

# V3 - SDP-23-08 Tidal Wave Car Wash

# TIDAL WAVE AUTO SPA

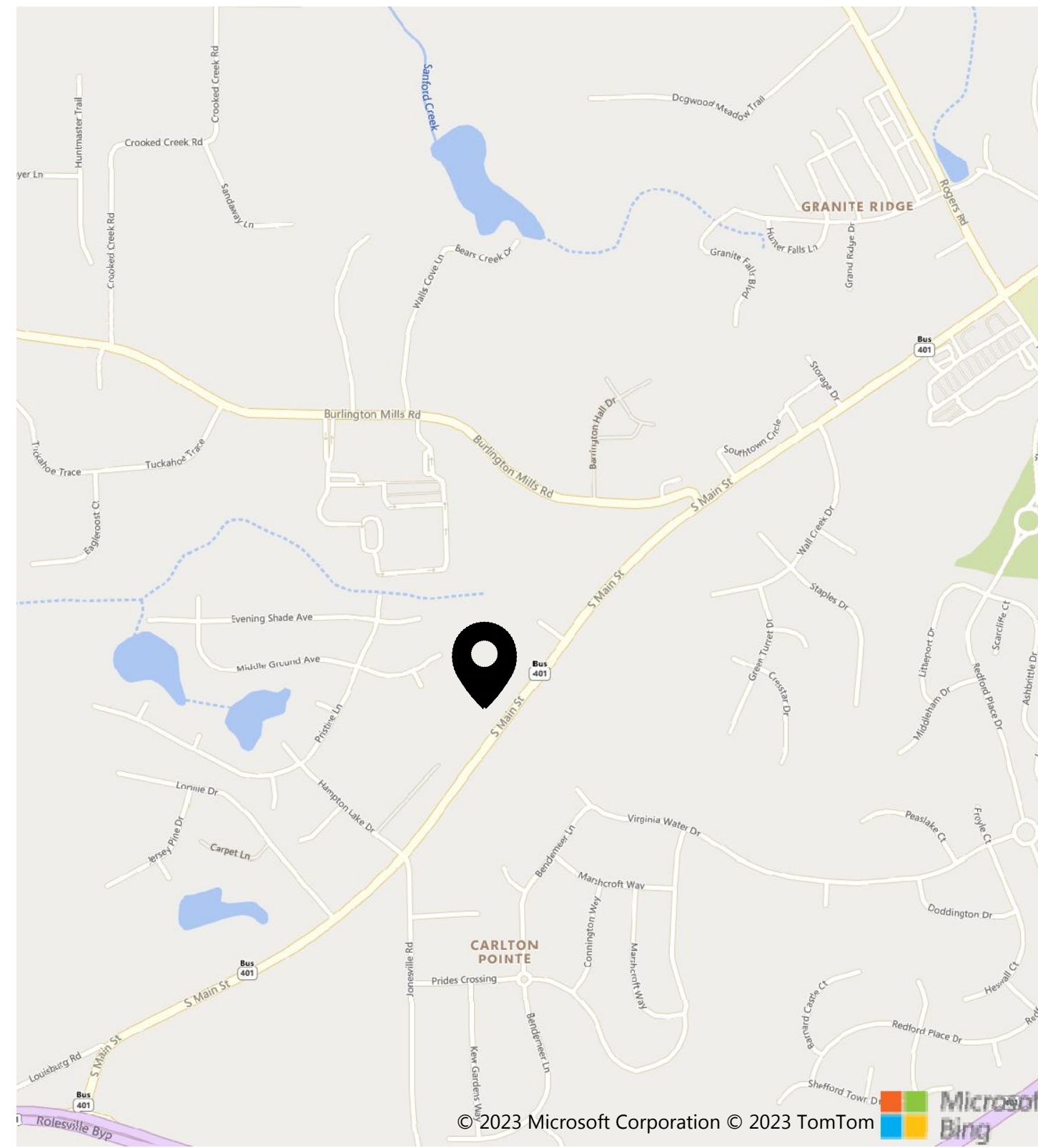
## ROLESVILLE, NC, USA

### TOWN PROJECT ID # V1-SDP-23-08

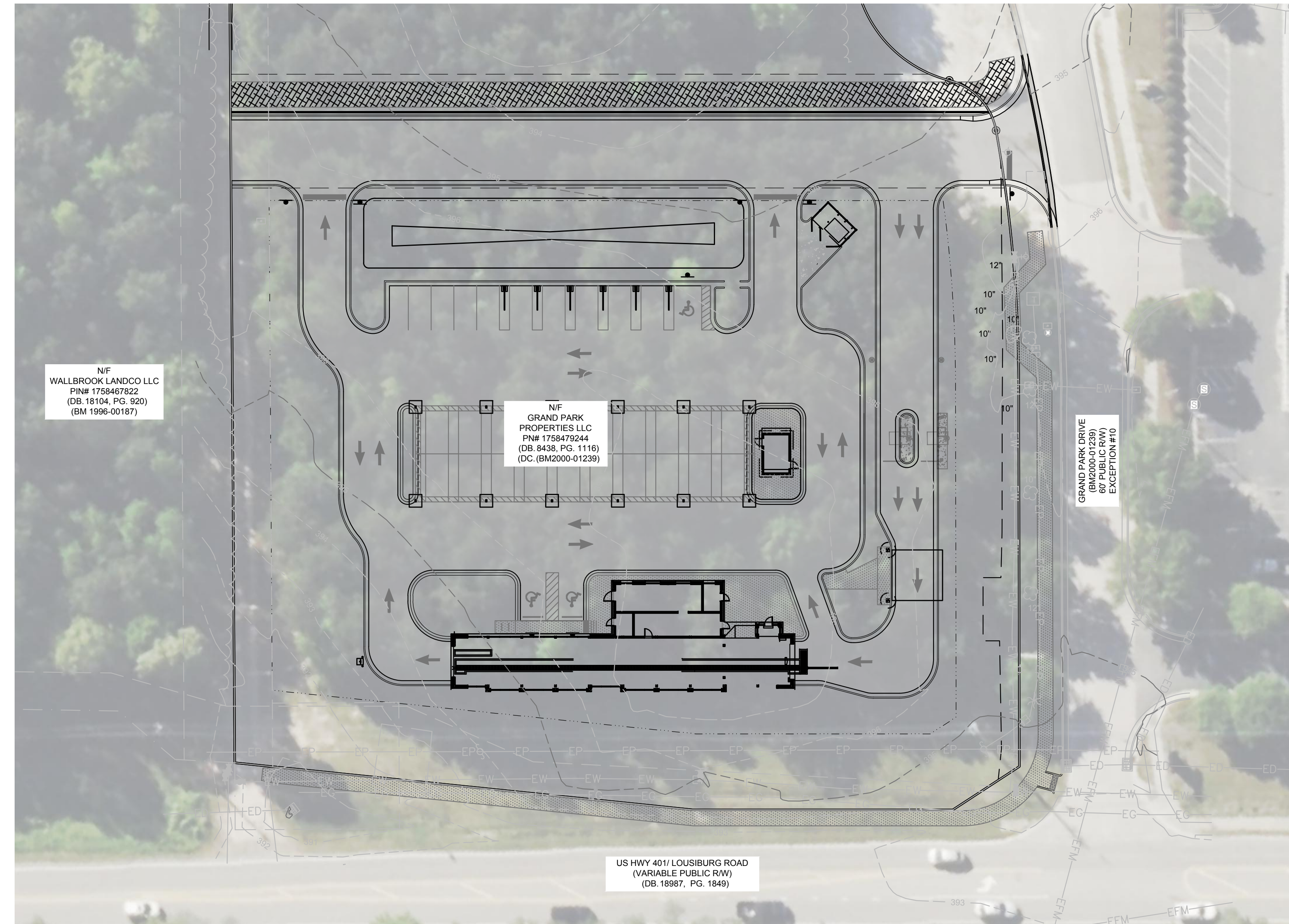


MOUNT PLEASANT, SC  
843.884.1667  
GREENVILLE, SC  
864.298.0534  
SUMMERVILLE, SC  
843.972.0710  
SPARTANBURG, SC  
864.272.1272  
CHARLOTTE, NC  
980.312.5450  
WWW.SEAMONWHITESIDE.COM

### SITE LOCATION MAP



### SITE OVERVIEW



### PROJECT DESCRIPTION

**PROJECT DATA:**  
THIS PROJECT IS LOCATED ON A 1.92 ACRE SITE, IN ROLESVILLE, NC. THE PROPERTY AS IT EXISTS IS AN UNDEVELOPED LOT. THE PROPOSED DEVELOPMENT WILL BE AN AUTOMATED CAR WASH WITH ASSOCIATED PARKING AND INFRASTRUCTURE.

**FLOOD ZONE:**  
THIS PROPERTY IS LOCATED OUTSIDE OF ANY REGULATED FLOOD ZONES, ZONEX (OTHER AREAS), NAVD88, SCALED FROM THE FIRM THE TOWN OF ROLESVILLE, NORTH CAROLINA PANEL NO. 3720175800K.

**PROPERTY INFORMATION:**  
PARCEL ID: 1758479244  
ZONING DISTRICT: GI (GENERAL INDUSTRIAL)

### GENERAL NOTES

#### PROJECT SURVEY INFORMATION AND CONTRACTOR VERIFICATION REQUIREMENTS

- BOUNDARY, TOPOGRAPHIC, TREE, WETLAND DELINEATION, AND OTHER EXISTING CONDITIONS SHOWN ARE FROM SURVEY PREPARED BY MSP & ASSOCIATES LAND SURVEYING, INC.
- ALL ELEVATIONS ARE BASED ON NAVD88 DATUM.
- THE CONTRACTOR SHALL VERIFY THE EXISTING TOPOGRAPHIC WORK, EXISTING UTILITY LINE LOCATIONS AND ELEVATIONS PRIOR TO BEGINNING WORK. SHOULD THE CONTRACTOR FIND ANY DISCREPANCIES ON THE DRAWINGS PRIOR TO BEGINNING WORK OR DURING CONSTRUCTION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- THE CONTRACTOR SHALL MAINTAIN AND BE SOLELY RESPONSIBLE FOR JOBSITE SAFETY.
- AN AUTOCAD BASE PLAN OF THIS DRAWINGS CAN BE PROVIDED TO THE CONTRACTOR UPON REQUEST. ENGINEER SHALL NOT BE RESPONSIBLE FOR ERRORS IN ELECTRONIC DATA.
- THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL PLANS AND COORDINATION WITH THE TOWN OF ROLESVILLE FOR LANE/ROAD CLOSURE AS NEEDED THROUGHOUT CONSTRUCTION.
- ALL SITE WORK TO BE PERFORMED IN CONFORMANCE WITH THE TOWN OF ROLESVILLE CODE OF ORDINANCE. MATERIAL SPECIFICATIONS ARE PROVIDED IN THE SPECIFICATIONS AND SPECIAL PROVISIONS SECTION.
- ALL UTILITY INSTALLATIONS, PUBLIC AND PRIVATE, SHALL BE PERFORMED IN CONFORMANCE WITH THE TOWN OF ROLESVILLE WATER AND SEWER POLICIES, PROCEDURES, STANDARDS AND SPECIFICATIONS.

**EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT**

APPROVED

EROSION CONTROL  SEC-\_\_\_\_\_

STORMWATER MGMT.  SWF-\_\_\_\_\_

FLOOD STUDY  SWF-\_\_\_\_\_

DATE \_\_\_\_\_

ENVIRONMENTAL CONSULTANT SIGNATURE \_\_\_\_\_

### PROJECT CONTACTS

**DEVELOPER:**  
SHJ DEVELOPMENT, LLC  
124 EAST THOMPSON STREET  
POST OFFICE DRAWER 311  
THOMASTON, GA 30286  
CONTACT: ALEX PERRY  
PHONE: 478-972-2418

**OWNER:**  
GRAND PARK PROPERTIES, LLC  
2636 WAIT AVENUE  
WAKE FOREST, NC 27587  
CONTACT: GEORGE M. UPCHURCH, JR.

**CIVIL ENGINEER & LANDSCAPE ARCHITECT:**  
SEAMON WHITESIDE & ASSOCIATES, LLC  
230 E PETERSON DR  
CHARLOTTE, NC 28217  
CONTACT: TOMMIE LITTLE  
PHONE: 980-312-5450

**UTILITY CONTACTS:**  
CITY OF RALEIGH PUBLIC UTILITIES  
ONE EXCHANGE PLAZA,  
RALEIGH, NC 27601  
PHONE: 919-996-3245

**SOURCES:**  
SURVEYOR  
MSP & ASSOCIATES  
LAND SURVEYING INC.  
301 E. HILLCREST DR.  
GREENVILLE, SC, 29609  
PHONE: (864) 370-2232

Sheet List Table

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C2.2	TREE SURVEY
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D1.1	ADS STORMTECH
D1.2	ADS STORMTECH
D1.3	ADS STORMTECH
D1.4	ADS STORMTECH
L1.0	LANDSCAPE PLAN
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**SITE DATA TABLE:**

ADDRESS: 0 S MAIN STREET, ROLESVILLE, NC  
PROPERTY AREA: 1.92 ACRES  
PARCEL: 1758479244  
EXISTING USE: UNDEVELOPED  
PROPOSED USE: CAR WASH  
WATERSHED: TOMS CREEK (MILL CREEK)  
RIVER BASIN: NEUSE

PROPERTY ZONING: GI (GENERAL INDUSTRIAL)  
BUILDING SETBACKS:  
FRONT (SE): 30'  
CORNER (NE): 25'  
REAR (NW): 35'  
SIDE (SW): 15'

PERIMETER LANDSCAPE YARDS:  
NORTHEAST: 15'

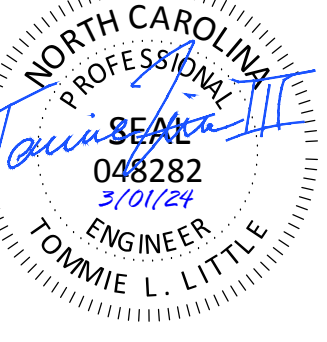
REQUIRED OPEN SPACE (5%) = 0.01 AC (4182 SF)

**BUILDING:**  
BUILDING AREA: 3325 SF  
BUILDING HEIGHT: 21'-7"

**PRE VS. POST DEVELOPMENT AREA:**  
SITE AREA: 1.92 AC  
PRE-IMPERVIOUS AREA: 0.04 AC (2.08%)  
POST-IMPERVIOUS AREA: 1.30 AC (67.7%)

**PARKING NOTE:**  
PARKING REQUIRED:  
1 SPACE PER 400 SF GFA OR 5 SPACES MINIMUM = 5 SPACES

PARKING PROVIDED:  
EMPLOYEE SPACES: 5 SPACES (1 ADA)  
(4 MAX ON SHIFT)  
VACUUM STALLS: 34 STALLS



TIDAL WAVE AUTO SPA  
ROLESVILLE, NC

SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

#### REVISION HISTORY

NO.	DESCRIPTION

TITLESHEET



Know what's below.  
Call before you dig.



REVISION HISTORY	

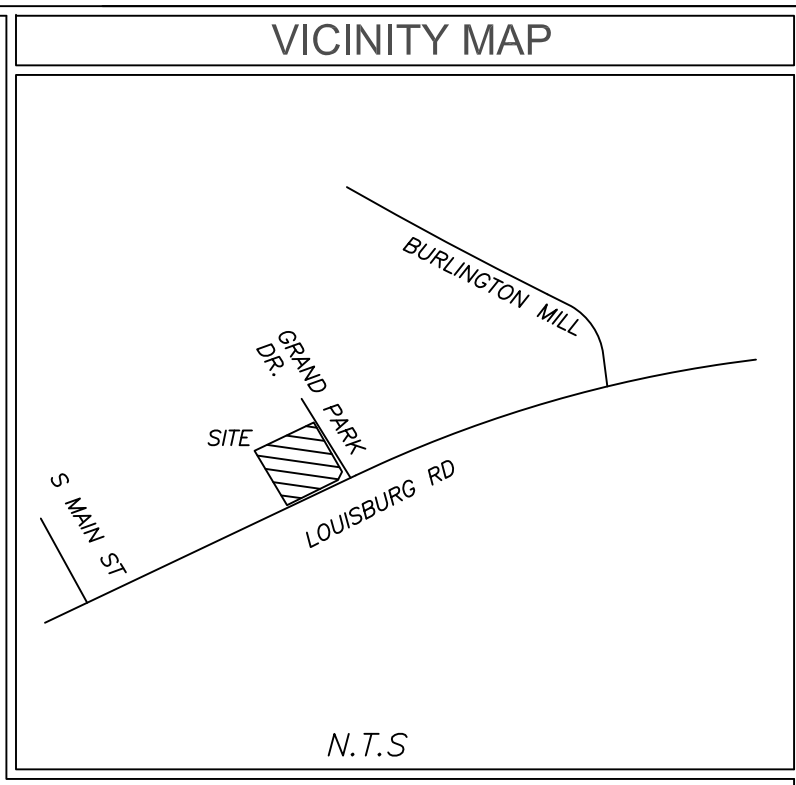
# DRAWING LEGEND

NOTE: THIS LEGEND DOES NOT APPLY TO 'EXISTING CONDITIONS' SHEET(S). THOSE ARE SHOWN IN THE ORIGINAL FORMAT AS RECEIVED BY THE SURVEYOR

OBJECTS AND SYMBOLS	EXISTING	NEW	OBJECTS AND SYMBOLS	EXISTING	NEW	HATCH PATTERNS	SWPP PLAN LEGEND
Right of Way			Benchmark		N/A		Turf Reinforcement Mat (TR)
Lot Line			Sanitary Sewer Manhole				Sodding (S)
Adjoining Property Line		N/A	Sanitary Sewer Manhole ID #	N/A			Temporary Seeding (TS)
Easement		N/A	Sanitary Sewer Cleanout				Permanent Seeding (PS)
Setback		(Same as Existing)	TYPE 1 Storm Drainage Structure (CI-1)				Erosion Control Blanket (EC)
Sanitary Sewer (Gravity)			Catch Basin (CB)				Concrete Washout Basin (CW)
Sanitary Sewer (Force Main)			Storm Drainage Junction Box (JB)				Block & Stone Inlet Protection
Water Line			Yard Inlet (YI)				Filter Fabric Inlet Protection
Curb & Gutter (Straight)			Control Structure (CS)				Construction Entrance
Curb & Gutter (Roll)			Storm Drainage Structure ID #	N/A			Dandy Sack or Grate Gator Inlet Protection
Previous Phase Storm Drain Pipe		N/A	Telephone Box		N/A		
Storm Drain Pipe			Telephone Manhole		N/A		
Drainage Flow Arrow	N/A		Electrical Box		N/A		
Silt Fence, Standard			Electrical Manhole		N/A		
Match Line	N/A		Power Pole				
Drainage Basin Limits	N/A		Light Pole				
Conduit			Fire Hydrant Assembly				
Natural Gas			Water Line Valve				
Overhead Electrical			Water Line Reducer				
Underground Electrical			Sign				
Underground Telephone			ADA Accessible Parking Space				
Fence			Spot Elevation				
Elevation Contour			Drainage Basin Area	N/A			
Revision Cloud (Encloses Revision)	N/A		Parking Count ID #	N/A			
			Revision ID #	N/A			
			Rip Rap at Pipe Outlet	N/A			
						Demo Existing Gravel	
						Demo Existing Trees	
						Proposed Sidewalk	
						Heavy Duty Concrete Pavement	
						Standard Duty Concrete Pavement	
						Asphalt Greenway	
						Area to be Permanently Stabilized	

501 WINDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29546 | JUDSON MILLS BUILDING 6000, 701 EASLEY BROOK RD, SUITE 600 | GREENVILLE, SC 29611 | 230 PETERSON DR. | CHARLOTTE, NC 28217 | 720 N. CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MORGAN AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
COPYRIGHT © SEAMON WHITESIDE & ASSOCIATES, INC. | THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION.





**TITLE EXCEPTIONS**

- Schedule B-Section II Title Exceptions  
 Fidelity National Title Insurance Company  
 Commitment Number: NC252306067V;NACS230520; Effective Date: June 29, 2023
- Easements, rights of ways, boundary lines, and improvements as set forth on Plat recorded in Book of Maps 2000, Page 1239, Book of Maps 1996, Page 1582, Book of Maps 1999, Page 1039, and Book of Maps 2003, Page 614, Wake County Registry. (AFFECTS SITE AS PLOTTED)
  - Deed of Easement Vehicular Access and Utility Services to Elevated Water Tank Facility from Grand Park Properties LLC to the City of Raleigh, dated May 5, 2003 and recorded in Book 10123, Page 2779, Wake County Registry. (AFFECTS SITE AS PLOTTED)
  - Right of way conveyance and easements contained in Deed for Highway Right of Way in favor of the Department of Transportation dated April 1, 2021, recorded April 11, 2022, in Book 18987, Page 1849, Wake County Registry. (AFFECTS SITE AS PLOTTED)
  - Cross Access Easement Agreement between Wallbrook Landco LLC and Grand Park Properties, LLC, dated April 12, 2022 and recorded in Book 18988, Page 1102, Wake County Registry. (AFFECTS SITE: UNABLE TO PLOT; NO DESCRIPTION OR MEASUREMENTS FOR EASEMENT)

**SURVEYORS CERTIFICATION**

\* To: Fidelity National Title Insurance Company and TWAS Properties LLC, a Delaware limited liability company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1-6a,b,7a,b, 8, 9, 11, 13, 16, 17, 18, 20 and 21 of Table A thereof. The field work was completed on 6/6/23.

NIF  
 GRAND PARK PROPERTIES LLC  
 PIN# 1758479244  
 (BM1999-01039)

6/6/23  
 Date

Michael S. Perdue PLS #L-4322

**LEGEND**

- |        |                          |         |                        |
|--------|--------------------------|---------|------------------------|
| CB CPP | CATCH BASIN              | — T —   | PHONE LINE             |
| CT     | CORRUGATED PLASTIC PIPE  | — G —   | GUY WIRE               |
| DI     | CRIMPED TOP PIPE         | — C —   | GAS LINE               |
| IE     | DROP INLET               | — W —   | WATER LINE             |
| JB     | INVERT ELEVATION         | — OHP — | POWER LINE             |
| MH     | JUNCTION BOX             | — E —   | UNDERGROUND POWER LINE |
| OT     | MANHOLE                  | ●       | POWER POLE             |
| POB    | OPEN TOP PIPE            | ⊙       | SANITARY SEWER MANHOLE |
| POC    | POINT OF BEGINNING       | ⊙       | STORM SEWER MANHOLE    |
| POC    | POINT OF COMMENCEMENT    | ⊙       | CATCH BASIN            |
| TBM    | TEMPORARY BENCHMARK      | ⊙       | GAS METER              |
| RCP    | REINFORCED CONCRETE PIPE | ⊙       | TRANSFORMER            |
| SS     | SANITARY SEWER           | ⊙       | PEAR TREE              |
| OHP    | OVERHEAD POWER           | ⊙       | PINE TREE              |
| EIP    | IRON PIN FOUND           | ⊙       | CREPE MYRTLE           |
| NP     | IRON PIN SET             | ⊙       |                        |
| WV     | WATER VALVE              | ⊙       |                        |
| WM     | WATER METER              | ⊙       |                        |
| GV     | GAS VALVE                | ⊙       |                        |
| GM     | GAS METER                | ⊙       |                        |
| TP     | TELEPHONE PEDESTAL       | ⊙       |                        |
| FH     | FIRE HYDRANT             | ⊙       |                        |
| LP     | LIGHT POLE               | ⊙       |                        |
| PM     | POWER METER              | ⊙       |                        |
| BV     | BACKFLOW VALVE           | ⊙       |                        |
| EB     | ELECTRICAL BOX           | ⊙       |                        |

**GENERAL NOTES**

This property is in Zone X based on Flood Insurance Rate Map 3720175800K dated 07/19/2022. This determination was made by graphically determining the position of said site on said FIRM Map.

Contact proper Authorities Before building near utility lines, for easement width and restrictions. Underground Utilities are approximate and should be verified prior to any construction. Locations shown are approximate.

This survey has been prepared for the exclusive use of the person or entities named hereon. No express or implied warranties with respect to the information shown hereon is to be extended to any persons or entities other than those shown hereon.

Elevations based on GPS VRS connected to NC GPS Network. Vertical Datum NAVD 88.

Property Zoned GI-CZ  
 Setbacks to be verified by Engineer prior to development.

I, Michael S. Perdue certify that this plat was drawn under my supervision from an actual survey made under my supervision and is a portion property as shown in (DB. 8438, PG. 1116); that the ratio of precision as calculated 1: 20,000 +/- and was not adjusted; that this plat was prepared in accordance with G.S. 47-30 as amended. Witness my original signature, registration # and seal this 6th day of June 2023.

That this survey is of an existing parcel of land, existing structures and buildings and does not create a new street or change existing streets.

Michael S. Perdue, PLS# L-4322

All matters shown on recorded plats are shown on survey, if applicable.

There was evidence of recent earth moving work or construction was observed on the property.

There was no visible evidence of cemeteries or burial grounds found.

No evidence of the site being used as a solid waste dump, sump or sanitary landfill.

No evidence of wetlands being marked on subject property.

Property PIN# 1758479244

Survey Reference  
 (DB. 8438, PG. 1116)  
 (BM. 2000-01239)

ALTA/NSPS LAND TITLE SURVEY FOR

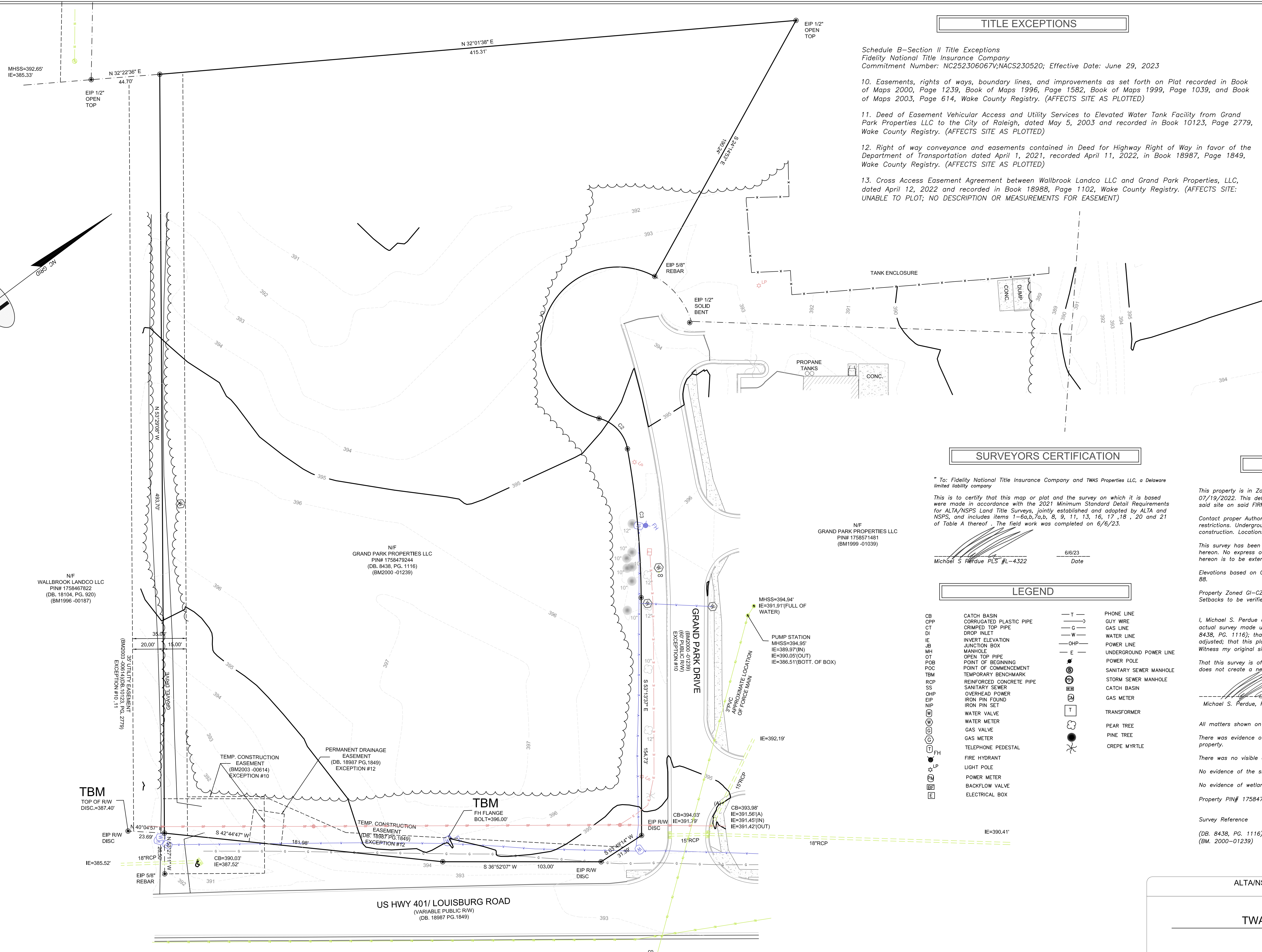
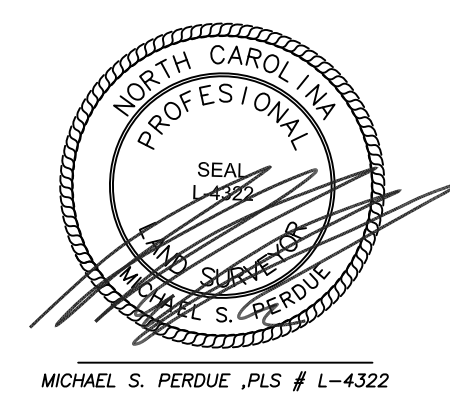
**TWAS Properties LLC**

TOWN: ROLESVILLE COUNTY: WAKE STATE: NORTH CAROLINA

DATE: 6/6/23 SCALE: 1:30

FIELD WORK: MSP DRAWN BY: MSP REVIEWED BY: MSP

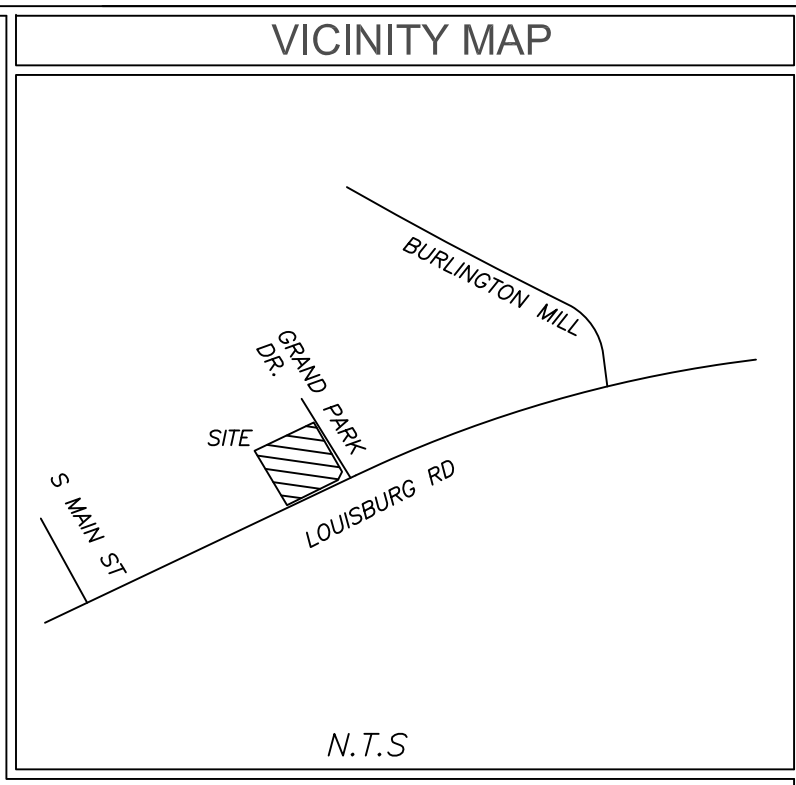
MSP FILE: twrolesville MSP JOB#: 231820



CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C1	50.00'	1.6977'	99.20'	S 31°42'56" E	1194°32'39"	391.83'
C2	25.01'	28.63'	27.05'	N 83°49'48" E	65°34'40"	16.11'
C3	570.00'	197.34'	97.22'	S 58°23'28" E	9°47'04"	48.79'







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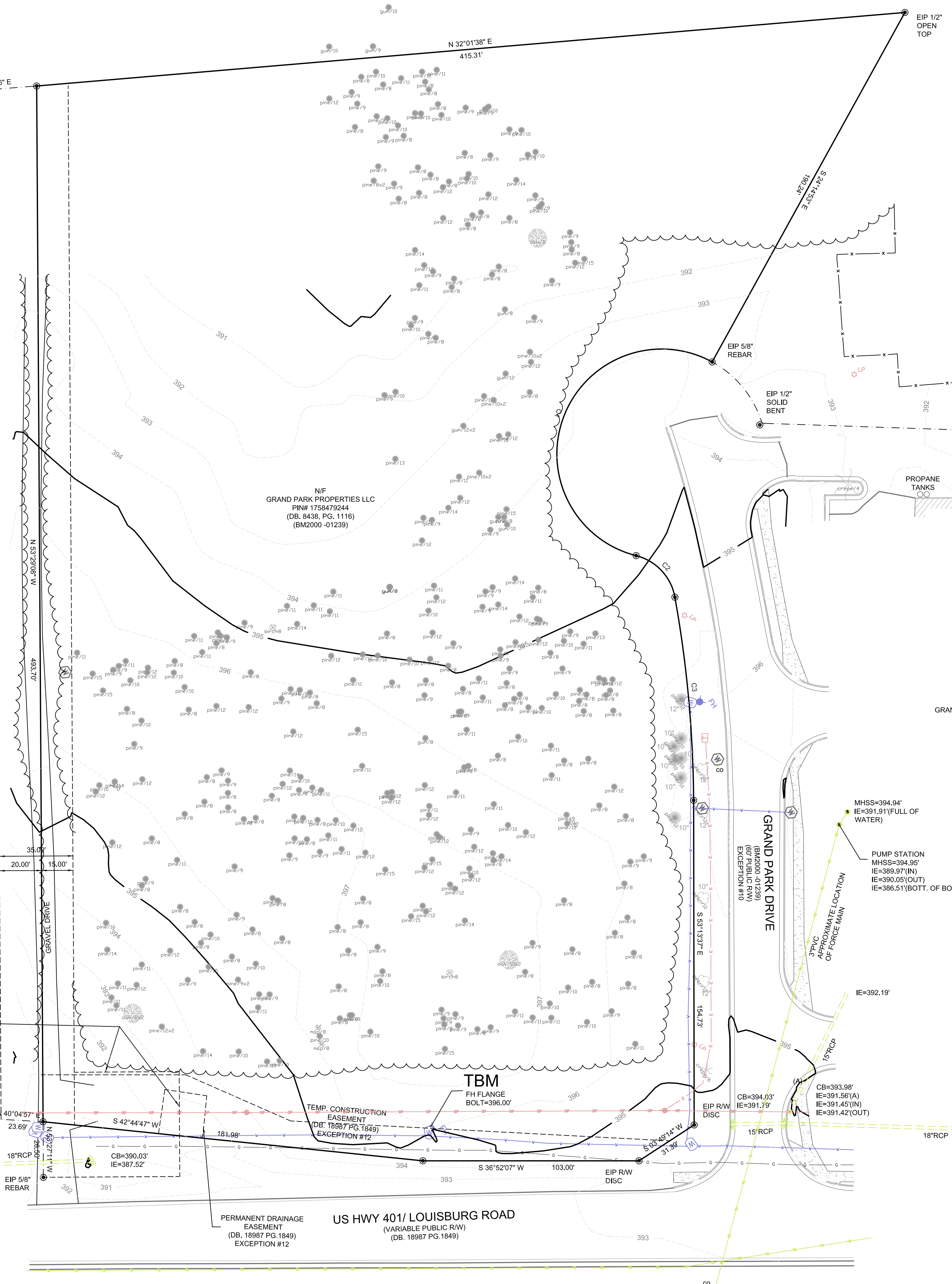
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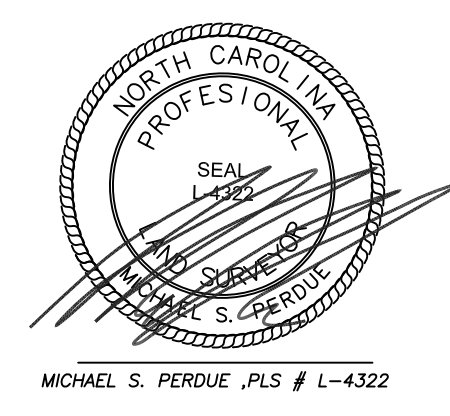
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**LEGEND**

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- POC POINT OF COMMENCEMENT
- TBM TEMPORARY BENCHMARK
- RCP REINFORCED CONCRETE PIPE
- SS SANITARY SEWER
- OHP OVERHEAD POWER
- IPF IRON PIN FOUND
- IPN IRON PIN SET
- WP WATER VALVE
- WM WATER METER
- GV GAS VALVE
- GM GAS METER
- TP TELEPHONE PEDESTAL
- FD FIRE HYDRANT
- LP LIGHT POLE
- PM POWER METER
- BV BACKFLOW VALVE
- EB ELECTRICAL BOX
- PL PHONE LINE
- GW GUY WIRE
- GL GAS LINE
- WL WATER LINE
- PL POWER LINE
- UL UNDERGROUND POWER LINE
- PP POWER POLE
- SSM SANITARY SEWER MANHOLE
- SM STORM SEWER MANHOLE
- CB CATCH BASIN
- GM GAS METER
- TR TRANSFORMER
- PT PEAR TREE
- PN PINE TREE
- CR CREPE MYRTLE



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ALTA/NSPS LAND TITLE SURVEY FOR

**TWAS Properties LLC**

TOWN: ROLESVILLE COUNTY: WAKE STATE: NORTH CAROLINA

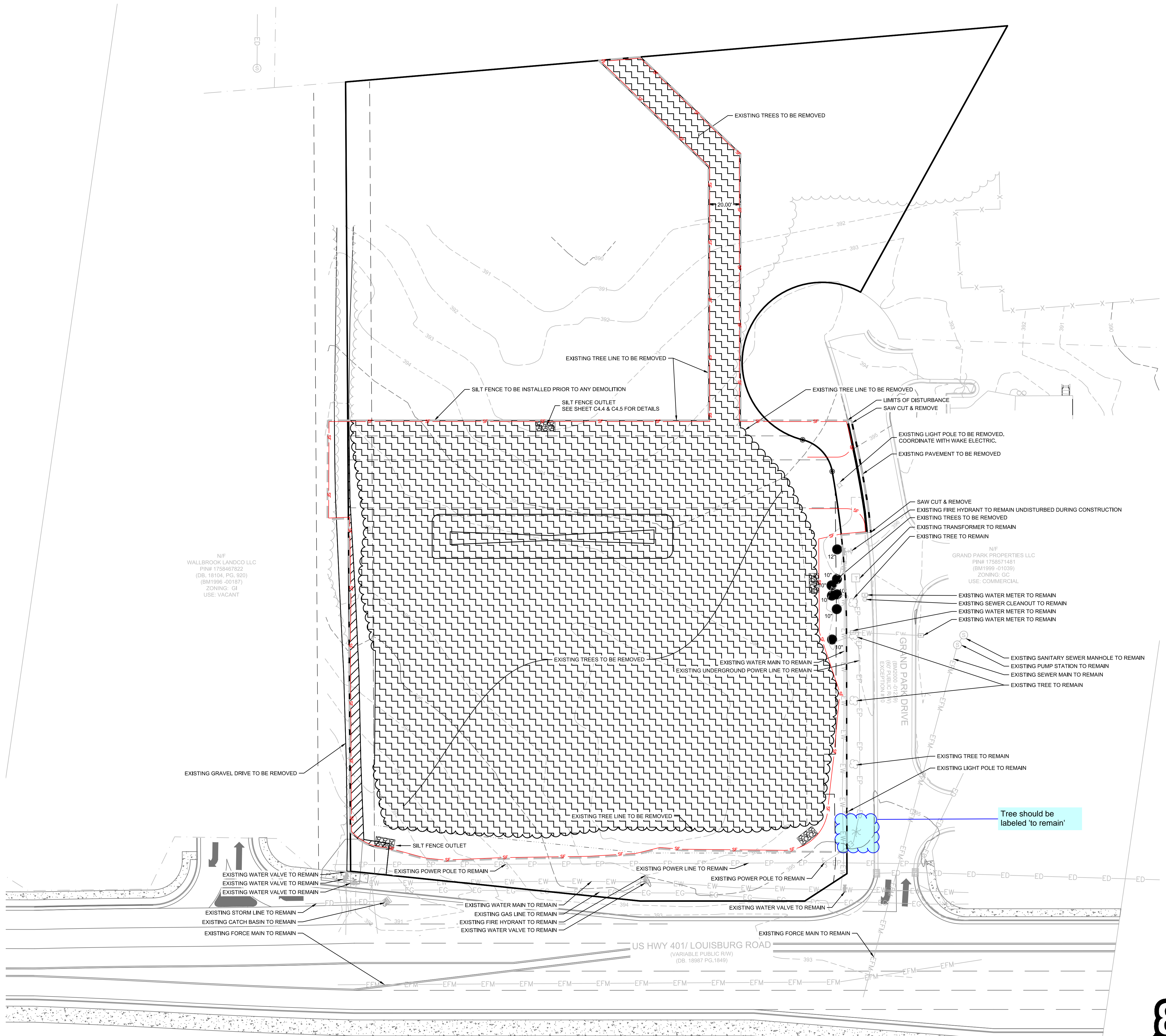
DATE: 6/6/23 SCALE: 1:30

FIELD WORK: MSP DRAWN BY: MSP REVIEWED BY: MSP

MSP FILE: twrolesville MSP JOB#: 231820



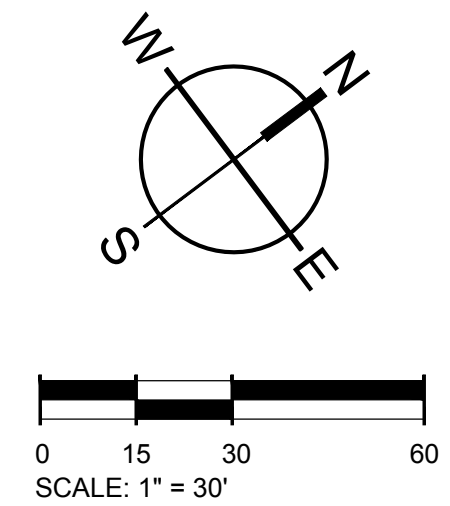
For all remaining trees, tree protection fencing shall be shown (Section 6.2.4.5.B.8-11)



- DEMOLITION NOTES:**
- ALL DEMOLITION DEBRIS IS TO BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE COUNTY, STATE, AND FEDERAL REGULATIONS.
  - CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES BEFORE ANY WORK IS STARTED. ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE FIELD MARKINGS AND SURVEY.
  - NO LAND DISTURBING ACTIVITY PRIOR TO APPROVAL OF EROSION AND SEDIMENT CONTROL PLAN AND THE ISSUANCE OF THE LAND-DISTURBING PERMIT AT THE PRECONSTRUCTION MEETING.
  - CONTRACTOR TO REMOVE ALL TREES WITHIN LIMITS OF DISTURBANCE.

**EXISTING UTILITY NOTE:**

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING ANY WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.



**DEMOLITION LEGEND**

DEMO EXISTING GRAVEL		LIMITS OF DISTURBANCE	
DEMO EXISTING TREES		EXISTING UTILITY TO REMAIN	
SILT FENCE OUTLET		EXISTING CURB TO BE REMOVED	



501 WINDY PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29546 | JUDSON MILLS BUILDING 6000, 701 EASLEY BROOK RD, SUITE 6000, GREENVILLE, SC 29611 | 230 PETERSON DR., CHARLOTTE, NC 28217 | 713 N. CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MORGAN AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
 COPYRIGHT © SEAMON WHITESIDE & ASSOCIATES, INC. | THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION.

N/F  
 WALLBROOK LANDCO LLC  
 PIN# 1758467822  
 (DB, 18104, PG, 920)  
 (BM1998-001637)  
 ZONING: G1  
 USE: VACANT

N/F  
 GRAND PARK PROPERTIES LLC  
 PIN# 1759571481  
 (BM1999-01039)  
 ZONING: GC  
 USE: COMMERCIAL

EXISTING WATER VALVE TO REMAIN  
 EXISTING WATER VALVE TO REMAIN  
 EXISTING WATER VALVE TO REMAIN  
 EXISTING STORM LINE TO REMAIN  
 EXISTING CATCH BASIN TO REMAIN  
 EXISTING FORCE MAIN TO REMAIN

EXISTING WATER MAIN TO REMAIN  
 EXISTING GAS LINE TO REMAIN  
 EXISTING FIRE HYDRANT TO REMAIN  
 EXISTING WATER VALVE TO REMAIN

EXISTING POWER POLE TO REMAIN  
 EXISTING POWER LINE TO REMAIN  
 EXISTING POWER POLE TO REMAIN

US HWY 401/ LOUISBURG ROAD  
 (VARIABLE PUBLIC RW)  
 (DB, 18987 PG, 1849)

EXISTING WATER METER TO REMAIN  
 EXISTING SEWER CLEANOUT TO REMAIN  
 EXISTING WATER METER TO REMAIN  
 EXISTING WATER METER TO REMAIN

EXISTING SANITARY SEWER MANHOLE TO REMAIN  
 EXISTING PUMP STATION TO REMAIN  
 EXISTING SEWER MAIN TO REMAIN  
 EXISTING TREE TO REMAIN

EXISTING TREE TO REMAIN  
 EXISTING LIGHT POLE TO REMAIN

Tree should be labeled 'to remain'





**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC

SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

**REVISION HISTORY**

NO.	DESCRIPTION

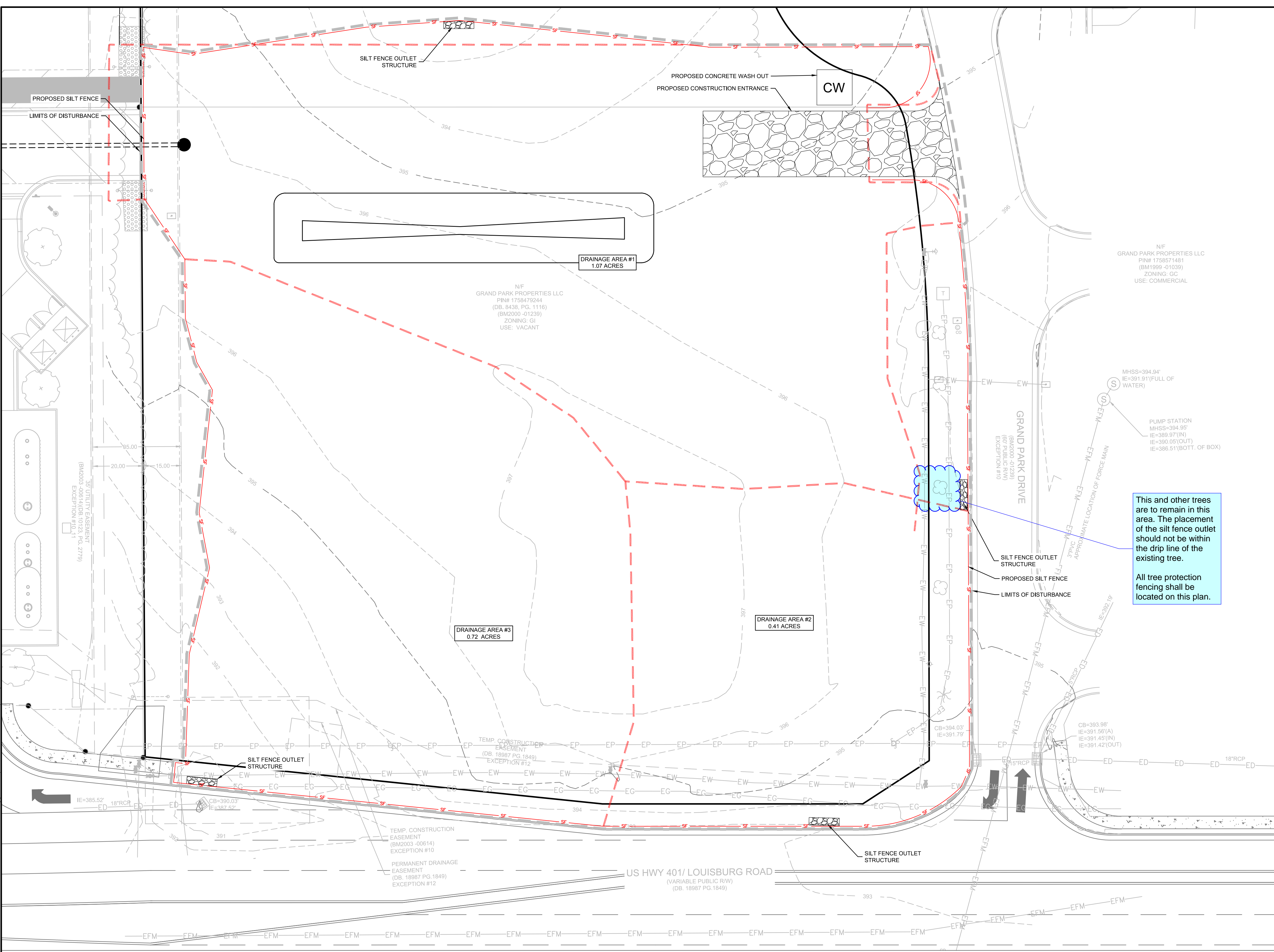
**EROSION CONTROL PH I**

**PHASE I SEQUENCING:**

- DRAFT EROSION AND SEDIMENT CONTROL PLAN MUST BE APPROVED AND A LETTER OF APPROVAL (LOA) MUST BE ISSUED PRIOR TO OBTAINING THE CERTIFICATE OF COVERAGE FROM DEQ
- RECEIVE NPDES COVERAGE FROM NCDEQ.
- PRE-CONSTRUCTION CONFERENCE TO BE CONDUCTED WITH THE WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) TO DISCUSS EROSION CONTROL MEASURE. FAILURE TO SCHEDULE SUCH CONFERENCE PRIOR TO ANY LAND DISTURBING ACTIVITY IS SUBJECT TO FINE. LDP WILL BE ISSUED AT THE PRE-CONSTRUCTION MEETING (ON-SITE). SITE SHOULD BE FLAGGED PRIOR TO PRE-CONSTRUCTION MEETING.
- INSTALL SILT FENCE, INLET PROTECTION, BERMS AND OTHER MEASURES AS SHOWN ON PLANS, CLEARING ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- CALL FOR ON-SITE INSPECTION BY WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907). WHEN APPROVED, INSPECTOR GIVES CONTRACTOR THE ABILITY TO CLEAR AND GRUB SITE.
- THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES.
- FOR PHASED EROSION CONTROL PLANS, CONTRACTOR SHALL MEET WITH EROSION CONTROL INSPECTOR PRIOR TO COMMENCING WITH EACH PHASE OF EROSION CONTROL MEASURES.
- CONTRACTOR SHALL NOT ALLOW MORE THAN 0.25 ACRES OF DISTURBED AREA TO DRAIN TOWARDS 100LF OF SILT FENCE OR PERFORM GRADING IN A MANNER THAT ALLOWS SEDIMENT LADEN WATER TO FLOW LONGITUDINALLY ALONG SILT FENCE LINE. IF A LOW SPOT DEVELOPS ALONG GRADING NEAR SILT FENCE, CONTRACTOR SHALL COORDINATE WITH EROSION CONTROL INSPECTOR TO PLACE A SILT FENCE OUTLET IN OUTLET LOCATIONS.
- CONTACT WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
- UPON APPROVAL FROM WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907), COMPLETE DEMOLITION OF ANY SITE FEATURES (PAVEMENT, CURB, ETC.), CLEARING AND GRUBBING, AND STRIP SITE OF TOP SOIL. ALL DEMOLISHED MATERIAL IS TO BE DISPOSED IN ACCORDANCE WITH APPLICABLE NORTH CAROLINA REGULATIONS. CONTRACTOR TO ENSURE ALL APPLICABLE DEMOLITION PERMITS HAVE BEEN ISSUED AND HAVE ORIGINALS OF THE SAME PRIOR TO COMMENCING DEMOLITION ACTIVITIES.
- CONTACT WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) UPON COMPLETION OF STRIPPING, THE STOCKPILING OF TOPSOIL, THE CONSTRUCTION OF TEMPORARY SEDIMENT AND EROSION CONTROL FACILITIES, DISPOSAL OF ALL WASTE MATERIAL, AND PREPARATION OF THE GROUND.

**INLET PROTECTION NOTE:**

PROVIDE APPROPRIATE INLET PROTECTION FOR VARIOUS PHASES OF THE CONSTRUCTION. HARDWARE CLOTH AND GRAVEL PROTECTION SHALL BE PROVIDED FOR INLETS IN NON-PAVED AREA. WEEP FILTERS SHALL BE PROVIDED FOR INLETS IN PAVED AREAS.



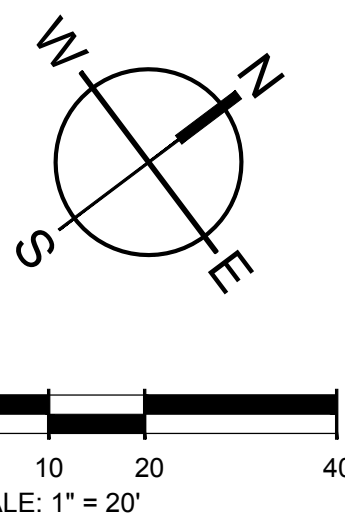
This and other trees are to remain in this area. The placement of the silt fence outlet should not be within the drip line of the existing tree. All tree protection fencing shall be located on this plan.

**TOTAL SITE ACREAGE**  
1.92 ACRES

**DISTURBED ACREAGE**  
2.22 ACRES

**EXISTING UTILITY NOTE:**  
THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING ANY WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

**STABILIZATION NOTE:**  
PROVIDE FINAL STABILIZATION FOR ALL DISTURBED AREAS. REFER TO THE LANDSCAPE PLAN FOR SPECIFIC MATERIALS / PLANTINGS. ANY DISTURBED AREA NOT ADDRESSED IN THE LANDSCAPE PLANS SHALL BE PERMANENT SEEDED.



**E&S PLAN LEGEND**

LIMITS OF DISTURBANCE	CONCRETE WASHOUT BASIN (SEE DETAIL)	CW
SILT FENCE, STANDARD	SILT BAG INLET PROTECTION	[Symbol]
SILT FENCE OUTLET/RIP RAP APRON/RIP RAP BASIN & ROCK SEDIMENT TRAP	HARDWARE CLOTH AND GRAVEL INLET PROTECTION	[Symbol]
CONSTRUCTION ENTRANCE	TEMPORARY SEEDING	TS
PERMANENT SOD		



501 WINDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29546 | JUDSON MILLS BUILDING 6000 TOY EASLEY BROOK RD, SUITE 6000 | GREENVILLE, SC 29611 | 701 N. CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MORGAN AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
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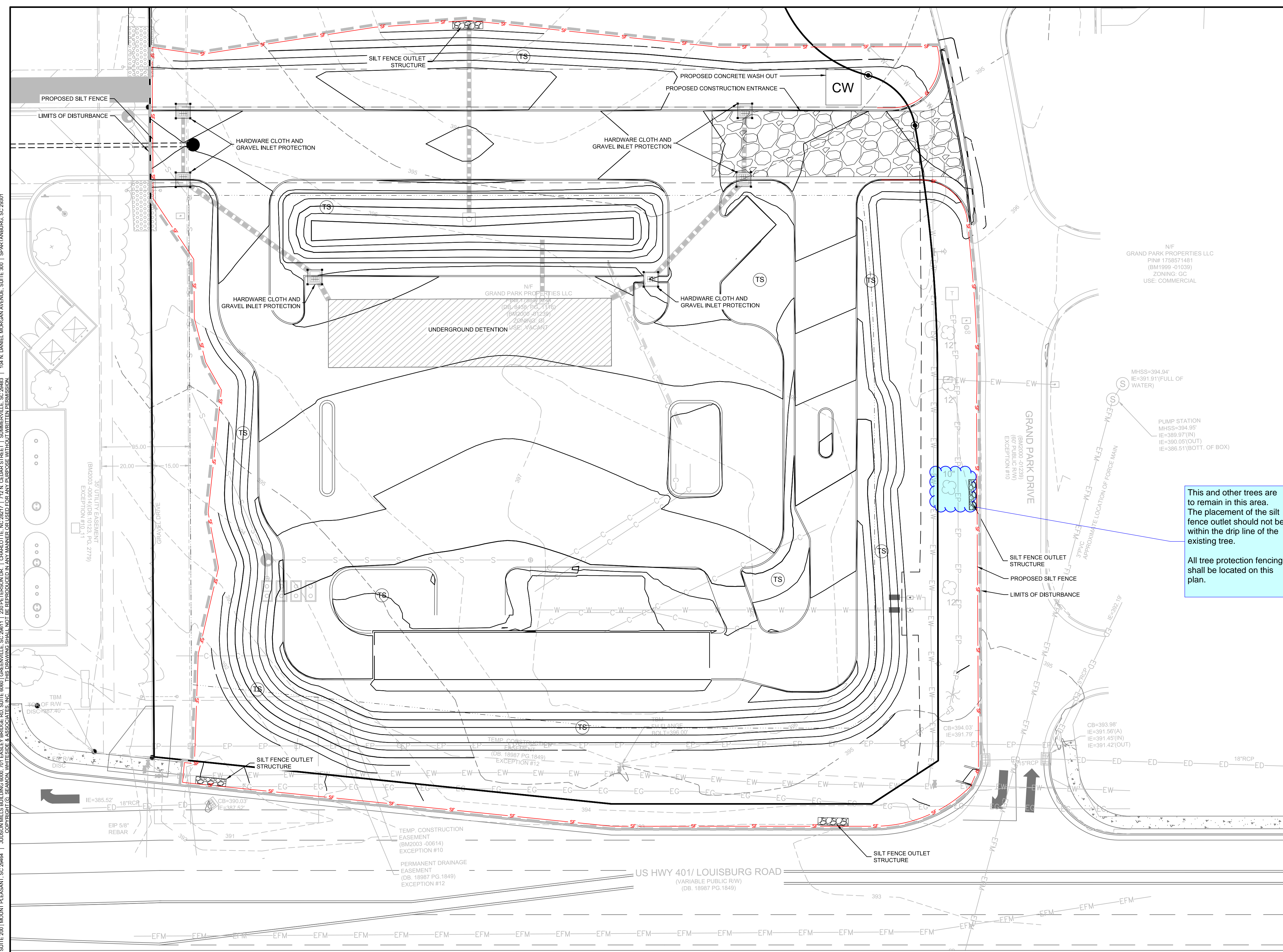


**PHASE II SEQUENCING:**

- CONTACT THE WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) FOR APPROVAL TO PROCEED.
- TEMPORARILY STABILIZE GRADED AREAS (NON-STEEP SLOPES) AS REQUIRED.
- COMPLETE ROUGH GRADING. COMPLETE THE INSTALLATION OF STORMWATER SYSTEM AND SITE UTILITIES.
- CONTACT THE WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) UPON COMPLETION OF ROUGH GRADING, BUT PRIOR TO PLACING TOPSOIL, PERMANENT DRAINAGE, OR OTHER SITE DEVELOPMENT IMPROVEMENTS AND GROUND COVERS.
- INSTALL CURB ALONG THE PERIMETER OF THE SITE TO AID IN THE PROTECTION OF THE EXISTING ADJACENT PROPERTIES AND THE ADJACENT ROADWAYS.

**INLET PROTECTION NOTE:**

PROVIDE APPROPRIATE INLET PROTECTION FOR VARIOUS PHASES OF THE CONSTRUCTION. HARDWARE CLOTH AND GRAVEL INLET PROTECTION SHALL BE PROVIDED FOR INLETS IN NON-PAVED AREA. DANDY SACK INLET PROTECTION SHALL BE PROVIDED FOR INLETS IN PAVED AREAS.

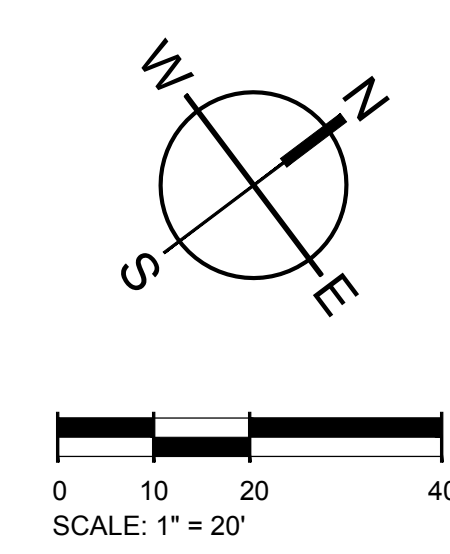


This and other trees are to remain in this area. The placement of the silt fence outlet should not be within the drip line of the existing tree. All tree protection fencing shall be located on this plan.

<b>TOTAL SITE ACREAGE</b>	<b>1.92 ACRES</b>
<b>DISTURBED ACREAGE</b>	<b>2.22 ACRES</b>

**EXISTING UTILITY NOTE:**  
THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING ANY WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

**STABILIZATION NOTE:**  
PROVIDE FINAL STABILIZATION FOR ALL DISTURBED AREAS. REFER TO THE LANDSCAPE PLAN FOR SPECIFIC MATERIALS / PLANTINGS. ANY DISTURBED AREA NOT ADDRESSED IN THE LANDSCAPE PLANS SHALL BE PERMANENT SEEDED.



**E&S PLAN LEGEND**

LIMITS OF DISTURBANCE	CONCRETE WASHOUT BASIN (SEE DETAIL)	CW
SILT FENCE, STANDARD	SILT BAG INLET PROTECTION	
SILT FENCE OUTLET/TRIP RAP APRON/RIP RAP BASIN & ROCK SEDIMENT TRAP	HARDWARE CLOTH AND GRAVEL INLET PROTECTION	
CONSTRUCTION ENTRANCE	TEMPORARY SEEDING	TS
PERMANENT SOD		PS



501 WINDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29464 | JUDSON MILLS BUILDING 6000 TOY EASLEY BROOK RD, SUITE 6000 | GREENVILLE, SC 29611 | 230 PETERSON DR. | CHARLOTTE, NC 28217 | 710 N. CENAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MORGAN AVENUE, SUITE 300 | SPARTANBURG, SC 29301



**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC

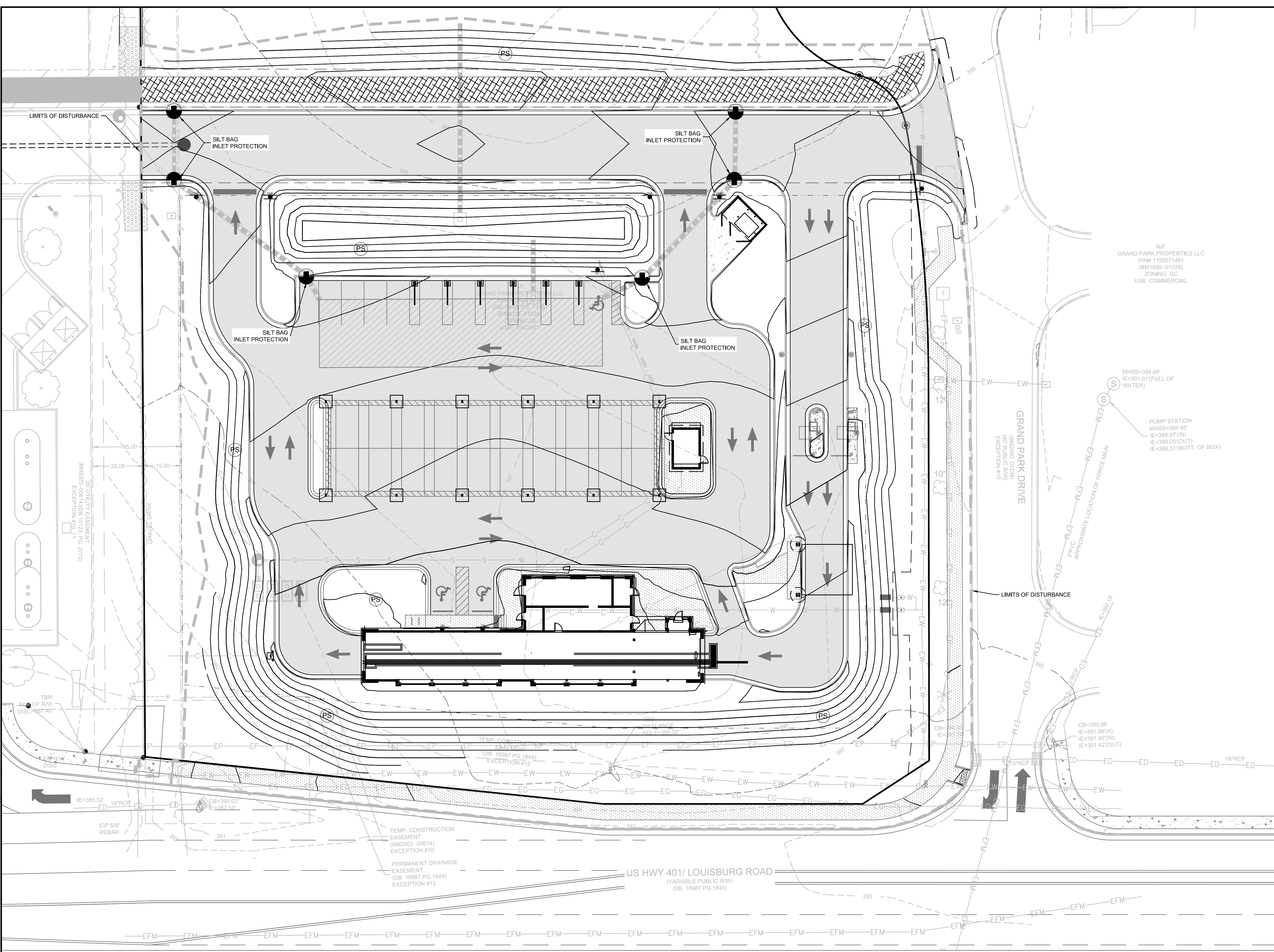
SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

**REVISION HISTORY**

NO.	DESCRIPTION

**EROSION CONTROL PH III**

- PHASE III SEQUENCING:**
- CONTACT WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) FOR APPROVAL TO PROCEED
  - BEGIN FINE GRADING AND INITIATE FINAL PAVING
  - ONCE BUILDING CONSTRUCTION FOR SITE IS COMPLETE, CONTACT THE WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) FOR APPROVAL TO REMOVE APPLICABLE EROSION CONTROL MEASURES.
  - PERMANENTLY STABILIZE ANY REMAINING AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE AND NOTES. INSTALL FINAL SITE LANDSCAPING
  - REQUEST FINAL APPROVAL FROM THE WAKE COUNTY FIELD CONSULTANT (JEEVAN NEUPANE 919-819-8907) PRIOR TO REMOVING ANY REMAINING SEDIMENT CONTROL MEASURES AND UPON COMPLETION OF FINAL GRADING, PERMANENT DRAINAGE, AND EROSION CONTROL FACILITIES, INCLUDING ESTABLISHED GROUND COVERS AND PLANTINGS, AND ALL OTHER WORK OF THE BUILDING PERMITS.



N/F  
GRAND PARK PROPERTIES LLC  
PIN# 1758571481  
(BM)1998-010139  
ZONING: GC  
USE: COMMERCIAL

MHSS-394.94'  
IE=391.91'(FULL OF WATER)  
  
PUMP STATION  
MHSS-394.96'  
IE=389.97'(IN)  
IE=390.05'(OUT)  
IE=388.51'(BOTT. OF BOX)

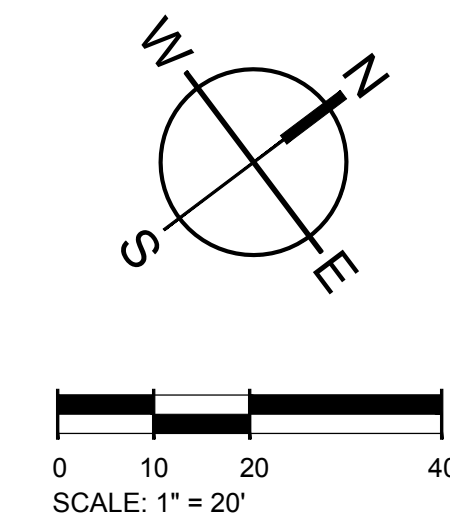
CB-393.96'  
IE=391.95'(A)  
IE=391.42'(IN)  
IE=391.42'(OUT)

**TOTAL SITE ACREAGE**  
1.92 ACRES

**DISTURBED ACREAGE**  
2.22 ACRES

**EXISTING UTILITY NOTE:**  
THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING ANY WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

**STABILIZATION NOTE:**  
PROVIDE FINAL STABILIZATION FOR ALL DISTURBED AREAS. REFER TO THE LANDSCAPE PLAN FOR SPECIFIC MATERIALS / PLANTINGS. ANY DISTURBED AREA NOT ADDRESSED IN THE LANDSCAPE PLANS SHALL BE PERMANENT SEEDDED.



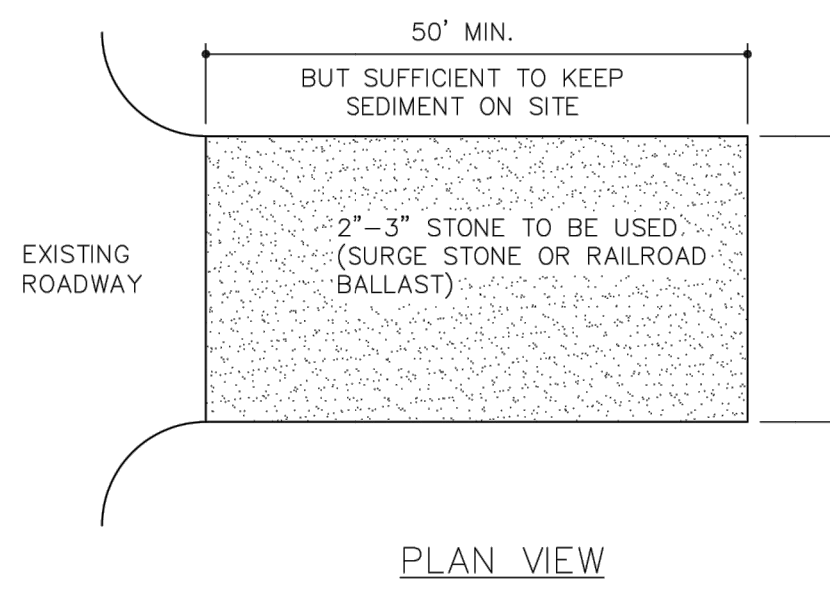
**E&S PLAN LEGEND**

LIMITS OF DISTURBANCE	CONCRETE WASHOUT BASIN (SEE DETAIL)	CW
SILT FENCE, STANDARD	SILT BAG INLET PROTECTION	SB
SILT FENCE OUTLET/RIP RAP APRON/RIP RAP BASIN & ROCK SEDIMENT TRAP	HARDWARE CLOTH AND GRAVEL INLET PROTECTION	HC
CONSTRUCTION ENTRANCE	TEMPORARY SEEDING	TS
PERMANENT SOD		PS

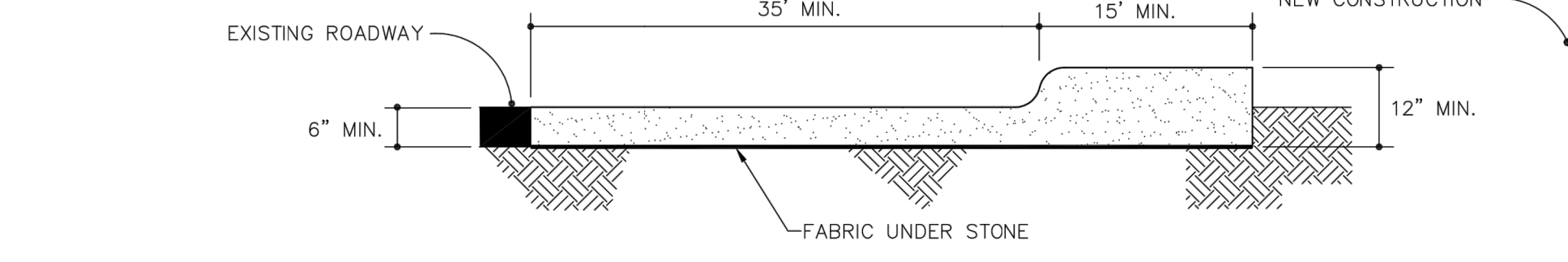


501 WANDOPARKBOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29546 | JUDSON MILLS BUILDING 6000 TOY EASLEY BROOK RD, SUITE 6000 | GREENVILLE, SC 29611 | 230 PETERSON DR | CHARLOTTE, NC 28217 | 713 N. CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MORGAN AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
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- NOTES:**
1. INSTALL SILT FENCE OR TREE PROTECTION FENCE TO ENSURE CONSTRUCTION ENTRANCE IS USED BY VEHICLES.
  2. IF MUD IS NOT REMOVED FROM TIRES AFTER VEHICLE TRAVELS OVER STONE, THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING PUBLIC ROADS.
- MAINTENANCE NOTES:**
1. THE GRAVEL CONSTRUCTION ENTRANCE MUST BE MAINTAINED IN A CONDITION TO PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO ADJACENT ROADWAYS.
  2. REPLACEMENT OF STONE MAY BE NECESSARY TO ENSURE THE GRAVEL ENTRANCE FUNCTIONS PROPERLY.
  3. REPLENISHMENT OF STONE MAY BE NECESSARY.
  4. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE SHOULD BE COMPLETED.
  5. ANY MATERIAL TRACKED ONTO THE ROADWAY SHALL BE CLEANED UP IMMEDIATELY.

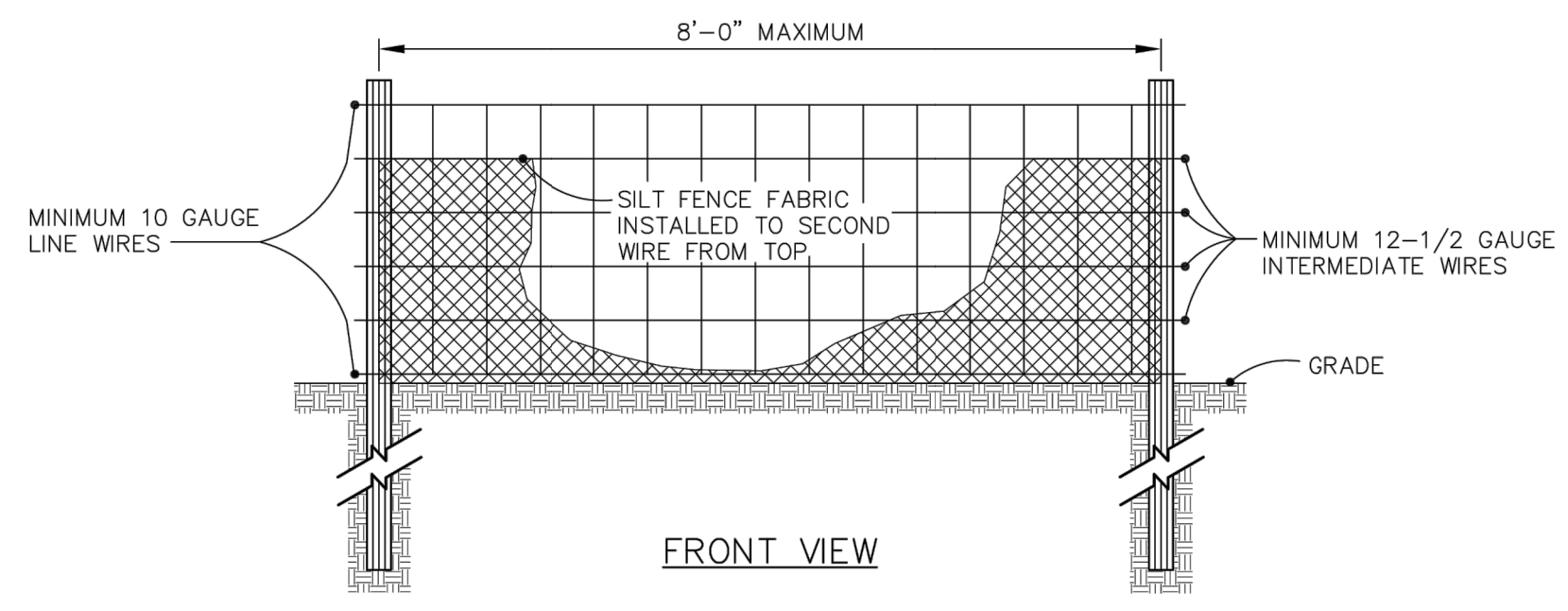


CROSS SECTION

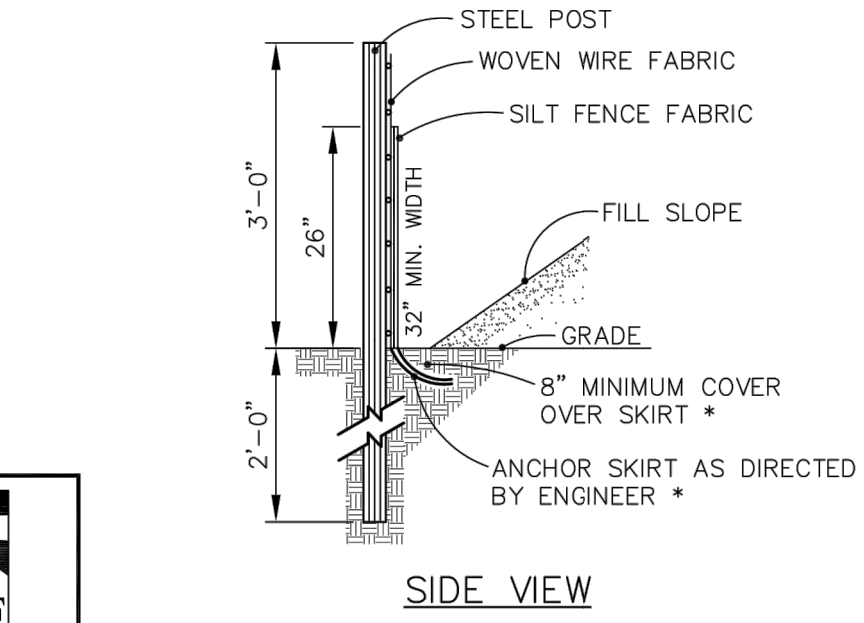
STANDARD CONSTRUCTION ENTRANCE



EFFECTIVE: 01/31/08



FRONT VIEW



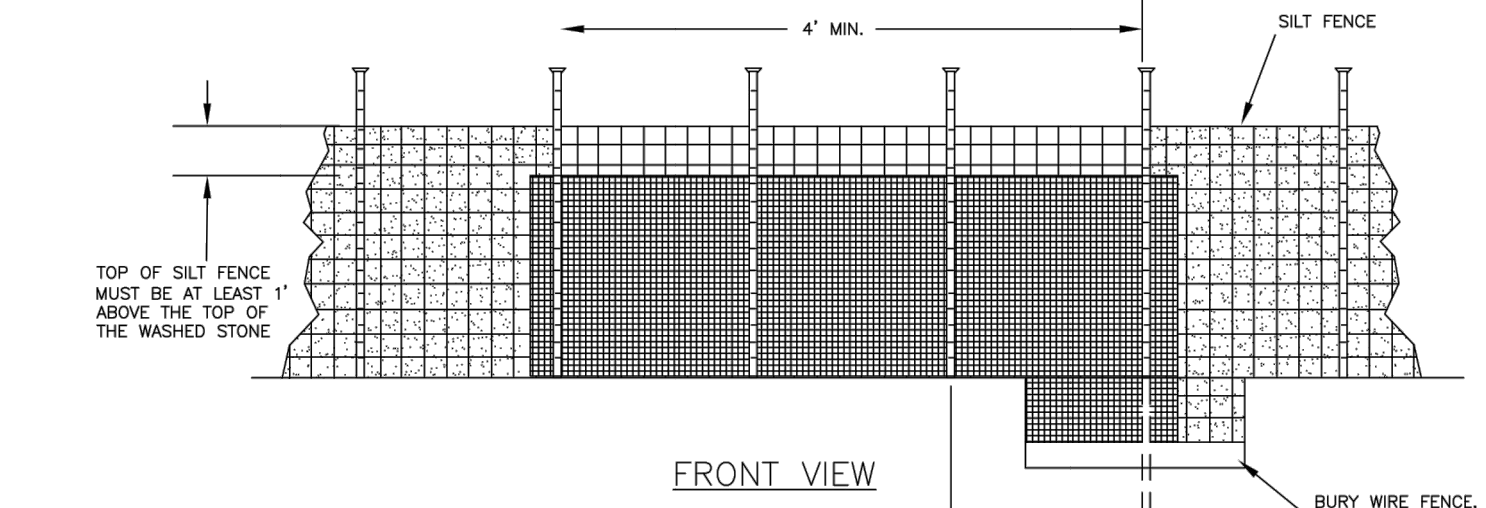
SIDE VIEW

- MAINTENANCE NOTES:**
1. INSPECT BAG AFTER EACH SIGNIFICANT RAINFALL OF 1 INCHES OR GREATER, OVER A 24-HOUR PERIOD. MAKE ANY REPAIRS IMMEDIATELY.
  2. INSPECT THE SILT FENCE TO BE SURE THE BOTTOM OF THE GEOTEXTILE IS KEPT IN PROPERLY.
  3. AT A MINIMUM, REMOVE AND DISPOSE OF ALL SILT ACCUMULATIONS WHEN DEPTH REACHES 1/2 THE HEIGHT OF THE GEOTEXTILE. DO NOT UNDERMINE THE FENCE DURING CLEANOUT.
  4. DISPOSE OF SEDIMENT BY HAULING IT TO AN APPROVED WASTE SITE WITH APPROPRIATE PERIMETER PROTECTION.
  5. REMOVE AND REPLACE DETERIORATED OR CLOGGED SILT FENCE.
  6. REPLACE SILT FENCE REMOVED FOR ACCESS AT THE END OF EACH DAY'S OPERATION.
  7. INSTALL ADDITIONAL POSTS OR WIRE BACKING IF FENCE IS SAGGING.

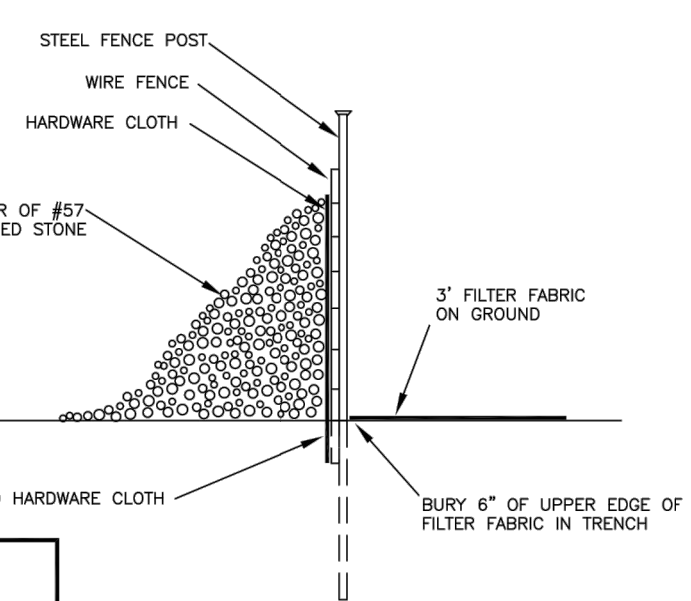
STANDARD TEMPORARY SILT FENCE



EFFECTIVE: 01/31/08



FRONT VIEW



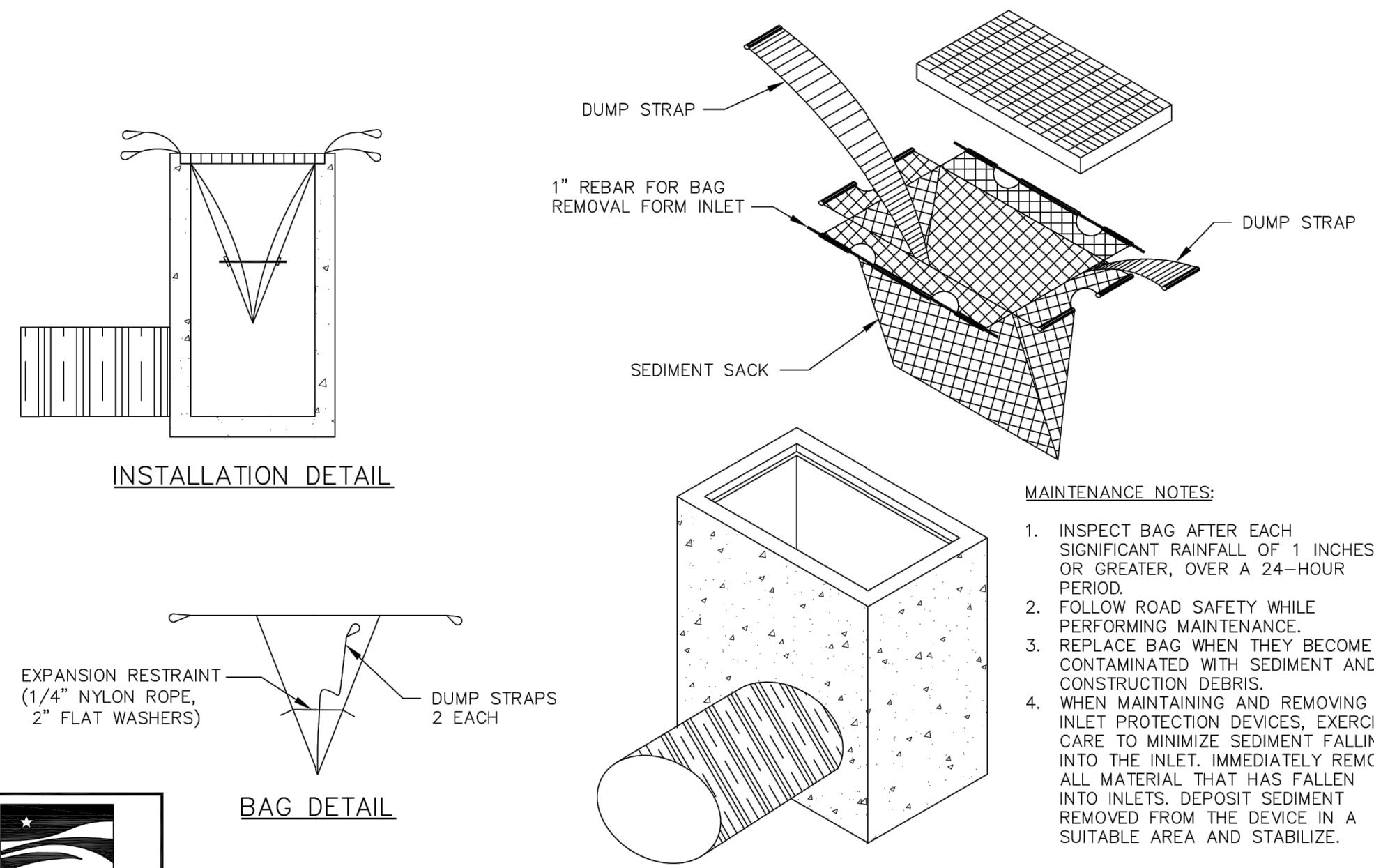
SECTION VIEW

- MAINTENANCE NOTES:**
1. INSPECT THE DEVICE PERIODICALLY AND AFTER 1 INCH RAINFALL OVER 24 HOUR PERIOD FOR DAMAGE AND SEDIMENT ACCUMULATION TO CONFIRM THE DEVICE IS FUNCTIONING PROPERLY.
  2. AT A MINIMUM, REMOVE SEDIMENT FROM THE DEVICE WHEN ACCUMULATIONS REACH ONE-HALF THE HEIGHT OF THE SEDIMENT CONTROL STONE.
  3. REPLACE OR CLEAN THE SEDIMENT CONTROL STONE AS NEEDED TO ALLOW WATER TO DRAIN THROUGH THE DEVICE BETWEEN RAINFALL EVENTS.
  4. REPAIR AREAS WHERE OUTLET BECOMES UNDERMINED DUE TO CONCENTRATED FLOWS.

STANDARD SILT FENCE OUTLET



EFFECTIVE: 01/31/08



INSTALLATION DETAIL

BAG DETAIL

- MAINTENANCE NOTES:**
1. INSPECT BAG AFTER EACH SIGNIFICANT RAINFALL OF 1 INCHES OR GREATER, OVER A 24-HOUR PERIOD.
  2. FOLLOW ROAD SAFETY WHILE PERFORMING MAINTENANCE.
  3. REPLACE BAG WHEN THEY BECOME CONTAMINATED WITH SEDIMENT AND CONSTRUCTION DEBRIS.
  4. WHEN MAINTAINING AND REMOVING INLET PROTECTION DEVICES, EXERCISE CARE TO MINIMIZE SEDIMENT FALLING INTO THE INLET. IMMEDIATELY REMOVE ALL MATERIAL THAT HAS FALLEN INTO INLETS. DEPOSIT SEDIMENT REMOVED FROM THE DEVICE IN A SUITABLE AREA AND STABILIZE.

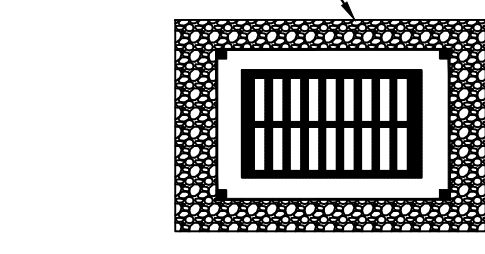
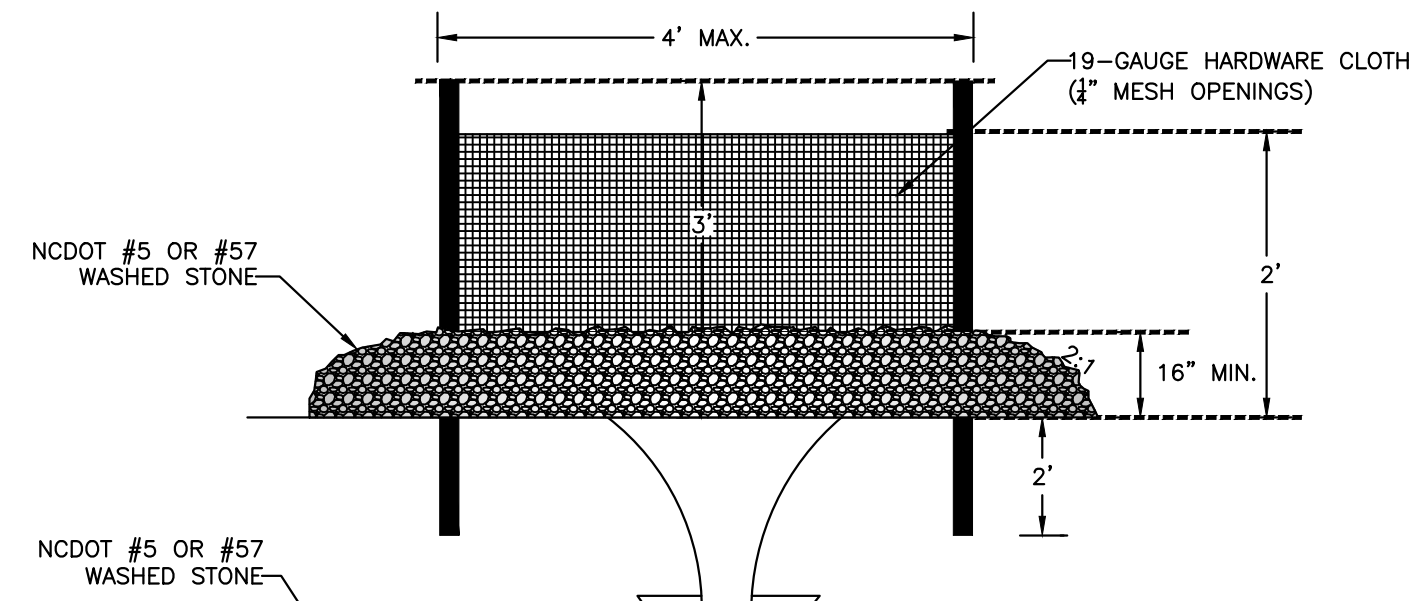
STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE



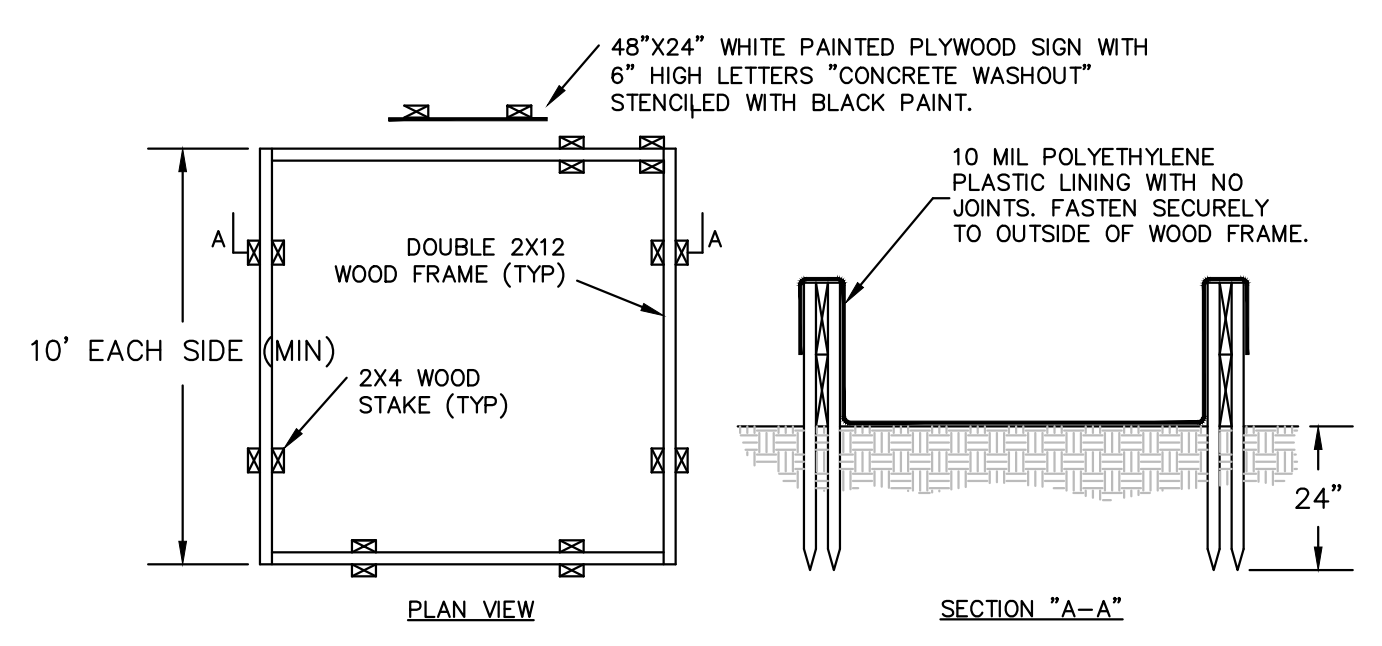
EFFECTIVE: 01/31/08

**GENERAL NOTES:**

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NO DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUND COVER.



Hardware Cloth and Gravel Inlet Protection  
SCALE: NOT TO SCALE



PLAN VIEW

SECTION "A-A"

- NOTES:**
1. PREPARE GROUND & FRAME SUCH THAT SHARP OBJECTS/CORNERS DO NOT DAMAGE THE LINER. PROMPTLY REMOVE CONTENTS (AS NOTED BELOW) & REPLACE LINER IF LEAKAGE IS OBSERVED.
  2. LIQUID & CONCRETE DEBRIS SHALL BE REMOVED BY VACUUM TRUCK & LEGALLY DISPOSED UPON COMPLETION OF PROJECT OR ANYTIME WHEN LIQUID REACHES A LEVEL 8" BELOW THE TOP.

Concrete Washout Basin  
SCALE: NOT TO SCALE

**FOR LATE WINTER AND EARLY SPRING:**

**SOIL AMENDMENTS:**  
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER

**MULCH:**  
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

**MAINTENANCE:**  
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

**SEEDING DATES:**  
JAN. 1 - MAY 1

**FOR SUMMER:**

**SOIL AMENDMENTS:**  
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER

**MULCH:**  
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

**MAINTENANCE:**  
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

**SEEDING DATES:**  
MAY 1 - AUG. 15

**FOR FALL:**

**SOIL AMENDMENTS:**  
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 FERTILIZER

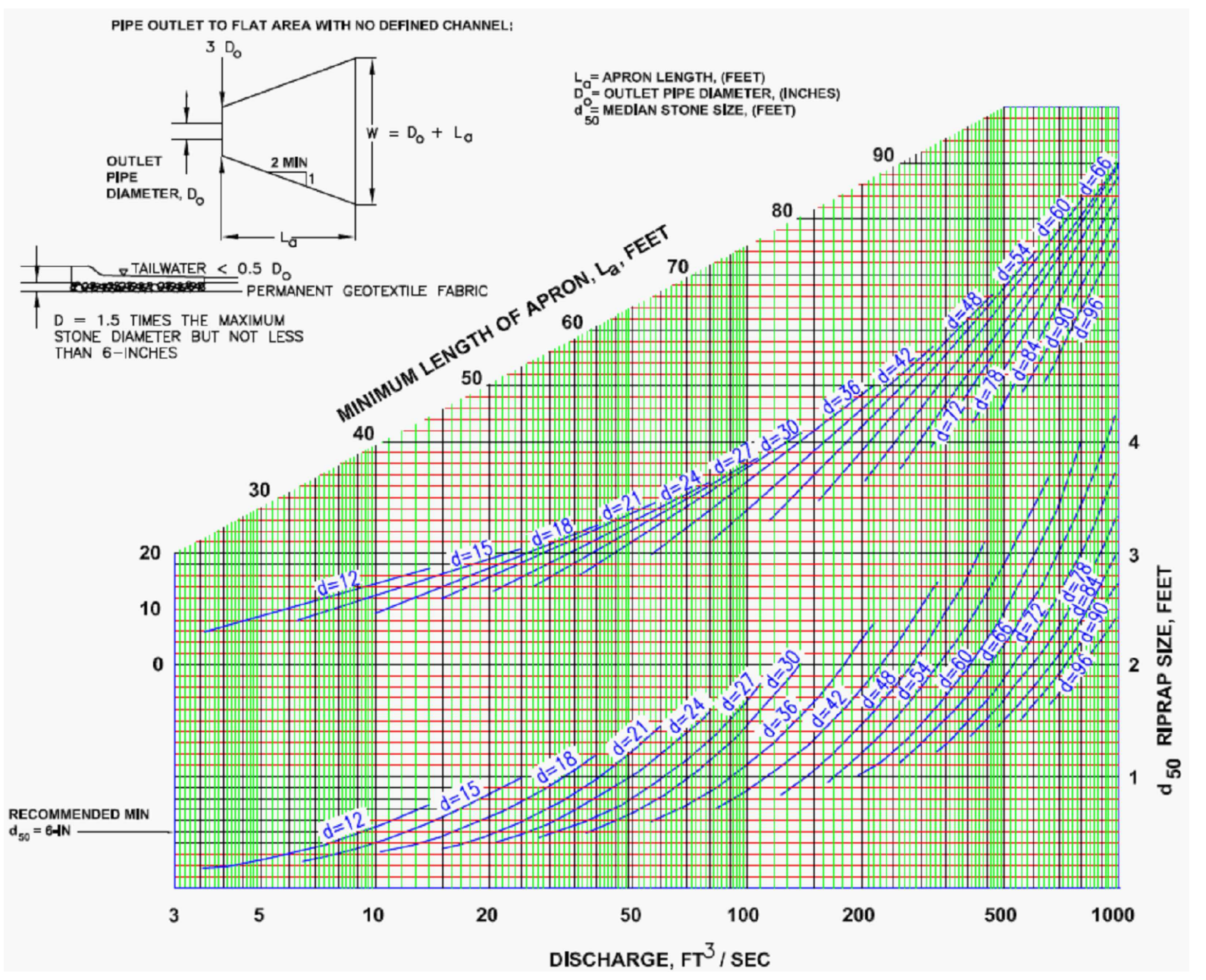
**MULCH:**  
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

**MAINTENANCE:**  
REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/ACRE KOBE LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

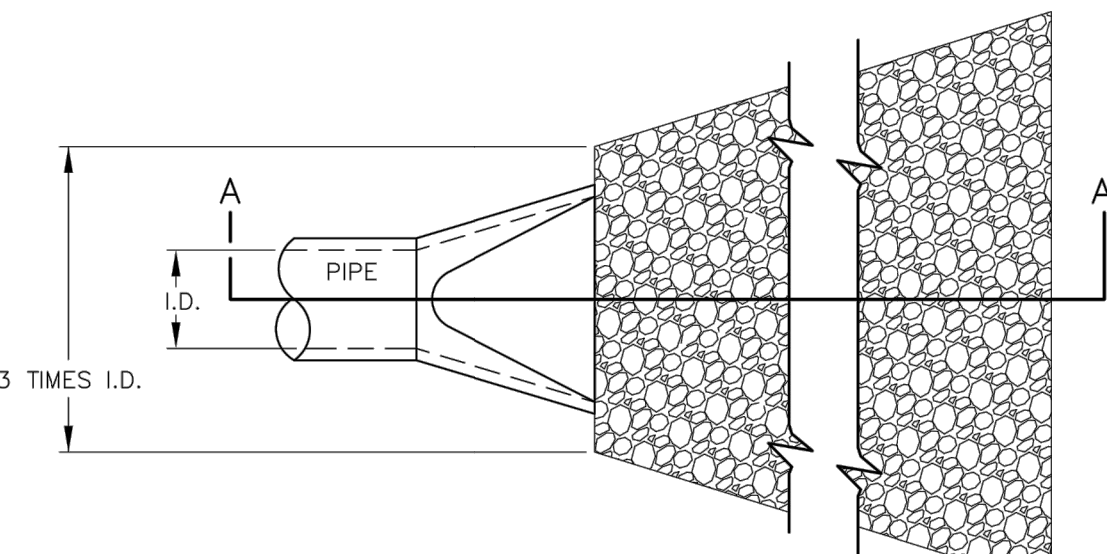
**SEEDING DATES:**  
AUG. 15 - DEC 30

FOR ADDITIONAL INFORMATION, REFER TO NCDENR EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL (ESCPDM), SECTION 6.10. FOR PERMANENT SEED BED PREP, SEASONAL OPERATIONS, INCLUDING SEED BED GRADATIONS, THE KINDS OF GRADES OF FERTILIZERS, THE KINDS OF SEED, AND THE RATES OF APPLICATION OF LIMESTONE, FERTILIZER, AND SEED, REFER TO NCDENR ESCPDM SECTION 6.11.

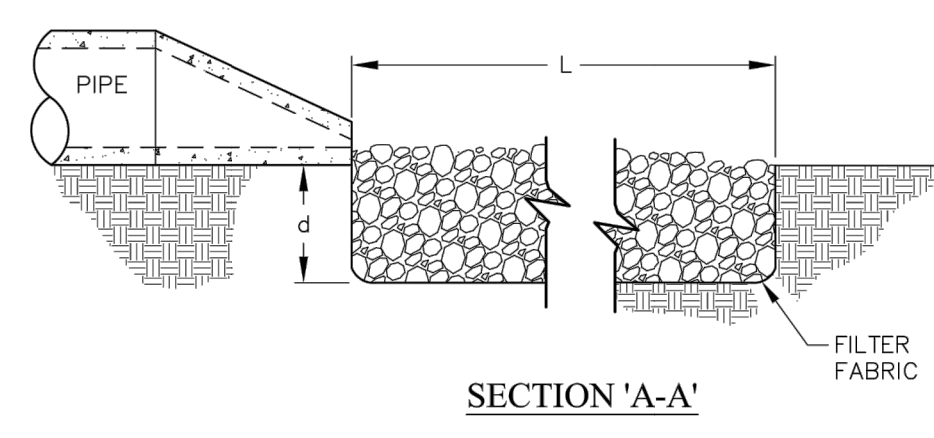
Temporary Seeding Schedule  
SCALE: NOT TO SCALE



Pipe Outlet Riprap Protection with Calculations  
SCALE: NOT TO SCALE



PLAN VIEW



SECTION "A-A"

- NOTES:**
1. L = THE LENGTH OF THE RIPRAP APRON.
  2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
  3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
- MAINTENANCE NOTES:**
1. INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

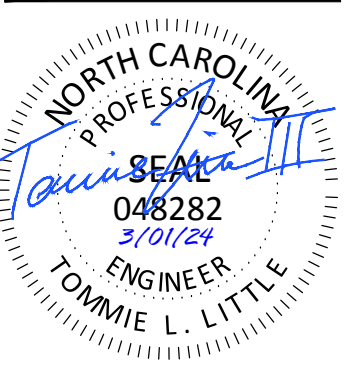
STANDARD PIPE OUTLET TO FLAT AREA  
NO WELL-DEFINED CHANNEL



EFFECTIVE: 01/31/08



MOUNT PLEASANT, SC 843.884.1667  
 GREENVILLE, SC 864.298.0534  
 SUMMERVILLE, SC 843.972.0710  
 SPARTANBURG, SC 864.272.1272  
 CHARLOTTE, NC 980.312.5450  
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TIDAL WAVE AUTO SPA  
 ROLESVILLE, NC

SW+ PROJECT: 10772  
 DATE: 3/01/24  
 DRAWN BY: CPE  
 CHECKED BY: TLL

**REVISION HISTORY**

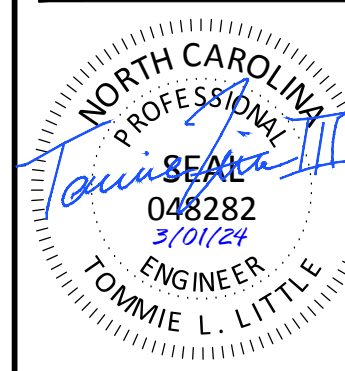
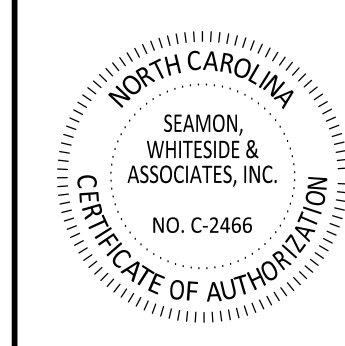
NO.	DESCRIPTION

EROSION CONTROL DETAILS









**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC

SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

**REVISION HISTORY**

NO.	DESCRIPTION

SITE PLAN

C5.1

**SITE INFORMATION:**

ADDRESS: ROLESVILLE, NC  
PROPERTY AREA: 1.92 ACRES  
PARCEL: 1758479244  
EXISTING USE: UNDEVELOPED  
PROPOSED USE: CAR WASH

PROPERTY ZONING: GI-CZ (GENERAL INDUSTRIAL - CONDITIONAL ZONING)

**BUILDING SETBACKS:**

FRONT (SE):	30'
CORNER (NE):	25'
REAR (NW):	35'
SIDE (SW):	15'

**PERIMETER LANDSCAPE YARDS:**  
NORTHEAST: 15'

**REQUIRED OPEN SPACE (5%) = 0.01 AC (4182 SF)**

**PRE VS. POST DEVELOPMENT AREA:**

SITE AREA:	1.92 AC
PRE-IMPERVIOUS AREA:	0.04 AC (2.08%)
POST-IMPERVIOUS AREA:	1.30 AC (67.7%)

**PARKING NOTE:**

PARKING REQUIRED:  
1 SPACE PER 400 SF GFA OR 5 SPACES MINIMUM = 5 SPACES

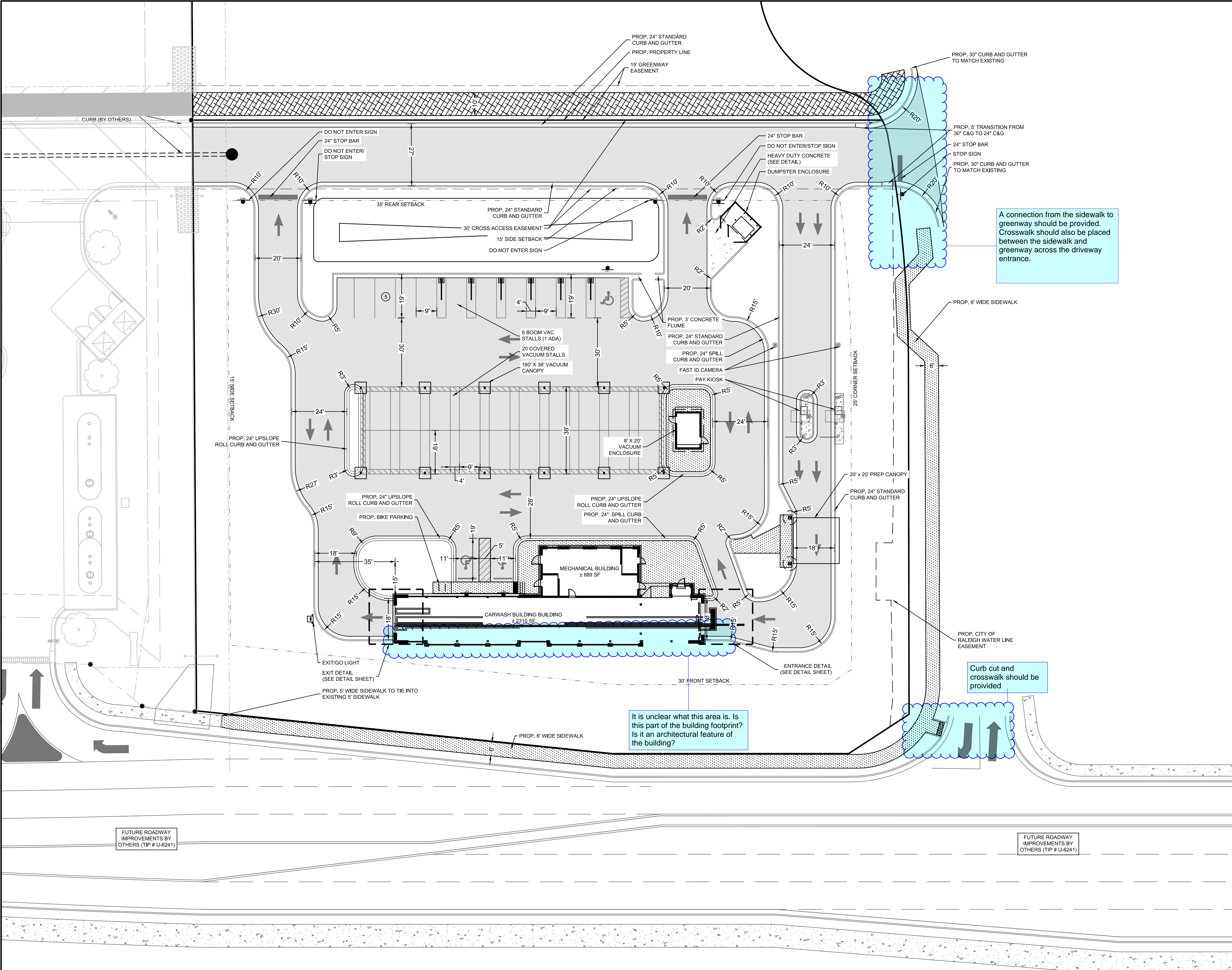
**PARKING PROVIDED:**

EMPLOYEE SPACES: (4 MAX ON SHIFT)	5 SPACES
VACUUM STALLS:	26 STALLS (1 ADA)
ADA PARKING:	2 SPACES
TOTAL PARKING:	33 SPACES

**BIKE PARKING:**  
REQUIRED: 1 SPACE (1 SPACE PER 5000 SF GFA)  
PROVIDED: 4 SPACES

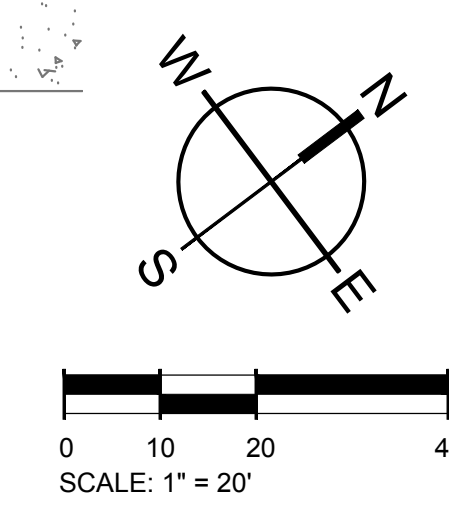
**SITE LAYOUT AND STAKING NOTES:**

- CONTRACTOR SHALL CAREFULLY EXAMINE ALL DOCUMENTS AND THE CONSTRUCTION SITE TO OBTAIN FIRST HAND KNOWLEDGE OF EXISTING CONDITIONS.
- ENTIRE SITE SHALL BE DRESSED TO UNIFORM, WELL DRAINED AND VISUALLY APPEALING SURFACE WITH A MINIMUM TOPSOIL LAYER OF FOUR INCHES.
- ALL STRIPING AND SIGNS SHALL CONFORM WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES LATEST EDITION. PARKING STALL STRIPING TO BE WHITE WITH BLUE HANDICAPPED STRIPING.
- ALL HANDICAP PARKING SPACED AND ACCESSIBLE ROUTE SHALL CONFORM WITH THE AMERICAN WITH DISABILITY ACT DESIGN GUIDELINES AND SPECIFICATIONS LATEST EDITION.
- DIMENSIONS AND CURVE RADII ARE GIVEN TO FACE OF CURB. WHERE CURB AND GUTTER IS SHOWN, OTHERWISE DIMENSIONS ARE GIVEN TO THE EDGE OF PAVEMENT. CONTRACTOR IS TO COORDINATE WITH THE ARCHITECTURAL PLANS AS TO THE BUILDING LAYOUT AND DIMENSIONS.



**SITE LEGEND**

[Pattern]	PROPOSED SIDEWALK
[Pattern]	HEAVY DUTY CONCRETE PAVEMENT
[Pattern]	STANDARD DUTY CONCRETE PAVEMENT
[Pattern]	ASPHALT GREENWAY
[Symbol]	STOP SIGN
[Symbol]	DO NOT ENTER SIGN
[Symbol]	HANDICAP PARKING SIGN



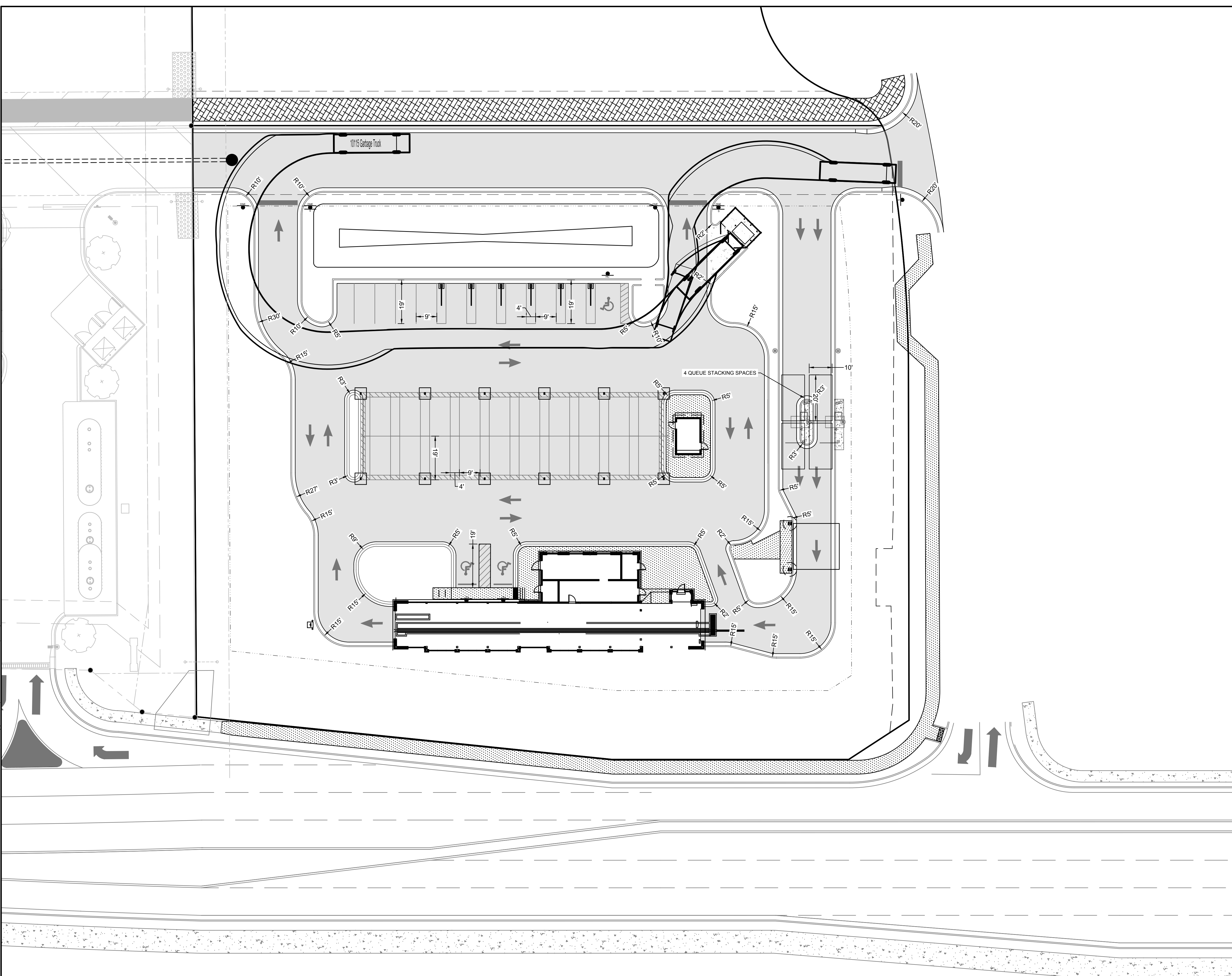
501 WINDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29564 | JUDSON MILLS BUILDING 6000, 701 EASLEY BROOK RD, SUITE 6000 | GREENVILLE, SC 29611 | 230 PETERSBURG | CHARLOTTE, NC 28217 | 710 N. CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MCGRAW AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
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FUTURE ROADWAY IMPROVEMENTS BY OTHERS (TIP # U-6241)

FUTURE ROADWAY IMPROVEMENTS BY OTHERS (TIP # U-6241)



501 WINDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29564 | JUDSON MILLS BUILDING 6000, 701 EASLEY BROOK RD, SUITE 6000, GREENVILLE, SC 29611 | 230 PETERSBURG | CHARLOTTE, NC 28217 | 720 N. CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MCGRAW AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
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**SITE INFORMATION:**

ADDRESS: ROLESVILLE, NC  
 PROPERTY AREA: 1.82 ACRES  
 PARCEL: 1758479244  
 EXISTING USE: UNDEVELOPED  
 PROPOSED USE: CAR WASH

PROPERTY ZONING: GI-CZ (GENERAL INDUSTRIAL - CONDITIONAL ZONING)

**BUILDING SETBACKS:**

FRONT (SE):	30'
FRONT (NE):	25'
SIDE (NW):	15'
SIDE (SW):	30'

**PERIMETER LANDSCAPE YARDS:**

NORTHEAST:	15'
------------	-----

**PRE VS. POST DEVELOPMENT AREA:**

SITE AREA:	1.82 AC
PRE-IMPERVIOUS AREA:	0.04 AC (2.20%)
POST-IMPERVIOUS AREA:	1.29 AC (70.88%)

**PARKING NOTE:**

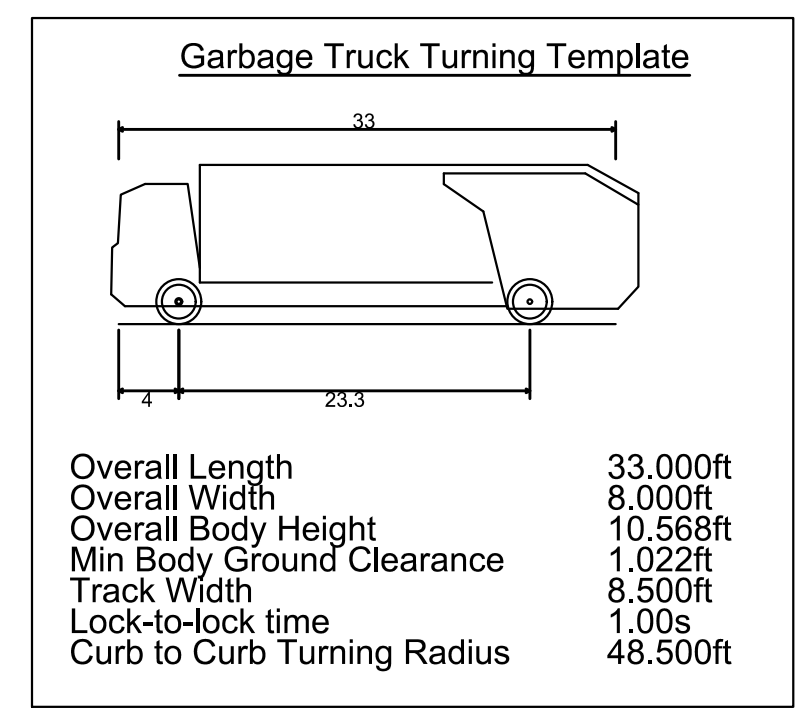
**PARKING REQUIRED:**  
 1 SPACE PER 400 SF GFA OR 5 SPACES MINIMUM = 5 SPACES

**PARKING PROVIDED:**

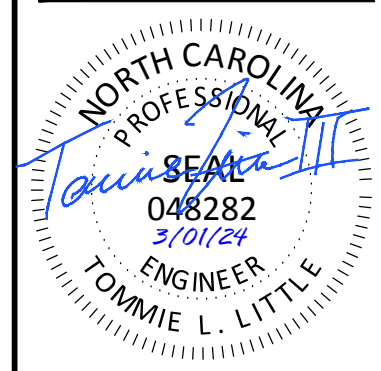
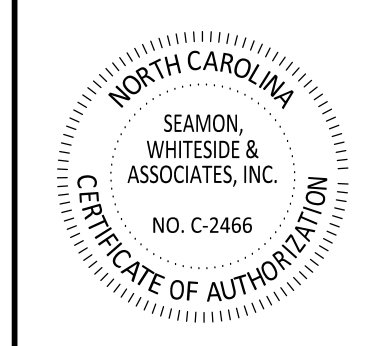
EMPLOYEE SPACES:	5 SPACES (1 ADA)
(4 MAX ON SHIFT)	
VACUUM STALLS:	34 STALLS

**SITE LAYOUT AND STAKING NOTES:**

- CONTRACTOR SHALL CAREFULLY EXAMINE ALL DOCUMENTS AND THE CONSTRUCTION SITE TO OBTAIN FIRST HAND KNOWLEDGE OF EXISTING CONDITIONS.
- ENTIRE SITE SHALL BE DRESSED TO UNIFORM, WELL DRAINED AND VISUALLY APPEALING SURFACE WITH A MINIMUM TOPSOIL LAYER OF FOUR INCHES.
- ALL STRIPING AND SIGNS SHALL CONFORM WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES LATEST EDITION. PARKING STALL STRIPING TO BE WHITE WITH BLUE HANDICAPPED STRIPING.
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MOUNT PLEASANT, SC 843.884.1667  
 GREENVILLE, SC 864.298.0534  
 SUMMERVILLE, SC 843.972.0710  
 SPARTANBURG, SC 864.272.1272  
 CHARLOTTE, NC 980.312.5450  
 WWW.SEAMONWHITESIDE.COM



**TIDAL WAVE AUTO SPA**  
 ROLESVILLE, NC

SW+ PROJECT: 10772  
 DATE: 3/01/24  
 DRAWN BY: CPE  
 CHECKED BY: TLL

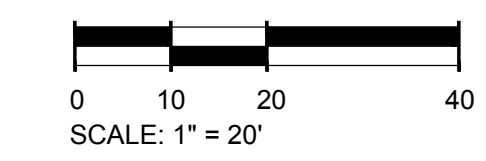
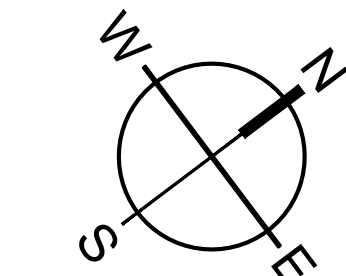
**REVISION HISTORY**

NO.	DESCRIPTION

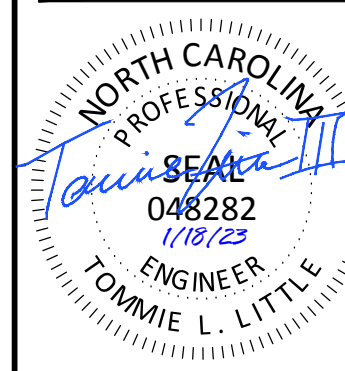
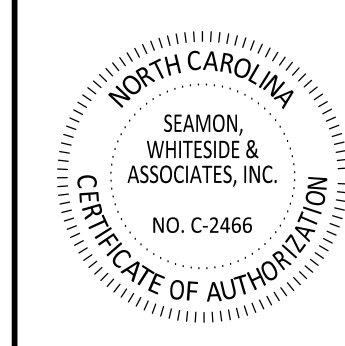
VEHICLE STACKING & TURNING MOVEMENT



Know what's below.  
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**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC

SW+ PROJECT: 10772  
DATE: 1/18/23  
DRAWN BY: CPE  
CHECKED BY: TLL

**REVISION HISTORY**

NO.	DESCRIPTION

**FIRE PROTECTION PLAN**

**SITE INFORMATION:**  
ADDRESS: ROLESVILLE, NC  
PROPERTY AREA: 1.82 ACRES  
PARCEL: 1758479244  
EXISTING USE: UNDEVELOPED  
PROPOSED USE: CAR WASH

PROPERTY ZONING: GI-CZ (GENERAL INDUSTRIAL - CONDITIONAL ZONING)  
BUILDING SETBACKS:  
FRONT (SE): 30'  
FRONT (NE): 25'  
SIDE (NW): 15'  
SIDE (SW): 30'

PERIMETER LANDSCAPE YARDS:  
NORTHEAST: 15'

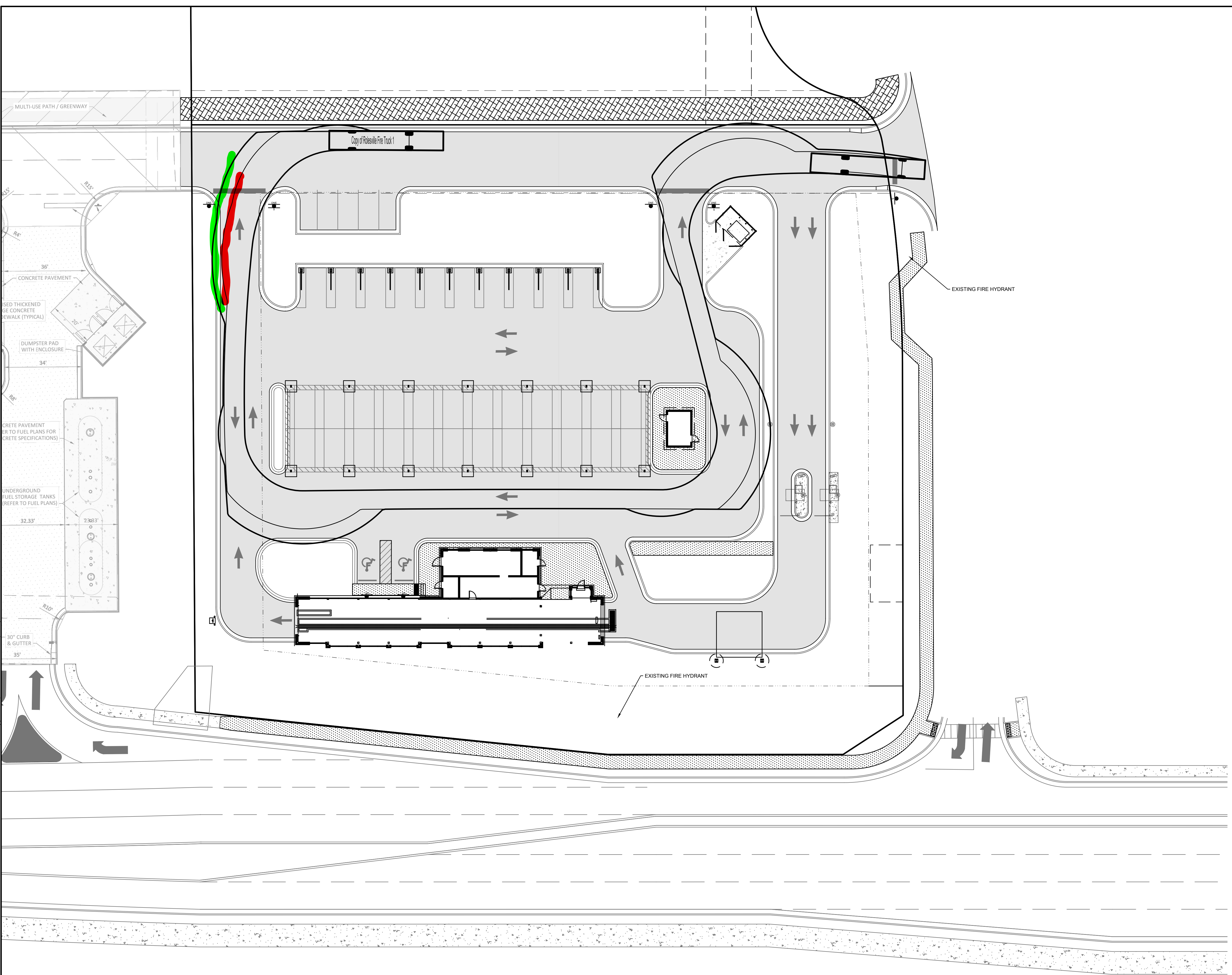
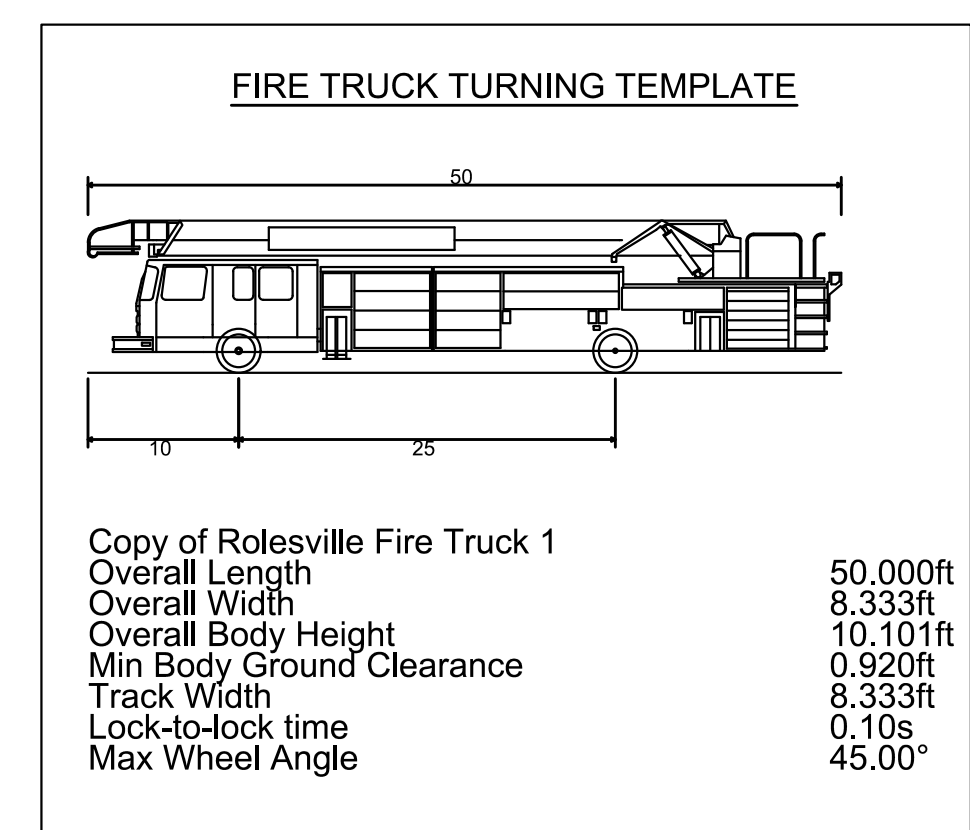
PRE VS. POST DEVELOPMENT AREA:  
SITE AREA: 1.82 AC  
PRE-IMPERVIOUS AREA: 0.04 AC (2.20%)  
POST-IMPERVIOUS AREA: 1.29 AC (70.88%)

**PARKING NOTE:**  
PARKING REQUIRED:  
1 SPACE PER 400 SF GFA OR 5 SPACES MINIMUM = 5 SPACES

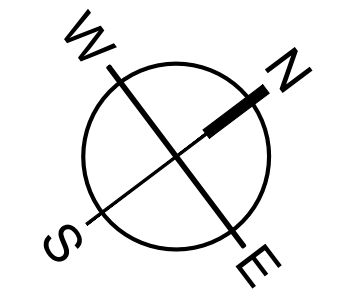
PARKING PROVIDED:  
EMPLOYEE SPACES: 5 SPACES (1 ADA)  
(4 MAX ON SHIFT)  
VACUUM STALLS: 34 STALLS

**SITE LAYOUT AND STAKING NOTES:**

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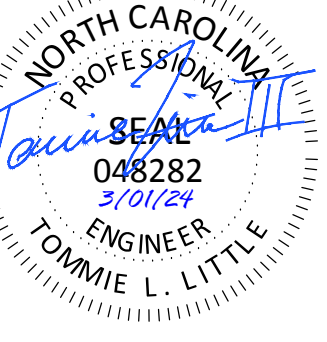
Know what's below.  
Call before you dig.



SCALE: 1" = 20'

501 WINDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29546 | JUDSON MILLS BUILDING 6000, 701 EASLEY BROOK RD, SUITE 6000, GREENVILLE, SC 29611, 230 PETERSON DR., CHARLOTTE, NC 28217, 7101 CEDAR STREET | SUMMERVILLE, SC 29586 | 104 N. DANIEL MCGRAW AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
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**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC

SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

**REVISION HISTORY**

NO.	DESCRIPTION

FIRE PROTECTION PLAN

**SITE INFORMATION:**

ADDRESS: ROLESVILLE, NC  
PROPERTY AREA: 1.82 ACRES  
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PROPOSED USE: CAR WASH

PROPERTY ZONING: GI-CZ (GENERAL INDUSTRIAL - CONDITIONAL ZONING)

**BUILDING SETBACKS:**

FRONT (SE):	30'
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SIDE (NW):	15'
SIDE (SW):	30'

**PERIMETER LANDSCAPE YARDS:**

NORTHEAST:	15'
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**PRE VS. POST DEVELOPMENT AREA:**

SITE AREA:	1.82 AC
PRE-IMPERVIOUS AREA:	0.04 AC (2.20%)
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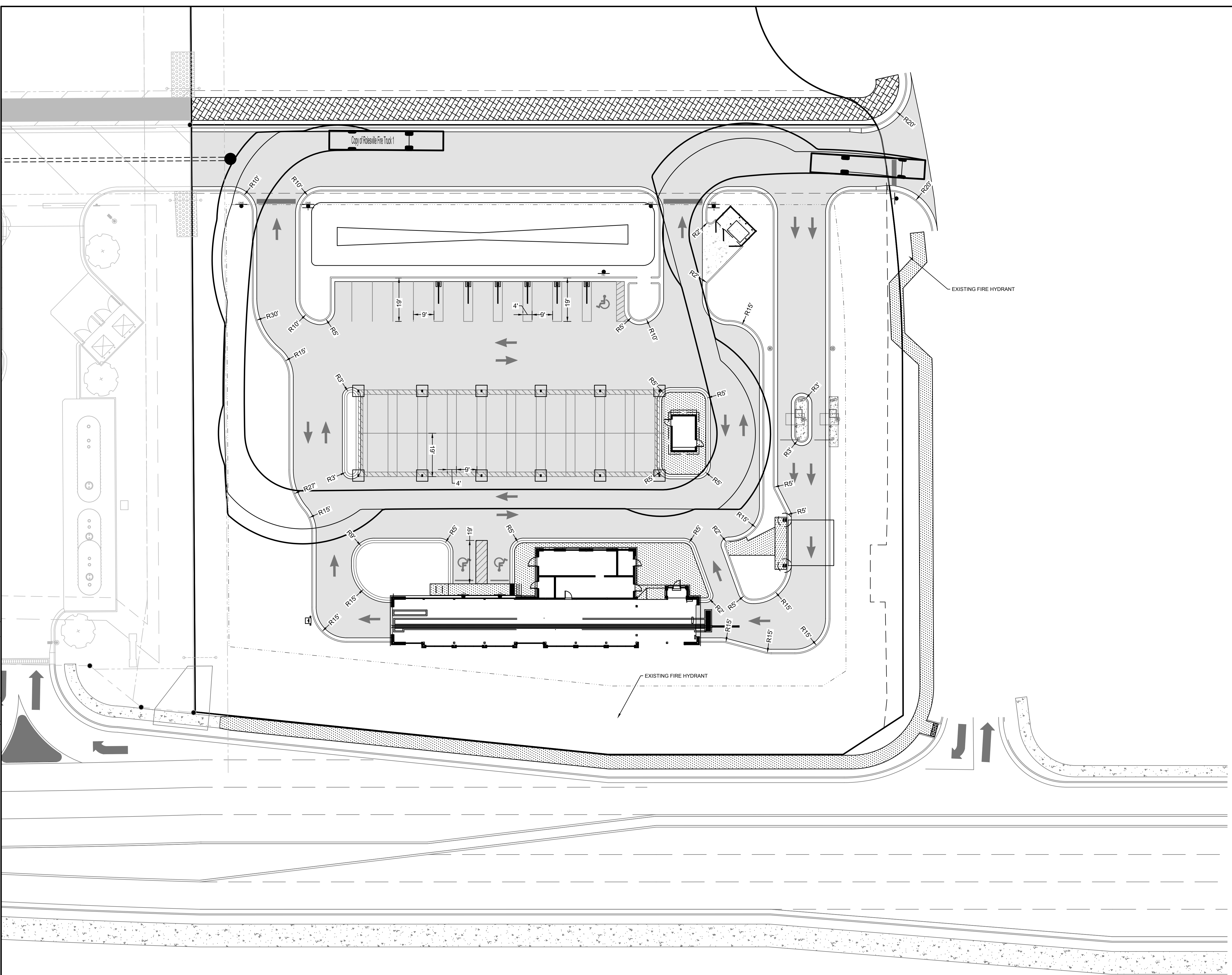
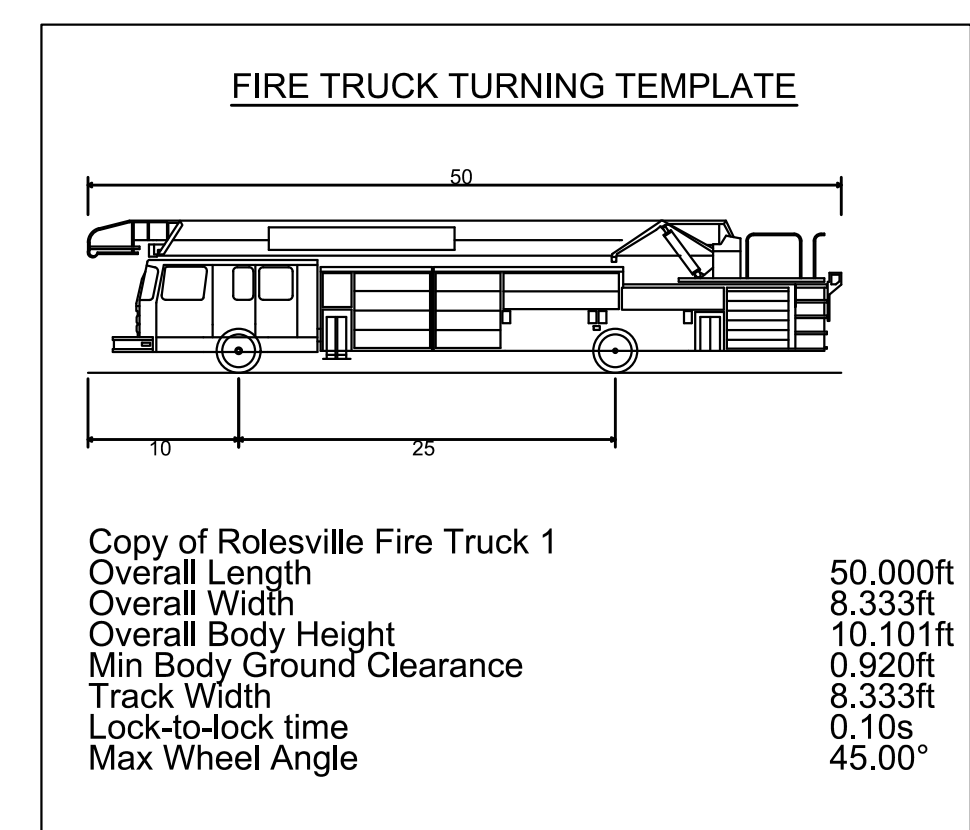
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1 SPACE PER 400 SF GFA OR 5 SPACES MINIMUM = 5 SPACES

**PARKING PROVIDED:**

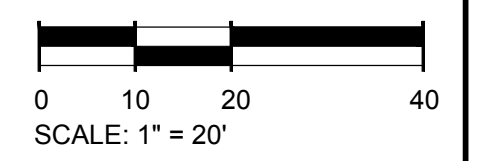
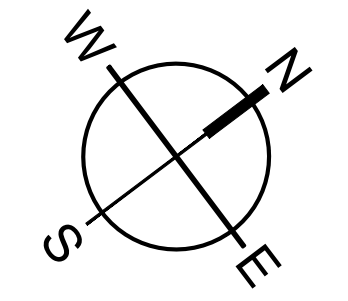
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(4 MAX ON SHIFT)	
VACUUM STALLS:	34 STALLS

**SITE LAYOUT AND STAKING NOTES:**

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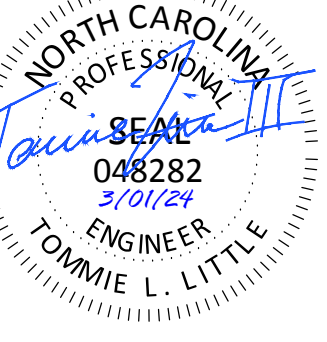


Know what's below.  
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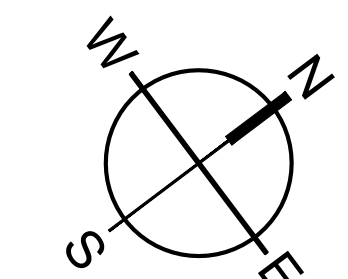


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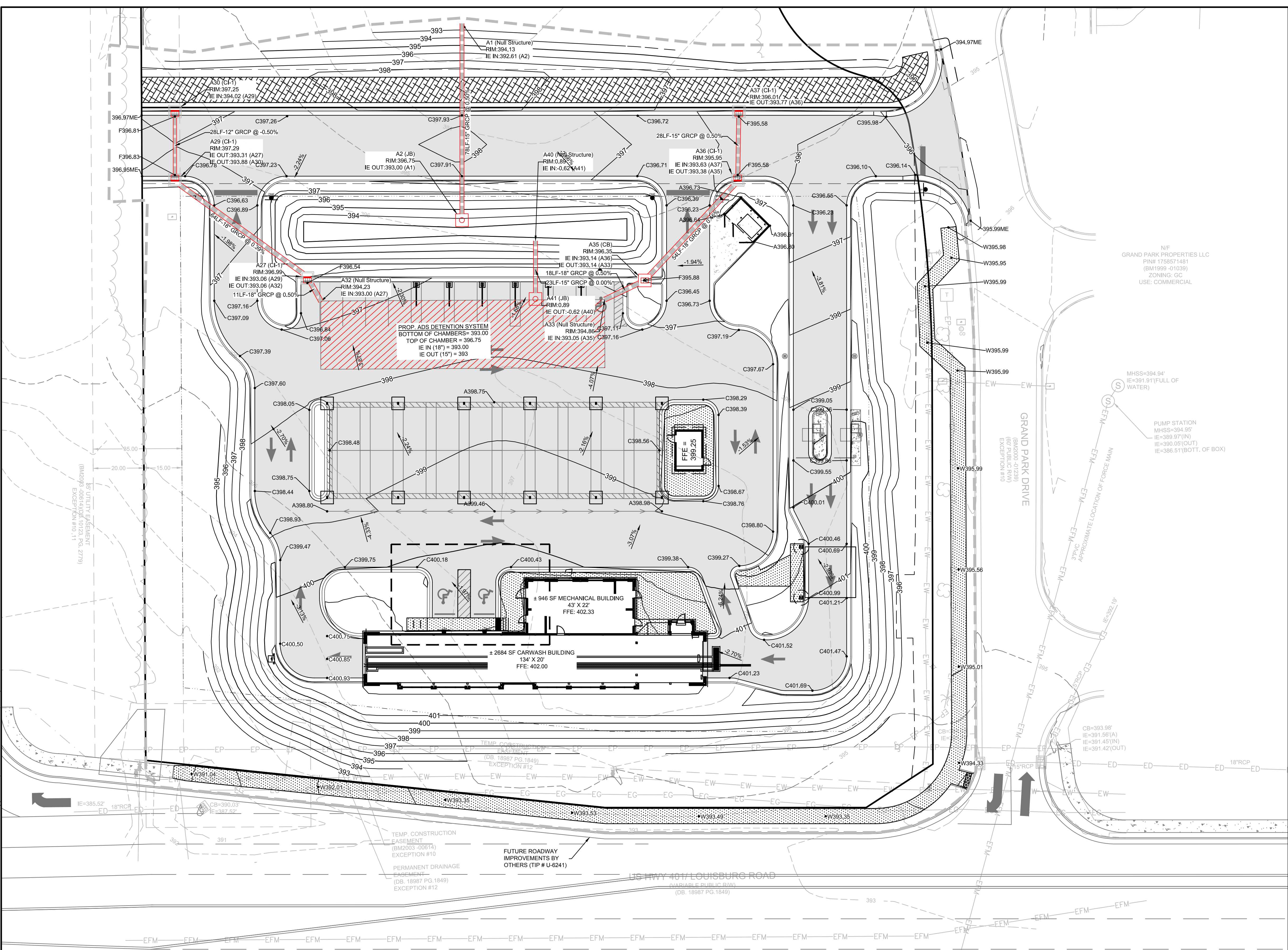




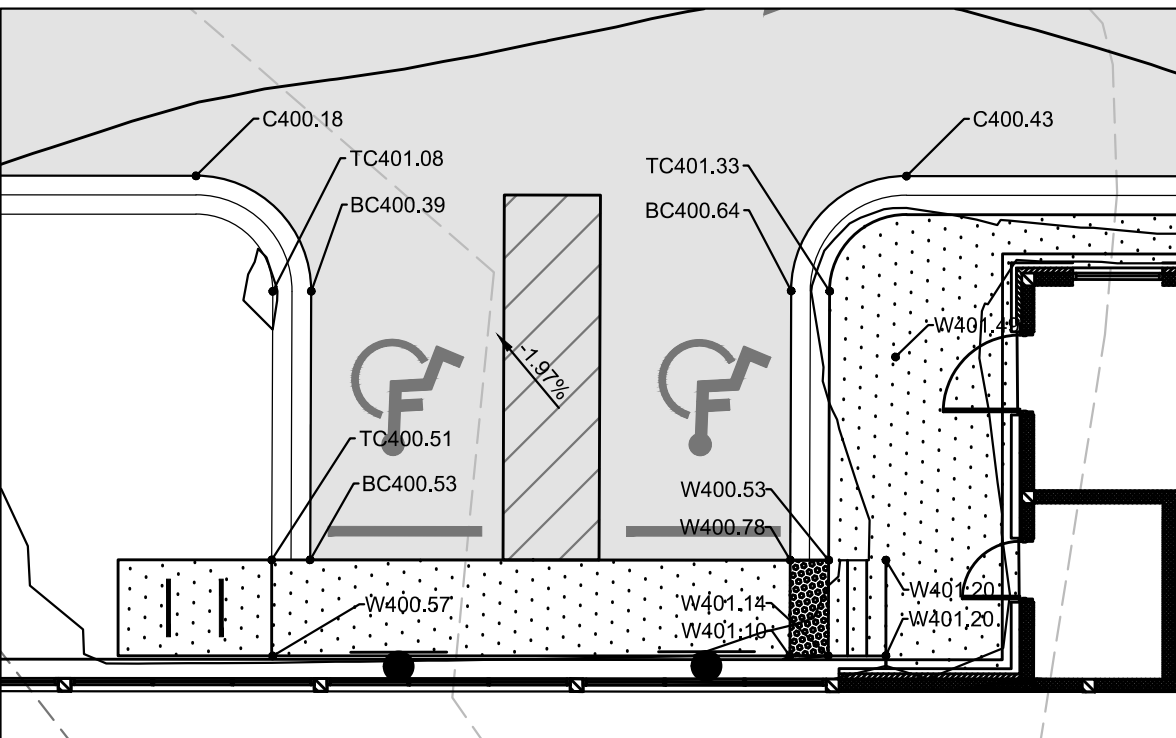
**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC



SCALE: 1" = 20'



**NOTES:**  
1. THE LONGITUDINAL SLOPE OF ALL SURFACES ALONG THE ADA ACCESSIBLE ROUTE, WHICH ARE NOT SPECIFICALLY NOTED AS BEING A RAMP, SHALL NOT EXCEED 1:20. RAMPS SHALL NOT EXCEED A SLOPE OF 1:12. TRANSVERSE SLOPES SHALL NOT EXCEED 1:50. CONTRACTOR SHALL FIELD VERIFY SLOPES BEFORE INSTALLATION AND NOTIFY ENGINEER IMMEDIATELY IF MAX. SLOPES ARE EXCEEDED.  
2. AT PARKING SPACES AND ASSOCIATED ACCESS AISLES, SLOPE SHALL NOT EXCEED 1:50 IN ANY DIRECTION.



**LEGEND**

RCP DRAINAGE PIPE	
GRADING LIMITS	
HOODED CATCH BASIN (HCB)	
JUNCTION BOX (JB)	

**SPOT ELEV KEY (FINISHED GRADING)**

A-(ASPHALT) SURFACE OF FINISHED ASPHALT ROADWAY OR WALKING PATH  
C-(CONCRETE) CONCRETE PAVING  
D-(DIRT) FINISHED GROUND ELEVATION  
F-(FLOW) ELEVATION AT WHICH SURFACE WATER FLOWS INTO DRAINAGE STRUCTURE  
-SURFACE OF ASPHALT ADJACENT TO THROAT OR GRATE AT CURB INLET  
-SURFACE OF ACCESS COVER FOR JUNCTION OR ISOLATION BOX  
-SURFACE OF GRATE AT OUTSIDE EDGE FOR CATCH BASIN, GUTTER INLET, OR GRATED POND STRUCTURE  
FFE - FINISHED FLOOR ELEVATION  
G-(GUTTER) SURFACE OF FINISHED GUTTER AT LOWEST POINT (ALONG WATER FLOW PATH)  
W-(WALK) SURFACE OF FINISHED CONCRETE OR INTERLOCKING PAVER SIDEWALK, PATIO, PLAZA, OR SLAB  
TC - TOP OF CURB ELEVATION  
BC - BOTTOM OF CURB ELEVATION  
TS - TOP OF STAIRS ELEVATION  
BS - BOTTOM OF STAIRS ELEVATION  
TW - FINISHED GRADE ELEVATION AT TOP OF WALL  
BW - FINISHED GRADE ELEVATION AT BOTTOM OF WALL  
ME-(MATCH EXISTING) FOLLOWING ELEVATION NUMBER - INDICATES TO MATCH ELEVATION OF EXISTING SURFACE AT POINT OF CONNECTION

EXAMPLE: A12.56ME MEANS THAT THE SURFACE OF NEW ASPHALT IS TO BE AT ELEVATION 12.56 WHICH SHOULD MATCH THE ELEVATION OF THE EXISTING ASPHALT SURFACE AT THE JOINT

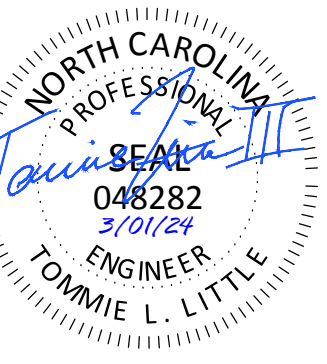
SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

**REVISION HISTORY**

NO.	DESCRIPTION

**OVERALL GRADING AND DRAINAGE PLAN**





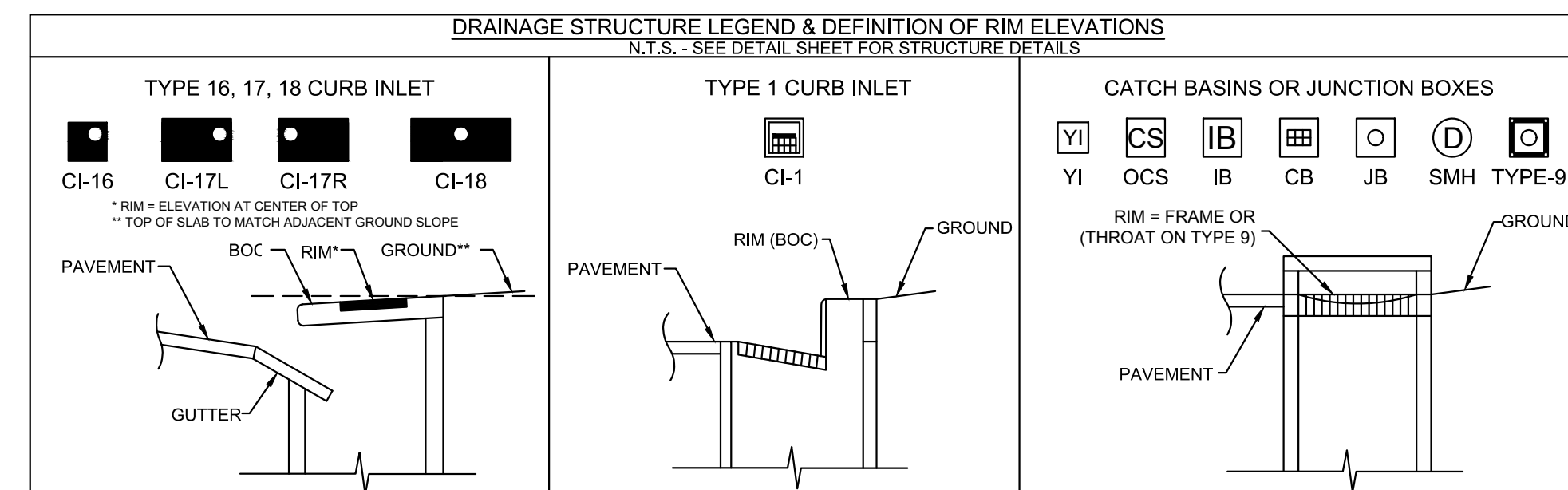
**TIDAL WAVE AUTO SPA**  
ROLESVILLE, NC

SW+ PROJECT: 10772  
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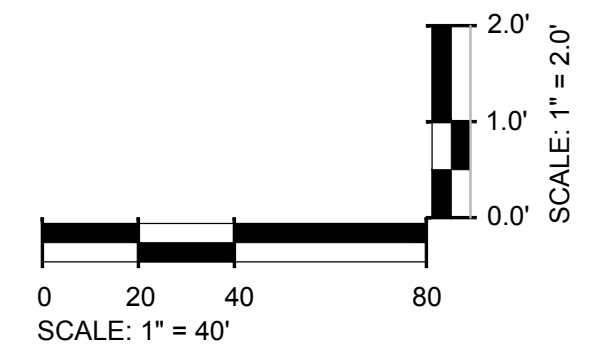
**REVISION HISTORY**

NO.	DESCRIPTION

**DRAINAGE PROFILES**



Know what's below.  
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**REVISION HISTORY**

NO.	DESCRIPTION

**UTILITY PLAN AND PROFILES**

**STANDARD UTILITY NOTES**

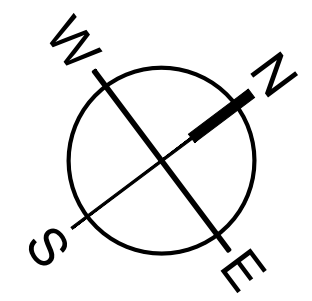
- ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
- UTILITY SEPARATION REQUIREMENTS:
  - A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
  - WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
  - WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASUREMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
  - 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
  - MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W41 & S-49).
  - ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
- ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
- DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
- CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24-HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
- 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
- IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
- INSTALL 3/4" AND 2" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
- INSTALL 6" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
- PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.
- ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
- NC DOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
- GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC AND/OR BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
- CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA.
- THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
- THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
- THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT.
- NOTICE FOR PROJECTS WITH REPLACED OR OVERSIZED MAINS: IF THE CITY'S REIMBURSEMENT FOR AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT PROJECT IS \$250,000 OR GREATER, THE PROJECT MUST BE PUBLICLY BID.
- RALEIGH WATER STAFF MAY NEED TO BE ONSITE WHILE ANY CONSTRUCTION OCCURS IN THE VICINITY OF THE CRITICAL WATER TRANSMISSION MAIN. PLEASE EMAIL WDSERVICEREQUEST@RALEIGHNC.GOV AT A MINIMUM 72 HOURS IN ADVANCE TO ANY WORK IN THE VICINITY OF THIS CRITICAL WATER TRANSMISSION MAIN.

**BACKFLOW PREVENTION NOTES**

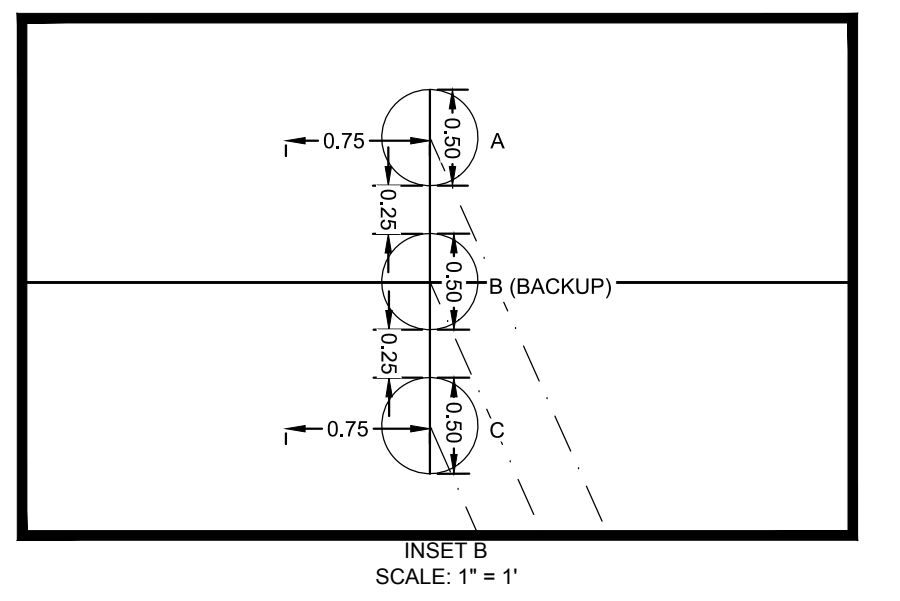
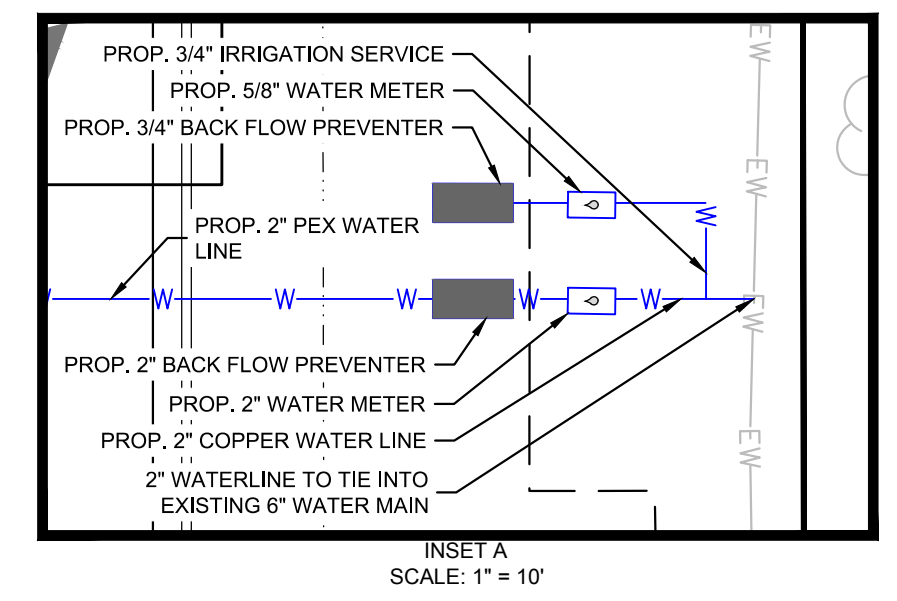
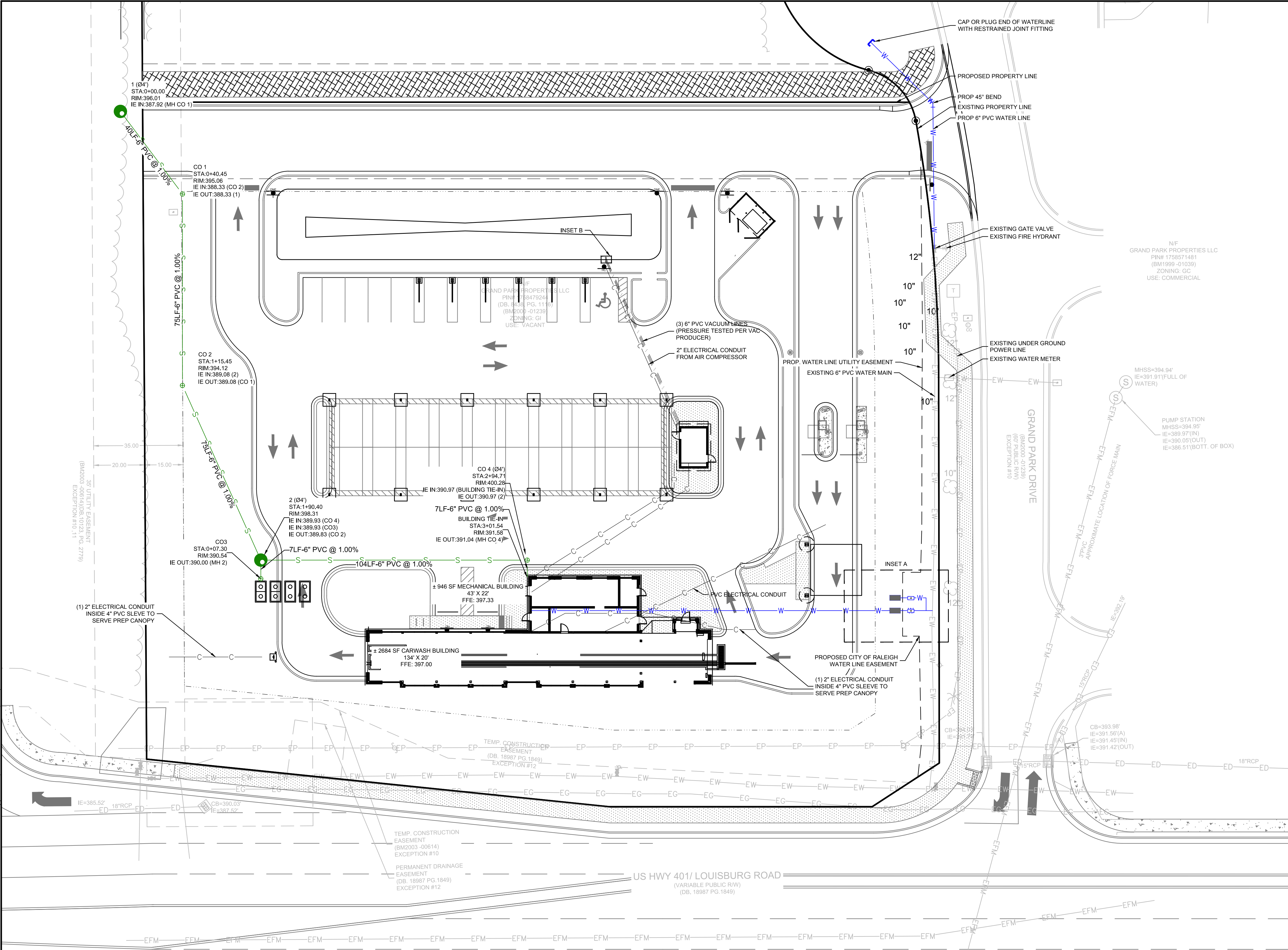
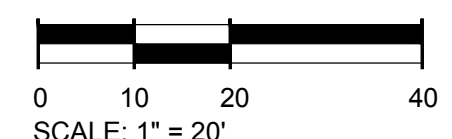
- REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY AS APPROVED BY TOWN OF ROLESVILLE AND INSTALLED BY CONTRACTOR DURING CONSTRUCTION. ASSEMBLY TO BE INSTALLED ABOVE GROUND WITHIN INSULATED ENCLOSURE PER TOWN OF ROLESVILLE REQUIREMENTS. ENCLOSURE TO BE LOCATED OUT OF SETBACK.
- THERE SHALL BE NO TAPS, PIPING BRANCHES, UNAPPROVED BYPASS PIPING, HYDRANTS, FIRE DEPT. CONNECTION POINTS OR OTHER WATER USING APPURTENANCES CONNECTED TO THE SUPPLY LINE BETWEEN ANY WATER METER AND ITS REQUIRED BACKFLOW PREVENTER.
- EACH REQUIRED BACKFLOW PREVENTION ASSEMBLY IS REQUIRED TO BE TESTED BY AN APPROVED CERTIFIED TESTER PRIOR TO PLACING THE WATER SYSTEM IN SERVICE AND YEARLY THEREAFTER. SUBMIT PASSING TEST REPORTS TO TOWN OF ROLESVILLE.
- DUCTILE IRON, COPPER, OR OTHER METALLIC PIPING (NO PVC) IS TO BE USED WITHIN 5 FEET OF ALL BACKFLOW PREVENTION DEVICES.
- TAMPER SWITCHES SHALL BE INSTALLED ON THE FIRE LINE BACKFLOW PREVENTION. INSTALL 3/4" CONDUIT FROM FIRE LINE BACKFLOW ENCLOSURE/VAULT TO BUILDING ALARM SYSTEM INSIDE BUILDING. COORDINATE WITH ELECTRICAL DRAWINGS AND ALARM SYSTEM MANUFACTURER.

**EXISTING UTILITY NOTE:**

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING ANY WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.



Know what's below.  
Call before you dig.

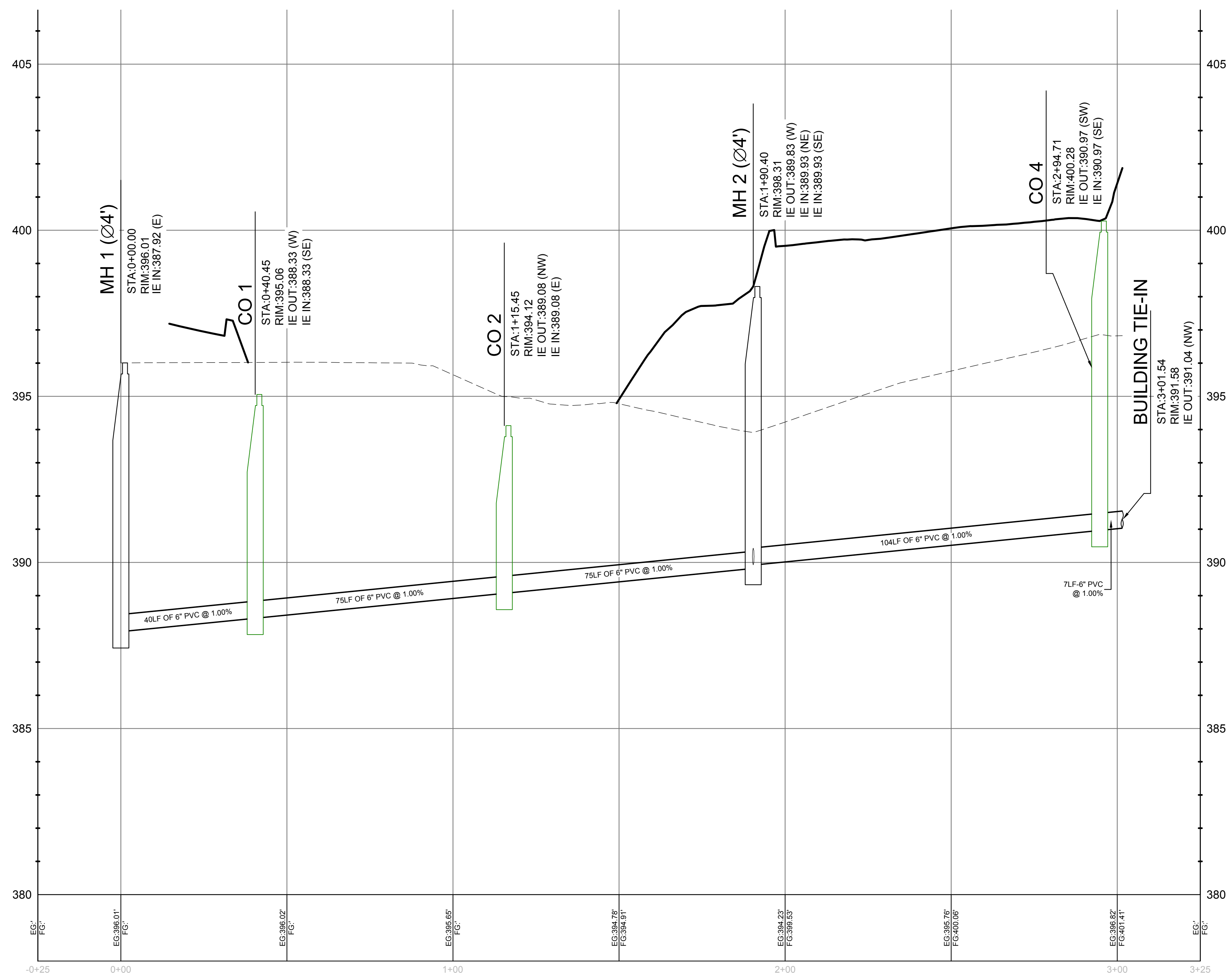


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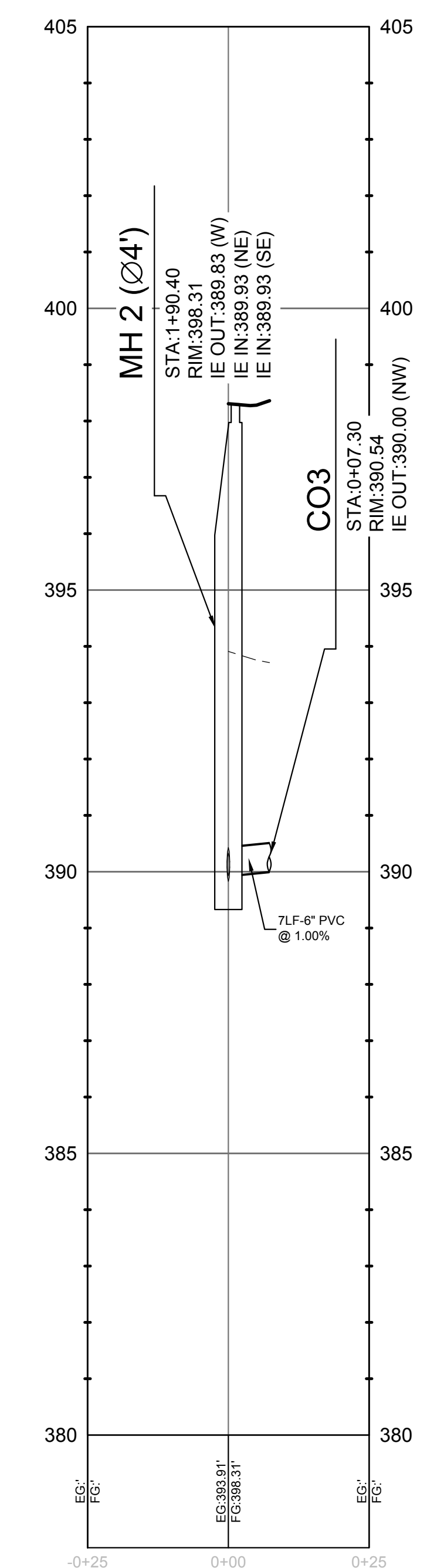


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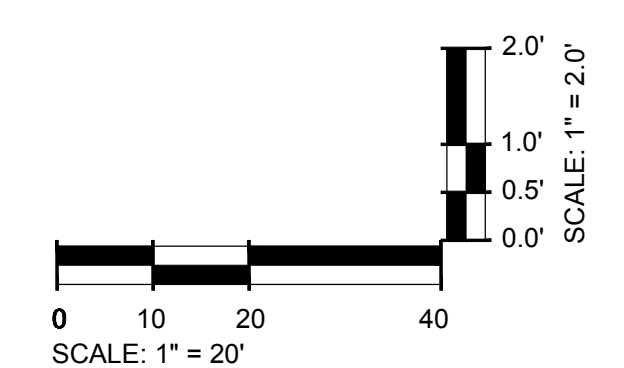
UTILITY PROFILES



MH 1 - BUILDING TIE-IN PROFILE



MH 2 - CO3 PROFILE



**EXISTING UTILITY NOTE:**  
 THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING ANY WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

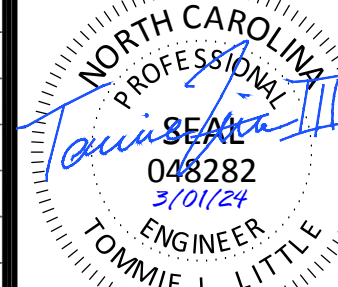


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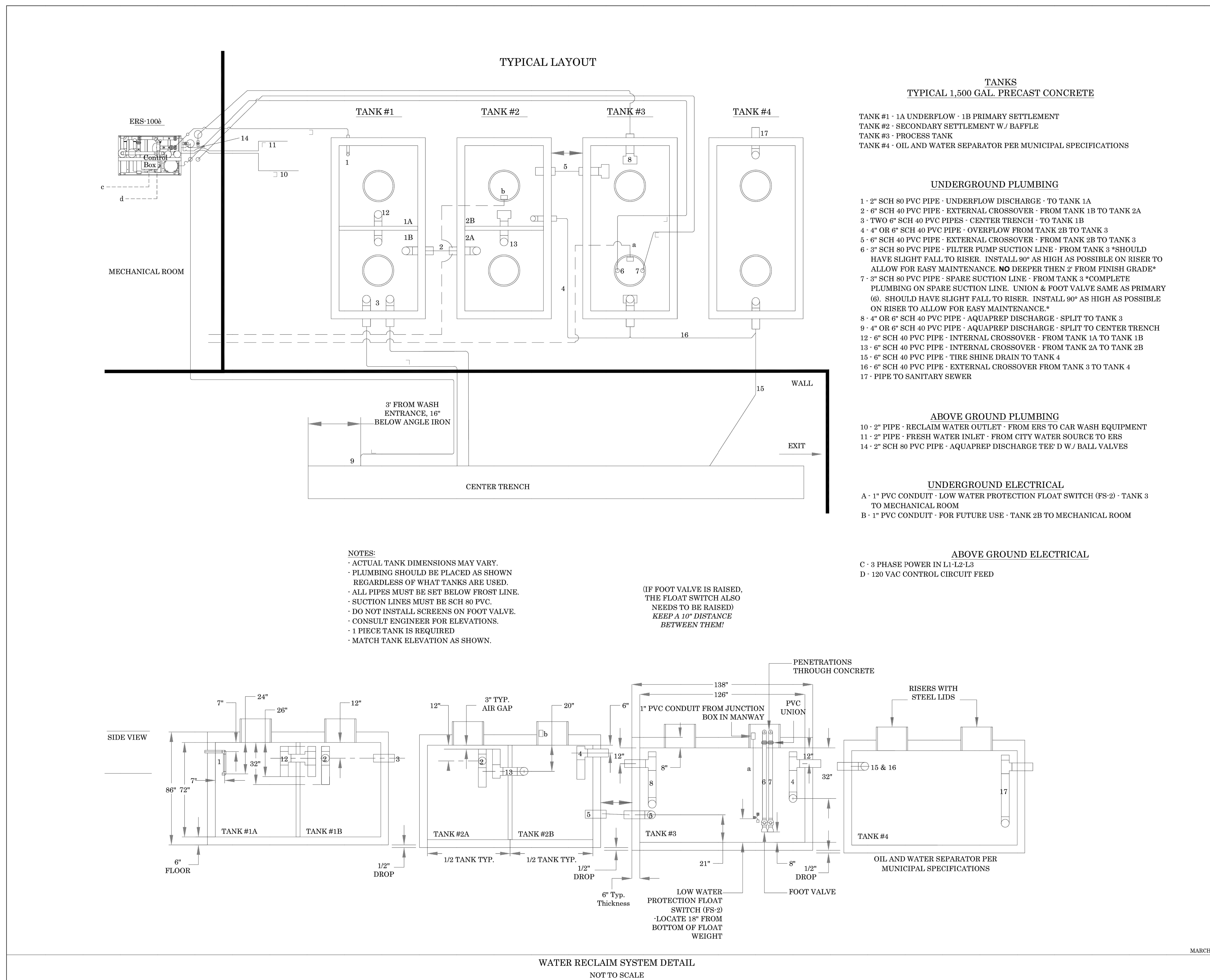




MOUNT PLEASANT, SC  
843.884.1667  
GREENVILLE, SC  
864.298.0534  
SUMMERVILLE, SC  
843.972.0710  
SPARTANBURG, SC  
864.272.1272  
CHARLOTTE, NC  
980.312.5450  
WWW.SEAMONWHITESIDE.COM



DATE OF PLANS		
03/31/2023		
REVISIONS		
NO.	DATE	DESCRIPTION
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-



TECHNICAL CRITERIA  
SHJ CONSTRUCTION GROUP  
WATER RECLAIM SYSTEM DETAIL

TIDAL WAVE AUTO SPA  
ROLESVILLE, NC

SW+ PROJECT: 10772  
DATE: 3/01/24  
DRAWN BY: CPE  
CHECKED BY: TLL

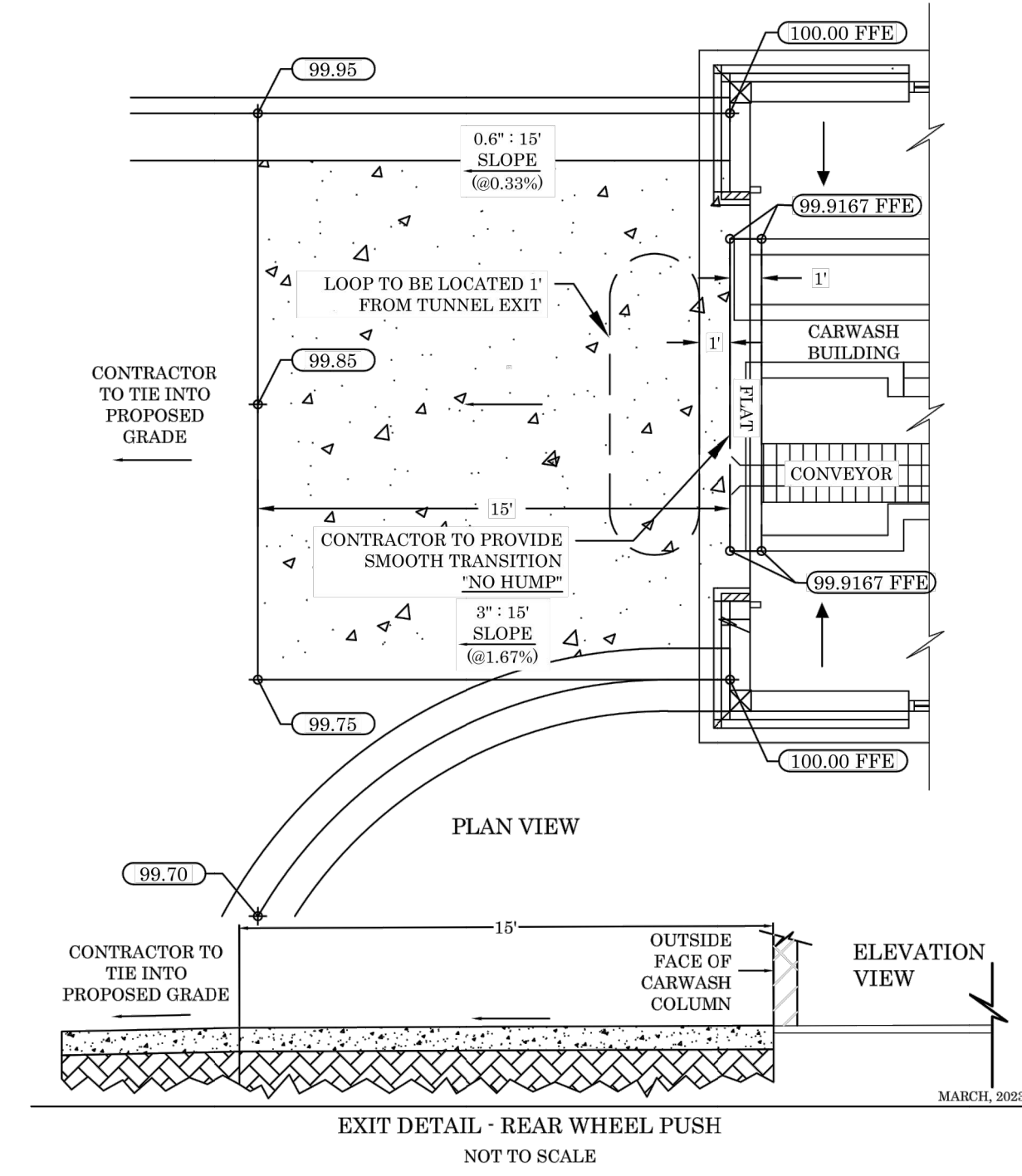
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SHEET  
1 OF 1

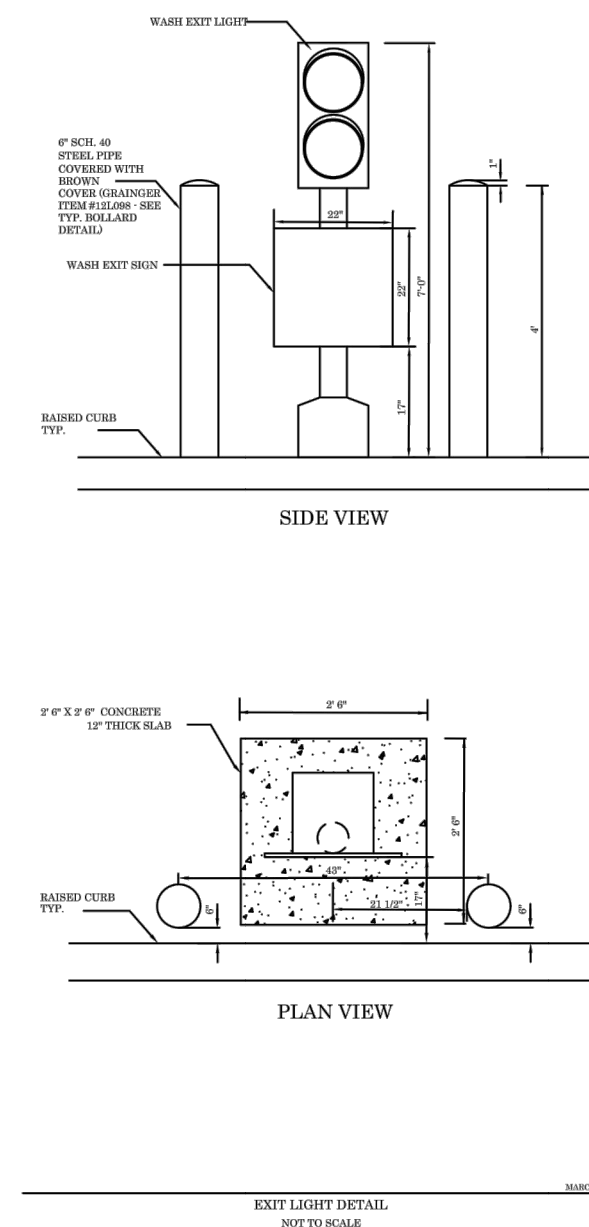
CONSTRUCTION DETAILS

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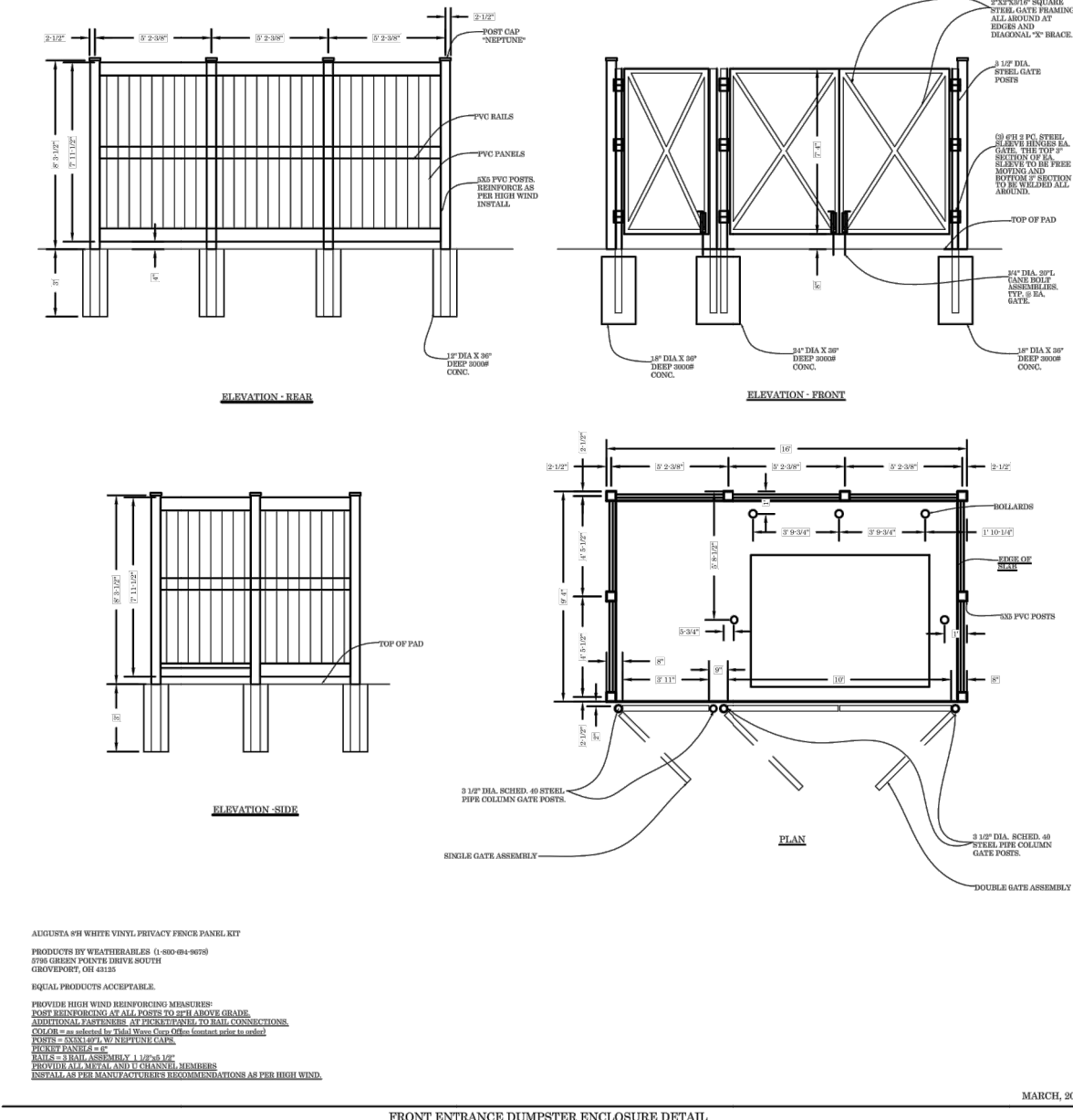




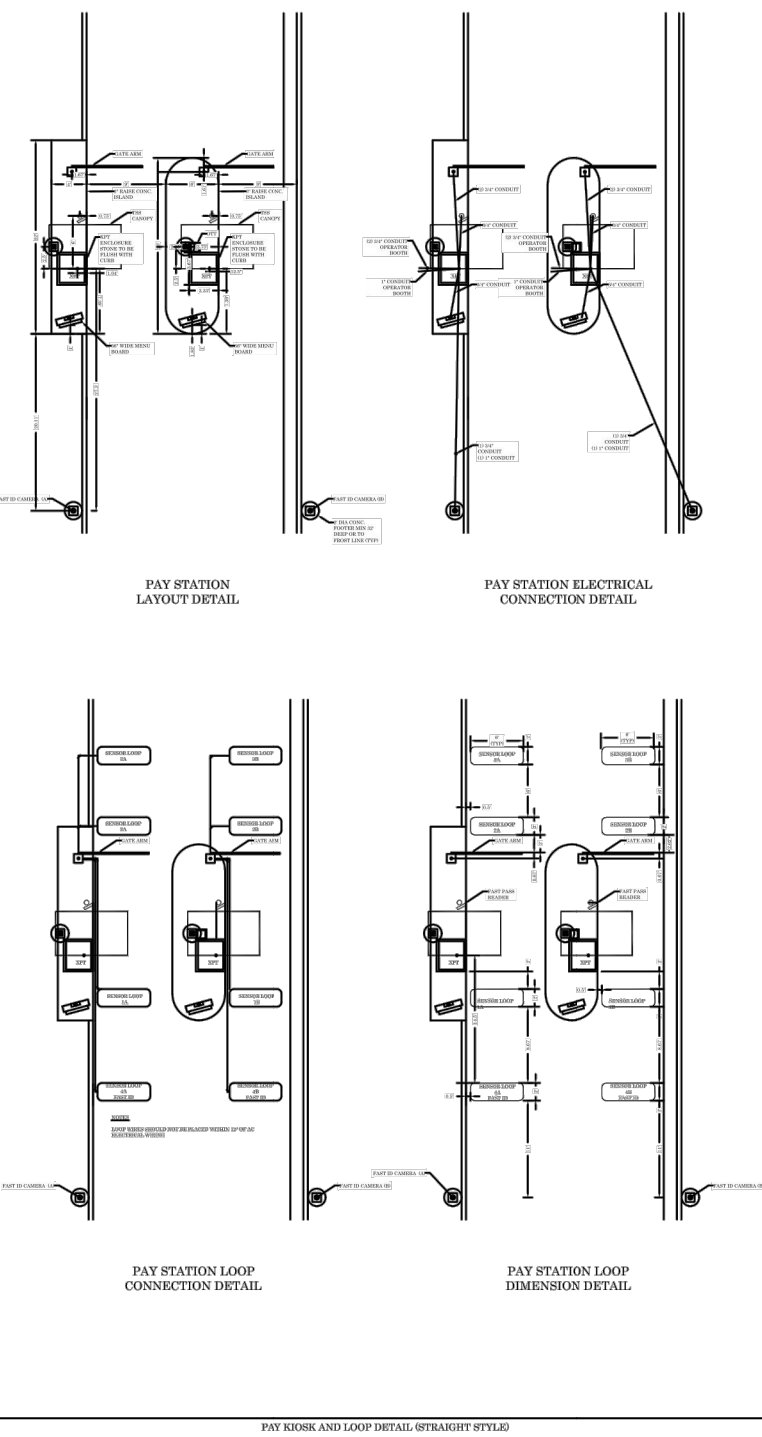
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DATE OF PLANS	03/15/2023
NOT TO SCALE	



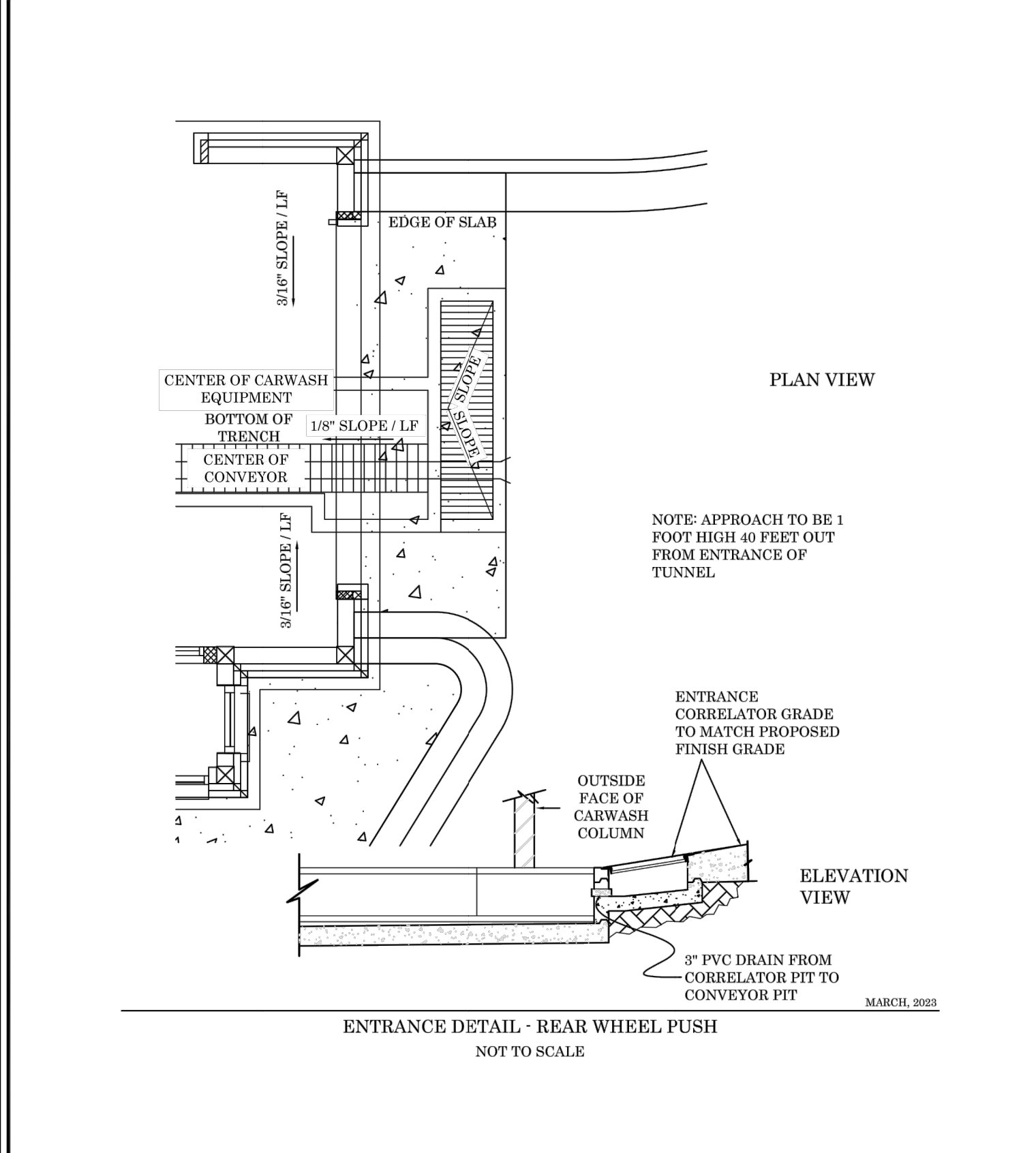
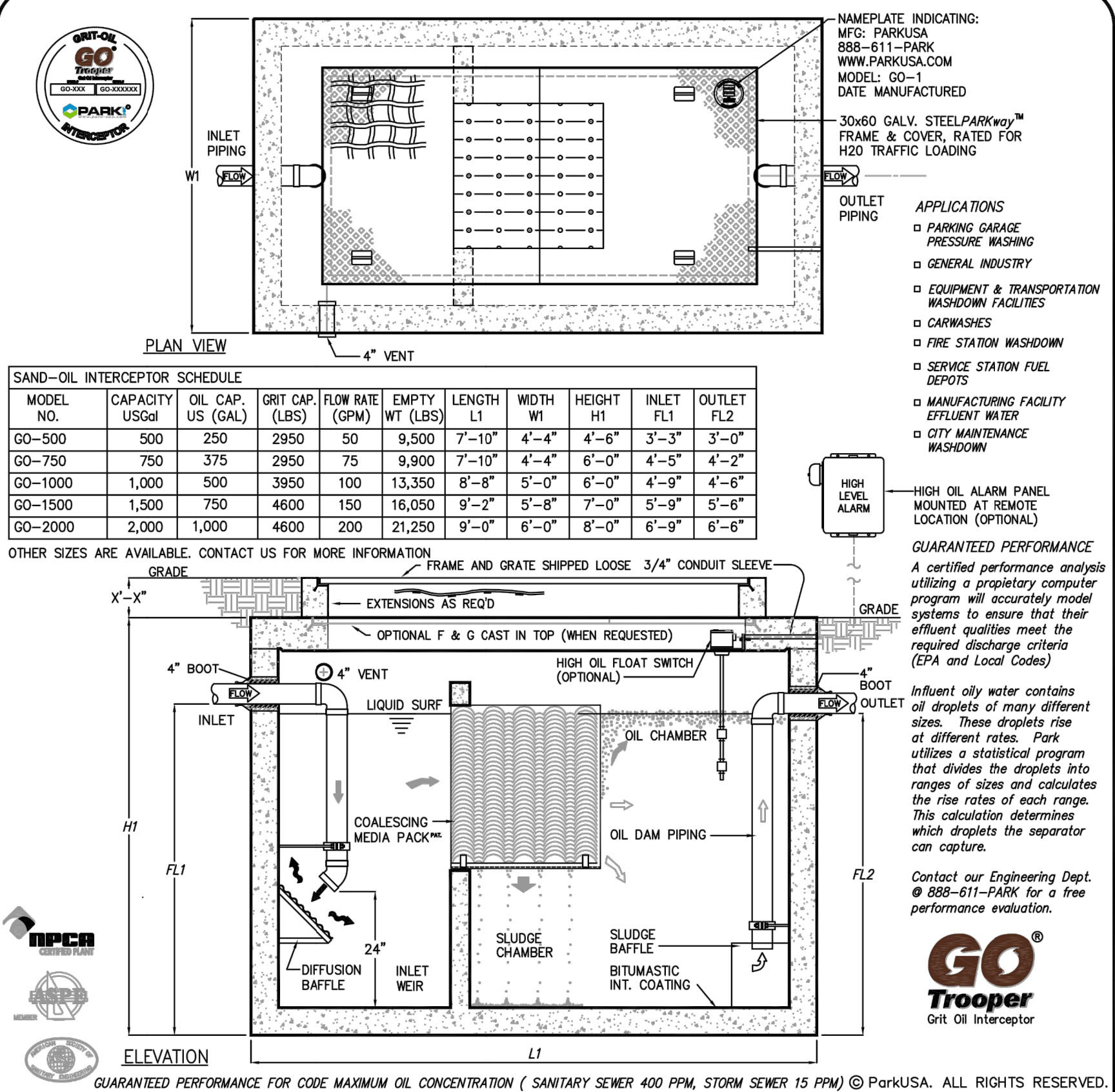
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NOT TO SCALE	



TECHNICAL CRITERIA	
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NOT TO SCALE	



TECHNICAL CRITERIA	
DATE OF PLANS	03/31/2023
NOT TO SCALE	



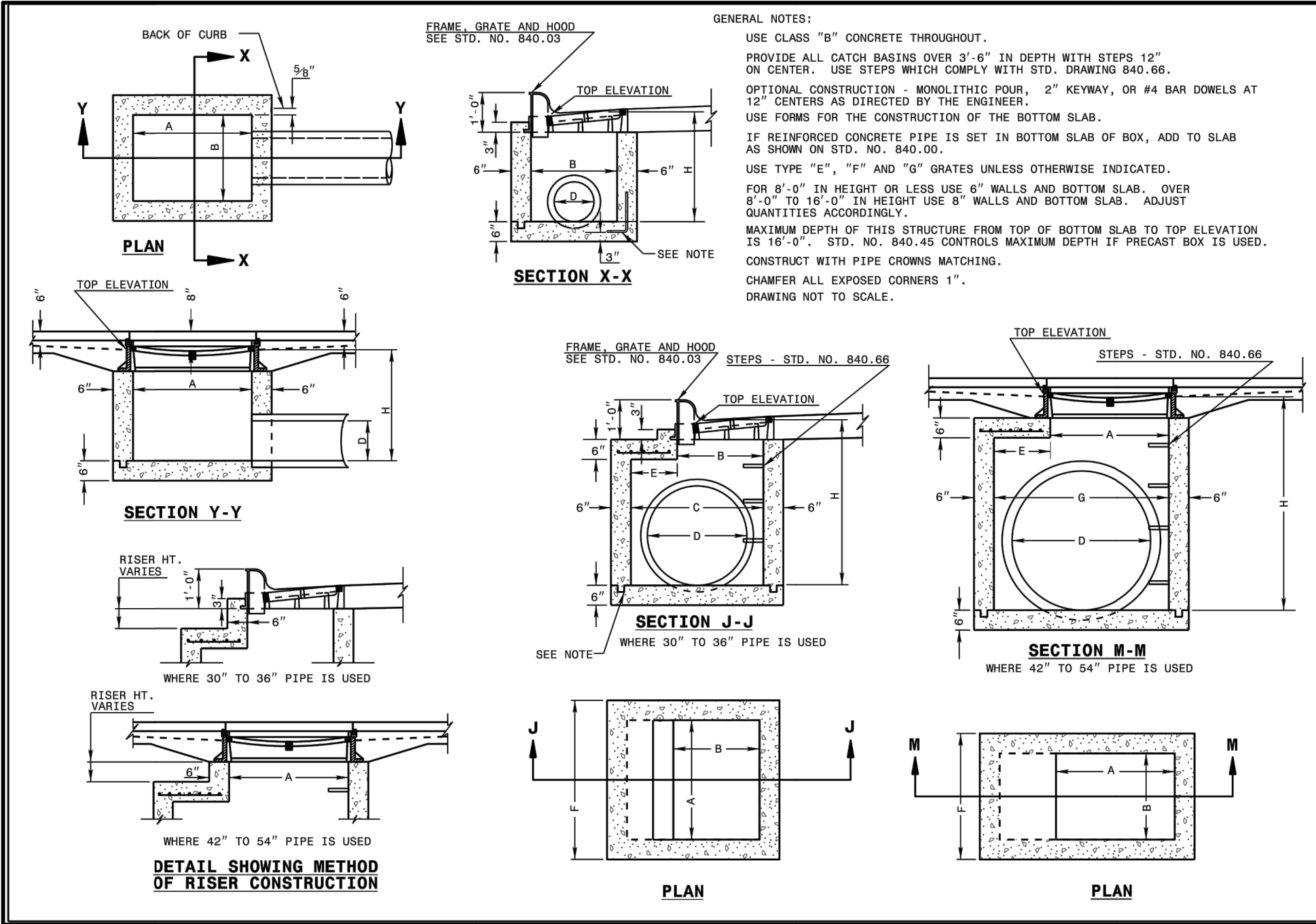
TECHNICAL CRITERIA	
DATE OF PLANS	03/15/2023
NOT TO SCALE	

PROJECT:	
CUSTOMER:	
ENGINEER:	
ORDER #:	
PROJ #:	
DATE:	
Grit Oil Interceptor Model GO Sizes 500 thru 2000	
PM	DRN
DATE	2018
DWG. NO.	GO-1
REV.	A





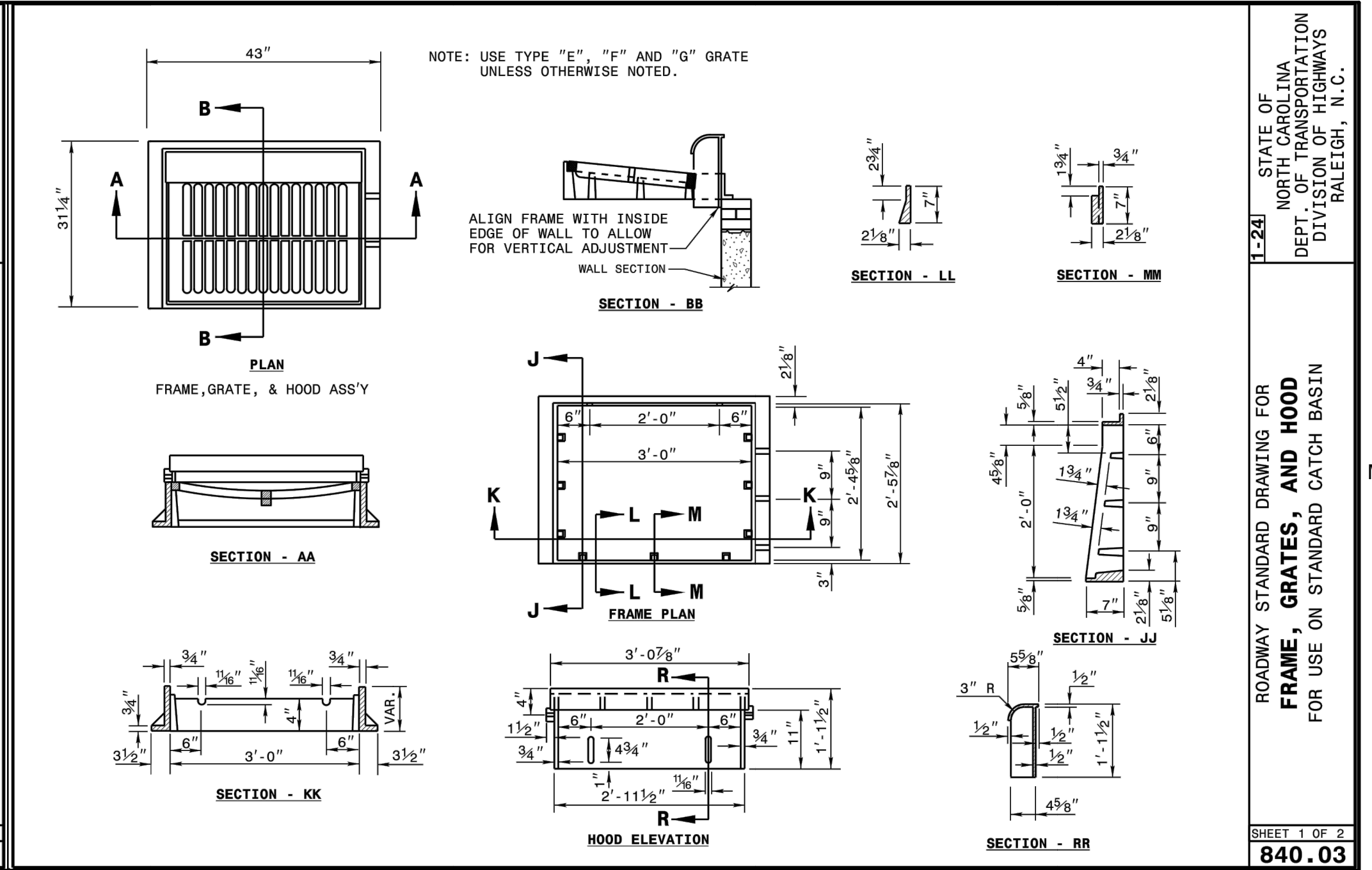
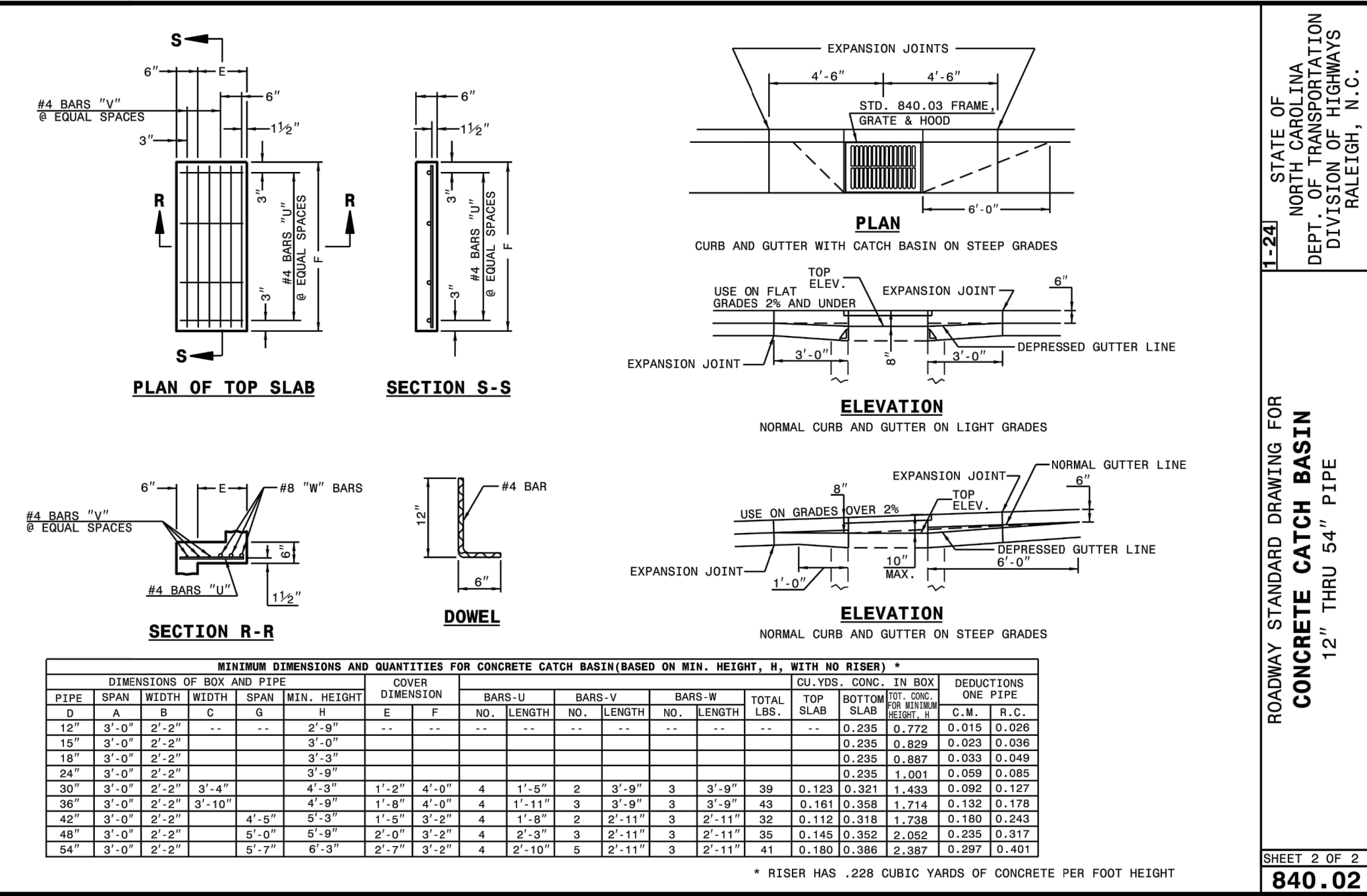




STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**CONCRETE CATCH BASIN**  
12" THRU 34" PIPE

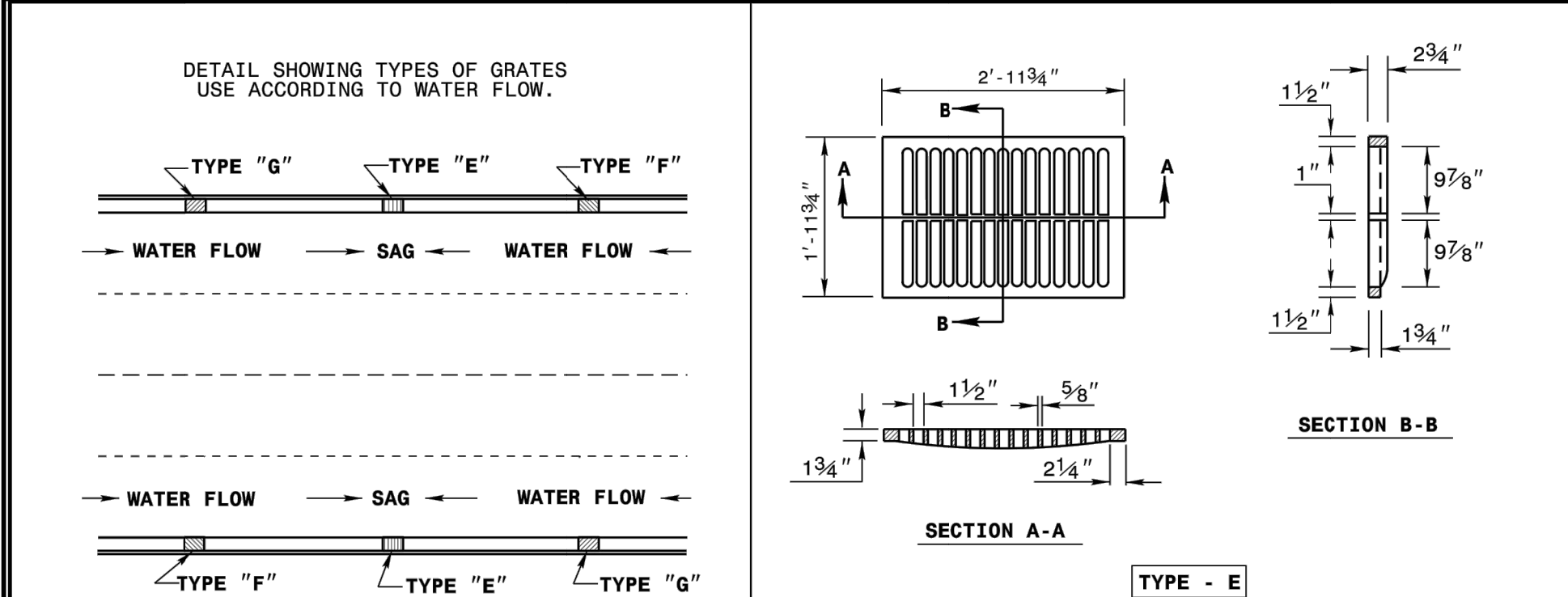
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STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

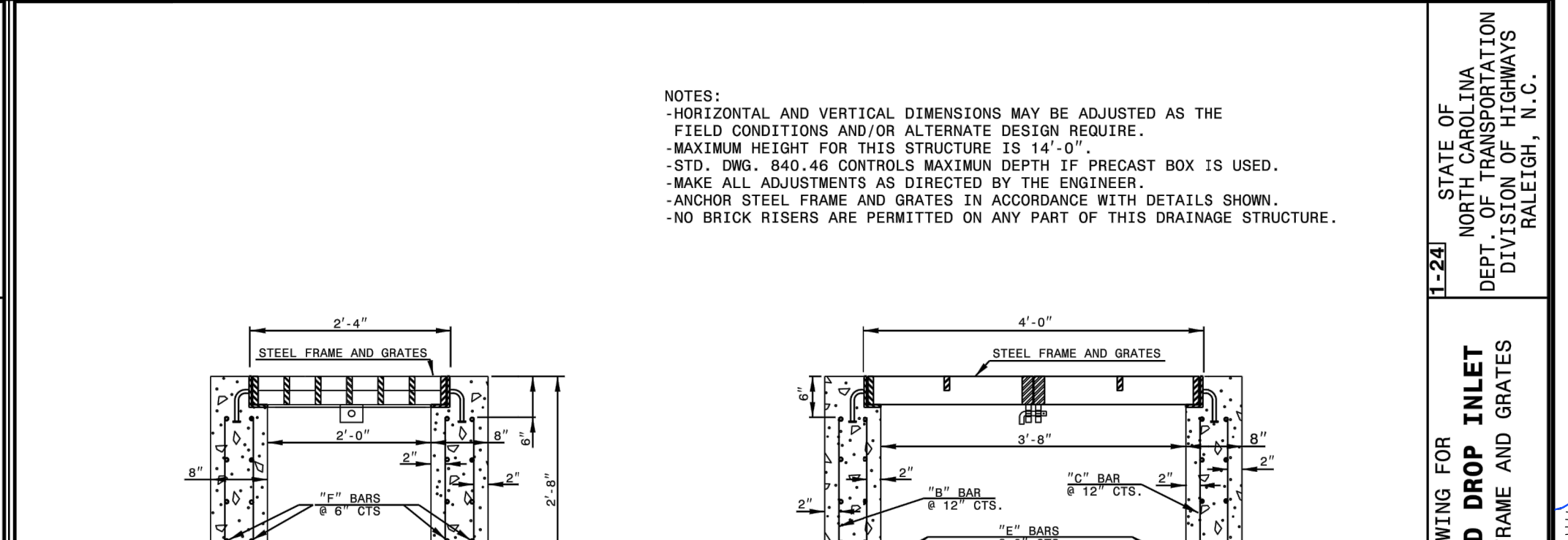
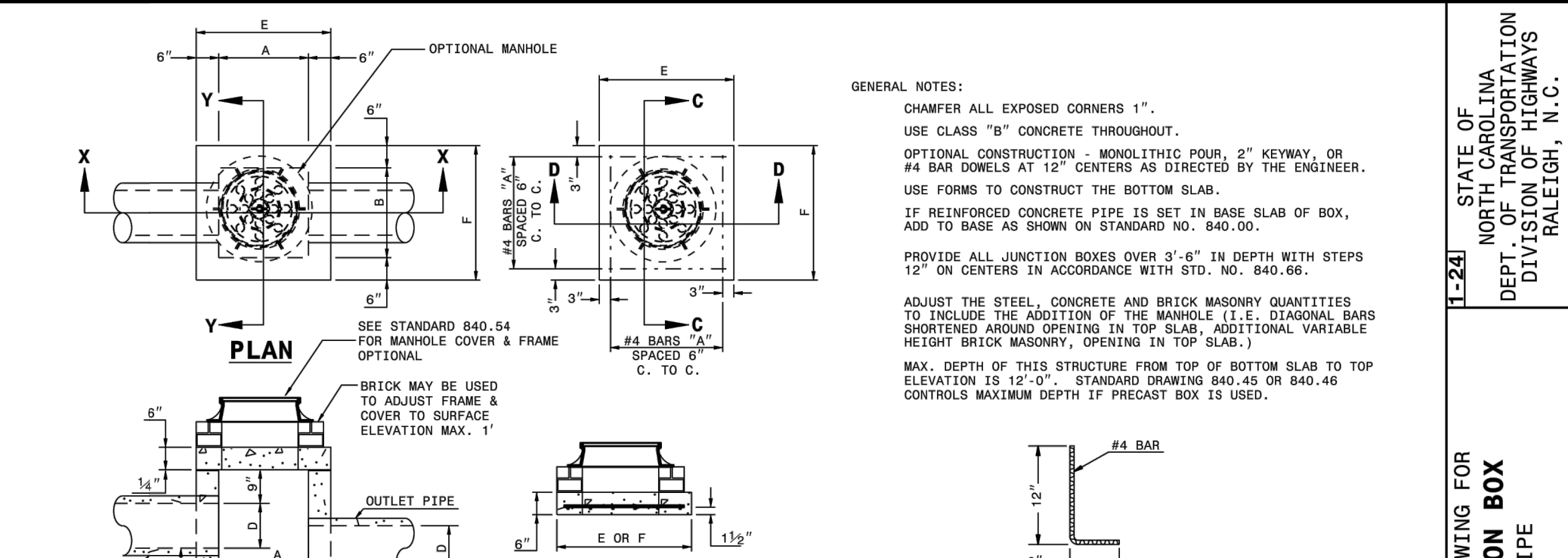
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**840.02**



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

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

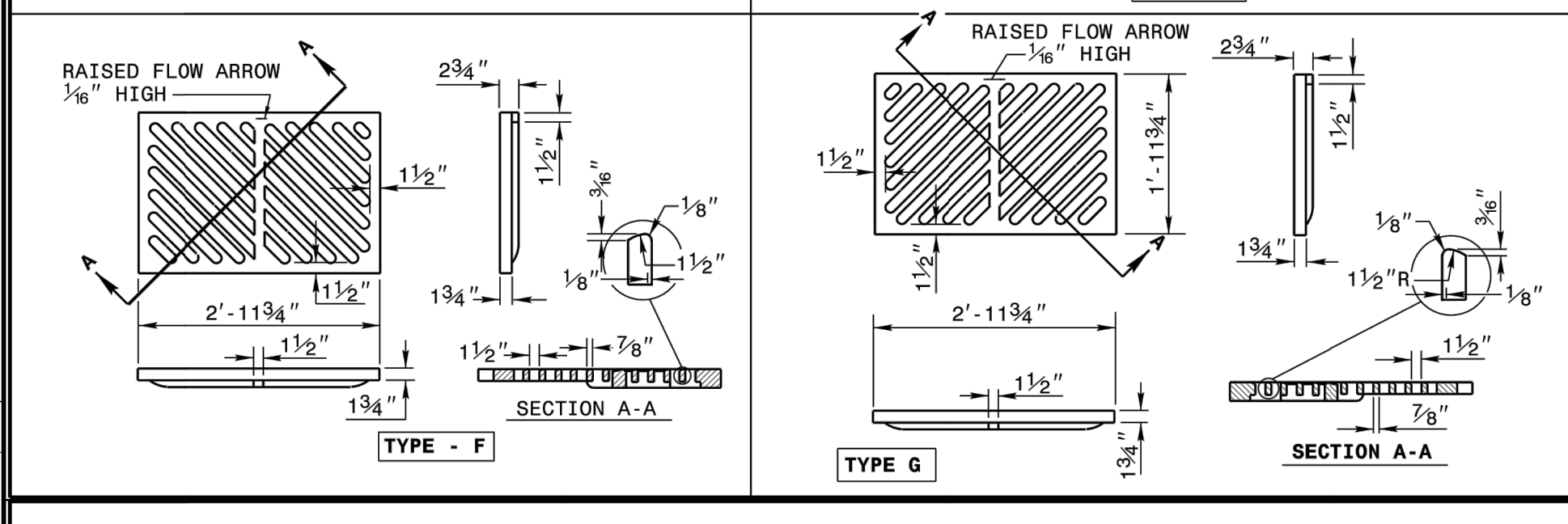
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**840.03**



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

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC BEARING GRATED DROP INLET**  
FOR STEEL (840.37) DOUBLE FRAME AND GRATES

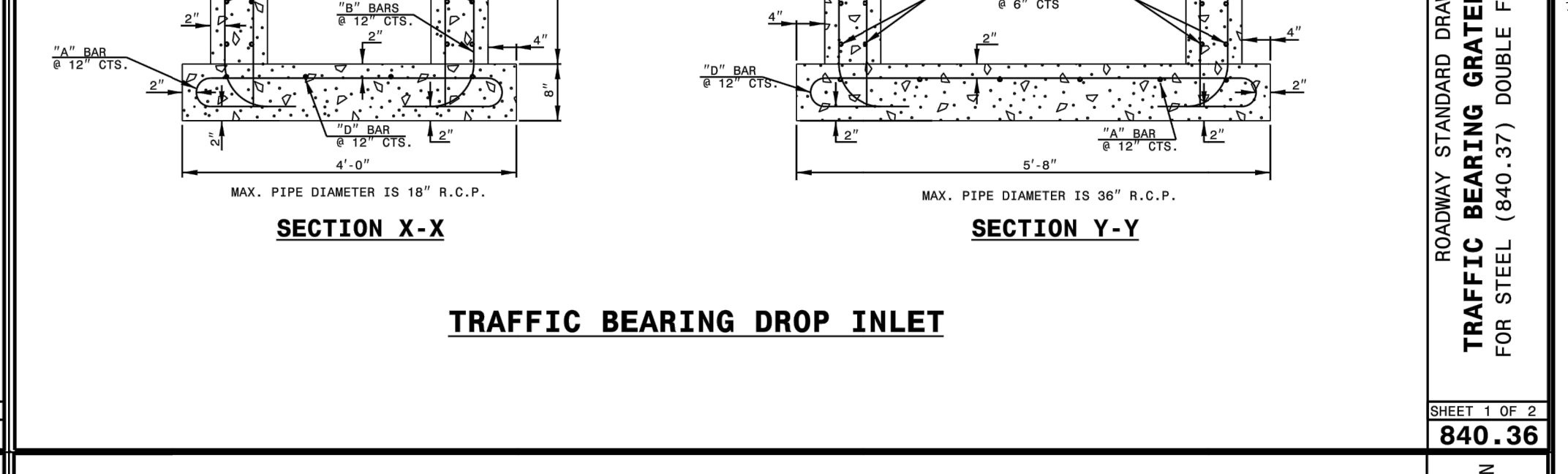
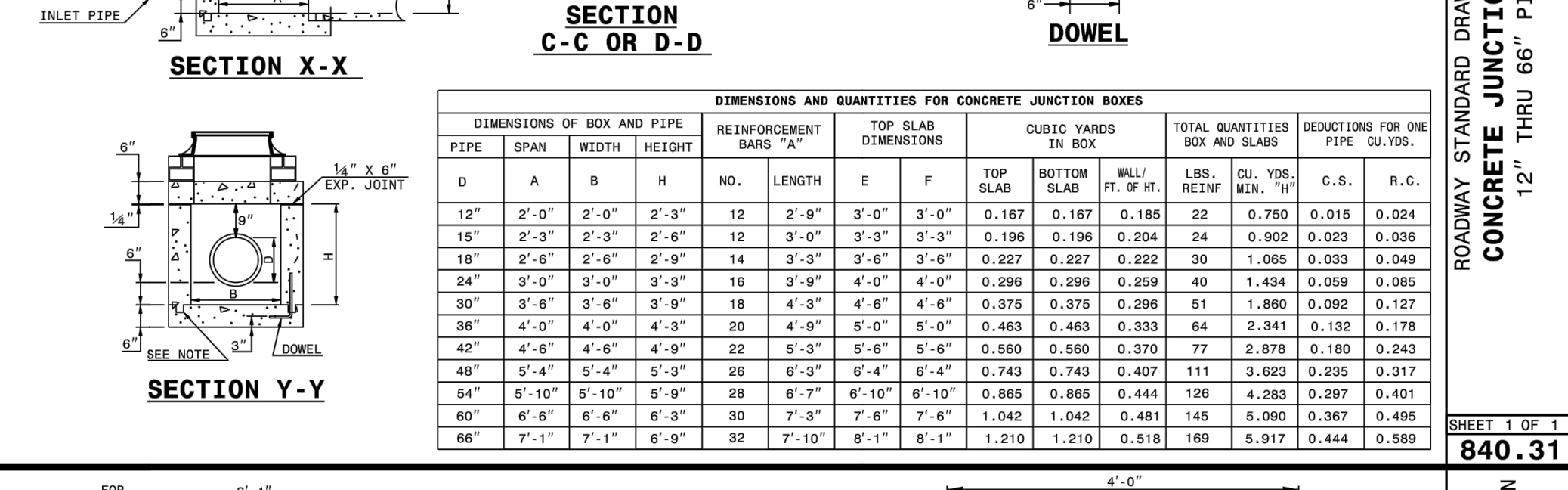
SHEET 1 OF 2  
**840.36**



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

ROADWAY STANDARD DRAWING FOR  
**RAISED FLOW ARROW**  
FOR USE ON STANDARD CATCH BASIN

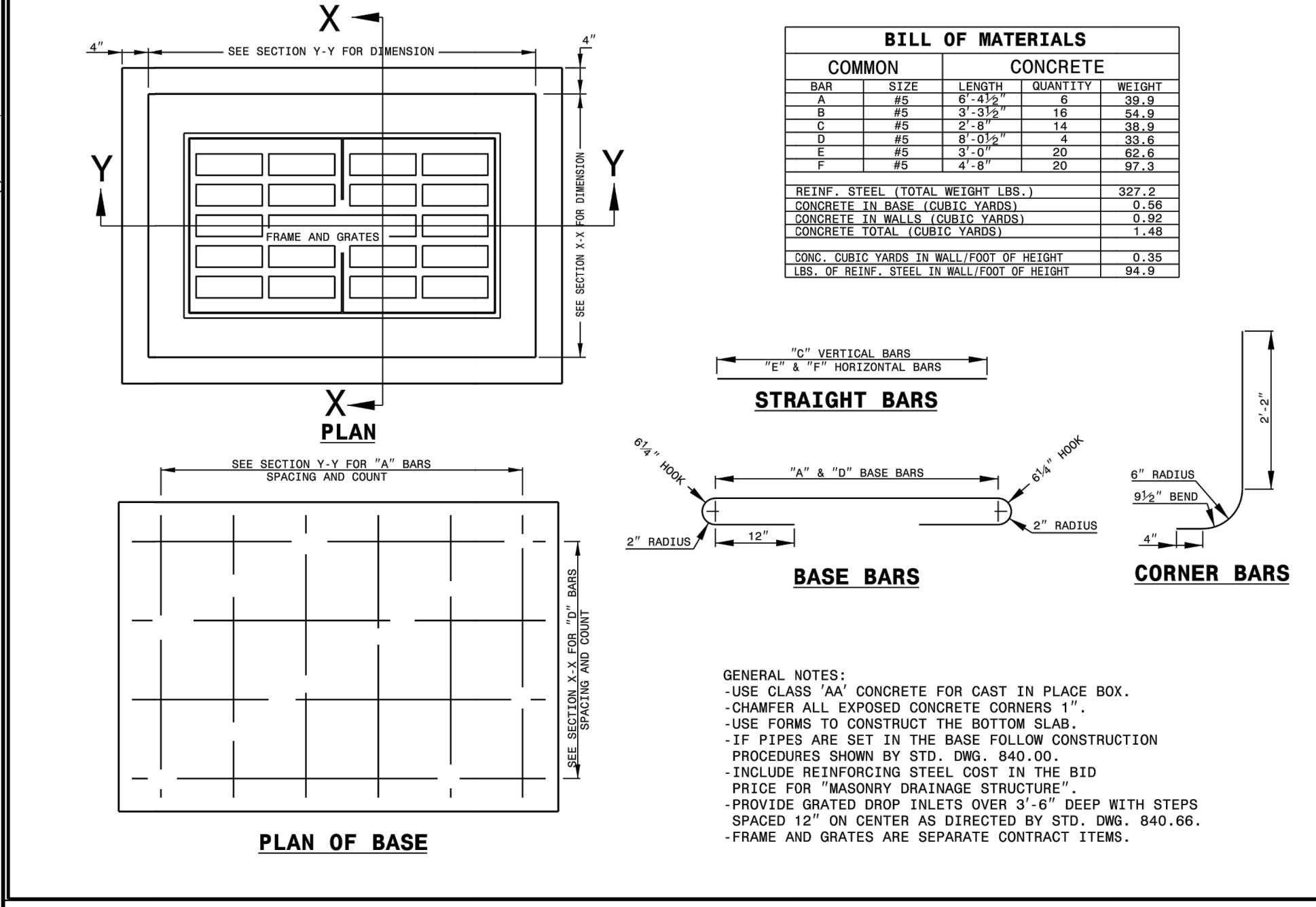
SHEET 2 OF 2  
**840.03**



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

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC BEARING GRATED DROP INLET**  
FOR DOUBLE FRAME AND GRATES

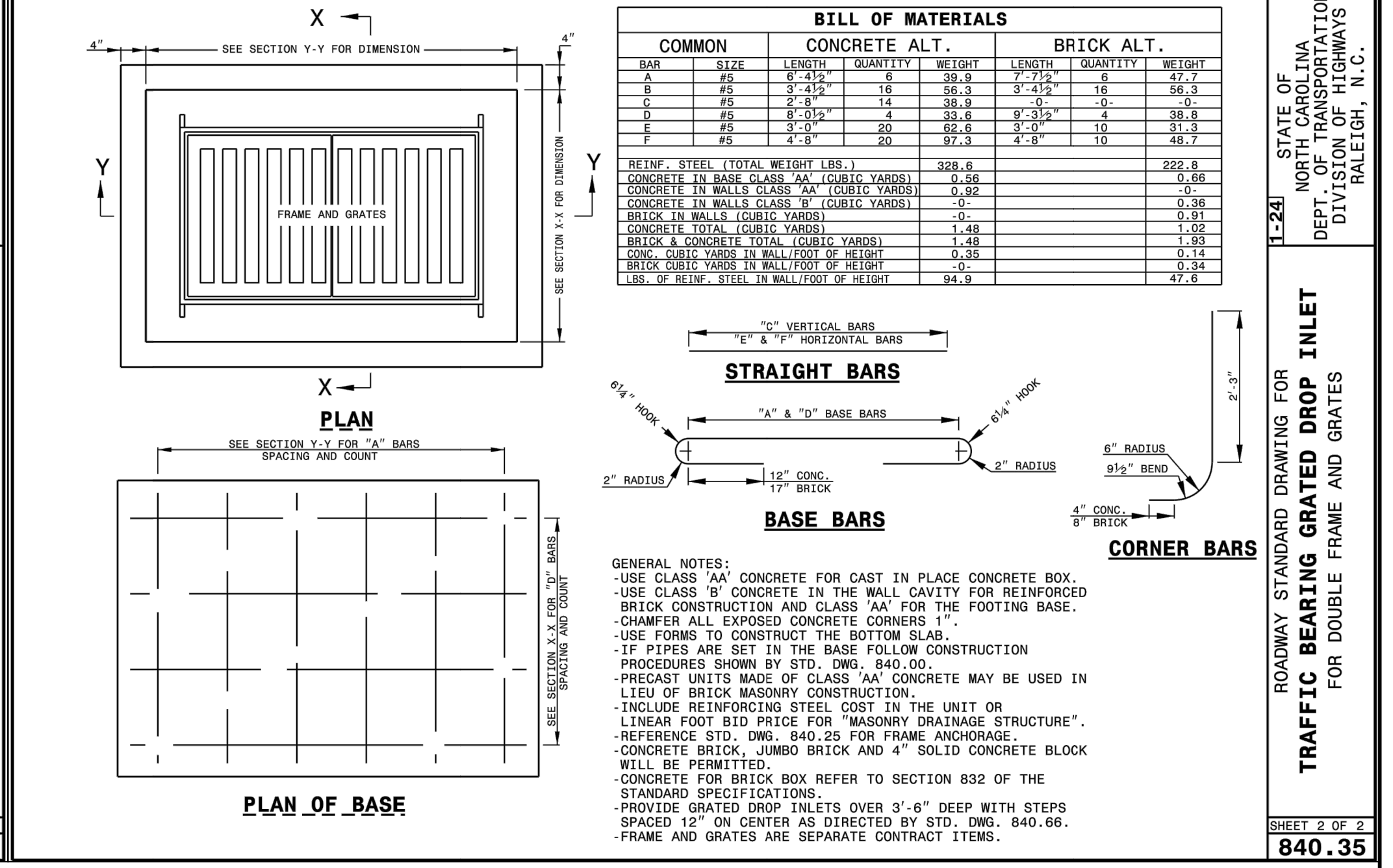
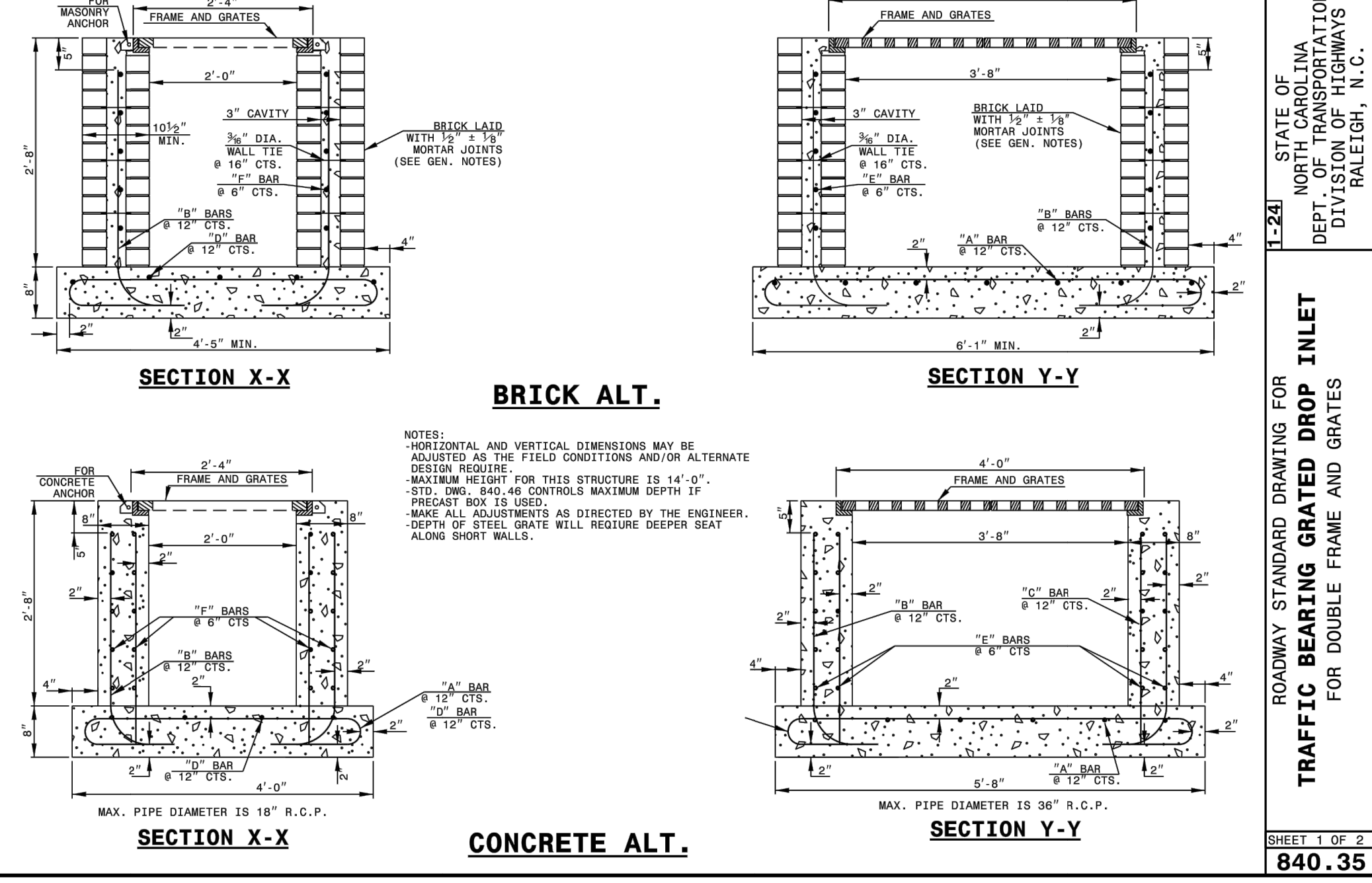
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**840.35**



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

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC BEARING GRATED DROP INLET**  
FOR STEEL (840.37) DOUBLE FRAME AND GRATES

SHEET 2 OF 2  
**840.36**



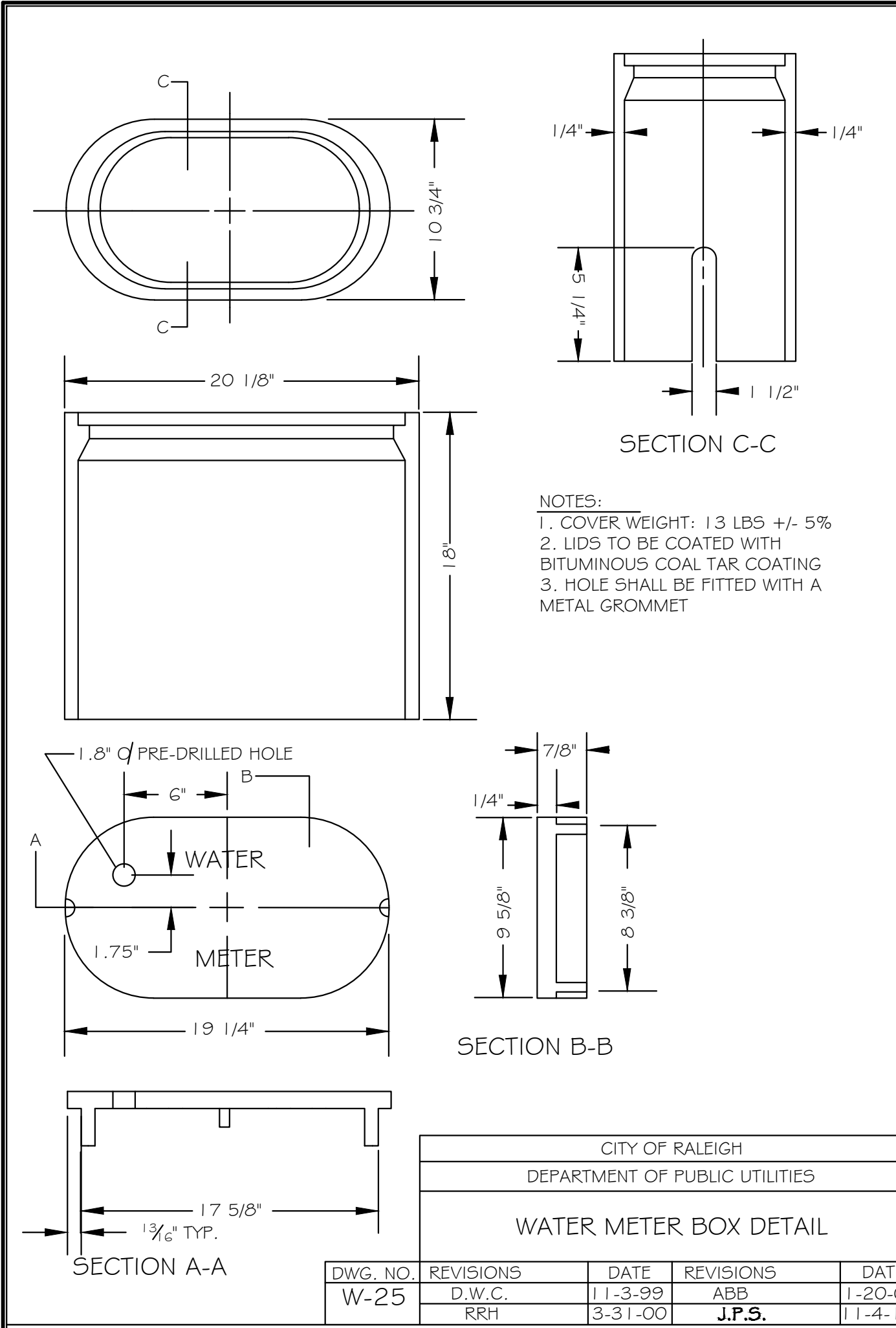
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DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC BEARING GRATED DROP INLET**  
FOR DOUBLE FRAME AND GRATES

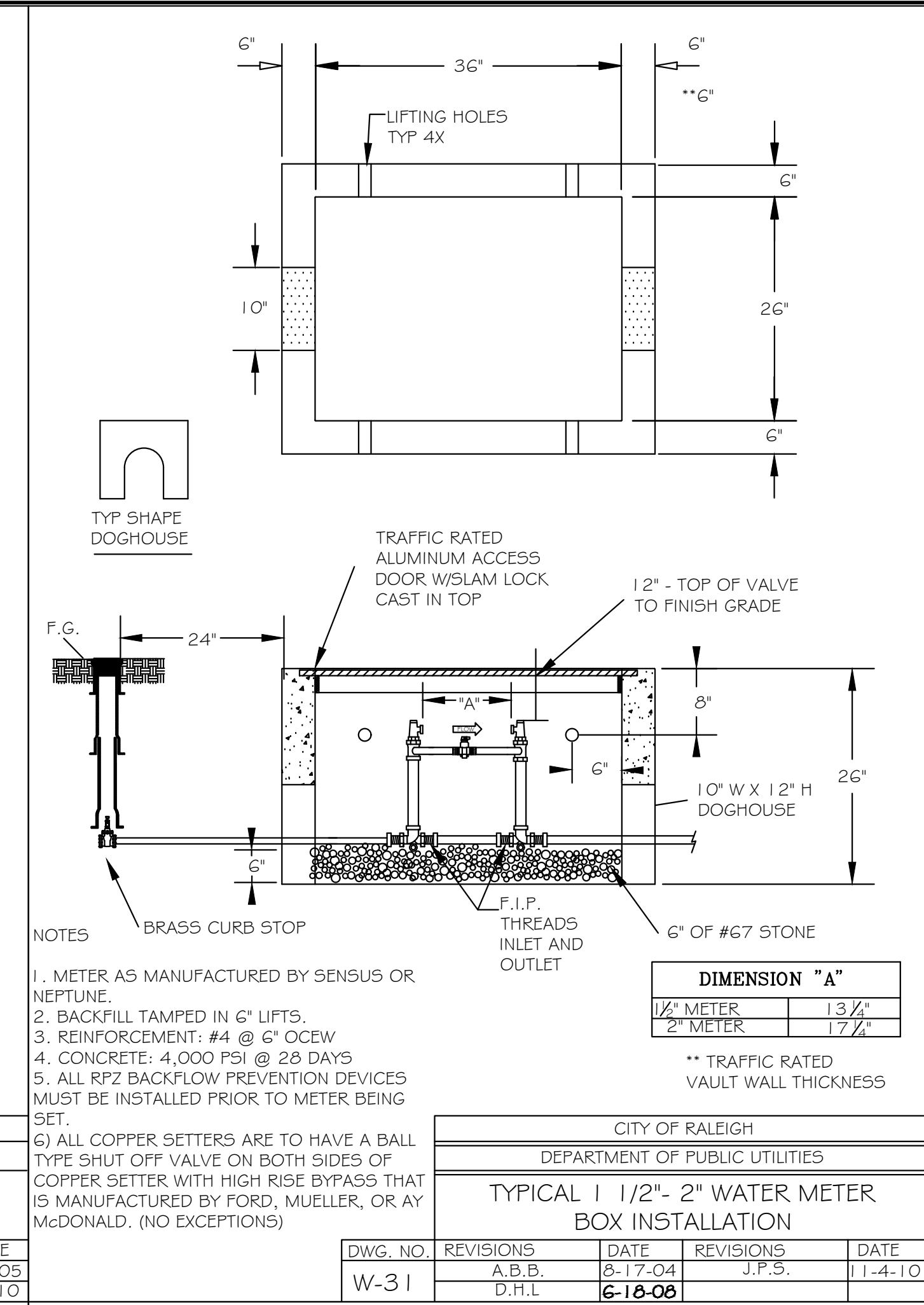
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**840.35**



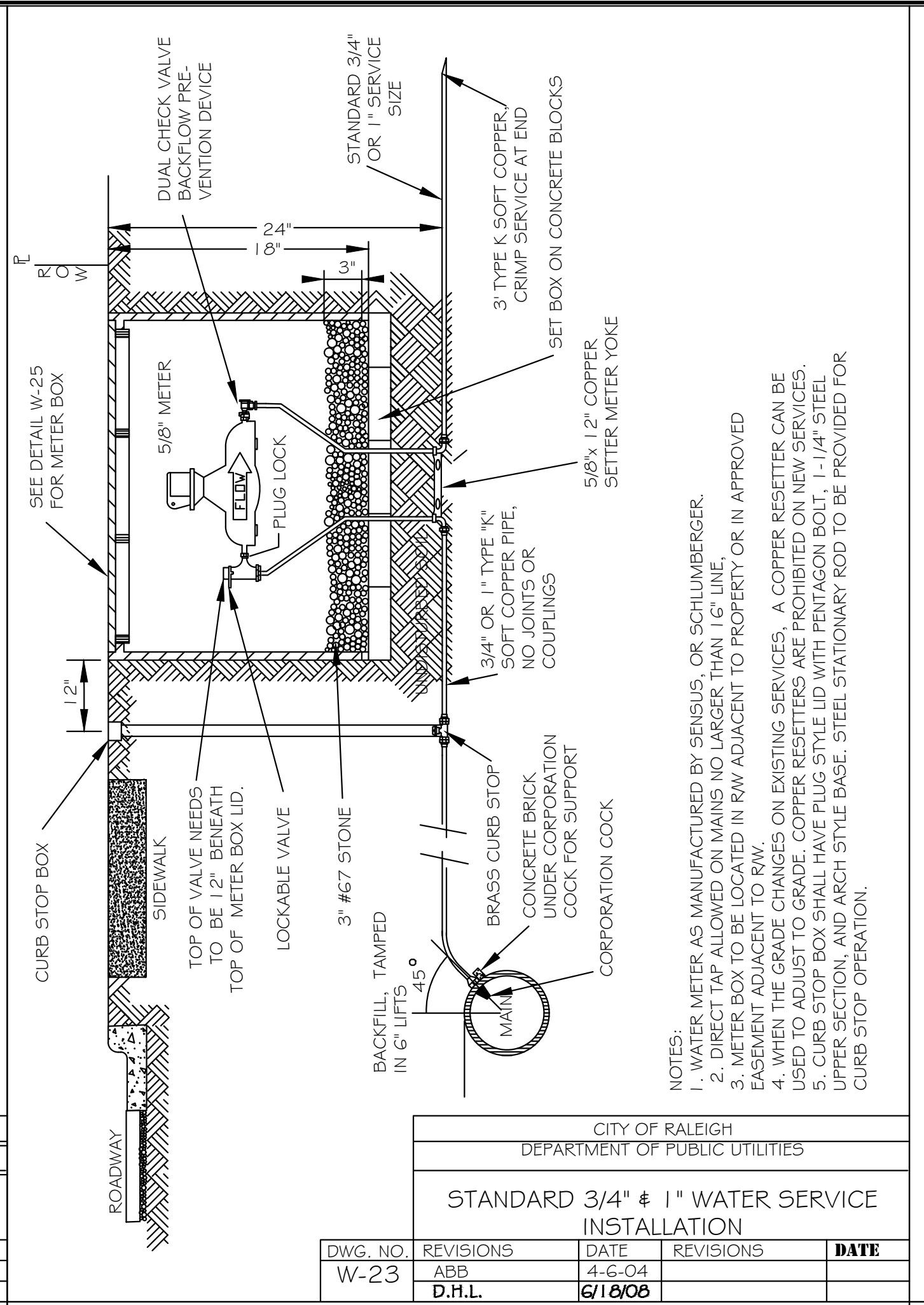
50 WINDY PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29566 | JUDSON HILLS BUILDING 6000, 701 EASLEY BROOK RD, SUITE 6000, GREENVILLE, SC 29611 | 230 PERSONNEL DR. | CHARLOTTE, NC 28217 | 710 N. DANIEL MORGAN AVENUE, SUITE 300 | SPARTANBURG, SC 29301  
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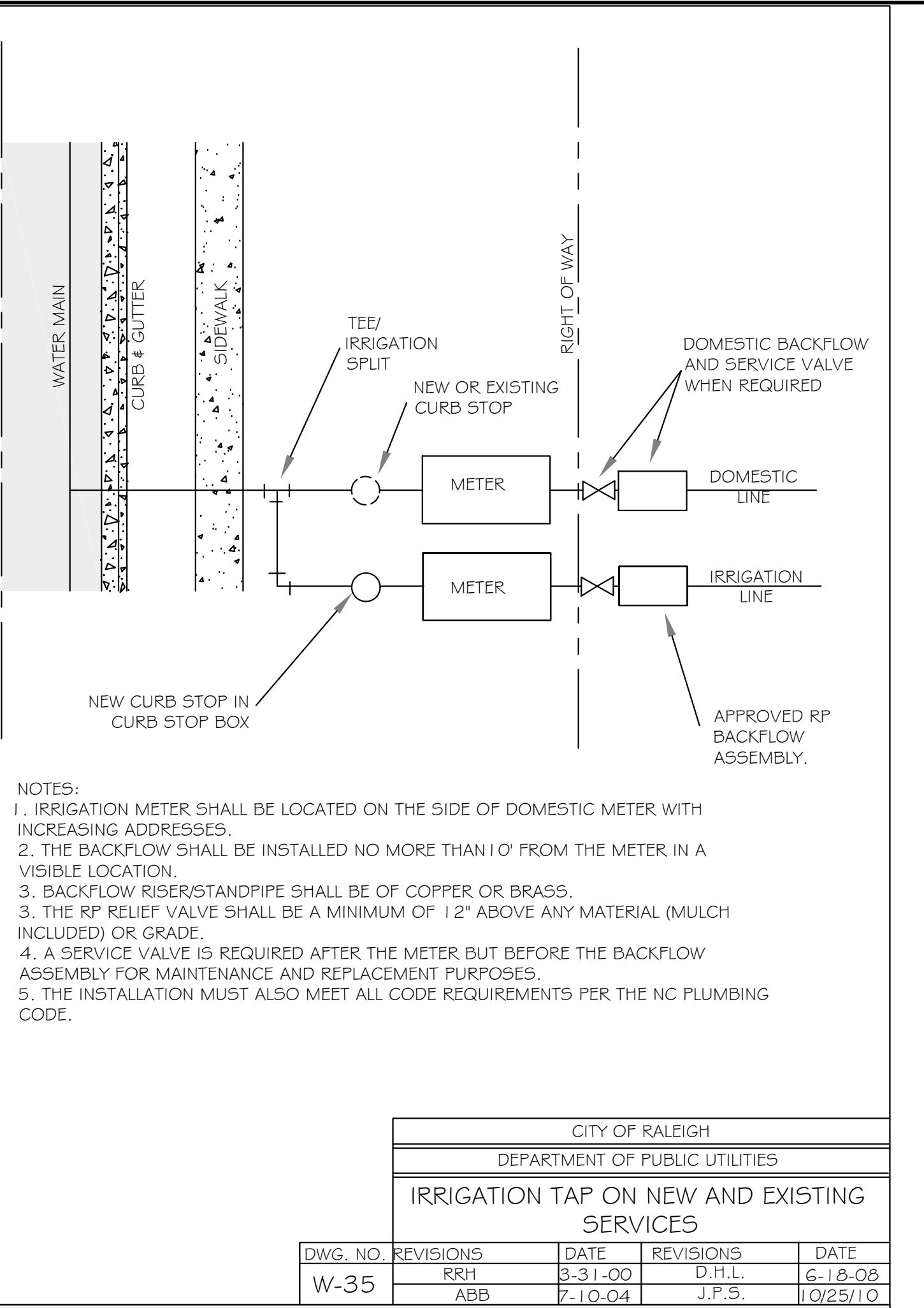
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
WATER METER BOX DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-25	D.W.C.	1-13-99	ABB	1-20-05
	RRH	3-31-00	J.P.S.	1-14-10



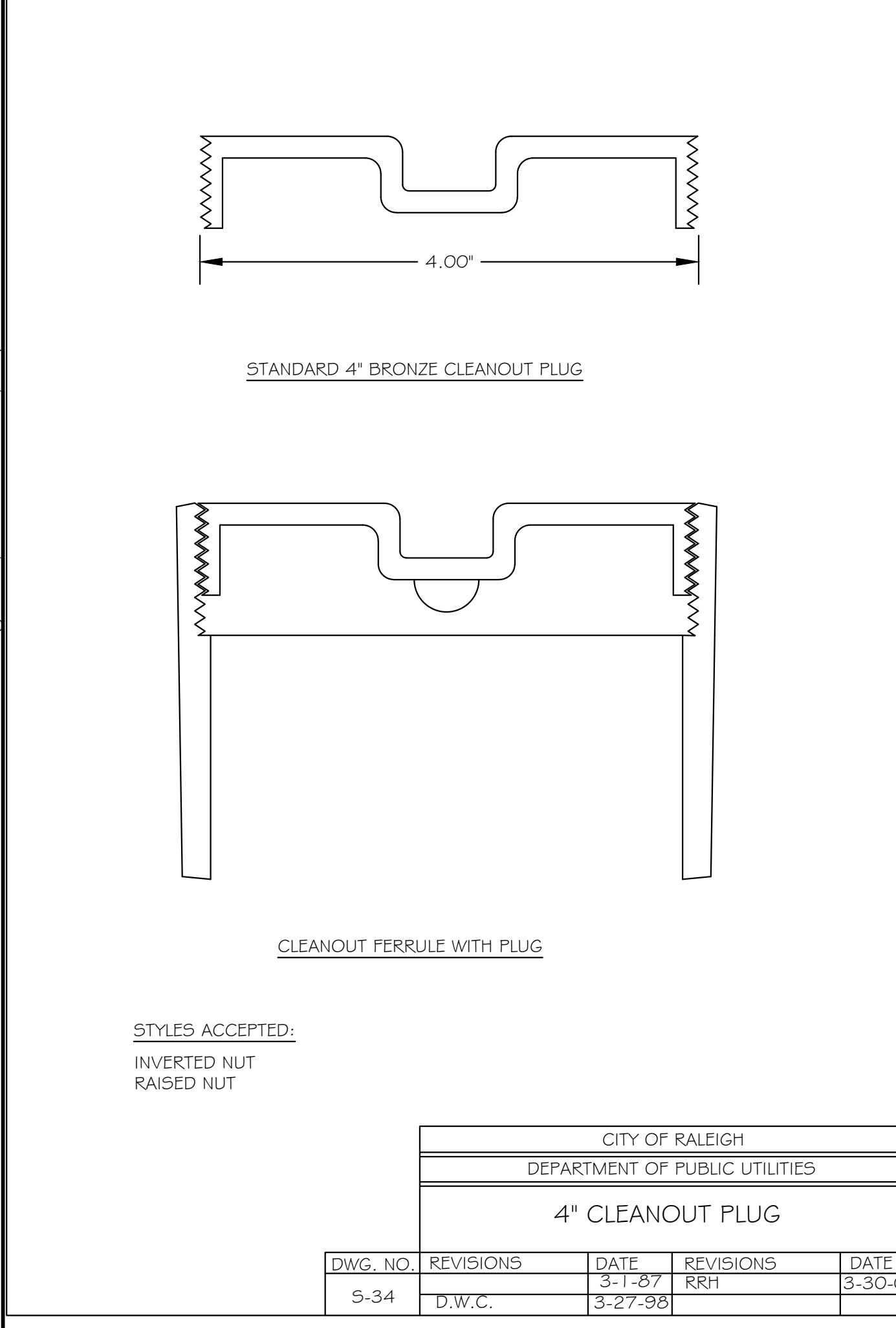
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TYPICAL 1 1/2" - 2" WATER METER BOX INSTALLATION				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-31	A.B.B.	8-17-04	J.P.S.	1-14-10
	D.H.L.	6-18-08		



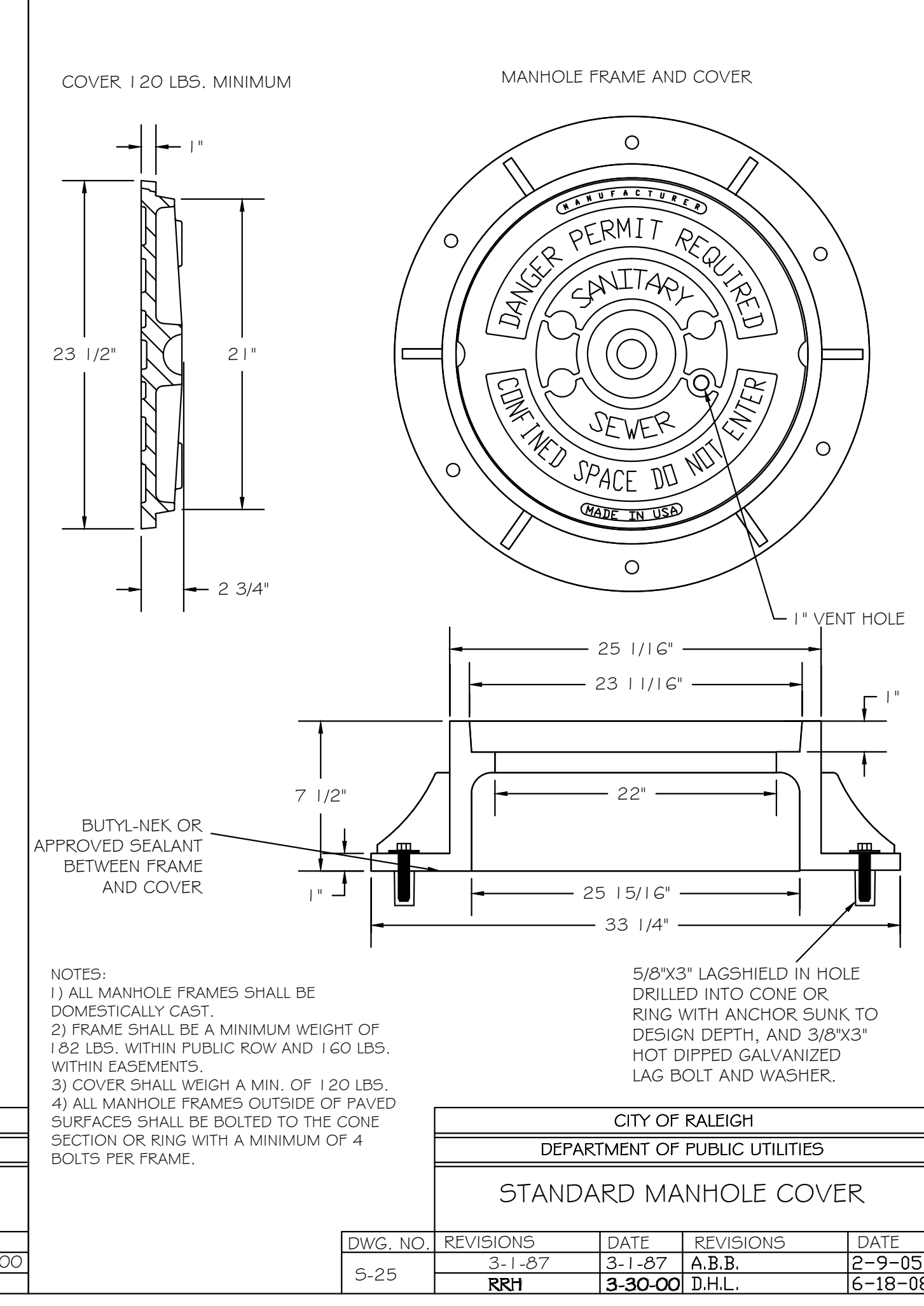
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD 3/4" & 1" WATER SERVICE INSTALLATION				
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W-23	ABB	4-6-04		
	D.H.L.	6-18-08		



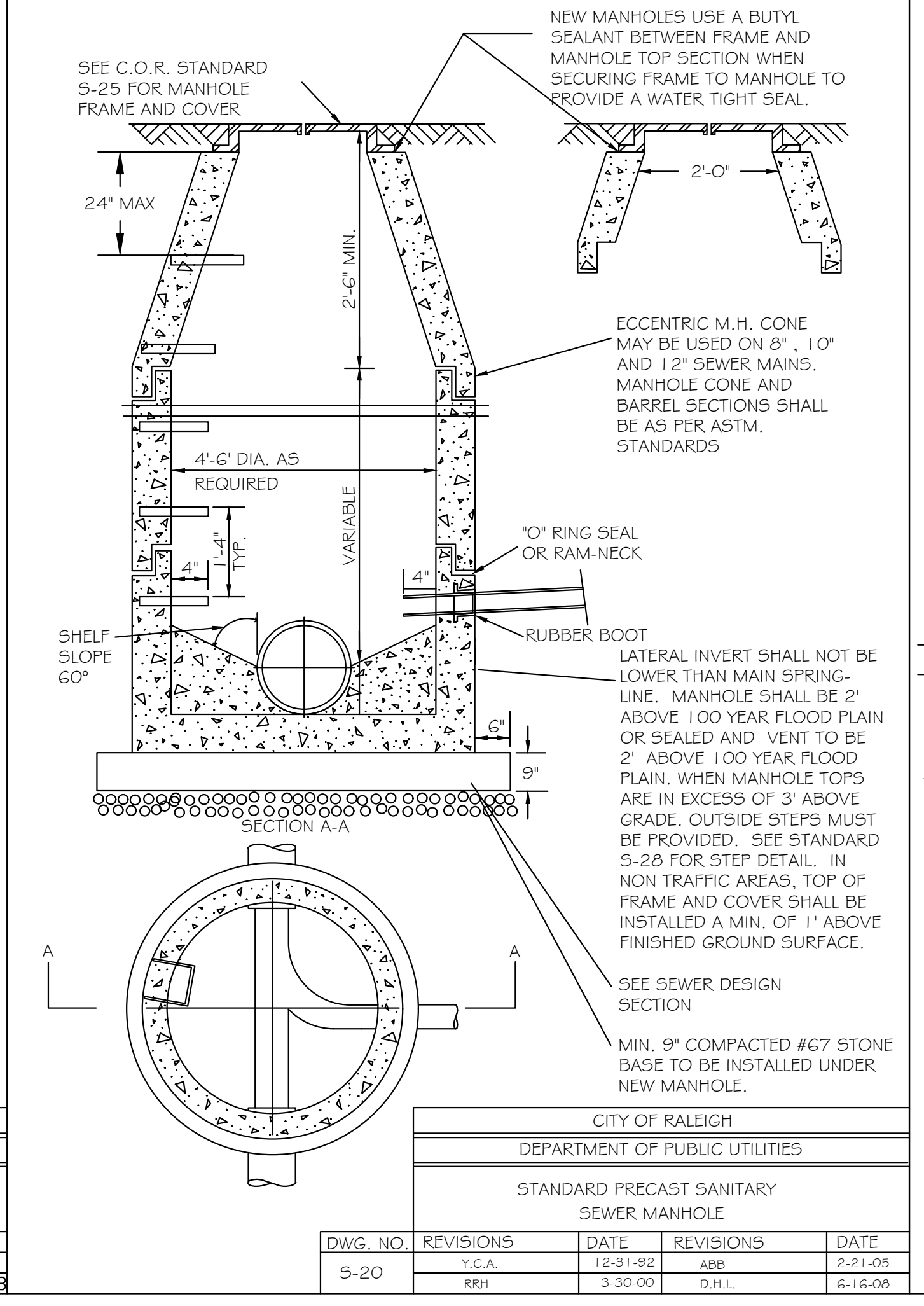
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DEPARTMENT OF PUBLIC UTILITIES				
IRRIGATION TAP ON NEW AND EXISTING SERVICES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
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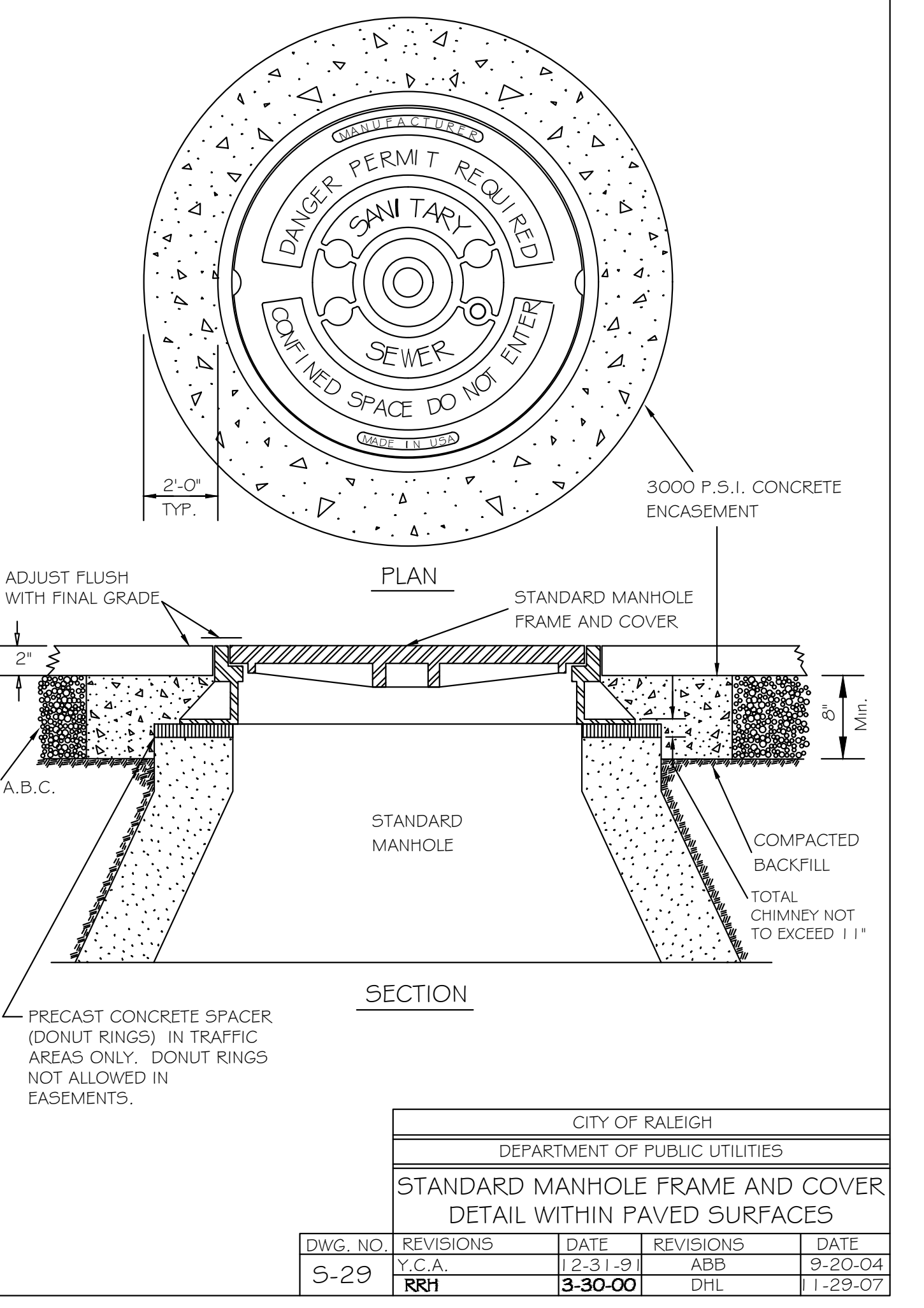
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DEPARTMENT OF PUBLIC UTILITIES				
4" CLEANOUT PLUG				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-34	D.W.C.	3-1-87	RRH	3-30-00
		3-27-98		



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



CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD PRECAST SANITARY SEWER MANHOLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	Y.C.A.	12-31-92	ABB	2-21-05
	RRH	3-30-00	D.H.L.	6-18-08



CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	12-31-91	ABB	9-20-04
	RRH	3-30-00	DHL	1-29-07



MOUNT PLEASANT, SC 29301  
 843.884.1667  
 GREENVILLE, SC 29611  
 864.298.0534  
 SUMMERVILLE, SC 29586  
 843.972.0710  
 SPARTANBURG, SC 29301  
 864.272.1272  
 CHARLOTTE, NC 28202  
 980.312.5450  
 WWW.SEAMONWHITESIDE.COM



**TIDAL WAVE AUTO SPA**  
 ROLESVILLE, NC

SW+ PROJECT: 10772  
 DATE: 3/01/24  
 DRAWN BY: CPE  
 CHECKED BY: TLL

REVISION HISTORY				
NO.	DATE	BY	DESCRIPTION	APPROVED

CONSTRUCTION DETAILS



PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	



# TWAS S MAIN

## ROLESVILLE, NC, USA

### SC-160LP STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-160LP.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 1.5".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

### IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-160LP SYSTEM

- STORMTECH SC-160LP CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-160LP CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-160LP CONSTRUCTION GUIDE".
- FOUNDATION STONE AND EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE; AASHTO M43 #3,357, 4, 467, 5, 56, OR 57.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- THE DEPTH OF FOUNDATION STONE SHALL BE DETERMINED BASED ON THE SUBGRADE BEARING CAPACITY PROVIDED BY THE SITE DESIGN ENGINEER.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES CONCERNING CHAMBER FOUNDATION DESIGN AND SUBGRADE BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- CHAMBERS SHALL BE INSTALLED "TOE TO TOE". NO ADDITIONAL SPACING BETWEEN ROWS IS REQUIRED.
- STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

### NOTES FOR CONSTRUCTION EQUIPMENT

- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-160LP CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-160LP CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-106LP CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



PROPOSED LAYOUT		PROPOSED ELEVATIONS:		*INVERT ABOVE BASE OF CHAMBER					
				PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW	
457	STORMTECH SC-160LP CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	399.45						
92	STORMTECH SC-160LP END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	391.12						
6	STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	390.62	MANIFOLD	A	12" x 8" REDUCING CONCENTRIC MOLDED FITTINGS (12" PIPE)	-1.17"		
6	STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	390.62				0.96"		
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	390.62	MANIFOLD	B	18" x 8" ADS N-12 (18" PIPE)	-4.13"		
8351	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	389.95	MANIFOLD	C	8" x 8" BOTTOM MANIFOLD, MOLDED FITTINGS	0.96"		
		TOP OF SC-160LP CHAMBER:	389.45						
		8" x 8" BOTTOM MANIFOLD INVERT:	388.53	MANIFOLD	D	15" x 8" ADS N-12 (15" PIPE)	-2.58"		
		8" ISOLATOR ROW PLUS INVERT:	388.53				0.96"		
8089	SYSTEM AREA (SF)	8" ISOLATOR ROW PLUS INVERT:	388.53	CONCRETE STRUCTURE	E	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		3.4 CFS OUT	
646.3	SYSTEM PERIMETER (ft)	8" ISOLATOR ROW PLUS INVERT:	388.53	CONCRETE STRUCTURE	F	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		4.4 CFS IN	
		8" BOTTOM CONNECTION INVERT:	388.53	W/WEIR					
		18" x 8" BOTTOM MANIFOLD INVERT (8" PIPE):	388.53	CONCRETE STRUCTURE	G	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		5.9 CFS IN	
		15" x 8" BOTTOM MANIFOLD INVERT (8" PIPE):	388.53	W/WEIR					
		12" x 8" BOTTOM MANIFOLD INVERT (8" PIPE):	388.53	CONCRETE STRUCTURE	H	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		0.7 CFS IN	
		BOTTOM OF SC-160LP CHAMBER:	388.45	W/WEIR					
		12" x 8" BOTTOM MANIFOLD INVERT (12" PIPE):	388.35	UNDERDRAIN	I	4" ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN			
		15" x 8" BOTTOM MANIFOLD INVERT (15" PIPE):	388.24						
		18" x 8" BOTTOM MANIFOLD INVERT (18" PIPE):	388.11						
		UNDERDRAIN INVERT:	387.95						
BOTTOM OF STONE:	387.95								

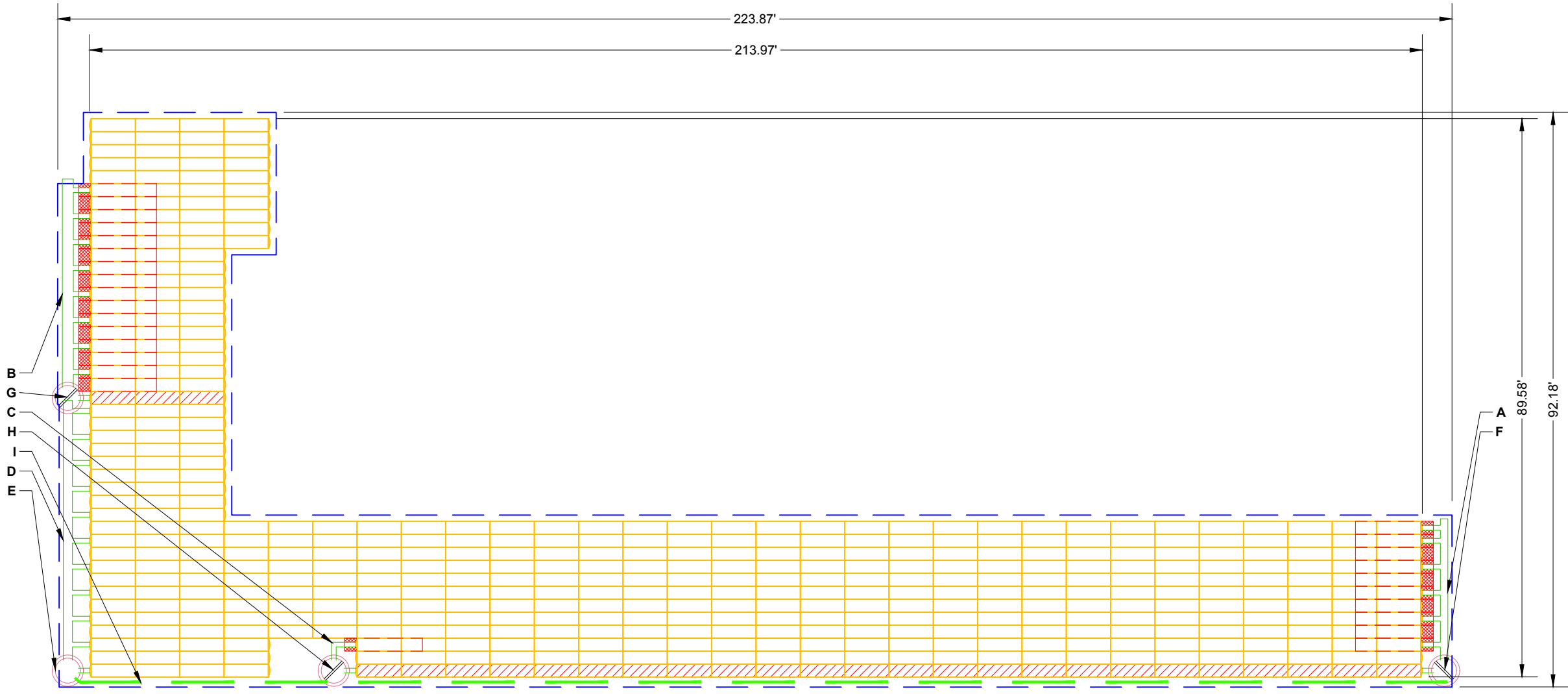
TWAS S MAIN	
ROLESVILLE, NC, USA	
DATE:	DRAWN: KH
PROJECT #:	CHECKED: N/A

DATE	CHK	DRW	CHK	DESCRIPTION

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Chamber System

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1-800-733-7473



**NOTES**

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

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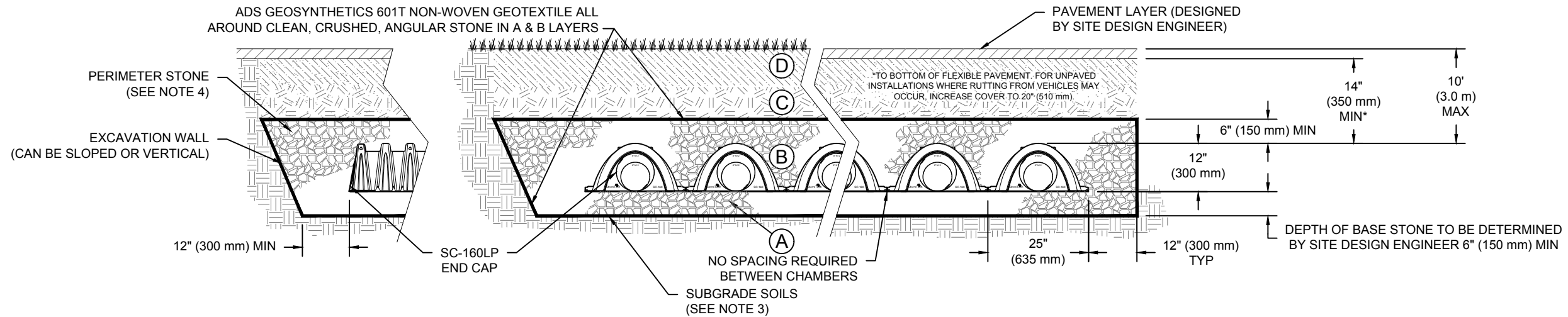


## ACCEPTABLE FILL MATERIALS: STORMTECH SC-160LP CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 14" (355 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2-4, A-3  OR AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE  AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE  AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

**PLEASE NOTE:**

1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



**NOTES:**

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 1.5"
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

**TWAS S MAIN**  
ROLESVILLE, NC, USA

DRAWN: KH  
CHECKED: N/A

DATE:

PROJECT #:

DATE

CHK

DRW

DESCRIPTION

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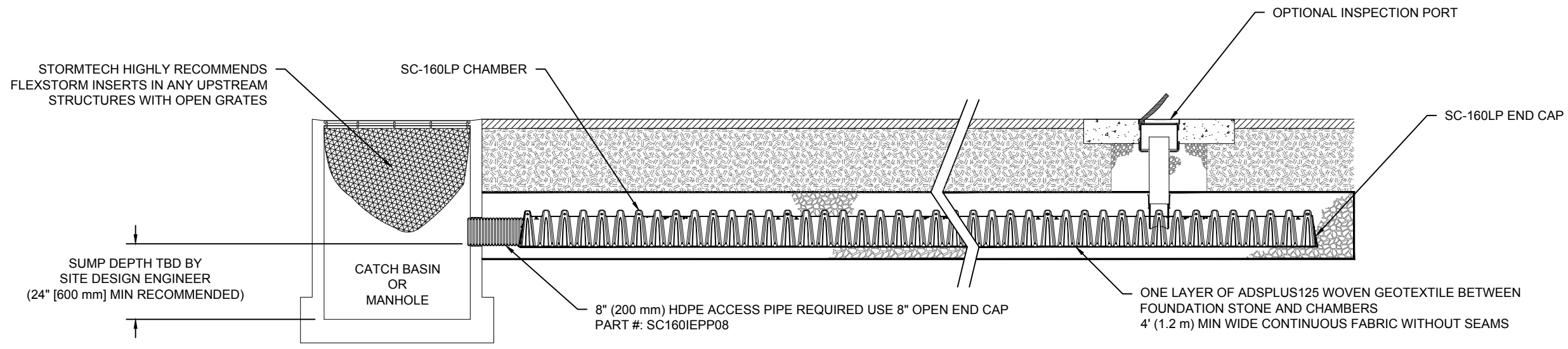
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SHEET

3 OF 5





**SC-160LP ISOLATOR ROW PLUS DETAIL**  
NTS

**INSPECTION & MAINTENANCE**

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
    - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
    - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
    - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
    - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
    - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
  - B. ALL ISOLATOR PLUS ROWS
    - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
    - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
      - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
      - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
    - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
  - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
  - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

**NOTES**

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

**TWAS S MAIN**  
ROLESVILLE, NC, USA  
DATE: \_\_\_\_\_ DRAWN: KH  
PROJECT #: \_\_\_\_\_ CHECKED: N/A

NO.	DATE	DRW	CHK	DESCRIPTION

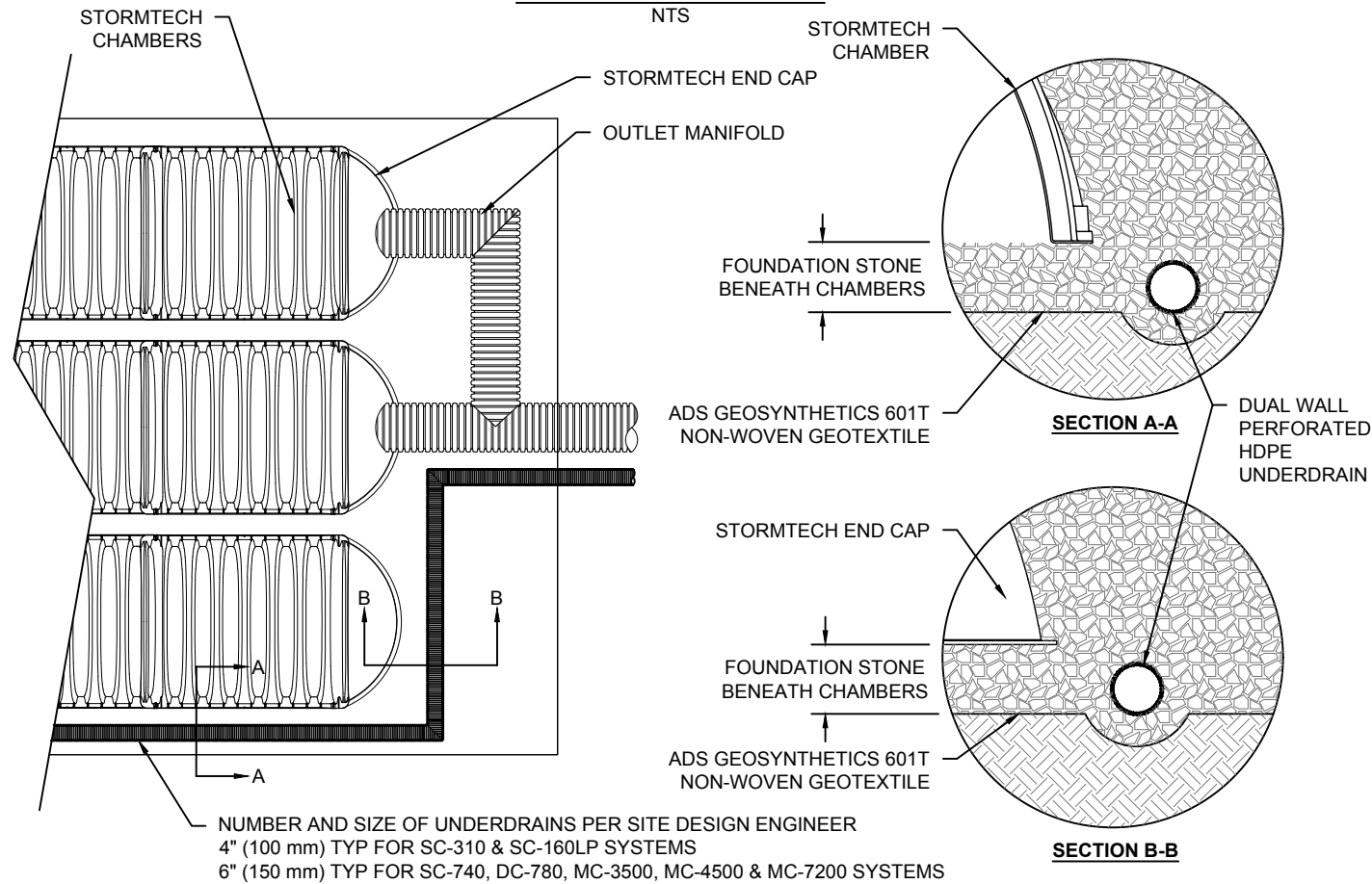
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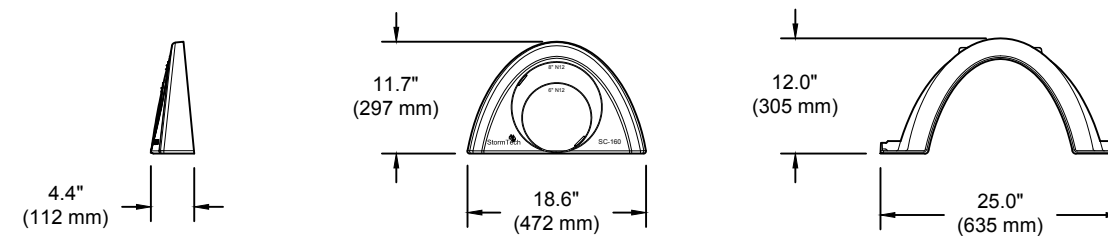
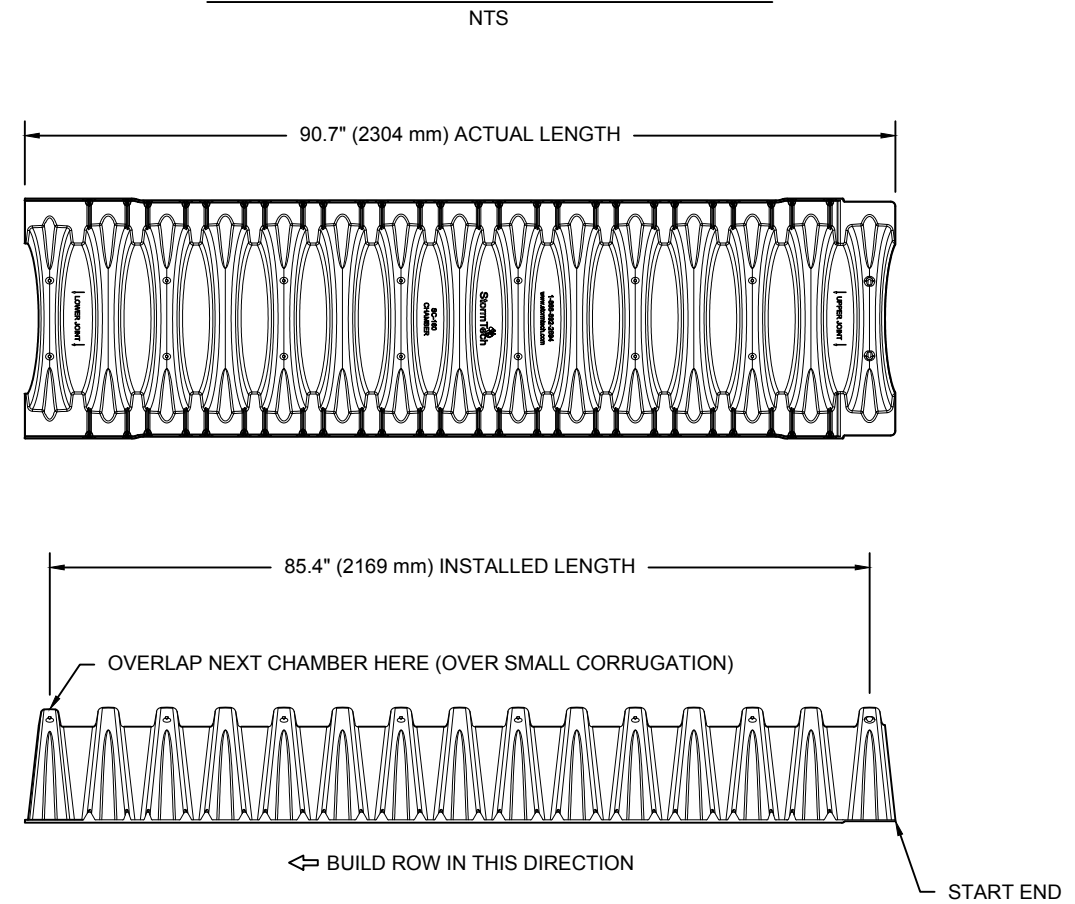
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**UNDERDRAIN DETAIL**



**SC-160LP TECHNICAL SPECIFICATION**



**NOMINAL CHAMBER SPECIFICATIONS**

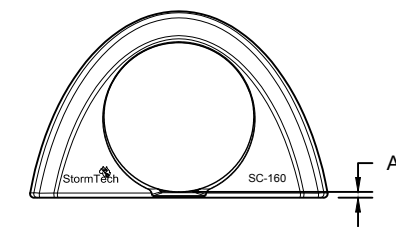
SIZE (W X H X INSTALLED LENGTH)	25.0" X 12.0" X 85.4"	(635 mm X 305 mm X 2169 mm)
CHAMBER STORAGE	6.85 CUBIC FEET	(0.19 m <sup>3</sup> )
MINIMUM INSTALLED STORAGE*	16.0 CUBIC FEET	(0.45 m <sup>3</sup> )
WEIGHT	24.0 lbs.	(10.9 kg)

\*ASSUMES 6" (152 mm) ABOVE, 6" (152 mm) BELOW, AND STONE BETWEEN CHAMBERS WITH 40% STONE POROSITY.

PART #	STUB	A
SC160EPP	6" (150 mm)	0.66" (16 mm)
	8" (200 mm)	0.80" (20 mm)
SC160EPP08	8" (200 mm)	0.96" (24 mm)

ALL STUBS ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

NOTE: ALL DIMENSIONS ARE NOMINAL



TWAS S MAIN  
 ROLESVILLE, NC, USA

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