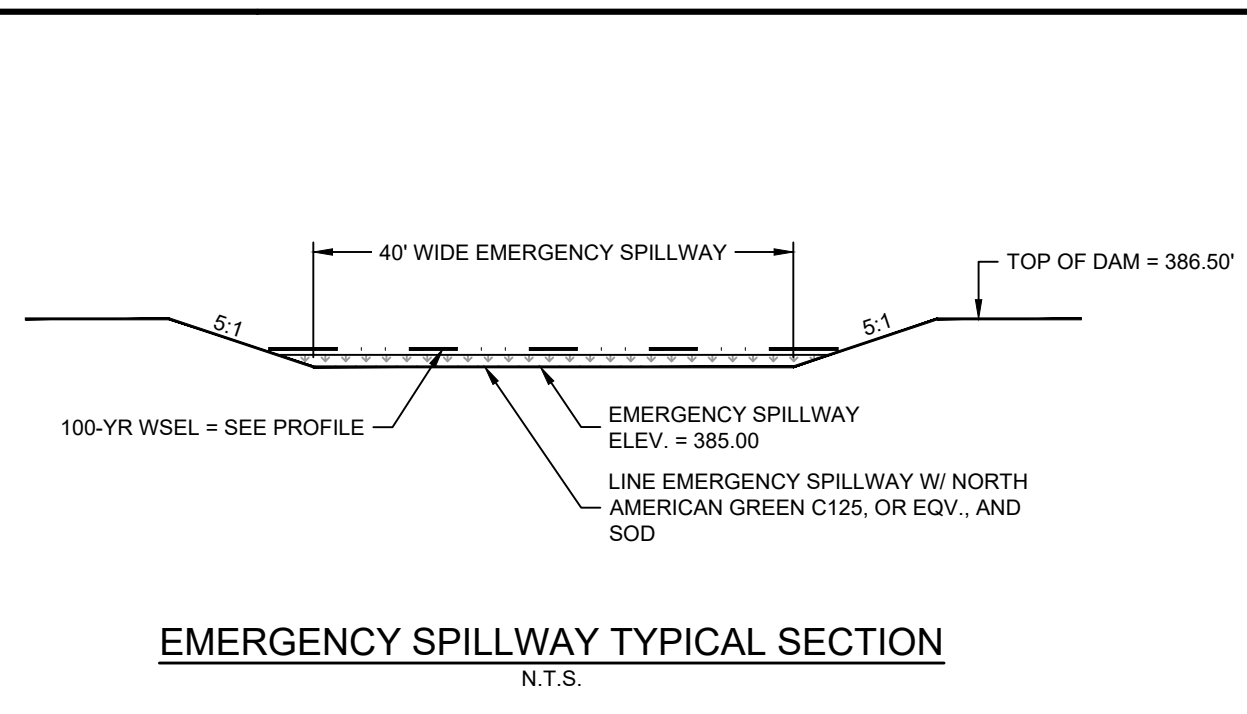
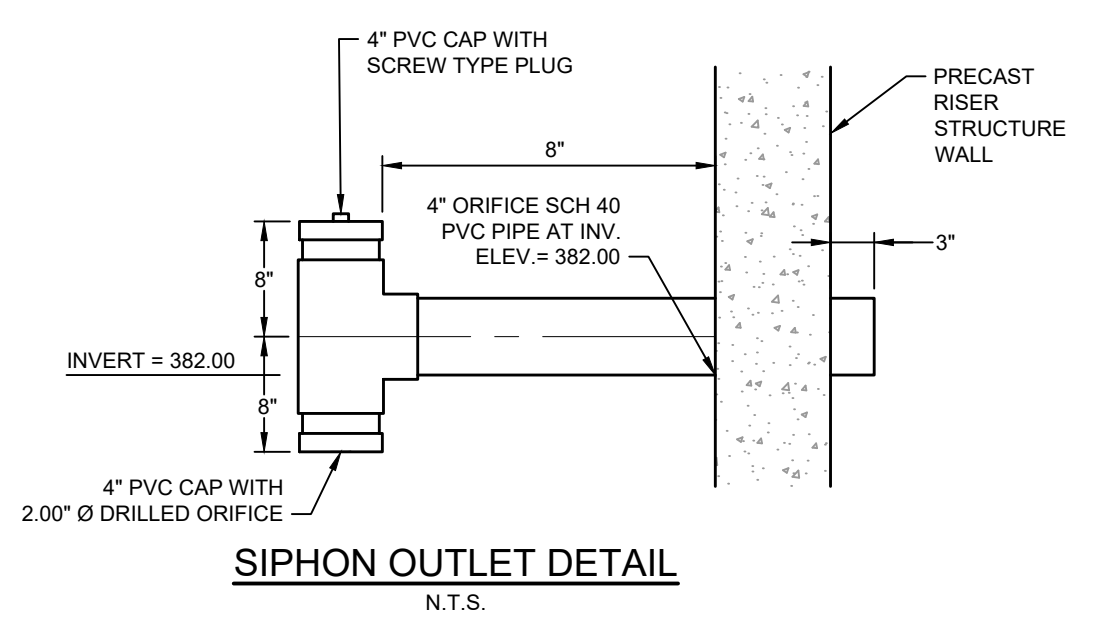
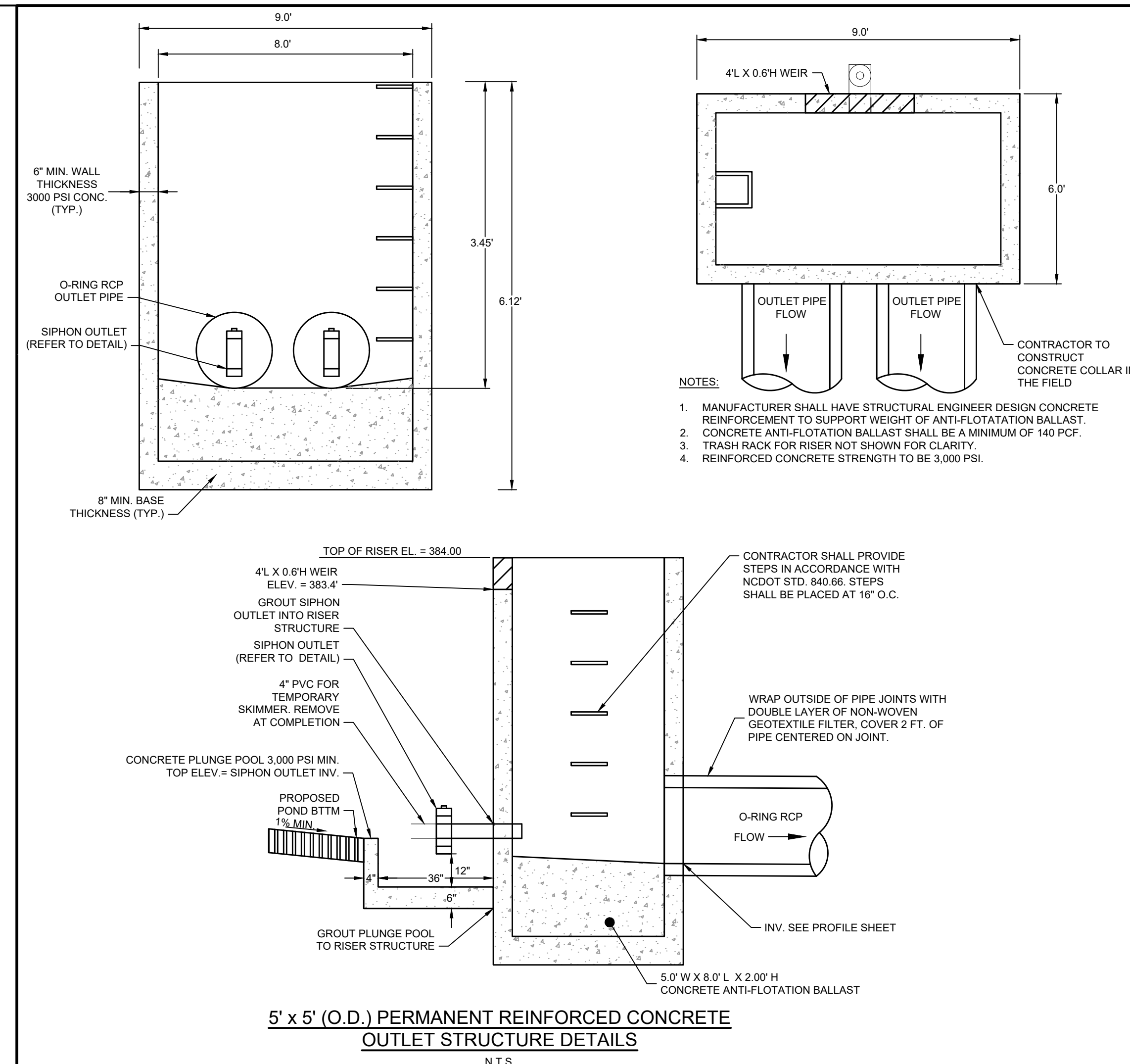
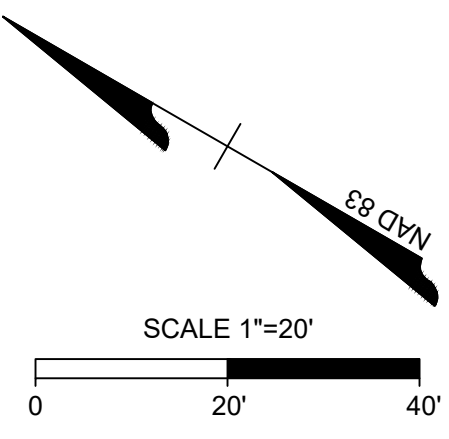




DRY POND PLAN VIEW



DRY POND PROFILE VIEW



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DATE	REVISION DESCRIPTION
06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
07/22/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

DATE: 09/17/2021  
DRAWN BY: R. WINGATE  
DESIGNED BY: P. BARBEAU  
CHECKED BY: P. BARBEAU  
SCALE: AS SHOWN

**TIMMONS GROUP**

NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SCM 2 DETAILS

JOB NO. 43398  
SHEET NO. C8.1

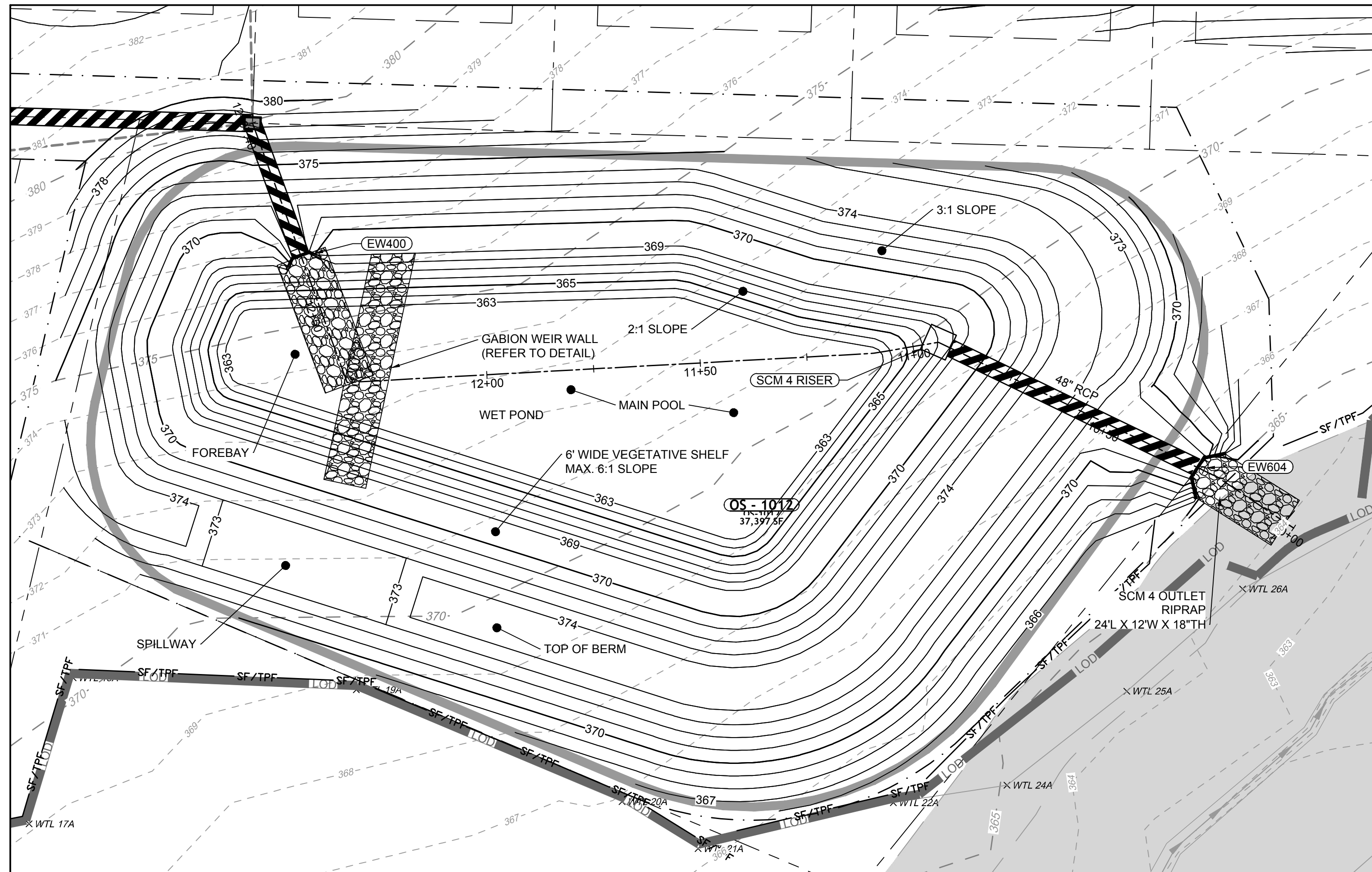
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

S:\3324\43398-Wheeler\_Timed\DWG-Sheet\CD\43398-C8.1-SCM.dwg | Printed on 12/22/2023 1:55 PM | by April Blye

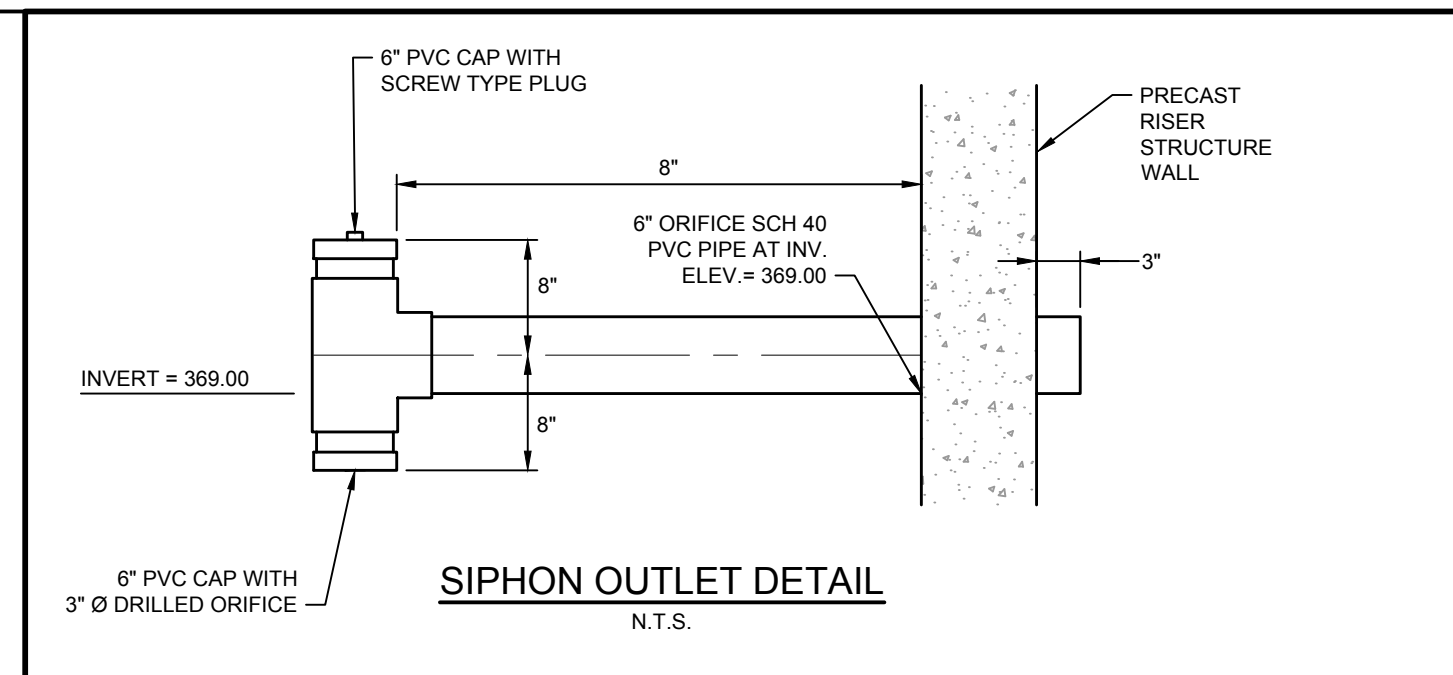
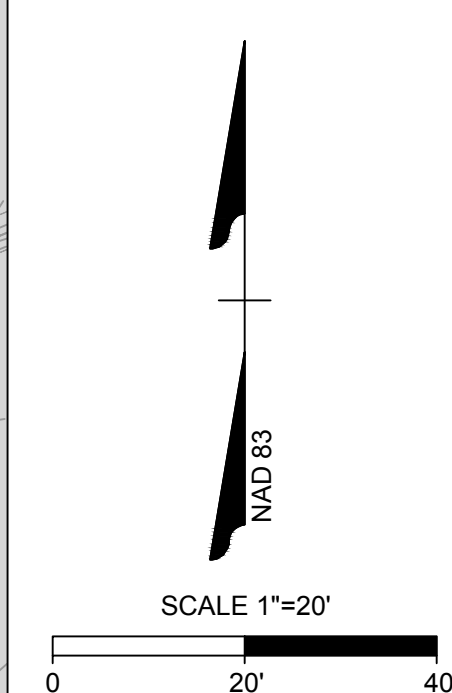




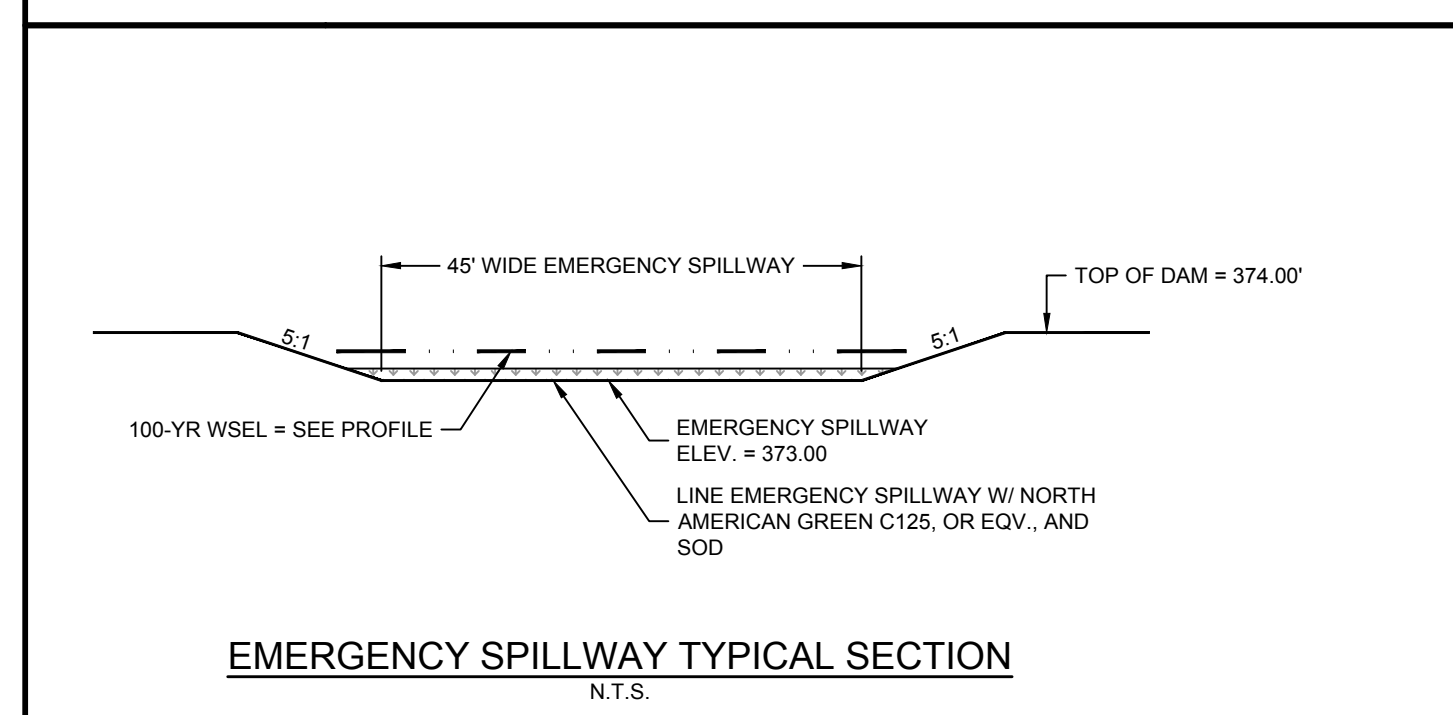




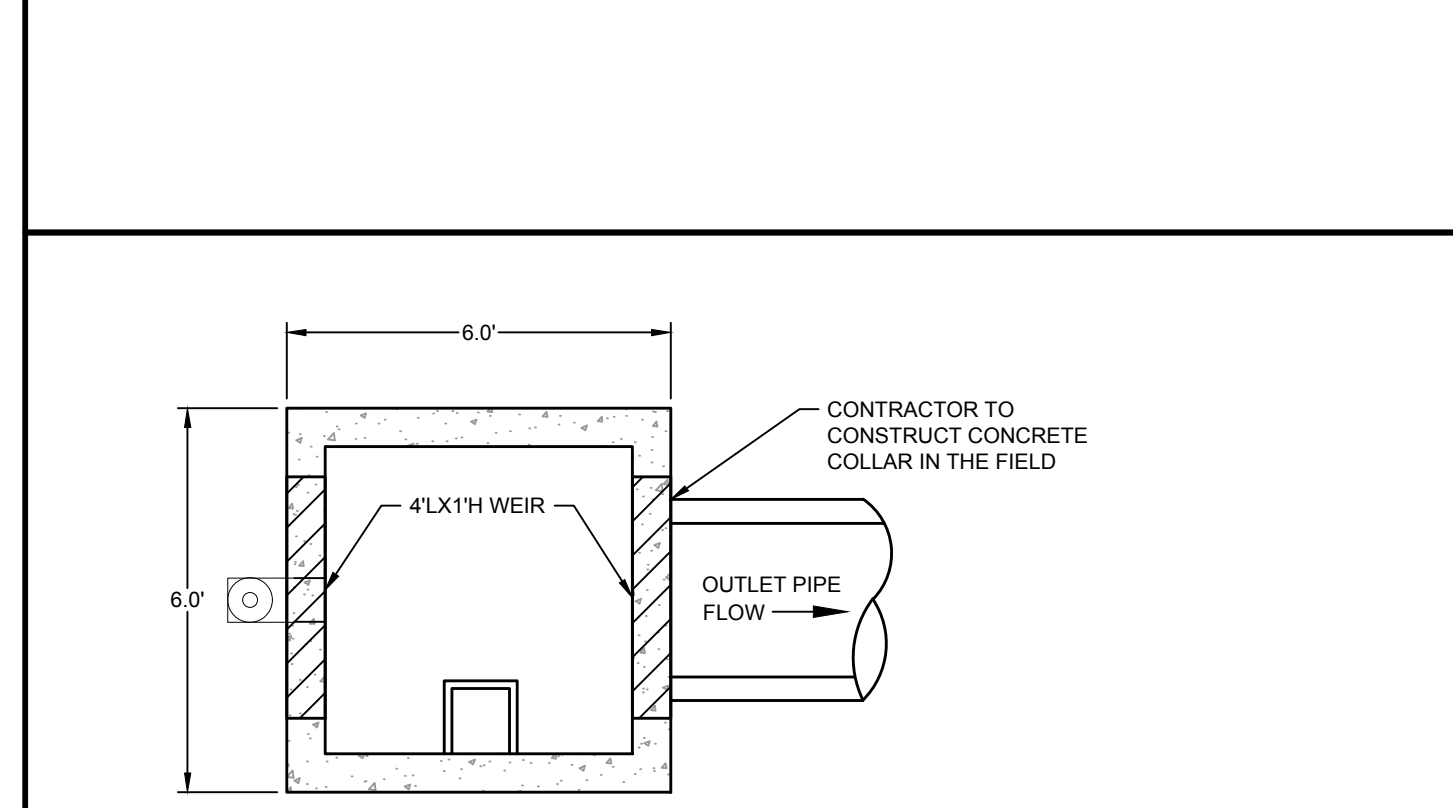
WET POND PLAN VIEW



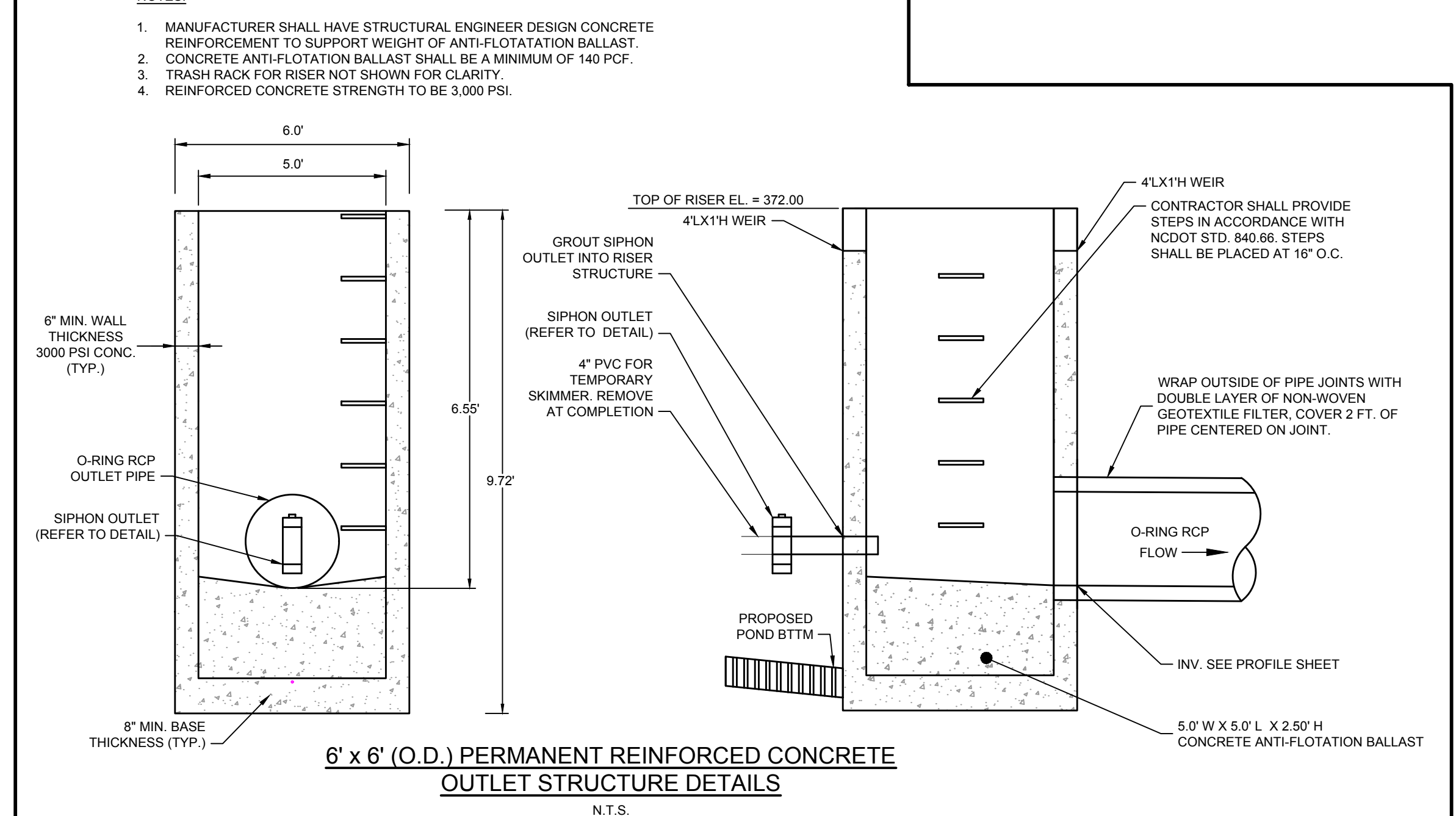
SIPHON OUTLET DETAIL  
N.T.S.



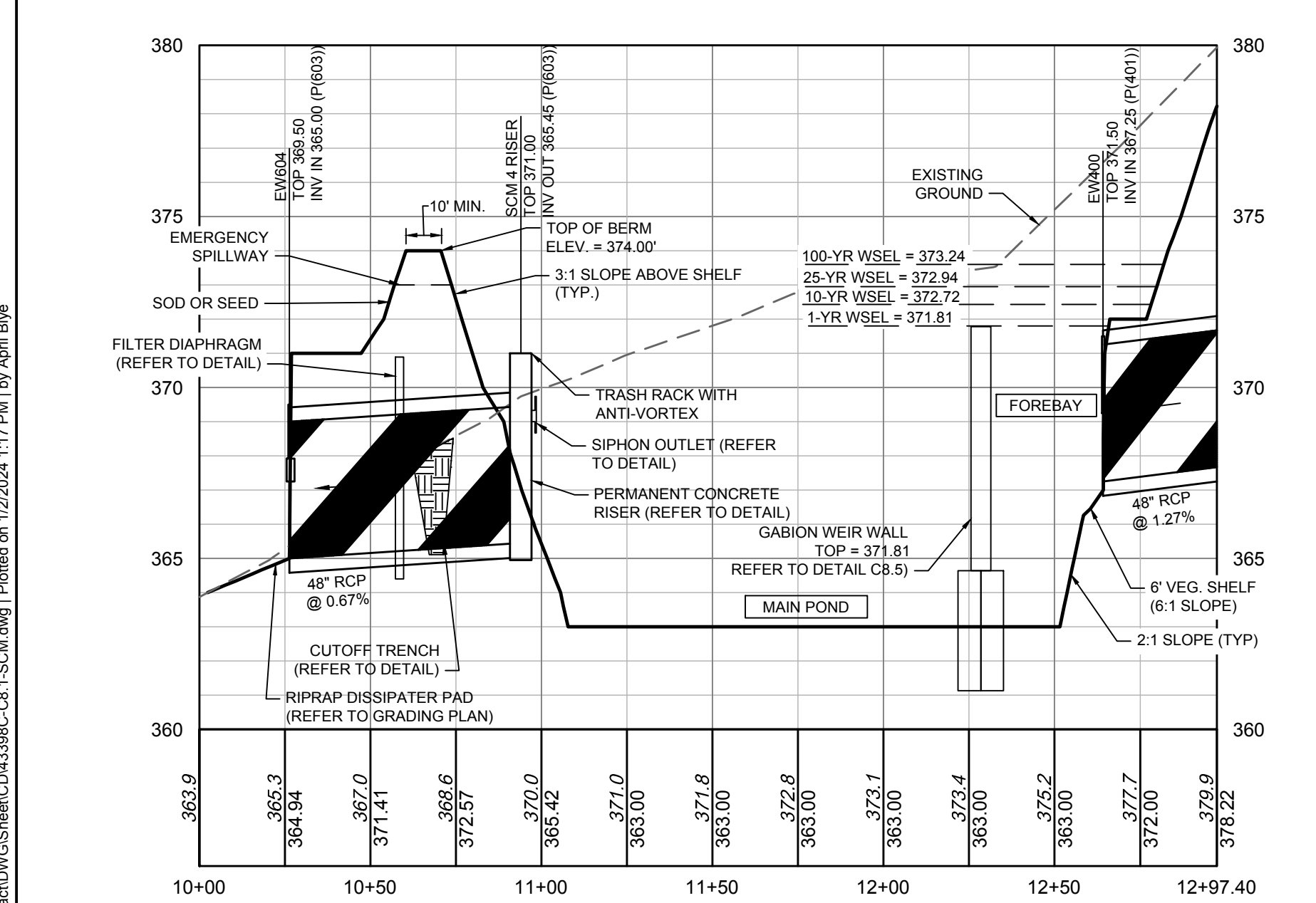
EMERGENCY SPILLWAY TYPICAL SECTION  
N.T.S.



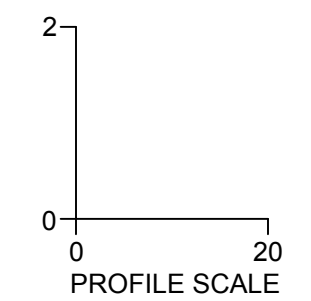
- NOTES:
1. MANUFACTURER SHALL HAVE STRUCTURAL ENGINEER DESIGN CONCRETE REINFORCEMENT TO SUPPORT WEIGHT OF ANTI-FLOTATION BALLAST.
  2. CONCRETE ANTI-FLOTATION BALLAST SHALL BE A MINIMUM OF 140 PCF.
  3. TRASH RACK FOR RISER NOT SHOWN FOR CLARITY.
  4. REINFORCED CONCRETE STRENGTH TO BE 3,000 PSI.



6' x 6' (O.D.) PERMANENT REINFORCED CONCRETE  
OUTLET STRUCTURE DETAILS  
N.T.S.



WET POND PROFILE VIEW



**POND VEGETATED SHELF PLANT LIST**

MINIMUM REQUIRED PLANT DENSITY = 50 PLANTS PER 200 SQUARE FEET OF VEGETATED SHELF  
(2,760 SF / 200 SF) \* 50 PLANTS = 690 MINIMUM PLANTS REQUIRED.

THE FOLLOWING PLANTS SHALL BE PLANTED ON THE 6-FOOT WIDE VEGETATED SHELF BETWEEN THE ELEVATIONS OF 369.0 - 370.0:

QUA.	BOTANICAL NAME	COMMON NAME	SPACING	NOTES
115	EUPATORIADELPHUS FISTULOSUS	JOE PYE WEED	4' O.C.	PLANT IN GROUPS OF 5
115	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	4' O.C.	PLANT IN GROUPS OF 5
115	LOBELIA CARDINALIS	CARDINAL FLOWER	4' O.C.	PLANT IN GROUPS OF 5
115	EUPATORIADELPHUS MACULATUS	SPOTTED TRUMPETWEED	4' O.C.	PLANT IN GROUPS OF 5
115	ASCLEPIAS INCARNATA	SWAMP MILKWEED	4' O.C.	PLANT IN GROUPS OF 5
115	SACCHARUM BALDWINII	NARROW PLUMEGRASS	4' O.C.	PLANT IN GROUPS OF 5

NURSERY SOURCES:  
MELLOW MARSH FARM (919) 742-1200  
CURE NURSERY (919) 542-6186

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DATE: 06/24/2022  
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DATE: 04/06/2023  
DATE: 09/06/2023  
DATE: 01/02/2024

REVISION DESCRIPTION  
REVISIONS PER WAKE COUNTY COMMENTS  
CONSTRUCTION DOCUMENT SUBMITTAL  
REVISIONS PER NCDOT COMMENTS  
REVISIONS PER CITY OF RALEIGH COMMENTS  
REVISIONS TO APPROVED PLANS

DATE: 09/17/2021  
DRAWN BY: R. WINGATE  
DESIGNED BY: P. BARBEAU  
CHECKED BY: P. BARBEAU  
SCALE: AS SHOWN

**TIMMONS GROUP**

NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**

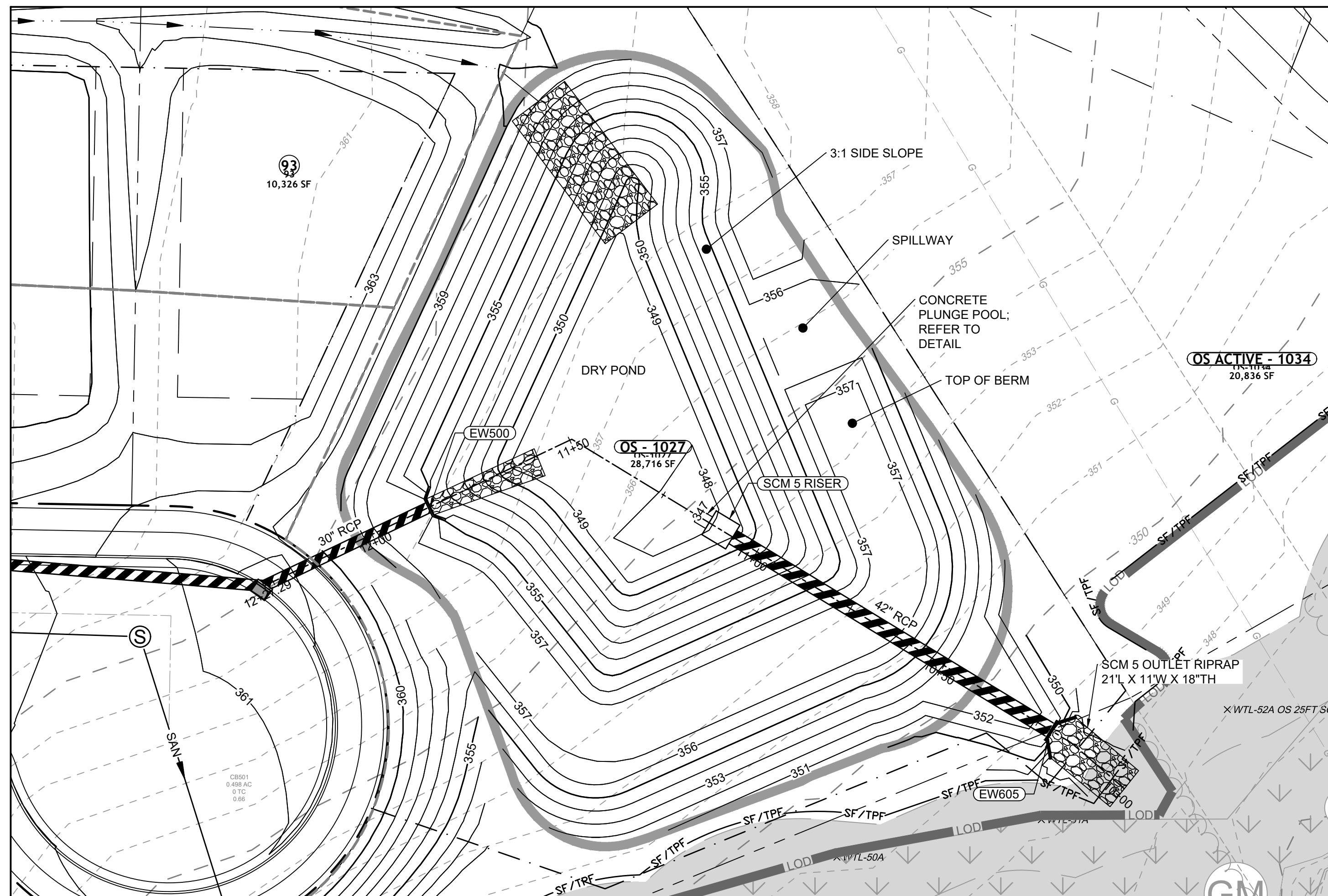
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SCM 4 DETAILS

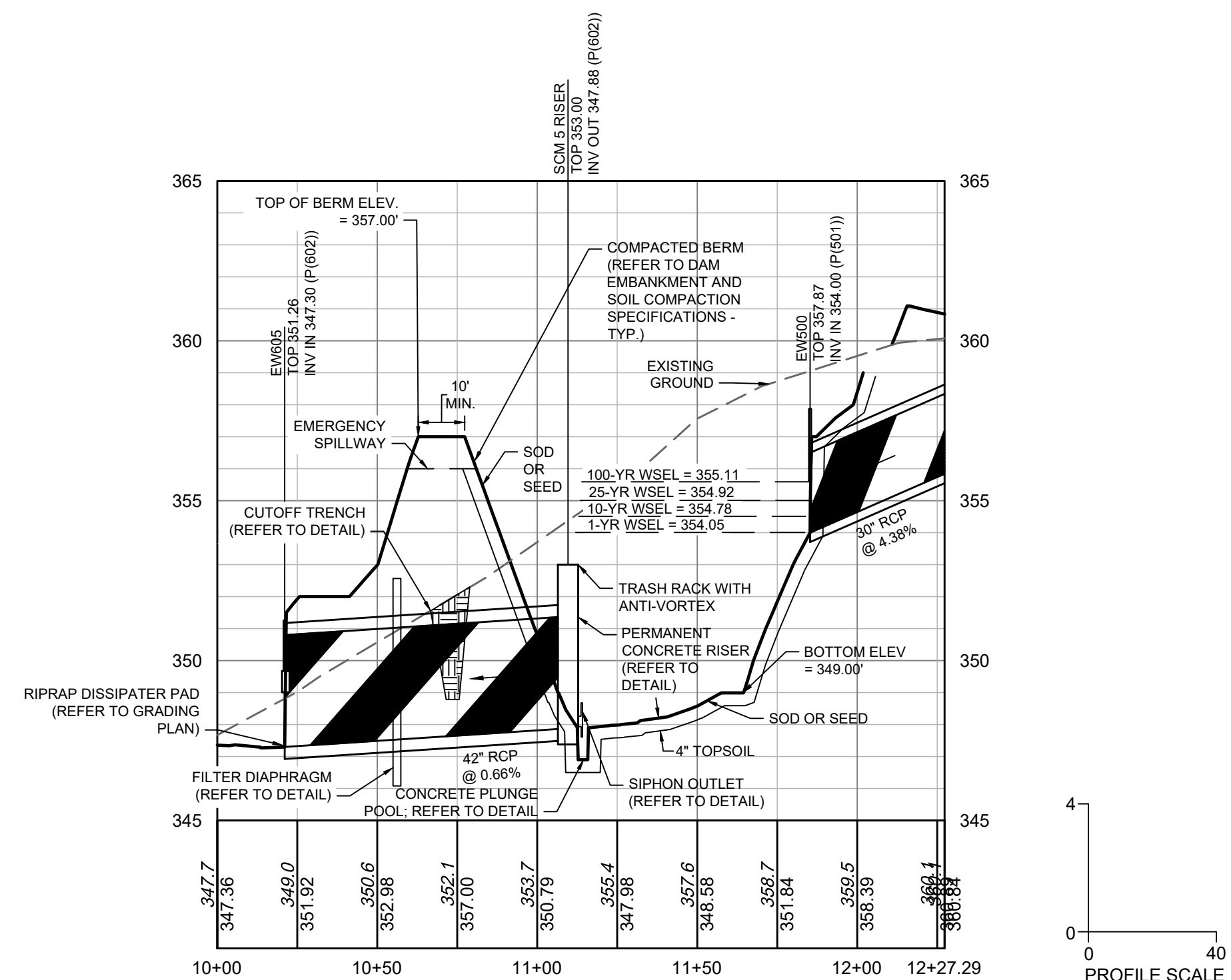
JOB NO. 43398  
SHEET NO. C8.3

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

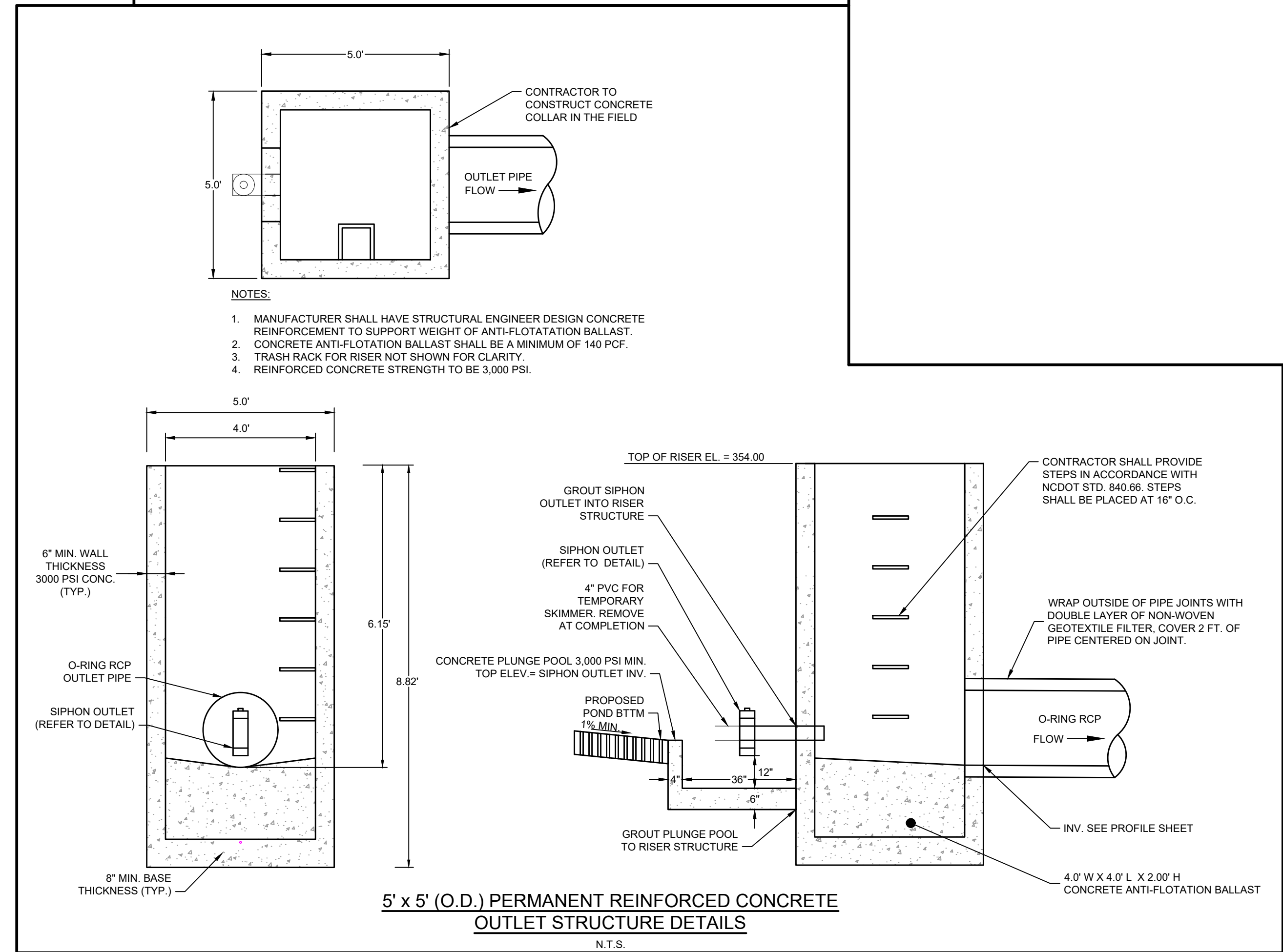
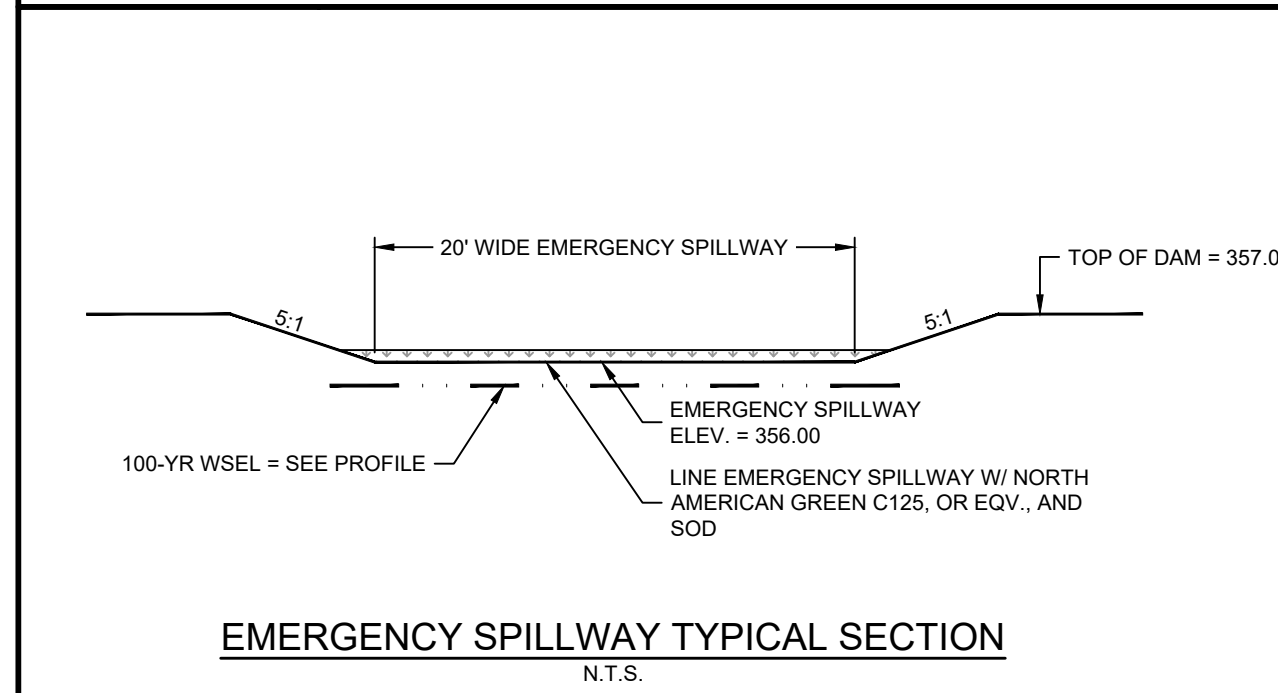
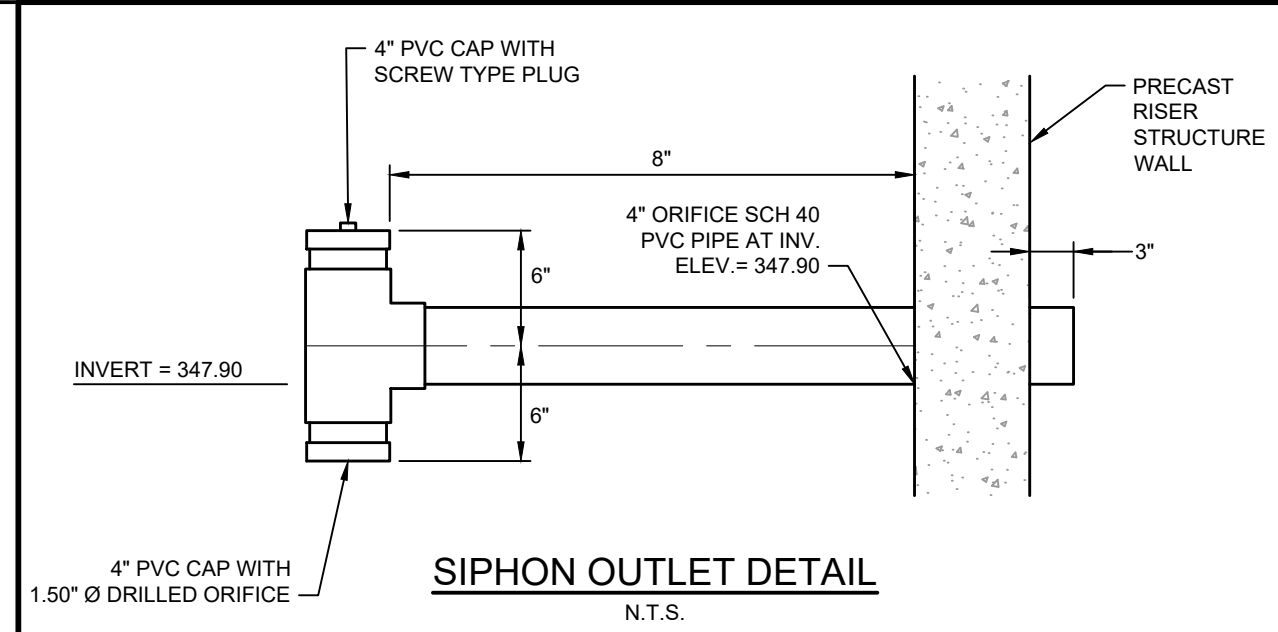
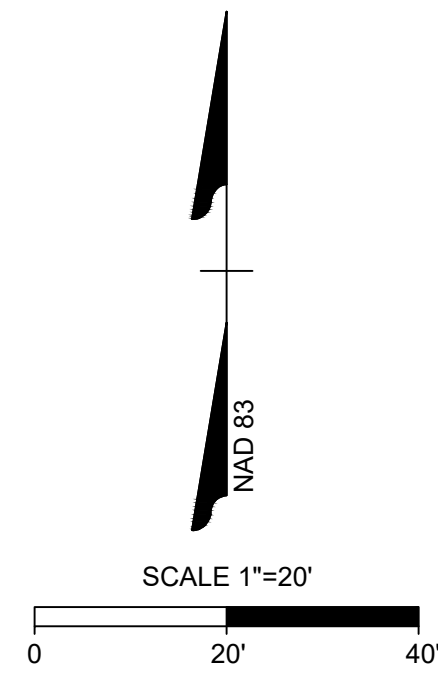




DRY POND PLAN VIEW



DRY POND PROFILE VIEW



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01/02/2024	REVISIONS TO APPROVED PLANS

09/17/2021  
 DRAWN BY  
**R. WINGATE**  
 DESIGNED BY  
**P. BARBEAU**  
 CHECKED BY  
**P. BARBEAU**  
 SCALE  
**AS SHOWN**

**TIMMONS GROUP**  
 NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**SCM 5 DETAILS**

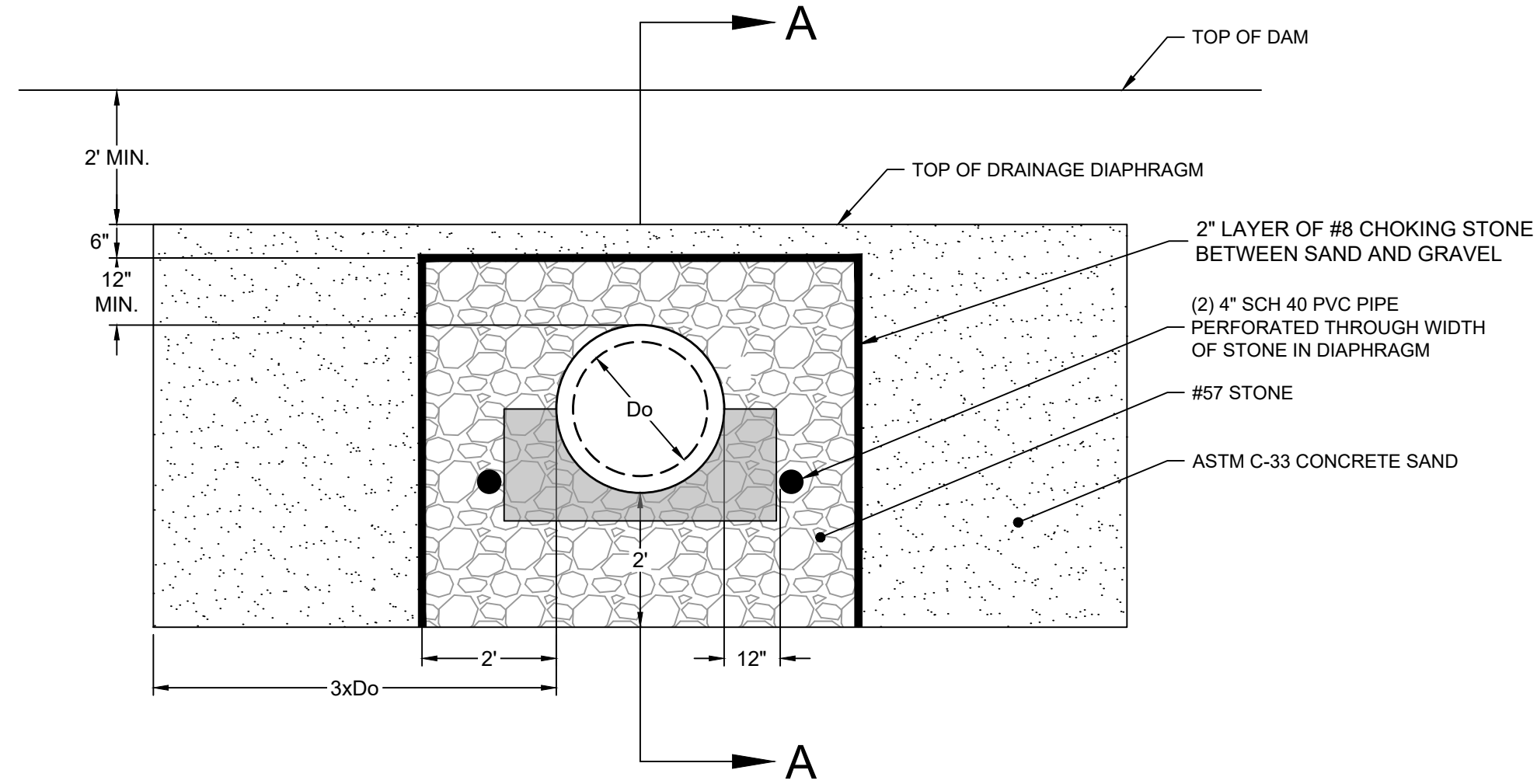
JOB NO.  
**43398**  
 SHEET NO.  
**C8.4**

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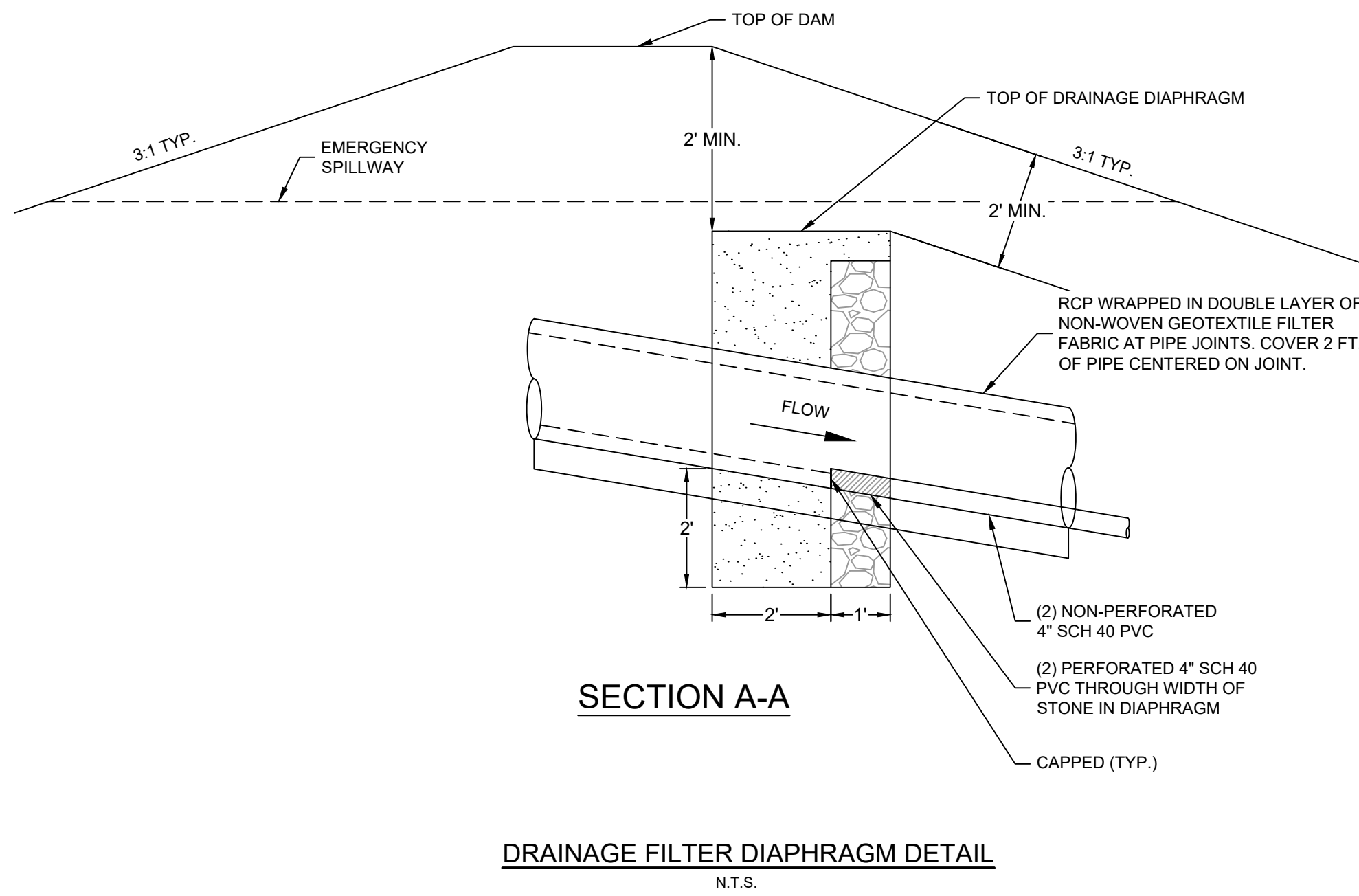
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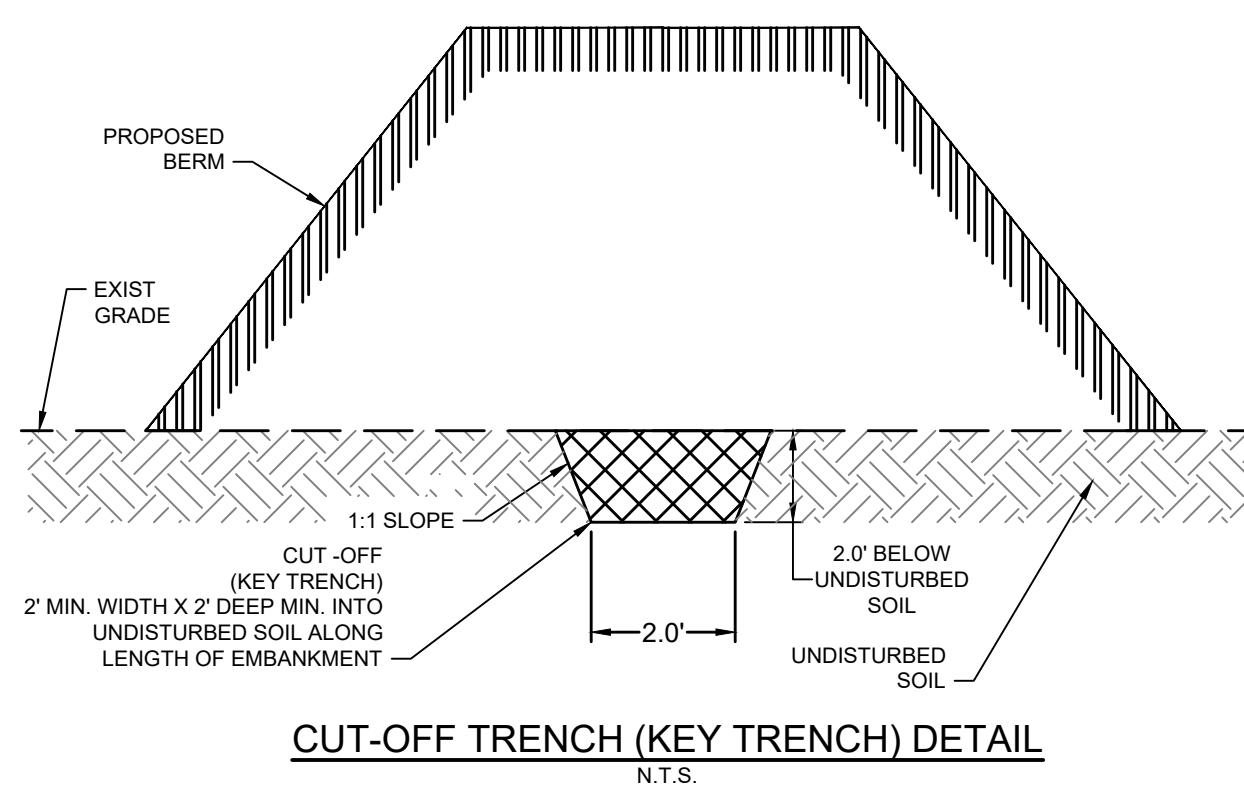




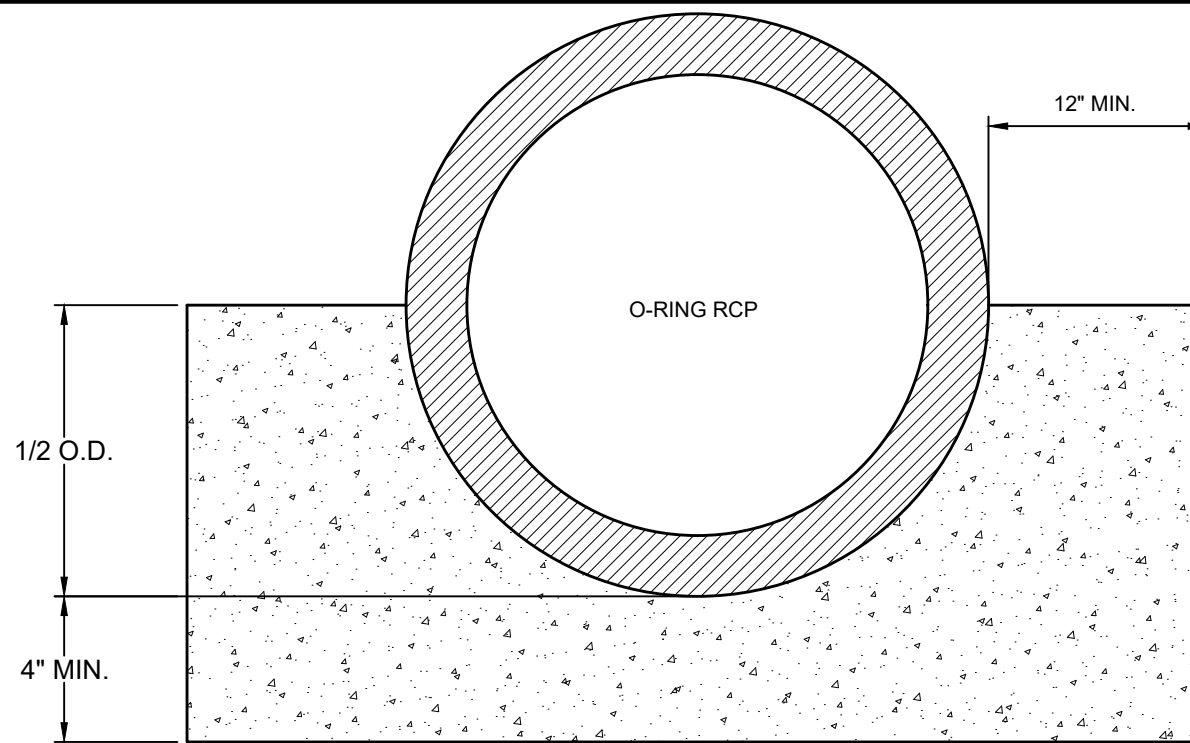
- NOTE:**
- 4" DRAIN OUTLETS FOR DIAPHRAGM SHALL BE PROTECTED BY AN APPROPRIATE RODENT GUARD:  $\frac{1}{2}$ " x  $\frac{1}{2}$ " STAINLESS STEEL MESH SECURED WITH STAINLESS STEEL CLAMP OR APPROVED EQUAL.
  - JOINTS WRAPPED WITH DOUBLE LAYER OF NON-WOVEN GEOTEXTILE FILTER FABRIC ON OUTSIDE OF PIPE SHALL COVER 2 FEET OF PIPE CENTERED ON JOINT.



**DRAINAGE FILTER DIAPHRAGM DETAIL**  
N.T.S.

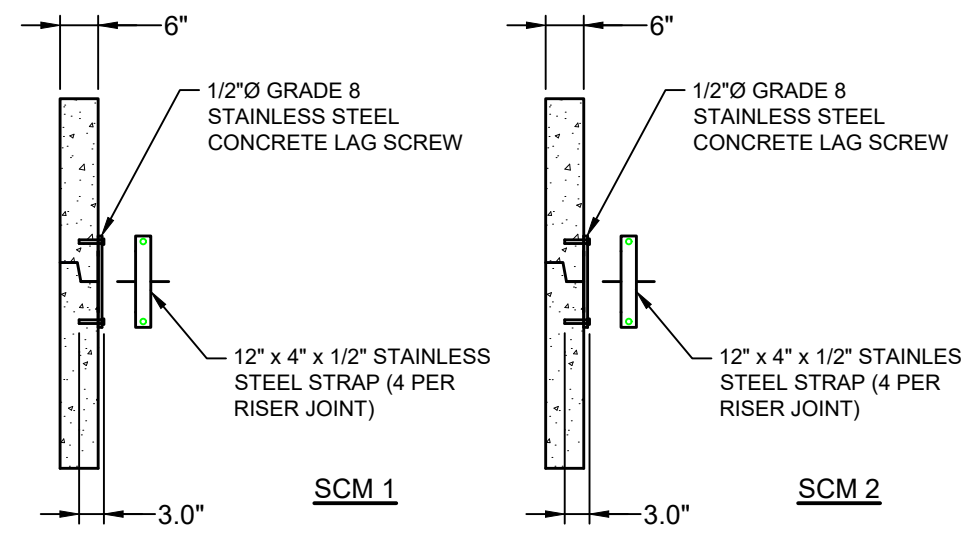


**CUT-OFF TRENCH (KEY TRENCH) DETAIL**  
N.T.S.



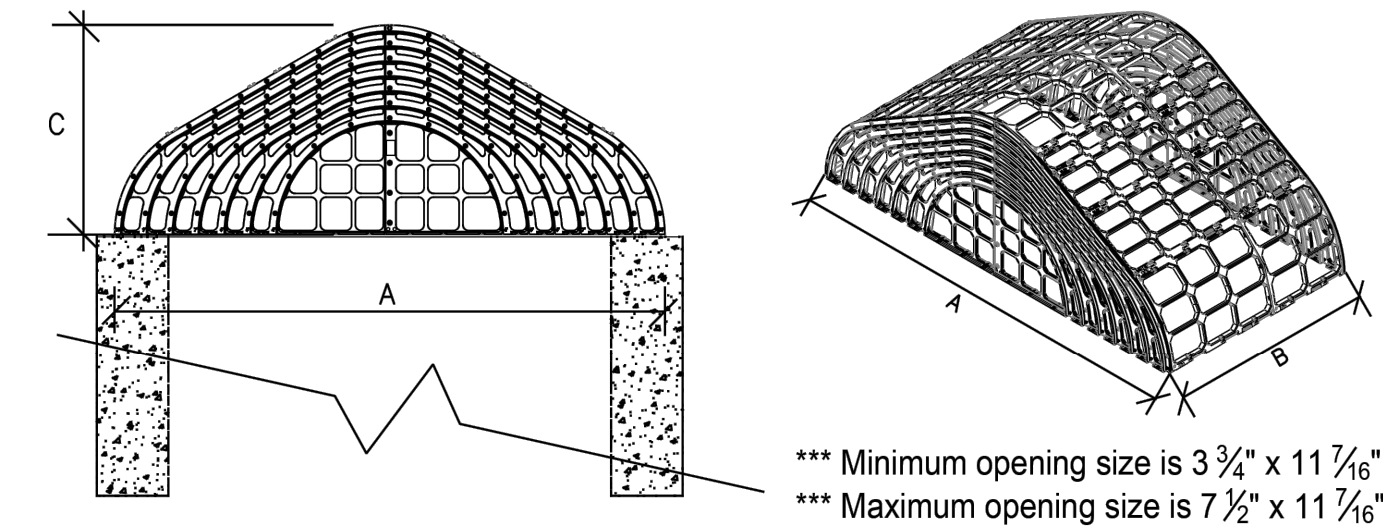
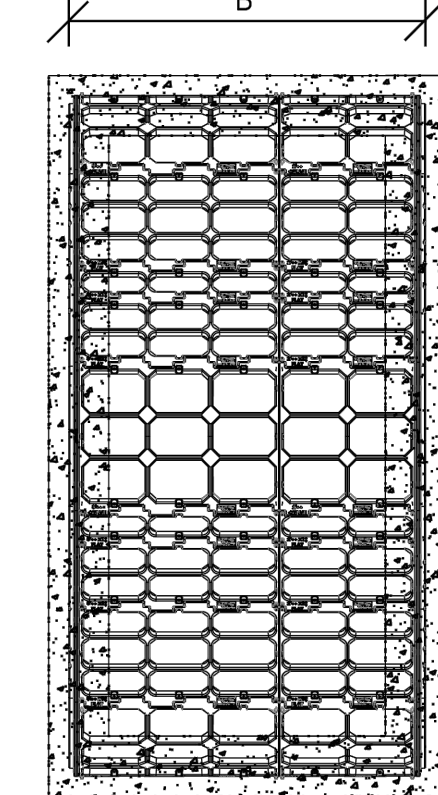
- NOTES:**
- CONCRETE CRADLE SHALL ARTICULATE AT PIPE JOINTS.
  - CONCRETE STRENGTH TO BE AT LEAST 3,000 PSI.
  - NO FLOWABLE FILL ALLOWED.

**CONCRETE CRADLE DETAIL**  
N.T.S.



**RISER JOINT CONNECTION DETAIL**  
N.T.S.

**StormRax**  
**Peak Roof Series**  
**Square/Rectangular Trash Racks**  
**(Standard Sizes)**



**Available Options:**  
\*\*\*\* Removable Access Hatch  
\*\*\*\* HDPE Anti Vortex Plates  
\*\*\*\* Additional Lengths Available  
**ALIGN ACCESS HATCH WITH STEPS**

**HOST STRUCTURE INFORMATION**

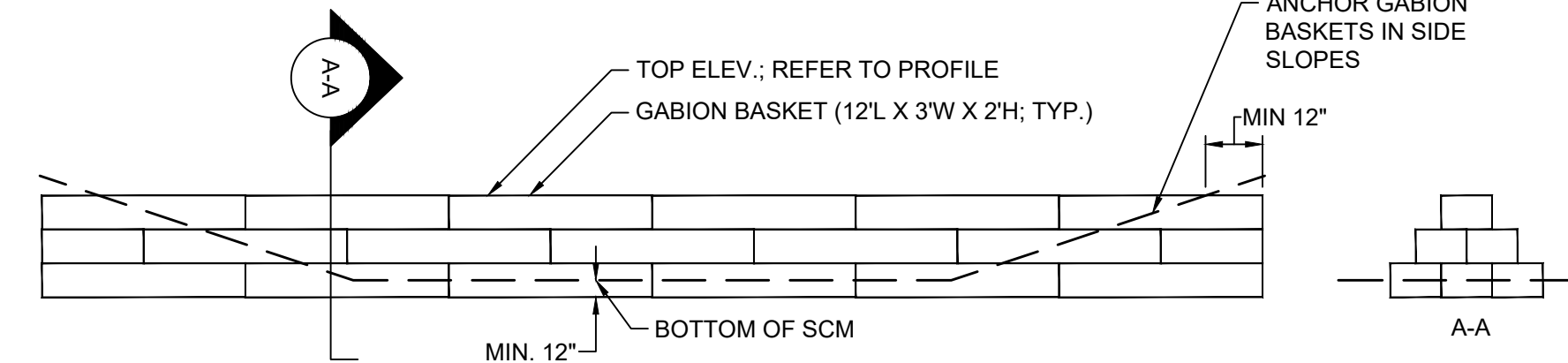
STR. ID LENGTH	48"
STR. ID WIDTH	48"
WALL THICKNESS ( REOD)	6"

Dimension Codes (A, B, C)	
Width A	55 1/2" 67 1/2" 79" 91" 103" 115" 126 1/2"
Code	04 05 06 07 08 09 010
Length B	75" 87" 99" 111" 123" 135" 147" 159"
Code	01 02 03 04 05 06 07 08 09 010
Height C	27 5/8" 31 1/4" 35 3/4" 39 1/8" 43 1/4" 46 1/4" 49 1/4"
Code	A=04 A=05 A=06 A=07 A=08 A=09 A=010

PEAK ROOF	55.5 -	54.12 -	27.63 -
Width A		Length B	Height C

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**CUSTOMER:**  
**PROJECT:**



- NOTES:**
- BASKETS AND GABION ROCK ARE TO BE FREE OF DEBRIS AND SEDIMENT.
  - GABION ROCK SHALL BE 4" TO 6" IN DIAMETER.
  - ALL GABION BASKETS SHALL MEET OR EXCEED REQUIREMENTS OF ASTM A975-20.
  - ALL GABION BASKETS SHALL BE SECURELY FASTENED TO ONE ANOTHER WITH LACING WIRE OR RING FASTENERS.
  - INSTALLATION OF PREMANUFACTURED GABION BASKETS SHALL FOLLOW MANUFACTURER'S GUIDELINES.

**GABION WEIR DETAIL**  
N.T.S.

**KEY TRENCH & CLAY LINER NOTES**

- THE ON-SITE GEOTECHNICAL ENGINEER SHALL INSPECT THE KEY TRENCH EXCAVATION PRIOR TO PLACEMENT OF ANY BACKFILL WITHIN THE KEY TRENCH.
- THE CONTRACTOR WILL NEED TO INSTALL A CLAY LINER A MINIMUM OF 1-FOOT BELOW THE LOWEST GRADE. THE CLAY LINER SHALL BE AT LEAST 12" THICK AND MEET THE FOLLOWING SPECIFICATIONS:
  - UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML.
  - MINIMUM PLASTICITY INDEX OF 12.
  - MINIMUM OF 2 TESTS OF EACH ABOVE PARAMETER SHALL BE COMPLETED BY THE CONTRACTOR ON THE LINER MATERIAL AND PRESENTED TO THE ON-SITE GEOTECHNICAL ENGINEER FOR APPROVAL. SHOULD THESE TESTS NOT MEET THE ABOVE REQUIREMENTS, THE ON-SITE GEOTECHNICAL ENGINEER MAY PROVIDE PERMEABILITY TESTING DEMONSTRATING AN INFILTRATION RATE OF NO MORE THAN 0.01 IN/HR.
  - COMPACTION TO A MINIMUM OF 95% PER ASTM D698 AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT (1 COMPACTION DENSITY TEST PER 2500 SQ. FT.)
  - MAXIMUM INFILTRATION RATE OF 0.01 IN/HR.
- IF IT IS DETERMINED BY THE ON-SITE GEOTECHNICAL ENGINEER THAT A LINER IS NOT NEEDED, THEN A LETTER TO THE DESIGN ENGINEER CERTIFYING THE INFILTRATION RATE SHALL BE PROVIDED, WHICH WILL BE USED DURING THE AS-BUILT CERTIFICATION PROCESS.
- THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES AND INCLUDE THE CLAY LINER.

**WET POND CONSTRUCTION SEQUENCE:**

- DO NOT BEGIN CONSTRUCTION OF WET POND AREAS UNTIL SITE CONSTRUCTION IS COMPLETE. ALL PARKING SURFACES ARE PAVED, AND THE ENTIRE SITE HAS AN ESTABLISHED WITH A GOOD STAND OF GRASS.
- ALL EROSION SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE WET POND AREA SHALL BE STABILIZED BEFORE CONSTRUCTION OF THE BIORETENTION BASINS.
- INSTALL TEMPORARY SILT FENCE AROUND THE WET POND AREA AS NEEDED.
- EXCAVATE WET POND AREA, PER THE GRADES AND DETAILED ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS.
- CONTACT ENGINEER SO AN AS-BUILT SURVEY CAN BE PERFORMED OF THE WET POND.
- INSTALL ANY REMAINING STORM DRAINAGE PIPES AND INLETS.
- FINE GRADE THE SIDE SLOPES OF THE WET POND AREA. DRESS UP VELOCITY DISSIPATOR AS NEEDED PER THE PLANS.
- INSTALL GRASS PER GRASS SPECIFICATIONS.
- PLANT ALL PROPOSED VEGETATION PER WET POND PLANTING PLAN. CONTACT THE PROJECT LANDSCAPE ARCHITECT TO COORDINATE AS NEEDED.
- FINE GRADE, SEED AND STABILIZE ANY REMAINING DISTURBED AREAS AROUND THE OUTSIDE OF THE WET POND AREA. REMOVE SILT FENCE.
- UPON COMPLETION OF WORK, CONTACT THE PROJECT ENGINEER AND LANDSCAPE ARCHITECT FOR AN INSPECTION AND TO BEGIN THE AS-BUILT CERTIFICATION PROCESS. AN AS-BUILT SURVEY OF ALL ASPECTS OF THIS FACILITY WILL BE PERFORMED BY THE ENGINEER. CERTIFICATIONS WILL NOT BE ISSUED IF THE SCM DOES NOT MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CONSTRUCTION DOCUMENTS. SHOULD REMEDIAL WORK BE REQUIRED, ALL COSTS ASSOCIATED WITH THE REMEDIAL WORK INCLUDING RE-SURVEY AND RE-INSPECTIONS WILL BE BORNE BY THE CONTRACTOR.

**DAM EMBANKMENT AND SOIL COMPACTION SPECIFICATIONS**

- CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT KEY TRENCH SHALL BE PLACED IN 6-INCH LOOSE LAYERS (3-INCH LOOSE LAYERS WITHIN 5-FEET OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2-FEET OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF + OR - TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
- ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
- FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS.
- ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
- SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
- FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.
- TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DEWATERING AND ROCK FOUNDATION PREPARATION (I.E., TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER.
- FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
- EARTHWORK COMPACTION WITHIN 3-FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS OR MINIATURE SELF-PROPELLED ROLLERS.
- COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.

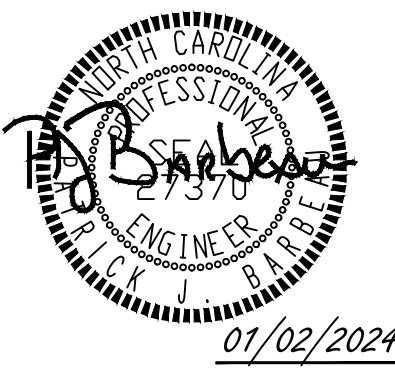
- HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES (INCLUDING THE CRADLE) UNTIL ADEQUATE CURING TIME HAS ELAPSED.
- TO RE-ESTABLISH VEGETATION AFTER CONSTRUCTION, A 4-INCH LAYER OF TOPSOIL SHALL BE PLACED ON THE DISTURBED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED.

**TESTING, OBSERVATION, AND CERTIFICATION**

- TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM KEY TRENCH SHALL BE PERFORMED AS A PART OF THE PERMITTEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED, THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION.
- CONSTRUCTION OF CLASS A, B AND C DAM EMBANKMENTS SHALL BE DONE UNDER THE OBSERVATION OF A QUALIFIED GEOTECHNICAL ENGINEER, WHO IS REGISTERED AS A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA. THE GEOTECHNICAL ENGINEER MUST HAVE EXPERIENCE IN THE DESIGN AND CONSTRUCTION MONITORING OF DAMS OF THE SIZE AND SCOPE COVERED BY THESE STANDARDS AND GUIDELINES.
- ON CLASS A, B, AND C DAMS (WITH THE EXCEPTION OF DETENTION ONLY CLASS C DAMS THAT COLLECT DRAINAGE FROM AN AREA OF 25-ACRES OR LESS), THE GEOTECHNICAL ENGINEER, AS DEFINED ABOVE, SHALL OBSERVE ALL ASPECTS OF THE CONSTRUCTION OF THE DAM (I.E., PREPARATION OF THE FOUNDATION, INSTALLATION OF THE CUT-OFF TRENCH, INSTALLATION OF THE PRINCIPAL SPILLWAY PIPE, INSTALLATION OF THE INTERNAL DRAINAGE, INSTALLATION OF COMPACTED FILL, ETC.). THE FREQUENCY OF OBSERVATION AND TESTING MUST BE SUFFICIENT FOR THE GEOTECHNICAL ENGINEER OR THE DESIGN ENGINEER ON CLASS D DAMS AND CLASS C, DETENTION ONLY, DAMS) TO STATE, IN HIS/HER PROFESSIONAL OPINION, THAT THE SPECIFIC ITEMS OBSERVED AND TESTED WERE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS. REFERENCE IS MADE TO THE CITY OF DURHAM "REFERENCE GUIDE FOR DEVELOPMENT" SECTIONS 4.1 TO 4.5 REGARDING GEOTECHNICAL CERTIFICATION OF DAM EMBANKMENTS.

**GENERAL NOTES:**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DURHAM, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS AND DETAILS.
- SEE GRADING PLAN FOR MORE INFORMATION ON ENTIRE SITE GRADING.



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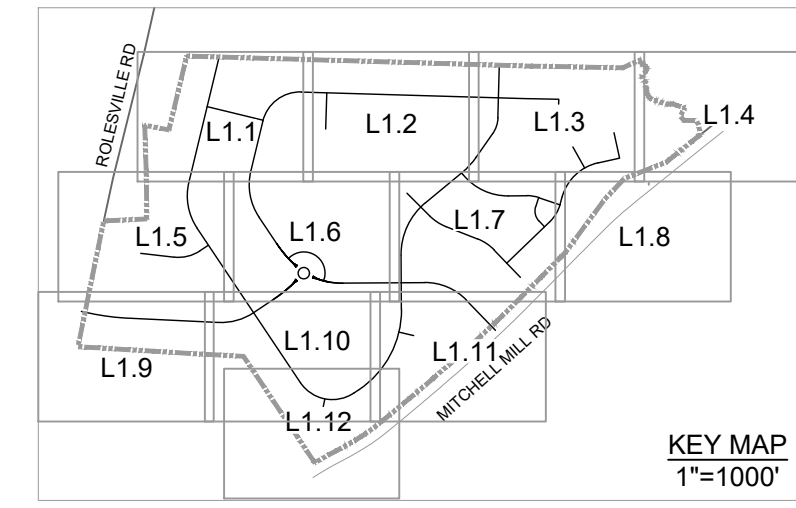
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**ROLESVILLE CROSSING - CD 21-08**  
WAKE COUNTY - NORTH CAROLINA  
**SCM NOTES & DETAILS**

JOB NO. 43398  
SHEET NO. C8.5

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

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 DESIGNED BY  
**S. FANTAYE**  
 CHECKED BY  
**J. BLASCO**  
 SCALE  
**AS SHOWN**

# TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**OVERALL LANDSCAPE PLAN**

DATE	REVISION DESCRIPTION
06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
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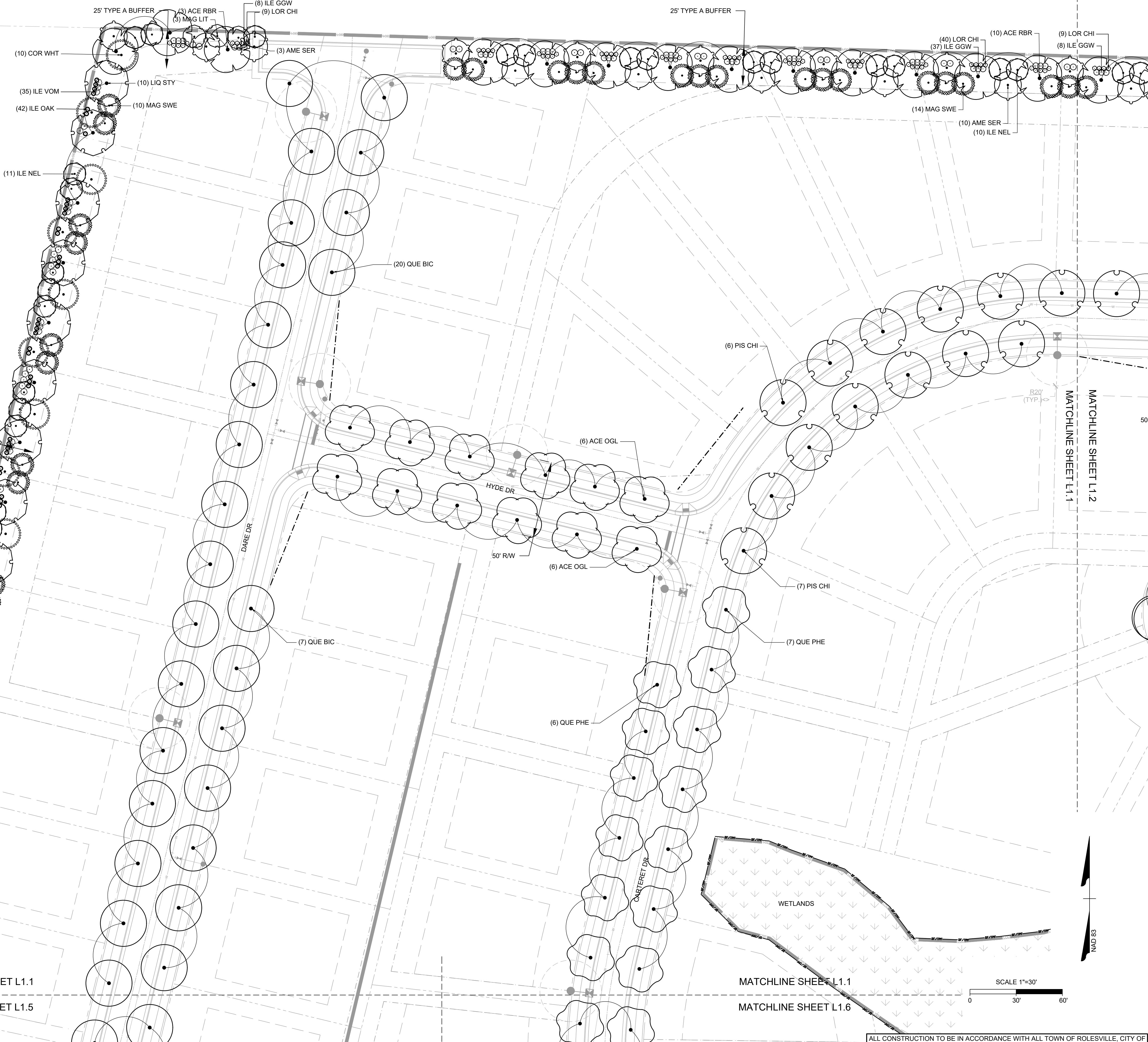
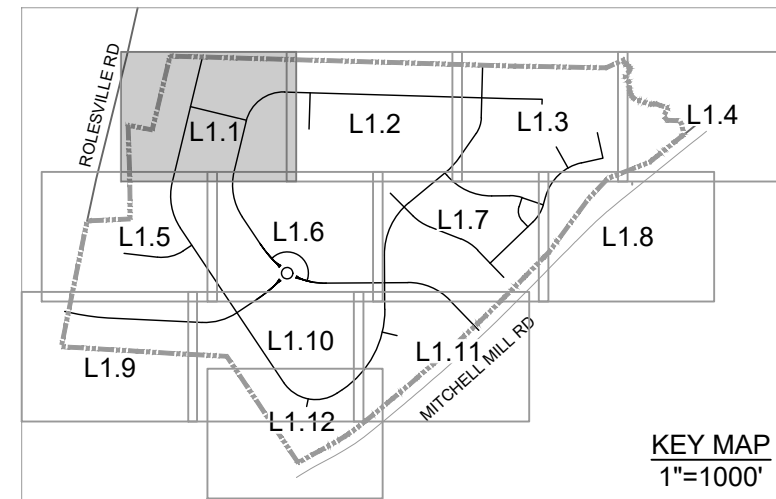
JOB NO.  
**43398**  
 SHEET NO.  
**L1.0**

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MATCHLINE SHEET L1.1  
MATCHLINE SHEET L1.5

MATCHLINE SHEET L1.1  
MATCHLINE SHEET L1.6

SCALE 1"=30'  
0 30' 60'

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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DESIGNED BY S. FANTAYE  
CHECKED BY J. BLASCO  
SCALE AS SHOWN

# TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**LANDSCAPE PLAN**

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SHEET NO. L1.1

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DRAWN BY  
**R. WINGATE**

DESIGNED BY  
**P. BARBEAU**

CHECKED BY  
**P. BARBEAU**

SCALE  
**AS SHOWN**

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 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**LANDSCAPE PLAN**

JOB NO.  
**43398**

SHEET NO.  
**L1.2**

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REVISIONS PER CITY OF RALEIGH COMMENTS	09/06/2023
REVISIONS TO APPROVED PLANS	01/02/2024

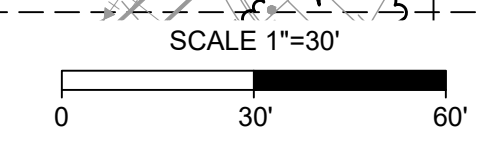
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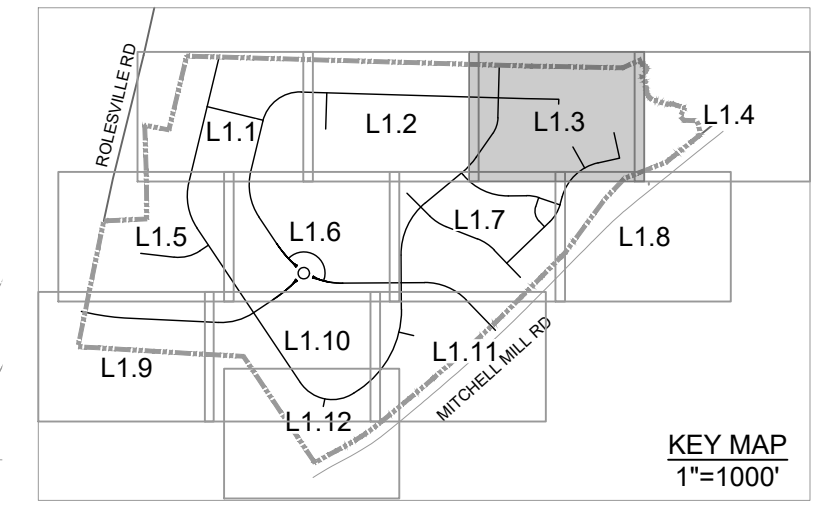
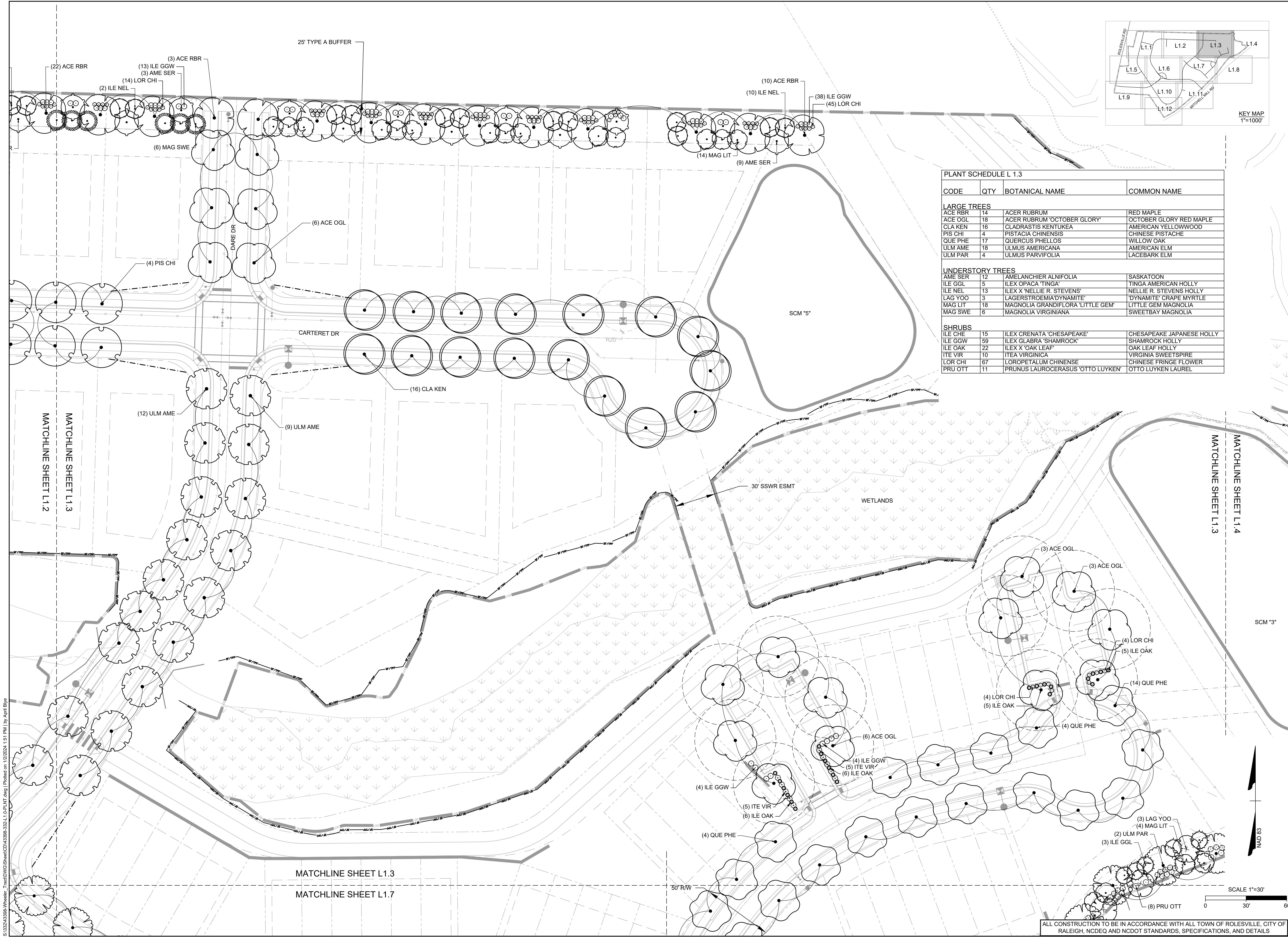
**PLANT SCHEDULE 1.2**

CODE	QTY	BOTANICAL NAME	COMMON NAME
<b>LARGE TREES</b>			
ACE RBR	23	ACER RUBRUM	RED MAPLE
CLA KEN	12	CLADRSTIS KENTUKEA	AMERICAN YELLOWWOOD
PIS CHI	41	PISTACIA CHINENSIS	CHINESE PISTACHE
ULM AME	7	ULMUS AMERICANA	AMERICAN ELM
ULM PAR	1	ULMUS PARVIFOLIA	LACEBARK ELM
<b>UNDERSTORY TREES</b>			
AME SER	23	AMELANCHIER ALNIFOLIA	SASKATOON
ILE NEL	22	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY
MAG SWE	36	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
<b>SHRUBS</b>			
ILE GGW	92	ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLY
LOR CHI	102	LOROPETALUM CHINENSE	CHINESE FRINGE FLOWER



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**PLANT SCHEDULE L 1.3**

CODE	QTY	BOTANICAL NAME	COMMON NAME
<b>LARGE TREES</b>			
ACE RBR	14	ACER RUBRUM	RED MAPLE
ACE OGL	18	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE
CLA KEN	16	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD
PIS CHI	4	PISTACIA CHINENSIS	CHINESE PISTACHE
QUE PHE	17	QUERCUS PHELLOS	WILLOW OAK
ULM AME	18	ULMUS AMERICANA	AMERICAN ELM
ULM PAR	4	ULMUS PARVIFOLIA	LACEBARK ELM
<b>UNDERSTORY TREES</b>			
AME SER	12	AMELANCHIER ALNIFOLIA	SASKATOON
ILE GGL	5	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
ILE NEL	13	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY
LAG YOO	3	LAGERSTROEMIA 'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE
MAG LIT	18	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
MAG SWE	6	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
<b>SHRUBS</b>			
ILE CHE	15	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY
ILE GGW	59	ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLY
ILE OAK	22	ILEX X 'OAK LEAF'	OAK LEAF HOLLY
ITE VIR	10	ITEA VIRGINICA	VIRGINIA SWEETSPIRE
LOR CHI	67	LOROPETALUM CHINENSE	CHINESE FRINGE FLOWER
PRU OTT	11	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL



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DATE	REVISION DESCRIPTION
06/24/2022	REVISE PER WAKE COUNTY COMMENTS
07/27/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISONS PER NCDOT COMMENTS
09/06/2023	REVISONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISONS TO APPROVED PLANS

09/17/2021  
 DRAWN BY  
**R. WINGATE**  
 DESIGNED BY  
**P. BARBEAU**  
 CHECKED BY  
**P. BARBEAU**  
 SCALE  
**AS SHOWN**

**TIMMONS GROUP**  
 NORTH CAROLINA LICENSE NO. C-1652

**ROLESVILLE CROSSING - CD 21-08**  
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**LANDSCAPE PLAN**

JOB NO.  
**43398**  
 SHEET NO.  
**L1.3**

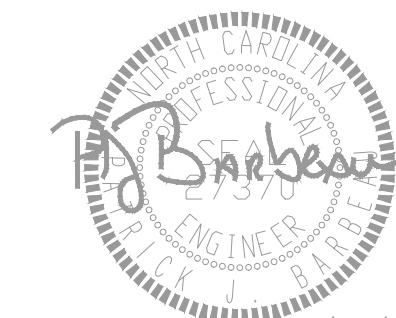
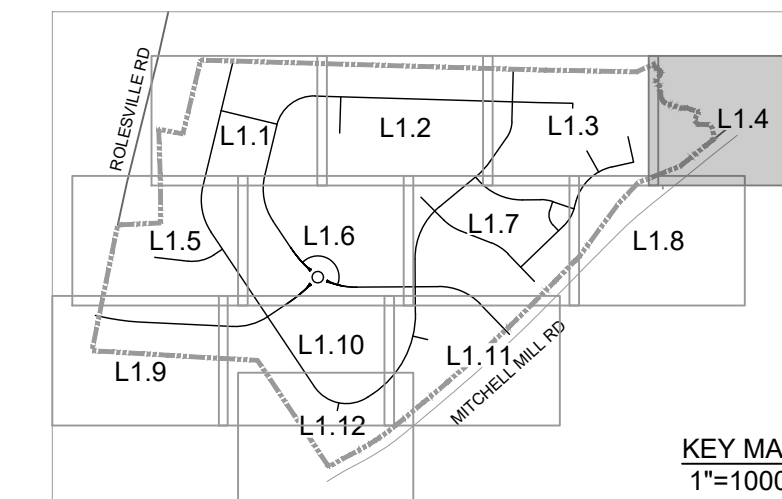
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PLANT SCHEDULE L 1.4			
CODE	QTY	BOTANICAL NAME	COMMON NAME
<b>LARGE TREES</b>			
ULM PAR	5	ULMUS PARVIFOLIA	LACEBARK ELM
<b>UNDERSTORY TREES</b>			
ILEX GGL	10	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
LAG YOO	2	LAGERSTROEMIA 'DYNAMITE'	'DYNAMITE' GRAPE MYRTLE
MAG LIT	3	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
<b>SHRUBS</b>			
ILEX CHE	22	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY
PRU OTT	18	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL



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DATE	REVISION DESCRIPTION
06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
07/22/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS
01/02/2024	REVISIONS TO APPROVED PLANS

DATE  
 09/17/2021  
 DRAWN BY  
 R. WINGATE  
 DESIGNED BY  
 P. BARBEAU  
 CHECKED BY  
 P. BARBEAU  
 SCALE  
 AS SHOWN

# TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652  
**ROLESVILLE CROSSING - CD 21-08**  
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA  
**LANDSCAPE PLAN**

JOB NO.  
**43398**  
 SHEET NO.  
**L1.4**

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