

# CONSTRUCTION PLANS

# TOWN OF NAGS HEAD

# CAPITAL IMPROVEMENT PROJECT

## FY24-25 WATERLINE, DRAINAGE & STREET RESURFACING PROJECT

NAGS HEAD, NC 27959 | DARE COUNTY

FEBRUARY 24, 2025



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C1.02	WATER MAIN - S. ARIO ST 20+00 - 24+00
C1.03	WATER MAIN - S. ALBATROSS ST 30+00 - 35+00
C1.04	WATER MAIN - S. ALBATROSS ST 35+00 - 38+00
C1.05	WATER MAIN - S. ATLAS ST 40+00 - 44+00
C2.00	STORM SEWER ALBATROSS ST & ATLAS ST
C2.01	STORM SEWER DRIFTWOOD ST TO GALLERY ST
C2.02	STORM SEWER GALLERY ST AND ABALONE ST
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C3.00	UTILITY DETAILS
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C3.02	UTILITY DETAILS
C3.03	UTILITY DETAILS
C3.04	NCG-01
C3.05	EROSION CONTROL DETAILS

### SURVEY BENCHMARK

BENCHMARK IS LOCAL TO SITE.  
SEE SHEET G1.00 FOR BENCHMARK INFORMATION.  
VERTICAL DATUM BASED ON NAVD 88.

FOR BID

### CONTACT LIST:

PROJECT MANAGER  
Michael W. Strader, Jr., P.E.  
WithersRavenel  
8466 Caratoke Highway  
Building 400  
Powells Point, NC 27966  
mstrader@withersravenel.com



### PREPARED BY:



**WithersRavenel**  
8466 Caratoke Highway | Building 400 | Powells Point, NC 27966  
License #: F-1479 | t: 252.491.8147 | www.withersravenel.com

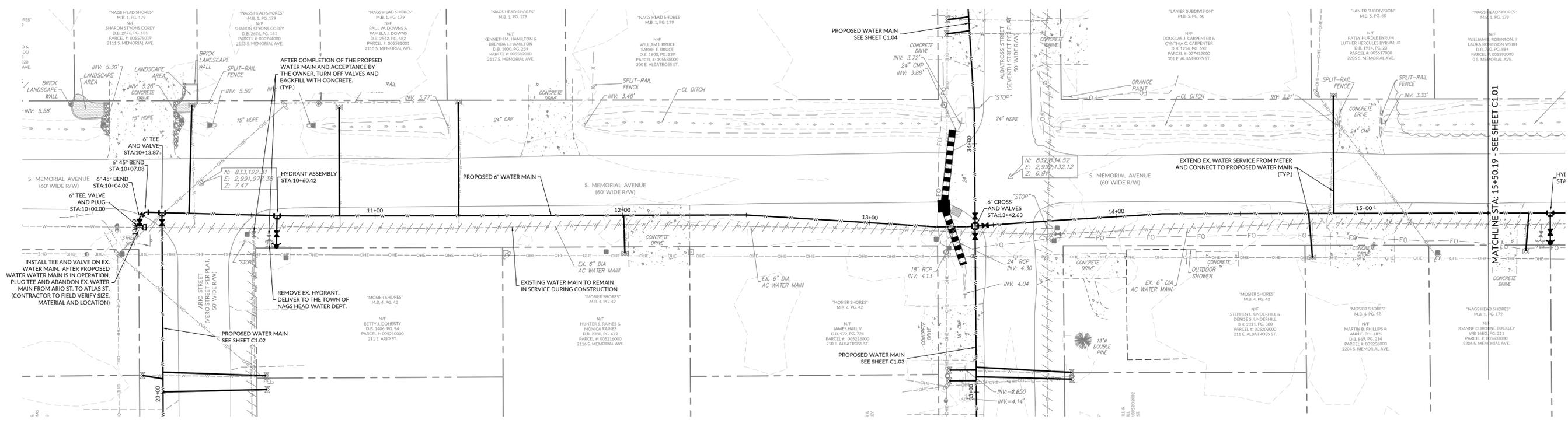
### OWNER:

**TOWN OF NAGS HEAD**

P.O. BOX 99 5401 S. CROATAN HWY  
NAGS HEAD, NC 27959  
PHONE #: 252-441-5508  
ATTENTION: David Ryan, P.E.

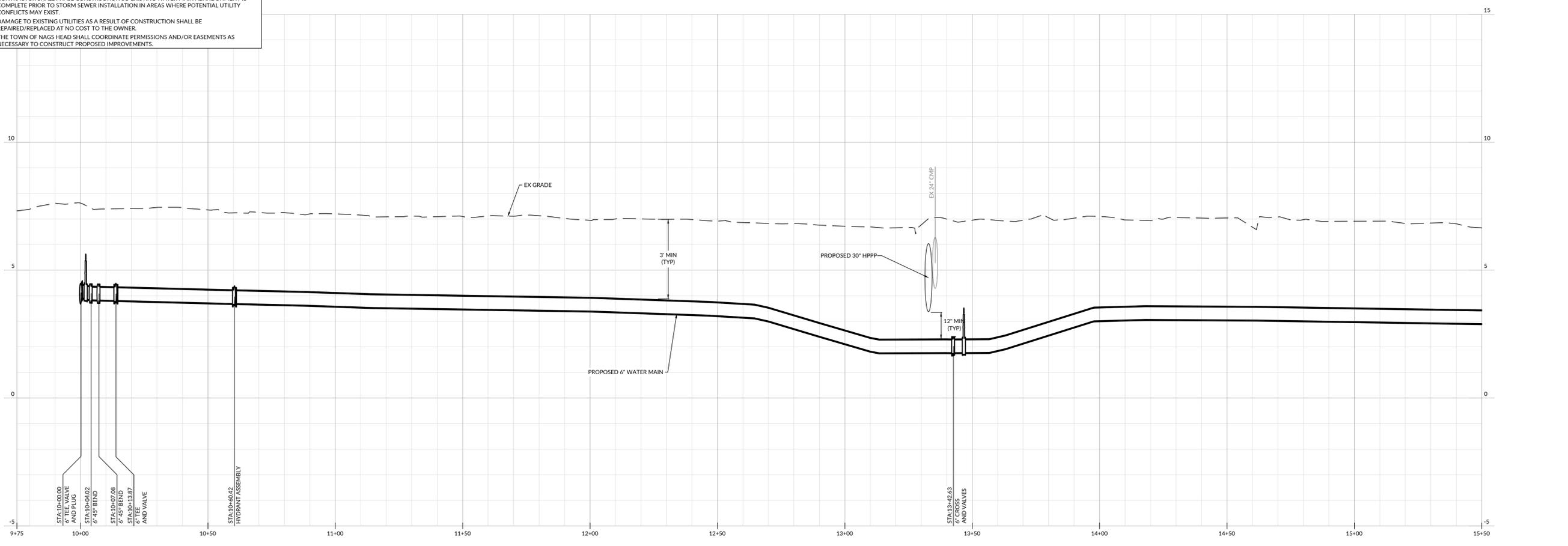
CONSTRUCTION PLANS  
TOWN OF NAGS HEAD  
CAPITAL IMPROVEMENT  
PROJECT  
WR PROJECT NO.24-1284  
TOWN OF NAGS HEAD  
02/24/2025  
INITIAL PLAN DATE: 12/23/2024





- NOTES:**
- CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES ALONG THE PROPOSED UTILITY ALIGNMENTS. THE ENGINEER/OWNER SHALL BE NOTIFIED OF ANY POTENTIAL CONFLICTS PRIOR TO THE START OF CONSTRUCTION.
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**SCALE:**  
 1" = 20' HORIZ.  
 1" = 2' VERT.



**WithersRavenel**  
 8466 Carolina Highway | Building 400 | Poyall Point, NC 27966  
 License #: F-1479 | T: 252.491.8147 | www.withersravenel.com

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 P.O. BOX 99 5401 S. GROTAN HWY  
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CONSTRUCTION PLANS

NAGS HEAD, NC 27959 | DARE COUNTY



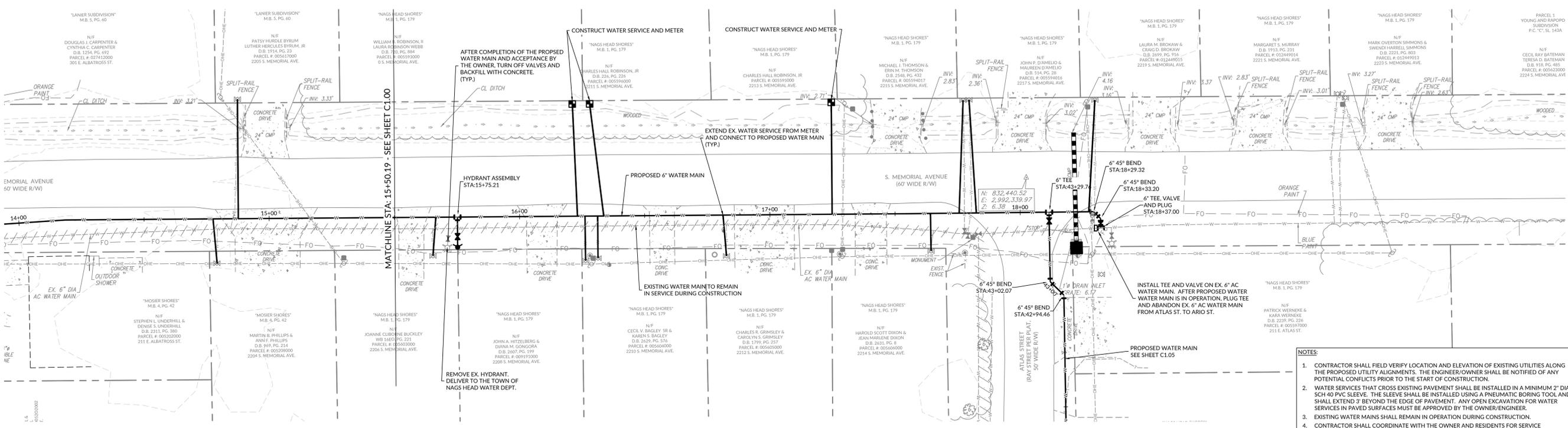
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**WATER MAIN -  
 S. MEMORIAL AVE  
 10+00 - 15+50**

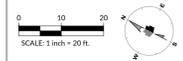
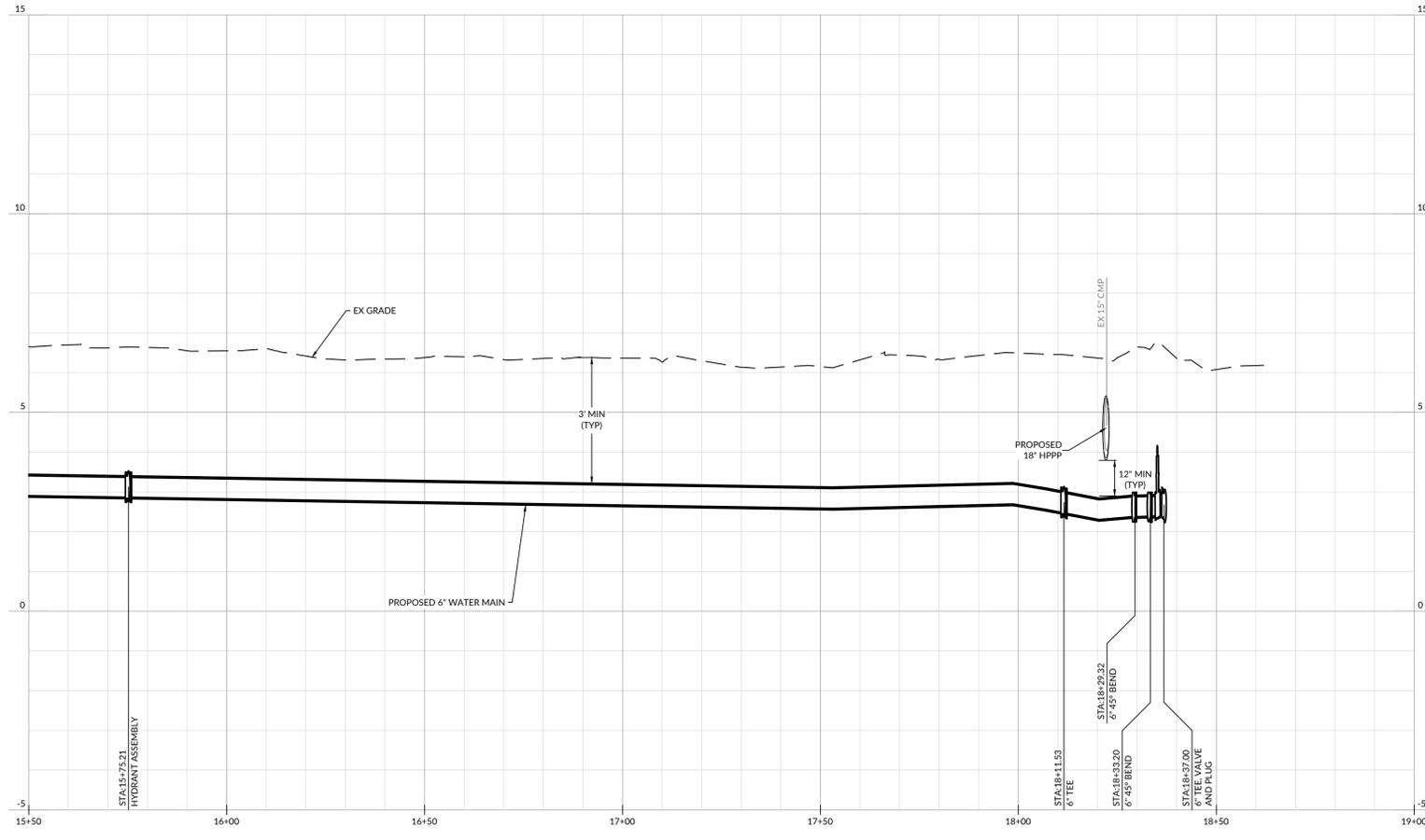
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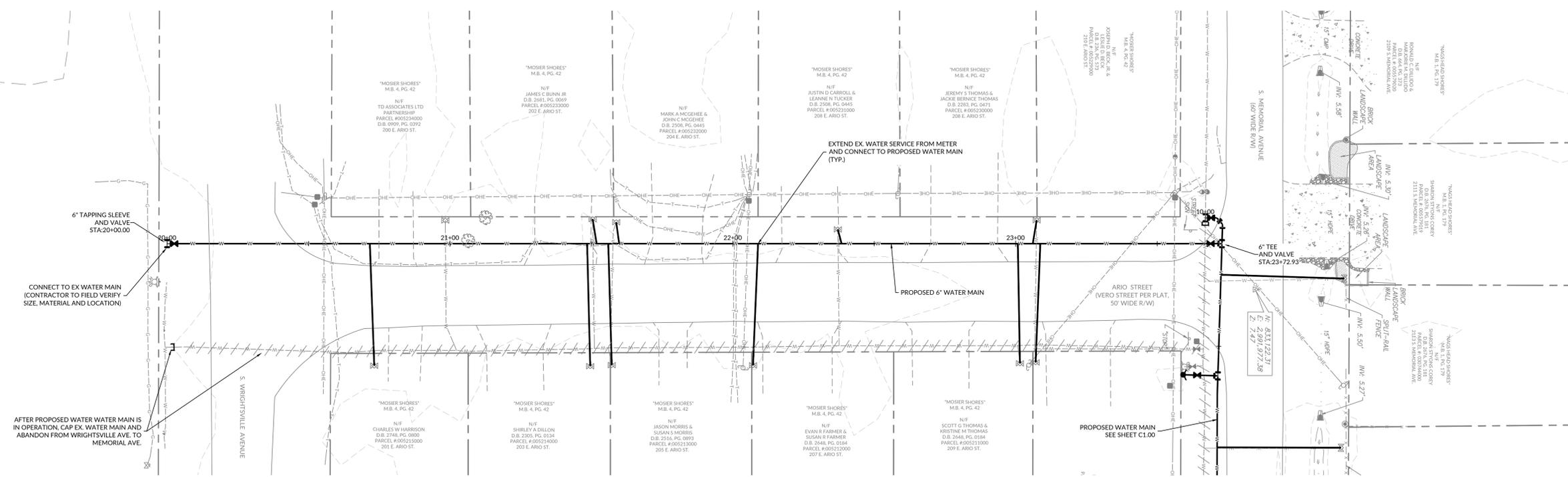


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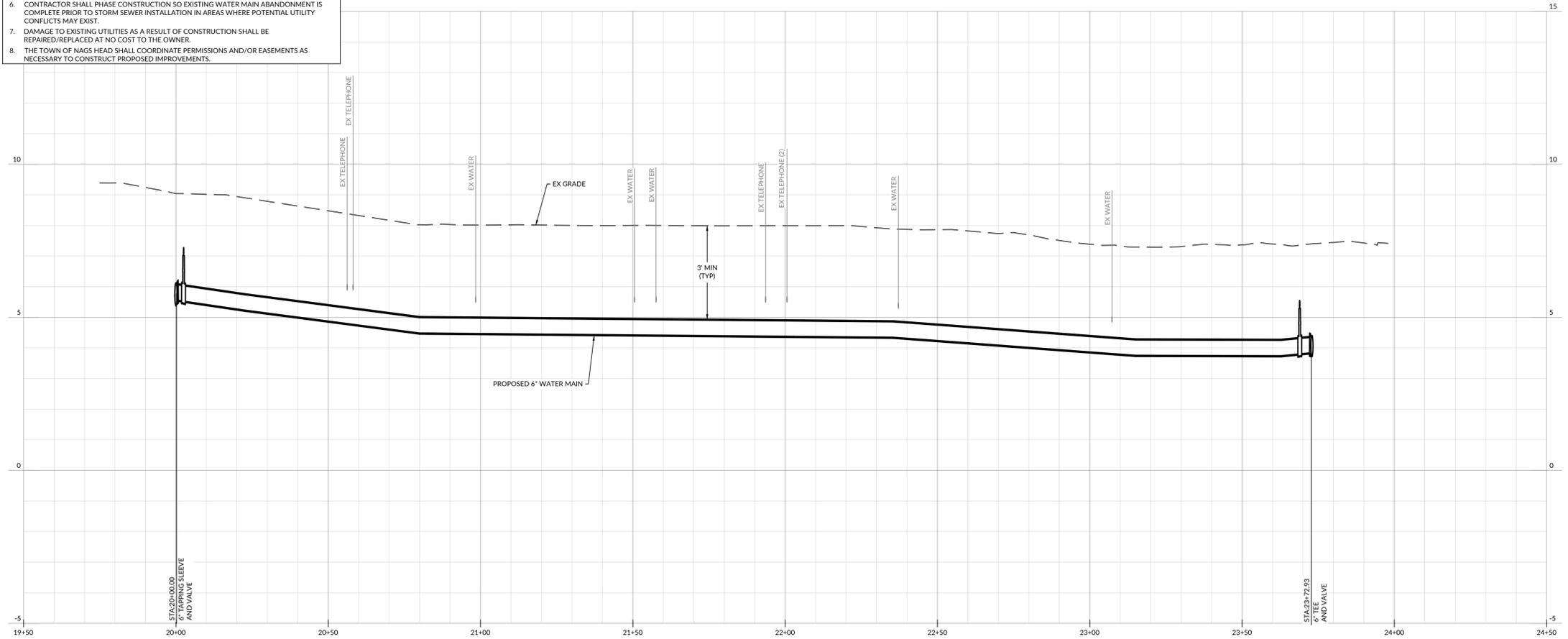
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**WATER MAIN -  
 S. MEMORIAL AVE  
 15+50 - 18+50**

**FOR BID**



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**TOWN OF NAGS HEAD  
 CAPITAL IMPROVEMENT  
 PROJECT**



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**WATER MAIN -  
 S. ARIO ST  
 20+00 - 24+00**

**C1.02**

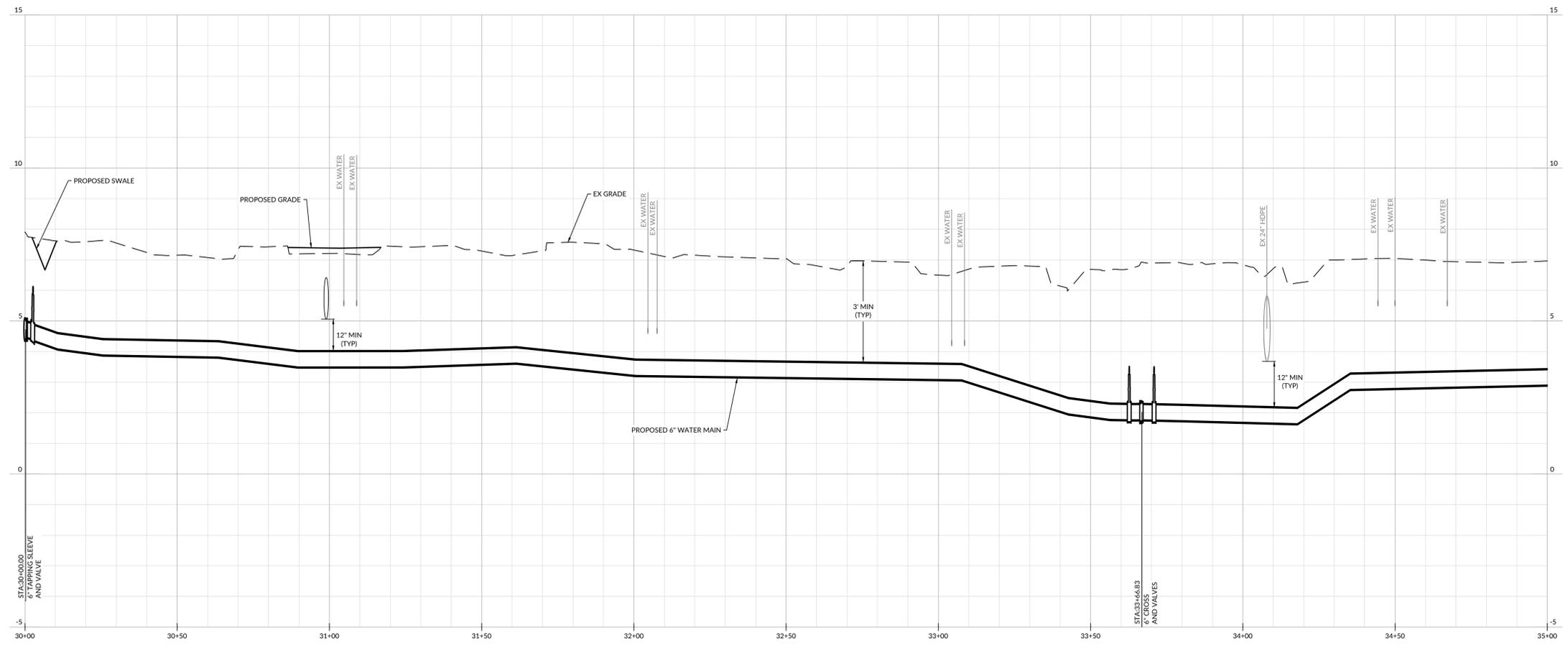
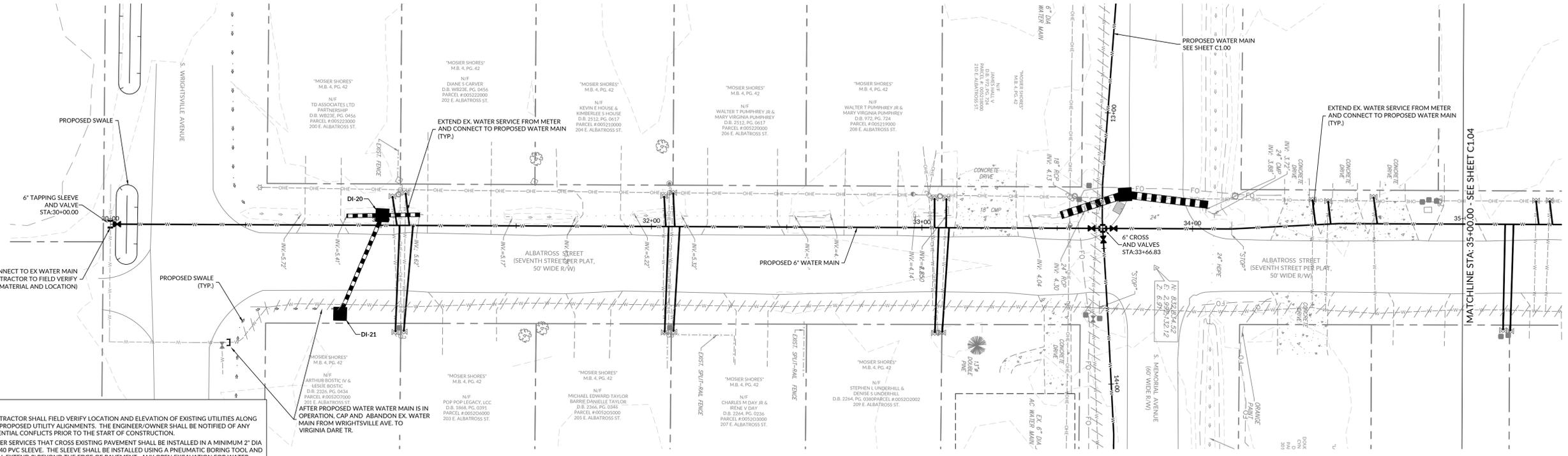


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 P.O. BOX 99 5401 S. GREATAN HWY  
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NAGS HEAD, NC 27959 | DARE COUNTY

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AFTER PROPOSED WATER MAIN IS IN OPERATION, CAP AND ABANDON EX. WATER MAIN FROM WRIGHTSVILLE AVE. TO VIRGINIA DARE TR.



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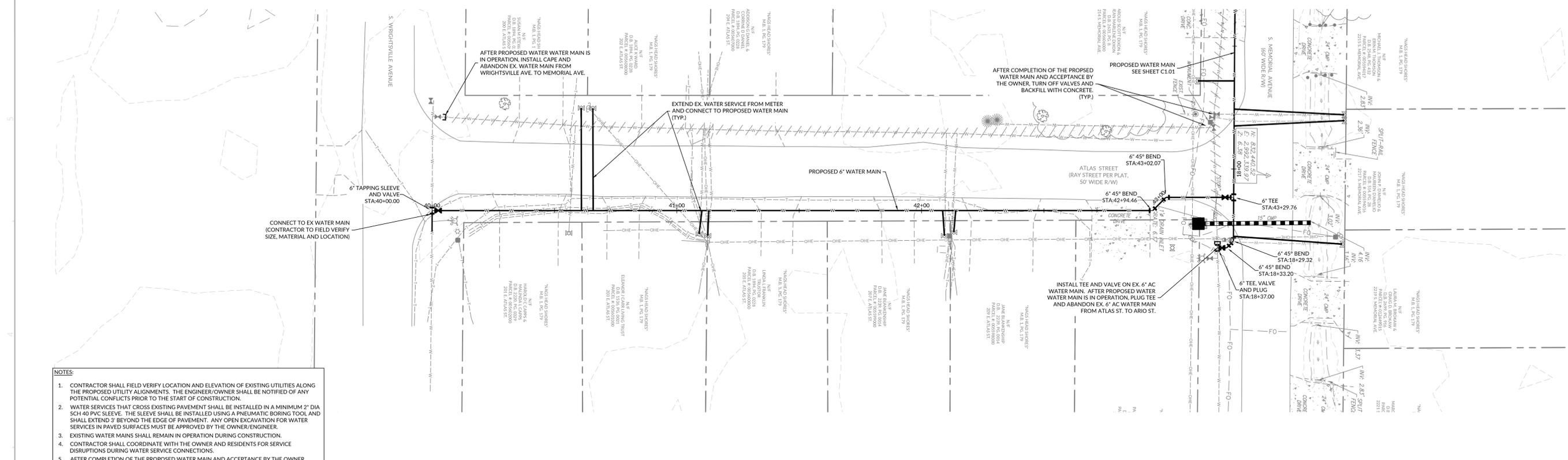
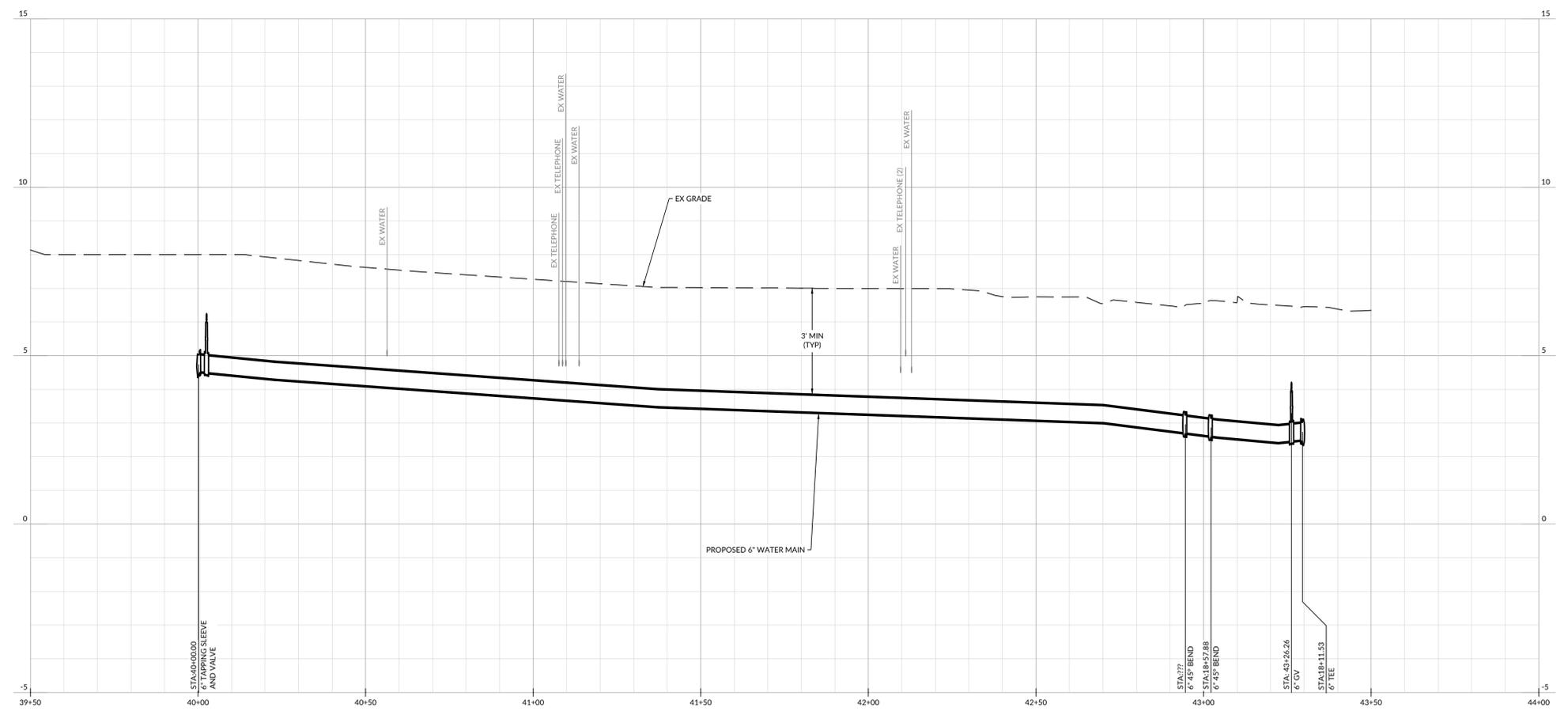
**WATER MAIN -  
 S. ALBATROSS ST  
 30+00 - 35+00**

**C1.03**





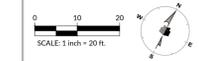
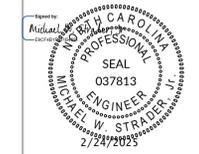
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**CONSTRUCTION PLANS**  
**TOWN OF NAGS HEAD**  
**CAPITAL IMPROVEMENT**  
**PROJECT**

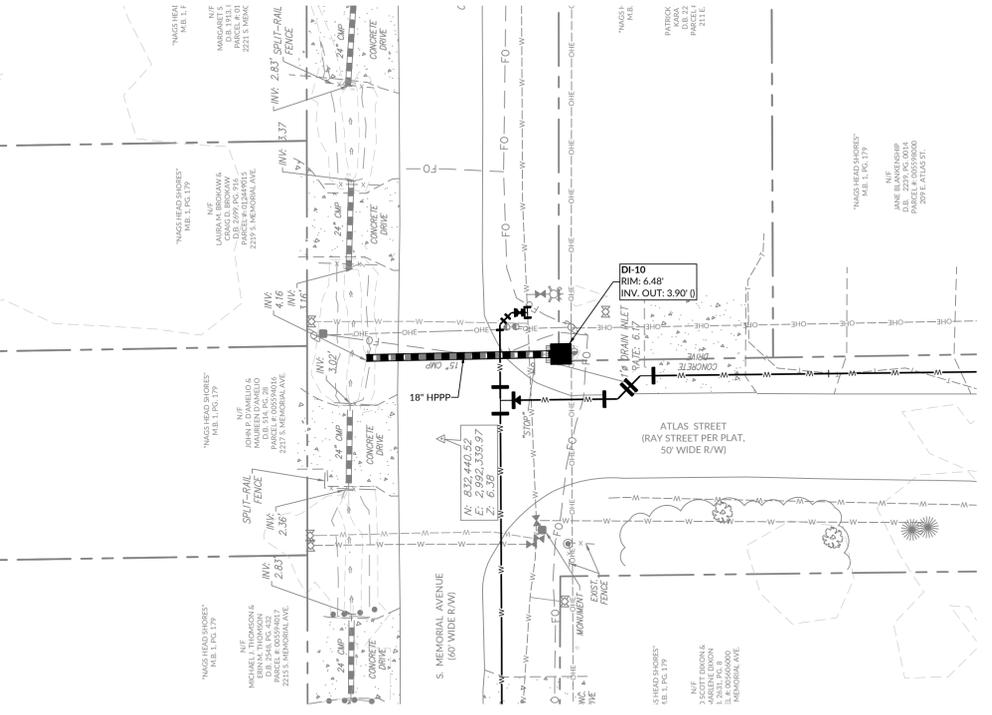
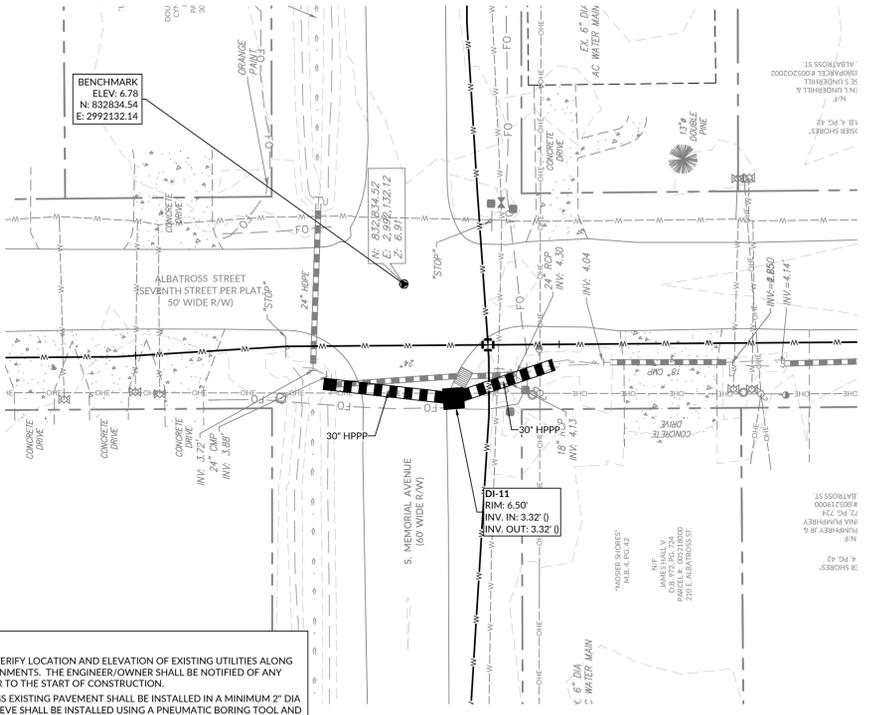


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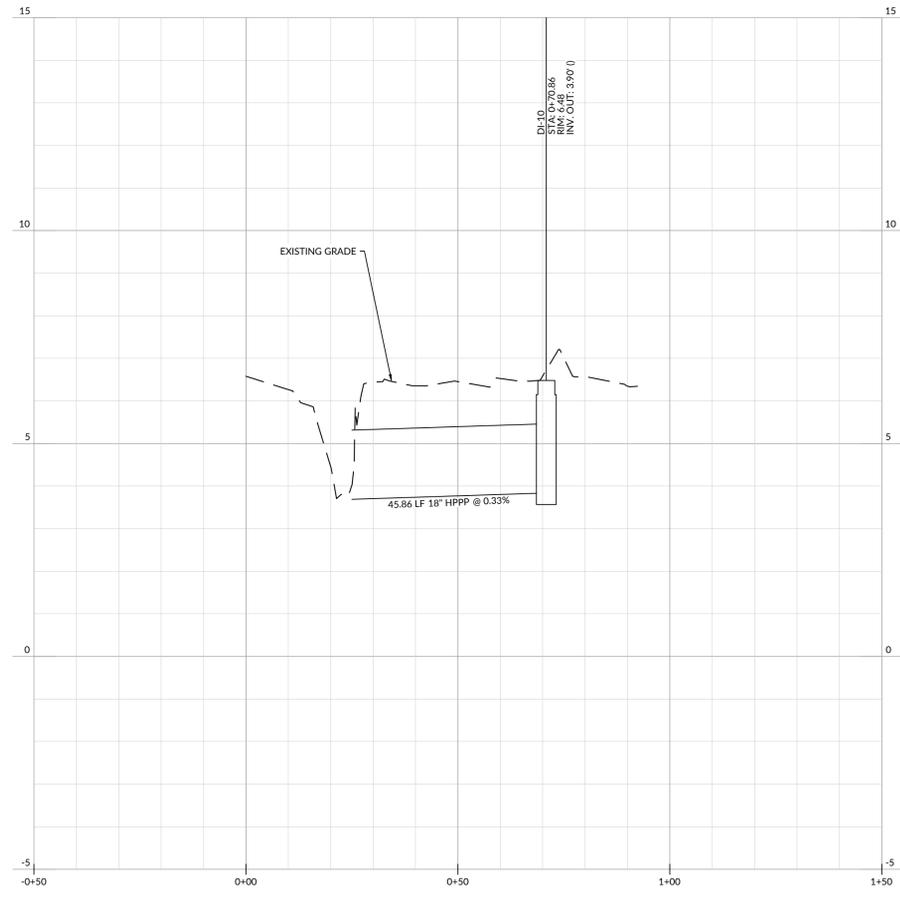
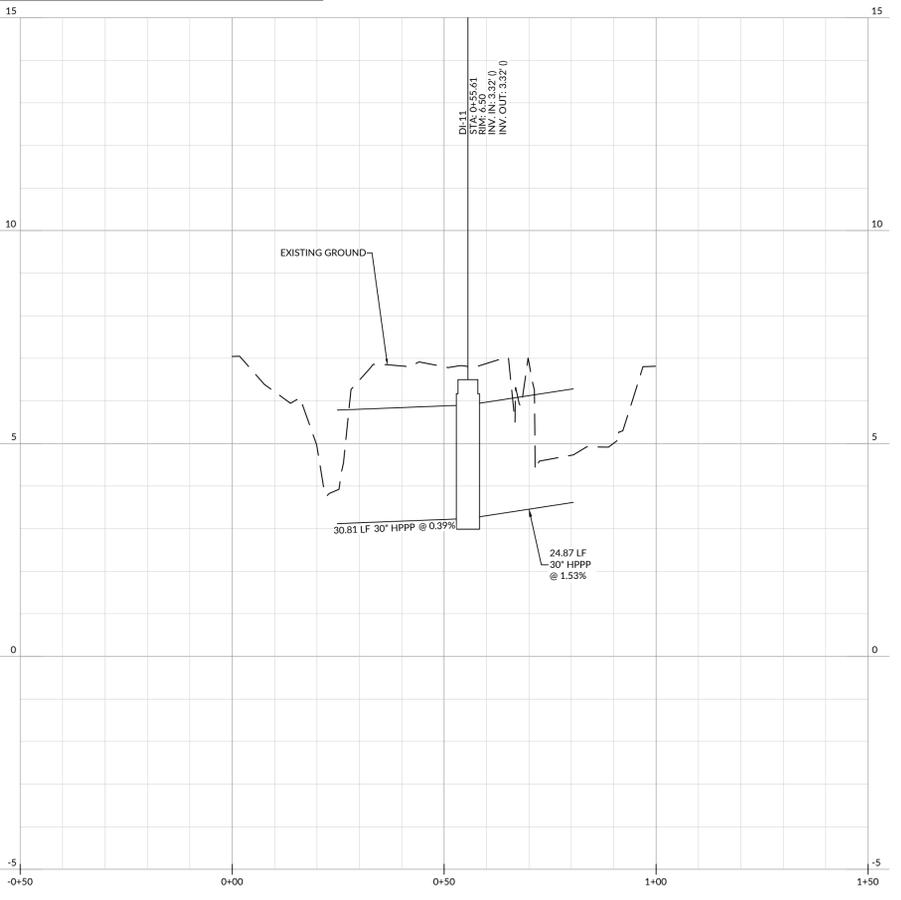
**WATER MAIN -**  
**S. ATLAS ST**  
**40+00 - 44+00**

**C1.05**

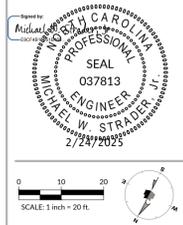


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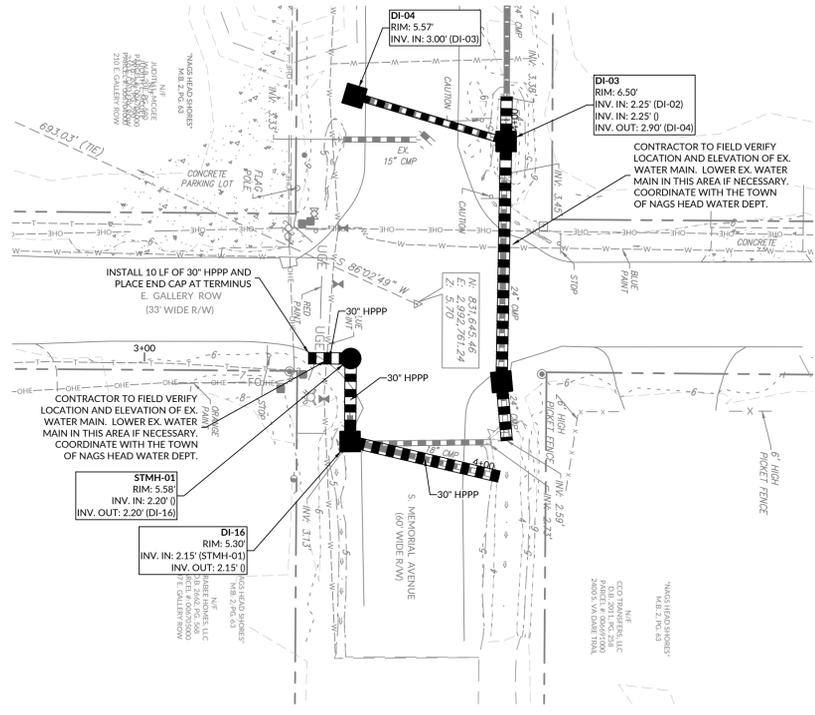
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**STORM SEWER**  
**ALBATROSS ST**  
**& ATLAS ST**

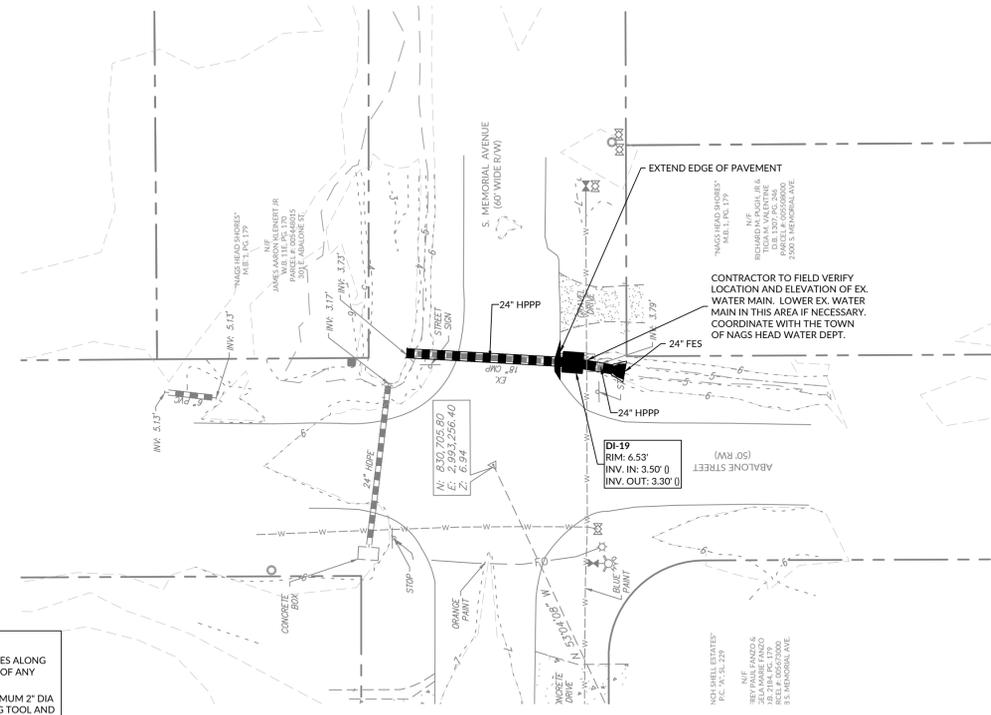
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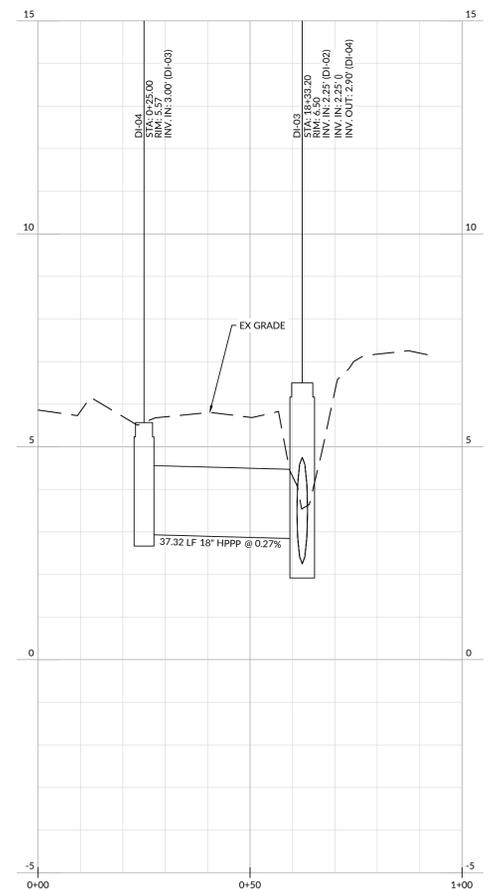
E. GALLERY STREET @ S. MEMORIAL AVENUE  
PLAN VIEW



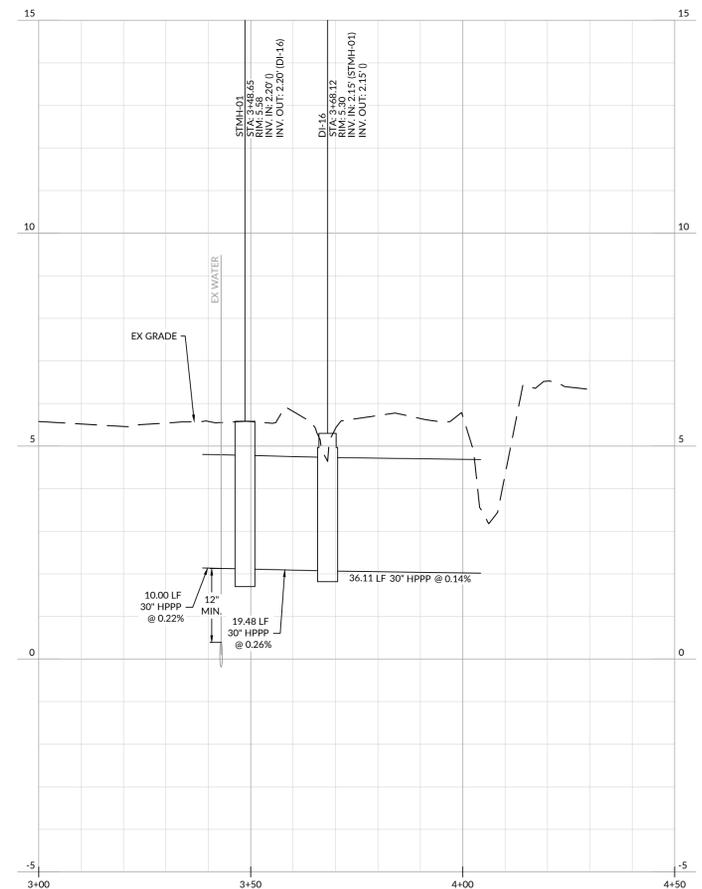
S. MEMORIAL AVENUE AT ABALONE STREET  
PLAN VIEW

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E. GALLERY STREET  
PROFILE VIEW



S. MEMORIAL AVENUE AT ABALONE STREET  
PROFILE VIEW

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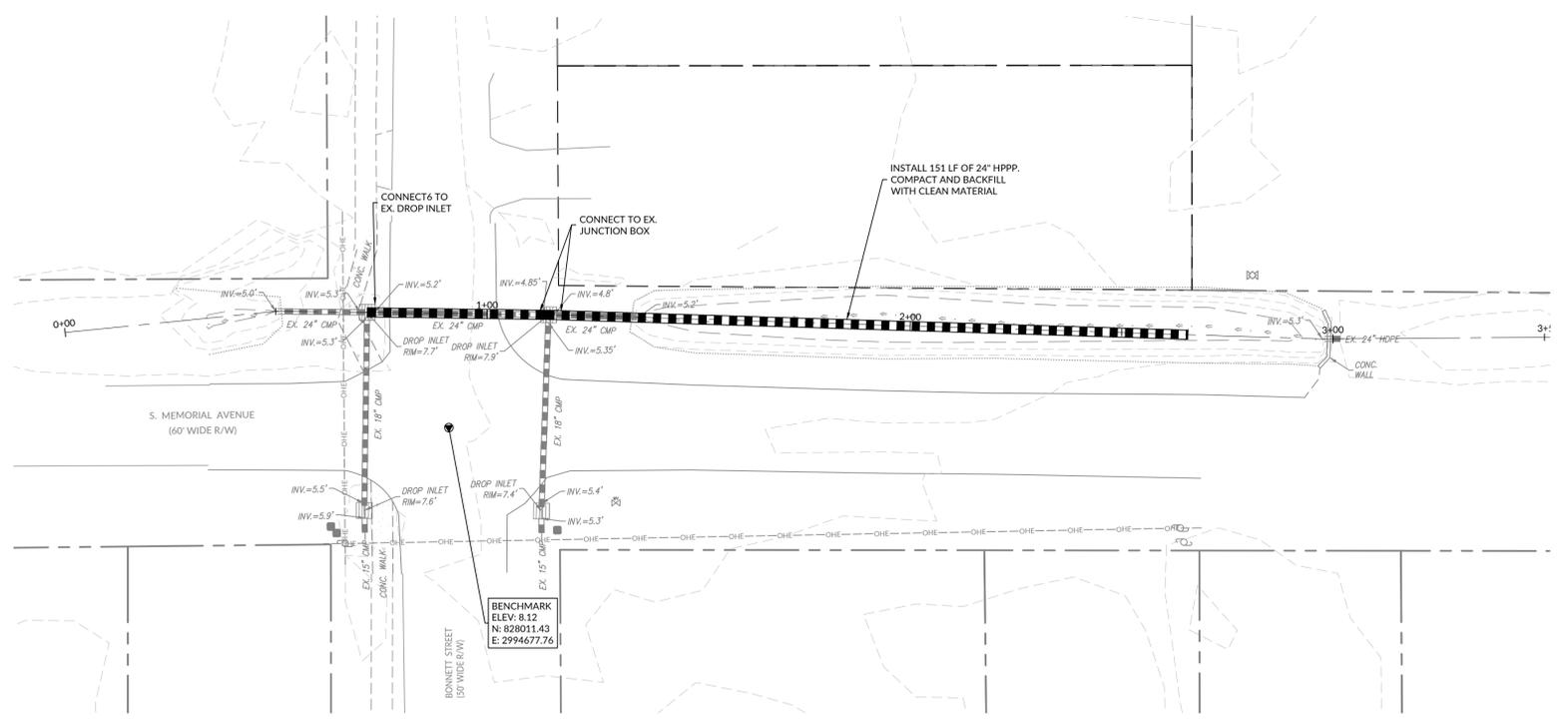
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**STORM SEWER  
GALLERY ST AND  
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**C2.02**

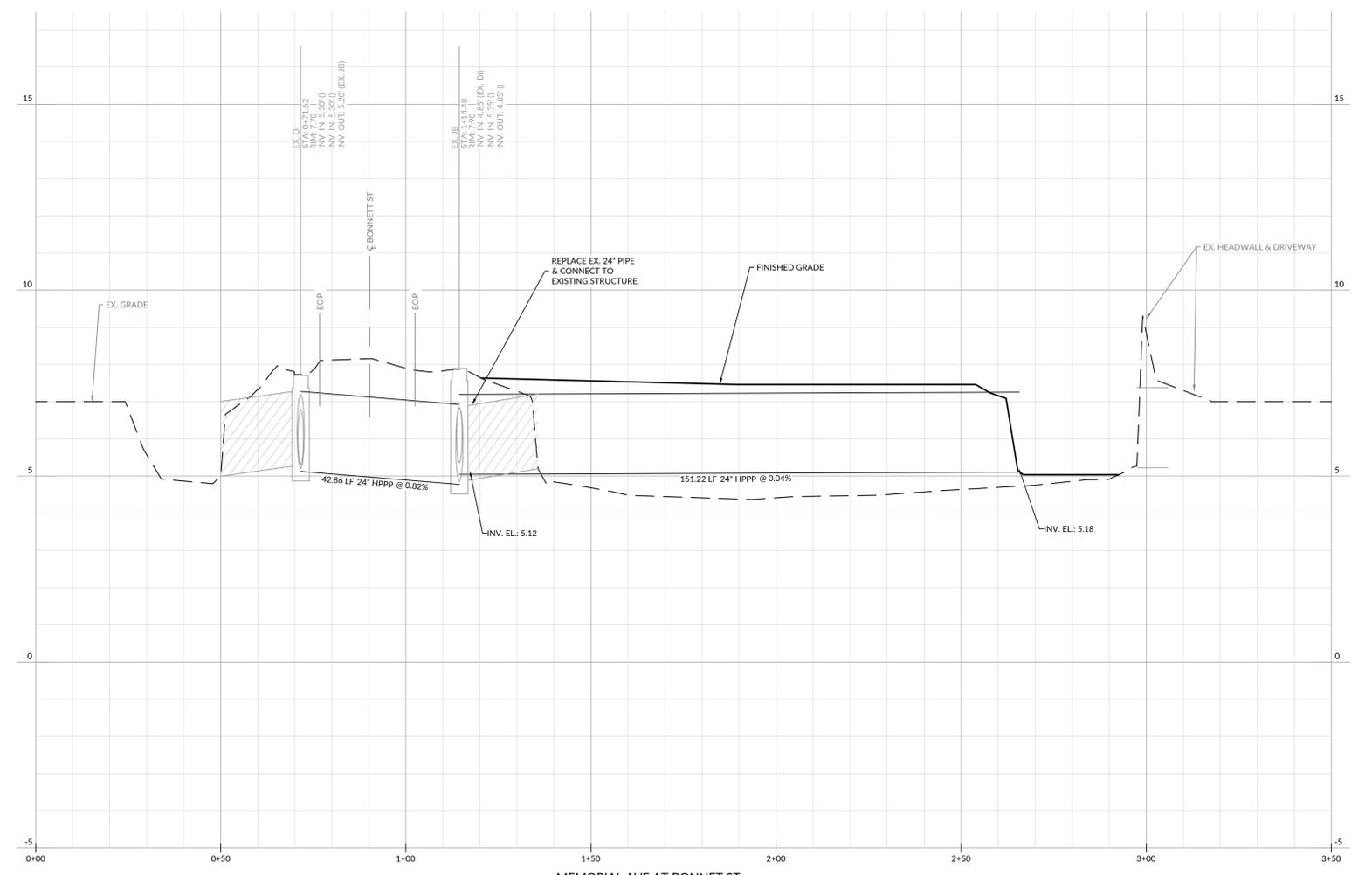




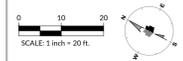
MEMORIAL AVE AT BONNETT ST  
PLAN VIEW

- NOTES:**
- CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES ALONG THE PROPOSED UTILITY ALIGNMENTS. THE ENGINEER/OWNER SHALL BE NOTIFIED OF ANY POTENTIAL CONFLICTS PRIOR TO THE START OF CONSTRUCTION.
  - WATER SERVICES THAT CROSS EXISTING PAVEMENT SHALL BE INSTALLED IN A MINIMUM 2" DIA SCH 40 PVC SLEEVE. THE SLEEVE SHALL BE INSTALLED USING A PNEUMATIC BORING TOOL AND SHALL EXTEND 3' BEYOND THE EDGE OF PAVEMENT. ANY OPEN EXCAVATION FOR WATER SERVICES IN PAVED SURFACES MUST BE APPROVED BY THE OWNER/ENGINEER.
  - EXISTING WATER MAINS SHALL REMAIN IN OPERATION DURING CONSTRUCTION.
  - CONTRACTOR SHALL COORDINATE WITH THE OWNER AND RESIDENTS FOR SERVICE DISRUPTIONS DURING WATER SERVICE CONNECTIONS.
  - AFTER COMPLETION OF THE PROPOSED WATER MAIN AND ACCEPTANCE BY THE OWNER, VALVES ON THE EXISTING ABANDONED WATER MAIN SHALL BE TURNED OFF AND BACKFILL WITH CONCRETE.
  - CONTRACTOR SHALL PHASE CONSTRUCTION SO EXISTING WATER MAIN ABANDONMENT IS COMPLETE PRIOR TO STORM SEWER INSTALLATION IN AREAS WHERE POTENTIAL UTILITY CONFLICTS MAY EXIST.
  - DAMAGE TO EXISTING UTILITIES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED/REPLACED AT NO COST TO THE OWNER.
  - THE TOWN OF NAGS HEAD SHALL COORDINATE PERMISSIONS AND/OR EASEMENTS AS NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS.

**SCALE:**  
1" = 20' HORIZ.  
1" = 2' VERT.



MEMORIAL AVE AT BONNETT ST  
PROFILE VIEW



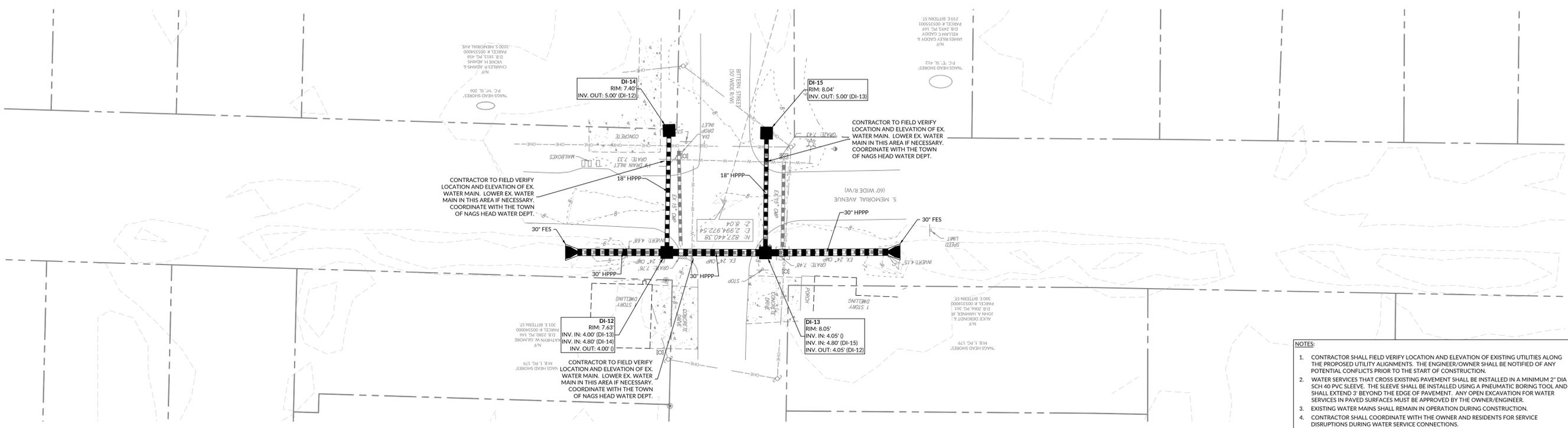
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REVISIONS:  
1 - 12/23/2024 BKS  
30% SUBMITTAL  
2 - 02/06/2025 BKS  
60% SUBMITTAL  
3 - 02/24/2025 BKS  
FOR BID

WR JOB NUMBER 24-1284  
DRN: BKS DGN: MWS CKD: MWS

**STORM SEWER  
BONNETT ST AT  
MEMORIAL AVE**

**C2.04**

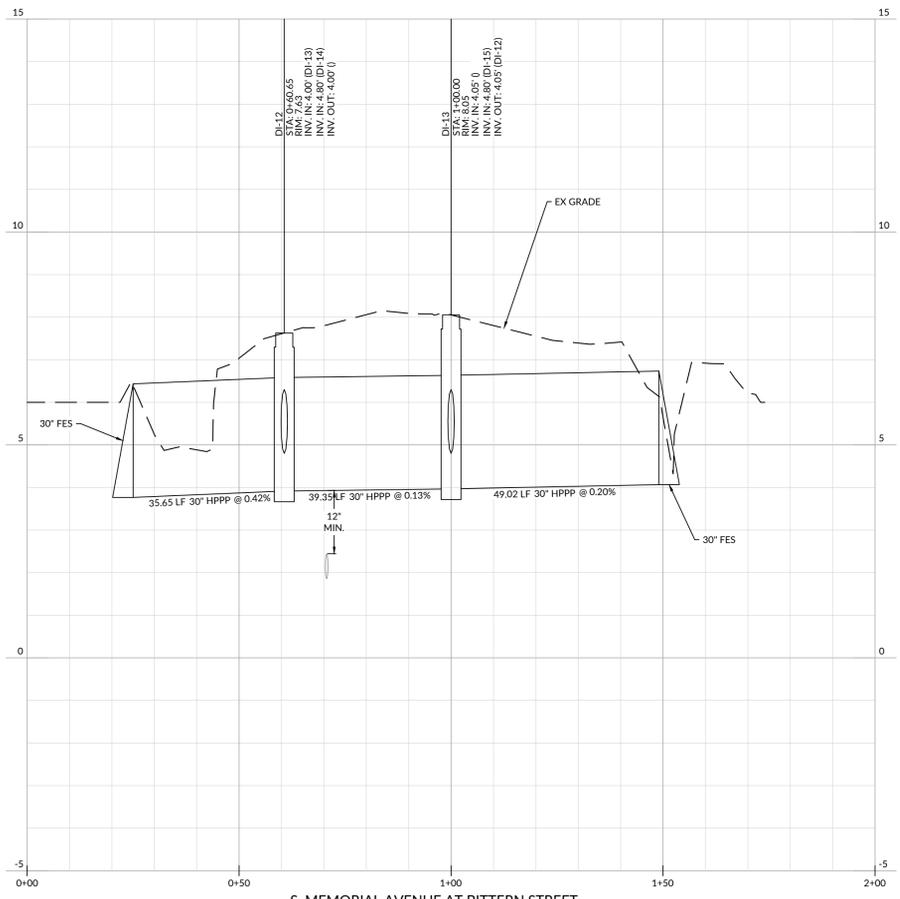
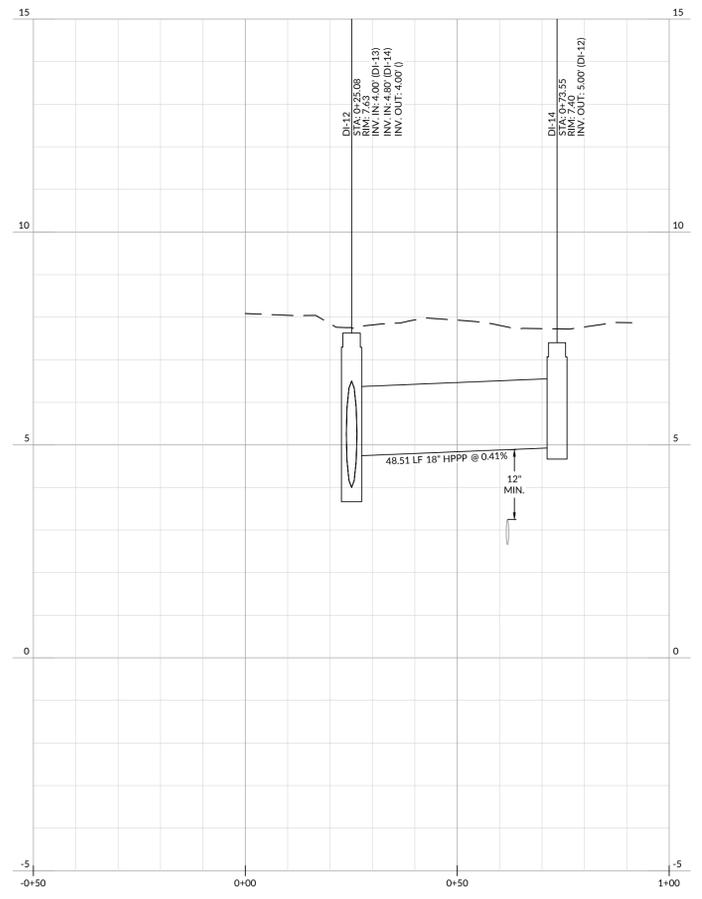
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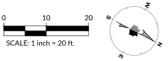
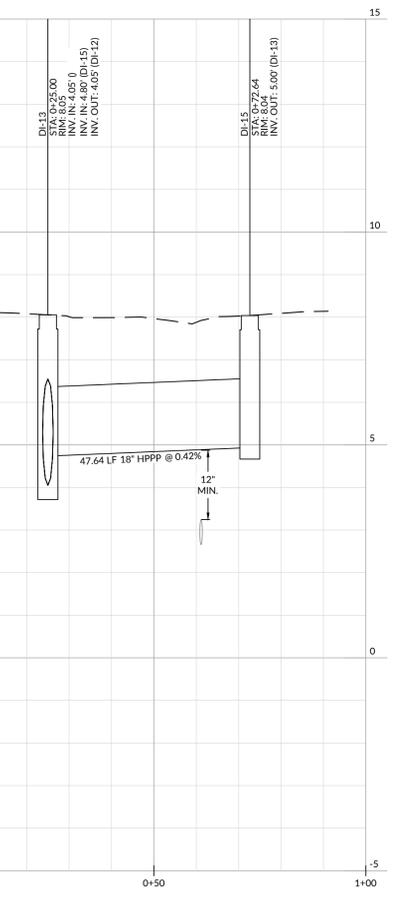
S. MEMORIAL AVENUE AT BITTERN STREET  
PLAN VIEW

- NOTES:
- CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES ALONG THE PROPOSED UTILITY ALIGNMENTS. THE ENGINEER/OWNER SHALL BE NOTIFIED OF ANY POTENTIAL CONFLICTS PRIOR TO THE START OF CONSTRUCTION.
  - WATER SERVICES THAT CROSS EXISTING PAVEMENT SHALL BE INSTALLED IN A MINIMUM 2" DIA SCH 40 PVC SLEEVE. THE SLEEVE SHALL BE INSTALLED USING A PNEUMATIC BORING TOOL AND SHALL EXTEND 3' BEYOND THE EDGE OF PAVEMENT. ANY OPEN EXCAVATION FOR WATER SERVICES IN PAVED SURFACES MUST BE APPROVED BY THE OWNER/ENGINEER.
  - EXISTING WATER MAINS SHALL REMAIN IN OPERATION DURING CONSTRUCTION.
  - CONTRACTOR SHALL COORDINATE WITH THE OWNER AND RESIDENTS FOR SERVICE DISRUPTIONS DURING WATER SERVICE CONNECTIONS.
  - AFTER COMPLETION OF THE PROPOSED WATER MAIN AND ACCEPTANCE BY THE OWNER, VALVES ON THE EXISTING ABANDONED WATER MAIN SHALL BE TURNED OFF AND BACKFILL WITH CONCRETE.
  - CONTRACTOR SHALL PHASE CONSTRUCTION SO EXISTING WATER MAIN ABANDONMENT IS COMPLETE PRIOR TO STORM SEWER INSTALLATION IN AREAS WHERE POTENTIAL UTILITY CONFLICTS MAY EXIST.
  - DAMAGE TO EXISTING UTILITIES AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED/REPLACED AT NO COST TO THE OWNER.
  - THE TOWN OF NAGS HEAD SHALL COORDINATE PERMISSIONS AND/OR EASEMENTS AS NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS.

SCALE:  
1" = 20' HORIZ.  
1" = 2' VERT.



S. MEMORIAL AVENUE AT BITTERN STREET  
PROFILE VIEWS



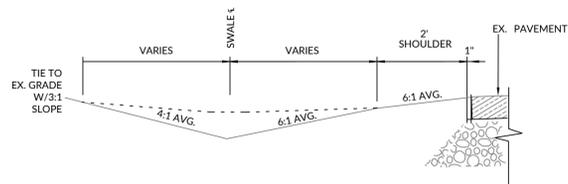
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REVISIONS:  
1 - 12/23/2024 BKS  
30% SUBMITTAL  
2 - 02/06/2025 BKS  
60% SUBMITTAL  
3 - 02/24/2025 BKS  
FOR BID

WR JOB NUMBER 24-1284  
DRN: BKS DGN: MWS CKD: MWS

**STORM SEWER  
BITTERN ST AT  
MEMORIAL AVE**

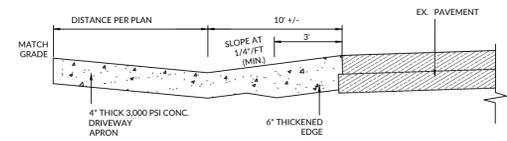
**C2.05**

FOR BID

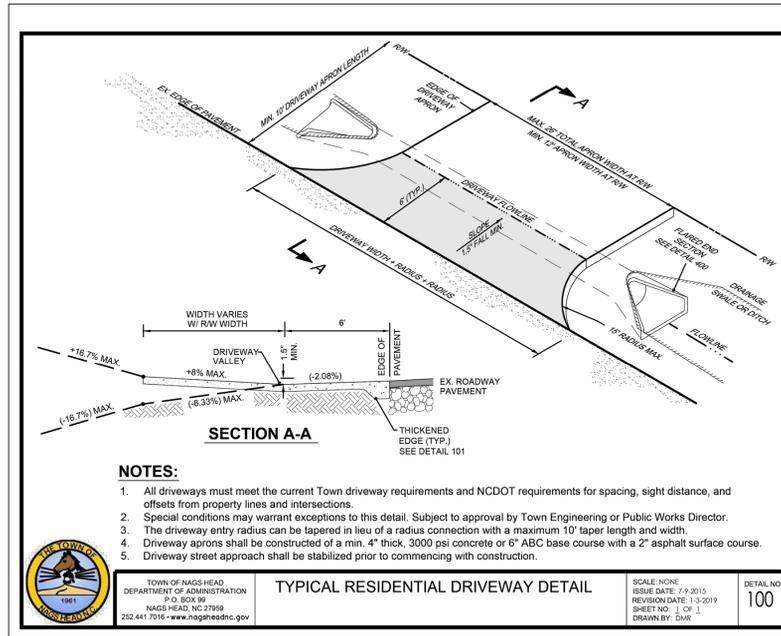


MAXIMUM SWALE DEPTH: 9"  
MINIMUM SWALE DEPTH: 6"

COORDINATE W/ ENGINEER SHOULD LOCAL CONDITION PROHIBIT MIN/MAX. DEPTH  
SWALE FLOWLINE SHALL ALIGN WITH DRIVEWAY FLOWLINE



**DRIVEWAY AND SWALE RESTORATION**  
NOT TO SCALE



**NOTES:**

1. All driveways must meet the current Town driveway requirements and NCDOT requirements for spacing, sight distance, and offsets from property lines and intersections.
2. Special conditions may warrant exceptions to this detail. Subject to approval by Town Engineering or Public Works Director.
3. The driveway entry radius can be tapered in lieu of a radius connection with a maximum 10' taper length and width.
4. Driveway aprons shall be constructed of a min. 4" thick, 3000 psi concrete or 6" ABC base course with a 2" asphalt surface course.
5. Driveway street approach shall be stabilized prior to commencing with construction.

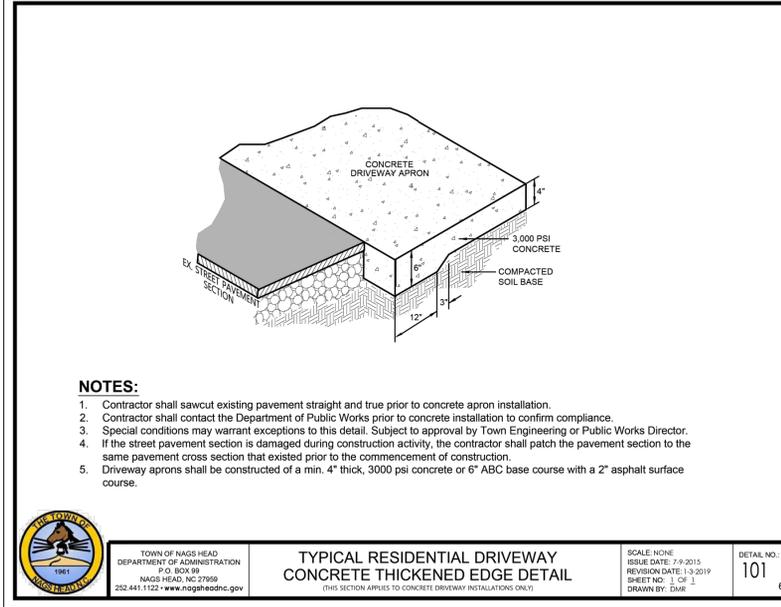


TOWN OF NAGS HEAD  
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**TYPICAL RESIDENTIAL DRIVEWAY DETAIL**

SCALE: NONE  
ISSUE DATE: 7-9-2015  
REVISION DATE: 1-3-2019  
SHEET NO. 1 OF 1  
DRAWN BY: DAIR

DETAIL NO.:  
**100**  
5



**NOTES:**

1. Contractor shall sawcut existing pavement straight and true prior to concrete apron installation.
2. Contractor shall contact the Department of Public Works prior to concrete installation to confirm compliance.
3. Special conditions may warrant exceptions to this detail. Subject to approval by Town Engineering or Public Works Director.
4. If the street pavement section is damaged during construction activity, the contractor shall patch the pavement section to the same pavement cross section that existed prior to the commencement of construction.
5. Driveway aprons shall be constructed of a min. 4" thick, 3000 psi concrete or 6" ABC base course with a 2" asphalt surface course.

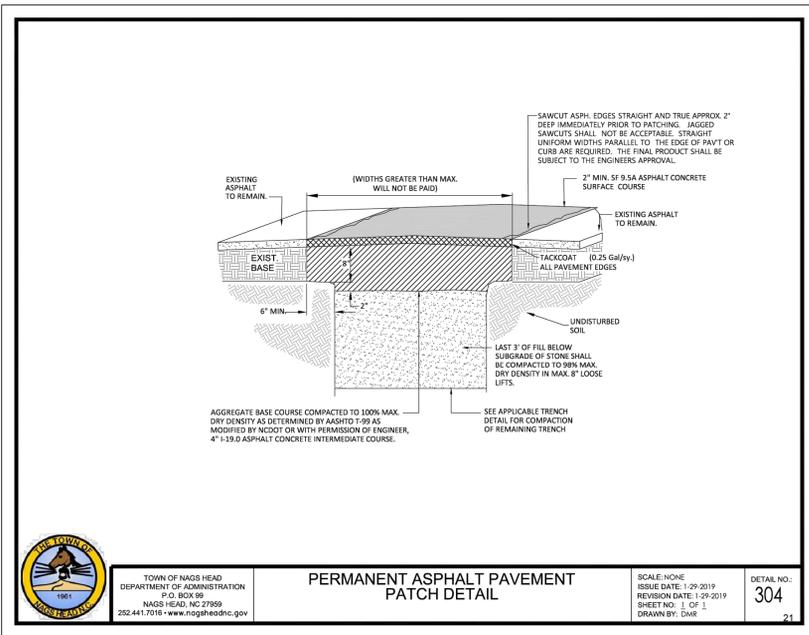


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**TYPICAL RESIDENTIAL DRIVEWAY  
CONCRETE THICKENED EDGE DETAIL**

SCALE: NONE  
ISSUE DATE: 7-9-2015  
REVISION DATE: 1-3-2019  
SHEET NO. 1 OF 1  
DRAWN BY: DAIR

DETAIL NO.:  
**101**  
6



**PERMANENT ASPHALT PAVEMENT  
PATCH DETAIL**

SCALE: NONE  
ISSUE DATE: 1-29-2019  
REVISION DATE: 1-29-2019  
SHEET NO. 1 OF 1  
DRAWN BY: DAIR

DETAIL NO.:  
**304**  
21



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**TOWN OF NAGS HEAD  
CAPITAL IMPROVEMENT  
PROJECT**

CONSTRUCTION PLANS

NAGS HEAD, NC 27959 | DARE COUNTY



INITIAL PLAN DATE: 12/23/2024  
REVISIONS:  
1 - 12/23/2024 BKS  
30% SUBMITTAL  
2 - 02/06/2025 BKS  
60% SUBMITTAL  
3 - 02/24/2025 BKS  
FOR BID

WR JOB NUMBER 24-1284  
DRN: BKS DGN: MWS CKD: MWS

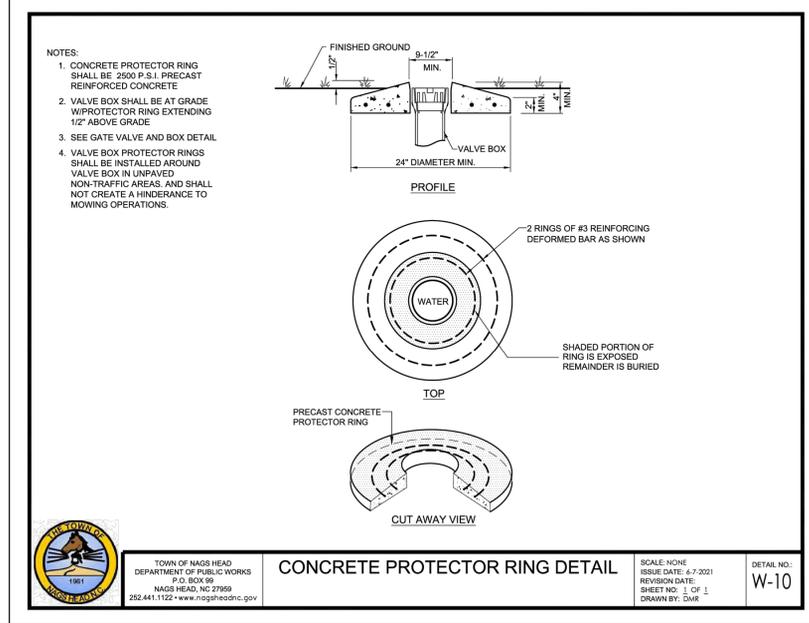
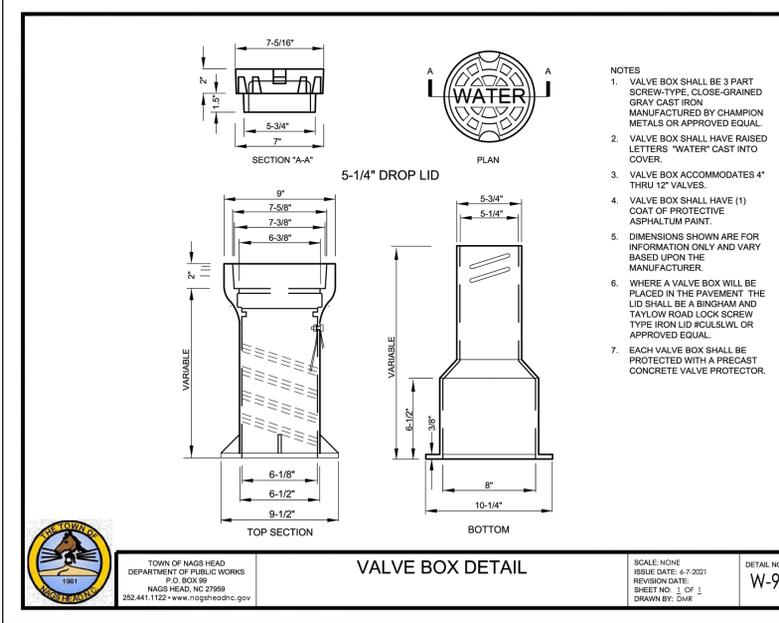
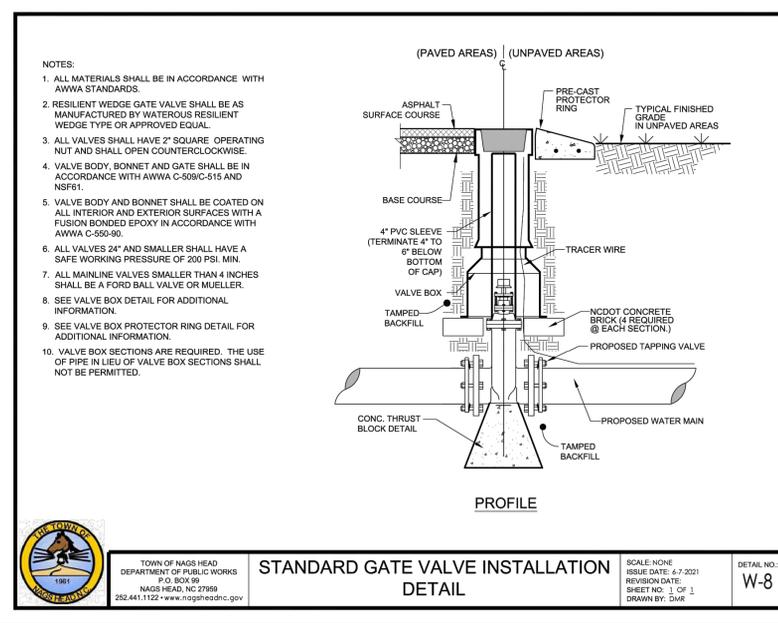
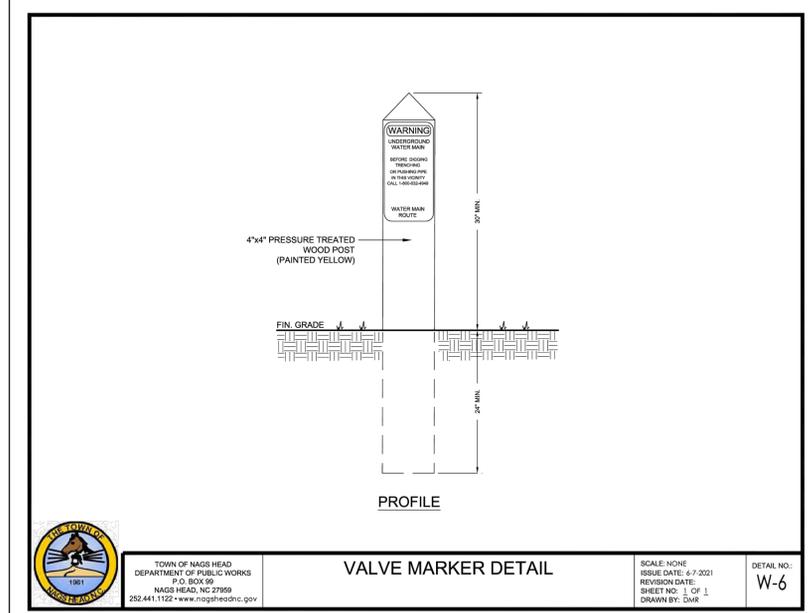
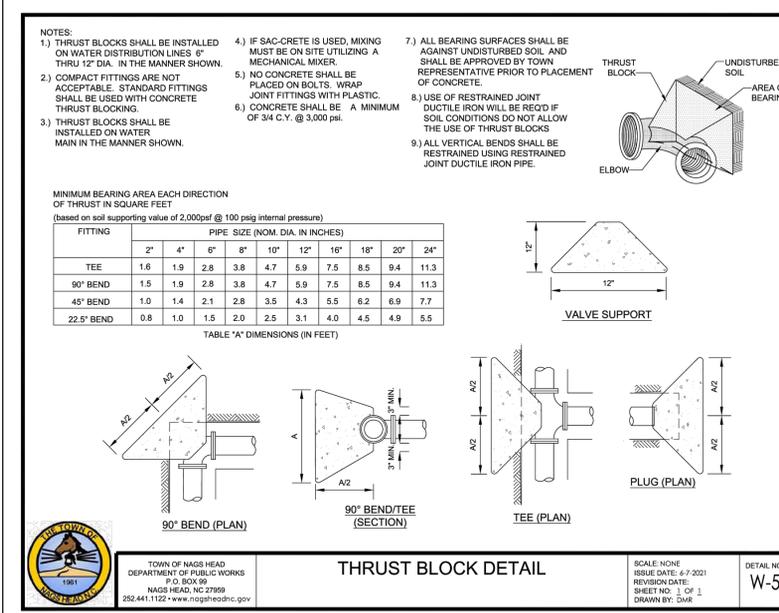
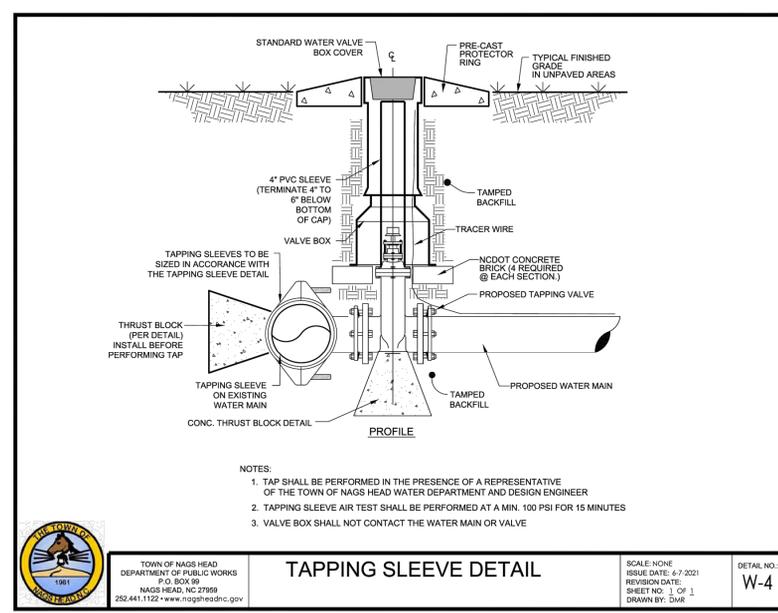
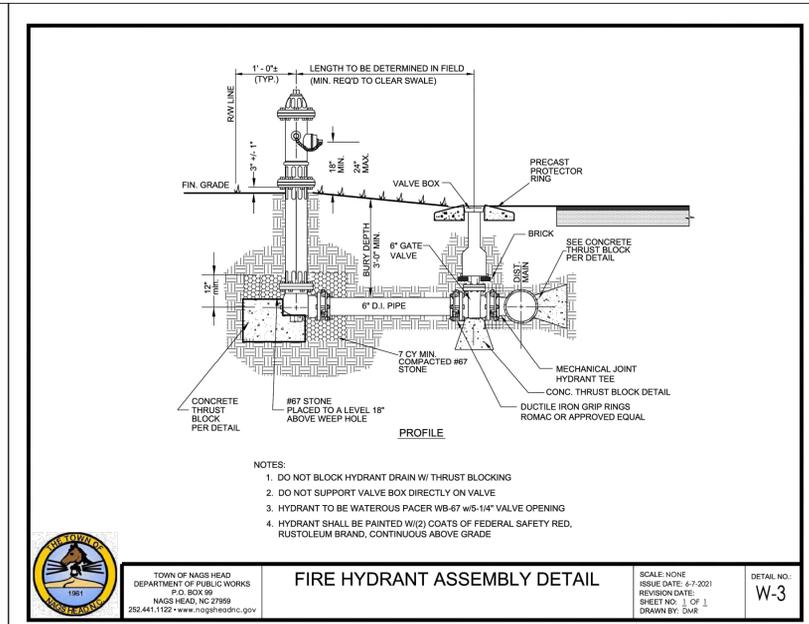
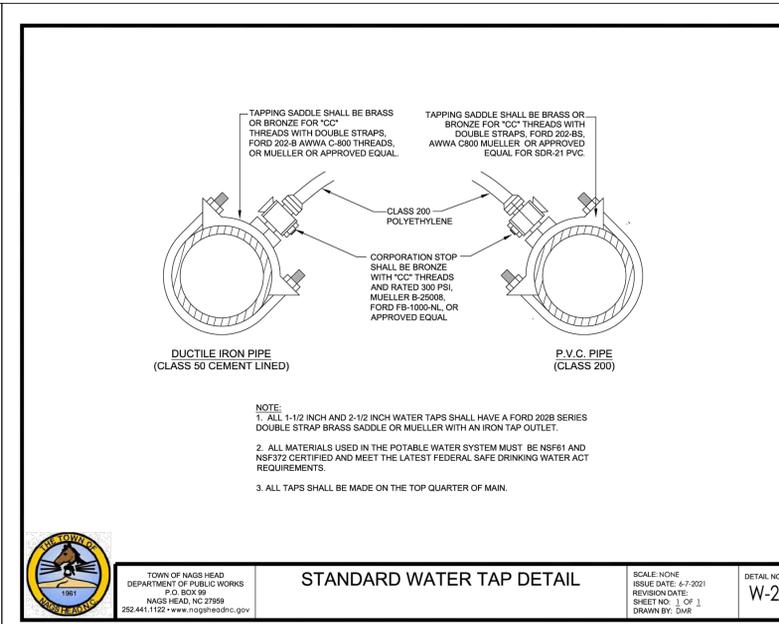
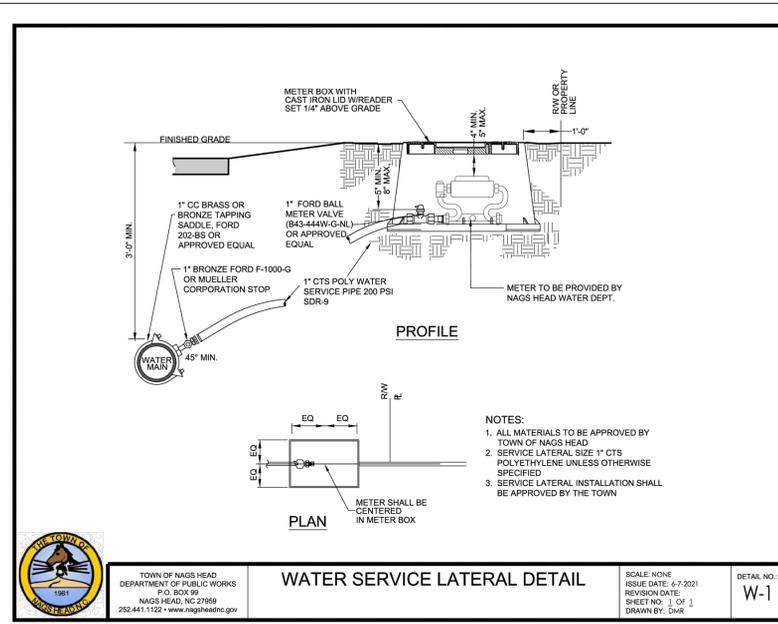
**UTILITY DETAILS**

**C3.00**



our people • your success

FOR BID



**WithersRavenel**  
8466 Crantock Highway | Building 400 | Powells Point, NC 27966  
License #: F-1479 | t: 252.491.8147 | www.withersravenel.com

**TOWN OF NAGS HEAD**  
P.O. BOX 99 5401 S. GREATAN HWY  
NAGS HEAD, NC 27959

**TOWN OF NAGS HEAD  
CAPITAL IMPROVEMENT  
PROJECT**

CONSTRUCTION PLANS

NAGS HEAD, NC 27959 | DARE COUNTY

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EST. 1993

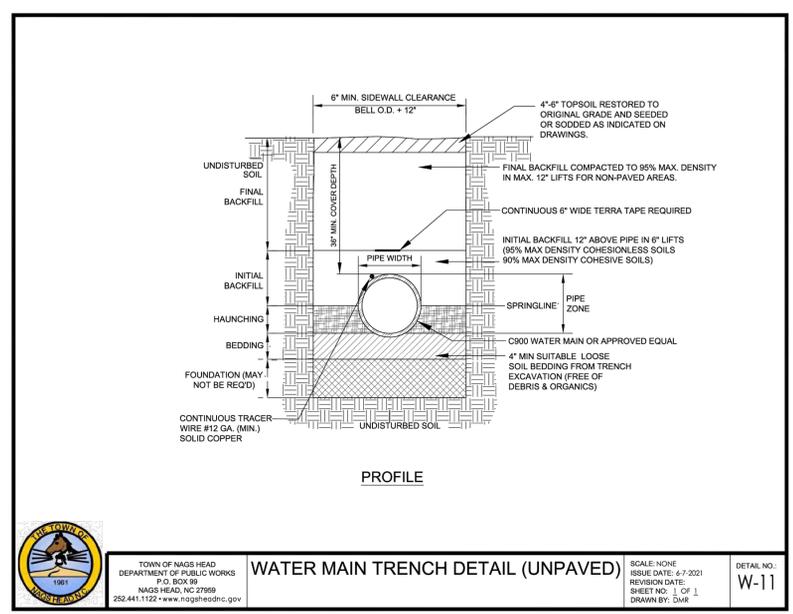
WR JOB NUMBER 24-1284  
DRN: BKS DGN: MWS CKD: MWS

INITIAL PLAN DATE: 12/23/2024  
REVISIONS:  
1 - 12/23/2024 BKS  
30% SUBMITTAL  
2 - 02/06/2025 BKS  
60% SUBMITTAL  
3 - 02/24/2025 BKS  
FOR BID

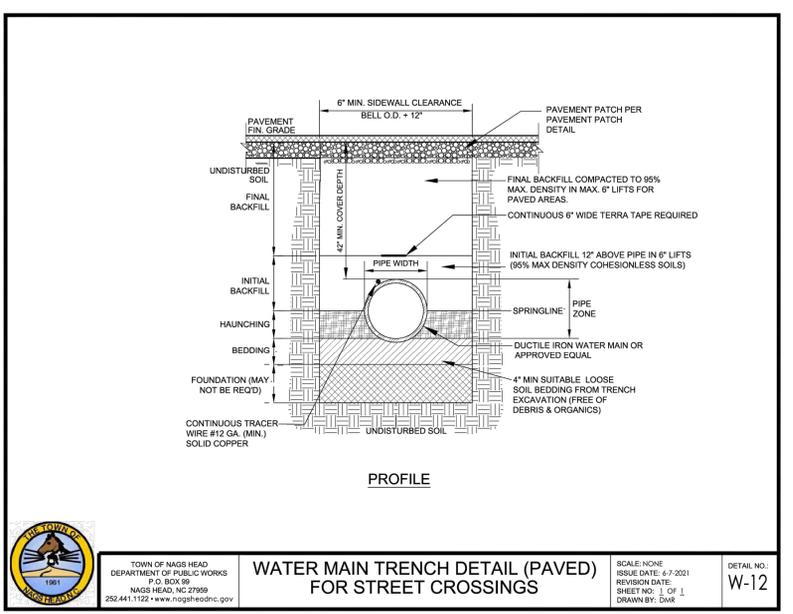
Professional Engineer  
MICHAEL W. STRAUB, II  
SEAL 037813  
2/24/2025

FOR BID

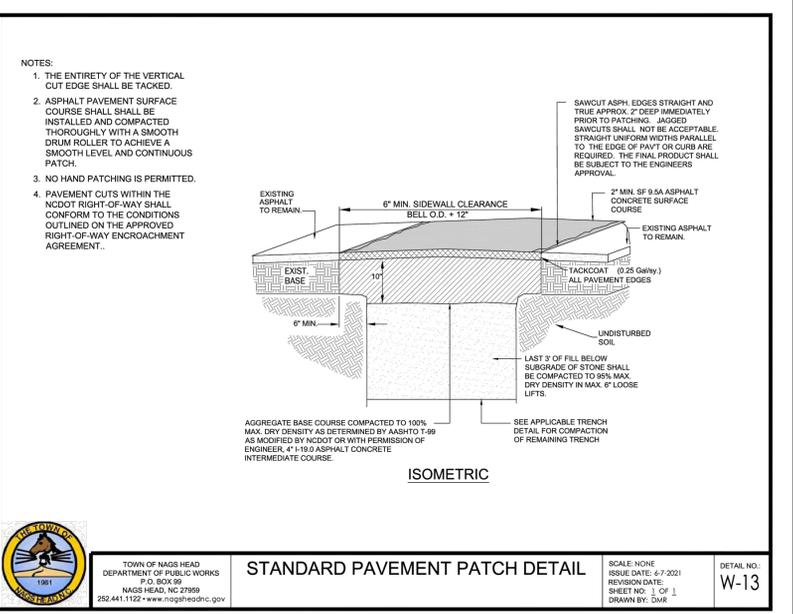
**C3.01**



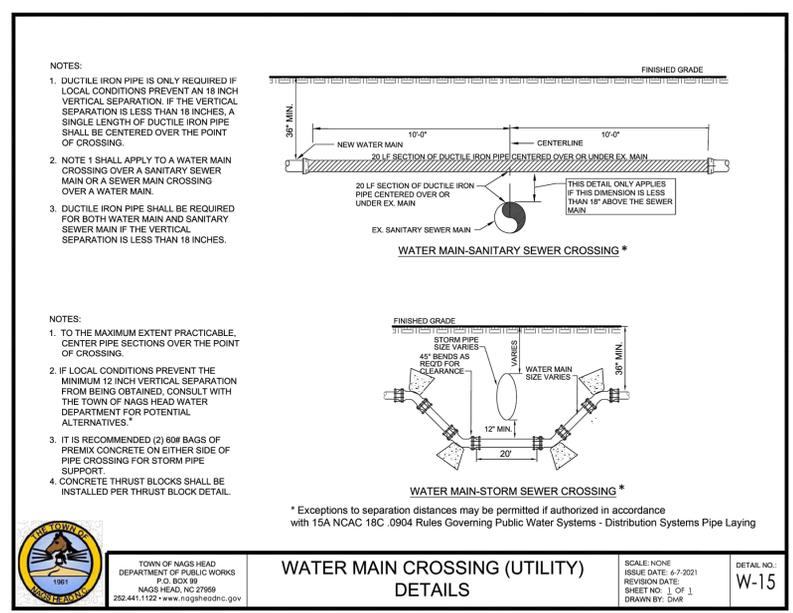
**WATER MAIN TRENCH DETAIL (UNPAVED)**  
 SCALE: NONE  
 ISSUE DATE: 6-7-2021  
 REVISION DATE:  
 SHEET NO: 1 OF 1  
 DRAWN BY: DWR  
 DETAIL NO: W-11



**WATER MAIN TRENCH DETAIL (PAVED)  
 FOR STREET CROSSINGS**  
 SCALE: NONE  
 ISSUE DATE: 6-7-2021  
 REVISION DATE:  
 SHEET NO: 1 OF 1  
 DRAWN BY: DWR  
 DETAIL NO: W-12



**STANDARD PAVEMENT PATCH DETAIL**  
 SCALE: NONE  
 ISSUE DATE: 6-7-2021  
 REVISION DATE:  
 SHEET NO: 1 OF 1  
 DRAWN BY: DWR  
 DETAIL NO: W-13



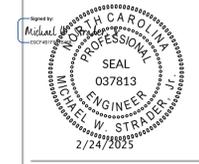
**WATER MAIN CROSSING (UTILITY)  
 DETAILS**  
 SCALE: NONE  
 ISSUE DATE: 6-7-2021  
 REVISION DATE:  
 SHEET NO: 1 OF 1  
 DRAWN BY: DWR  
 DETAIL NO: W-15

**NOTES:**  
 1. SPECIFICATIONS ATTACHED HEREON REFLECT THOSE AS OUTLINE IN NCDOT STANDARD 840, BRICK OR CONCRETE CONSTRUCTION. AN ALTERNATE PRECAST DRAINAGE STRUCTURE MAY BE UTILIZED BASED UPON PRIOR APPROVAL BY THE ENGINEER.  
 2. ANY DEVIATIONS FROM THE APPROVED PLAN & SPECIFICATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.  
 3. FOR JUNCTION BOX CONSTRUCTION, NCDOT STD 840.16 DROP INLET FRAME & GRATE SHALL BE UTILIZED IN LIEU OF THE STANDARD MANHOLE RIM AND COVER.  
 4. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" CHAPTER 1911 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON THE JOB AT ALL TIMES AND SHALL EMPLOY A PROFESSIONAL ENGINEER TO ACT UPON ALL PERTINENT MATTERS OF THE WORK.



**TOWN OF NAGS HEAD**  
 P.O. BOX 99-5401 S. CROATAN HWY  
 NAGS HEAD, NC 27959

**TOWN OF NAGS HEAD  
 CAPITAL IMPROVEMENT  
 PROJECT**

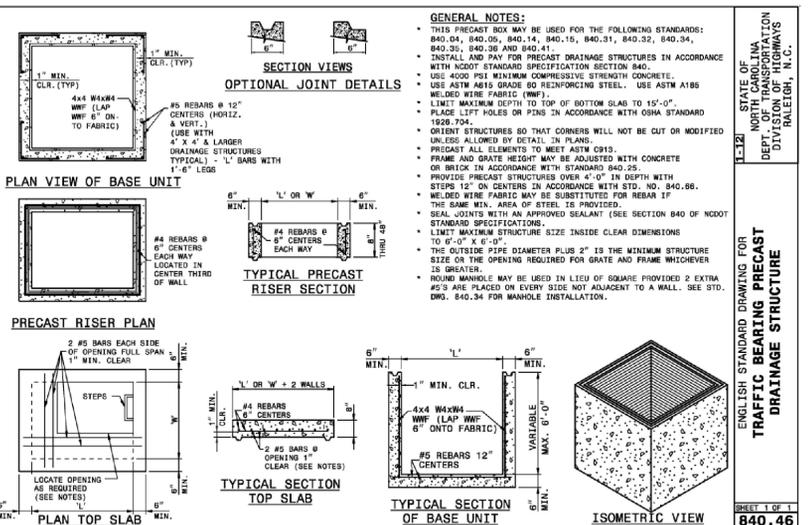
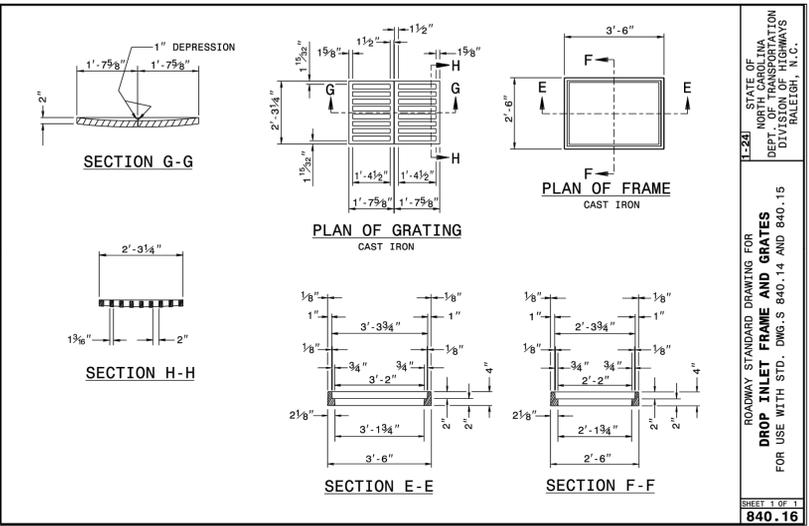
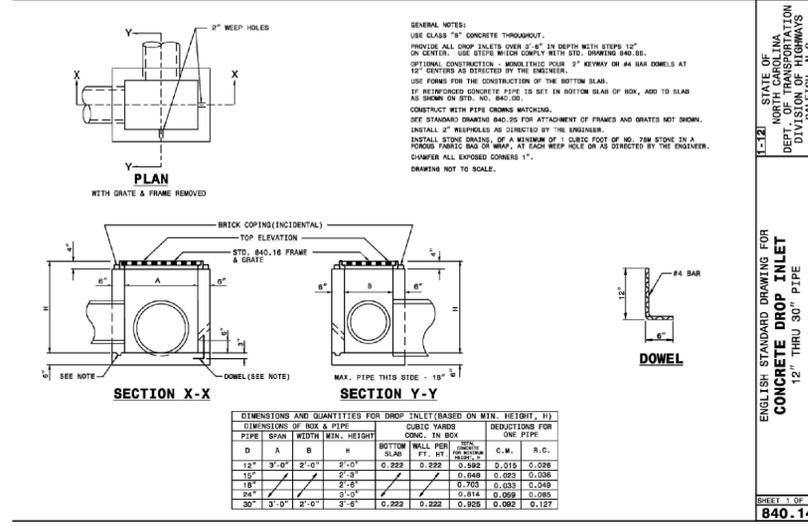
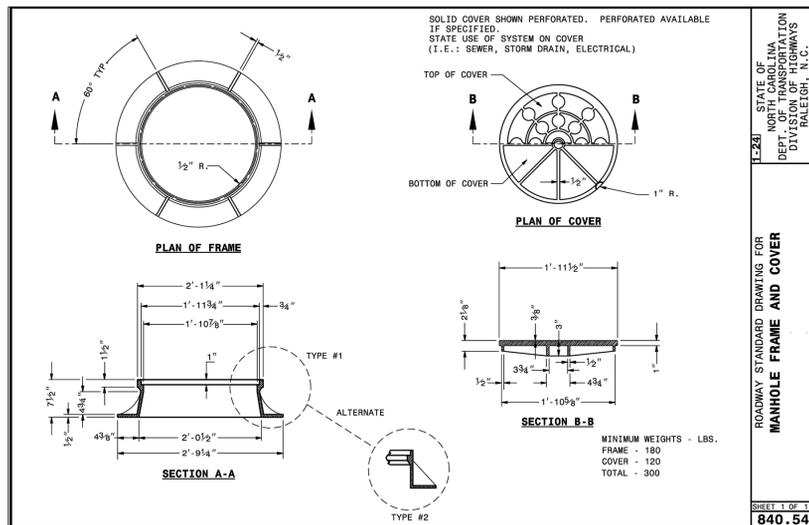
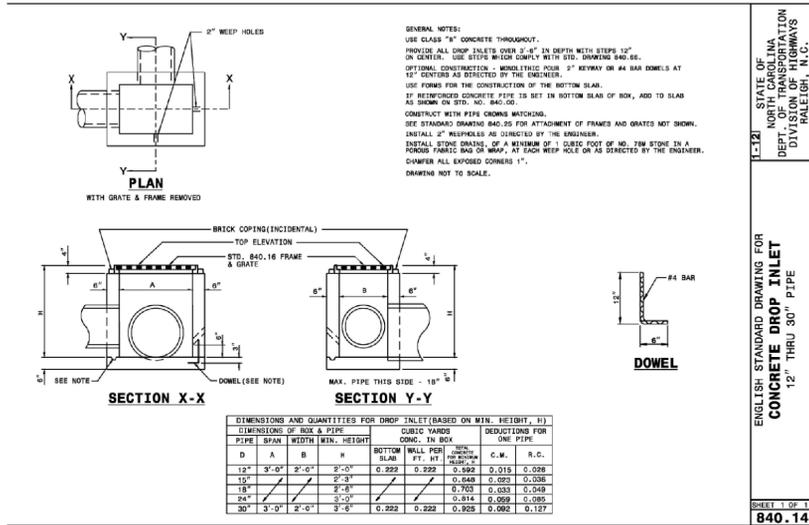
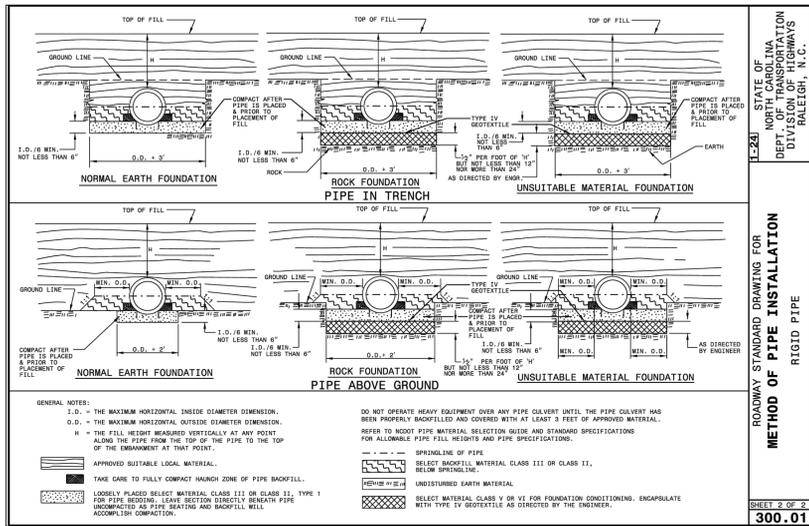


INITIAL PLAN DATE: 12/23/2024  
 REVISIONS:  
 1 - 12/23/2024 BKS  
 30% SUBMITTAL  
 2 - 02/06/2025 BKS  
 60% SUBMITTAL  
 3 - 02/24/2025 BKS  
 FOR BID

WR JOB NUMBER 24-1284  
 DRN: BKS DGN: MWS CKD: MWS

**UTILITY DETAILS**

**C3.02**



**NOTES:**  
 1. SPECIFICATIONS ATTACHED HEREON REFLECT THOSE AS OUTLINE IN NCOTD STANDARD 840, BRICK OR CONCRETE CONSTRUCTION. AN ALTERNATE PRECAST DRAINAGE STRUCTURE MAY BE UTILIZED BASED UPON PRIOR APPROVAL BY THE ENGINEER.  
 2. ANY DEVIATIONS FROM THE APPROVED PLAN & SPECIFICATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.  
 3. FOR JUNCTION BOX CONSTRUCTION, NCOTD STD 840.16 DROP INLET FRAME & GRATE SHALL BE UTILIZED IN LIEU OF THE STANDARD MANHOLE RIM AND COVER.  
 4. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION CHAPTER 1915.1 OF TITLE 29 CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON THE JOB AT ALL TIMES AND SHALL EMPLOY A PROFESSIONAL ENGINEER TO ACT UPON ALL PERTINENT MATTERS OF THE WORK.



DATE: \_\_\_\_\_ PAGE: \_\_\_\_\_

**Notes:**

- Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
- Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
- Construct the filter fabric from a continuous roll out to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
- Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
- When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches. Wire mesh should be a minimum 14-gauge with 6 inch mesh spacing.
- Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
- Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
- Place 12 inches of fabric along the bottom and side of the trench.
- Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
- Do not attach filter fabric to existing trees.
- Do not place across ditches, streams, or any other areas of concentrated flow.

Slope	Slope Length (ft)	Max. Area (ft <sup>2</sup> )
<2%	100	10,000
2 to 5%	75	7,500
5 to 10%	50	5,000
10 to 20%	25	2,500
>20%	15	1,500

**Maintenance:**

- Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any required repairs immediately.
- Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
- Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
- Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

Effective Date: 9/1/2023  
In accordance with the 2013 Design Manual Updates

DATE: \_\_\_\_\_ PAGE: \_\_\_\_\_

**Notes:**

- Clear the area of all debris that might hinder excavation and disposal of spoil.
- Grade shallow depression uniformly towards the inlet with side slopes no greater than 2:1. Grade a 1-foot wide level area set 4 inches below the area adjacent to the inlet.
- Install the Class B or Class 1 riprap in a circle around the inlet. The minimum crest width of the riprap should be 18 inches, with a minimum bottom width of 7.5 feet. The minimum height of the stone is 2 feet.
- The outside face of the riprap is then lined with 12 inches of NC DOT #5 or #57 washed stone.

**Maintenance:**

- Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater, make any repairs immediately.
- Remove sediment from the sediment pool area when the volume is decreased by half. Stabilize excavated material appropriately.
- Do not damage or undercut the structure during sediment removal. Remove debris and replace stone as needed. If inlet is covered with wire mesh, clean wire mesh free of debris.

Effective Date: 9/1/2023  
In accordance with the 2013 Design Manual Updates

DATE: \_\_\_\_\_ PAGE: \_\_\_\_\_

Channel Slope (%)	8-inch Diameter Sock	12-inch Diameter Sock
1	67	100
2	33	50
3	22	33
4	17	25
5	13	20

**Notes:**

- Other materials providing equivalent protection against erosive velocities may be substituted for compost use in silt socks or wattles.
- Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform.
- Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.
- Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and scour slopes, or as directed.
- Install a minimum of two up-slope stakes and four down-slope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch. Use staples to secure silt sock/wattle to the ground to prevent undermining.
- The use of flocculants such as Polyacrylamide (PAM) is recommended. Apply flocculants on top of sock/wattle and to matting on either side of sock/wattle according to manufacturer recommended rates. Reapply after each 1.0 inch rainfall.

**Maintenance:**

- Inspect all measures weekly and after each rainfall of 1.0 inch or greater. Remove accumulated sediment and any debris.
- Silt sock/wattle(s) must be replaced if clogged or torn.
- If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
- Reinstall if damaged or dislodged.
- Silt socks/Wattles shall be inspected until land disturbance is complete and the area above the measure is permanently stabilized.

Effective Date: 9/1/2023  
In accordance with the 2013 Design Manual Updates

DATE: \_\_\_\_\_ PAGE: \_\_\_\_\_

**Notes:**

- 'La' = length of apron. Distance 'La' shall be sufficient length to dissipate velocity.
- Filter material shall be a woven geotextile filter fabric underlayer or 6" thick minimum washed aggregate layers, installed on a compacted soil base, per a grade set by the Public Works Department OR Town Engineering.
- Special conditions may warrant exceptions to this detail. Subject to approval by Town Engineering or Public Works Director.
- Average apron thickness shall be 12 inches.
- The typical apron geometry shall be 3' wide by 4' long.

TOWN OF NAGS HEAD  
DEPARTMENT OF ADMINISTRATION  
P.O. BOX 99  
NAGS HEAD, NC 27959  
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SCALE: NONE  
ISSUE DATE: 3-9-2016  
REVISION DATE: 1-3-2019  
SHEET NO: 1 OF 1  
DRAWN BY: DMK

DETAIL NO: 401  
27

DATE: \_\_\_\_\_ PAGE: \_\_\_\_\_

**Notes:**

- Place stone on a filter fabric foundation.
- The center stone section must be at least 9 inches below natural ground level where the dam abuts the channel banks.
- Extend stone at least 1.5 feet beyond the ditch bank to keep water from cutting around the ends of the check dam.
- Set spacing between dams to assure that the elevation at the top of the lower dam is the same as the toe elevation of the upper dam.
- Protect the channel after the lowest check dam from heavy flow that could cause erosion.
- Make sure the channel reach above the most upstream dam is 800ft.
- Ensure that other areas of the channel, such as culvert entrances below the check dams, are not subject to damage or blockage from displaced stones.
- Riprap and filter fabric should be keyed in to prevent undercutting.
- Ends of check dams may need to be turned uphill to prevent bypass and better conform to site conditions.
- Do not place check dams in intermittent or perennial streams.

**Maintenance:**

- Inspect check dams and channels at least weekly and after each rainfall of 1.0 inch or greater. Clean out sediment, straw, limbs or other debris that could clog the channel when needed.
- Anticipate subsidence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as installing a protective riprap line in that portion of the channel.
- Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to the dams as needed to maintain design height and cross section.

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**Notes:**

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**Notes:**

- UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
- 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.
- SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACE A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING.
- PLACE CLEAN GRAVEL (NC 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.
- ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT AND ESTABLISH FINAL GRADING ELEVATIONS.
- COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUND COVER.

**Maintenance Notes:**

- INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT.
- CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS.
- TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL.
- REPLACE STONE AS NEEDED.

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**Notes:**

- CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE TEMPORARY SEDIMENT FILTER BAG WHEN PUMPING.
- THE LENGTH AND WIDTH OF THE TEMPORARY SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS.
- TEMPORARY SEDIMENT FILTER BAGS SHALL BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF SIX INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE. HOSE CONNECTION THROUGH A SLIT IN THE BAG WILL NOT BE ACCEPTABLE.
- THE PUMP DISCHARGE HOSE CONNECTION SLEEVE SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE TEMPORARY SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS.
- TEMPORARY SEDIMENT FILTER BAG SHALL BE REPLACED WHEN 6 INCHES OF SEDIMENT HAS ACCUMULATED OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL SIZE THE BAG DEPENDING ON USE AND FLOW REQUIREMENTS.

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