



WithersRavenel

Our People. Your Success.



**To:** Plan Holders  
**CC:** Town of Kernersville, NC  
**From:** J. Clark Maness, PE  
**Date:** 4/28/2023  
**Project:** Town of Kernersville – Kernersville Medical Parkway Sewer Extension

ADDENDUM 1

Bidders on this Project are hereby notified that this Addendum as all other Addenda shall be attached to and made a part of the above-named Bidding and Contract Documents.

The following items are issued to add to, modify, and/or clarify the Bidding and Contract Documents. These items shall have full force and effect as the Bidding and Contract Documents, and costs involved shall be included in the bid prices. Bids to be submitted on the specified bid date shall conform to the additions and revisions listed herein.

Acknowledge receipt of all Addenda by inserting the Addendum number and date in the appropriate location of the Bid Form. Failure to do so may subject the bidder to disqualification.

Pre-Bid Meeting and Meeting Notes

A Pre-Bid Meeting was held on Tuesday April 25<sup>th</sup>, 2023, at 2:00 PM. Attached is the Pre-Bid Meeting Agenda and Attendance List.

**Please note that the Bid Opening location has changed from the Community Development Conference Room to the Executive Conference Room at 134 E. Mountain Street Kernersville, NC 27284.**

### Contract Specifications Modifications

The following Specification Sections were modified as follows. Specification changes will be added to the conformed Contract Documents that will be released after the bidding process and prior to construction.

1. Section 00 04 10 – Bid Schedule (Bid Form)
  - a. Please see the attached updated Section 00 04 10. Please note that bid line items for “Remove and Replace Unsuitable Material with Select Fill”, “Remove and Replace Unsuitable Material with #67 Stone”, and “Rock Removal” have been added to the bid schedule.
2. Section 01 02 50 – Measurement and Payment
  - a. Please see the attached updated Section 01 02 50. Language for measurement and payment have been added for the new bid line items “Remove and Replace Unsuitable Material with Select Fill”, “Remove and Replace Unsuitable Material with #67 Stone”, and “Rock Removal”.
3. Section 02 27 40 - Geotextiles
  - a. A geotextiles specification has been provided for the project. Please see the attached Section 02 27 40. See Updated Sheet 5 for details on placement of geotextile fabric for trenches.

### Contract Drawings Modifications

The following Contract Drawings were modified as follows. Drawing changes will be added to the conformed Contract Documents that will be released after the bidding process and prior to construction.

1. Please see the attached updated Sheet 5. The pipe trench detail for ductile iron pipe (DIP) has been updated to include additional bedding and the installation of geotextile fabric for all trenches.

### Questions and Answers

1. Question: Is there an opinion of probable construction cost?
  - a. Response: The opinion of probable construction cost is \$500,000 to \$700,000.
2. Question: Are there American Iron and Steel (AIS) requirements on this project?
  - a. Response: No.
3. Question: There is currently not a line item for “Select Backfill” in the bid schedule. Will a line item for “Select Backfill” be added to the bid schedule?

- a. Response: A “Remove and Replace Unsuitable Material with Select Fill” line item has been added to the bid schedule.
4. Question: There is currently not a line item for “Remove and Replace Unsuitable Material with #67 Stone” in the bid schedule. Will a line item for “Remove and Replace Unsuitable Material with #67 Stone” be added to the bid schedule?
  - a. Response: A “Remove and Replace Unsuitable Material with #67 Stone” has been added to the bid schedule.
5. Question: Would the Owner consider adding a line item or allowance for geotextile fabric?
  - a. Response: A geotextiles specification has been provided for the project. See Updated Sheet 5 for details on placement of geotextile fabric for trenches. See Section 02 27 40. Installation of geotextile fabric is required for the installation of all gravity sewer.

END OF ADDENDUM 1



**Project:** Town of Kernersville  
Medical Parkway Sewer Extension

**Date:** April 25<sup>th</sup>, 2023 – 2:00 PM – 3:00 PM (estimated time)

**Location:** 134 E. Mountain Street, Kernersville, North Carolina, 27284  
Community Development Conference Room

## PRE-BID CONFERENCE AGENDA

**Please note that nothing discussed or said at this Pre-Bid Conference in any way amends the Contract Documents. Only Addenda can amend the Contract Documents.**

### COMMON DISCUSSION ITEMS FOR BOTH CONTRACTS

#### 1. Introduction / Attendance

The projects are the following:

OWNER - Town of Kernersville	
Town Engineer/Watershed Administrator	Chris Jensen, PE, CFM
Community Development Director	Catherine Garner, AICP, CZO
Purchasing & Budget Administrator	Rebekah East, MPA, CLGPO, CLGBO

ENGINEER - WithersRavenel, Inc.	
Project Manager	J. Clark Maness, P.E.
Assistant Project Manager	Parker Colbath, P.E.

#### 2. Project Location & Description

- A. The project consists of installing just over 1,200 linear feet of 8" DIP gravity sewer, primarily by open cut methods, but also including a 50 linear foot bore and jack under the West Fork Deep River. The proposed gravity sewer will be tied in to an existing 15" VCP gravity sewer outfall on the opposite side of the stream from the project site using a doghouse manhole. Bidders should not the final grading requirements for the gravity sewer section between approximately STA 13+50 and STA 16+00.
- B. Located along Kernersville Medical Parkway, on a site bounded by Brookford Road to the east, Kernersville Medical Parkway to the north, I-40 to the south, and the West Fork Deep River to the west.

#### 3. Project Funding

Funding for the Project is provided by the Town of Kernersville.

#### 4. MBE Solicitation Requirements

The Town of Kernersville has an MBE participation goal and documentation of MBE solicitation will be required in accordance with North Carolina Senate Bill 914. Submitted bids without MBE documentation by the Bid Opening date and time will be rejected. This includes the DBE tables A and B in the bidding documents.

Bidders are cautioned to become familiar with the forms and provide the requested documentation. Bidder is to submit the Identification of Minority Business Participation and either Affidavit A or Affidavit B with the Bid.

#### 5. Responsible Bidders

Bidders will be evaluated for responsiveness, quality, and responsible work history. All bids must be accompanied by a certified or cashier's check or bid bond in the amount of 5% of the total maximum amount bid made payable to the City of Kernersville. No bidder may withdraw his/her bid within 60 consecutive calendar days after the actual date of the opening thereof. Bidders must be licensed contractors in the State of North Carolina.

#### 6. Geotechnical Report

All potential bidders should carefully review the geotechnical engineering report provided in the Section 00 03 00 of the Specifications.

#### 7. Property Acquisition / Right of Way

The Owner has obtained all required property and easements for the Project.

#### 8. Permits

The plans and specifications for both contracts reflect the design approved by the Winston-Salem/Forsyth County Utilities Commission (CCUC). No variance from NC State or CCUC regulations will be allowed. An Erosion & Sedimentation Control (E&SC) Permit has not been obtained for this project because the area of disturbance is below the threshold required for an E&SC Permit. If a Contractor increases the limits of disturbance beyond what is shown on the plans, then the Contractor is solely responsible for obtaining and maintaining an E&SC Permit for the project. Any staging areas outside of the limits of disturbance are the responsibility of the Contractor.

#### 9. Existing Medical Campus Setting

Please note that all proposed work is near an active medical facility. Please share the road with local emergency vehicles and always keep the road open during construction.

#### 10. Other Project Concerns

##### a. Project Coordination

Coordination with Engineer's Resident Project Representative (RPR) will be required. RPR will be present for major construction activities. All final testing must be scheduled and witnessed by the RPR.

##### b. Site Access

Primary site access will be from Kernersville Medical Parkway.

##### c. Existing Utilities

The Contractor shall coordinate with utility companies (gas, fiber optic, electric, cable, telephone) for location of the utilities prior to construction. Existing service shall be

maintained and the utility service personnel shall be notified when their presence is required during construction. The Contractor is responsible for the repair of any damaged utilities if damage occurs.

Existing gravity sewer shall remain in service. The Contractor is fully responsible for any required bypass pumping to complete the specified work.

d. Testing Requirements

All new manholes will be vacuum tested per specifications. All new gravity sewer mains will be air tested per specifications.

## 11. Bid Form

Potential bidders should pay close attention to Section 01 02 50 – Measurement and Payment when completing the Bid Form.

a. Mobilization

Please note that Payment for Mobilization shall be evenly distributed over the first three monthly pay requests, provided the lump sum bid for Mobilization is equal to or less than 3% of the total contract price. When the lump sum bid for Mobilization exceeds 3% of the total contract price, any and all amount in excess of 3% of the total contract price shall be payable on the final monthly pay request. Retainage shall be applied in all instances as provided in the Contract Documents.

b. Compaction and Materials Testing Allowance

This allowance is to cover charges incurred for all required certified third-party compaction and materials testing.

## 12. Addenda

Questions regarding this project should be emailed to Erin Spencer ([espencer@withersravenel.com](mailto:espencer@withersravenel.com)). Telephone calls will not be accepted.

Plans, specifications and addenda are posted to <http://withersravenel.com/bid/> for downloading at a cost to the Bidder of \$25.00. If plans and specifications are downloaded from this site the Bidder will automatically be added to the plan holders list and all addenda will be sent to the Bidder. Quest Project Number: 8420496

Addendum 1 will be released after this meeting and will include the summary and sign-in sheet from this meeting.

## 13. Bid Submission

Proposals sent before the bid date should be sent by mail to:

Town of Kernersville  
Attn: Chris Jensen, PE, CFM  
PO Box 728  
Kernersville, North Carolina, 272845

Proposals delivered by courier on the bid opening date must arrive at or just before 2:00 PM on May 9<sup>th</sup>, 2023 at the following address:

Town of Kernersville  
Executive Conference Room  
134 E. Mountain Street  
Kernersville, North Carolina, 27284

Bids delivered after 2:00 PM on May 9<sup>th</sup>, 2023 will be rejected and not opened.

#### **14. Site Visit**

There will be a site visit to Project Site immediately following this Pre-Bid Meeting.

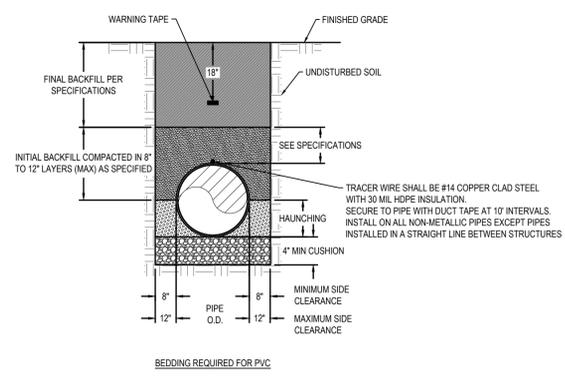
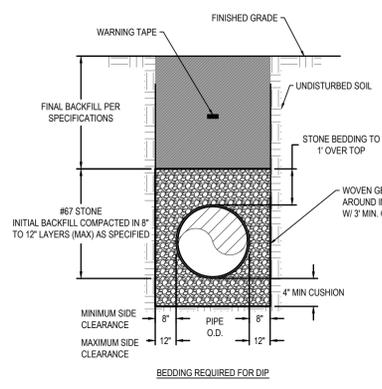
#### **Questions and Answer Period**



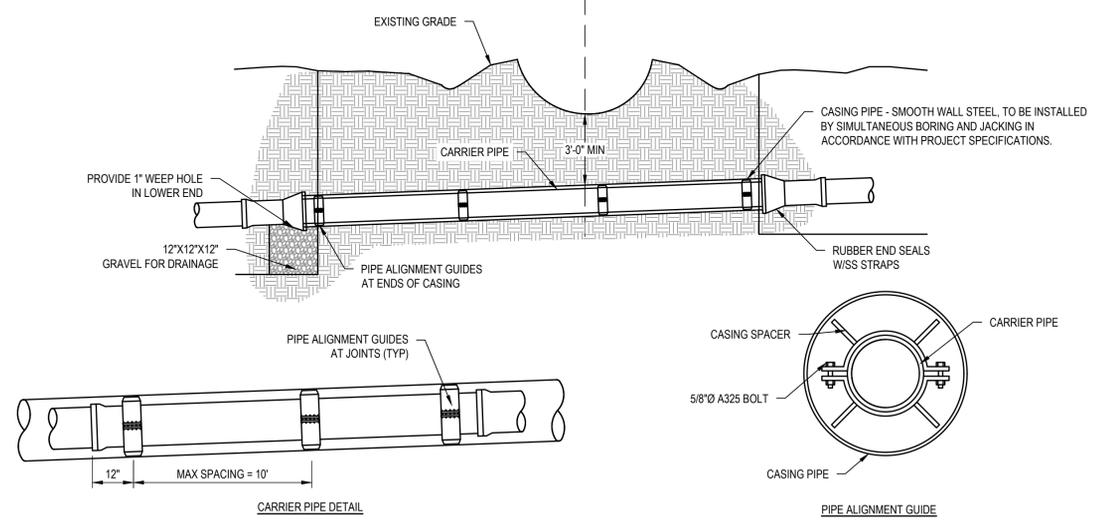
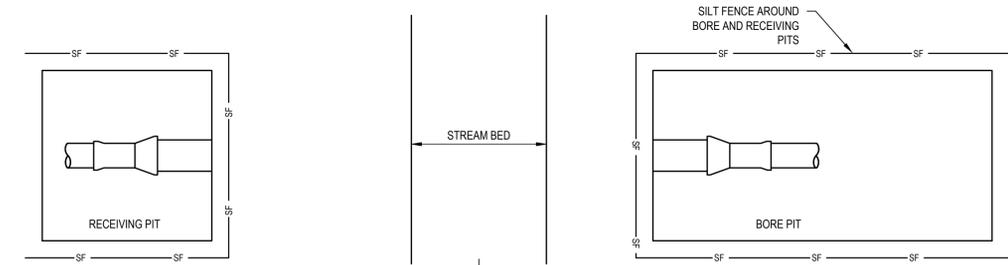
Job No.	06140180.53
Date	06/24/2022
Checked By	JCM
Drawn By	KMT
Designer	PBC



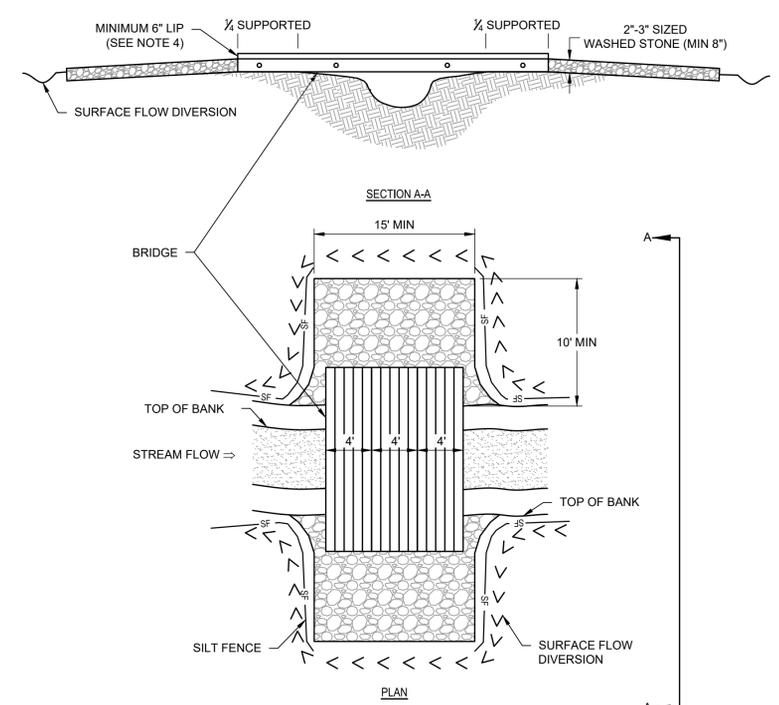
Revisions		
1	30% SUBMITTAL	3/18/2022
2	90% SUBMITTAL	6/28/2022
3	ACCESS GRADING	8/9/2022
4	BID SET	4/10/2023



**PIPE TRENCH FOR PVC AND DIP**  
NOT TO SCALE  
0309  
2014-14-08



**BORE & JACK**  
NOT TO SCALE



**TEMPORARY BRIDGE STREAM CROSSING**  
NOT TO SCALE

**NOTES:**

1. UNDER FULL LOAD, BRIDGES SHALL SPAN ENTIRE WIDTH OF THE STREAM WITHOUT CONTACTING THE BED OR BANKS OF THE STREAM BELOW THE NORMAL HIGH WATER LEVEL.
2. THERE SHALL BE NO CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED.
3. CLEARING WITHIN 10 FT OF THE STREAM BANK SHALL BE DONE BY CUTTING, NOT GRUBBING. THE ROOTS AND STUMPS SHALL BE LEFT IN PLACE TO HELP STABILIZE THE BANKS AND ACCELERATE RE-VEGETATION.
4. INSTALL A 6 INCH (MINIMUM) LIP ALONG THE OUTSIDE OF THE BRIDGES TO PREVENT LOOSE SEDIMENT FROM DEPOSITING IN STREAM DURING CROSSING.
5. INSTALL SILT FENCE ALONG AND ABOVE TOPS OF BANKS AND TIE TO CROSSING.
6. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM. HOWEVER, THERE SHALL BE NO DISTURBANCE WITHIN THE STREAM OR OF THE STREAM BANKS.
7. KEEP STREAM CROSSINGS AT RIGHT ANGLES TO THE STREAM FLOW.
8. ALIGN APPROACHES WITH THE CENTER LINE OF THE CROSSING FOR A MINIMUM DISTANCE OF 20 FEET AND STABILIZE WITH 6\"/>
- 9. STABILIZE ALL DISTURBED AREAS SUBJECT TO FLOWING WATER, INCLUDING PLANNED OVERFLOW AREAS, WITH RIP-RAP OR OTHER SUITABLE MEANS IF DESIGN VELOCITY EXCEEDS THE ALLOWABLE FOR THE IN-PLACE SOIL.
- 10. THE BRIDGE SHOULD BE INSTALLED SO AS TO SECURE IT IN THE EVENT OF A 10-YEAR DISCHARGE. THE BRIDGE SHALL BE REMOVABLE UPON SHORT NOTICE IN CASE OF INCLEMENT WEATHER.
- 11. 1/4 (MINIMUM) OF THE BRIDGE TOTAL LENGTH MUST BE SUPPORTED ON EACH SIDE OF THE BANK.
- 12. INSTALL RUNOFF WATER DIVERSION DEVICES ON BOTH SIDES OF THE CROSSING. HOWEVER THERE SHALL BE NO DISTURBANCE WITHIN THE STREAM OR OF THE STREAM BANKS.
- 13. BRIDGES SHALL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION UNLESS EROSION OF THE STREAM CHANNEL OCCURS. IF EROSION OCCURS THE CHANNEL BANKS SHALL BE RESTORED BACK TO PRE-CONSTRUCTION CONDITIONS, AS APPROVED BY THE ENGINEER.
- 14. THE CONTRACTOR SHALL ENSURE THAT NO DAMAGE TO THE STREAM BANK OR WATERCOURSE OCCURS DURING INSTALLATION; NO WORK SHALL BE PERFORMED IN THE STREAM CHANNEL.
- 15. SMOOTH AND STABILIZE ALL DISTURBED AREAS.

N:\14-0180-140180.53\Kernersville Medical Parkway Sewer Extension\Drawings\Site Construction\DETAILS - DETAIL.dwg Plotter: P1000, April 23, 2023 3:23:30 PM - CHANES

Town of Kernersville				Bid Schedule	
Kernersville Medical Parkway Gravity Sewer Extension					
Item No.	Item Description	Unit	Est. Quan.	Unit Price	Extended Price
1	Bonds, Insurance, and Mobilization	LS	1	\$	\$
2	Clearing and Grubbing	LS	1	\$	\$
3a	8" Class 50 DIP Gravity Sewer w/ Protecto 401 Coating (0'-6') (Open Cut)	LF	12	\$	\$
3b	8" Class 50 DIP Gravity Sewer w/ Protecto 401 Coating (6'-8') (Open Cut)	LF	508	\$	\$
3c	8" Class 50 DIP Gravity Sewer w/ Protecto 401 Coating (8'-10') (Open Cut)	LF	382	\$	\$
3d	8" Class 50 DIP Gravity Sewer w/ Protecto 401 Coating (10'-12') (Open Cut)	LF	240	\$	\$
3e	8" Class 50 DIP Gravity Sewer w/ Protecto 401 Coating (12'-14') (Open Cut)	LF	36	\$	\$
3f	8" Class 50 DIP Gravity Sewer w/ Protecto 401 Coating (14'-16') (Open Cut)	LF	20	\$	\$
4a	4' Diameter Precast Concrete Manhole (6'-8')	EA	1	\$	\$
4b	4' Diameter Precast Concrete Manhole (8'-10')	EA	4	\$	\$
5	4' Diameter Precast Concrete Doghouse Manhole (10'-12')	EA	1	\$	\$
6	5' Diameter Precast Concrete Manhole (12'-14')	EA	1	\$	\$
7	Bore and Jack: 16" Steel Casing (0.25" Thick)	LF	50	\$	\$
8	8" Class 50 RJ DIP Carrier Pipe w/ Protecto 401 Coating	LF	50	\$	\$
9	Concrete Anti-Seepage Collar	EA	2	\$	\$
10	Silt Fence	LF	1,900	\$	\$
11	Silt Fence Outlet	EA	8	\$	\$
12	Yard Inlet Protection	EA	1	\$	\$
13	Rock Check Dam	EA	6	\$	\$
14	Erosion Control Matting (Jute Type)	SY	2,000	\$	\$
15	Site Maintenance & Restoration	LS	1	\$	\$
16	Temporary Bridge Stream Crossing	LS	1	\$	\$
17	Traffic Control	LS	1	\$	\$
18	Remove and Replace Unsuitable Material with Select Fill	CY	750	\$	\$
19	Remove and Replace Unsuitable Material with #67 Stone	CY	250	\$	\$
20	Rock Removal	CY	100		
21	Compaction Testing Allowance	LS	1	\$ 5,000	\$ 5,000
				Total Bid	\$

(Write Out In Words)

SECTION 01 02 50  
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01. THE REQUIREMENT

- A. All contract prices shall be full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the Work as shown on the Drawings and specified in the Contract Documents to be performed under this Contract.
- B. OWNER is aware of the current pipe market volatility and supply chain issues. Therefore, OWNER is willing to evaluate the material prices at time of bid versus time of Contract Execution and consider compensation to address increased material costs that may be unknown at the time of the bid. This evaluation will only be considered for DIP pipe materials and pre-cast manholes, and will be conducted in the following manner: At the time the Contract is executed by OWNER if prices have substantially increased (15% or greater), Contractor shall provide the dated quote from the supplier that was utilized to calculate the bid pricing, provide an updated quote from the supplier for all materials and equipment on the project for evaluation, quotes from three (3) additional suppliers, and a schedule of values for the breakdown of the line-item prices for material and equipment related items. In addition, the confirmed material delivery date shall be provided to OWNER for all said material. This information will be used by OWNER to consider: (1) the establishment of a notice to proceed date and (2) determination of any percentage of pipe price escalation. It shall be noted that compensation is not guaranteed and shall be based upon evaluation of material price increases with supplying documentation and comparisons to national and regional recognized Construction Cost Indexes; an increase will only be considered if the difference in material cost is greater than a 15% escalation. Requests for increases in material costs submitted after Contract execution shall not be considered. If approved, a Change Order will be executed to reflect material and equipment price increases associated with supplier materials and equipment only. Additional compensation for labor, contractor and subcontractor installation equipment, and costs, profit and overhead, associated with price escalated third party materials and equipment, will not be granted.
- C. If supply chain issues will result in a delay in performance of the Contract, Contractor shall notify OWNER in writing within five (5) days of discovery of the supply chain delay and shall provide written verification from the supplier of such delay. Contractor shall also provide written evidence of unsuccessful efforts to secure the delayed materials from other sources.
- D. Force Majeure provisions in the Contract Documents shall not expand any terms and requirements contained herein.
- E. The items listed below refer to and are the same pay items listed in the Bid Form. They constitute all the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory work, services, job signs, sanitary requirements, testing, safety devices, surveying, field engineering, record drawings, water supplies, power, maintaining traffic, removal of waste, watchmen, and all other requirements of the Contract Documents.

- F. Each lump sum and unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for the Project.
- G. Excavation, trenching, backfill, and compaction are not separate bid items but are an integral part of the work under the contract, and the Contract Bid Price shall include this work.
- H. Excavation work shall be bid as "UNCLASSIFIED EXCAVATION FOR ROCK AND UNSUITABLE SOILS", unless otherwise noted or a bid line item established for such, meaning that all materials encountered, including rock materials, shall be removed as a part of excavation work and included under a single bid item, regardless of the manner in which excavation occurs.
- I. Progress Payment for any item for which certifying surveys are required shall be made based on estimated quantities verified by the ENGINEER.
- J. Certifying surveys will be required for payment greater than 75% of the estimated total amount of that bid item.
- K. No Final Payment will be made for any item for which required certifying surveys have not been submitted and approved by the ENGINEER.
- L. Pay Items
  - 1. Bonds, Insurance, and Mobilization
    - a. Measurement
      - 1) There shall be no measurement for Mobilization.
    - b. Payment
      - 1) The lump sum price bid for Mobilization to be paid for shall be full compensation related to preparing for work and associated operations, including but not limited to the necessary movement of personnel, equipment, supplies, and incidentals to or near the project site; for establishing offices and facilities as may be required for the work; and the subsequent removal of personnel, equipment, supplies, and incidentals from the work site at the completion of the work; and all other costs which the CONTRACTOR may incur for the work which are excluded from other bid items.
      - 2) Payment for Mobilization shall be evenly distributed over the first three monthly pay requests, provided the lump sum bid for Mobilization is equal to or less than 3% of the total contract price. When the lump sum bid for Mobilization exceeds 3% of the total contract price, any and all amount in excess of 3% of the total contract price shall be payable on the final monthly pay request. Retainage shall be applied in all instances as provided in the Contract Documents.
  - 2. Clearing and Grubbing
    - a. Measurement
      - 1) There shall be no measurement for Clearing and Grubbing.

b. Payment

- 1) The lump sum price for this Item shall be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required for all required clearing and grubbing within the limits of disturbance and per the project specifications. The lump sum price for this item shall also include appropriate and legal disposal of all cleared materials, where applicable.

3. 8" Thickness Class 50 Ductile Iron Pipe Gravity Sewer with Protecto 401 Coating (Open Cut)

a. Measurement

- 1) The length of Gravity Sewer Line to be paid for under this Item will be the actual number of linear feet of 8" Ductile Iron Pipe Gravity Sewer in place measured horizontally along the centerline of the installed pipe, categorized by the pipe size, material, & depth of cut. The quantities stated in the Bid Schedule for the various depths of pipe (6'- 8' depth, etc.) have been taken from the Drawings. The depth categories indicated represent the depth from the original ground line or top of existing pavement to the bottom of the sewer pipe. The quantities stated in the Bid Schedule shall be considered final unless a sewer line is relocated and/or sewer grades are revised during construction for reasons unforeseen at this time.

b. Payment

- 1) The unit price for this Item will be full compensation for furnishing and installing designated pipe as shown on the Drawings and specified herein; including but not limited to trench excavation, dewatering, furnishing and installing geotextile material, furnishing bedding material, placing bedding and backfill material, and all required testing including post-construction CCTV. Where DIP is specified for wastewater applications the price shall also include an interior ceramic epoxy lining.

4. 4' Diameter Precast Concrete Manhole

a. Measurement

- 1) The number of Precast Concrete Manholes to be paid for under this item shall be the actual number of 4' diameter manholes in place, tested, & accepted by the ENGINEER; categorized by the depth to be measured from the invert out to the top of rim. Manholes shall not be classified based on manhole type, accessories, or rim and cover.

b. Payment

- 1) The unit price for this Item will be full compensation for all labor, materials, tools, equipment, supervision, ring and cover, vent pipe and materials, excavation, dewatering, furnishing bedding material, placing bedding and backfill material, testing, and all other incidentals required to furnish and install the manhole, as shown on the Drawings and specified herein.

5. 4' Diameter Precast Concrete Doghouse Manhole

- a. Measurement
    - 1) The number of 4' diameter doghouse manholes to be paid for under this Item will be the number in place, tested, and accepted by the ENGINEER. Manholes shall be categorized by depth and measurement of depth shall be made from the invert out to the top of rim. Manholes shall not be classified based on manhole type, accessories, or rim and cover.
  - b. Payment
    - 1) The unit price bid for this Item will be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required to furnish doghouse manhole including but not limited to installing the doghouse manhole, ring and cover, vent pipe and materials, excavation, dewatering, furnishing bedding material, placing bedding and backfill material, testing, bypass pumping, connecting the new sewer line, forming the invert, and all other incidentals required to furnish and install the manhole, as shown on the Drawings and specified herein.
6. 5' Diameter Precast Concrete Manhole
- a. Measurement
    - 1) The number of Precast Concrete Manholes to be paid for under this item shall be the actual number of 5' diameter manholes in place, tested, & accepted by the ENGINEER; categorized by the depth to be measured from the invert out to the top of rim. Manholes shall not be classified based on manhole type, accessories, or rim and cover.
  - b. Payment
    - 1) The unit price for this Item will be full compensation for all labor, materials, tools, equipment, supervision, ring and cover, vent pipe and materials, excavation, dewatering, furnishing bedding material, placing bedding and backfill material, testing, and all other incidentals required to furnish and install the manhole, as shown on the Drawings and specified herein.
7. Bore & Jack 16" Steel Casing
- a. Measurement
    - 1) The length of steel casing installed by the bore & jack method to be paid for under this item will be the actual number of linear feet of casing pipe in place measured horizontally along the centerline of the installed steel casing pipe approved by the ENGINEER.
  - b. Payment
    - 1) The unit price for this Item will be full compensation for all labor, materials, tools, equipment, supervision, & incidentals required to furnish & install 16" 0.250-inch thick steel casing by the bore & jack method as shown on the Drawings & specified herein including excavation of bore and receiving pits, backfill, utility relocation, the installation of the steel casing, adherence to all US Army Corp of Engineer requirements, & all other incidentals required to

install the casing by the bore & jack method except as provided for in other bid items.

- c. The CONTRACTOR shall be prepared to bore through weathered rock or partially weathered rock, if encountered, with a specialized bit. Costs associated with this provision shall be deemed as included in the unit price bid & no additional payment will be made.
  - d. If an obstruction is encountered during the boring operation, efforts should be made to remove the obstruction. If obstruction cannot be removed, withdraw the encasement pipe & fill the void with 1:3 Portland cement grout at 50 psi. If the encasement pipe cannot be withdrawn, seal ends before moving to another bore site. Engineer shall approve location of new bore site.
    - 1) If it is found to be impossible to install the encasement pipe by boring due to rock or some other obstruction, payment will be made for the length of abandoned bore at the price bid for Bore & Jack 16" Steel Casing.
8. 8" DIP Carrier Pipe & Accessories
- a. Measurement
    - 1) The length of carrier pipe to be paid for under this item will be the actual number of linear feet of carrier pipe in place measured horizontally along the centerline of the installed carrier pipe approved by the ENGINEER categorized by the carrier pipe size & material.
  - b. Payment
    - 1) The unit price for this Item will be full compensation for all labor, materials, tools, equipment, supervision, & incidentals required to furnish & install the 8" DIP carrier in the steel casing as shown on the Drawings & specified herein including the installation of the carrier pipe, testing, restraints, casing spacers, end seals, and all other incidentals required to install the carrier pipe in the steel casing. Where DIP is specified for wastewater applications the price shall also include an interior ceramic epoxy lining.
9. Concrete Anti-Seepage Collar
- a. Measurement
    - 1) The number of concrete anti-seepage collars to be paid for under this Item will be the number in place and accepted by the ENGINEER.
  - b. Payment
    - 1) The unit price bid for this Item will be full compensation for all labor, materials, tools, equipment, supervision, and incidentals required to furnish the specified concrete anti-seepage collar including but not limited to installing the anti-seepage collar, concrete, concrete forming, rebar, excavation, dewatering, furnishing bedding material, placing bedding and backfill material, and all other incidentals required to furnish and install the anti-seepage collar, as shown on the Drawings and specified herein.

10. Silt Fence

- a. Measurement
    - 1) The length of silt fence to be paid for under this Item will be the actual number of linear feet of fencing installed, as shown on the Drawings and accepted by the ENGINEER.
  - b. Payment
    - 1) The unit price shall include all items required for complete installation of materials required to prevent sediment from entering drainage ways including maintenance and removal after job has been completed.
11. Silt Fence Outlet
- a. Measurement
    - 1) The number of silt fence outlets to be paid for under this Item will be the actual number of outlets installed, as shown on the Drawings and accepted by the ENGINEER.
  - b. Payment
    - 1) The unit price shall include all items required for complete installation including materials required to allow water to discharge & not cause damage to the silt fence including maintenance and removal after job has been completed.
12. Yard Inlet Protection
- a. Measurement
    - 1) The number of yard inlet protection devices to be paid for under this Item will be the actual number of structures installed, as shown on the Drawings and accepted by the ENGINEER.
  - b. Payment
    - 1) The unit price shall include all materials, labor, and items required for complete installation of the materials required to adequately prevent sediment from entering yard inlet, and removal upon disturbed areas having been reestablished.
13. Rock Check Dam
- a. Measurement
    - 1) The number of check dams to be paid for under this Item will be the actual number of dams installed, as shown on the Drawings, and accepted by the ENGINEER.
  - b. Payment
    - 1) The unit price shall include all material, labor, and items required for complete installation including maintenance and removal after job has been completed.
14. Erosion Control Matting (Jute Type)
- a. Measurement

- 1) The square yards of erosion control matting to be paid for under this Item will be the actual square yards of matting installed, as required by the Drawings and project specifications and accepted by the ENGINEER.

b. Payment

- 1) The unit price for this item shall be full compensation for all labor, materials, required tools, equipment, supervision, and incidentals required for complete installation of erosion control matting as shown on the Drawings, including weekly inspection and maintenance.

15. Site Maintenance & Restoration

a. Measurement

- 1) There will be no direct measurement of this Item.

b. Payment

- 1) The lump sum price shall include all final site grading, temporary seeding and mulching, final seeding and mulching of the disturbed area within the limits of disturbance, and removal of temporary erosion control measures after cover has been established, and shall be full compensation for all labor, materials, and equipment required to the site as shown on the Drawings and as described in the Specifications and accepted by all applicable permitting agencies, local erosion control officer, OWNER, the ENGINEER.
- 2) Any areas that are disturbed by the CONTRACTOR outside of the limits of disturbance as shown on the Drawings will be restored by the CONTRACTOR with all required final grading, temporary seeding and mulching, and final seeding and mulching at no additional cost to the OWNER.

16. Temporary Bridge Stream Crossing

a. Measurement

- 1) There will be no direct measurement of this Item.

b. Payment

- 1) The lump sum price shall include all items required for complete installation of the temporary bridge stream crossing, including clearing, bridge installation, associated silt fence, bridge materials, gravel, trenching, maintenance, and removal after the job has been completed.

17. Traffic Control

a. Measurement

- 1) There will be no direct measurement of this item.

b. Payment

- 1) The lump sum price shall include full compensation for all labor, materials, and equipment required to safely direct traffic through and around work areas, as shown on the Drawings and as described in the specifications and accepted by the OWNER and ENGINEER.

18. Remove and Replace Unsuitable Material with Select Fill

a. Measurement

- 1) The quantity of select fill to be paid under this item will be the number of cubic yards of select fill to replace unsuitable materials (excluding rock) at the approval of the ENGINEER. The measurement shall be "loose measurement" prior to placement & compaction. Measurement shall be made by measuring truck volumes at the time of delivery. The measurement shall be verified, approved, & recorded by the ENGINEER's Resident Project Representative at the time of delivery & placement in the trench.

b. Payments

- 1) The unit price for this item will be full compensation for excavating, furnishing and backfilling with select fill, and disposing of all unsuitable soils. No payment will be made for any select fill without prior approval by the ENGINEER.

19. Remove and Replace Unsuitable Material with #67 Stone

a. Measurement

- 1) The quantity of unsuitable materials excavated and replaced with #67 stone to be paid for under this item will be the number of cubic yards of #67 stone used to replace unsuitable materials at the approval of the ENGINEER. The measurement shall be "loose measurement" prior to placement & compaction. Measurement shall be made by measuring truck volumes at the time of delivery. The measurement shall be verified, approved, & recorded by the ENGINEER's Resident Project Representative at the time of delivery & placement in the trench. No measurement will be made for #67 stone used for initial backfill of gravity sewer pipe from bottom of pipe to 1 foot over top of pipe as shown on the Drawings.

b. Payment

- 1) The unit price for this item will be full compensation for excavating, furnishing and backfilling with compacted #67 stone, and disposing of all unsuitable soils excavated for which payment is not provided under other items in the bid form. No payment will be made for any undercut without prior approval by the ENGINEER. No payment will be made for #67 stone used for initial backfill of gravity sewer pipe from bottom of pipe to 1 foot over top of pipe as shown on the Drawings.

20. Rock Excavation

a. Measurement

- 1) The quantity of rock excavated and replaced with #67 stone to be paid for under this item will be the number of cubic yards of rock excavated at the direction of the ENGINEER as described elsewhere in these Specifications. The allowable volume to be considered for payment shall be the actual volume except the maximum volume shall be limited to the following:

a) Trench Rock Excavation

- I. Trench rock excavation shall be measured as having vertical sides, a maximum width equal to the actual width of the rock band but limited to the maximum allowable trench width plus an additional 16 inches for trench box walls (if used), a length equal to the actual length of the rock band, and an average rock height measured from below the top of rock to not more than 6 inches below the design elevation of the pipe as field measured by the ENGINEER or Resident Project Representative.

b) Structure Rock Excavation

- I. Structure rock excavation shall be measured as having vertical sides; a maximum horizontal dimension equal to the actual horizontal dimension of the rock band but limited to 12 inches outside the exterior structure wall plus an additional 16 inches for trench box walls (if used), a length equal to the actual length of the rock band, and an average rock height measured from below the top of rock to not more than 6 inches below the design elevation of the pipe as field measured by the ENGINEER or Resident Project Representative.

c) Bore Pit Rock Excavation

- I. Rock encountered during excavation of the bore pits shall be measured as having vertical sides. The width shall be the actual width of the rock band but limited to 20 feet. The length shall be the actual length of the rock band but limited to 40 feet for the boring pit and 20 feet for the receiving pit. The height shall be the average rock height measured from below the top of rock to not more than 6 inches below the design elevation of the steel casing as field measured by the ENGINEER or Resident Project Representative.

b. Payment

- 1) The unit price for this item will be full compensation for measuring, excavating, replacing with compacted #67 stone, and disposing of all rock excavated for which payment is not provided under other items in the bid form. No payment will be made for any rock excavation without prior approval by the ENGINEER.

21. Compaction Testing (Allowance)

a. Measurement

- 1) There will be no direct measurement of this Item.

b. Payment

- 1) The CONTRACTOR shall include as part of the bid an allowance to pay for charges originating from compaction testing, as requested by ENGINEER. The CONTRACTOR will be entitled to actual cost as shown by invoices obtained from testing facility plus 15% for overhead and profit. Invoices shall be produced by the CONTRACTOR and verified by ENGINEER prior to payment. If test fails CONTRACTOR shall be responsible for coordination and payment of all subsequent tests to ensure adequate compaction of the failing areas.

END OF SECTION

SECTION 02 27 40  
GEOTEXTILES

PART 1 GENERAL

- A. The Contractor shall furnish and install all Geotextiles, including all necessary and incidental items, as detailed or required for the Contractor to complete the installation in accordance with the Drawings and these Specifications. The CONTRACTOR shall furnish and install the pump(s) per the manufacturers’ recommendations.
- 1.02. SUBMITTALS
- A. Prior to shipping to the site, the Contractor shall submit to the Engineer shop drawings for geotextiles.
  - B. The Engineer shall be furnished copies of the delivery tickets or other acceptable receipts as evidence for materials received that will be incorporated into construction.
- 1.03. WARRANTY
- A. All materials shall be warranted to be free from defects in workmanship and materials for one (1) year following final acceptance by the OWNER.

PART 2 PRODUCTS

2.01. GEOTEXTILE MATERIALS

A. TABLE 1 - MINIMUM REQUIRED GEOTEXTILE PROPERTIES

GEOTEXTILE PROPERTY	Minimum Average Roll Value
Geotextile Construction	Woven
Ultraviolet Resistance, (500 hrs.) ASTM D4355, Average % Strength Retention	70
Grab Tensile Strength (lbs.), ASTM D4632	200
Grab Tensile elongation (%) ASTM D4632	15
Trapezoidal Tear (lbs.), ASTM D-4533	75 MD x 75 CD
CBR Puncture Strength (lbs.), ASTM D-6241	700
Apparent Opening Size (AOS), ASTM D-4571	40 US Std. Sieve
Permittivity (sec <sup>-1</sup> ), ASTM D-4491	.05

Flow Rate (gal/min/sq ft), ASTM D-4491	5
---	---

PART 3 EXECUTION

3.01. SHIPPING, HANDLING AND STORAGE

- A. During all periods of shipment and storage, all Geotextiles shall be protected from direct sunlight, temperature greater than 140°F. water, mud, dirt, dust, and debris. Inspect the system prior to delivery, supervise the startup and testing of the system, and certify the system has been properly furnished and is ready for operation.
- B. To the extent possible, the Geotextile shall be maintained wrapped in heavy-duty protective covering until use. Geotextile delivered to the project site without protective covering shall be rejected. After the protective covering has been removed, the Geotextile shall not be left uncovered for longer than three (3) days, under any circumstances.
- C. The Owner shall approve the shipping and delivery schedule prior to shipment. The Owner shall designate the on-site storage area for the Geotextiles. Unloading and storage of Geotextiles shall be the responsibility of the Contractor.
- D. Geotextiles that are damaged during shipping or storage shall be rejected and replaced at Contractor expense.

3.02. QUALITY ASSURANCE CONFORMANCE TESTING

- A. At the option of the Engineer representative samples of Geotextiles shall be obtained and tested by the Engineer to assure that the material properties conform with these Specifications. Conformance testing shall be conducted by the Engineer and paid for by the Owner.
- B. Conformance testing shall be completed at a minimum frequency of one sample per 100,000 square feet of Geotextile delivered to the project site. Sampling and testing shall be as directed by the Engineer.
- C. Conformance testing of the Geotextiles shall include but not be limited to the following properties:
  - 1. Mass Per Unit Area (ASTM D3776)
  - 2. Thickness (ASTM D5199)
  - 3. Grab Tensile Strength (ASTM D4632)
  - 4. Burst Strength (ASTM D3786)
  - 5. Puncture Resistance (ASTM D4833)
- D. The Engineer may add to, remove or revise the test methods used for determination of conformance properties to allow for use of improved methods.
- E. All Geotextile conformance test data shall meet or exceed requirements outlined in Table 1 of these Specifications for the particular category of Geotextile prior to installation. Any materials that do not conform to these requirements shall be retested or rejected at the direction of the Engineer.

- F. Each roll of Geotextile will be visually inspected by the Engineer or his representative. The Engineer reserves the right to sample and test at any time and reject, if necessary, any material based on visual inspection or verification tests.
- G. A Geotextile that is rejected shall be removed from the project site and replaced at the Contractor's expense. Sampling and conformance testing of the Geotextile supplied as replacement for rejected material shall be performed by the Engineer at Contractor's expense.

3.03. INSTALLATION

- A. Geotextiles shall be placed to the lines and grades shown on the Drawings. At the time of installation, the Geotextile shall be rejected by the Engineer if it has defects, rips, holes, flaws, evidence of deterioration, or other damage.
- B. The Geotextiles shall be placed smooth and free of excessive wrinkles.
- C. When the Geotextiles are placed on slopes, the upslope fabric portion shall be lapped such that it is the upper or exposed Geotextile.
- D. Geotextiles shall be temporarily secured in a manner accepted by the Engineer prior to placement of overlying materials.
- E. In the absence of specific requirements shown on the Drawings, the following shall be used for overlaps of adjacent rolls of Geotextile:

GEOTEXTILE TYPE/ APPLICATION	OVERLAP OF ADJACENT ROLLS <sup>(1)</sup> (INCHES)	TRANSVERSE END OVERLAP (INCHES)
Filter Geotextile	6 min	12 min
Cushion Geotextile	12 min	12 min
Separator-Roadway Applications	12 min	24 min
Separator-Slope Protection	18 min	24 min
Separator Geotextile	12 min	18 min
Reinforcing Geotextile	(2)	(2)

- (1) OVERLAPS MAY BE REDUCED IF ADJACENT PANELS ARE SEWN OR HEAT BONDED WHERE APPROVED BY THE ENGINEER.
- (2) OVERLAP IS DESIGN-SPECIFIC AND SHOWN ON DRAWINGS WHERE APPLICABLE.

- F. Any Geotextile that is torn or punctured shall be repaired or replaced as directed by the Engineer by the Contractor at no additional cost to the Owner. The repair shall consist of a patch of the same type of Geotextile placed over the failed areas and shall overlap the existing Geotextile a minimum of 12-inches from any point of the rupture.
- G. Damage to Reinforcement Geotextile shall be repaired by removal of the entire affected panel and replaced with new material.

- H. Any Geotextile that is subjected to excessive sediment buildup on its surface during construction shall be replaced by the Contractor prior to placement of overlying material.

END OF SECTION