CIP NO.: 375-01 and 276-61
PROJECT: Brigham Road Water and Sewer Replacements
DATE: October 5, 2026

DOCUMENT 00 91 01

ADDENDA

ADDENDUM NUMBER 01

DATE: October 5, 2026

PROJECT: Brigham Road Water and Sewer Replacements

OWASA CIP NUMBER: 375 – 01 and 276 – 61

OWNER: ORANGE WATER AND SEWER AUTHORITY

ENGINEER: Freese and Nichols, Inc.

TO: All Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated September 14, 2026, with amendments and additions noted herein below.

Acknowledge receipt of this Addendum in the space provided in the Bid form. Failure to do so may disqualify the Bidder.

This Addendum consists of thirty-two (32) pages. This Addendum Includes:

- Pages 1 through 2 of this Addendum;
- Revised pages 8 through 12 of Section 00 41 44, which should completely replace the pages in your bid package;
- Revised Pages 7 through 10 of Section 01 29 01;
- Revised pages 1 through 4 of Section 01 35 00;
- Added pages 1 through 12 of Section 33 01 30.72;
- Four (4) pages of the Pre-Bid Meeting Minutes; and
- Revised Sheet DT-4 reflecting revisions to Detail 1.

PRE-BID MEETING MINUTES:

1. See the pages appended to this addendum for the mandatory pre-bid meeting minutes.

CHANGES TO THE SPECIFICATIONS:

1. Section 00 41 44 “Proposal – Unit Price”
    a. **DELETE** Allowance A3 – Town of Chapel Hill Street Cut Allowance.
    b. **INCREASE** estimated quantity of line item 31 – Asphalt Repair (Mill and Overlay) to 1,860 Square Yards

2. Section 01 29 01 "Measurement and Basis for Payment"
    a. **DELETE** Paragraph 1.05 – C. The Town of Chapel Hill Street Cut Allowance has been removed from the current contract.
    b. **REVISE** Paragraph 1.06 – L – 1. The measurement for Asphalt Open Cut and Replacement (Trench Repair) shall be determined by measuring along the centerline of the pipe times a maximum pay with of five (5) feet.
    c. **REVISE** Paragraph 1.06 – M – 2. The specified depth for Asphalt Repair (Mill and Overlay) shall be 1.5-iches.

3. Section 01 35 00 "Special Procedures"
    a. **ADD** the following paragraph 1.04:

        1.04 WATER MAIN TESTING AND ACCEPTANCE
        A. OWASA requirements exceed AWWA C651. Compliance with AWWA C651 alone does not constitute acceptance of installed water pipe.
        B. All water main pipe installed, regardless of length installed, shall successfully complete each of the following in accordance with Section 02510 "Water Distribution":
            1. Pressure testing, including repair and retesting as necessary until the installed pipe passes.
            2. Disinfection.
            3. Day 1 bacteriological testing.
            4. Day 2 bacteriological testing.
        C. The required sequence is pressure testing, disinfection, Day 1 bacteriological testing, and Day 2 bacteriological testing. No installed water pipe shall be accepted or placed into service until all required testing has passed and has been accepted by OWASA.

4. **ADD** specification section 33 01 30.72 "Relining Sewers - Cured-In-Place Pipe" to the Contract Documents.

CHANGES TO THE DRAWINGS:

1. DRAWING SHEET DT-4
    a. REVISE Detail 1 by removing the pavement repair dimensions shown. Pavement repair shall be performed in accordance with the modified Town of Chapel Hill Detail T-7.01 shown on Sheet DT-3, which governs the required pavement repair dimensions.

-END OF DOCUMENT-

CIP NO.: 375-01 and 276-61
PROJECT: Brigham Road Water and Sewer Replacements
DATE: October 5, 2026

BID FORM – OWASA CIP #375-01
BRIGHAM ROAD WATER LINE REPLACEMENT

NOTE TO BIDDERS: DO NOT REMOVE THIS BID FORM
FROM THE CONTRACT DOCUMENTS

UNIT PRICE BID CONTRACT

Item No.	Description	Units	Estimated Quantity	Bid Unit Price	Extended Total
Items in Base Bid (excluding Allowances) per Section 01 29 01 "Measurement and Basis for Payment"					
1	8" Class 350 DIP Water Main, Restrained Joint	LF	370		
2	2" SDR 11 PVC Water Line	LF	150		
3	Transition to 2" Water Line	EA	1		
4	8" Gate Valve with Valve Box	EA	5		
5	Ductile Iron Bends and Fittings	LBS	920		
6	Blow Off Assembly	EA	1		
7	Connection to Existing 8" Water Main	EA	2		
8	¾-inch Single Service Meter – Short Side	EA	4		
9	Pipe Abandonment with Low-Density Cellular Grout	CY	7.2		
10	Asphalt Open Cut and Replacement (Trench Repair)	SY	350		
11	Valve Abandonment	EA	3		
12	Traffic Control	LS	1		
13	Curb Inlet Protection	EA	4		
14	Synthetic Log	LS	1		
15	Trench Borrow (Select Fill)	CY	100		
16	Stone Bedding Material	CY	50		
17	Undercut Excavation	CY	75		
18	Rock Excavation	CY	50		
Total Base Bid Items Amount (Sum of Extended Amounts for each Base Bid Line Item)					
Allowances in Base Bid per Section 01 23 10 "Alternates and Allowances"					
A1	Contingency Allowance	LS	1	-	$50,000

CIP NO.: 375-01 and 276-61
PROJECT: Brigham Road Water and Sewer Replacements
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Item No.	Description	Units	Estimated Quantity	Bid Unit Price	Extended Total
A2	Town of Chapel Hill Permit Fee Allowance	LS	1	-	$9,500
Total Allowance Amount (Sum of Extended Amounts for Each Allowance Line Item)					
Subtotal – CIP #375-01 Base Bid with Allowances					$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items shall be based on actual quantities, determined as provided in the Contract Documents.

TOTAL UNIT PRICE BID for the Project described in Sub-Article 5.01**,** complete as indicated by the Contract Documents (in words and numerals):

_____ Dollars

and _____ Cents ($ _____)

CIP NO.: 375-01 and 276-61
PROJECT: Brigham Road Water and Sewer Replacements
DATE: October 5, 2026

BID FORM – OWASA CIP #276-61
BRIGHAM ROAD SEWER REPLACEMENT

NOTE TO BIDDERS: DO NOT REMOVE THIS BID FORM FROM THE CONTRACT DOCUMENTS

UNIT PRICE BID CONTRACT

Item No.	Description	Units	Estimated Quantity	Bid Unit Price	Extended Total
Items in Base Bid (excluding Allowances) per Section 01 29 01 "Measurement and Basis for Payment"					
19	Mobilization/Demobilization, (Max 5% of Total Base Bid)	LS	1		
20	Temporary Bypass Pumping	LS	1		
21A	16" C900 PVC Sanitary Sewer Main (0'-6' of Cover)	LF	970		
21B	16" C900 PVC Sanitary Sewer Main (6'-9' of Cover)	LF	40		
22A	4' ID Manhole, All Depths, Watertight	EA	4		
22B	4' ID Manhole, All Depths	EA	1		
22C	5' ID Manhole, All Depths	EA	2		
23	Stainless Steel Vent Piping	VF	11		
24	Anti-Flotation Collar	EA	25		
25	Connect to Existing SSMH 88542	EA	1		
26	Abandon Existing Sanitary Sewer Manhole	EA	2		
27	Remove Existing Sanitary Sewer Manhole	EA	3		
28	Remove Existing 12" VCP Sewer Main	LF	750		
29	Pipe Abandonment with Low-Density Cellular Grout	CY	40		
30	Asphalt Open Cut and Replacement (Trench Repair)	SY	210		
31	**Asphalt Repair (Mill and Overlay)**	**SY**	**1,860**		
32	Trench Borrow (Select Fill)	CY	80		
33	Stone Bedding Material	CY	30		
34	Undercut Excavation	CY	20		
35	Rock Excavation	CY	20		

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Item No.	Description	Units	Estimated Quantity	Bid Unit Price	Extended Total
36	Erosion and Sediment Control Plan	LS	1		
37	Project Sign	EA	1		
38	Remove and Replace Concrete Drive (1404 Brigham Road)	SY	115		
39	Pavement Removal and Replacement	SY	385		
40A	1407 Brigham Road Special Conditions	LS	1		
40B	1404 Brigham Road Special Conditions	LS	1		
40C	1402 Brigham Road Special Conditions	LS	1		
40D	815 Churchill Drive Special Conditions	LS	1		
40E	817 Churchill Drive Special Conditions	LS	1		
40F	821 Churchill Drive Special Conditions	LS	1		
40G	823 Churchill Drive Special Conditions	LS	1		
40H	825 Churchill Drive Special Conditions	LS	1		
Subtotal - CIP #276-61 Base Bid with Allowances					$

TOTAL BASE BID (CIP # 375-01 and # 276-61) with Allowances	$

Alternates to be considered for inclusion per Section 01 23 10 "Alternates and Allowances"					
Alt-I	16" Class 350 DIP Sanitary Sewer Main (0'-6' of Cover)	LF	325		
Alt-I	CIPP Lining of 16” DIP Sanitary Sewer Main	LF	325		
Total ADD or DEDUCT for Alternate-I Bid Items Amount (Sum of Extended Amounts for Each Allowance Line Item)					

Alt-II	16” Stainless Steel Sanitary Sewer Main (0'-6' of Cover)	LF	325		
Total ADD or DEDUCT for Alternate-II Bid Items Amount (Sum of Extended Amounts for Each Allowance Line Item)					

For bid evaluation purposes, the Owner will determine the lowest responsive and responsible Bidder based on the lowest total of either (1) Total Base Bid plus Alternate No. 1 or (2) Total Base Bid plus Alternate No. 2. Orange Water

and Sewer Authority reserves the right to select either Alternate No. 1 or Alternate No. 2 and will determine the lowest evaluated bid based on the combination that is in the best interest of the Project.

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items shall be based on actual quantities, determined as provided in the Contract Documents.

TOTAL UNIT PRICE BID PLUS ALTERNATIVE 1 for the Project described in Sub-Article 5.01**,** complete as indicated by the Contract Documents (in words and numerals):

_____ Dollars

and _____ Cents ($ _____)

TOTAL UNIT PRICE BID PLUS ALTERNATIVE 2 for the Project described in Sub-Article 5.01**,** complete as indicated by the Contract Documents (in words and numerals):

_____ Dollars

and _____ Cents ($ _____)

Bidder_____
(Print Name)

Bidder_____
(Signature)

1.05 MEASUREMENT AND BASIS FOR PAYMENT FOR ALLOWANCES – CIP 375-01

A. Item A1 – Contingency Allowance

1. This allowance shall cover the cost of any items not included under other pay items that may arise from unforeseen circumstances or conditions. The Contractor must obtain approval from the Engineer and Owner for use of this contingency allowance prior to any Work associated with the contingency allowance being performed.

B. Item A2 – Town of Chapel Hill Permit Fee Allowance

1. This allowance is intended to cover the cost of obtaining any required permits from the Town of Chapel Hill other than street cut permits. This pay item will allow for the reimbursement of costs which have been paid by the Contractor to the Town of Chapel Hill. The Contractor must supply receipts for review and approval by the Engineer. Payment will be for the actual cost as shown on submitted invoices, along with a 5% markup to cover the Contractor's labor associated with coordination of the work.

C. Item A3 – Town of Chapel Hill Street Cut Allowance – **REMOVED FROM CURRENT CONTRACT**

~~1. This allowance will cover the cost of obtaining street cut permits from the Town of Chapel Hill, including any street cut fees levied. This pay item will allow for the reimbursement of costs which have been paid by the Contractor to the Town of Chapel Hill. The Contractor must supply receipts for review and approval by the Engineer. Payment will be for the actual cost as shown on submitted invoices, along with a 5% markup to cover the Contractor's labor associated with coordination of the work.~~

1.06 MEASUREMENT AND BASIS FOR PAYMENT FOR BASE ITEMS – CIP 276-61

A. Item 19 – Mobilization/Demobilization:

1. Measurement for payment is on a lump sum basis and shall not exceed 5% of the total bid amount. Payment for mobilization will be based on the earned value of Work completed.

2. Payment for mobilization shall be 50% of the total at the beginning of the project, with the remaining 50% paid by percentage based on the earned value of Work completed.

3. Mobilization/Demobilization costs are intended to assist with the cost of bonds, insurance, utility investigations, construction staking, construction signage, mobilization of equipment, and the cost of operations, but is not intended to cover the full amount of these costs. Cost in excess of the allowable mobilization percentage shall be included in other unit prices items as needed.

B. Item 20 – Temporary Bypass Pumping

1. Measuring for payment is on a lump sum basis for the entire bypass pumping operation.

2. Temporary bypass pumping will be paid for at the contract lump sum price and will include all labor and materials necessary to bypass the existing gravity sewer for the duration of construction activities. This item will include all efforts involved in coordination, mobilization, setup, and breakdown of bypass pumping operations as described in Section 02530, 3.5 – Bypass Pumping. Payment for temporary bypass pumping shall be 50% of the total at the beginning of the project, with the remaining 50% paid by percentage based on the earned value of Work completed

C. Item 21 – 16" Sanitary Sewer, All Depths and Materials

1. Measurement for payment shall be per linear foot of Class 350 Ductile Iron Pipe or C900 PVC Pipe installed through bends, fittings, valves, and manholes.

2. The accepted quantities of sanitary sewer pipe will be paid for at the contract unit price per linear foot of the various types, depths, and size pipe specified, complete in place. This price shall include labor, equipment, materials, trench excavation (excluding select fill and rock), shoring, or use of trench box, support and bracing of other existing utilities as needed, installation, dewatering of trenches, backfilling, compaction, testing of failed trenches, disposal of excess material, pressure testing, cleaning, pre-construction video and other graphic documentation of existing conditions, and all other work incidental to the complete installation of the mains in accordance with these specifications. The cost must also include metallic detection tape.

D. Item 22 – XX' ID Manhole, All Depths

1. Manholes will be measured by the number of each size and type of manhole installed.

2. Manholes will be paid for at the contract unit price, complete in place, per manhole for the type and size specified, complete in place. This price shall include all labor, equipment, and materials necessary for installing the manhole, rim and cover, footing (if applicable), backfilling, testing, sterilizing and all other work incidental to the complete installation of the manhole, in accordance with the specifications.

E. Item 23 – Stainless Steel Vent Piping

1. Measurement for payment for Vent Piping will be per vertical foot of stainless steel piping installed at the contract unit price.

2. Vent piping will be paid for at the contract unit price, complete in place. This price will include all labor, equipment and materials necessary for installation of the steel vent pipe in accordance with Section 02530 of the specifications and Detail 532.05 of the contract drawings. The unit price provided will also include the cost of coating both inside and outside the steel pipe.

F. Item 24 – Anti-Flotation Collar

1. Anti-Flotation Collars will be measured by the number of each installed.

2. Anti-Flotation Collars will be paid for at the contract unit price, complete in place. This price must include all labor, equipment, and materials necessary for installing and setting the Anti-Flotation Collar as shown on Detail 2 of Sheet DT-11 of the contract drawings. Costs for the Neoprene Pad and stainless-steel anchor bolts are to be

included in price of the anti-flotation collar. Stone bedding will be considered a separate pay item.

G. Item 25 – Connection to Existing Sanitary Sewer

1. Connections to existing sanitary sewer mains will be measured by the number of each connection made as shown on the drawings.

2. Payment for connections to existing sewer main shall include all materials, equipment, and labor necessary to locate the existing sewer main, connect the existing sewer main to the proposed sewer manholes including, but not necessarily limited to excavation of trenches, backfilling trenches as required, disposal of surplus excavated materials, removal of existing fittings, and any specialty items required to connect to the existing system. Any special fittings and/or blocking required to make the connection are included in the cost of this item. Applies to all connections.

H. Item 26 – Abandon Existing Sanitary Sewer Manhole

1. Measurement and basis for payment will be for each Sanitary Sewer Manhole abandoned as shown on the contract drawings.

2. Abandonment of existing sanitary sewer manholes will be paid for at the contract unit price per manhole abandoned. The unit price must include all labor, materials and equipment required to abandon the existing sewer manhole in place as shown on Detail 536.05. This price shall include, but is not necessarily limited to, removal of the upper portion of the manhole within 36 inches of the proposed finished grade, or as determined by OWASA's Engineer, #57 stone dumped into the manhole, the stone vibrated to consolidate the stone with the remainder of void or space between the top of the manhole and the finished subgrade backfilled as follows. Backfill with #57 stone and consolidate. The unit price must include filter fabric to be placed over the stone and suitable material of a compactable nature which will be placed over the concrete manhole pad for all manholes to be abandoned outside roadway right of ways.

I. Item 27 – Remove Existing Sanitary Sewer Manhole

1. Measurement and basis for payment will be for each Sanitary Sewer Manhole removed as shown on the contract drawings.

2. Removal of existing sanitary sewer manholes will be paid for at the contract unit price per manhole removed. The unit price must include all labor, materials, and equipment required to completely remove and dispose of the existing sewer manhole.

J. Item 28 – Remove Existing 12" VCP Sewer

1. Removal of existing 12" VCP Sewer will be measured by the linear foot of existing VCP sewer removed.

2. Payment for this item will cover the cost of all labor and equipment necessary for removal and disposal of the existing 12" VCP Sewer as shown on the contract drawings.

K. Item 29 – Pipe Abandonment with Low Density Cellular Grout

1. Measurement and payment shall be by the cubic yard of cellular grout required to fill the existing pipe. Vendor of the low-density cellular grout shall provide tickets which will be supplied to the Engineer as part of the pay application.

2. Payment of this item shall include excavation around existing fittings, valves, valve boxes, manholes, and any other appurtenance associated with the line being abandoned and filling the pipe and void spaces with flowable fill. Payment shall also include all materials, labor, and equipment as may be required for the execution of this work, and disposal of any removed items.

L. Item 30 – Asphalt Open Cut and Replacement (Trench Repair)

1. Measurement for Asphalt Open Cut and Replacement (Trench Repair) repair shall be per square yard of pavement patch installed. The measurement for this pay item shall be determined by measuring along the centerline of the pipe times a maximum pay width of **five (5) feet.**

2. Payment for Asphalt Open Cut and Replacement (Trench Repair) shall be made at the contract unit price per square yard of pavement patch installed including, but not limited to, cutting and removing existing pavement, hauling, properly disposing of materials, furnishing and installing base course, intermediate course, surface course, re-marking of pavement lines, replacing traffic sensors, testing of all asphalt and subbase material, and shall be full compensation for pavement repair per the Town of Chapel Hill detail included in the contract drawings.

M. Item 31 – Asphalt Repair (Mill and Overlay)

1. Measurement for Asphalt Milling and Overlay shall be made per square yard of pavement milled and overlaid. The measurement for this pay item shall be determined by the actual area of pavement milled and overlaid as directed by the Engineer and accepted by the Owner.

2. Payment for Asphalt Milling and Overlay shall be made at the contract unit price per square yard of pavement milled and overlaid. The unit price shall include, but not be limited to, milling the existing asphalt surface to the specified depth of **1.5-inches**, loading, hauling and disposal of milled materials, cleaning and preparation of the milled surface, furnishing and applying tack coat, furnishing, placing and compacting asphalt overlay, adjustment of pavement markings as required, and all labor, equipment, tools, materials, and incidentals necessary to complete the Work.

N. Item 32 – Trench Borrow (Select Backfill)

1. Offsite Trench Borrow material will be measured and paid for paid for based upon the cubic yards of select backfill material provided for areas where the excavated material is unsuitable and does not meet the requirements of the Contract Documents.

2. This item will cover the cost of delivery, handling, placement, compaction, testing, and any other costs associated with Offsite trench borrow material brought in from offsite. The Contractor must obtain approval from the Engineer and Owner for use of Trench Borrow prior to any Work associated with this item being performed. The unit price for

CIP NO.: 276-61
PROJECT: Brigham Road Water and Sewer Replacements
DATE: September 30, 2026

DOCUMENT 01 35 00

SPECIAL PROCEDURES

1.00 GENERAL

1.01 SUMMARY

A. This section describes requirements for maintaining, protecting, and restoring the easement during construction, including landscaping features, trees, fences, sheds, retaining walls, and utilities.

B. Work includes:

1. Coordination with the Engineer and Owner prior to removal of any landscape or site features.
2. Identification and flagging of trees proposed for removal.
3. Field walk procedures with the Owner and Engineer.
4. Requirements for handling existing fences, sheds, and similar structures.
5. Replanting and relocation activities outside the easement as part of restoration.
6. Responsibilities for locating, protecting, and maintaining existing electrical and gas utilities.
7. Restrictions on communication with Property Owners.
8. Water main testing and acceptance requirements that exceed the minimum requirements of AWWA C651.

1.02 EASEMENT MAINTENANCE COORDINATION

A. General Requirements

1. The Contractor shall maintain the easement area in a safe, orderly, and accessible condition throughout construction.
2. No landscape feature, structure, or utility within the easement shall be removed, disturbed, or altered without prior coordination and written approval from both the Engineer and the Owner.

B. Coordination Requirements

1. All communication, notifications, and coordination with individual Property Owners must be routed exclusively through OWASA. The Contractor shall not contact Property Owners directly unless specifically authorized in writing by OWASA.
2. The Contractor must provide the Engineer and Owner with a minimum of seven (7) calendar days' notice prior to any proposed landscaping removals or field reviews. Work shall not proceed until all required approvals have been obtained.

1.03 SUBMITTALS

A. Documentation of proposed removals, including marked plans or annotated field maps.

B. The Contractor must maintain documentation of all coordination efforts, approvals, and field walk outcomes. Documentation shall be made available to the Engineer upon request.

1.04 WATER MAIN TESTING AND ACCEPTANCE

A. OWASA requirements exceed AWWA C651. Compliance with AWWA C651 alone does not constitute acceptance of installed water pipe.

B. All water main pipe installed, regardless of length installed, shall successfully complete each of the following in accordance with Section 02510 “Water Distribution”:

1. Pressure testing, including repair and retesting as necessary until the installed pipe passes.
2. Disinfection.
3. Day 1 bacteriological testing.
4. Day 2 bacteriological testing.

C. The required sequence is pressure testing, disinfection, Day 1 bacteriological testing, and Day 2 bacteriological testing. No installed water pipe shall be accepted or placed into service until all required testing has passed and has been accepted by OWASA.

2.00 PRODUCTS (NOT APPLICABLE)

3.00 EXECUTION

3.01 TREE IDENTIFICATION AND FLAGGING

A. Prior to any tree removal activities, the Contractor shall clearly identify all trees proposed for removal within the limits of disturbance.

B. Each tree proposed for removal shall be flagged using high-visibility tape approved by the Engineer. Flagging shall be placed at eye level and remain in place until removal is completed.

C. The Contractor shall notify the Engineer and Owner once all trees proposed for removal have been flagged.

D. No tree removal shall occur prior to verification and approval during the field walk.

3.02 FIELD WALK AND APPROVAL

A. After flagging is complete, the Contractor shall coordinate a field walk with the Owner and Engineer to review all proposed landscape removals.

B. Only trees and landscape features explicitly approved during the field walk may be removed.

C. Document final decisions and maintain records in accordance with Section 01 33 00 – Document Management for the duration of the project.

3.03 EXISTING FENCES, SHEDS, AND SITE STRUCTURES

A. Identification and Protection

1. Identify all existing fences, sheds, outbuildings, gates, and similar structures within or adjacent to the work area.
2. Protect all such structures from damage unless removal is specifically approved by the Owner and Engineer.

B. Removal Requirements

1. No fence, shed, or similar structure shall be removed, relocated, or modified without prior written approval.
2. If removal is approved, coordinate timing and access requirements through OWASA.
3. Salvage, storage, or disposal procedures shall follow Owner direction.

C. Damage and Restoration

1. Any damage to fences, sheds, or other structures not approved for removal shall be repaired or replaced at the Contractor's expense.
2. Restoration shall match existing materials, construction quality, and appearance unless otherwise directed.

3.04 REPLANTING TREES AND RELOCATION OF SITE FEATURES OUTISDE THE EASEMENT

A. General

1. As part of final restoration, the Contractor shall replant trees and relocate certain existing site features outside the permanent easement limits where directed by the Owner and Engineer.
2. Work may include relocation of sheds, small outbuildings, retaining walls, or similar structures when necessary to restore property functionality or aesthetics.

B. Tree Species and Quality

1. Replacement trees shall be nursery grown, healthy, and free of defects.
2. Species shall match Owner direction and may include native or ornamental varieties appropriate to the site.
3. Minimum size requirements shall be as shown on the Drawings or as directed by the Owner.
4. Provide backfill, mulch rings, staking (if required), and initial watering at the time of installation.

C. Relocation of Sheds and Outbuildings

1. The Contractor shall make reasonable efforts to install the sewer in a manner that avoids impacts to existing sheds and outbuildings located within the easement.
2. If avoidance is not feasible due to alignment, depth, access, or safety constraints, the Contractor shall follow the relocation procedures described herein.

3. When relocation is required, carefully dismantle and remove the structures as needed. After removing the structures, demolish any foundations or pads remaining in the easement.
4. Prepare new foundations or pads outside of the easement as directed by the Owner and Engineer.

3.05 EXISTING UTILITIES

A. Utility Location Responsibilities

1. The Contractor is fully responsible for locating all existing electrical, gas, and other buried utilities within and adjacent to the easement prior to beginning work.
    a. Note that the existing gas and electrical lines serving the greenhouse behind 825 Churchill Drive are shown on the drawings but are not shown in the profile.
2. Utility locating shall include coordination with NC 811, utility owners, and field verification methods such as potholing where required.

B. Protection and Maintenance

1. The Contractor shall protect all existing utilities from damage throughout construction.
2. Any utility damaged due to Contractor operations shall be repaired immediately at the Contractor's expense.
3. Maintain safe clearances and support exposed utilities as required.

C. Coordination

1. Notify the Engineer and Owner immediately if unknown utilities are encountered.
2. Do not disturb electrical or gas utilities without explicit approval from the utility owner.

3.06 PROTECTION OF REMAINING LANDSCAPE FEATURES

A. Install temporary fencing, barriers, or other protective measures as required to prevent damage.

B. Maintain protection throughout construction.

C. Restore or replace any damaged landscape features at no additional cost to the Owner.

END OF SECTION

CIP NO.: 375-01 and 276-61
PROJECT: Brigham Road Water and Sewer Replacements
DATE: September 30, 2026

DOCUMENT 33 01 30.72

RELINING SEWERS - CURED-IN-PLACE PIPE

1.00 GENERAL

1.01 SUMMARY

A. Provide all labor, material and equipment necessary for the rehabilitation of sanitary sewer mains and service connections by the installation of a flexible tube saturated with a thermosetting resin which is either inverted or pulled into the existing wastewater main. The resin is cured using either hot water under hydrostatic pressure, or by steam pressure, or UV light, within the tube. The Cured-In-Place-Pipe (CIPP) will be continuous and tight fitting.

1.02 STANDARDS

A. The applicable provisions of the following standards shall apply as if written here in their entirety. Piping and fittings shall be in full compliance with the applicable standards and specifications for each type of pipe involved. Pipe may be rejected for failure to comply with any requirement of this Section.

1. ASTM International (ASTM) Standards:

ASTM F1216	Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin Impregnated Tube
ASTM F1743	Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
ASTM D5813	Cured In Place Thermosetting Resin Sewer Pipe
ASTM D638	Test Method for Tensile Properties of Plastics
ASTM D790	Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D2990	Test Method for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

1.03 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 “Document Management” and shall include:

1. Shop Drawings:

a. Flow control implementation plan.

b. Odor control plan.

c. Quality Control Plan that includes a checklist documenting each critical step in the tube's resin saturation, unhardened CIPP tube's insertion into the subject reach of pipe, hardening process of the CIPP and a list of personnel and defined responsibilities during the installation process.

2. Product Data:

a. Method of rehabilitation and restoration of existing service connections.

b. Diameter, length, wall thickness and all structural design calculations for each sewer main segment. All design calculations shall be sealed by a professional engineer licensed in the state where the Project is located.

c. Type of resin or pipe material.

d. Method and materials for sealing liner at manholes.

e. Pre and Post-Installation CCTV.

f. Documentation of any corrective actions taken to address any defects. This will include stationing.

1.04 QUALITY ASSURANCE

A. For a product to be considered commercially proven, a minimum of ten successful wastewater collection system projects for host pipes equal to or greater than the diameter of the largest pipe in this Project and in excess of 100,000,00 linear feet total shall be performed in the U.S. and documented to the satisfaction of the Owner to assure commercial viability. All successful projects must be equal to or larger in host pipe diameter to that which is included within this Project. The manufacturing and installation processes shall operate under a quality management system which is third party certified to ISO 9000 or other recognized standards. Proof of certification shall be required for approval.

B. For an installing company to be considered as commercially proven, the installer must satisfy all insurance, financial, and bonding requirements of the Owner, and must have had at least 5 years active experience in the commercial installation. In addition, the installer must have successfully installed at least 500,000 linear feet of a cured-in-place product in wastewater collection systems in the U.S. for host pipe equal to or greater than the diameter of the largest pipe in this Project. Acceptable documentation of these minimum installations must be submitted to the Owner. Installer's project manager assigned to this Project must have a minimum of 5 years of CIPP installation experience with the exact product and installing company intended for use with this bid.

1.05 SYSTEM DESCRIPTION

A. If the inversion method is used, the tube is installed by utilizing an inversion standpipe and a hydrostatic head or air pressure. The resin is cured by circulating hot water or introducing controlled steam within the tube. If the tube is pulled into the existing wastewater main, it is placed flat and pressed out against the old pipe by inverting a calibrating hose through the center of the liner using water pressure. The resin is cured by circulating hot water through the liner. When cured and complete, the installed pipe shall extend from one manhole to the next in a continuous, tight-fitting, corrosion resistant, watertight pipe within a pipe.

B. Provide cleaning, televising, and flow control as specified herein.

2.00 PRODUCTS

2.01 COMPONENTS

A. Cured In Place Pipe:

1. Liner Hose:

a. Inversion Flexible Felt Tube: The tube shall consist of one or more layers of flexible needled felt material or an equivalent non-woven or woven material capable of carrying resin and withstanding installation pressures and curing temperatures. The felt tubular material shall be lined on one side with a translucent waterproof coating such as polyurethane or polyvinylchloride (PVC), and be fully impregnated with a liquid thermosetting polyester resin and catalyst system compatible with the inversion process. The resin must be able to cure in the presence of water and the initialization temperature for cure shall be less than 180 deg F (82.2 deg C). The tubing shall be properly sized to the diameter of the wastewater pipe and the length of the wastewater main to be rehabilitated, able to stretch to fit irregular pipe sections and bends, and of relatively uniform thickness.

b. Pulled-In Felt Hose Fabrication: The construction of the lining hose shall be as follows:

1). Resin absorbing first inner layer of polyester felt.

2). Impermeable second layer of thin film polyester.

3). Resin absorbing outer layer or layers of polyester felt.

c. The lining hose shall be capable of carrying resin, withstanding installation pressures and curing temperatures, and be able to stretch to fit irregular pipe sections and bends. The lining hose shall be prefabricated to the appropriate diameter and thickness and shall be cut to the length necessary for the line being rehabilitated.

2. Properties: The cured pipe material shall meet the minimum chemical resistance requirements of ASTM F1216, Appendix 2, and shall conform to the minimum structural standards listed below:

Cured Pipe Material Test	Test Method Standard	Results
Flexural Stress	ASTM D790	4,500 psi
Flexural Modulus of Elasticity	ASTM D790	215,000 psi

3. Tube Design:

a. The tube shall be designed in accordance with ASTM F1216 Appendix 1. The design shall be based on a partial-deteriorated gravity pipe condition.

b. Tube must be manufactured in the USA.

c. Tube must be marked for distance at regular intervals and include manufacturer's name and any other identifiers such as a batch code.

d. Tube design shall withstand the following service requirements:

Tube Design - Service Requirements

Tube Design - Service Requirements	
Soil Density	120 lb./cu. ft.
Live Loading	350 psi
Maximum Depth of Soil Cover	15 feet
Maximum Ground Water Level	5 feet
Ovality	2%
Modulus of Passive Soil Reaction	1,000 psi
Minimum Safety Factor	2
Creep Retention Factor	50%
Minimum Service Life	50 years

e. CIPP Wall Thickness: Contractor shall determine the required CIPP design wall thickness for each installation in accordance with ASTM F1216 and the design criteria specified herein. Submit calculations sealed by a Professional Engineer licensed in North Carolina. The calculated thickness shall be considered the minimum design thickness for acceptance unless a greater minimum thickness is otherwise indicated in the Contract Documents.

4. Allowable Hydrostatic Head: The liner shall have an allowable hydrostatic head which is greater than the depth of the host pipe invert. The allowable hydrostatic head shall be determined for each size of liner as follows:

   a. The instantaneous critical buckling pressure of typical installed liner (having the physical properties specified herein) shall be measured by actual hydrostatic tests performed under the supervision of a licensed professional engineer. Engineer shall determine the allowable hydrostatic head by reducing the instantaneous buckling pressure with respect to the predicted installation affects, ovality factor, maximum dimension ratio and long-term (50-year) physical properties.

   b. A sealed engineer's report showing the analysis and determination of allowable hydrostatic head shall be provided to the Owner for each size of liner used.

2.02 SOURCE QUALITY CONTROL

A. Cured In Place Testing: While the Owner may perform testing at its own expense, Owner may also require the Contractor to provide one test sample for each design segment in according to the following restrained sampling method:

1. Materials: The sample form pipe shall be PVC pipe (SDR-25, C-900). Internal preparation should be made to the PVC form pipe using a release agent such as PVA (polyvinyl alcohol solution) to facilitate sample removal without damage.

Cured-In-Place-Pipe Thickness	Min. PVC Pipe Length
3 to 7.5 mm	12"
9 mm & greater	20"

2. During the inversion or pulling of the cured-in-place-pipe, place the section of PVC pipe in a manhole or other access point.

3. Invert or pull the cured-in-place-pipe through the PVC pipe. An identification number assigned by the Engineer or Owner's representative shall be marked on the outside of the PVC pipe.

4. The cured-in-place-pipe shall then be cured and cooled using standard methods.

5. After the cured-in-place-pipe has cooled and has been drained, cut at both sides of the PVC pipe and remove the restrained sample. Trim the sample to the proper size. Label the sample with the proper I.D. number and submit for testing.

6. Tests for compliance with this Section shall be made according to the applicable ASTM specification. A certificate of compliance with this Section shall be provided by the manufacturer upon request for all material furnished under this Section.

B. Rejection: Failure to meet or exceed any of the requirements of ASTM F1216 based on the design parameters outlined in the Drawings and Specifications shall be cause for rejection.

3.00 EXECUTION

3.01 PREPARATION

A. Contractor shall plan its Work after review of previous television inspection tape and reports prior to commencement of the actual liner inversion process. All point repairs must be satisfactorily completed, equipment and material mobilized, and the Owner's representative shall be informed of the work schedules for liner installations.

1. Safety:

   a. Carry out operations in strict accordance with all OSHA and manufacturer's safety requirements, including scaffolding provisions and proper entry into confined spaces.

   b. Ensure workers are educated on the latest OSHA and NASSCO requirements for worker and public safety measures in regard to styrene gas emissions.

2. Cleaning:

   a. Immediately prior to pre-installation CCTV inspection, thoroughly clean the newly installed host pipe and remove all debris, sediment, foreign material, protrusions, and other material that could interfere with installation or performance of the CIPP liner. Re-clean immediately prior to liner installation if required. Cleaning and pre-installation CCTV inspection shall be incidental to the CIPP bid item and no separate payment will be made.

3. Pre-Installation TV Inspection: After cleaning and immediately prior to CIPP installation, perform a continuous CCTV inspection of the full length of each pipe segment proposed for lining. CCTV inspection shall be performed by personnel holding current NASSCO PACP certification and shall be coded in accordance with the current NASSCO PACP and MACP.

   Provide digital color video in MPEG-4 (MP4) format, together with the corresponding PACP inspection report and database/export file. Clearly identify each inspection by

Project, upstream and downstream manhole, pipe diameter, inspection date, and direction of inspection.

CCTV inspection shall clearly document the entire inside circumference of the host pipe and identify joints, obstructions, debris, defects, service connections, and conditions that could interfere with CIPP installation.

Submit pre-installation CCTV records to the Engineer ten (10) working days before the proposed CIPP installation. Do not begin CIPP installation until the Engineer has reviewed the CCTV inspection and authorized installation to proceed.

4. Post-Installation CCTV Inspection: Following completion of CIPP installation, trimming, sealing, and service reinstatement, perform CCTV inspection of the entire length for each lined segment. Perform and document the inspection using the same video, PACP, identification, and reporting requirements specified for pre-installation CCTV.

   CCTV shall demonstrate that the liner is continuous, fully cured, properly fitted to the host pipe, free of unacceptable defects, properly terminated and sealed at manholes, and that designated service connections have been completely and properly reinstated.

   Submit the post-installation CCTV inspection and associated reports as part of the final CIPP acceptance documentation.

5. Flow Control: Make provision for the flow of wastewater around the section or sections of pipe designated for inversion and effective TV inspection at a cost incidental to the insertion of the liner. Submit a flow control implementation plan for the Owner's approval prior to construction. At no time shall wastewater be pumped into the streets, alleys or storm drain systems. The pump and bypass lines shall be of adequate capacity and size to handle the flow. Take all necessary steps to prevent flooding of any residence or business. Contractor shall be liable for any damages incurred as a result of this Work.

6. Line Obstructions: Identify point repairs required such as heavy solids, dropped joints, intruding service connections, collapsed pipe, or obstructions that must be removed to permit the inversion or lining process to be completed. This Work must be identified and approved in writing by the Owner's representative prior to the Work being completed by the Contractor. Point repairs and removal of obstructions that require excavation of the pipe and removal of existing pipe sections shall be considered a separate pay item.

7. Water: Water for the rehabilitation work will be made available to the Contractor by the Owner from the nearest fire hydrant. Hauling, if required, will be at the Contractor's expense. Contractor shall use a double-check valve assembly to prevent backflow in the event of pressure failure. The backflow prevention device must be approved by the Owner's representative.

8. Public Notification: Contractor shall make every effort to maintain service usage throughout the duration of the Project. In the event that an individual sanitary sewer connection or group of connections must be out of service to complete the Work, the maximum amount of time out of service for any property served by the sanitary sewer shall not exceed 8 hours. A public notification program shall be implemented by the Contractor. Contractor shall, at a minimum, contact each home or business connected

to the sanitary sewer and inform them of the Work to be conducted and when the sewer will be off-line. Contractor shall also provide the following:

a. Written notice delivered to each home or business the day prior to the beginning of work being conducted on the section, with a local telephone contact number for the Contractor that the citizens can call to discuss the Project or any problems which could arise.

b. Contact, in person, any home or business owner that cannot be reconnected within the time stated in the written notice.

c. Contractor shall ensure public notification is made in accordance with the Odor Control Plan and proper infographics and "door hangers" have been distributed to make the public aware of the possibility styrene gas emissions.

3.02 CONSTRUCTION

A. Cured In Place Pipe Insertion:

1. Inversion Method:

a. Wet-Out: Designate a location where the uncured resin in original containers and the fiber felt tube will be vacuum impregnated prior to installation. A resin/catalyst system compatible with the requirements of this method shall be used. The quantities of the liquid thermosetting material shall be sufficient to provide the thickness specified herein and to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall. The tube shall be transported to the Site and maintained in a refrigeration truck until ready for installation.

b. Inversion using Hydrostatic Head: The resin-impregnated felt tube shall be inserted through an existing manhole by means of an inversion standpipe capable of applying the hydrostatic head required to fully extend the tube to the next designated manhole or termination point. The tube shall be inserted into the inversion standpipe with the impermeable plastic membrane side out. At the lower end of the inversion standpipe, the tube shall be turned inside out and attached to the inversion standpipe so that a leak-proof seal is created. The inversion head shall be adjusted to be of sufficient height to invert the tube from manhole to manhole and to hold it tight against the existing pipe wall, producing dimples at side connections and flared ends at the manhole. Care shall be taken to prevent damage or failure of the felt tube as a result of overstressing due to the elevated curing temperatures prior to completion of the final cure.

c. Inversion using Air Pressure: The resin impregnated tube shall be inserted thru an existing manhole by means of an inversion process utilizing air pressure sufficient to fully extend the tube to the next designated manhole or termination point. The tube end shall be connected by an attachment so that a leak-proof seal is created with the impermeable plastic membrane side out. The inversion pressure shall be adjusted to cause the impregnated tube to invert from manhole to manhole and hold the tube tight against the existing pipe wall, producing dimples at side connections and flared ends at the manhole. Care shall be taken to prevent damage

or failure of the felt tube as a result of overstressing due to the elevated curing temperatures prior to completion of the final cure.

d. Curing using Circulating Heated Water:

1). After the inversion is completed, Contractor shall supply approved heat source and water recirculation equipment capable of delivering heated water throughout the section to uniformly raise the water temperature above the temperature required to achieve a final cure of the resin. This temperature shall be as recommended by the resin/catalyst system manufacturer. The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply. An additional gauge shall be placed between the impregnated felt tube and the host pipe in the downstream manhole at or near the bottom to determine the temperatures during cure. Water temperature in the line during the cure period shall not be less than 150 deg F nor more than 200 deg F as measured at the heat source return line. Initial cure shall be completed when inspection indicates the exposed portions of the pipe to be hard and sound and the remote temperature sensor indicates that an exotherm has occurred. The recirculation of the water and cycling of the heat exchanger to maintain the water temperature shall continue for the duration of cure recommended by the resin manufacturer, modified for the specific installation process chosen.

2). After completion of the heated water cure, cool the hardened pipe to a temperature below 100 deg F before relieving the static head in the inversion standpipe. Cool-down shall be accomplished by the introduction of cool water into the inversion standpipe to replace water being drained from a small hole made in the downstream end. Care shall be taken in the release of the static head so that a vacuum will not be developed that could damage the newly installed pipe.

e. Curing using Steam:

1). After the inversion is completed, Contractor shall provide steam generating equipment to distribute steam throughout the section and uniformly raise the temperature within the pipe above the temperature required to achieve a final cure of the resin. This temperature shall be as recommended by the resin/catalyst system manufacturer. The steam generating equipment shall be fitted with a suitable monitor to gauge the temperature of the outgoing stream. The temperature of the resin being cured shall be monitored by placing gauges between the impregnated tube and the existing pipe at both ends. Initial cure shall be completed when inspection indicates the exposed portions of the pipe to be hard and sound and the remote temperature sensor indicates that an exotherm has occurred. The steam generating equipment shall continue in operation for the duration of cure recommended by the resin manufacturer, modified for the specific installation process chosen.

2). After completion of the steam cure, cool the hardened cured-in-place liner down to a temperature below 100 deg F before relieving the internal pressure. Cool-down may be accomplished by the introduction of cool water into the section to replace the mixture of air and steam being drained from a small hole

at the opposite end of the cured in place pipe, maintaining a constant internal pressure until cool-down is completed. Care shall be taken in the release of the internal pressure so that a vacuum will not develop that could damage the newly installed pipe.

f. Curing using UV:

1). After the inversion is completed, Contractor shall advance UV light train at manufacturer-recommended speed through the line, monitoring internal temperature profile and liner pressure. To ensure the resin cures evenly across the cross section, the light source must always be set up in a central position. Provide UV equipment to light throughout the section as required by the manufacturer to achieve a final cure of the resin.

2. Pulled-In Method:

a. Resin Impregnation: In an air-conditioned facility a vacuum system shall be connected to the felt hose to remove the air from the felt and the inner layer impregnated with an amount of resin that exceeds saturation. By means of a conveying system the lining hose shall be run through a pair of rollers that have been preset so the hose will have the desired thickness. After this impregnation (wet out) is complete the felt hose shall be transported to the Site and maintained in a refrigeration truck until ready for installation. Just prior to insertion the impermeable second layer shall be perforated to form a plurality of flow through openings for the resin.

b. Insertion of the Liner: Erect an inversion tower over the manhole and place the down pipe in the manhole with a 90-degree bend connected at the bottom. Run a cable from the manhole through the line to the termination point and the beginning of an auxiliary (calibration) hose inserted into the down pipe, turned over and affixed to the outside of the 90-degree bend. One end of the lining hose shall be put into the manhole at the termination point and tied to the cable. Winch the impregnated tube through the line and fitted around the turned over region of the auxiliary hose on the 90-degree bend. Introduce water into the down pipe to provide lubrication. The pressure shall cause the turned over region of the auxiliary hose to gradually advance through the lining hose. Connect a 3-inch water hose on a nylon rope to the opposite end of the auxiliary hose. As the inversion of the auxiliary hose continues, pull the 3-inch hose and rope through the line. Shape the lining hose to conform to the line of the pipe by using the pressure head of the water. The pressure exerted on the lining hose shall cause the escape of the excess resin from the inner layer through the flow-through openings of the second layer so that the resin is absorbed by the outer layer which contacts the interior surface of the pipe.

c. Curing:

1). Pump water from the down pipe through a heater and return it to the auxiliary hose by means of the 3-inch hose that was pulled to the termination point during the inversion process. Through this cycling process the water inside the auxiliary hose shall be uniformly heated to achieve curing of the resin, bonding the lining hose to the pipe. To monitor the curing process the heater shall be fitted with gauges for both the incoming and outgoing water, and a gauge shall

be placed between the impregnated tube and the pipe invert at the termination point. Initial cure will occur during temperature heat-up and is completed when exposed portions of the new pipe are found to be hard and sound and the remote temperature sensor indicates that the temperature is of a magnitude to achieve an exotherm or cure in the resin. After initial cure is reached, the temperature shall be raised to the post cure temperature. The cure temperatures and durations shall be as recommended by the resin manufacturer, as modified for the specific installation process. During this time, the recirculation of the water and cycling of the heat exchanger to maintain the temperature shall continue.

2). The new pipe shall then be cooled to a temperature below 100 deg F before relieving the static head in the inversion standpipe. Care shall be taken while releasing the static head to avoid creating a vacuum. After the process is complete, the 3-inch hose and auxiliary hose shall be removed from the line by retracting the nylon rope.

3.03 FIELD QUALITY CONTROL

A. Inspection:

1. Provide restrained samples for installations as designated by the Engineer or Owner, but not less than twenty (20) percent of the Project's installations. Testing shall be performed by an independent testing laboratory acceptable to the Engineer. Contractor shall bear all costs of sampling and testing. Submit certified laboratory test reports identifying the corresponding CIPP installation. Test flexural strength and flexural modulus in accordance with ASTM D790.

2. Measure installed wall thickness in accordance with the applicable requirements of ASTM F1216/F1743. Flexural properties shall meet or exceed both the specified minimum material properties and the values used in the approved structural design. Minimum wall thickness at any measured point shall not be less than 87.5 percent of the approved minimum design wall thickness.

3. Contractor shall provide continuous thermal monitoring to ensure proper curing conditions are achieved. This shall be accomplished by Vericure or approved equal. The approved equal requirement is as defined in Division 01 of the Specifications.

4. Failure to meet specified physical properties or wall thickness constitutes nonconforming Work. Submit proposed corrective action and additional testing/evaluation for Engineer review. Acceptance of nonconforming Work shall be at the Engineer's written determination.

5. Visual inspection of the CIPP shall be in accordance with ASTM F1743 or ASTM F1216, Section 8.6.

6. After the Work is completed, the Contractor shall provide the Owner with a videotape showing both the before and after condition, including the re-installed building lateral connections. The finished pipe shall be continuous over the entire length of an inversion run between two manholes and shall be free from significant defects. Any defects which, in the opinion of the Engineer or Owner, will affect the integrity or

strength of the pipe in the foreseeable future or warranty period shall be repaired at the Contractor's expense, in a manner acceptable to the Owner.

B. CIPP Acceptance Criteria:

1. The completed CIPP shall be continuous from termination point to termination point, fully cured, watertight, and free of defects that impair structural integrity, hydraulic capacity, serviceability, or design life.

2. Unacceptable defects include uncured or inadequately cured resin; dry spots or resin-starved areas; resin washout; delamination or lifts; tears, holes, cracks, blisters, or other openings through the liner; infiltration through the liner or liner terminations; and wrinkles, fins, folds, or other geometric irregularities that materially reduce the internal diameter, obstruct flow, prevent proper operation or maintenance, or adversely affect structural performance.

3. Dimples associated with existing service connections or host-pipe geometry shall not constitute a defect provided they do not impair structural integrity, hydraulic performance, or access to a required service connection.

4. Where an unacceptable defect is identified, Contractor shall submit the proposed corrective action to the Engineer. Corrective work may include localized repair, removal and replacement of the affected liner portion, or complete replacement of the liner, as appropriate to restore compliance with the Contract Documents.

5. Following corrective work, repeat CCTV inspection and other testing required by the Engineer to demonstrate compliance. Corrective work, repeat inspection, and retesting necessary because of defective Work shall be performed at no additional cost to the Owner.

3.04 ADJUSTING

A. Sealing Pipe in Manholes: After installation, the liner shall be cut flush with the existing pipe at the manhole walls. The invert of the manhole shall be reworked (smoothed and built up) to match the flow line of the new liner pipe. Both ends of the new liner shall be sealed to the existing pipeline structure with LMK seals or approved equal in order to lock the liner in place and to prevent water movement between the two systems. If the installed pipe fails to make a tight seal due to a broken or misaligned wastewater pipe at the manhole, apply an approved sealant or use some other method approved by the Owner to seal the connection. The sealant shall be compatible with materials used in the lining process.

B. Service Connections:

1. Identify and locate all sanitary sewer service connections prior to the pipe insertion to expedite reconnection unless approved otherwise by the Engineer or Owner's representative. Once installation is started, pipe insertion shall be continuous and without interruption from one manhole to another except as approved by the Owner. Upon completion of insertion of the new pipe, the Contractor shall expedite the reconnection of services to minimize any inconvenience to the customers.

2. At all points where the new pipe has been exposed, as in starter excavations, at service connection fittings, outside of manholes, etc., encase the pipe and fittings with a minimum thickness of 6 inches of concrete, sand cement backfill, or flowable fill as

specified in Section 31 23 33 “Trenching and Backfill.” If sand cement backfill or flowable fill is used, remove all debris and create a void space along each side of the pipe at the spring line to undisturbed soil in preparation for the backfill or flowable fill. The width of the void shall not exceed the outside diameter of the main or service line plus 2 feet.

3. Branch connections or laterals to buildings are to be reopened without excavation, utilizing a remote-controlled cutting device, monitored by a video TV camera. Contractor shall furnish certification that he has a minimum of two complete working cutters plus spare key components on the Site before each inversion. Unless otherwise directed by the Owner or its authorized representative, all service connections shall be reinstalled. No additional payment will be made for excavations for the purpose of reopening connections, and the Contractor shall be responsible for all costs and liability associated with such excavation and restoration Work.

3.05 CLEANING

A. After the installation Work has been completed and all testing results have been accepted, clean up the entire Project area. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor in accordance with regulatory requirements.

END OF SECTION

MEETING MINUTES

Innovative approaches
Practical results
Outstanding service

Pre-Bid Meeting Minutes
BRIGHAM ROAD WATER AND SEWER REPLACEMENTS
CIP # 375-01 and 276-61
ORANGE WATER AND SEWER AUTHORITY
2:00 PM, September 30, 2026

Pre-Bid Meeting attendance mandatory for Bidders
Bids Received Until: Tuesday, October 20, 2026 at 2:00 PM

Engineer (FNI) will transmit to all prospective bidders of record such Addenda as Engineer considers necessary in response to questions arising at this Pre-Bid Meeting. Oral statements and this Pre-Bid Meeting Summary may not be relied upon and will not be binding or legally effective.

1. Introduction of Team Members
    a. Owner – Orange Water and Sewer Authority
        i. Darren Berger, Project Manager
        dberger@owasa.org, 919-537-4240
    b. Engineer – Freese and Nichols, Inc.
        i. Sam Tracy, PE – Project Manager
        Sam.Tracy@freese.com, 919-999-2163
        ii. Zakaria Saffar – Project Engineer
        Zakaria.Saffar@freese.com, 919-867-4128
        iii. Nina Freytag, EIT – Design Team
        Nina.Freytag@freese.com, 704-970-6956
        iv. Jonathan Theodore – Construction Manager
        Jonathan.Theodore@freese.com, 910-600-9951

    c. Bidders and Others Attending
        i. Introductions / Sign-In Sheet **– See Attachement**

2. Review of Project Scope
    a. The project includes the replacement of approximately 560 linear feet of existing 8-inch diameter AC water mains along Brigham Road. These existing AC water mains will be replaced with approximately 370 linear feet of 8-inch ductile iron and 150 linear feet of 2-inch PVC water main, along with all associated appurtenances, including water meters and connections to existing water mains, as well as associated pavement, curb, and gutter replacement, and all other associated work as described in the Specifications and as shown on the Drawings. The project also includes the replacement of 1,480 linear feet of existing sanitary sewer mains along Brigham Road and in the existing sanitary sewer easement. These sanitary sewer mains will be replaced with approximately 325 linear feet of 16-inch ductile iron sanitary sewer mains and approximately 1,170 linear feet of 16-inch PVC sanitary sewer mains. Three existing manholes will be replaced with new manholes, and four additional manholes will be installed, alongside necessary replacement of existing pavement, curb, gutter, connections to existing sanitary sewer mains, and all associated appurtenances as described in the Specifications and as shown on the Drawings.

3. Bidding Document Review

    a. Review the information contained in Section 00 21 15 – Instructions to Bidders
        b. Include the final page from Section 00 21 15 – Bidder's Checklist as the first page of the submitted bid documents
            i. Include Executed Bid Form – Section 00 41 44
                1. Include Bidder's name, address, and contact info, as well as Contractor's license number
                2. Acknowledge all addenda
            ii. Attach Certified List of Equipment/Material Manufacturers and Subcontractors/Suppliers
            iii. Attach Certification Affidavit
            iv. Attach Bid Certification
            v. Attach Contractor Experience Form
            vi. Fill out List of Contractor's personnel
            vii. Attach Appropriate Bid Form Signature Page
            viii. Attach Proposal Signature Page
            ix. Attach Contractor's Affidavit of Organization and Authority
            x. Attach Non-Collusion Affidavit of Bidder
                1. Within five (5) days of bid opening, Contractor shall file a Non-Collusion Affidavit for Sub-Contractors
            xi. Attach Equal Employment Opportunity Certification
            xii. Attach Acknowledgement for Equal Employment Opportunity Certification
            xiii. Attach Bidder's North Carolina General Contractor's License
            xiv. Attach the Iran Divestment Form
            xv. Attach the Companies Boycotting Israel Form

            Clarification: The Contract will be awarded to the lowest responsive and responsible bidder based on the lowest total evaluated bid determined by either:

            Total Base Bid plus Alternate 1; or Total Base Bid plus Alternate 2.

            Refer to Specification Section 00 21 15, Article 19 for additional information regarding evaluation of bids and award of contract.

4. Addenda

    a. Questions submitted after 5:00 pm on October 15, 2026, will not be answered.

5. Project Schedule / Contract Time

    a. Bid Opening – October 20, 2026 (Bids held for up to 90 days)
    b. Contract Award – Anticipated for November 2026
    c. Execute Construction Contract – November/December 2026
    d. Notice to Proceed – December 2026
    e. Substantial Completion – 180 calendar days (Anticipated April 2027)
    f. Final Completion – 30 calendar days after Substantial Completion (Anticipated May 2027)
    g. Liquidated Damages - $1,500 per day for Substantial Completion and $1,500 per day for Final Completion

6. Additional Information

   a. The proposed project involves the replacement of Asbestos Cement water mains. Removal of more than 260 LF of AC pipe requires a permit from the NC Department of Health and Human Services – Health Hazards Control Unit.
   b. The proposed sanitary sewer replacement will be performed within an existing easement that bisects multiple residential backyards. Bidders are reminded that work within and adjacent to private property is subject to the property-specific requirements and other provisions of the Contract Documents. OWASA expects the Contractor to maintain proactive communication and close coordination with the project team throughout construction, particularly regarding access, sequencing, anticipated property impacts, and restoration, to minimize disruptions to residents and avoid construction fatigue.
   c. Portions of the project scope are located within the Town of Chapel Hill R/W. Contractor will be responsible for preparation/submission and obtaining any permits associated with street cuts, pavement cuts, traffic control, utility construction, and inspection as required by Town of Chapel Hill.

      Clarification: The Contractor is responsible for preparing and submitting required Town of Chapel Hill permit applications, and shall not begin Work until the required permits are obtained, including:

      1) Engineering Construction Permit (ECP)
         a. **Note that there is no Town fee for the ECP application.**

      2) Lane closure Permit
         a. This application must be submitted a minimum of five (5) business days before planned Work.
         b. Standard permit fee is $200, and inspection fees are $60 per working day.

      3) Street Cut Permit
         a. Potential revisions to paving limits and street-cut allowances will be addressed by Addendum, if required.

7. Safety

   OWASA considers job safety of paramount importance. Anyone with OWASA is empowered to call a safety timeout on the jobsite.

   Contractor must submit a safe work plan to be reviewed/Approved by OWASA as part of the proposed project.

8. Destructive Weather Guidelines

   OWASA's Destructive Weather Guidelines were discussed as expectations for contractor planning and response. The guidelines are informational and are not part of the Contract Documents unless incorporated by Addendum. A copy will be distributed with or separately from these meeting minutes.

   It is the Contractor's responsibility to maintain a clean and secure jobsite. If OWASA explicitly directs the Contractor to demobilize due to weather conditions, they will negotiate with the Contractor.

9. Taxes and how they shall be shown on the Tax Form

   OWASA is not tax-exempt. Applicable taxes shall be included in the Bid Price and reported on the required tax affidavit in accordance with the Bidding Documents. The tax affidavit must be included with each Pay Application and list all items for each county where materials were procured.

10. Questions and Responses – none

11. **Additional points of clarification**

    2-inch PVC Water Mains: Solvent-cemented (glued) joints are not permitted. Provide push-on joints in accordance with OWASA requirements and the Contract Documents. Gripper gaskets are allowable and OWASA will allow non-EPDM gaskets for 2-inch PVC pipe.

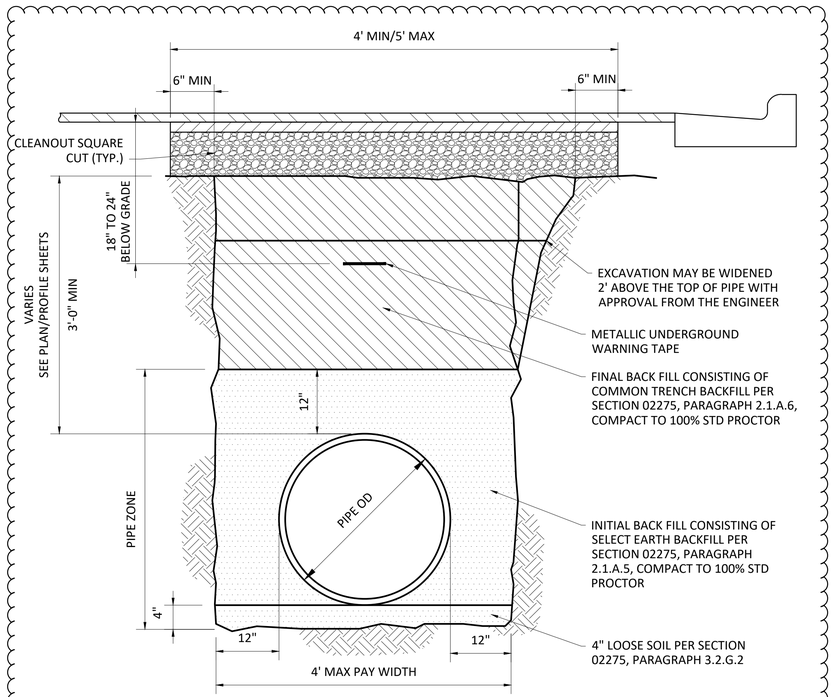
    Property coordination: Adjacent property owners are aware of the planned project. The Contractor shall provide and communicate a detailed work schedule for activities affecting private properties and coordinate access, sequencing, impacts, and restoration with OWASA and the Engineer.

    Pay Applications: The Contractor must use the standard OWASA form provided for all pay applications, see Form # 00700-F "Application and Certification for Progress Payment" included in Section 00 52 16. Please note the Contractor will be required to submit two separate Pay Application forms with each monthly pay request, one for the portion of Work applying to CIP # 375-01, and the second for the portion of Work applying to CIP # 276-61.

    Specific Property Special Conditions: Bidders are advised that the trees designated for removal are substantial in size. Bidders should review site conditions and satisfy themselves as to the extent of the tree removal work prior to submitting a bid.

    Project Schedule: As portions of the Work will occur within easements crossing occupied residential properties, the Contractor shall submit a detailed schedule of planned activities for the upcoming week by 10:00 a.m. each Thursday. This requirement is intended to facilitate communication and coordination with affected property owners.

    The Engineer's OPCC for this project is $1.9M.

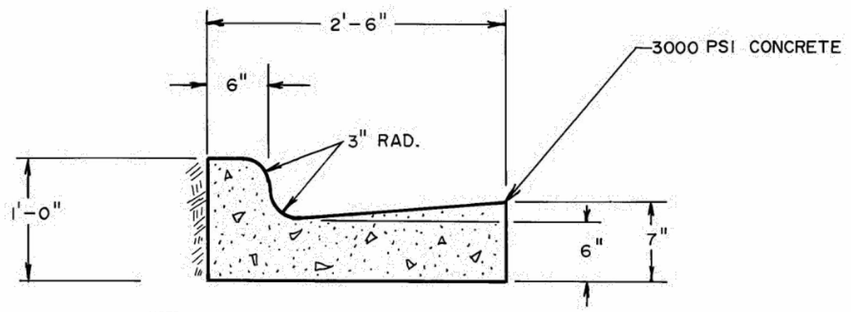


PAVEMENT REPAIR SECTION SHOWN SCHEMATICALLY. REFER TO MODIFIED TOWN OF CHAPEL HILL DETAIL T-7.01 ON SHEET DT-3 FOR REQUIRED PAVEMENT REPAIR DIMENSIONS, MATERIALS, AND CONSTRUCTION REQUIREMENTS

1 / DT-4 — TYPICAL TRENCH SECTION DEPTH OF 3 TO 20 FEET

N.T.S.

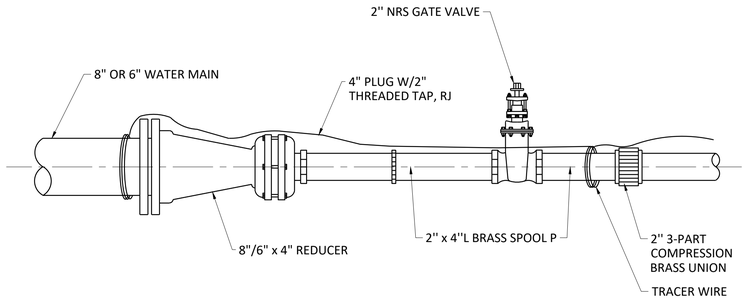
1



NOTE:
1. INSTALL EXPANSION JOINTS EVERY 30' AND AT EACH SIDE OF DRIVEWAYS.

2 / DT-4 — CURB & GUTTER SECTION

N.T.S.

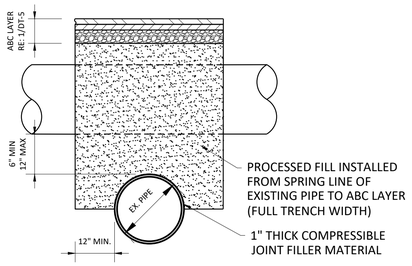


4 / DT-4 — 8" OR 6" IN-LINE TRANSITION TO 2" PIPE

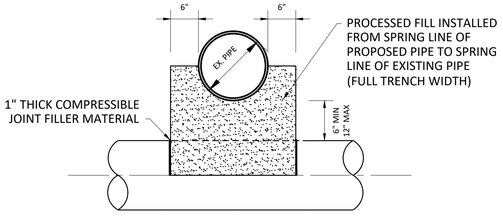
N.T.S.

NOTES:

1. BRING TRACER WIRE PAST COMPRESSION BRASS UNION, STRIP END, WRAP 3-4 TIMES AROUND BRASS PIPE AND TERMINATE. DO NOT PULL WIRE TIGHT.
2. ALL TRANSITIONS TO SMALLER PIPE SHALL BE MADE WITH A REDUCER - 8" AND/OR 6" PLUGS. PLUGS W/ THREADED CAPS WILL NOT BE CONSIDERED ACCEPTABLE.
3. REFER TO DETAIL 513.01 FOR DESIRED TRACER WIRE TERMINATIONS INSIDE OF VALVE BOXES.



PROPOSED PIPELINE OVER EXISTING PIPE



PROPOSED PIPELINE UNDER EXISTING PIPE

NOTES:

1. PROCESSED FILL SHALL CONSIST OF EITHER SCREENINGS COMPACTED TO 95% MDD OR EXCAVATABLE FLOWABLE FILL (150 PSI AT 28 DAYS).

NOTE:

WRAP PIPE IN POLYETHYLENE ENCASEMENT IN ALL LOCATIONS WHERE FLOWABLE FILL SHALL BE USED IN TRENCH.

3 / DT-4 — CROSSING PIPE DETAIL

N.T.S.

OWASA

400 Jones Ferry Road
Carrboro, NC 27510-2001
(919) 968-4421
\www.owasa.org
info@owasa.org
www.twitter.com/owasa1

ORANGE WATER AND SEWER AUTHORITY

A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.

OUR COMMUNITY'S TRUSTED PARTNER FOR CLEAN WATER AND ENVIRONMENTAL PROTECTION

BRIGHAM ROAD WATER AND SEWER REPLACEMENTS

OWASA PROJECT MANAGER
DARREN BERGER
DBERGER@OWASA.ORG
919-537-4240

ENGINEER
FREESE AND NICHOLS, INC.
Raleigh, NC

CONTRACTOR
CONTRACTOR, INC.
Raleigh, NC

More Project Info:

NOTES:

1. ALL SIGN LAYOUT AND LETTERING DETAILS MUST BE SUBMITTED FOR OWASA APPROVAL.
2. THE SIGN MUST MEET REQUIREMENTS OF TOWN OF CHAPEL HILL OR TOWN OF CARRBORO ORDINANCES AND PERMITS, IF APPLICABLE.
3. THE FIELD OF THE SIGN SHALL CONSIST OF A 3 BY 4 FOOT SHEET OF GRADE B-B MEDIUM DENSITY OVERLAID EXTERIOR PLYWOOD.
4. UNLESS OTHERWISE APPROVED BY OWASA, THE SIGN SHALL BE MOUNTED WITH 4"X4" POSTS, USING B OR BETTER SOUTHERN PINE, PRESSURE-PRESERVATIVE TREATED IN ACCORDANCE WITH AWPA C1 AND AWPA C2, WITH ALUMINUM OR GALVANIZED STEEL SCREWS. MOUNTING POSTS SHALL BE BURIED TO A MINIMUM DEPTH OF 3 FEET.
5. COMPUTER-CUT VINYL DECAL SHALL BE USED.
6. IF DIRECTED BY OWASA, AN EXTERIOR/OUTDOOR BROCHURE HOLDER SHALL BE MOUNTED ON SIGN OR MOUNTING POST (NEAR QR CODE).

5 / DT-4 — PROJECT SIGN

N.T.S.

ISSUED FOR BIDDING

Freese and Nichols, Inc.
North Carolina Registered Engineering Firm C-3916

NORTH CAROLINA PROFESSIONAL SEAL 057324 ENGINEER SAMUEL L. TRACY
10/05/2026

FREESE NICHOLS
1017 Main Campus Drive, Suite 1200
Raleigh, North Carolina 27606
Phone - (919) 582-5850
Web - www.freese.com

ORANGE WATER AND SEWER AUTHORITY

BRIGHAM ROAD WATER AND SEWER REPLACEMENTS

DETAILS

MISCELLANEOUS DETAILS 2

NO.	ISSUE	BY	DATE
1	ADDENDUM NUMBER 01	SET	10/05/2026

F&N JOB NO.	OW52387.0
DATE	SEPT 2026
DESIGNED	ZS
DRAWN	ZS
REVISED	
CHECKED	ZLM
FILE NAME	CV-MISC-DTL-02.dwg

VERIFY SCALE 1 0
Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET DT-4

SEQ. 17 OF 17

ACAD Rel: 25.1s (LMS Tech)
Filename: N:\WTU\Drawings\BRIGHAM\CV-MISC-DTL-02.dwg
Last Saved: 10/5/2026 10:54 AM Saved By: 08529

Plot Date: 10/5/2026 10:55 AM Plot By: 08529 Filename: N:\WTU\Drawings\BRIGHAM\CV-MISC-DTL-02.dwg