



REQUEST FOR BID

JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4

Bid Number 2020-PME-14

August 2020

Bid Opening

Tuesday, October 6, 2020 at 10:00 a.m. (local time)
1600 Battle Creek Road, Morrow, Georgia 30260

**Non-mandatory Pre-Bid
Virtual Teams meeting**

Tuesday, September 22, 2020 at 10:00 a.m. (local time)

Call-In Instructions

[Join Microsoft Teams Meeting](#)
Toll number: +1 912-483-5368
Conference ID: 852 627 763#

This bid has a SLBE bid discount

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- A) Geotechnical Report:
Subsurface Investigation, Jesters Creek Outfall Replacement Phase IV, Jonesboro, Clayton County, Georgia, GeoSystems Project No. 20-2730, March 24, 2020.
- B) Geotechnical Report:
Subsurface Investigation, Horizontal Directional Drill Addendum Report, Jesters Creek Outfall Replacement Phase IV, Jonesboro, Clayton County, Georgia, GeoSystems Project No. 20-2730, June 16, 2020.
- C) Interim Waiver and Release Upon Payment.
- D) Waiver and Release Upon Final Payment.
- E) Vendor Form.

Construction Drawings

Attached.

Addenda

None issued at this time.

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Division 1

General Information

Section 1: Request for Bids

Clayton County Water Authority
1600 Battle Creek Road
Morrow, Georgia 30260

Name of Project: **Jesters Creek Outfall Replacement – Phase 4**

The Clayton County Water Authority will open sealed bids from licensed contractors at its offices located at 1600 Battle Creek Road, Morrow, Georgia 30260, on **Tuesday, October 6, 2020 at 10:00 a.m. (local time)** for the Jesters Creek Outfall Replacement – Phase 4 project. Any bids received after the specified time will not be considered.

A non-mandatory pre-bid virtual Teams meeting followed by a non-mandatory site visit will be held on **Tuesday, September 22, 2020 at 10:00 a.m. (local time)**. Please use the following call-in instructions to attend this meeting:

[Join Microsoft Teams Meeting](#)

Toll number: +1 912-483-5368
Conference ID: 852 627 763#

Parking locations for the Site Visit are as follows:

- 816 Jesters Lake Drive Jonesboro, GA 30236 (Staging Area # 1),
- 865 Battle Creek Road Jonesboro, GA 30236 (Staging Area #2),
- And 826 South Nottingham Road Jonesboro, GA 30236 (Staging Area #3)

CCWA encourages Small Local, Minority and Women-Owned businesses to participate and respond to this bid request.

In an effort to promote responsible environmental practices a link to the bid package will be provided via email upon request by e-mailing **CCWA_Procurement@ccwa.us**. A hardcopy bid package can also be requested at a cost of \$200.00.

Clayton County Water Authority
By: *Robin Malone, Chairperson*

END OF SECTION

Division 1

General Information

Section 2: General Overview

2.1 Intent and Purpose

The Clayton County Water Authority (CCWA) intends to contract with an experienced licensed utility contractor to complete the Jesters Creek Outfall Replacement – Phase 4 Project. The purpose of the Project is to install approximately 6,600 linear feet of new 18-inch gravity-flow sanitary sewer replacing an existing 10-inch and 15-inch gravity-flow sanitary sewer. Multiple reconnections of smaller existing sewers will be required to complete the work.

The majority of the new sanitary sewer work will be completed in the same location and alignment as the existing sanitary sewer using standard excavation techniques and trenchless techniques. Specifications herein and the Construction Drawings describe the details of the work to be completed.

2.2 Bid Evaluation

A contract will be awarded to the lowest responsive responsible bidder whose bid conforms to the Request for Bid specifications and will be the most advantageous to the CCWA. An evaluation will also be performed to ensure bidder complies with the required submittals. Determination of best responsive responsible bidder will be the sole judgment of the CCWA.

To be considered responsive to this bid, bidders are required to bid on all work items listed on the Bid Form, and complete and provide all required bid submittals as listed on the Bid Submittal Requirements.

Small Local Business Enterprise (SLBE) bid discount:

This procurement has a SLBE bid discount for evaluation purposes only, which will be given to CCWA certified SLBE primes only. For more details, please refer to Division 2, Section 8 of this bid package.

2.3 Addendum

Bidders may ask questions regarding this bid prior to the bid opening. To be considered, all questions must be received in writing via email to **CCWA_Procurement@ccwa.us** by **10:00 a.m. (local time) on Thursday, September 24, 2020**. Any and all responses to bidders' questions will be issued in the form of an Addendum via email. All addenda issued shall become part of the Bid Documents.

END OF SECTION

Division 2

Bid Requirements

Section 1: Instructions to Bidders

These instructions are to be followed by every entity bidding to provide the Clayton County Water Authority (CCWA) with goods and/or services. These instructions constitute an integral part of the Bid, and any Bidder agrees that tender of a Bid constitutes acknowledgment and acceptance of its obligation to adhere to these instructions, which are to be incorporated into and considered part of any contract the Bidder ultimately executes with the CCWA.

1. If there is any question whatsoever regarding any portion of the specifications, it shall be the Bidder's responsibility to seek clarification immediately from the CCWA, as early as possible prior to the bid opening. Regarding public works projects, requests for interpretations of specifications must be made in writing to the department proposing out the project not later than five (5) days prior to receipt of bids.
2. Unless it is otherwise stated in the bid documents, it shall be the responsibility of the bidder to inform itself as to all conditions of the work site and to make and take account thereof in calculating and submitting its bid. Documents may be made available by the CCWA during the bidding process; no warranty of accuracy is made in regard to these documents, and it is the responsibility of the bidder to make its own investigations as to the nature of the work and the conditions under which it shall be performed, and to make its own independent assumptions as to these matters. The burden of anticipating unforeseen circumstances, either hidden or latent, and the conditions of the work site and all related circumstances, and the cost of accommodating therefore should unanticipated circumstances be later encountered shall rest upon the bidder.
3. Pre-bid meeting or any other information session will be held at the location as indicated in the solicitation. Unless indicated otherwise, attendance is not mandatory; although vendors are strongly encouraged to attend. However, in the event the meeting is mandatory, then a representative of the vendor must attend the meeting in its entirety to be considered eligible for solicitation award. Late entry to the meeting will not be allowed.
4. In the event that, after the acceptance of a bid by the Board of Directors of the CCWA, any unsuccessful bidder wishes to contest such action, a written "Notice of Contest" must be filed with the General Manager no later than close of business on the 5th business day after the selection of successful bidder by the Board. Failure to timely file such notice shall forever preclude the filing of a

Division 2

Bid Requirements

Section 1: Instructions to Bidders

- contest of the award, or any civil action in the courts of the State of Georgia or of the United States.
5. Information submitted by the Bidder in the bid process shall be subject to disclosure after bid award in accordance with the Georgia Open Records Act. Proprietary information must be identified and be accompanied by a signed affidavit outlining the redacted information. Entire bids may not be deemed proprietary.
 6. Bids must be made on the enclosed Bid Form. Unless otherwise requested, one (1) original and at least two (2) copies of the Bid Form need to be submitted, and these copies must be **typewritten or printed in ink**. All copies of any Bid Forms must be signed in ink by the person or persons authorized to sign the Bid Form. The person signing the Bid Form must initial any changes or corrections.
 7. The name of the person, firm, or corporation making the Bid must be printed in ink, along with the Bidder's signature, on all separate sheets of the Bid Form. If a Bid is made by an individual, his name and post office address must be shown. If made by a firm, or partnership, the name and the post office address of each member of the firm or partnership must be shown. If made by a Corporation, the person or persons signing the Bid must show the name of the State under the laws of which the Corporation is chartered and his, or their authority for signing same. The names, titles and addresses of the President, Secretary and the Treasurer and the corporate authority for doing business in this state shall be listed and returned with the Bid Form.
 8. All Bids must be hand delivered, delivered by courier service, or mailed via the United States Postal Service. No facsimiles will be accepted. The person, firm, or corporation making the Bid shall submit it in a sealed envelope on or before the date and time specified in the Bid package. The envelope shall be marked "**Sealed Bid**" and carry the Bid title, and date and time of opening as set forth in the Bid package. The envelope shall also bear the name of the party making the Bid and the party's address. Address Bids to *Clayton County Water Authority, 1600 Battle Creek Road, Morrow, Georgia, 30260*. Even if a Bid is not submitted, the Bid Form should be returned signed and with an explanation, otherwise the result will be deletion from the mailing list.
 9. If published price books are a part of your Bid, one price book must be included with your Bid Form, and the successful Bidder is required to furnish additional current price books after award of the Bid.

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Bid Requirements

Section 1: Instructions to Bidders

10. Alterations to the documents are strictly prohibited and shall result in automatic disqualification of the Bidder's bid. If there are "exceptions" to the specifications or comments to any of the solicitation requirements or other language, then the bidder may ask questions regarding those requirements or submit additional documentation as to the variation from the specifications, but may not alter any of the language contained in the solicitation.
11. In the case of goods, the person, firm or corporation making the Bid may Bid all items. All items may be considered separately, at the discretion of the CCWA.
12. Bids for public works whose price exceeds \$100,000.00 must be accompanied by a certified check, cashier's check, or acceptable bid bond in an amount not less than five percent (5%) of the amount bid.
13. Bidders for construction contracts where the laws of Georgia or the United States of America require a license in order to perform such construction must list the license number and class on the face of the bid envelope and must enclose copies of any required license with the bid.
14. When public work is let out for bid, no person shall prevent or attempt to prevent competition in such bid. Such bidders must make an oath filed with the officer who makes payments under the contract that they have not prevented or attempted to prevent competition in the bid process. Such oath must be signed by: if a partnership, all partners and any officer or agent or other person who acted on the partnership's behalf during the bid process; if a corporation, all officers, agents, or other persons who acted for the corporation in the bid process.
15. Bids shall not be withdrawn or cancelled by the bidder past the bid opening date and time. The bidder may make modifications/corrections to the bid by submitting a corrected seal bid but only if the change is prior to the bid opening. The corrected document should be clearly marked that it supersedes the bid originally submitted. No modification or corrections will be allowed subsequent to the bid opening.
16. By tendering a bid, a Bidder agrees to leave the bid open for acceptance by the CCWA for sixty (60) days after the date set for the opening thereof.
17. By tendering a bid, the bidder certifies that the bidder has carefully examined these instructions and the terms and specifications applicable to and made a part of the bid. The Bidder further certifies that the prices shown in any schedule of

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Bid Requirements

Section 1: Instructions to Bidders

items on which the Bidder is proposing are in accordance with the conditions, terms and specifications of the bid and that they are aware that any exception taken thereto may disqualify the bid. Bidders are required to inform themselves fully as to the availability of materials and the conditions relating to construction and labor under which any work will be or is now being performed. No error or misjudgment nor any lack of information on local conditions, general laws or regulations on the part of the Bidder shall merit withdrawal of the bid.

18. Copies of all communication pertaining to bids must be sent to the Contracts, Compliance and Risk Management Section.
19. The purpose of this bid is to establish contract prices. Unit price extension and net total must be shown if applicable. Cash discounts should be indicated separately. Any applicable sales taxes should be included in the unit prices for all materials to be provided by the successful Bidder.
20. Bidders are hereby notified and agree by submission of a Bid Form that if additional items not listed in the Bid Form become necessary and require unit prices not established by the Bid Form, the unit prices of such items shall be negotiated and shall be directly proportional to the established unit prices of similar items in the Bid Form.
21. All prices on goods shall be for delivery, our destination, f.o.b. freight prepaid Jonesboro, Georgia, and/or Morrow, Georgia, unless otherwise shown. Any deliveries shall be made as needed and requested throughout the contract period.
22. Quantities when shown are estimates only, based on anticipated needs. The CCWA reserves the right to purchase more or less based on actual need at contract price. If a Bidder intends to offer minimum or maximum shipment quantities, such intent and such quantities should be specified on the Bid Form. Otherwise, none will be assumed.
23. The time for completion of the work is stated in the Bid Form. Failure to complete the work within this period shall result in payment to the CCWA of liquidated damages in an amount provided for by contract for each calendar day in excess of the Contract time.
24. The Bidder must employ such methods and means in carrying out the work as will not cause any interruption of or interference with any other Contractor.

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Bid Requirements

Section 1: Instructions to Bidders

25. The successful Bidder must comply with the applicable Risk Management Requirements prior to beginning performance, and during the contract period.
26. The Contract between the CCWA and the Contractor shall be executed on a form provided by CCWA and will be subject to all requirements of the contract documents (which include but may not be limited to the Contract, these instructions, any Purchase Orders, and the Risk Management Requirements), and shall form a binding contract between the contracting parties.
27. Failure to execute the Contract, any required Surety Performance and Payment Bonds, or to furnish any required satisfactory proof of carriage of required insurance within ten (10) days from the date of notice of award of the Contract shall be just cause for the annulment of the award and for forfeiture of the bid guaranty to the CCWA, not as a penalty, but in liquidation of damages sustained. At the discretion of the CCWA, the award may then be made to the next lowest responsible vendor, or the work may be re-advertised or constructed by the CCWA.
28. Any Contract and Contract Bonds shall be executed in duplicate.
29. Award of this bid shall be by action of the CCWA Board at its regular monthly meeting.
30. The CCWA reserves the right, with or without notice or cause, to accept any bid regardless of the cost thereof; to reject any bid, or any number of bids; to negotiate with any Bidder for a reduction of or alterations in its bid; to reject all bids and to call for additional bids upon the same or different invitations to bid, plans or specifications; to be sole judge, in its discretion, on all questions as to whether or not a bid complies with the invitation to Bid, the plans or the specifications, and as to the solvency and sufficiency of any and all sureties on all bonds.
31. The apparent low bid for goods shall be considered to be the lowest aggregate total price of specified products at their unit prices times the estimated required quantities of these specified products.
32. Bids received from two (2) or more vendors that are identical in price, delivery and meet the requirements of the bid specifications shall be awarded on the following basis:
 - a. The bid submitted by a vendor who does not have a documented negative

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Bid Requirements

Section 1: Instructions to Bidders

- vendor performance record.
 - b. The bid submitted by a vendor who is located within Clayton County.
 - c. The bid submitted by a vendor who is certified by our Small Local Business Enterprise Program.
 - d. If the tie bids meet all the above criteria, and it is not in CCWA's best interest (at its sole discretion) to split the award, the bid award is based on the toss of a coin by CCWA staff in a public session. The vendors involved will be invited to attend the coin toss at a stated date and time. One or more witnesses from both CCWA Procurement and the Request Department may be present. A simple coin toss (called by the vendor listed first in the alphabet) will break the tie and decide the award.
33. While price is the prime criteria, and the CCWA intends to purchase at the lowest responsible bid available, price shall not be the sole criteria utilized by the CCWA in evaluating the bid package submitted. The following criteria shall also be utilized by the CCWA in determining the lowest responsible bid:
- a. Ability of Bidder to perform in the time frame needed by the CCWA.
 - b. Reputation of the Bidder in its industry.
 - c. Reasonableness of the bid in relation to anticipated costs.
 - d. Ongoing relationships with the CCWA based on above-average prior performance of work with CCWA.
34. Bidders are notified that CCWA reserves the right except in the case of public works contracts to include among the factors considered in awarding the contract the proximity of each Bidder's place of business to any affected Authority facility. CCWA further reserves the right to award the contract to a Bidder other than the Bidder offering the lowest price where: (a) the difference in price between the low Bidder and the preferred Bidder is nominal; and (b) CCWA's Board determines that the preferred bid provides the most cost effective option due to the closer proximity of the preferred Bidder's place of business to the affected Authority facility or facilities. In such a situation, by responding to this bid, the Bidder waives any cause of action against CCWA for frustration of bid or under any similar legal theory; furthermore, the Bidder agrees to pay all costs and expenses, including but not limited to attorney fees, incurred by CCWA in defending against any such claim.

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Bid Requirements

Section 1: Instructions to Bidders

35. It is the policy of the Clayton County Water Authority (CCWA) to promote award of sub-agreements for goods and/or services to qualified minority and women-owned businesses. Bidders are encouraged to solicit minority and women-owned businesses whenever they are potential sources.
36. Bidders are encouraged to utilize the services and assistance of the U.S. Small Business Administration (SBA), and the office of the Department of Commerce Minority Business Development Agency (MBDA). These agencies can provide assistance in securing the names of qualified minority and women-owned businesses. Additionally, it is encouraged that bidders access certified Small Local Business Enterprise (SLBE) vendors from Clayton County, DeKalb County, and City of Atlanta.

The Georgia Department of Transportation (DOT) has established a list of qualified Disadvantaged Business Enterprises. Information is available online under the tab for “Directories”, link for “UCP Directory - Excel” at:

<http://www.dot.ga.gov/PS/Business/DBE>.

The successful Bidder will be asked to provide, along with his Request for Payment each month a list of qualified SLBE and MBE/WBE businesses utilized on this Project.

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT OF 2006

37. Pursuant to the Georgia Security and Immigration Compliance Act of 2006, the successful Contractor understands and agrees that compliance with the requirements of O.C.G.A.13-10-91 and Georgia Department of Labor Rule 300-10-02 are conditions of this bid and contract document. The Contractor further agrees that such compliance shall be attested by the Contractor and any of his Subcontractors by execution of the appropriate Affidavit and Agreement included after the Agreement Form of these documents.

END OF SECTION

Division 2

Bid Requirements

Section 2: Risk Management Requirements

The Contractor will provide minimum insurance coverage and limits as per the following: The Contractor will file with CCWA Certificates of Insurance, certifying the required insurance coverages and stating that each policy has been endorsed to provide thirty (30) day notice to CCWA in the event that coverage is cancelled, non-renewed, or the types of coverage or limits of liability are reduced below those required. All bonds and insurance coverage must be placed with an insurance company approved by CCWA's Management, admitted to do business in the State of Georgia, and rated Secure ("B+" or better) by A.M. Best Company in the latest edition of Property and Casualty Ratings, or rated by Standard & Poors Insurance Ratings, latest edition as Secure ("BBB" or better). Worker's Compensation self-insurance for individual Contractors must be approved by the Worker's Compensation Board, State of Georgia and/or Self-Insurance pools approved by the Insurance Commissioner, State of Georgia.

CONTRACTS FOR UP TO \$50,000

Worker's Compensation – Worker's Compensation coverage on a statutory basis for the State of Georgia with an Employer's Liability limit of \$100,000 each Accident, Disease \$100,000 each employee, \$500,000 Disease policy limit.

Automobile Liability – Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$500,000 combined single limit.

Commercial General Liability – Coverage to be provided on "occurrence" not "claims made" basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground ("xcu") perils, the "Clayton County Water Authority" is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

CONTRACTS FOR MORE THAN \$50,000

Worker's Compensation – Worker's Compensation coverage on a statutory basis for the State of Georgia with an Employer's Liability limit of \$1,000,000. The increased Employer's Liability limit may be provided by an Umbrella or Excess Liability policy.

Automobile Liability - Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$1,000,000 combined single limit.

Commercial General Liability – Coverage to be provided on "occurrence" not "claims made" basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground ("xcu") perils, the "Clayton County Water Authority" is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

Division 2

Bid Requirements

Section 2: Risk Management Requirements

RISK MANAGEMENT REQUIREMENTS (Cont'd)

CONTRACTS FOR UP TO \$50,000

CONTRACTS FOR MORE THAN \$50,000

LIMITS OF LIABILITY:

\$1,000,000	Per Occurrence
\$1,000,000	Personal and Advertising
\$50,000	Fire Damage*
\$5,000	Medical Payments*
\$1,000,000	General Aggregate
\$1,000,000	Products/Completed Operations per Occurrence and Aggregate

**These are automatic minimums*

Owner's Protective Liability – CCWA's Management may, in its discretion, require Owner's Protective Liability in some situations. However, it is not required for this project.

Umbrella and/or Excess Liability – The Umbrella or Excess Liability Policy may be used to combine with underlying policies to obtain the limits required. The Management of the CCWA is requiring a \$5,000,000 Umbrella or Excess Liability Limit for this project.

Owner's Protective Liability – CCWA's Management may, in its discretion, require Owner's Protective Liability in some situations. However, it is not required for this project.

END OF SECTION

Division 2

Bid Requirements

Section 3: Bid Submittals

3.1 Bid Submittal Requirements:

The following items are required to be included as part of the bid submittal. Failure to include any of these items may result in the bid being deemed non-responsive.

- A. Bid Form.
- B. Georgia Bid Bond in the amount of five percent (5%) of the total bid amount.
- C. Bidder Qualification Information Form including References.
- D. Georgia Security and Immigration Compliance Act of 2006 form.
- E. Contractor Affidavit and Agreement form.
- F. Subcontractor Affidavit form.

If a Contractor/Subcontractor will not be performing any services under this contract, the Contractor/company submitting the bid MUST also complete, sign, date, and have both Affidavit forms notarized and make proper notation of "N/A" - Not Applicable.

Clayton County Water Authority (CCWA) cannot consider any bid which does not include completed affidavits. It is not the intent of this notice to provide detailed information or legal advice concerning the Georgia Security & Immigration Compliance Act of 2006, as amended on May 11, 2009. All Bidders intending to do business with CCWA are responsible for independently apprising themselves and complying with the requirements of that law and its effect on CCWA procurements and their participation in those procurements.

- G. SLBE Forms. An indication of "N/A" for "not applicable" must be noted as appropriate.
- H. Non-Collusion Certificate.
- I. W-4.
- J. Vendor registration form.
- K. Addenda (if any).

END OF SECTION

Division 2

Bid Requirements

Section 4: Bid Form

Bid of _____

(Hereinafter "Bidder"), organized and existing under the laws of the State of _____,

doing business as _____ (insert "a corporation," "a partnership," or "an individual" or such other business entity designation as is applicable).

To the Clayton County Water Authority (hereinafter "CCWA").

In compliance with the Request for Bids, Bidder hereby proposes to perform all Work for **Jesters Creek Outfall Replacement – Phase 4** in strict accordance with the Contract Documents as enumerated in the Request for Bids, within the time set forth therein, and at the prices stated below.

By submission of this bid, Bidder certifies, and in the case of joint bid each party thereto certifies as to the party's own organization that this bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor. Bidder also certifies compliance with the Instructions to Bidders.

In submitting this bid, Bidder certifies Bidder is qualified to do business in the state of Georgia as required by laws, rules and regulations or, if allowed by statute, covenants to obtain such qualification prior to contract award.

CONTRACT EXECUTION AND BONDS:

The undersigned Bidder agrees, if this bid is accepted, to enter into an Agreement with CCWA on the form included in the Documents to perform and furnish Work as specified or indicated in the Documents for the Contract Price derived from the bid and within the times indicated herein and in accordance with the other terms and conditions of the Documents.

Bidder accepts the terms and conditions of the Documents.

INSURANCE:

Bidder further agrees that bid amount(s) stated herein includes specific consideration for the specified insurance coverage.

Division 2

Bid Requirements

Section 4: Bid Form

CONTRACT TIME:

Bidder hereby agrees to commence work within fourteen (14) calendar days under this contract or on a date to be specified in the Notice to Proceed. The total time for the Bidder to complete this project shall not exceed three hundred and forty-three (343) calendar days. The Bidder and CCWA recognize that time is of the essence in completing this work and that there are delays, expense and difficulties involved in resolving a dispute related to a loss suffered by CCWA if the Work is not completed on time. Accordingly, instead of requiring such proof, CCWA and Bidder agree that as liquidated damages for delay (but not as a penalty), the Bidder shall pay to CCWA, as liquidated damages the amount of five hundred dollars (\$500.00) per calendar day for each and every day or part of a day thereafter that any work as described in the Contract Documents remains incomplete and/or not accepted by CCWA.

PAYMENT TERMS:

Payment terms are net thirty (30) days after approval of completed work and receipt of a detailed payment application.

RETAINAGE:

Bidder accepts the provisions in the Agreement Form as to retainage.

ADDENDA:

Bidder acknowledges receipt of the following Addenda:

SURETY:

The project work will require Performance and Payment Bonds prior to the commencement of the work. Such work shall not commence until approval of such bonds has been given by CCWA.

BID:

The undersigned proposes to complete, in all respects, sound and conformable with this Contract Document the work for the amounts as shown on the following Pay Item Schedule.

Division 2

Bid Requirements

Section 4: Bid Form

Pay Item Schedule						
No.	Work Item	Detail	Unit	Estimated Quantity	Unit Price	Extended Total
1	Mobilization	Not to exceed 5%	LS	1		
2	Easement Clearing	N/A	SF	388,835		
3	Silt Fence Installation	N/A	LF	7,808		
4	Silt Fence Removal	N/A	LF	7,808		
5	Construction Access Road Installation	N/A	LF	5,727		
6	Construction Access Road Removal	N/A	LF	5,727		
7	Erosion and Sediment Control Installation	N/A	SF	432,039		
8	Sod Installation	N/A	SF	51,225		
9	Permanent Re-Grassing	N/A	SF	54,000		
10	NPDES Monitoring and Reporting	N/A	LS	1		
11	Permanent Fence Replacement	N/A	LF	3,395		
12	Temporary Fence	Install/Remove	LF	7,283		
13	Asphalt Placement	N/A	SF	45,850		
14	Pavement Striping	N/A	LF	1,894		
15	Concrete Placement	N/A	CF	10,910		
16	Concrete Curb Placement	N/A	LF	1,127		
17	Tie-In No. 1	N/A	LS	1		

Division 2

Bid Requirements

Section 4: Bid Form

Pay Item Schedule						
No.	Work Item	Detail	Unit	Estimated Quantity	Unit Price	Extended Total
18	Tie-In No. 2	N/A	LS	1		
19	Cased Crossing No. 1	Casing	LF	110		
20		Pipe	LF	110		
21	Cased Crossing No. 2	Casing	LF	34		
22		Pipe	LF	34		
23	Primary 18-inch Pipe Installation	N/A	LF	6,524		
24	Secondary 8-inch Pipe Installation	N/A	LF	369		
25	Service Re-Connection	Initial 20 Feet	EA	47		
26		Additional Footage	LF	338		
27	Primary 4-ft Diameter Manhole Installation	Base	EA	33		
28		Riser	VF	259		
29	Secondary 4-ft Diameter Manhole Installation	Base	EA	6		
30		Riser	VF	41		
31	Manhole Invert Construction	4-Foot Diameter	EA	39		
32	Unsuitable Soil Excavation	N/A	CF	8,000		
33	Rock Excavation	N/A	CF	8,000		
34	Pipe Collar Installation	N/A	EA	12		

Division 2

Bid Requirements

Section 4: Bid Form

Pay Item Schedule						
No.	Work Item	Detail	Unit	Estimated Quantity	Unit Price	Extended Total
35	Demolition Bulkhead Installation	N/A	EA	102		
36	Demolition Pipe Grouting	N/A	CF	4,870		
37	Demolition Manhole Abandonment	Riser Removal	VF	52		
38		Gravel Fill Existing Manholes	VF	70		
39	Unforeseen Existing Conditions Allowance	N/A	Allowance	1	\$100,000.00	\$100,000.00
TOTAL BID AMOUNT						

N/A = Non-applicable; LS = Lump Sum; LF = Linear Foot; SF = Square Foot; CF = Cubic Foot; EA = Each; VF = Vertical Foot.

Submitted by:

 (Name of Bidder)

Is the Bidder a CCWA certified SLBE? YES NO

County: _____

Division 2

Bid Requirements

Section 4: Bid Form

I have read and understand the requirements of this request for bid and agree to provide the required goods and services in accordance with this bid and all attachments, exhibit(s), and drawings.

Submitted by:

(COMPANY NAME OF BIDDER)

By: (OFFICER NAME)

(SIGNATURE)

(TITLE)

(DATE)

(COMPANY ADDRESS)

(CITY, STATE, ZIP CODE)

PHONE NUMBER:

EMAIL ADDRESS:

WEBSITE:

DATE:

UTILITY CONTRACTOR'S
LICENSE NUMBER:

END OF SECTION

Division 2

Bid Requirements

Section 5: Georgia Bid Bond

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that _____

herein after called the PRINCIPAL, and _____

a corporation duly organized under the laws of the State of _____

having its principal place of business at _____

_____ in the State of _____

and authorized to do business in the State of Georgia as SURETY, are held and firmly bound unto Clayton County Water Authority, as OWNER, hereinafter called the OBLIGEE, in the sum of _____

_____ DOLLARS (\$ _____)

for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the Principal is herewith submitting his or its Bid for **Jesters Creek Outfall Replacement – Phase 4**, and said Bid, by reference thereto, being hereby made a part hereof.

WHEREAS, the PRINCIPAL contemplates submitting or has submitted a Bid to the OBLIGEE for the furnishing of all labor, materials (except those to be specifically furnished by the Owner), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Bid and the documents, entitled: **Jesters Creek Outfall Replacement – Phase 4**.

Division 2

Bid Requirements

Section 5: Georgia Bid Bond

WHEREAS, it was a condition precedent to the submission of said Bid that a cashier's check, certified check, or Bid Bond in the amount of 5 percent of the Bid Amount be submitted with said Bid as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the Owner for the performance of said Contract, within 10 consecutive calendar days after written notice having been given of the award of the Contract.

NOW THEREFORE, the conditions of this obligation are such that if the PRINCIPAL within 10 consecutive calendar days after written notice of such acceptance, enters into a written Contract with the OBLIGEE and furnishes a Performance Bond and Payment Bond in an amount equal to 100 percent of the contract amount, satisfactory to the Owner, then this obligation shall be void; otherwise the sum herein stated shall be due and payable to the OBLIGEE and the SURETY herein agrees to pay said sum immediately upon demand of the OBLIGEE in good and lawful money of the United States of America, as liquidated damages for failure thereof of said PRINCIPAL.

Signed and sealed this _____ day of _____, 2020.

PRINCIPAL

By _____

SURETY

By _____
Attorney-In-Fact

END OF SECTION

Division 2

Bid Requirements

Section 6: Bidder Qualification Information

COMPANY NAME OF BIDDER: _____

NUMBER OF YEARS IN BUSINESS _____

BUSINESS ADDRESS OF COMPANY: _____

TELEPHONE NUMBER: _____

POINT OF CONTACT NAME: _____

POINT OF CONTACT EMAIL
ADDRESS: _____

COMPANY TAX ID NUMBER: _____

COMPANY WEBSITE: _____

- ENTITY TYPE: Individual/Sole Proprietor Employee Owned Company
 Privately Held Corporation/LLC Partnership
 Publicly Owned Company Attorney
 Other (specify):

NAME OF PRINCIPAL OFFICERS: _____

Division 2

Bid Requirements

Section 6: Bidder Qualification Information

REFERENCES

PROVIDE AT LEAST 3 REFERENCES FOR SIMILAR PROJECTS COMPLETED WITHIN THE LAST FIVE (5) YEARS. EACH REFERENCE SHALL INCLUDE THE NAME OF THE AGENCY, THE NAME OF THE PROJECT, DATE OF THE PROJECT, A CURRENT AGENCY CONTACT, A CURRENT CONTACT PHONE NUMBER AND EMAIL ADDRESS.

OWNER: _____
CONTACT NAME: _____
ADDRESS: _____
PHONE NUMBER: _____
PROJECT NAME: _____
PROJECT DATE: _____
EMAIL ADDRESS: _____

OWNER: _____
CONTACT NAME: _____
ADDRESS: _____
PHONE NUMBER: _____
PROJECT NAME: _____
PROJECT DATE: _____
EMAIL ADDRESS: _____

OWNER: _____
CONTACT NAME: _____
ADDRESS: _____
PHONE NUMBER: _____
PROJECT NAME: _____
PROJECT DATE: _____
EMAIL ADDRESS: _____

END OF SECTION

Division 2

Bid Requirements

Section 7: Contractor Affidavit and Agreement

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT OF 2006

- A. Pursuant to the Georgia Security and Immigration Compliance Act of 2006, the Contractor understands and agrees that compliance with the requirements of O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-.02 are conditions of this Agreement. The Contractor further agrees that such compliance shall be attested by the Contractor through execution of the contractor affidavit required by Georgia Department of Labor Rule 300-10-1-.07, or a substantially similar contractor affidavit. The Contractor’s fully executed affidavit is attached hereto as Exhibit ____ and is incorporated into this Agreement by reference herein.

- B. By initialing in the appropriate line below, the Contractor certifies that the following employee-number category as identified in O.C.G.A. § 13-10-91 is applicable to the Contractor:
 - 1. _____ 500 or more employees;
 - 2. _____ 100 or more employees;
 - 3. _____ Fewer than 100 employees.

- C. The Contractor understands and agrees that, in the event the Contractor employs or contracts with any subcontractor or subcontractors in connection with this Agreement, the Contractor shall:
 - 1. Secure from each such subcontractor an indication of the employee-number category as identified in O.C.G.A. § 13-10-91 that is applicable to the subcontractor;
 - 2. Secure from each such subcontractor an attestation of the subcontractor’s compliance with O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-.02 by causing each such subcontractor to execute the subcontractor affidavit required by Georgia Department of Labor Rule 300-10-1-.08, or a substantially similar subcontractor affidavit. The Contractor further understands and agrees that the Contractor shall require the executed subcontractor affidavit to become a part of the agreement between the Contractor and each such subcontractor. The Contractor agrees to maintain records of each subcontractor attestation required hereunder for inspection by the Clayton County Water Authority at any time.”

Contractor _____
Authorized Signature: _____
Name: _____
Title: _____
Date: _____

Division 2

Bid Requirements

Section 7: Contractor Affidavit and Agreement

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with [O.C.G.A. 13-10-91](#), stating affirmatively that the individual, firm, or corporation which is contracting with the Clayton County Water Authority has registered with, is participating in, uses, and will continue to use for the duration of the contract, the federal work authorization program - EEV/Basic Pilot Program operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA), commonly known as E-Verify, in accordance with the applicability provisions established in [O.C.G.A. 13-10-91](#).

The undersigned further agrees that, in connection with the physical performance of services pursuant to this contract with the Clayton County Water Authority, the contractor will only employ or contract with subcontractor(s), who can present a similar affidavit verifying the subcontractor’s compliance with [O.C.G.A. 13-10-91](#). Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the Clayton County Water Authority within five days of the subcontractor(s) presenting such affidavit(s) to the contractor.

EEV / Basic Pilot Program* User Identification Number
Enter four to seven-digit numbers

Name of Contractor (Printed)

BY: Authorized Officer or Agent
(Contractor Name)

Date

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS

THE _____ DAY OF _____ 20____.

Notary Public

My Commission Expires

Division 2

Bid Requirements

Section 7: Contractor Affidavit and Agreement

SUBCONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned subcontractor verifies its compliance with [O.C.G.A. 13-10-91](#), stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____

_____ on behalf of the Clayton County Water Authority has registered with, is participating in, uses, and will continue to use for the duration of the contract the federal work authorization program - EEV/Basic Pilot Program operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA), commonly known as E-Verify, in accordance with the applicability provisions and deadlines established in [O.C.G.A. 13-10-91](#).

The undersigned further agrees that, in connection with the physical performance of services pursuant to this contract with _____

_____ on behalf of the Clayton County Water Authority, the subcontractor will only employ or contract with sub-subcontractor(s), who can present a similar affidavit verifying the sub-subcontractor’s compliance with [O.C.G.A. 13-10-91](#). The undersigned further agrees that the Subcontractor will maintain records of such compliance and provide a copy of each such verification to the Contractor within five days of the sub-subcontractor(s) presenting such affidavit(s) to the Sub-contractor.

EEV / Basic Pilot Program* User Identification Number
Enter four to seven-digit numbers

Name of Sub-Contractor (Printed)

BY: Authorized Officer or Agent
(Subcontractor Name)

Date

Title of Authorized Officer or Agent of Subcontractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE _____ DAY OF _____
20____.

Notary Public

My Commission Expires

END OF SECTION

Division 2 **Bid Requirements**

Section 8: Small Local Business Enterprises (SLBE) - General Information

8.1 Program Overview

Clayton County Water Authority (CCWA) has implemented a Small Local Business Enterprise Program to promote full and open competition in all government procurement and purchasing. Bid discounts for the use of Small Local Business Enterprises (SLBE's) are set on a contract by contract basis for each specific prime contract with subcontracting possibilities. CCWA wants to ensure that Bidders are non-discriminatory in their process of selecting sub-contractors. CCWA also wants to encourage Bidders to utilize small, minority or woman-owned businesses whenever possible. All forms included in this solicitation must be completed for Bidder to be considered responsive.

SLBE means a locally-based small business operating inside or outside of Clayton County, which meets the following criteria:

- A) Independently owned and operated business concern whose average annual gross receipts for the previous three years must not exceed (1) Construction Firms – \$18,250,000; (2) Professional Services Firms – \$5,500,000; (3) Architectural Firms – \$3,750,000; (4) Engineering Firms – \$7,500,000, and (5) Goods and Services – less than 250 employees.
- B) Locally based, meaning located and operating in Clayton County or the ten (10) counties of Cherokee, Cobb, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Henry, Rockdale and Spalding for at least one year prior to submitting application for certification.

If a firm is locally-based in one of the counties mentioned above, is currently certified as a small business through Clayton County, the City of Atlanta, DeKalb County, or the Georgia Department of Transportation, and can provide evidence of its certification, the firm will be provisionally accepted as a SLBE, provided that they complete the official certification application for CCWA within two (2) years following the date of provisional certification. If a firm meets these qualifications, but is not currently certified as a CCWA small local business, then the firm must complete an application for certification with CCWA no later than seven (7) business days following the deadline for bid submission.

SLBE's must perform a commercially useful function, which means performance of provision of real and actual services under the contract or subcontract with CCWA. Factors such as the nature and amount of the work subcontracted; whether the SLBE has the skill and expertise to perform the work for which it has been certified; whether the SLBE actually performs, manages or supervises the work; and whether the SLBE intends to purchase commodities and/or services

Division 2 **Bid Requirements**

Section 8: Small Local Business Enterprises (SLBE) - General Information

from a non-SLBE and simply resell them will be considered in determining if the SLBE is performing a commercially useful function.

Participation in the SLBE program is not a requirement to participate in contracting with CCWA. The use of an SLBE is a requirement when bid discounts are to be sought. The Bidder will be required to complete the required forms as outlined in the following section.

8.2 Overview of Bid Discount

Bid discounts are incentives that allow an original bid amount to be discounted for evaluation purposes in determining the lowest responsive, responsible bidder, while the original bid amount will be the basis for contract award.

Example: A \$100,000 bid with a 7.5% bid discount would be evaluated at \$92,500. However, \$100,000 would be paid to the successful bidder.

Bid Discounts will be applied to CCWA certified SLBE prime bidders only. *The use of certified SLBE sub-contractors will not establish eligibility to receive Bid Discounts.* Depending on the bidder's location, Bid Discounts will range between 7.5% and 10%.

The calculation of SLBE bid discounts shall be as follows:

There will be an applied tiered discount to bids based on what county the SLBE business is located.

- 10 percent for SLBE's in Clayton County.
 - 7.5 percent for SLBE's within the next surrounding 10 counties (Cherokee, Cobb, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Henry, Rockdale and Spalding).
- (1) Discounts are given to Bidders who are SLBE prime bidders only.
 - (2) In the event of a tie bid between a discounted bidder and a non-discounted bidder, the discounted bidder (SLBE) will be recommended for the contract.

By signing the bid, the bidder is certifying that he/she has complied with the requirements of this program. Please contact Contracts, Compliance and Risk Management at ccwa_slbe_program@ccwa.us for more information on CCWA's SLBE Program or visit our website at www.ccwa.us.

END OF SECTION

Division 3

Contract Forms

Section 1: Agreement Form

**STATE OF GEORGIA
COUNTY OF CLAYTON**

**AGREEMENT FOR SINGLE PURCHASE
OF GOODS AND SERVICES**

This Agreement made and entered into this ____ day of _____, 2020, for **Jesters Creek Outfall Replacement – Phase 4**, between the **CLAYTON COUNTY WATER AUTHORITY** (hereinafter "CCWA") and _____ (hereinafter "the Contractor"), witnesseth:

WHEREAS, CCWA is contracting with the Contractor for the provision of certain goods and services described below for the term specified herein;

NOW THEREFORE, the parties agree as follows:

1. **DESCRIPTION OF GOODS AND SERVICES:**

The Contractor shall provide the goods and services to CCWA in such quantities as CCWA requires for **Jesters Creek Outfall Replacement – Phase 4**, as described in the Request for Bid dated August 2020.

2. **COSTS:**

CCWA shall pay the Contractor the prices as stipulated in the Bid Form hereto attached as full compensation relative to the Bid dated _____, a copy of which is attached and incorporated into this contract. The Contractor shall be paid for items of work as noted in Division 4, Section 1 "Work Items and Measurement".

Once the work commences CCWA shall make Progress Payments to the Contractor on a monthly basis. The Contractor shall submit an Application for Payment for the period ending the 15th day of the month. Each Application for Payment must be submitted to CCWA on or before the 20th day of each month in such form and manner, and with such supporting data and content as CCWA may require.

Per Georgia Code Section 13-10-2, CCWA will withhold a 10% retainage on each and every Application for Payment until such time as the value of the contract (including change orders) exceeds 50%; and as long as completion and progress of the work is acceptable to CCWA. If after reaching the 50% completion of the value of the contract, CCWA's representative has determined that the work is unsatisfactory or has fallen behind schedule, then retainage will resume at the previous level of 10%. The Contractor may submit a request

Division 3

Contract Forms

Section 1: Agreement Form

for release of retainage 30 days after the completion and final acceptance of the Project, and upon receipt of all necessary documentation including, but not limited to, a final affidavit and release of surety.

3. **TIME FOR COMPLETION OF PROJECT:**

Contractor hereby agrees to commence work within fourteen (14) calendar days under this contract or on a date to be specified in the Notice to Proceed. The total time for the Contractor to complete this project shall not exceed three-hundred forty-three (343) calendar days. The Contractor and CCWA recognize that time is of the essence in completing this work and that there are delays, expense and difficulties involved in resolving a dispute related to a loss suffered by CCWA if the Work is not completed on time. Accordingly, instead of requiring such proof, CCWA and Contractor agree that as liquidated damages for delay (but not as a penalty), the Contractor shall pay to CCWA, as liquidated damages the amount of \$500.00 per calendar day for each and every day or part of a day thereafter that any work as described in the Contract Documents remains incomplete and/or not accepted by CCWA.

4. **WARRANTY ON SERVICES RENDERED:**

The Contractor warrants its workmanship to be free from defects for a period of two (2) years from the date of final acceptance. The Contractor further warrants that its workmanship will conform to all specifications and will perform as specified. Upon receipt of written notice of a defect in workmanship, the Contractor shall repair the defect in a timely manner at no expense to CCWA.

5. **WARRANTY ON GOODS PROVIDED:**

The Contractor warrants its goods for a period of two (2) years from the date of final acceptance. Furthermore, the Contractor warrants that goods ordered to specifications will conform thereto and to any drawings, samples, or other description furnished or adopted by CCWA, and will be fit and sufficient for the purpose intended; and that all goods are merchantable, of good material and workmanship, and free from defect. Such warranties, together with the Contractor's service warranties and guarantees, if any, shall survive inspection, test, acceptance of, and payment for the goods and shall run to CCWA, its successors, assigns, customers at any tier, and ultimate user and joint users. Notices of any defects or non-conformity shall be given by CCWA to the Contractor within fifteen (15) months after acceptance by ultimate user; provided however that in the event the goods are designed by the Contractor, notice must be given within three (3) years after acceptance by ultimate user.

Division 3

Contract Forms

Section 1: Agreement Form

The rights and remedies of CCWA concerning latent defects shall exist indefinitely and shall not be affected in any way by any terms and conditions of this Agreement, including this clause. CCWA may, at its option, and in addition to other remedies available at law, either (i) return for credit, (ii) require prompt correction or replacement of the defective or nonconforming goods, or (iii) have the defective items corrected or replaced at the Contractor's expense and deduct the cost thereof from any monies due the Contractor. The return to the Contractor of any defective or nonconforming goods and delivery to CCWA of any corrected or replaced goods shall be at the Contractor's expense. Goods required to be corrected or replaced shall be subject to the provision of this paragraph and the paragraph of this Agreement entitled "inspection" in the same manner and to the same extent as goods originally delivered under this Agreement. In addition to correcting or replacing any defective or nonconforming goods, the Contractor shall also reimburse CCWA for all costs and expenses incurred by CCWA in connection with inspection and discovery of the defects, identifying and correcting the cause of such defects and all other activities reasonably undertaken by CCWA to obtain conforming goods or attempting to obtain from the ultimate user a waiver to permit the defective goods to be used with all or part of the defective conditions.

6. **INSPECTION:**

CCWA shall have the right to inspect the goods supplied hereunder at any time during the manufacture or fabrication thereof at the Contractor's facilities or elsewhere. Such inspection may include, without limitation, raw materials, components, work in process, and completed products as well as drawings, specifications, and released data. Final inspection and acceptance shall be after delivery to the delivery point designated by CCWA. If any inspection or test is made by CCWA at the Contractor's facility or elsewhere, the Contractor shall provide reasonable facilities and assistance for the inspection personnel. CCWA may reject all goods supplied hereunder, which are found to be defective. Goods so rejected may be returned to the Contractor at the Contractor's expense. No inspection, examination or test, regardless of extensiveness or type, and no approval give in connection with any such inspection, examination or test, whether under this Agreement or another contract for the same or similar goods, shall relieve it, of any obligation to comply fully with all requirements of this Agreement, including the obligation to produce goods that conform to all requirements of the drawings, specifications and any other Contract Documents. At CCWA's request, the Contractor shall repair or replace defective goods at the Contractor's expense. Failure to inspect goods, failure to discover defects in goods or payment for goods shall

Division 3

Contract Forms

Section 1: Agreement Form

not constitute acceptance or limit any of CCWA's rights, including without limitation those under the WARRANTY provisions of this Agreement. In the event inspection reveals a defect or defects and schedule urgency requires that the defect or defects be corrected by CCWA to support production, all cost of such correction, including without limitation installation and removal, will be charged to the Contractor; such charges will also include time and material and appropriate indirect and overhead expenses. The Contractor shall maintain in inspection system acceptable to CCWA covering the goods furnished hereunder.

7. **CONTRACTOR'S AFFIDAVITS:**

The Contractor shall issue a "Standard Contractor's Affidavit Interim Waiver and Release Upon Payment" and a "Standard Contractor's Affidavit Unconditional Waiver and Release upon Final Payment" provided by CCWA before receiving any interim or final payment for any services performed.

8. **ASSIGNMENT AND SUBCONTRACTING:**

The Contractor shall not assign this Agreement or any portion of this Agreement, nor shall the Contractor sub contract for goods or completed or substantially completed services purchased hereunder without the prior express written consent of CCWA. No assignment or subcontract by the Contractor, including any assignment or subcontract to which CCWA consents, shall in any way relieve the Contractor from complete and punctual performance of this Agreement, including without limitation all of the Contractor's obligations under the WARRANTY provisions of this Agreement.

9. **CCWA'S ASSISTANCE AND COOPERATION:**

During the Contractor's performance of this Agreement, CCWA may, but has no obligation to, provide assistance to, or cooperate with, the Contractor in activities that facilitate the proper performance and completion of this Agreement by the Contractor. Such assistance and cooperation may include without limitation: (i) providing engineering or other analysis or advice on correcting problems; (ii) refraining from strict enforcement of time schedule requirements under this Agreement; (iii) permitting use of test materials or documentation not performed or produced under this Agreement. Such assistance or cooperation by CCWA shall not be construed, and the Contractor agrees that it will not claim that any such assistance or cooperation operates, to relieve the Contractor from complete, proper and punctual performance of all the Contractor's obligations under this Agreement.

Division 3

Contract Forms

Section 1: Agreement Form

10. WORK ON CCWA'S DESIGNATED PREMISES:

In the event that the Contractor, the Contractor's employees or agents or the Contractor's subcontractors enter CCWA's designated premises for any reason in connection with this Agreement, the Contractor and such other parties shall observe all security requirements and all plant safety, plant protection, and traffic regulations.

The Contractor shall defend, indemnify, and hold CCWA harmless from all claims, actions, demands, loss, and causes of action, arising from injury, including death, to any person, or damage to any property, when such injury or damage results in whole or in part from the acts or omissions of the Contractor, the Contractor's employees or agents or the Contractor's subcontractor, save and except damage caused by the sole negligence of CCWA. The Contractor, and any subcontractors used by the Contractor in connection with this Agreement, shall carry Workmen's Compensation and Employees' Liability Insurance to cover the Contractor's and any subcontractor's legal liability on account of accidents to their employees. The Contractor and any subcontractor shall carry adequate Comprehensive General Liability and adequate Comprehensive Automobile Liability Insurance covering accidents to their employees. The Contractor and any subcontractor shall carry adequate Comprehensive General Liability and adequate Comprehensive Automobile Liability Insurance covering legal liability of the Contractor and any subcontractor on account of accidents arising out of the operations of the Contractor or any subcontractor and resulting in bodily injury, including death, being sustained by any person or persons, or in any damage to property. At CCWA's request, the Contractor shall furnish to CCWA certificates from the Contractor's insurers showing such coverage in effect and agreeing to give CCWA thirty (30) days prior written notice of cancellation of the coverage.

11. RISK MANAGEMENT REQUIREMENTS:

The Contractor shall abide by CCWA's applicable Risk Management Requirements, attached to this Agreement as Exhibit A and hereby incorporated into this Agreement.

12. TERMINATION FOR DEFAULT:

(a) CCWA may, subject to the provisions of subparagraph (c) below, by written notice of default to the Contractor, terminate the whole or any part of this Agreement in any one of the following circumstances; (i) if the Contractor fails to perform this Agreement within the time specified herein or any extension thereof; or (ii) if the Contractor fails to perform any of the

Division 3

Contract Forms

Section 1: Agreement Form

other provisions of this Agreement, or so fails to make progress as to endanger performance of this Agreement in accordance with its terms, and does not cure such failure within a period of ten (10) days or longer period (as CCWA may authorize in writing) after receipt of notice from CCWA specifying such failure.

- (b) In the event CCWA terminates this Agreement in whole or in part as provided in subparagraph (a) above, CCWA may procure, upon such terms and in such manner as CCWA may deem appropriate, services, similar to those so terminated, and the Contractor shall be liable to CCWA for any Excess costs for the same, including without limitation all cost and expenses of the type specified in the “WARRANTY” paragraph of this Agreement; provided, that the Contractor shall continue the performance of this Agreement to the extent not terminated hereunder.
- (c) Except with regard to defaults of subcontractors, the Contractor shall not be liable for any excess costs if the failure to perform this Agreement arises out of causes beyond the control and without the fault of negligence of the Contractor such causes may include, but are not limited to, acts of God, or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, flood, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather, but in every case the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the Contractor and the subcontractor, and without the fault of negligence of either of them, the Contractor shall not be liable for any excess costs for failure to perform, unless the services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required delivery schedule. The term “subcontractor” shall mean subcontractor at any tier.
- (d) If, after notice of termination of this Agreement under the provisions of this paragraph, it is determined for any reason that the Contractor was not in default under the provisions above or that the default was excusable under the provisions of this paragraph, the rights and obligations of the parties shall be the same as if the notice of termination has been issued pursuant to the “Termination for Convenience” paragraph of this Agreement.
- (e) The rights and remedies of CCWA provided in this paragraph shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

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Contract Forms

Section 1: Agreement Form

13. **TERMINATION FOR CONVENIENCE:**

CCWA may at any time by written notice terminate all or any part of this Agreement for CCWA's convenience. If this Agreement is terminated, in whole or in part, for CCWA's convenience, the Contractor shall be paid an amount, to be mutually agreed upon, which shall be adequate to cover the actual and reasonable cost paid by the Contractor for the actual goods and labor reasonably used by the Contractor to perform the work under this Agreement to the effective date of termination, plus a reasonable profit thereon; provided that no amount shall be paid to the Contractor for (i) any anticipatory profits related to work under this Agreement not yet performed, or (ii) costs incurred due to the Contractor's failure to terminate work as ordered on the effective date of termination. In no event shall the total amount paid under the provisions of this paragraph exceed the prices set forth in this Agreement for the work terminated.

14. **DISPUTES:**

Pending resolution of any dispute hereunder, the Contractor shall proceed diligently with the performance of work in accordance with CCWA's direction.

15. **NOTICES:**

All notices required or permitted to be given hereunder shall be deemed to be properly given if delivered in writing personally or sent by United States certified or registered mail addressed to the Contractor or CCWA, as the case may be, with postage thereon fully prepaid. The effective time shall be at the time of mailing.

16. **ATTORNEYS' FEES:**

The Contractor shall pay reasonable attorneys' fees to CCWA should CCWA be required to incur attorneys' fees in enforcing the provisions of this Agreement or in the collection of any monies herein required to be paid by the Contractor to CCWA.

SIGNATURES ON NEXT PAGE

Division 3

Contract Forms

Section 1: Agreement Form

IN WITNESS WHEREOF this _____ day of _____, 2020,
said parties have hereunto set their seals the day and year above first written.

Executed on behalf of:

CLAYTON COUNTY WATER AUTHORITY

CONTRACTOR

By: _____
Name: H. BERNARD FRANKS
Title: General Manager

By: _____
Name: _____
Title: _____

Attest: _____
Name: _____
Title: _____
Date: _____

Attest: _____
Name: _____
Title: Corporate Secretary
Date: _____

[Corporate Seal]

[Corporate Seal]

Division 3

Contract Forms

Section 1: Agreement Form

EXHIBIT A

RISK MANAGEMENT REQUIREMENTS

The Contractor will provide minimum insurance coverage and limits as per the following: The Contractor will file with CCWA Certificates of Insurance, certifying the required insurance coverage and stating that each policy has been endorsed to provide thirty (30) day notice to CCWA in the event that coverage is cancelled, non-renewed, or the types of coverage or limits of liability are reduced below those required. All bonds and insurance coverage must be placed with an insurance company approved by CCWA's Management, admitted to do business in the State of Georgia, and rated Secure ("B+" or better) by A.M. Best Company in the latest edition of Property and Casualty Ratings, or rated by Standard & Poors Insurance Ratings, latest edition as Secure ("BBB" or better). Worker's Compensation self-insurance for individual Contractors must be approved by the Worker's Compensation Board, State of Georgia and/or Self-Insurance pools approved by the Insurance Commissioner, State of Georgia.

CONTRACTS FOR UP TO \$50,000

Worker's Compensation – Worker's Compensation coverage on a statutory basis for the State of Georgia with an Employer's Liability limit of \$100,000 each Accident, Disease \$100,000 each employee, \$500,000 Disease policy limit.

Automobile Liability – Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$500,000 combined single limit.

Commercial General Liability – Coverage to be provided on "occurrence" not "claims made" basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground ("xcu") perils, the "Clayton County Water Authority" is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

CONTRACTS FOR MORE THAN \$50,000

Worker's Compensation – Worker's Compensation coverage on a statutory basis for the State of Georgia with an Employer's Liability limit of \$1,000,000. The increased Employer's Liability limit may be provided by an Umbrella or Excess Liability policy.

Automobile Liability - Automobile liability coverage for owned, hired and non-owned vehicles in the amount of \$1,000,000 combined single limit.

Commercial General Liability – Coverage to be provided on "occurrence" not "claims made" basis. The coverage is to include Contractual liability, Per Project Limit of Liability, losses caused by Explosion, Collapse and Underground ("xcu") perils, the "Clayton County Water Authority" is to be added as an Additional Insured and Products and Completed Operations coverage is to be maintained for three (3) years following completion of work.

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Contract Forms

Section 1: Agreement Form

RISK MANAGEMENT REQUIREMENTS (Cont'd)

CONTRACTS FOR UP TO \$50,000

CONTRACTS FOR MORE THAN \$50,000

LIMITS OF LIABILITY:

\$1,000,000	Per Occurrence
\$1,000,000	Personal and Advertising
\$50,000	Fire Damage*
\$5,000	Medical Payments*
\$1,000,000	General Aggregate
\$1,000,000	Products/Completed Operations per Occurrence and Aggregate

**These are automatic minimums*

Owner's Protective Liability – CCWA's Management may, in its discretion, require Owner's Protective Liability in some situations. However, it is not required for this project.

Umbrella and/or Excess Liability – The Umbrella or Excess Liability Policy may be used to combine with underlying policies to obtain the limits required. The Management of the CCWA is requiring a \$5,000,000 Umbrella or Excess Liability Limit for this project.

Owner's Protective Liability – CCWA's Management may, in its discretion, require Owner's Protective Liability in some situations. However, it is not required for this project.

END OF SECTION

Division 3

Contract Forms

Section 2: Performance Bond

KNOW ALL MEN BY THESE PRESENTS THAT _____
_____ (as CONTRACTOR, hereinafter referred to as the
“Principal”), and _____ (as SURETY COMPANY),
hereinafter referred to as the “CONTRACTOR’S SURETY”), are held and firmly bound unto
the Clayton County Water Authority (as OWNER, hereinafter referred to as “CCWA”), for
the use and benefit of any “Claimant” as hereinafter defined in the sum of
_____ Dollars (\$_____) lawful money of
the United States of America, for the payment of which the Principal and the Contractor’s
Surety bind themselves, their heirs, executors, administrators, successors and assigns,
jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written
agreement with CCWA, dated _____, which is incorporated herein
by reference in its entirety (hereinafter referred to as the “CONTRACT”), for the
construction of a project known as **Jesters Creek Outfall Replacement – Phase 4**,
(hereinafter referred to as “the PROJECT”).

NOW THEREFORE, the conditions of this obligation are as follows:

1. That if the Principal shall fully and completely perform each and all of the
terms, provisions and requirements of the Contract, including and during the
period of any warranties or guarantees required thereunder, and all
modifications, amendments, changes, deletions, additions, and alterations
thereto that may hereafter be made; and if the Principal and the Contractor’s
Surety shall indemnify and hold harmless CCWA from any and all losses,
liability and damages, claims, judgments, liens, costs and fees of every
description, including but not limited to, any damages for delay, which CCWA
may incur, sustain or suffer by reason of the failure or default on the part of
the Principal in the performance of any and all of the terms, provisions and
requirements of the Contract, including all modifications, amendments,
changes, deletions, additions, and alterations thereto and any warranties or
guarantees required thereunder, then this obligation shall be void; otherwise
to remain in full force and effect;

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Contract Forms

Section 2: Performance Bond

2. In the event of a failure of performance of the Contract by the Principal, which shall include, but not be limited to, any breach of default of the Contract;
 - a. The Contractor's Surety shall commence performance of its obligations and undertakings under this Bond no later than thirty (30) days after written notice from CCWA to the Contractor's Surety;
 - b. The means, method or procedure by which the Contractor's Surety undertakes to perform its obligations under this Bond shall be subject to the advance written approval of CCWA.

The Contractor's Surety hereby waives notice of any and all modifications, omissions, additions, changes and advance payments or deferred payments in or about the Contract, and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, and advance payments or deferred payments. The Parties further expressly agree that any action on this Bond may be brought within the time allowed by Georgia law for suit on contracts under seal.

SIGNATURES ON NEXT PAGE

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Contract Forms

Section 2: Performance Bond

IN WITNESS WHEREOF, the principal and Contractor's Surety have hereunto affixed their corporate seals and caused this obligation to be signed by their duly authorized officers or attorneys-in-fact, this _____ day of _____ 20__.

(Name of Principal)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(Name of Contractor's Surety)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(ATTACH SURETY'S POWER OF ATTORNEY)

END OF SECTION

Division 3

Contract Forms

Section 3: Payment Bond

KNOW ALL MEN BY THESE PRESENTS THAT _____
_____ (as CONTRACTOR, hereinafter referred to as the “Principal”), and _____
(as SURETY COMPANY, hereinafter referred to as the “CONTRACTOR’S SURETY”), are held and firmly bound unto the Clayton County Water Authority (as OWNER, hereinafter referred to as “CCWA”), for the use and benefit of any “Claimant” as hereinafter defined in the sum of _____ Dollars (\$_____), lawful money of the United States of America, for the payment of which the Principal and the Contractor’s Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written agreement with CCWA, dated _____, which is incorporated herein by reference in its entirety (hereinafter referred to as the “CONTRACT”), for the construction of a project known as **Jesters Creek Outfall Replacement – Phase 4**, (hereinafter referred to as “the PROJECT”).

NOW THEREFORE, the condition of this obligation is such, that if the Principal shall promptly make payment to any Claimant, as hereinafter defined, for all labor, services and materials used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise to remain in full force and effect.

A “Claimant” shall be defined herein as any subcontractor, person, party, partnership, corporation or other entity furnishing labor, services or materials used or reasonably required for use in the performance of the Contract, without regard to whether such labor, services or materials were sold, leased or rented, and without regard to whether such Claimant is or is not in privity of the Contract with the Principal or any subcontractor performing work on the Project.

In the event of any claim made by the Claimant against CCWA, or the filing of a Lien against the property of CCWA affected by the Contract, the Contractor’s Surety shall either settle or resolve the Claim and shall remove any such Lien by bond or otherwise as provided in the Contract.

Division 3

Contract Forms

Section 3: Payment Bond

The Parties further expressly agree that any action on this Bond may be brought within the time allowed by Georgia law for suit on contracts under seal.

IN WITNESS WHEREOF, the Principal and Contractor’s Surety have hereunto affixed their corporate seals and caused this obligation to be signed by their duly authorized officers on this _____ day of _____ 20____.

(Name of Principal)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(Name of Contractor’s Surety)

By: _____

Name Printed: _____

Title: _____

Corporate Seal

Attested: _____

Date: _____

(ATTACH SURETY’S POWER OF ATTORNEY)

END OF SECTION

Division 3

Contract Forms

Section 4: Non-Collusion Certificate

STATE OF _____, COUNTY OF _____

Personally appeared before the undersigned officer duly authorized by law to administer oaths

who, after being first duly sworn, depose and say that they are all the officers, agents, persons or employees who have acted for or represented

_____, and that said

In proposing or procuring the Contract with the Clayton County Water Authority on the following project: **Jesters Creek Outfall Replacement – Phase 4**

has not by (himself, themselves) or through any persons, officers, agents or employees prevented or attempted to prevent by any means whatsoever competition in such bidding; or by any means whatsoever prevented or endeavored to prevent anyone from making a proposal therefore or induced or attempted to induce another to withdraw a bid for said work.

ATTEST:

By: _____
Bidder

By: _____
Name

By: _____
Name

Title: _____

Title: _____

Sworn to and subscribed before me this _____ day of _____, 20____

Notary Public: _____ My Commission expires: _____

END OF SECTION

Division 4 **Specifications**

Section 1: Work Assignment and Measurement for Payment

1.1 General

- A. This section provides an explanation of the work that is to be completed as part of each Work Item and how the Work Item will be measured for payment.
 - 1. Work Item descriptions incorporate work shown on the Construction Details or Construction Drawings/Detailed Site Map and all related work/specifications referenced in Division 4, Section 3.
 - 2. The Work Items correspond to the Work Items listed on the “Pay Item Schedule” of the Bid Form.
- B. The Contractor shall provide all labor, equipment, tools, materials (unless indicated otherwise as detailed in Division 4, Section 2) and incidental items to complete the Work Items in accordance with the Contract Documents.
- C. The basis for payment will be the bid unit cost amounts included in the “Pay Item Schedule” and the actual quantities of work completed by the Contractor and approved by the CCWA.
- D. Nothing in this Section shall be construed as providing for additional payment beyond the Work Items. The Contractor shall be paid only for the quantity of a Work Item that is completed and authorized/approved by CCWA. No payment will be made for the completion of excessive quantities of a Work Item as determined by the CCWA.
- E. Materials (Stored Material) that will become part of a finished product may be purchased by the Contractor in advance of the work and stored on the project site. Payment for Stored Materials may be requested by the Contractor during monthly invoicing. A request for payment of a Stored Material must be accompanied with that material’s supporting invoice.
- F. The CCWA reserves the right to adjust the quantity of a Work Item up or down as necessary to address needs. Work Items and quantities of a Work Item not completed will be removed from the contract.

1.2 Application for Payment

- A. An application for payment shall conform in general with The American Institute of Architects (AIA) contract documents and incorporate the Pay Item Schedule of the Bid Form.
- B. Provide document(s) to support each monthly application for payment.

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

1. Provide two (2) copies of the application for payment with original signatures.
2. Provide a spreadsheet summary with each application for payment that documents the Work Items and their quantities being requested for payment. Work Items shall be quantified by using survey stations, individual labels, units installed, percent complete, etc. as shown on the Construction Drawings or specifications herein.
3. Provide two (2) copies of the applicable Waiver and Release Upon Payment Affidavit with original signatures.
4. Additional items to be included with each application for payment are as follows.
 - a) Updated Construction Schedule.
 - b) Construction Photos (10).
 - c) Pipe and Manhole Testing Documentation.
 - d) NPDES monitoring reports.
 - e) Contractor's safety orientation sign-in form.
 - f) Contractor's weekly safety meeting sign-in form.

1.3 Work Items and Measurement

Work Item 1. Mobilization: Defined as the Contractor's preparatory operations necessary to initiate the work. Mobilization shall not exceed 5% of the total bid amount. The Work Item will be paid on a "lump sum" unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA. Preparatory operations shall include providing the following and will be paid by the indicated percentage when accepted by CCWA.

- a) Construction schedule: 5% of mobilization expense.
- b) Work Sequence: 5% of mobilization expense.
- c) Flow Interruption Plan: 5% of mobilization expense.
- d) Material Submittals: 10% of mobilization expense.
- e) Preconstruction Video: 5% of mobilization expense.
- f) Stake/Flag Construction Limits and Wetlands: 10% of mobilization expense.
- g) Deliver to site all equipment necessary to begin construction of the project: 60% of mobilization expense.

Work Item 2. Easement Clearing: Defined as the Contractor completing clearing and grubbing in the permanent 20-foot easement areas and other areas as

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

necessary within the construction limits and disposing of all debris from the work site in accordance with the Construction Documents. Debris includes but is not limited to trees, brush, household trash, household items, construction trash, tires, metal and any other material. Areas within the construction limits having only mowed grass and asphalt/concrete pavement surfaces shall not be considered for easement clearing. The Work Item will be paid on a per “square foot” unit cost of construction limits cleared in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 3. Silt Fence Installation: Defined as the Contractor completing silt fence installation and/or filter sock installation in accordance with Construction Documents. The Work Item will be paid on a per “linear foot” unit cost of single-row silt fence and/or filter sock installed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 4. Silt Fence Removal: Defined as the Contractor completing the removal and disposal of silt fence and/or filter sock and stabilizing any subsequent disturbed soil in accordance with the Construction Documents. The Work Item will be paid on a per “linear foot” unit cost of single-row silt fence and/or filter sock removed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 5. Construction Access Road Installation: Defined as the contractor installing and maintaining a construction access road at locations as indicated in Division 4, Section 3.3.3. CCWA will pay for the initial installation of the access road; Contractor will be responsible for the cost of maintaining the road during construction. Any other access or access roads beyond what is referenced will be at the expense of the Contractor. The Work Item will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 6. Construction Access Road Removal: Defined as the Contractor removing the construction access road (Work Item 5). Erosion and Sediment Control Installation will be paid from other Work Item. The work will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

Work Item 7. Erosion and Sediment Control Installation: Defined as the Contractor completing the installation of erosion and sediment control measures, including permanent grassing, throughout the entire width of the construction limits and material staging areas in accordance with the Construction Documents. Construction limits where asphalt and concrete are situated are not eligible for payment. The Work Item will be paid on a per “square foot” unit cost of construction limits completed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 8. Sod Installation: Defined as the Contractor completing the installation of sod, throughout the width of the construction limits in the front yards in accordance with the Construction Documents. The Work Item will be paid on a per “square foot” unit cost of area grassed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 9. Permanent Re-Grassing: Defined as the Contractor completing additional grading and re-grassing stabilization work. This Work Item only applies to areas where additional follow-up pipe/manhole installation work has been completed and the area was previously grassed under Work Item “Erosion and Sediment Control Installation”. The Work Item will be paid on a per “square foot” unit cost of area grassed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 10. NPDES Monitoring and Reporting: Defined as the Contractor completing NPDES monitoring and reporting requirements in accordance with the Contract Documents. The Work Item will be paid on a “lump sum” unit cost with the lump sum being equally divided over the duration of the construction time in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 11. Permanent Fence Replacement: Defined as the Contractor completing the removal of existing fencing of any type and disposing and providing and installing new fence, post and accessories in accordance with manufacturer instructions to match the existing fence. New fencing per property parcel will not be installed until all construction work has been completed on the property parcel. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

Work Item 12. Temporary Fence: Defined as the Contractor, prior to commencing construction in the respective area, installing temporary fence as indicated in Division 4, Section 3.3.1. The Work Item will be paid on a per “linear foot” unit cost in accordance with Pay Item Schedule as authorized/approved by CCWA. Temporary fencing to be installed as part of trench excavation and flow interruption is not included in this Work Item.

Work Item 13. Asphalt Placement: Defined as the Contractor removing and/or milling existing asphalt of various thicknesses due to construction activity and disposing of and installing new asphalt in accordance with the Contract Documents. The Work Item will be paid on a per “square foot” unit cost of material installed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 14. Pavement Striping: Defined as the Contractor installing painted line(s) of the appropriate size (match existing), color and thickness to asphalt and concrete surfaces of parking lots, roads and walking trails. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 15. Concrete Placement: Defined as the Contractor removing existing concrete of various thicknesses due to construction activity and disposing of and installing new concrete in accordance with the Contract Documents. The Work Item will be paid on a per “cubic foot” unit cost of concrete installed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 16. Concrete Curb Replacement: Defined as the Contractor removing existing concrete curb due to construction activity and disposing of and installing new concrete curb in accordance with the Contract Documents. The Work Items will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 17. Tie-In No. 1: Defined as the Contractor completing all necessary work as described in the Contract Documents to install work from station 0+00 to and including station 0+40 as indicated as “Tie-In (1)”. Erosion and Sediment Control Installation will be paid from other Work Item. Only when testing on all work has been accepted by CCWA will the Work Item be eligible for payment. The Work

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

Item will be paid on a “lump sum” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 18. Tie-In No. 2: Defined as the Contractor completing all necessary work as described in the Contract Documents to install work from station 65+42 to and including station 66+02 as indicated as “Tie-In (2)”. Erosion and Sediment Control Installation will be paid from other Work Item. Only when testing on all work has been accepted by CCWA will the Work Item be eligible for payment. The Work Item will be paid on a “lump sum” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 19 – 22. Cased Crossing No. 1 and No. 2 (Casing and Pipe): Defined as the Contractor completing all necessary work as described in the Contract Documents to complete Cased Crossings No. 1 and No. 2. Concrete Curb Replacement will be paid from other Work Item. Erosion and Sediment Control Installation will be paid from other Work Item. The Work Item will be paid on a per “linear foot” unit cost of cased-crossing installed and pipe installed in accordance with the Pay Item Schedule and applicable work Detail as authorized/approved by CCWA.

Work Item 23. Primary 18-Inch Pipe Installation: Defined as the Contractor completing all necessary work as described in the Construction Documents to install the Primary Pipe from survey station 0+40 (end of Tie-In No.1) to survey station 65+42 (beginning of Tie-In No. 2). This Work Item does not include pipe installed as part of Work Items Cased Crossing No. 1 and No. 2. The work will be measured horizontally from center of manhole to center of manhole. Only pipe installed where testing has been accepted by CCWA will be eligible for payment. The Work Item will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA.

Work Item 24. Secondary 8-Inch Pipe Installation: Defined as the Contractor completing all necessary work as described in the Construction Documents to install the Secondary Pipe. The work will be measured horizontally from center of manhole to center of manhole. Only pipe installed where testing has been accepted by CCWA will be eligible for payment. The Work Item will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

Work Items 25 – 26. Service Re-Connection: Defined as the Contractor completing all necessary work as described in the Construction Documents to install the existing service connections designated as Service Re-Connect A through N. Where a re-connection is indicated, install up to 20 feet of pipe at the location. Install additional pipe beyond 20 feet as indicated/required to complete the work. The work will be measured horizontally from center of manhole to the end of pipe. The Work Item detailed as “Initial 20 Feet” will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA. The Work Item “Additional Footage” will be paid on a per “linear foot” unit cost in accordance with the Pay Item Schedule and applicable depth Detail as authorized/approved by CCWA.

Work Items 27 – 30. Primary 4-ft Diameter and Secondary 4-ft Diameter Manhole Installation: Defined as the Contractor completing all necessary work as described in the Construction Documents to install manholes from survey station 0+40 (end of Tie-In No. 1) to survey station 65+42 (beginning of Tie-In No. 2). The base and riser diameter of a manhole will be determined by measuring the inside diameter. The riser above the base will be measured vertically from the top of the constructed manhole invert to the top of reducer slab or to the top of the cone section if a reducer slab is not installed. The riser above the reducer slab will be measured for diameter and vertically from the top of the reducer slab to the top of the cone section. Only manholes installed where testing has been accepted by CCWA will be eligible for payment. The Work Items for manhole base sections will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA. The Work Items for manhole riser height will be paid on a per “vertical foot” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 31. Manhole Invert Construction: Defined as the Contractor completing manhole invert construction as described in the Contract Documents. The size of invert construction will be determined by measuring the inside diameter of the manhole base. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 32. Unsuitable Soil Excavation: Defined as the Contractor completing the excavation and disposal off site of unsuitable soil and replacing excavated volume with suitable soil or stone in accordance with the Contractor Documents.

Division 4

Specifications

Section 1: Work Assignment and Measurement for Payment

The quantity of work completed will be determined by measuring the vertical and horizontal distance of removed material from the planned excavation. The Work Item will be paid on a per “in-place cubic foot” unit cost of material removed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 33. Rock Excavation: Defined as the Contractor completing the removal and disposal off site of rock and replacing removed volume of rock inside of the pipe zone with stone and outside of the pipe zone with suitable soil in accordance with the Contract Documents. The quantity of work completed will be determined by measuring the vertical and horizontal distance of removed material from the planned excavation. The Work Item will be paid on a per “in-place cubic foot” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 34. Pipe Collar Installation: Defined as the Contractor completing the installation of pipe collars in accordance with the Contract Documents. The Work Item will be paid on a per “each” unit cost in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Item 35. Demolition Bulkhead Installation: Defined as the Contractor completing demolition bulkhead work in accordance with the Contract Documents. Bulkheads will be installed on 15”, 10” and 8” nominal size pipe with increased cross-sectional area due to deterioration. The Work Items will be paid on a per “each” unit cost in accordance with the Pay Item Schedule and applicable Detail as authorized/approved by CCWA.

Work Item 36. Demolition Pipe Grouting: Defined as the Contractor completing demolition pipe grouting work in accordance with the Contract Documents. The Work Item will be paid on a per “cubic foot” unit cost of grout installed in accordance with the Pay Item Schedule as authorized/approved by CCWA.

Work Items 37 – 38. Demolition Manhole Abandonment: Defined as the Contractor completing manhole abandonment work in accordance with the Contract Documents. The height of riser removed will be measured from top of remaining riser section to the top of the cone section whether the cone is at surface grade or above grade. Gravel fill will be measured from existing invert to where gravel fill stops. The Work Items will be paid on a per “vertical foot” unit cost in

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Section 1: Work Assignment and Measurement for Payment

accordance with the section titled “Pay Item Schedule” of the “Bid Form” and applicable detail as authorized/approved by CCWA.

Work Item 39. Unforeseen Existing Conditions Allowance: This Work Item will only be used when CCWA requests additional services in writing from the Contractor as may be required to complete the Project. This Work Item will only be used when unexpected conditions arise as determined by the CCWA. Payment shall be for all labor, equipment, materials and incidental costs which are necessary to complete the work.

END OF SECTION

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Specifications

Section 2: Material Requirements

2.1 General

- A. This section describes in general the materials that are to be provided for the work.
- B. An indication is provided in each below section of whether the material is to be provided by the Contractor or provided by CCWA.
- C. The material conformance reference forms a part of the specifications and shall be of the latest editions.
- D. All materials provided shall be new and domestically manufactured unless approved otherwise.
- E. Where a material is required and not specifically described below, the material shall be provided by the Contractor and shall conform to this Section “2.1 General”.
- F. The Contractor shall submit, for CCWA approval to use, product information on all materials required to be provided by the Contractor unless noted otherwise.
 - 1. For each material supplied, provide the following minimum information.
 - a) Shop drawings and manufacturer’s data showing compliance with Contract Documents.
 - b) Identify any deviation from Contract Documents.
 - c) Resubmission of a submittal shall clearly identify the correction or change made.
 - d) Handling and storage instructions, as applicable.
 - e) Installation instructions, as applicable.
 - f) Manufacturer’s Warranty, as applicable.
 - 2. Materials provided by the Contractor not approved by the CCWA shall be subject to rejection without further justification.

2.2 Polyvinyl Chloride (PVC) Pipe and Fitting

- A. Material provided by CCWA.
- B. Material conformance reference.
 - 1. ASTM D3034: Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - 2. ASTM F679: Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.

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Section 2: Material Requirements

3. AWWA C900: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
 4. AWWA C905: Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm), for Water Distribution and Transmission.
 5. ASTM D1784: Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
 6. ASTM D3139: Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 7. ASTM D3212: Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
 8. ASTM D2412: Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
 9. ASTM F477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- C. Pipe and fitting description.
1. Size / diameter as indicated on the Construction Drawings.
 2. Pipe for open cut gravity flow applications shall be standard dimension ratio/pipe stiffness SDR 26 / PS115 push-on joint type.
 3. Pipe (used as a carrier pipe in a cased crossing) for gravity flow applications shall be C900 dimension ratio DR 18 restrained push-on joint type.
 4. Fittings shall be standard dimension ratio SDR 26 push-on joint type.
 5. The following information shall be stamped on each pipe.
 - a) Class identifier.
 - b) ASTM designation.
 - c) Manufacturer's identifying mark.
 6. Nominal length per joint of pipe is 14 feet or 20 feet.
 7. Pipe shall be green in color for sanitary sewer service.
 8. Joint lubricant as provided by the pipe manufacturer.
- D. Gasket and restrained joint description.

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Specifications

Section 2: Material Requirements

1. Gaskets shall be plain rubber suitable for sanitary sewer service.
2. Gaskets used to restrain joint may be modified with stainless steel teeth.
3. Pipe bell used to restrain joint may be fabricated with internal lock ring (removable).

Acceptable Manufacturers

- As Approved.

2.3 Miscellaneous Pipe

- A. Material provided by CCWA
- B. Miscellaneous type stormwater pipe/fittings of various sizes (concrete, HDPE, corrugated metal) and process pipe/fittings of various sizes (schedule 40 PVC).

Acceptable Manufacturers

- As Approved

2.4 Transition Coupling

- A. Material provided by CCWA.
- B. Material conformance reference.
 1. ASTM D5926: Standard Specification for Poly (Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems.
 2. ASTM C1173: Standard Specification for Flexible Transition Couplings for Underground Piping Systems.
- C. Coupling description
 1. Manufactured of elastomeric polyvinyl chloride.
 2. Tightening bands shall be Series 316 stainless steel, torque setting 60 inch-pounds.
 3. Maximum test pressure is 4.3 psi.

Acceptable Manufacturers

- Fernco.
- As Approved.

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Section 2: Material Requirements

2.5 Steel Casing

- A. Provide material as follows.
 - 1. Steel casing provided by CCWA.
 - 2. Gear box, water tube, black iron piping, welding rods and other items and accessories by Contractor.
- B. Material conformance reference.
 - 1. ASTM A252: Standard Specification for Welded and Seamless Steel Pipe Piles.
- C. Description.
 - 1. Diameter as indicated on the Construction Drawings.
 - 2. Casing steel shall be uncoated with minimum mechanical properties of a Grade 2.
 - 3. Steel wall thickness shall be as follows:
 - a) 24-inch casing will be 0.25 inch.
 - b) 30-inch casing will be 0.25 inch
 - c) 36-inch casing will be 0.375 inch
 - 4. Casing shall have end treatments being a 30° bevel or square (when requested).
 - 5. Nominal length per joint of casing is 20 feet.

Acceptable Manufacturers

- As Approved.

2.6 Casing Spacer

- A. Material provided by CCWA.
- B. Description.
 - 1. Spacer body shall be constructed of 14-gauge stainless steel (Type 304) in widths from 8 to 12 inches.
 - 2. Spacer riser shall be 10-gauge stainless steel with a minimum width of 2 inches. Spacer shell shall be fitted with a minimum of four risers, welded.
 - 3. Each riser shall be capped with a glass filled polymer runner. Runner shall be attached to riser using stainless steel bolts and nuts.

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4. Make up of spacer shall center pipe in casing and limited radial movement of pipe within the casing to no more than $\frac{3}{4}$ inch.

Acceptable Manufacturers

- As Approved.

2.7 Casing End Seal

A. Material provided by CCWA.

B. Description.

1. End seal shall be minimum 1/8-inch thick neoprene rubber.
2. End seal may be pull-on or wrap-around and secured using stainless steel (Type 304) banding, 1/2-inch width.

Acceptable Manufacturers

- As Approved.

2.8 Manhole

A. Material provided by Contractor.

B. Material conformance reference.

1. ASTM C478: Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
2. AASHTO M199: Standard specification for precast reinforced concrete sections.
3. ASTM A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
4. ASTM D4101: Standard Specification for Polypropylene Injection and Extrusion Materials.
5. Fed. Spec. SS-S-00210: Preformed sealing material requirement.
6. ASTM C990: Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
7. ASTM C923: Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
8. ASTM C1478: Standard Specification for Storm Drain Resilient Connectors between Reinforced Concrete Storm Sewer Structures, Pipes, and Laterals.

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9. ASTM F2510: Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures and Corrugated High-Density Polyethylene Drainage Pipes.
10. ASTM C1244: Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.
11. ASTM A48: Standard Specification for Gray Iron Castings.
12. AASHTO M306-10: Standard Specification for Drainage, Sewer, Utility, and Related Castings.
13. ASTM D4833: Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

C. Manhole Description.

1. Manholes shall be cylindrical and constructed of steel reinforced pre-cast concrete.
2. Minimum compressive 28-day strength of concrete in all sections shall be 4,000 psi.
3. Manholes shall have a minimum inside diameter of four (4) feet or as indicated on the Construction Drawings.
4. Pre-cast sections shall consist of a base section (base slab monolithically poured with vertical wall), riser section, reducer section (as applicable) and eccentric cone top or flat slab top section. The sections shall form a continuous uniform assembly.
5. Joints shall be tongue and groove.
6. Each section shall have not more than two (2) holes for purposes of handling.
7. Ring and cover shall be integrally cast in the top cone section unless indicated otherwise.

D. Step Description.

1. Manhole sections of four (4) foot diameter and not lined only shall be fitted with polypropylene plastic-coated steel steps unless indicated otherwise.
2. Steps shall be integrally cast into manhole sections.
3. Steps shall be twelve (12) inches wide and spaced at 1'-0" on center.

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E. Joint Sealant Description.

1. Joints between each section shall be sealed watertight with a preformed semi-solid butyl plastic.
2. Gasket shall be provided in such size so that when installed, “squeeze out” of the gasket material, can be observed internally and externally along the entire joint when the joint is completed.

F. Boot Connector Description.

1. Connector for sealing pipe to precast concrete structure opening shall be flexible natural or synthetic rubber suitable for sanitary sewer service.
2. A sleeve/boot connector when used shall be fitted with series 300 stainless steel internal expansion sleeve components and series 300 stainless steel external compression take-up clamps, all constructed utilizing no welds.
3. A gasket connector when used shall be integrally cast into the concrete section by the manhole manufacturer.

G. Cast Iron Frame and Cover Description

1. Manhole frame shall provide a nominal opening of twenty-four (24) inches in diameter and be either traffic rated, or non-traffic rated.
2. Frame, cover, grate shall meet load specifications of AASHTO H-20 and H-25.
3. Manhole cover shall have the word “SEWER” cast on top in letters two (2) inches high.
4. Manhole cover required to be bolt-down shall be secured with not less than four (4) stainless steel bolts as provided by the manufacturer.

Acceptable Manufacturers

- Manhole – As Approved.
- Ring, Frame, Cover – As Approved.

2.9 Manhole Invert Sealing Compound

A. Material provided by Contractor.

B. Description.

1. Liquid compound that penetrates concrete and mortar providing a seal against the effects of hydrogen sulfide and sulfuric acid.

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Specifications

Section 2: Material Requirements

Acceptable Manufacturers

- Navion, Inc. – RadonSeal
- Crystal Lok.
- As Approved.

2.10 Utility Marking Tape

A. Material provided by Contractor.

B. Material conformance reference.

1. ASTM D2103: Standard Specification for Polyethylene Film and Sheeting.
2. ASTM D882: Standard Test Method for Tensile Properties of Thin Plastic Sheeting.

C. Description.

1. Tape shall have a minimum overall thickness of 5 mils and a width as follows.
 - a) 2-inch width for pipes up to 12 inches in diameter.
 - b) 3-inch width for pipes greater than 12 to 24 inches in diameter.
2. Tape shall have a 0.35 mil solid aluminum foil core with a reverse print laminate to the aluminum foil.
3. Tape shall have a tensile strength of 35 pounds per inch.
4. Tape shall be color-coded in accordance with the American Public Works Association as follows.
 - a) “Green” for sanitary sewer and associated lines.

Acceptable Manufacturers

- As Approved.

2.11 Concrete and Reinforcement

A. Material provided by Contractor.

B. Material conformance reference.

1. ACI 318: Building Code Requirements for Structural Concrete.
2. ASTM C150: Standard Specification for Portland Cement.
3. ASTM C33: Standard Specification for Concrete Aggregates.

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4. ASTM A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 5. ASTM A185: Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
- C. Concrete Mix Description.
1. Design mix shall be in accordance with ACI 318, latest revision.
 2. Provide readily available commercial mix.
 3. 28-Day Strength: 3,000 psi, unless otherwise noted.
 4. Type: Normal Weight.
 5. Slump Range: 3 inch to 5 inch.
 6. Weight: 135 pcf to 160 pcf.
 7. Air Content: 5% to 7%.
 8. Water-Cement Ratio: 0.45 Maximum.
- D. Concrete Materials Description.
1. Portland cement: Type I, natural color. Use only one brand of cement throughout project.
 2. Fine Aggregates: Meeting ASTM C33.
 3. Coarse Aggregates: Meeting ASTM C33, No. 57 Stone.
 4. Water: Clean, potable and free from deleterious amounts of alkalis, acids and organic matter.
- E. Steel Reinforcement Description.
1. Reinforcement Bar: No. 4 size, Grade 60.
 2. Welded Wire: 4x4 – W2.1xW2.1 wire mesh.
 3. Tie Wire: 16-1/2 or 16-gauge black soft annealed wire.
 4. Bar supports, chairs and spacers shall comply with the CRSI “Recommended Practice for Placing Reinforcing Bars”.

Acceptable Manufacturer

- As Approved.

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Section 2: Material Requirements

2.12 Brick and Mortar

- A. Material provided by Contractor.
- B. Material conformance reference.
 - 1. ASTM C32: Standard Specification for Sewer and Manhole Brick.
 - 2. ASTM C270: Standard Specification for Mortar for Unit Masonry.
 - 3. ASTM C144: Standard Specification for Aggregate for Masonry Mortar.
- C. Description.
 - 1. Brick shall be either solid or cored, medium hard or better, Grade SS and SM, plain textured surface for sewer service.
 - 2. Mortar shall be comprised of one (1) part Portland cement to two (2) parts clean sand. Mortar shall be Type S.
 - 3. Sand shall conform to ASTM C-144.
 - 4. Water shall be clean, potable and free from deleterious amounts of alkalis, acids and organic matter.

Acceptable Manufacturers

- As Approved.

2.13 Grout

- A. Material provided by Contractor.
- B. Description.
 - 1. Minimum 200 psi, cement/sand high-flow mixture, commercial readily available.

Acceptable Manufacturers

- As Approved.

2.14 Pipe Collar (Anti Seep)

- A. Material provided by Contractor.
- B. Description.
 - 1. Bentonite-clay coated aggregate.

Acceptable Manufacturers

- Aqua-Blok.
- As Approved.

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Section 2: Material Requirements

2.15 Construction Stone

- A. Material provided by Contractor.
- B. Material conformance reference.
 - 1. ASTM D2321: Material requirements for flexible pipe
 - 2. ASTM D2487: Material designation
 - 3. ASTM C33: Fine and course aggregate requirements
- C. Description.
 - 1. Stone size shall be as indicated on Construction Drawings.
 - 2. Stone shall be Class I embedment or backfill material consisting of manufactured aggregates (crushed stone).
 - 3. Stone shall be clean, tough, uniform quality, durable fragments of crushed rock, free from flat, elongated, soft or disintegrated pieces, or other objectionable matter occurring either free or as coating on stone.

Acceptable Manufacturers

- As Approved.

2.16 Asphalt

- A. Material provided by Contractor.
- B. Material conformance reference.
 - 1. Georgia Department of Transportation “Asphalt Pavement Selection Guidelines, November 2006”.
- C. Description.
 - 1. Aggregate shall be Group II.
 - 2. Asphalt cement shall be grade PG64-22, PG67-22 or PG76-22.
 - 3. Hot mix asphalt type shall be Mix Type 9.5, Type I or Type II.

Acceptable Manufacturers

- As Approved.

2.17 Pavement Striping Paint

- A. Material provided by Contractor.
- B. Description.

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Section 2: Material Requirements

1. Water-based paint intended for use for pavement application.
2. Paint shall be fast dry, dry to the touch in 5 minutes, ready for traffic in 15 minutes.
3. Color as required to match existing striping.

Acceptable Manufacturers

- As Approved.

2.18 Erosion and Sedimentation Control Materials

- A. Material provided by Contractor.
- B. Description.
 1. Materials shall be in accordance with the Manual for Erosion and Sediment Control in Georgia, 2016 Edition.

Acceptable Manufacturers

- As Approved.

END OF SECTION

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Section 3: Construction Standards

3.1 General Requirements

Where a contradiction exists between language written herein in the specifications and an item shown or note indicated on the Construction Drawings, the written specifications herein shall govern.

3.1.1 Project Submittals

- A. The Contractor shall schedule and submit required information for CCWA review as to cause no delay in the work and/or Time for Completion of Project.
- B. Submittal review by CCWA will not commence until the date of the Notice to Proceed.
- C. Upon receipt of a submittal, CCWA shall complete its review and return CCWA comments to Contractor within 10 business days.
- D. Submittals shall be sequentially numbered. Resubmission of a submittal shall have the original submittal number with sequential alphabetic suffix.
- E. Each submittal or resubmittal shall be provided with the following minimum information:
 1. Project title.
 2. Contractor name.
 3. Submittal number.
 4. Date of submittal.
 5. Reference of the specific contract section.
- F. Submittals may be provided via email. Where hard copy submittals are provided, three (3) copies of final approved material data will be required; one (1) copy of approved product material will be returned to the Contractor.

3.1.2 Request for Information and Field Order

- A. Contractor's questions/clarifications shall be submitted in writing in the form of a Request for Information (RFI). Each RFI shall be provided with the following minimum information.
 1. Project title.

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2. Contractor name.
 3. RFI number; each RFI shall be sequentially numbered.
 4. Date of RFI.
 5. Reference the Contract Specification section.
- B. Minor variations in the work may occur that do not change the value of the contract or the completion date of the contract as agreed to by the Contractor and CCWA. Such variations shall be documented by CCWA in the form of a Field Order. Upon agreement, a Field Order shall be signed by the Contractor. Each Field Order shall be provided to the Contractor with the following information.
1. Project title.
 2. Contractor name.
 3. Field Order Number; each Field Order shall be sequentially numbered.
 4. Date of Field Order.
 5. Explanation of the change; reference Contract Specification section where applicable.

3.1.3 CCWA Requested Revisions

- A. The CCWA may at any time request additions, deletions or revisions to the Project. Requests for additions, deletions or revisions where the value of the contract changes shall be made in written form via a Change Order signed by the Contractor and the CCWA Engineer.
- B. Should the Change Order request be a work item that is listed and priced on the Bid Form, a cost for the item shall be established using the listed unit price and a quantity mutually agreed upon by the Contractor and CCWA prior to performing the work.
- C. Should the Change Order request be an item not listed on the Bid Form, a cost for the item and a quantity shall be negotiated and mutually agreed upon by the Contractor and CCWA prior to performing the work.
- D. Work described by the Change Order shall be completed under the terms of the original Contract, except that any claim for the extension

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of the time caused thereby shall be approved by the CCWA Engineer at the time of signing such a change order.

- E. Work performed by the Contractor that is not required by the Contract Document, Construction Plan or as requested by a Change Order shall not entitle the Contractor to an increase in contract price or an extension of contract time.

3.1.4 Construction Schedule

- A. This section requires the Contractor to provide documents to CCWA.
- B. Prepare and submit to CCWA for approval a comprehensive construction schedule.
 - 1. The schedule shall begin with the date of Notice to Proceed and conclude with the date of Final Completion.
 - 2. The schedule shall use days as a unit of measure.
- C. Show a complete sequence of construction and identify work of separate stages and other grouped activities and clearly identify critical paths of activities. Include as a minimum:
 - 1. Submittals for early product procurement.
 - 2. Mobilization and other preliminary activities.
 - 3. Site clearing.
 - 4. Access road installation.
 - 5. Flow bypass set up.
 - 6. Tie-In (1).
 - 7. Tie-In (2).
 - 8. Pipe and manhole installation work.
 - 9. Cased Crossing No. 1.
 - 10. Pipe and manhole demolition work.
 - 11. Asphalt replacement
 - 12. Project restoration.
 - 13. Project cleanup and demobilization.
- D. The construction schedule shall be updated and submitted to the CCWA on a monthly basis and include the following as a minimum:

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Section 3: Construction Standards

1. Progress of work to within five (5) working days prior to submission.
2. Approved changes in work scope and activities modified since original submission.
3. Delays in submittals, resubmittals, deliveries or work.
4. Other identifiable changes.
5. Revised projections of progress and completion.

3.1.5 Differing Subsurface or Physical Conditions

- A. If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:
 1. Is of such a nature as to require a change in the Contract Documents; or
 2. Differs materially from that shown or indicated in the Contract Documents; or
 3. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.
- B. Then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any work in connection therewith except in an emergency, notify CCWA in writing about such condition. Contractor shall not further disturb such condition or perform any work in connection therewith (except as aforesaid) until receipt of written order to do so by CCWA. In the case of emergency, the Contractor must notify CCWA immediately, not to exceed 12 hours, of becoming aware of the condition.
- C. After receipt of required written notice, the CCWA and Contractor shall promptly review the pertinent condition, determine the necessity of obtaining additional exploration or tests with respect thereto, and determine a mutually accepted course of action.
- D. The contract price or the contract times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor

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cost of, or time required for, performance of the Work; subject, however, to that the condition meets above Section 3.1.3, Part A.

3.1.6 Weather Delays

- A. When no pipe installation work and/or no manhole installation work or other work approved by CCWA can be performed on a particular day due to measurable precipitation, freezing temperatures or unsuitable ground surface conditions, then the contract is subject to a time extension of one (1) day only. The Contractor cannot charge for overhead, labor, equipment or incidental expenses due to a weather delay.
- B. When any pipe installation work and/or manhole installation work or other work is performed on a particular day and measurable precipitation, freezing temperatures or unsuitable ground surface conditions do occur, then the Contract shall not be subject to a time extension.
- C. Weather recording devices shall be situated on the Project site.
- D. Contractor shall deliver a written contract time extension request to CCWA for a weather delay within 24 hours of measuring the weather event. A contract time extension shall not be granted should a written request not be received by CCWA as indicated.

3.1.7 Project Meetings

- A. A preconstruction meeting and construction progress meetings shall be conducted by CCWA and attended by the Contractor.
 - 1. The dates, times and place of meetings shall be mutually agreed upon by both parties.
 - 2. CCWA will document the meetings and distribute meeting minutes.
- B. A preconstruction meeting will be conducted prior to mobilization and discuss at a minimum the following:
 - 1. Submittals.
 - 2. Initial construction schedule.
 - 3. Site safety and construction facilities.

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4. Material handling and storage.
 5. Work sequence.
 6. Notice to Proceed work date.
- C. A construction progress meeting will be conducted every two weeks and discuss at a minimum the following:
1. Review work progress to date.
 2. Construction schedule updates.
 3. Changes in the work.
 4. Work sequence.

Should the need not exist for meetings every two weeks, then the progress meetings will be held on a monthly basis.

3.1.8 Land Disturbance Permits

- A. CCWA submitted a Preconstruction Notification (PCN) and supporting documentation to the United States Army Corps of Engineers for this project. This project will be constructed in accordance with Nation Wide Permit conditions.
- B. CCWA shall obtain necessary Land Disturbance Activity (LDA) permits from the local issuing authority and pay associated fees. Contractor shall have a copy of the LDA permit and construction plan (as applicable) stamped approved by the local issuing authority on the job site whenever work is being performed.
- C. CCWA shall obtain the National Pollutant Discharge Elimination System (NPDES) permit from the Georgia Environmental Protection Division (EPD) and pay associated fees. Contractor shall provide a signature as the operator when CWWA submits the Notice of Intent.

3.1.9 Work Times

- A. Work on the Project site area shall be allowed seven (7) days a week from 7 a.m. to 7 p.m. with the exceptions listed in Items “B and C” below. Other times may be allowed by CCWA permission only.

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- B. No work shall be allowed on the following CCWA closed days/dates except to maintain flow bypass. Dates may be added if contract last longer than expected:
 - 1. December 24-25, 2020
 - 2. January 1, 2021
 - 3. May 31, 2021
 - 4. July 4-5, 2021
 - 5. September 6, 2021
 - 6. November 25-26, 2021
- C. All work between station 31+00 to station 36+50 must be completed during the following times except to maintain flow bypass:
 - 1. All work must be completed in two (2) months.

3.1.10 Site Safety and Precaution

- A. This section requires the Contractor to provide documents to CCWA.
- B. Prepare and submit to CCWA the Contractor's Safety Plan for the project. The Safety Plan shall include copies of the orientation sign-in form and weekly safety meeting forms. The Safety Plan and all construction shall comply with the Department of Labor, Occupational Safety and Health Administration (OSHA), 29 Code of Federal Regulations Part 1926, latest revision. This Safety Plan shall detail safety methods and procedures to assure the safety of employees, subcontractors and other visitors to the construction site.

The Contractor shall also develop a Safety Orientation for all employees, subcontractors and other visitors to the construction site.

- 1. Orientation training shall address all components identified in the safety program.
- 2. Orientation training shall be completed prior to allowing employees and subcontractors to start on-site work.
- 3. All employees, subcontractors and other site visitors shall sign a form created by the Contractor showing they received the orientation training. Copies of the signed forms shall be provided to CCWA once a month with the pay application.

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- C. The Contractor shall be responsible for preparing and implementing a Confined Space Entry Plan in accordance with OSHA's Permit Required Confined Space standard, contained in 29 Code of Federal Regulations (CFR) 1910.146. The CCWA reserves that right to have this document submitted at any time.
- D. The Contractor shall hold an onsite safety meeting once a week with all employees and subcontractors.
 - 1. The Contractor shall provide a form showing the safety topic covered, date, time and signatures of attendees. Copies of the safety meeting forms shall be submitted to CCWA once a month with the pay application.
- E. The Contractor shall provide all staff with photo identification and use vehicles with permanent company logos/markings/identification that are prominently displayed and clearly visible at all times.
- F. The Contractor shall provide an experienced supervisor in charge of field operations and subcontractors. The field supervisor shall be responsible for the safety of all site workers and site conditions, as well as ensuring that all work is conducted in conformance with these Specifications and to the level of quality specified. The field supervisor shall be responsible for reporting any safety or regulatory issue of concern immediately to CCWA. The Contractor's superintendent or foreman shall be on-site at all times when any work is being performed, including any work being performed by their subcontractors.
- G. The Contractor shall be responsible for site security. Contractor shall remove as necessary fences and gates and/or other controls to facilitate work. Removed fences shall be reinstalled no later than at the end of that day the fence was removed.
- H. The Contractor shall use special care in work methods and take all necessary precautions against improper use of equipment to avoid damaging pipe and/or structures or CCWA, public and private property. If, in CCWA's opinion, the Contractor's work has caused damage, the Contractor shall repair the damage timely and to the complete satisfaction of CCWA at no additional cost. In the event that

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funds are expended by CCWA related to these activities the Contractor shall reimburse CCWA for any and all such costs.

- I. The CCWA shall not be responsible or compensate the Contractor for the damage to and/or loss of Contractor's equipment as result of the work.
- J. Note that the Project site area is situated within a 100-year flood zone. The project site area floods on low frequency storm events. Take precautions to protect work, equipment and materials. The CCWA shall not be responsible or compensate the Contractor for the damage to and/or loss of Contractor's equipment as result of flooding.

3.1.11 Site Access and Traffic Control

- A. This section requires the Contractor to provide documents to CCWA.
- B. Site Access.
 1. All access to the site shall be through the "Staging Areas" or "Construction Entrances" designated as shown on the Construction Drawings. Access from public roads, parking lots or private property is not allowed.
 2. The Contractor and/or any other worker(s) must park vehicles only in the "Construction Limits" or "Staging Area" designations as shown on the Construction Drawings. The parking of any vehicle or equipment on public roads, parking lots or private property is not allowed.
 3. Access to homes and business must be maintained at all times.
 4. Contractor shall keep roads open at all times.
- C. Traffic Control.
 1. CCWA operates as an agency within Clayton County and in coordination with other agencies including Clayton County and incorporated cities. The CCWA shall be responsible for coordinating the work in accordance with the requirements of local, state and federal authorities and jurisdictions as required; this includes fire, police, school, traffic and other public safety authorities.

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2. When required the Contractor shall provide and maintain traffic control. Prior to a lane closure or road closure, the Contractor shall prepare and provide the CCWA a copy of the traffic control plan for local/state approval. Traffic safety devices including cones, signs, flashing lights and other necessary safety equipment must be used to comply with local jurisdiction requirements and standard industry practices.
3. A minimum of two Department of Transportation (D.O.T.) certified Flaggers will be required when directing traffic and/or closing any lane or road.

3.1.12 Construction Facilities and House Keeping

- A. The Contractor may utilize areas within the “construction limits” designation as shown on the Construction Drawings for Project use.
- B. The Contractor may move Contractor’s field office and other containers on to Project site areas designated as staging areas.
- C. The Contractor or any other worker may not establish quarters for the purpose of overnight stay or temporary residency on the Project site or other CCWA property.
- D. The Contractor shall employ the “best practicable means” to minimize and mitigate noise as well as disturbance resulting from operations. Mitigation measures shall include the utilization of sound suppression devices on all equipment and machinery, particularly in residential areas and in the near vicinity of hospitals and schools and especially at night.
- E. The Contractor shall remove and dispose of papers, plastics, tin cans and general garbage from the site on a daily basis. Keep the Project site clean.
 1. Where in these specifications the term “disposal of” is used, the contractor shall dispose of the material/debris off of the project site in accordance with local and state regulations.
- F. The burning of materials is not permitted on the Project site or other CCWA property.

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3.1.13 Temporary Utilities

- A. CCWA shall provide the Contractor a meter/backflow device to collect potable water from a nearby fire hydrant at no cost to the Contractor.
 - 1. The Contractor shall be responsible for and return the meter/backflow device to CCWA in the same condition as received. Should the Contractor damage or lose the meter/backflow device, then the Contractor shall be responsible for compensating CCWA for the damages.
 - 2. The Contractor shall be responsible for moving water to Project site area.
- B. The Contractor shall provide and maintain sanitary sewer facilities for Contractor's employees, subcontractors and all other on-site employees. Service, clean and maintain facilities and enclosures.
- C. Contractor shall provide any necessary electrical power.

3.1.14 Construction Videos and Photographs

- A. This section requires the Contractor to provide documents to CCWA.
- B. Complete the following videos and provide in such file format as required.
 - 1. A preconstruction video prior to any disturbance of all Project site areas documenting preconstruction conditions. The video shall begin at survey station 0+00.
 - 2. A post construction video upon completion of all work activities of all Project site areas documenting completed conditions. The video shall begin at survey station 0+00.
- C. Complete a minimum of 10 photos each month that sufficiently documents work progress and provide to CCWA in such file format as required.

3.1.15 Material Handling and Storage

- A. Prior to accepting (unloading) any material on the Project site, the Contractor shall complete a thorough inspection of the material for contract compliance and damages.

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1. Once an unloading process has started, the Contractor is responsible for storage and protection of the material until Final Acceptance by CCWA.
 2. Any material found to be out of compliance with contract conditions or damaged shall be immediately reported to CCWA and its manufacturer for further inspection.
 3. Should CCWA agree to accept a material that is out of compliance with contract conditions or damaged, then the Contractor shall not be responsible for the material.
- B. The Contractor shall furnish equipment and facilities for loading, unloading and material distribution.
1. The Contractor shall handle the material in accordance with the manufacturer's instructions.
 2. Contractor shall be responsible for moving material from storage areas to areas where work is being performed. Along Project route, pipe shall not be strung farther than that can be laid in that day; drainage ditches shall not be obstructed. Any pipe strung and not laid at the end of the day shall be returned to a storage area.
 3. Any pipe, piping component or material dropped, dumped or damaged by the Contractor during handling procedures shall be subject to rejection by the CCWA without further justification and replaced at the expense of the Contractor.
- C. CCWA intends for all material to be delivered to the Project site area.
1. If necessary, some material may be delivered to the CCWA Warehouse Building "B" located at 7340 Southlake Parkway in Morrow, Clayton County.
 2. Material delivered to the Warehouse Building "B" location will require Contractor pickup.
- D. Materials may be stored at Staging Areas #1, #2 and #3 along the Project route as shown on Construction Drawings S-1, S-2 and S-3 .

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1. Piping components shall be stored above ground level and adequately supported on wood blocking or other approved support material.
2. Any material in the possession of the Contractor that is stolen or damaged by impact, vibration, abrasion, discoloration or other damage shall be repaired in accordance to manufacturer instructions or replaced at the discretion of the CCWA at the expense of the Contractor.

3.1.16 Construction / As-Built Surveying

- A. This section requires the Contractor to provide documents to CCWA.
- B. Stake/flag in advance of the Contractor's work the Construction Limits and wetlands as shown on the Construction Drawings.
- C. CCWA will provide a survey coordinate file for Contractor use.
- D. Complete all other surveying/staking needs required to complete the work. Contractor shall immediately notify the CCWA of any error or concern the Contractor may have with regards to the survey work.
- E. CCWA may perform periodic checks of the Contractor's survey work to verify accuracy. The Contractor shall facilitate CCWA's work.
- F. Complete a surveyed as-built of the manholes installed for the project and provide data electronically in such manner as required.
 1. Provide the center location and elevation of the manhole and invert elevation of all incoming and outgoing pipes in the manhole.
 2. Provide the elevation on the top of the ring and cover.

3.1.17 Material Testing Services

- A. CCWA shall contract with a material testing laboratory and provide soil compaction and concrete strength material testing services.
 1. Testing shall be performed at intervals selected by CCWA.
 2. The Contractor shall cooperate and facilitate material testing services' work.

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- B. Testing and reporting shall be performed in accordance with applicable ASTM standards.
 - 1. Testing services shall promptly notify CCWA of irregularities or deficiencies in the work.
 - 2. Testing services shall provide CCWA and the Contractor copies of field reports and test results.
- C. The testing of pipe and manhole components is described in later sections and is not included as part of CCWA's provided material testing services.

3.2 Work Sequence

- A. This section requires the Contractor to provide documents to CCWA.
- B. The Contractor shall propose a work sequence(s) to perform the work and submit for approval.
- C. From station 15+50 to station 21+26, station 22+00 to station 28+00 and station 31+30 to station 36+48 the following shall be followed and incorporated into a work sequence.
 - 1. As soon as a tangent is installed and backfilled, testing must be completed/passed before starting work on the next tangent.
 - 2. Start restoring front yards, pouring driveways, paving parking lots and installing fencing once testing is complete and passed for that tangent. Final restoration must be completed from station 22+00 to station 28+00 before pipe installation can start at station 28+01 and from station 31+30 to station 36+48 before pipe installation can start at station 36+49.
- D. The following seven (7) work sequences are general in nature and are intended to guide the Contractor in performing the work.

Sequence No. 1

Survey Stations (0+00 – 7+44)

- A. Provide flow by-pass from existing 15" Outfall at Existing Manhole at station 7+44 to Existing Manhole in Hayley Drive west of Existing Manhole (1).
- B. Complete Tie-In No. 1. And install Proposed 18" pipe and Proposed Primary Manholes from Tie-In No. 1 to Proposed Primary Manhole (2).
- C. Test all pipe and manholes installed up to Proposed Primary Manhole (2).

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- D. Complete restoration and proposed demolition.
- Note: Continue to run original bypass while setting up by-pass for Sequence No. 2.

Sequence No. 2 Survey Stations (2+36.04 – 15+31.15)

- A. Provide flow by-pass from existing 15" Outfall at Existing Manhole at station 15+31.15 to Proposed Primary Manhole (1).
- B. Provide flow by-pass from the following Services.
 - 1. Service (A)
 - 2. Service (B)
 - 3. Service (C)
 - 4. Service (D)
 - 5. Service (E)
- C. Discontinue flow by-pass from Sequence No. 1.
- D. Install Proposed 18" pipe and Proposed Primary Manholes from Proposed Primary Manhole (2) to station 15+00.
- E. Test all pipe and manholes installed up to Proposed Primary Manhole (4).
- F. Reconnect Services (A, B).
- G. Complete restoration and proposed demolition.
- Note: Continue to operate flow by-pass for Sequence No. 2 while setting up flow by-pass for Sequence No. 3.

Sequence No. 3 Survey Stations (7+27.43 – 21+56.72)

- A. Provide flow by-pass for existing 15" Outfall from Existing Manhole at station 21+56.72 to Proposed Primary Manhole (3).
- B. Provide flow by-pass from the following Services.
 - 1. Service (C)
 - 2. Service (D)
 - 3. Service (E)
 - 4. Service (F)
 - 5. Service (G)
 - 6. Service (H)
 - 7. Service (I)

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8. Service (J)
 9. Service (K)
 10. Service (L)
 11. Service (M)
 12. Service (N)
 13. Service (O)
 14. Service (P)
 15. Service (Q)
- C. Discontinue flow by-pass from Sequence No. 2.
 - D. Install Proposed 18" pipe and Proposed Manholes from station 15+00 to Proposed Manhole (8).
 - E. Test all pipes and manholes up to installed Proposed Manhole (8).
 - F. Reconnect Services (C, D, E, F, G, H, I, J, K, L, M, N, O, P).
 - G. Complete restoration and proposed demolition.
- Note: Continue to operate flow by-pass for Sequence No. 3 while setting up flow by-pass for Sequence No. 4.

Sequence No. 4

Survey Stations (20+18.01 – 28+02.47)

- A. Provide flow by-pass from existing 15" Outfall from Existing Manhole at Proposed Primary Manhole (12) to Proposed Primary Manhole (7).
- B. Provide flow by-pass for the following Services.
 1. Service (Q)
 2. Service (R)
 3. Service (S)
 4. Service (T)
- C. Discontinue flow by-pass from Sequence No. 3.
- D. Install Proposed 18" pipe and Proposed Primary Manholes from Proposed Primary Manhole (8) to Proposed Primary Manhole (12).
- E. Test all pipe and manholes installed up to Proposed Primary Manhole (12).
- F. Reconnect Services (Q, R, S, T)
- G. Complete restoration and proposed demolition.

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- Note: Continue to operate flow by-pass for Sequence No. 4 while setting up flow by-pass for Sequence No. 5.

Sequence No. 5 Survey Stations (25+41.45 – 41+15.15)

- A. Provide flow by-pass from existing 15" Outfall at Existing Manhole at station 33+53.57 to Proposed Primary Manhole (11).
- B. Provide flow by-pass from the following Services.
 - 1. Service (U)
 - 2. Service (V)
 - 3. Service (W)
- C. Discontinue flow by-pass from Sequence No. 4.
- D. Install Proposed 18" pipe and Proposed Primary Manholes from Proposed Primary Manhole (12) to Proposed Primary Manhole (18).
- E. Install half of the pipe but don't connect for Services (Y, Z).
- F. Test all pipe and manholes installed up to Proposed Primary Manhole (18).
- G. Reconnect Services (U, V, W).
- H. Complete restoration and proposed demolition.
- Note: Continue to operate flow by-pass for Sequence No. 5 while setting up flow by-pass for Sequence No. 6.

Sequence No. 6 Survey Stations (36+00 – 50+07.79)

- A. Provide flow by-pass from existing 15" Outfall at Existing Manhole at station 50+07.79 to Proposed Primary Manhole (17).
- B. Provide flow by-pass from the following Services.
 - 1. Service (X)
 - 2. Service (Y)
 - 3. Service (Z)
 - 4. Service (AA)
 - 5. Service (BB)
 - 6. Service (CC)
 - 7. Service (DD)
 - 8. Service (EE)
 - 9. Service (FF)

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10. Service (GG)
 11. Service (HH)
 12. Service (II)
 13. Service (JJ)
 14. Service (KK)
 15. Service (LL)
- C. Discontinue flow by-pass from Sequence No. 5.
- D. Install Proposed 18" pipe and Proposed Primary Manholes from Proposed Primary Manhole (18) to Proposed Primary Manhole (24).
- E. Test all pipe and manholes installed up to Proposed Primary Manhole (24).
- F. Reconnect Services (X, Y, Z, AA, BB, CC, DD, EE, FF, GG, HH, II, JJ, KK, LL).
- G. Complete restoration and proposed demolition.
- Note: Continue to operate flow by-pass for Sequence No. 6 while setting up flow by-pass for Sequence No. 7.

Sequence No. 7

Survey Stations (48+11.70 – 66+44.35)

- A. Provide flow by-pass from existing 15" Outfall at Existing Manhole at station 66+44.35 to Proposed Primary Manhole (22).
- B. Provide flow by-pass from the following Services.
1. Service (MM)
 2. Service (NN)
 3. Service (OO)
 4. Service (PP)
 5. Service (QQ)
 6. Service (RR)
 7. Service (SS)
 8. Service (TT)
 9. Service (UU)
 10. Service (VV)
 11. Service (WW)
- B. Discontinue flow by-pass from Sequence No. 6.

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- C. Install Proposed 18" pipe and Proposed Primary Manholes from Proposed Primary Manhole (24) to Tie-In No. 2.
- D. Test all pipe and manholes installed up to Tie-In No. 2.
- E. Reconnect Services (MM, NN, OO, PP, QQ, RR, SS, TT, UU, VV, WW)
- F. Disconnect flow by-pass.
- G. Complete restoration and proposed demolition.

3.3 Site Work

3.3.1 General

- A. Display permits and contact respective agencies as required by applicable permit conditions.
- B. Locate existing utilities in accordance with state and local regulations.
- C. Prior to commencing any on-site work, establish perimeter erosion control measures and construction exits as indicated on the Construction Drawings.
- D. Prior to commencing any other job site activity, installed erosion control measures shall be inspected and approved by CCTD.
- E. Providing and maintain a safe work site. Utilize safety cones, barricades, caution lights, caution tape, safety fencing, etc. as necessary to protect the workers and the public at all times.
- F. Install temporary galvanized mesh fence up to a minimum height of 6 feet, corner post, line posts, top rail, bottom tension wire, accessories and fasteners and subsequently remove all fencing materials from work site and disposing any remaining soil and/ or other construction related materials/debris. Any holes remaining from post removal shall be filled with dry sand. Fence shall be installed in such manner as to prevent property owners' pets from passing through/under fence, install gates at locations determined by CCWA. Temporary fence shall be installed and remain in-place until construction is completed in the respective area. Locations for Temporary Fencing are as follows:
 - 1. On the north and west side of the construction limits between the back of houses and the construction from station 0+00 to station 11+77.

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2. On both sides of the construction limits from station 14+00 to station 15+00.
3. On the north and west sides of the construction limits from station 20+60 to station 31+00.
4. On the east side of the construction limits from station 20+55 to station 20+94.
5. On the south side of the construction limits from station 32+00 to station 34+00. Only install this directly before starting pipe excavation and remove as soon as backfill is finished between these stations.
6. On the construction limits between the back of the houses and the construction from station 38+00 to station 52+00.
7. On the construction limits between the back of the houses and the construction from station 57+33 to station 58+50.
8. On the construction limits between the back of the houses and the construction from station 63+60 to station 64+15.
9. Around the four sides of staging areas #1, #2 and #3. Need to install gates at each staging area for access.

3.3.2 Clearing and Grubbing

- A. Stake/flag the Construction Limits in advance of the work. Contractor shall not remove stakes or clear those flagged trees/brush.
- B. Area within the permanent easement, road right-of-way or 20-foot width centered over the pipe shall be cleared of all trees, stumps, buried logs, brush, grass, household items, construction trash, tires, metal and any other unsatisfactory debris unless indicated otherwise. Contractor should assume that all work will require clearing.
- C. Areas outside the permanent easement but within the construction limits may be cleared at the Contractor's discretion.
- D. Trees to remain in or near work area shall be protected from clearing activities. Should trees left remaining in the construction limits at the discretion of the Contractor subsequently die during the warranty period, then the Contractor shall be responsible for their removal and disposal and any related restoration work.

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- E. All damaged trees over three (3) inches in diameter shall be repaired by an experienced nursery expert.
- F. Tap roots and other projections exceeding 1-inch in diameter shall be grubbed out to a depth of at least 18 inches.
- G. All holes remaining after grubbing activities shall be filled with suitable material and properly compacted in layers to density required for in-place backfill.
- H. All materials cleared and grubbed shall be disposed of off-site in accordance with applicable local, state and federal regulations.
- I. Burning of any material or debris shall not be permitted.
- J. Prior to and upon completion of clearing and grubbing activities, install erosion control measures as identified on the construction drawings.

3.3.3 Access Road Construction

- A. Construct access road at Contractor's discretion (size and material determined by Contractor) from station 0+00 to station 15+80, station 20+18 to station 22+82, station 23+64 to station 31+30, station 36+48 to station 52+50, station 53+00 to station 65+65 and from staging area #1 to the construction route to be used to transport material for construction.
- B. Contractor is to maintain access road during construction at their expense.
- C. Upon completion of construction, stone for access road is to be removed and hauled to a CCWA facility; facility location to be determined at that time.
- D. Area of access road will be graded to within four (4) inches of existing finish grade and topped with four (4) inches of clean topsoil, graded to match existing adjacent grades.
- E. Area to be seeded and mulched once topsoil is installed.

3.3.4 Topsoil Stockpiling

- A. Remove topsoil to full depth encountered in areas to be graded and stockpile soil.

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- B. Soil shall be placed such that the integrity of an excavation or proposed excavation is not jeopardized.
- C. Stockpile shall be shaped to drain and install appropriate erosion control measures.

3.3.5 Existing Utilities

Remove and subsequently replace at same grade and elevation existing utility pipes and associated components.

3.3.6 Removing Pavement

- A. All asphalt pavement within the Construction Limits and where trenching is to be completed shall be removed and replaced unless indicated otherwise on the Construction Drawings. Work shall be coordinated and in compliance with the appropriate road and highway agencies.
- B. Driveways shall be removed to their full width from the edge of road pavement to the back of the construction lane.
- C. Sidewalks shall be removed to their full width from the edge of curb, road pavement or construction/control joint to the nearest adjacent construction/control joint.
- D. Curbs shall be removed for the entire length from control joint to control joint.
- E. Pavement shall be marked squarely and neatly to size as indicated on Construction Drawings.
- F. Pavement shall be scored and broke along the marked lines using a rotary saw and jackhammer. Pavement shall not be machine pulled for initial brake.
- G. Adjacent pavement damaged during construction shall be removed as described above and replaced in accordance with the Construction Drawings at the expense of the Contractor.
- H. Upon removal, asphalt and concrete shall be loaded and disposed of off-site the same day of removal.

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3.3.7 Grading

- A. Finish grade areas to lines and elevations indicated as existing grades on construction drawings or to surrounding surface grades.
- B. Provide additional soil to areas indicated on the construction drawings.
- C. Graded areas shall be within 0.10 foot of required subgrade elevation and shall not permit the ponding of water.
- D. In areas to receive grassing, redistribute stockpiled topsoil over graded areas to a minimum depth of four (4) inches. Provide additional topsoil to achieve required depth.
- E. Where finish grade meets or abuts curbs, walks or pavement, uphill grades shall be slightly higher than curb or pavement to permit drainage.
- F. In yard, right-of-way and mowed areas, remove rocks and dirt clods $\frac{3}{4}$ -inch in size and larger.
- G. Excess soil, rock and debris shall be removed from the project site and disposed of.

3.3.8 Erosion Control and NPDES Monitoring

- A. Stabilize Project site areas in accordance with the erosion control plans and details and/or the “Manual for Erosion and Sediment Control in Georgia”, latest edition.
 - 1. Contractor shall apply water, without causing soil erosion, to newly planted grassed areas on an as-needed basis until grass growth can be observed across all grassed areas.
 - 2. Contractor shall apply water to newly planted sod areas on an as-needed basis until root growth can be observed as a dense root mat across all sod areas.
- B. The construction site is upstream and within 1 mile of an impaired stream segment. The following erosion control measures and monitoring shall be completed.
 - 1. Use flocculants or coagulants and/or mulch to stabilize areas left disturbed for more than seven (7) calendar days.

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2. Use mulch filter berms, in addition to silt fence, on the site perimeter where indicated on Construction Drawings. Mulch filter berms are not to be placed in waterways or areas of concentrated flow.
 3. Certified personnel shall conduct inspections at least once every seven (7) calendar days and within 24 hours of the end of the storm that is 0.5 inches rainfall or greater.
 4. Conduct turbidity sampling after every rain event of 0.5 inch or greater within any 24-hour period.
- C. Complete monitoring and reporting in accordance with NPDES standards and erosion control notes.
1. Submit results of monitoring and reporting to CCWA on a monthly basis.

3.3.9 Clean-Up

- A. Upon completion of each day's work, broom sweep/pressure wash as necessary any dirt/mud/debris from sidewalk, curb and pavement surfaces and dispose.
- B. Upon site being stabilized with vegetation, all erosion control measures and any remaining debris (i.e. silt fence, stakes, hay bales) shall be removed from site areas.

3.4 Flow Interruption

- A. This section requires the Contractor to provide documents to CCWA.
- B. Prepare a flow interruption plan for CCWA review and approval.
- C. No excavation activities shall commence until a flow interruption plan is approved by CCWA.
- D. Flow interruption may be completed using plugging and/or bypass pumping methods. Use upstream manholes for bypass pumping. Newly installed 18" sanitary sewer segments (manhole to manhole) may receive flow as soon as all testing is completed and accepted.
- E. Bypass pump systems set in streets for service reconnects shall be removed immediately upon approved testing of pipe.

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- F. The following list provides peak flows that are to be considered when planning flow interruption.
1. Outfall from Existing Manhole 1 to existing Manhole 20: 1,475 gpm
 2. Outfall from Existing Manhole 21 to existing Manhole 38: 1,050 gpm
 3. 8" Service Connection (A): 300 gpm
 4. 8" Service Connection (G): 100 gpm
 5. 8" Service Connection (L): 100 gpm
 6. 8" Service Connection (Q): 50 gpm
 7. 6" Service Connection (R): 50 gpm
 8. 6" Service Connection (S): 50 gpm
 9. 4" Service Connection (T): 50 gpm
 10. 6" Service Connection (U): 50 gpm
 11. 6" Service Connection (V): 50 gpm
 12. 6" Service Connection (W): 50 gpm
 13. 8" Service Connection (X): 300 gpm
 14. 8" Service Connection (JJ): 100 gpm
 15. 8" Existing Secondary (H) Manhole: 100 gpm
 16. 8" Service Connection (PP): 50 gpm
 17. 8" Service Connection (RR): 100 gpm
 18. 8" Service Connection (UU): 50 gpm
 19. 8" Service Connection (VV): 300 gpm
 20. All other Service Connections are household connections: minimal gpm
- G. The flow interruption plan shall indicate the following as a minimum:
1. Flow interruption method; flow bypass or plugging.
 2. Map that shows manholes/structures affected; this includes plugging/suction points, flow discharge points, space required for pump(s) set up and route for discharge piping.
 3. Indicate pump(s) and piping size; pumping capacity shall be capable of handling peak flows. Provide a single pump system curve that represents all pumps at a single pumping location; the pump system

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curve shall show the system can meet or exceed the anticipated peak flow.

4. Emergency response plan to be followed in the event of a failure of the system.
- H. Furnish, install and maintain primary and redundant pumps, automated emergency call services, other devices, bypass piping and fuel required to maintain peak flows and services. All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric, or diesel powered. All pumps used must be capable of running dry. Bypass pumping systems will be equipped to be operated continuously 24 hours per day. Each pump shall have its own suction piping; two or more pumps cannot be manifolded together sharing a single suction line. No more than two (2) pump discharge hoses shall be used for the bypass/diversion. If the flow exceeds the capacity of 2 hoses, then rigid piping shall be used. The rigid piping shall consist of HDPE or steel pipes with suitably pressure rated couplings to withstand twice the maximum system pressure or 50 psi, whichever is greater. Under no circumstances will aluminum irrigation type piping or glued PVC pipe be allowed.
- I. Pumped sewage shall be in an enclosed hose or pipe that is adequately protected from traffic. Install traffic rated hose/ramp assemblies where discharge crosses paved surfaces and entrances to businesses/residential properties.
- J. All pump/engine assemblies shall be fully enclosed and equipped with sound suppression systems.
- K. All bypass pump suction point locations and discharge point locations shall be covered/sealed to prevent odor.
- L. All bypass pumps shall be installed with the bottom of the skids out of or above the 100-year flood elevation. Piping crossing swamps and creeks shall be installed above the 100-year flood elevation and secured to a ridged structure. All other piping within the 100-year flood elevation shall be secured to prevent pipe movement during rain events and flooding.

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- M. Install temporary fence (8-feet in height) around bypass pumps, suction point locations and discharge point locations to provide precautionary measures for the protection of persons or property.
- N. A bypass pumping “drill” shall be performed by the Contractor to demonstrate system readiness if requested by CCWA. The drill shall demonstrate the incorporation of all standby equipment to handle flows when the main pump set is switched off. Provisions to accommodate any of the CCWA’s review comments following the drill shall be adhered to in full at no additional cost.
- O. The Contractor shall take all necessary steps to eliminate the overflow of sewerage. In the event of an overflow of sewerage, the Contractor shall be responsible for cleanup of the area and all other pertinent activities as required by the Georgia Environmental Protection Division (GAEPD). All costs of these restoration/cleanup activities shall be the responsibility of the Contractor. In the event that funds are expended by the CCWA related to these activities the Contractor shall reimburse the CCWA for any and all such costs including but not limited to the costs expended by the CCWA for fines levied by the GAEPD.
- P. The Contractor shall be responsible for damage to public or private property due to flow interruption. All costs of restoration/cleanup activities shall be the responsibility of the Contractor. In the event that funds are expended by the CCWA related to these activities the Contractor shall reimburse the CCWA for any and all such.
- Q. The Contractor will indemnify and hold harmless the CCWA for any fines or third-party claims for personal or property damage arising from flow interruption that is the responsibility of the Contractor. Should fines subsequently be imposed as a result of any flow interruption for which the Contractor is fully or partially responsible, the Contractor shall pay all such fines and all of the legal, engineering, and administrative costs in defending such fines and claims associated with flow interruption.

3.5 Dewatering

- A. This section requires the Contractor to provide documents to CCWA.
- B. Provide an excavation dewatering plan for CCWA review and approval.

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- C. Refer to “Subsurface Investigation, Jesters Creek Outfall Replacement Phase IV, Jonesboro, Clayton County, Georgia, GeoSystems Project No. 20-2730, March 24, 2020”.
- D. Provide dewatering systems as necessary to maintain excavations dry at all times during construction.
- E. Water withdrawn from excavations or dewatering systems shall be filtered using containerized sedimentation systems, filter bags and/or filter tubes.
- F. Install appropriate erosion control measures as may be necessary.
- G. Sediment collected within the systems shall be disposed of offsite.

3.6 Vibration Monitoring

- A. This section requires the Contractor to provide documents to CCWA.
- B. The contractor shall prepare a plan to perform vibration monitoring along the construction route.
- C. Monitor houses and buildings for vibration damage during construction in accordance with industry standards.
- D. Monitoring shall take place during excavation work, pipe installation, manhole installation, backfilling, compaction and grading.
- E. The Contractor shall be responsible for damage to public or private property due to vibration.
- F. Complete a pre-construction survey of the existing structures to establish a baseline of existing damage prior to the start of any construction. Complete the following as a minimum.
 - 1. Complete a thorough walkthrough as part of the assessment.
 - 2. Complete documentation (notes, photographs, videos) of existing distress, and measurements of pre-existing cracks in foundations and walls outside and inside of structures.
- G. Complete a post-construction survey of the existing structures to document any changes to the structures upon completion of the construction.
 - 1. Prepare a report that summarizes all data collected during the pre-construction assessment, data collected during construction and data collected as part of the post construction survey. The report should

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provide a concluding summary of conditions found after construction and potential causes. Provide a copy of the report to CCWA.

3.7 Excavation

3.7.1 Shoring

- A. This section requires the Contractor to provide documents to CCWA.
- B. Prepare an excavation shoring plan for CCWA review.
- C. Refer to “Subsurface Investigation, Jesters Creek Outfall Replacement Phase IV, Jonesboro, Clayton County, Georgia, GeoSystems Project No. 20-2730, March 24, 2020”.
- D. The Contractor shall assume the responsibility for design and construction of excavation shoring and bracing capable of supporting excavations and construction loads.
 - 1. Where depths require, provide shore design and details stamped and sealed by a Professional Engineer Licensed in the State of Georgia for CCWA review.
- E. Use trench boxes wherever possible to prevent the weakening of surrounding soils.
- F. Use trench boxes when digging next and near power/utility poles.

3.7.2 Pit and Trench

- A. Contractor shall refer to “Subsurface Investigation, Jesters Creek Outfall Replacement Phase IV, Jonesboro, Clayton County, Georgia, GeoSystems Project No. 20-2730, March 24, 2020”.
- B. Excavation shall include those measures necessary to establish trench widths and grades as indicated on the Construction Drawings.
 - 1. Excavation shall include removal and disposal off-site of all pipe and manhole materials encountered in the proposed locations of new pipe and manholes.
 - 2. Excavation should be completed to natural undisturbed soil. Where unsuitable material is encountered, the contractor shall immediately notify the CCWA inspector. Over excavate through unsuitable material and backfill to required grade with Surge

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Stone, No. 57 stone or No. 89 stone and consolidate with vibrator.
The CCWA Inspector shall determine depth of over excavation.

- C. Excavated soil shall be placed in a location such that the integrity of the excavation is not jeopardized.
- D. The excavation shall provide space for inspection of utilities and appurtenances.
- E. Maintain excavations dry at all times using pumps, well points or other dewatering means.
- F. When laying pipe, limit trenching to not greater than 100 feet ahead of completely backfilled work.
- G. Open excavations shall be made safe at all times. Excavations shall be covered in accordance with applicable regulations and/or barricaded and roped-off with identifying tape during work progress.
- H. Install temporary fence (8-feet in height) around any open excavation at the end of each workday to provide precautionary measures for the protection of persons or property.

3.7.3 Rock

- A. Rock is defined as removing and disposing of solid material being greater than one (1) cubic yard in size which by actual demonstration cannot, in the opinion of the CCWA Engineer, be reasonably excavated with the excavator being used to install the pipe and manholes for the project that is in good condition and equipped with manufacturer's standard boom and rock points or similar approved equipment; and which must be systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker or expansive compounds.
- B. Excavation shall include those measures necessary to establish grades indicated on drawings for utilities and appurtenances. Rock shall be excavated to a minimum depth of six (6) inches below grades indicated on drawings.
- C. The Contractor shall be responsible for determining methods required for removal of rock or hard materials (i.e. systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker or expansive compounds).

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- D. A licensed explosive contractor shall perform blasting operations.
- E. Blasting operations shall be conducted in accordance with all local, state and federal regulations. The Contractor is responsible for repairs and/or replacement of damaged property(s) resulting from the work.
- F. Excavated rock shall not be used as backfill in excavations. Contractor shall replace volume of excavated rock inside the pipe zone with suitable stone and outside of the pipe zone with suitable soil.
- G. Excavated rock shall be removed from the project site and disposed of.

3.8 Pipe Work

3.8.1 Bedding

- A. Pipe bed shall be established to elevations and grade as shown on the Construction Drawings or to match a requested condition.
- B. Pipe bed material and depth shall be as indicated on the Construction Detail / Construction Drawings. Stone shall be shovel sliced/consolidated using any means from beneath the pipe up to one-half (1/2) the pipe diameter prior to placing subsequent backfill. The entire length of barrel shall be fully supported with stone.
- C. Stone shall be used to backfill pipe to a height of six (6) inches above the top of the pipe.
- D. When installing pipe in areas of excavated rock, pipe shall be placed on a bed of stone, minimum six (6) inches in depth.
- E. Soil determined to be unsuitable by the CCWA Inspector shall be removed to a determined depth and replaced with stone to desired grade.

3.8.2 Pipe Installation

- A. Comply with manufacturer's installation instructions.
- B. Install pipe of material type and size as shown on the Construction Details or Construction Drawings.
- C. Prior to placement, the interior of pipes and fittings shall be cleaned free of dirt and debris.

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- D. Pipe, fittings and accessories shall not be laid or jointed in water.
- E. Pipe, fittings and accessories shall be handled and lowered into their respective positions using choker straps.
- F. A slight hole shall be dug where pipes are to be jointed to relieve pipe bell of any load. Pipe barrel shall be supported for its entire length.
- G. The pipe mating ends shall be thoroughly cleaned and soaped before jointing. The mating ends shall be aligned in accordance with the manufacturer's tolerance and carefully shoved together using a steady force.
- H. Prior to joining consecutive pipe, backfill previously jointed pipe with sufficient material to prevent movement.
- I. Backfill pipe trench to the required grade in accordance with backfill and compaction requirements.
- J. Pipe Identification: Install pipe detection tape over buried piping during backfill operations. Detection tape shall be installed centered, approximately 24 inches above the pipe.
- K. New pipe and existing pipe shall be cut to lengths as required in accordance with manufacturer instructions using a rotary-type saw. Prepare cut ends in accordance with manufacturer instructions.
- L. When installing a pipe into a manhole or box structure, pipe end shall not extend greater than 12-inches beyond the inside face of the structure as measured at the 3 or 9 o'clock position.
- M. Install pipe collars of size and at locations as shown on the Construction Drawings.
- N. Install Protective Casing around pipe of size and length at locations as shown on the Construction Drawings.
- O. Where casing is being installed in an open excavation, casing lengths shall be as long as practicable and joined by single grooved butt weld for the entire circumference of the casing.
- P. Place a plug in the open end of uncompleted laid piping at the end of each day.

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- Q. Pipe shall not be placed in service until all testing has been accepted by CCWA.
- R. Pipe not laid to the requested grade/alignment shall be removed and subsequently laid to the requested grade/alignment and the expense of the contractor.

3.8.3 Pipe Testing

- A. Testing shall be performed when backfill to finished grade and compaction are complete and dewatering has been discontinued for a minimum 24-hour period at the location of the test.
 - 1. All pipe installed shall be tested as indicated below.
 - 2. Contractor shall document all testing in such manner as necessary to show completion of the work.
 - 3. A CCWA Inspector must be present and witness any type of testing for acceptance.
 - 4. Any pipe not passing required testing shall be replaced or repaired at the Contractor's expense.
- B. Air Pressure Testing: Sanitary sewer gravity-flow pipe installed between new manholes shall be subjected to a low air pressure test at each joint. Pipe shall be free of dirt and debris prior to testing. The internal air pressure of the pipe shall be raised to approximately four (4) psi. The test shall begin when the stabilized pressure is at a minimum of 3.5 psi. Test and pipe shall be considered acceptable when an air pressure equivalent to the stabilized pressure is maintained for a period of five (5) minutes.
- C. Deformation Testing: All pipe shall be tested for deformation. Pipe shall be free of dirt and debris. Any measured location may not show deformation of more than three (3) % of the pipe's manufactured published inside diameter.
 - 1. Deformation in the pipe shall be determined by using a mandrel measuring device being pulled throughout the entire length of the pipe segments.

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- D. Televising Testing: All pipe shall be televised to ensure integrity and document installed condition. Pipe shall be free of dirt and debris prior to televising. A video recording in general compliance with ASTM and National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) standards shall be completed through the pipe from manhole to manhole to show completed work. A video recording and report of each segment laid shall be provided to CCWA.

3.9 Manhole Work

3.9.1 New Manhole Installation

- A. Install manholes of required sizes and at locations and elevations as shown on Construction Drawings. Manholes shall be set atop stone as indicated on the Construction Drawings.
- B. The bed shall be prepared so that the manhole is set level.
- C. Manhole sections shall be handled with lifting straps or hooked cables using a minimum of two (2) of the manufactured manhole lifting holes.
- D. Manhole sections shall be positioned such that influent and effluent piping enter the center of their respective opening not pinching the rubber boot seal. Pipe shall not rest on invert of opening.
- E. Manhole sections shall be stacked level and plumb at all times.
- F. Prior to joining consecutive sections, tongue-and-grooved ends shall be cleaned free of dirt and debris.
- G. Tongue-and-grooved ends shall be fitted with preformed gasket sealing compound. Sealing compound shall be installed in such manner that when consecutive sections are stacked, sealing compound can be visually observed “squeezing out” from all sections of the joint.
- H. Manhole lifting holes shall be plugged with rubber stoppers or sealed using non-shrink grout throughout the entire depth of hole.
- I. Seal annulus between pipe and core opening using rubber boot in accordance with the manufacturer’s instructions.

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- J. Manholes may not be placed in service until all testing has been accepted by CCWA.
- K. Manholes not set to the requested grade/alignment shall be removed and subsequently set to the requested grade/alignment and the expense of the contractor.

3.9.2 Invert Construction

- A. Clean new and existing manhole base free of dirt and debris before constructing invert.
- B. Construct “U-shape” style smooth invert from brick and mortar or cast-in-place concrete to size and elevation as shown on the Construction Drawings and as necessary to direct flow.
- C. Special care shall be taken such that the finished invert does not touch any pipe material.
- D. Apply sealing compound to invert material in accordance with the manufacturer’s instructions.
- E. Invert construction shall have sufficient time to cure as not to be affected by in-service conditions.

3.9.3 Manhole Testing

- A. Testing shall be performed when backfill to finished grade and compaction are complete and dewatering has been discontinued for a minimum 24-hour period at the location of the test.
 - 1. Every newly installed manhole shall be tested.
 - 2. Contractor shall document all testing in such manner as necessary to show completion of the work.
 - 3. A CCWA Inspector must be present and witness any type of testing for acceptance.
 - 4. Any manhole not passing required testing shall be replaced or repaired at the Contractor’s expense.
- B. Visual Water Infiltration Testing: Manhole testing shall be performed by visually observing for water infiltration at all manhole sections, at all pipe / rubber boot seal connections, at all manhole / rubber boot seal

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connections. Test shall be considered acceptable when no water infiltration is observed at any described observation points.

3.10 Backfill and Compaction

3.10.1 Backfill

- A. Excavations shall be backfilled using suitable material in accordance with the Construction Drawings or applicable Details.
- B. Place no backfill until any poured concrete has sufficient compressive strength.
- C. Place backfill against below grade walls (i.e. manhole sections) in uniform level lifts to prevent wedging action.
- D. When backfilling areas to be paved, the final 6 inches is to be filled with graded aggregate base. Prior to paving, remove required aggregate and dispose.
- E. Backfill shall not be placed on surfaces that are saturated, frozen or containing frost or ice.
- F. Place backfill in excavations as follows.
 - 1. Backfill in loose lifts not exceeding 6 inches when compacting using manual tamping devices (jumping jack).
 - 2. Backfill in loose lifts not exceeding 12 inches when compacting using vibrating/ramming devices (sheep-foot vibratory roller).
- G. Any settlement shall be filled and compacted to conform with adjacent surfaces.

3.10.2 Compaction

- A. Backfill shall be compacted using manual tamping devices or vibrating/ramming devices.
- B. Use manual tamping devices to compact soil as follows, otherwise use vibratory devices.
 - 1. When area is inaccessible to vibrating devices and within 2 feet of below grade walls (includes manholes).

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2. From bottom of pipe trench to twelve (12) inches above the top of pipe.
- C. Compaction requirements are as follows.
 1. Backfill in road right-of-way shall be compacted the entire depth to a minimum of 95% of the maximum dry density as determined by a Standard Proctor Analysis.
 2. Backfill not described above shall be compacted for the entire depth to a minimum of 90% of the maximum dry density as determined by a Standard Proctor Analysis.
 3. Soil installed and not meeting the compaction requirements shall be removed and re-installed and compacted or replaced with other approved material and compacted at the expense of the contractor.

3.10.3 Compaction Testing

- A. Samples from the proposed construction area shall be analyzed for maximum dry density in accordance with ASTM 698 – Method C or applicable GDOT standard.
- B. The extent of testing required shall be dependent upon soil conditions, Contractor's methods of construction and regulatory requirements.
- C. Minimum compaction testing shall be as follows.
 1. Backfill in excavations shall be tested at 2-foot lift intervals per 1,000 square feet of fill or as deemed necessary by the CCWA Inspector.
 2. Backfill in trench excavations shall be tested at 2-foot intervals per 400 linear feet of fill or as deemed necessary by the CCWA Inspector.
- D. Samples from the proposed construction area shall be analyzed for maximum dry density in accordance with ASTM 698 – Method C or applicable GDOT standard.

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3.11 Cased-Crossings No. 1 and No. 2

3.11.1 General

- A. This section requires the Contractor to provide documents to CCWA.
- B. Contractor is responsible for establishing elevations, grades and alignment provided from the construction drawings.
- C. Contractor shall monitor ground movement during construction.
 - 1. Prior to construction, establish ground monitoring points on the pavement surface at 10-foot intervals along the centerline of the alignment and at 10-foot offsets each side of centerline interval using survey methods and produce a scaled layout drawing referenced to a benchmark.
 - 2. Collect surface elevation readings immediately prior to construction, once per week during construction, once one week after all construction is completed and once four weeks after all construction is completed from the monitoring points to the nearest one-hundredth of a foot (0.01) and maintain a log of measurements documenting location point, date, time and elevation.
 - 3. Work shall be immediately stopped when readings indicate any surface movement.
 - 4. Contractor shall propose immediate action to remedy the problem for review and approval by the CCWA.
 - 5. Any surface repair is the Contractor's sole responsibility including cost.
 - 6. Provide a table of all monitoring recorded data.

3.11.2 Bore and Receiving Pit

- A. Bore entry and receiving pits shall be completed and sized as required by the Contractor.
- B. The base of the bore pit and bore pit walls shall be prepared in such a manner as to support equipment loading anticipated during bore operations.
- C. Construction of pits shall comply with Excavation and Backfill, and Compaction specifications referenced herein.

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- D. Equipment set-up in the bore pit shall be set to the grade that matches the construction drawings.

3.11.3 Installation

- A. Cased Crossing No. 1 shall be steered. Boring, jacking and steering of casings through soil shall be completed by dry auger boring without jetting, sluicing or wet boring.
- B. The boring diameter shall be essentially the same as the outside diameter of the casing.
- C. Upon completion of bore, casing shall be cleaned free of all dirt and debris using manual methods, high pressure water via appropriate jet cleaning nozzles and vacuum methods.
- D. Should a boring encounter refusal or other unforeseen conditions, Contractor shall notify CCWA immediately in writing before advancing the casing.
- E. For steered casings, record an indication of the grade at the beginning of each piece of casing installed; the record shall be provided to CCWA.
 - 1. CCWA shall be notified immediately in writing when the Contractor has determined the bore is not on the required grade.

3.11.4 Pipe Insertion

- A. Pipe shall be inserted by means of pulling or pushing as recommended by the pipe manufacturer.
- B. Contractor shall prepare an end assembly to pull from/push against such that ends of pipe are not damaged during insertion.
- C. Pipe shall be supported within casing to limit radial movement to a maximum of 3/4 inch.
- D. A minimum of three (3) spacers shall be installed on each nominal section of pipe at spacing recommended by the pipe or casing manufacturer.
- E. The annulus between the pipe and casing, at each end, shall be sealed using a flexible rubber seal.

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3.11.5 Testing

- A. The cased crossings (casing/pipe/plates) shall be televised in accordance with Section 3.8.4 “Pipe Testing” prior to installing the sanitary sewer pipe.
- B. The sanitary sewer pipe shall be tested in accordance with Section 3.8.4 “Pipe Testing”.

3.12 Demolition

3.12.1 Bulkhead

- A. Install bulkheads at locations shown on the Construction Drawings or at requested locations.
- B. Plug with grout abandoned services and any pipe at Service Re-Connects as may be required as shown on the Construction Drawings.
- C. Cut existing pipe in such manner that provides for installation.
- D. Construct bulkhead across entire pipe opening using brick and mortar, minimum eight (8) inches in depth.

3.12.2 Remove

- A. Remove pipe, manholes and structures completely from the ground at locations shown on the Construction Drawings or at requested locations.
- B. Cut existing pipe, manholes and structures in such manner that provides for removal.
- C. Remove debris and dispose off-site in accordance with local/state regulations.
- D. Place suitable soil and compact in accordance with backfill and compaction requirements.

3.12.3 Grout Fill

- A. Grout fill pipe at locations shown on the Construction Drawings or at requested locations.

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- B. Drill holes through soil, asphalt or concrete down to and into the existing pipe at such intervals to ensure complete grout fill of pipe.
- C. Install steel pipes into drilled holes, extending into pipe to be filled.
- D. Pump high flow grout into steel pipe until grout is observed coming from adjacent steel pipe.
- E. Due to the results of the initial grouting, additional drill holes may need to be installed between the first injection points to allow for additional grouting to fill the void.
- F. Upon completion of grouting, remove steel pipe or cut steel pipe a minimum of six (6) inches below surface grade. Finish to grade with concrete in paved surfaces or soil in other surfaces.

3.12.4 Gravel Fill

- A. Gravel fill manholes at locations shown on the Construction Drawings or at requested locations.
- B. Remove manhole cone and sections to a minimum of three (3) feet below finished surface grade.
- C. Place No. 57 stone into manhole from invert to top of remaining section.
- D. Place suitable soil and compact soil from top of remaining section to finish surface grade in accordance with backfill and compaction requirements.

3.13 Asphalt Work

- A. Compact existing base and/or add and compact necessary aggregate base/concrete material in accordance with the Construction Drawings.
- B. Cut edges of existing asphalt neat and square.
- C. Apply prime / tack coat as necessary to facilitate asphalt placement.
- D. Install asphalt to match existing grades using mechanical spreader machine and compact to thicknesses as shown on the Construction Drawings or to thickness to match existing asphalt.

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3.14 Concrete Work

3.14.1 Concrete Placement

- A. Construct formwork to lines and elevations as shown on Construction Drawings.
- B. Clean forms of dirt and debris prior to each use.
- C. Install steel reinforcement and/or wire as shown on Construction Drawings, support on chairs and secure to prevent movement.
- D. Concrete shall not be placed on loose, saturated or frozen soil.
 - 1. Concrete shall be placed when ambient temperature is at a minimum 40 degrees Fahrenheit and rising.
 - 2. Maintain ambient temperature around concrete above 40 degrees Fahrenheit for a period of 24 hours after placement.
- E. Place concrete using suitable means and consolidate concrete with vibrator of suitable vibrations per minute.
- F. Screed slabs / curbs by use of straight edge or screed board.
- G. Saw control joints into slabs / walks as soon as concrete can be traveled by foot without leaving impressions.
 - 1. Control joints shall be installed at interval spacing of 1-1/2 times slab width or at a maximum spacing of 10 feet, whichever is closer.
 - 2. Saw joint depth shall be ¼ of the slab depth.
- H. Concrete walks shall be finished with a slight broom finish perpendicular to the travel path.
- I. Begin curing after placement and finishing of concrete as soon as free water has disappeared from concrete surface.
 - 1. Curing methods shall be by the continuous application of water for 72 hours or by applying a liquid membrane forming curing-sealing compound to the fresh concrete surface.
- J. Removal of formwork shall take place no sooner than 24 hours after placement of concrete.

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3.14.2 Concrete Testing

- A. Concrete from each truck shall be subjected to a slump test in accordance with ASTM C172 and C143.
 - 1. Concrete arriving on the Project site and not exhibiting the required slump may be rejected at the discretion of the CCWA inspector.
- B. Concrete shall be laboratory tested for compressive strength at the discretion of the CCWA Inspector.
- C. Samples shall be collected in accordance with ASTM C172 and ASTM C31.
- D. Samples shall be tested for compressive strength in accordance with ASTM C39.
- E. Concrete placed not meeting the required compressive strength shall be subject to rejection and removal at the discretion of the CCWA inspector.

3.15 Pavement Striping

- A. Install pavement striping and symbols having neat, clean edges and sizes to match existing striping and symbols or as detailed in the Construction Drawings.
- B. Provide a sufficient thickness of paint such that pavement color/surfaces are nonvisible through the paint.

3.16 Acceptance

- A. A CCWA Inspector shall inspect all components of work for compliance with the Contract. The Contractor shall, at all times, permit and facilitate inspection of work by the CCWA. The presence of a CCWA Inspector or other CCWA staff on the site of work shall not be construed to, in any manner, relieve the Contractor of their responsibility for strict compliance with the Contract. The CCWA Inspector shall inform the Contractor when work is deficient from the Contract. Deficiencies shall be addressed in a timely manner as determined by the CCWA Inspector.
- B. Final Acceptance of the work by the CCWA shall be when the Contractor has met all terms and conditions as set forth by the Contract. The date of Final

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Acceptance shall be no later than the date the CCWA approves the Contractor's final request for payment. Where applicable, Final Acceptance shall be written, signed and dated by the CCWA.

END OF SECTION

ATTACHMENTS

ATTACHMENT A

March 24, 2020

Mr. Blake Joyner
Clayton County Water Authority
1600 Battle Creek Road
Morrow, Georgia 30260

Re: Subsurface Investigation
Jesters Creek Outfall Replacement Phase IV
Jonesboro, Clayton County, Georgia
GeoSystems Project No. 20-2730

Dear Mr. Joyner:

GeoSystems Engineering, Inc. (GeoSystems) has completed the subsurface investigation for the referenced Clayton County Water Authority (CCWA) outfall sewer replacement. Authorization for this investigation was provided by CCWA Purchase Order Number 166870, dated January 3, 2020. The following report describes the subsurface investigation procedures and presents the findings along with our evaluations and conclusions.

PROJECT INFORMATION

Our understanding of this project is based on the information provided by the CCWA and our previous discussions and site meetings. We received a final set of plans and profiles for the project on 3/19/2020 showing the locations of the borings.

The proposed project consists of the installation of a new, approximate 1.75-mile long, sewer line near Jonesboro, Georgia. The new sewer outfall extends northerly along an existing sanitary sewer easement from station 0+00, located on Haley Drive about 1,050 feet east of Tara Boulevard, to station 92+38, located at the northern end of S Nottingham Drive, 2,500 feet east of Tara Boulevard. The sewer generally parallels the floodplain of Jester Creek along the western edge.

The new sewer will be constructed of 18-inch diameter PVC pipe. Open cut excavation is planned for installation of the sewer, except for trenchless jack and bore installation beneath Battle Creek Road, between approximate stations 35+00 and 36+50. The new sewer pipe will be installed inside a 36-inch diameter steel casing at the jack and bore location.

Excavation depths required for installation of the sewer will typically be less than 10 feet, except for a section between approximate stations 43+75 and 44+50, with indicates excavations that vary from 10 to a maximum of about 13 feet in depth. At the location of the planned bore underneath Battle Creek Road, excavations varying from 7 to 11 feet in depth are expected to be required for the pipeline bore entry and receiving pits.

INVESTIGATION PROCEDURES

The scope of work for the subsurface investigation consisted of soil test borings, collection of soil samples, evaluation of the boring data and preparation of this report. In addition to the soil test borings, a pilot horizontal directional drill (HDD) boring was also planned to evaluate conditions below Battle Creek Road, but the bore was delayed until further notice by CCWA on 3/17/2020.

A total of twenty soil test borings (B-1 through B-20) were initially planned; however, borings B-13 and B-14 were eliminated during the field investigation. Boring elevations were estimated to the nearest 1-foot from the pipeline profile ground elevations or by interpolating between contour lines shown on the plans.

All soil sampling and standard penetration testing were in general accordance with ASTM Standard D 1586. The borings were advanced by mechanically rotating hollow-stem augers into the ground and soil samples were obtained with a standard 1.4-inch I.D., 2-inch O.D. split-barrel sampler at regular intervals. Groundwater levels in the borings were noted by the driller at the time of drilling.

Split-barrel samples from the borings were classified in the field and preliminary logs of the borings were prepared by the driller. In the laboratory, all of the soil samples were examined by a geotechnical engineer and visually classified. Final detailed logs of the borings were prepared showing the soil descriptions, unified classifications, standard penetration values and groundwater levels noted during this investigation. The soil test boring records represent our interpretation of the field conditions based on the driller's field logs and engineering examination of the split-spoon samples. The lines designating the interfaces between various strata represent approximate boundaries only, as transitions between materials may be gradual. We note that subsurface conditions in uninvestigated locations may differ significantly from those encountered at the specific boring locations.

Descriptions of the field and laboratory procedures are presented in Appendix A. The CCWA final plans and profiles and the soil test boring logs are included in Appendix B.

AREA AND SITE GEOLOGY

Geologically, the proposed pipeline is situated in the southern section of the Piedmont Physiographic Province, an area underlain by ancient igneous and metamorphic rocks of the late Precambrian to early Paleozoic ages. The origin of the Paleozoic rocks, as sediments, has been obscured, due to their age and repeated cycles of weathering, metamorphism, folding, faulting, and injection with younger Paleozoic granites and Triassic diabase dikes.

Published geologic mapping indicates the pipeline alignment is underlain by metamorphic rocks where the Camp Creek Formation on the west meets the Big Cotton Indian Formation on the east. The Camp Creek and Big Cotton Indian Formations are both low units of the Atlanta Group. The Camp Creek Formation rocks include massive granite gneiss interlayered with thin, fine-grained, dark-green hornblende-plagioclase amphibolite. The Big Cotton Indian Formation rocks include intercalated biotite-plagioclase gneiss (locally porphyritic), hornblende-plagioclase amphibolite, and biotite-muscovite schist.

Gneiss is a foliated quartz feldspar rock formed by regional metamorphism. Amphibolite is a dark-colored, non-foliated crystalline rock formed through recrystallization, under conditions of high viscosity and direct pressure. It is composed generally of amphibole and varying amounts of feldspar minerals, with very little or no quartz. As the quartz content increases, amphibolite grades into a hornblende-plagioclase gneiss. Schist is a strongly foliated crystalline rock formed by dynamic metamorphism. It has well developed parallelism or banding of more than 50 percent of the minerals present, particularly mica.

All of these rocks have weathered in place and are covered by a mantle of residual soils of varying thickness. Residual soils are formed insitu by chemical alteration of the underlying rocks. Normally, the weathering is most advanced near the ground surface and decreases with depth until unweathered parent rock is encountered. A transition from clay to silt to silty sand to partially weathered rock to hard rock is typical; however, this order of weathering is not always present. It is not uncommon to find layers or zones of partially weathered rock (PWR) or relatively unaltered rock within the soil mantle or weathered rock layers within the underlying parent rock mass. The naturally developed soil profile may be changed by erosion and/or man's grading activities, so that the upper more weathered zones may be completely stripped away. Also, washed-in alluvial soils or manmade fill, or both may cover the residual soils.

Groundwater in the Piedmont generally occurs under water table conditions as a result of infiltration of surface waters through the somewhat permeable overburden. Fractures and other discontinuities in the underlying rock can affect groundwater conditions. In this geologic setting, the configuration of the groundwater table is generally expected to be a slightly subdued replica of the ground surface.

SUBSURFACE CONDITIONS

Subsurface conditions encountered by the borings to termination depths during this study consist of fill and residual soils. Groundwater was encountered at the time of investigation at nine locations. The following briefly describes subsurface conditions.

Fill

Fill refers to any material placed by man. Fill was encountered at ground surface or below a thin layer of topsoil in all borings except B-1, B-2, B-4 and B-15. The fill extends to depths varying from 3 to 8 feet at most locations but was encountered to termination depths of 10 feet in borings B-5, B10, B19 and 15 feet in B-12.

The fill appears to be generally clean soil described as silty sand (SM) with small roots and small bits of gravel. Standard penetration resistances in the fill ranged from a minimum of the weight of hammer (WOH) to a maximum of 20 blows per foot (bpf); however, the values generally ranged between 3 and 9 bpf.

Residual Soils

Residual is a term used to describe soils formed in-place by the chemical weathering process of the underlying rocks. Residual soils were encountered beneath the upper fill layer or near ground

surface, except in borings B-5, B-10, B-12 and B-19 that were terminated in fill. The residual soils are generally typical of those materials described in the previous geology section and consist predominantly of micaceous silty sand (SM) with some clayey sand (SC) and well graded sand (SW). Poorly graded sand (SW) was encountered at the boring termination depth of 10 feet in boring B-3.

Standard penetration resistances in the residual soils ranged from a minimum of WOH to a maximum of 34 bpf, but typically ranged between 6 or 7 and 18 bpf. The penetration values show that the relative density of the sandy residuum is very loose to medium dense.

Groundwater

Groundwater was encountered at depths varying from 3 to 13 feet below the ground surface in borings B-1 through B-6, B-12, B-16, and B-18 at the time of our field investigation. The open boreholes at seven locations also caved-in to approximate depths varying between 3 and 6 feet at various times after removal of the augers, which further indicates a proximity to groundwater. Please note that groundwater levels are subject to subsurface conditions, runoff, climate, seasonal variations, and other factors; therefore, groundwater conditions at other locations or at other times may be significantly different than those reported during this study.

CONCLUSIONS AND RECOMMENDATIONS

This report has been prepared for the exclusive use of the Clayton County Water Authority in the design and construction of the proposed Jesters Creek Outfall Replacement sewer line. The following conclusions and recommendations were based on our understanding of the project, the data gathered during this investigation, and our experience with similar site and subsurface conditions. We note that regardless of the thoroughness of a subsurface investigation, there is always the possibility that conditions between test locations will differ from those at the actual test locations, that conditions are not as anticipated by the designers, or that the construction process has altered the soil conditions. If conditions significantly different from those anticipated are encountered during the course of construction, GeoSystems should review the unexpected conditions to develop any required revisions to our recommendations. If the project information is incorrect or should the project plans change substantially from those outlined in this report, we request the opportunity to review our recommendations in light of the changes.

Our professional services were performed, our findings derived, and our conclusions prepared consistent with the professional skill and care ordinarily provided by geotechnical engineers practicing in the same locality under the same or similar circumstances for projects of this type. We make no warranties or guarantees, either expressed or implied. GeoSystems is not responsible for the conclusions, opinions or recommendations of others based on our findings and evaluations.

Pipeline Installation

The soil test boring data and our previous experience with similar conditions show that conventional open cut excavations may be used for the new pipeline installation. No very hard or very dense soils were encountered during drilling which would otherwise indicate the presence of partially weathered rock or shallow bedrock at the boring locations. However, we note that due to the erratic weathering

of the rocks within this geologic setting, difficult excavation materials may be encountered at locations between the borings or in other areas not investigated.

Construction Dewatering

Groundwater levels along the planned sewer line alignment are anticipated to be above the sewer invert elevations in the majority of the areas investigated. Consequently, excavations below the water table are expected and temporary dewatering during the sewer installation will generally be required. Temporary dewatering of the sewer trench is required to stabilize the excavations, achieve suitable working conditions, and prevent the loss of soil strength or “quick” soil conditions at the bottom of the excavations. The sandy and silty soils will quickly become very wet and loose or soft as excavations approach the groundwater table, severely restricting construction operations if dewatering is not properly performed.

Where excavations are less than 2 to 3 feet below the water table, it may be possible to provide adequate dewatering by pumping from sumps installed in the trench excavation bottom. A positive system of dewatering, such as vacuum well points or deep wells, will be required in areas where excavations extend greater than 3 feet below the water table. Dewatering must be conducted well in advance of excavations to lower and maintain groundwater levels at least 3 feet below the deepest excavation level at all times. The construction dewatering system installed should be monitored and maintained around the clock to assure proper continuous operation and control. We recommend that standby dewatering equipment also be available on site to provide emergency dewatering in deep excavation areas in the event of failure of the primary method of groundwater control.

Slope Stability/Excavation Shoring

The pipeline trench will extend to maximum depths up to roughly 13 feet below ground in some areas and the jack and bore installation pits will likely require excavations varying from 7 to 11 feet in depth. Our investigation did not include an analysis of slope stability for any temporary or permanent condition. However, based on conditions at this site and OSHA requirements, we recommend that simple temporary slopes not exceed 1.5(H):1.0(V) for properly dewatered excavations or excavations in soil above the water table. Exposed slope faces should be protected from precipitation with an impermeable cover until the work is completed. Also, slope conditions should be inspected daily, during the course of work at the base, for any signs of instability such as tension cracks, bulging, or deterioration of the embankment soils.

Appropriate excavation bracing or trench boxes should be designed by the contractor to support excavations that are not sloped and extend deeper than 5 feet below the ground surface. Recommended earth pressure coefficients for design are presented in the following earth pressures section. The shoring design should be submitted to the CCWA for review and approval prior to field installation.

Earth Pressures

Earth pressures on shoring or bracing below grade are influenced by the structural design of the shoring system, conditions of restraint, methods of construction and/or compaction and the strength of the materials being restrained. The most common conditions assumed for earth-retention design are the active and at-rest conditions. Active conditions apply to relatively flexible earth retention structures, such as freestanding walls and temporary shoring walls, where some movement and rotation may occur to mobilize soil shear strength. Walls that are rigidly restrained, such as basement, pit and tunnel walls, should be designed for the at-rest condition. A third condition, the passive state, represents the maximum possible pressure when a structure is pushed against the soil. The passive state is used in retention/retaining wall design to help resist active or at-rest pressures. Since significant wall movements are required to develop the passive pressure, the total calculated passive pressure should be reduced by one-half (factor of safety of 2) for design purposes.

Based on the boring information and our previous experience with similar soils, we recommend effective soil strength parameters of 0 psf for cohesion (c) and angles of internal friction (ϕ) of 25 and 28 degrees be used in determining lateral earth pressures for design of required temporary excavation shoring. The angle of internal friction value of 25 degrees applies to very soft to soft or very loose residual soils with standard penetration resistances of less than 4 bpf and fill soils with standard penetration resistances of less than 10 bpf. The 28 degree friction value may generally be used in undisturbed residual soils with penetration values greater than 4 bpf. An in-situ moist soil unit weight of 120 pcf is also recommended for shoring design calculations. Below the water table, lateral earth pressures should be determined using the buoyant weight of the soil. Hydrostatic pressures calculated with the unit weight of water (62.4 pcf) should be added to these earth pressures to obtain the total stresses for design.

Using ϕ -angles of 25 and 28 degrees results in the following earth pressure coefficients for design of trench boxes and temporary shoring required for the sewer installation:

Earth Pressure Conditions	Coefficient	
	25°	28°
Active (K_A)	0.40	0.36
At-Rest (K_O)	0.58	0.53
Passive (K_P)	2.46	2.76

Earthwork

All materials required for backfilling the sewer excavations should be clean soil, free of organic matter and deleterious materials. Material containing rocks or stones greater than 3 inches in diameter should not be used. In areas where compaction is critical, a sufficient number of field density tests should be conducted by a qualified soils technician working under the direction of the project geotechnical engineer to determine the degree of compaction and compliance with the project specifications. Any fill areas that do not comply with the compaction requirements during the earthwork construction should be reworked until compliance is met.

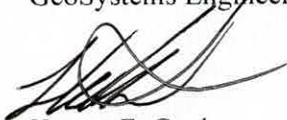
*Subsurface Investigation
Clayton County Water Authority
Jesters Creek Outfall Replacement Phase IV
Clayton County, Georgia*

*GeoSystems Project No. 20-2730
March 24, 2020*

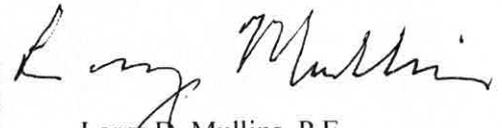
We appreciate the opportunity to provide this subsurface investigation for the Clayton County Water Authority. Should you have any questions concerning this report, please call us.

Sincerely,

GeoSystems Engineering, Inc.


Hunter E. Guckert
Project Manager




Larry D. Mullins, P.E.
Principal Engineer

Cc: Clifford W. Beraset
Larry J. Michaels II

Appendix A: Standard Field and Laboratory Procedures

Appendix B: Jesters Creek Outfall Replacement Phase 4 - Final Plans with Profiles
Key to Symbols and Classifications
Test Boring Records (18 pages)

APPENDIX A

STANDARD FIELD AND LABORATORY PROCEDURES

GEOSYSTEMS ENGINEERING

STANDARD FIELD AND LABORATORY TESTING PROCEDURES

Soil Test Boring

Soil sampling and penetration testing are performed in general accordance with ASTM Designation D 1586. Borings are usually advanced either by mechanically twisting continuous steel hollow-stem auger flights into the ground or by wash boring using roller cone or Hawthorne bits. At regular intervals, soil samples are obtained with a standard 1.4-inch I.D., 2-inch O.D., split-spoon sampler. The sampler is first seated 6 inches into the bottom of the hole to penetrate any loose cuttings and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to achieve the final foot of penetration is recorded and is designated the "standard penetration resistance." Penetration resistance, when properly evaluated, is an index to the soil strength, density and ability to support foundations.

Groundwater levels are normally determined by the driller in conjunction with the field investigation and are noted on the drilling records. These levels indicate the approximate location of the hydrostatic water table at the time of observation. Generally, water levels are reported at the time of boring and at subsequent times. The time of boring water level is detected as the drilling tools are advanced by changes in the drilling rate, soil sample moisture conditions, water or mud on the drill rods, and moisture conditions of the borehole drill cuttings. Additional groundwater levels are typically obtained at various times after boring to minimize any disruption by the drilling operations and to allow the water table to stabilize. Normally, a time lag of at least 24 hours is required to permit stabilization of the water table. A longer time period may be required in low permeability (clayey) soils. Water table measurements are taken in open boreholes using a weighted measuring tape or electronic groundwater level indicator.

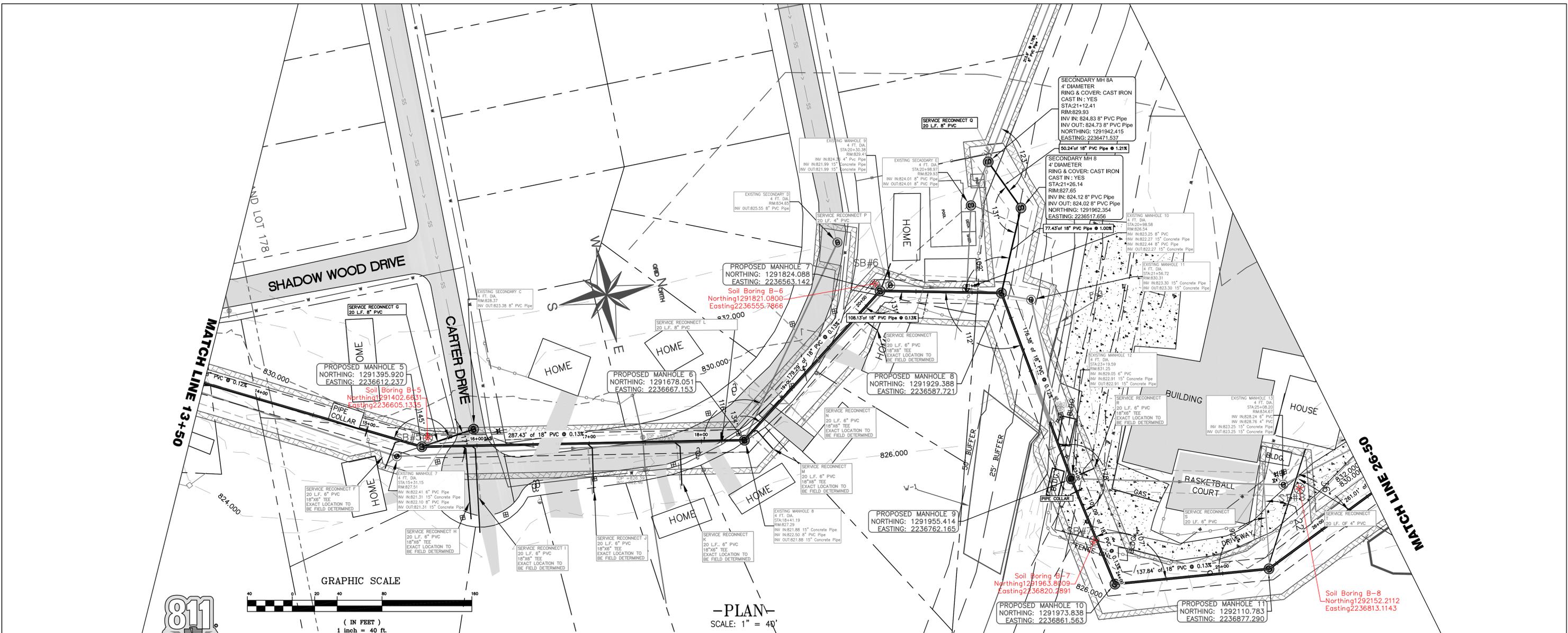
Representative portions of the soil samples, obtained from the split-spoon sampler, are sealed in containers and shipped or transported to the office. In the office, the samples are examined by an engineer to verify the driller's field classifications.

Soil Identification and Description

Soils are normally classified using the Unified Soil Classification System (ASTM D 2487). In addition to standard classification, soils are identified in accordance with the important soil properties to provide a complete description and assist with predicting behavior. Soil properties significant to most earthwork/foundation problems include consistency (cohesive fine grained soils) or relative density (cohesionless granular soils), color, and texture or composition. Consistency and relative density are fundamental properties in evaluating soil strength and are typically estimated based on standard penetration test results. The engineer's examination of soil samples recovered during the field investigation is primarily a qualitative visual process. Detailed soil classification requires basic laboratory grain size analyses and Atterberg limits (plasticity) tests.

APPENDIX B

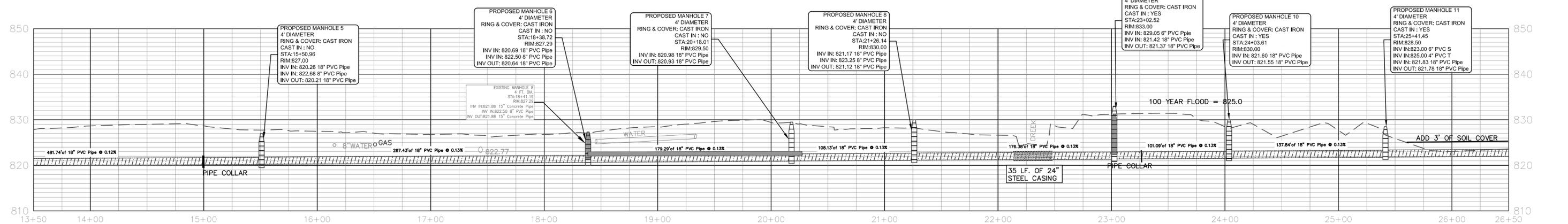
**JESTER'S CREEK OUTFALL REPLACEMENT PHASE
IV – FINAL PLANS & PROFILES (8 PAGES)
KEY TO SYMBOLS AND CLASSIFICATIONS
SOIL TEST BORING RECORDS (18 PAGES)**



Know what's below.
Call before you dig.

-PROFILE-
SCALE: HORZ. 1" = 40'
VERT. 1" = 10'

NOTE: SLOPES AND TANGENT LENGTHS ARE CALCULATED FROM CENTER OF MANHOLE.



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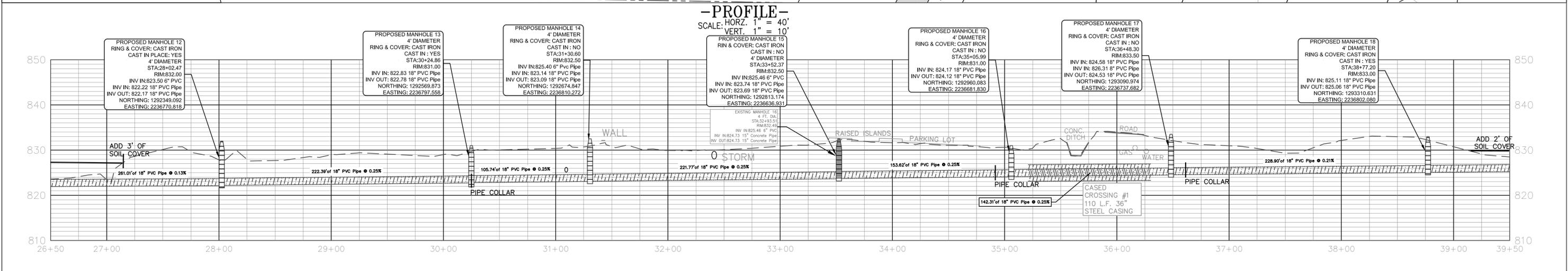
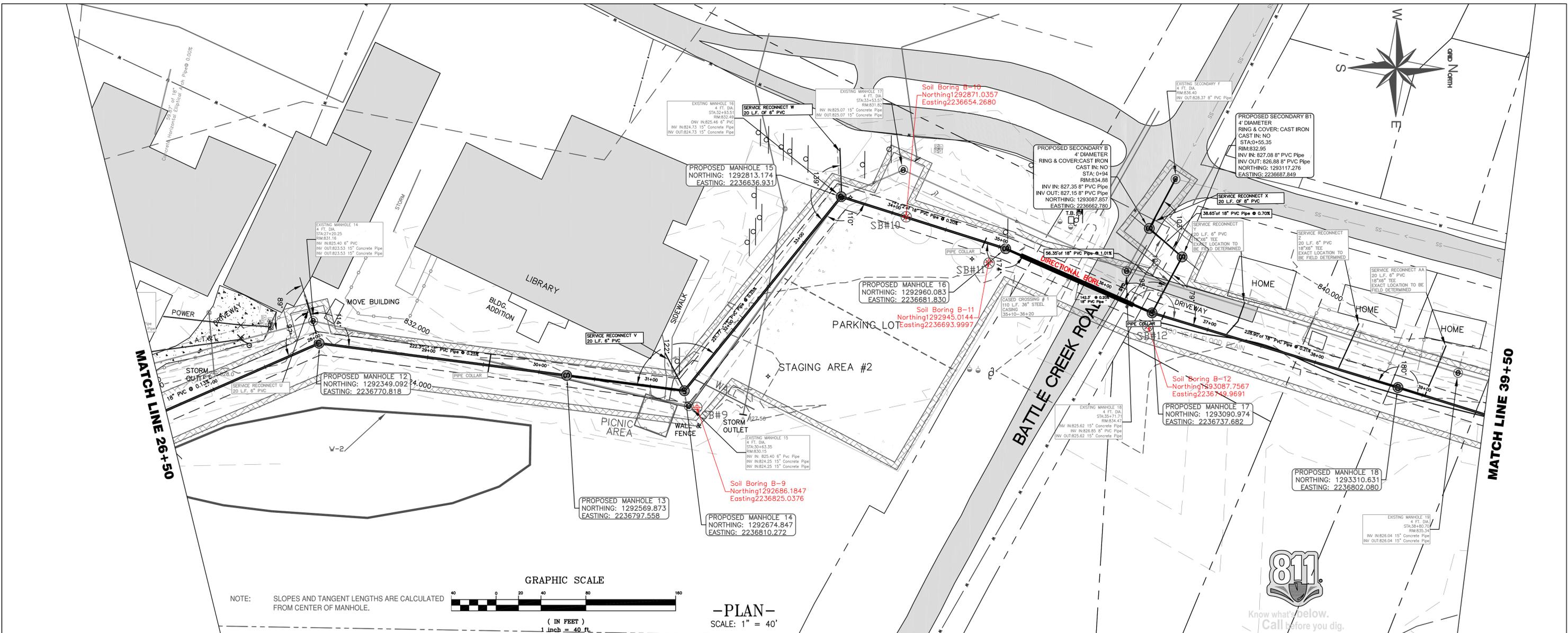
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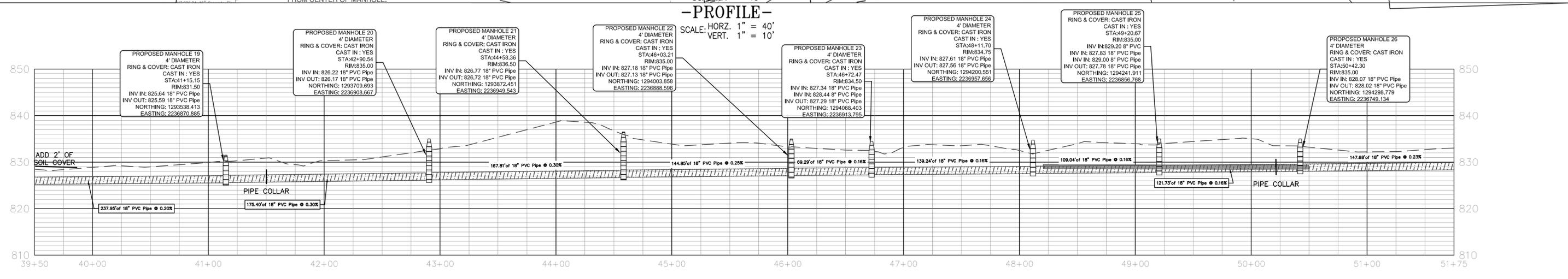
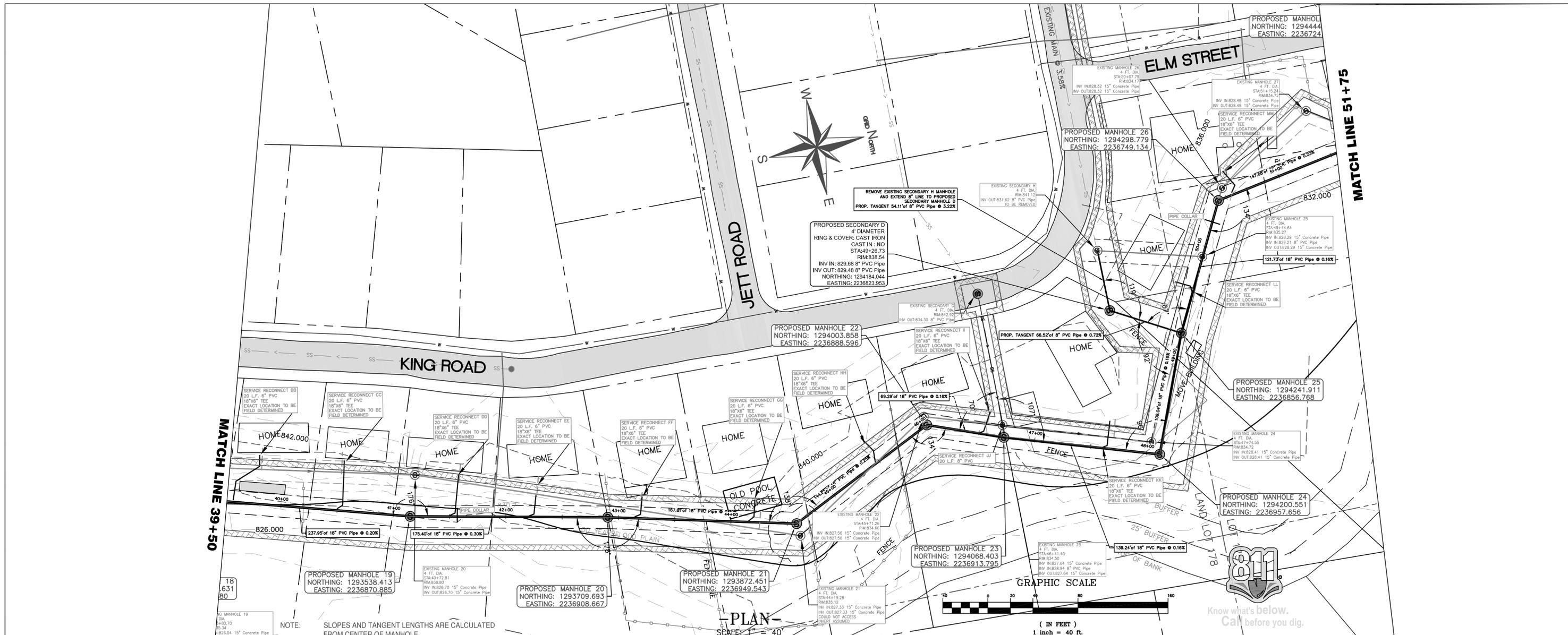
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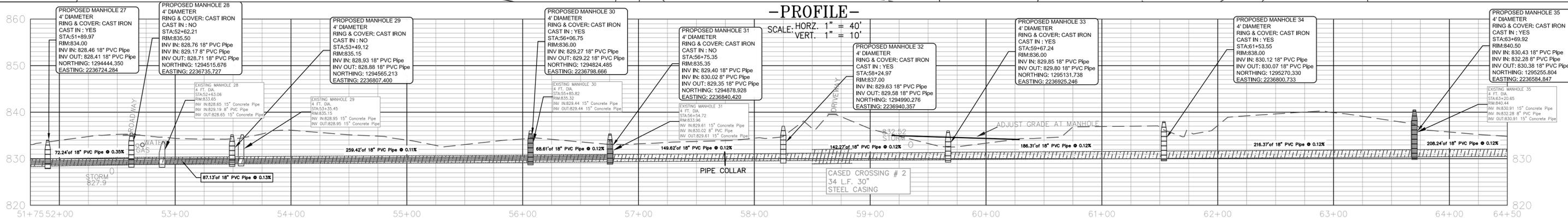
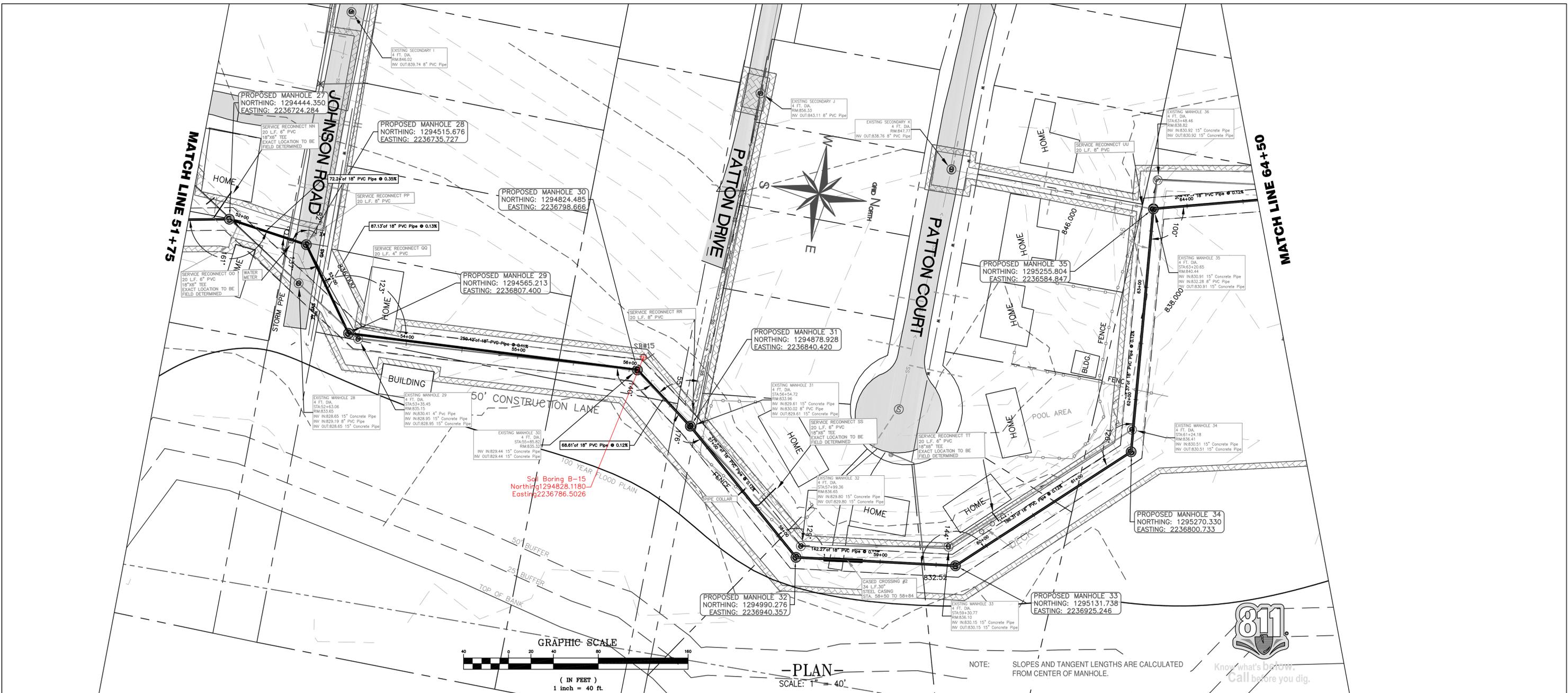
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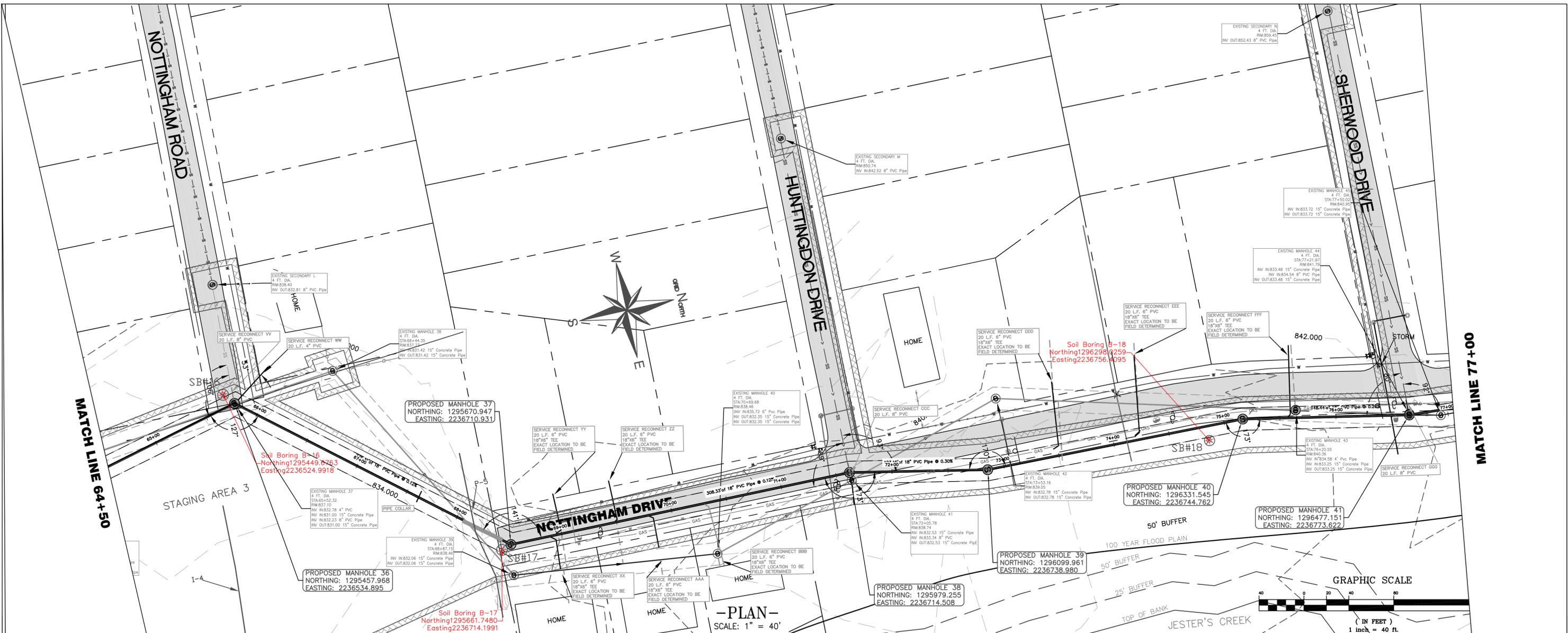
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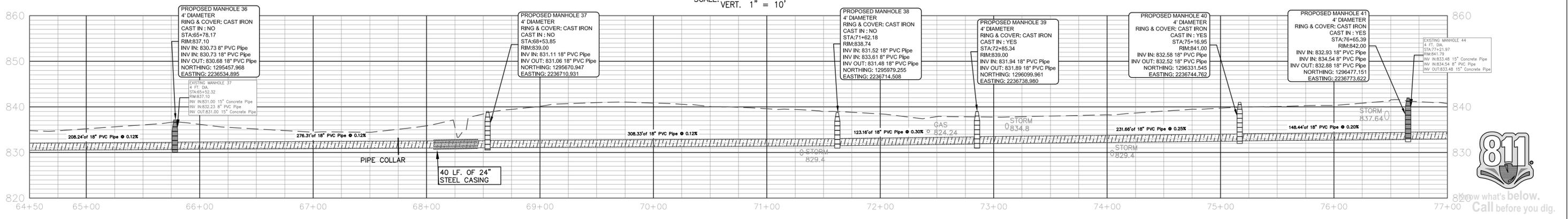
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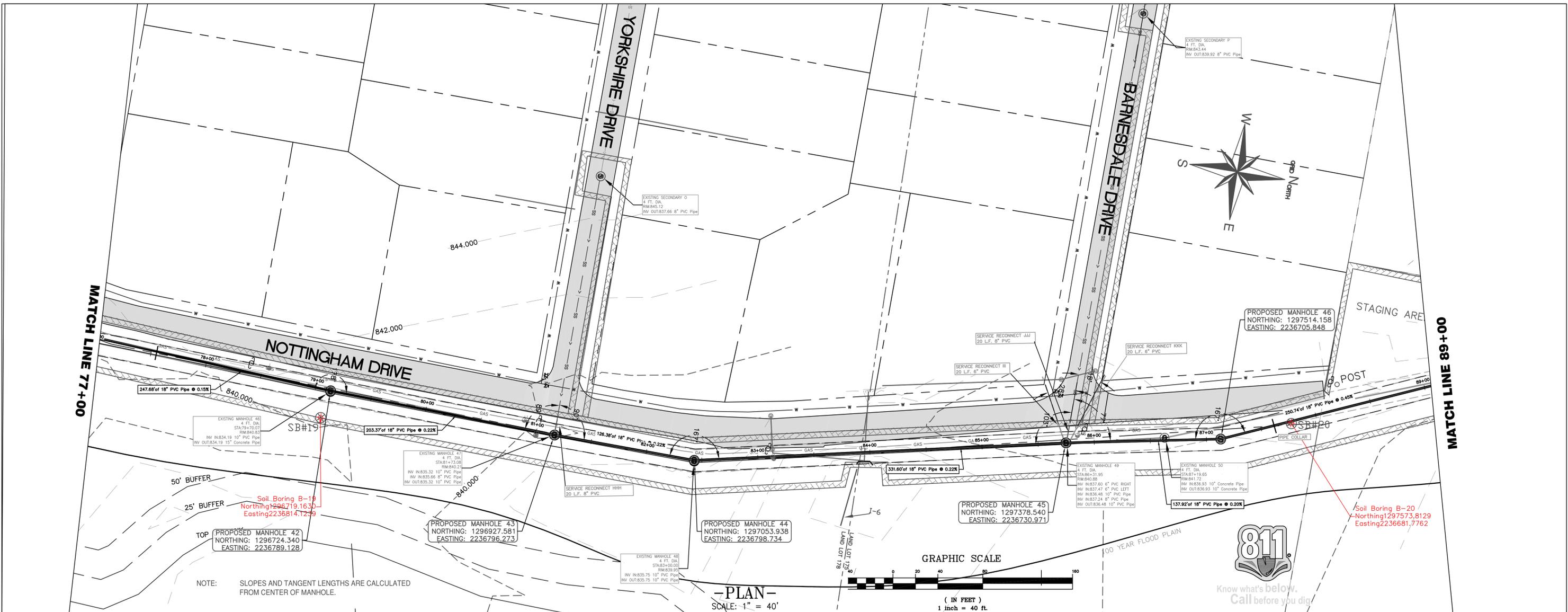
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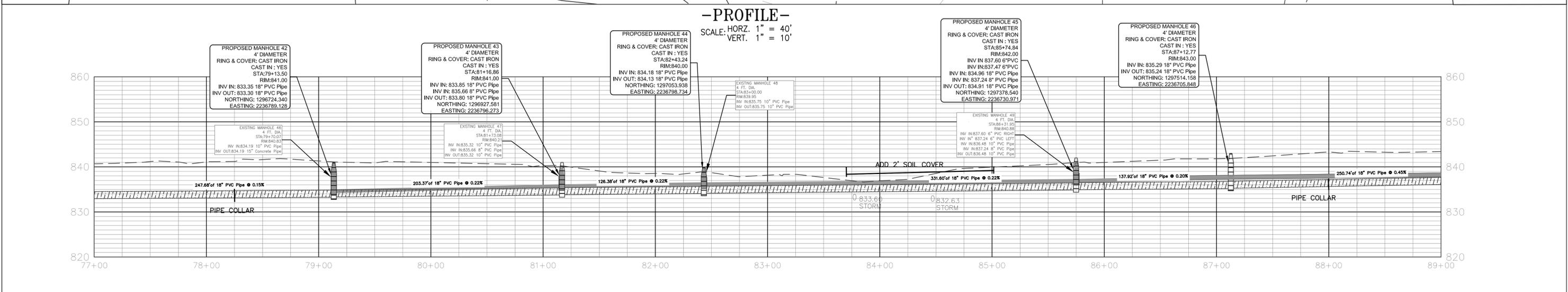
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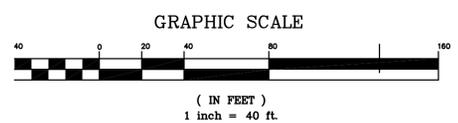
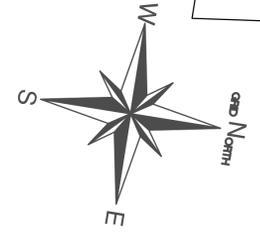
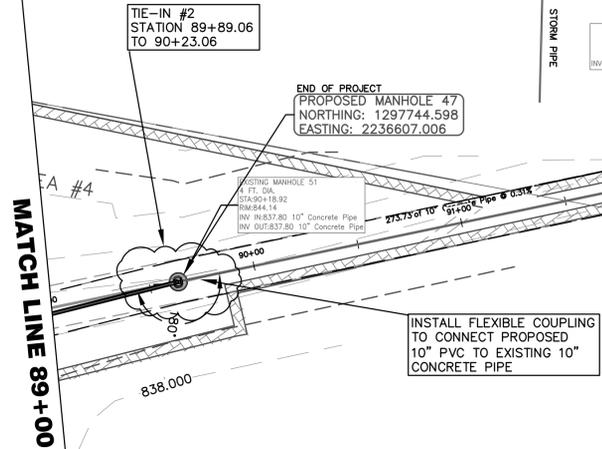


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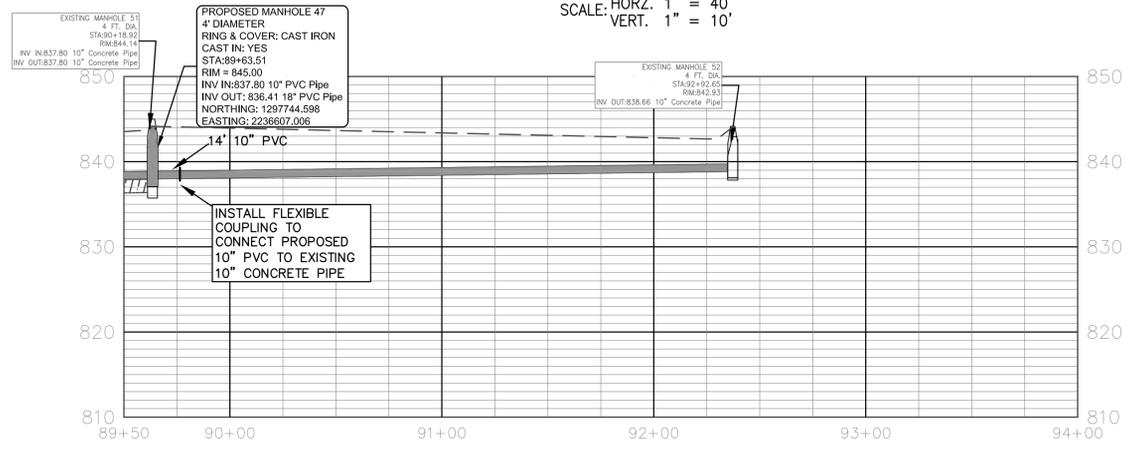
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KEYS TO SYMBOLS AND CLASSIFICATIONS

SPECIAL STRATIGRAPHY IDENTIFIERS USED TO HIGHLIGHT SPECIFIC LAYERS	FILL TOPSOIL PAVEMENT	PARTIALLY WEATHERED ROCK ROCK (GENERAL) WATER ALLUVIUM
COARSE GRAINED SOIL - GRAVELS & SANDS (MORE THAN 50% OF MATERIAL IS RETAINED ON NO. 200 SIEVE)	CLEAN SANDS & GRAVELS (< 5% FINES CONTENT)	SP: Poorly graded sands SW: Well graded sands GP: Poorly graded gravels GW: Well graded gravels
FINE GRAINED SOIL - SILTS & CLAYS (MORE THAN 50% OF MATERIAL PASSES NO. 200 SEIVE)	SANDS & GRAVELS WITH HIGH FINES CONTENT (> 15% FINES CONTENT)	SM: Silty sands GM: Silty gravels SC: Clayey sands GC: Clayey gravels
SILTS	CLAYS	ML: Low plasticity inorganic silts MH: High plasticity inorganic silts CL: Low placticity inorganic clays CH: High plasticity inorganic clays
ORGANIC SILTS & CLAYS	ORGANIC SILTS & CLAYS	OL: Low plasticity organic silts and clays OH: High plasticity organic silts and clays

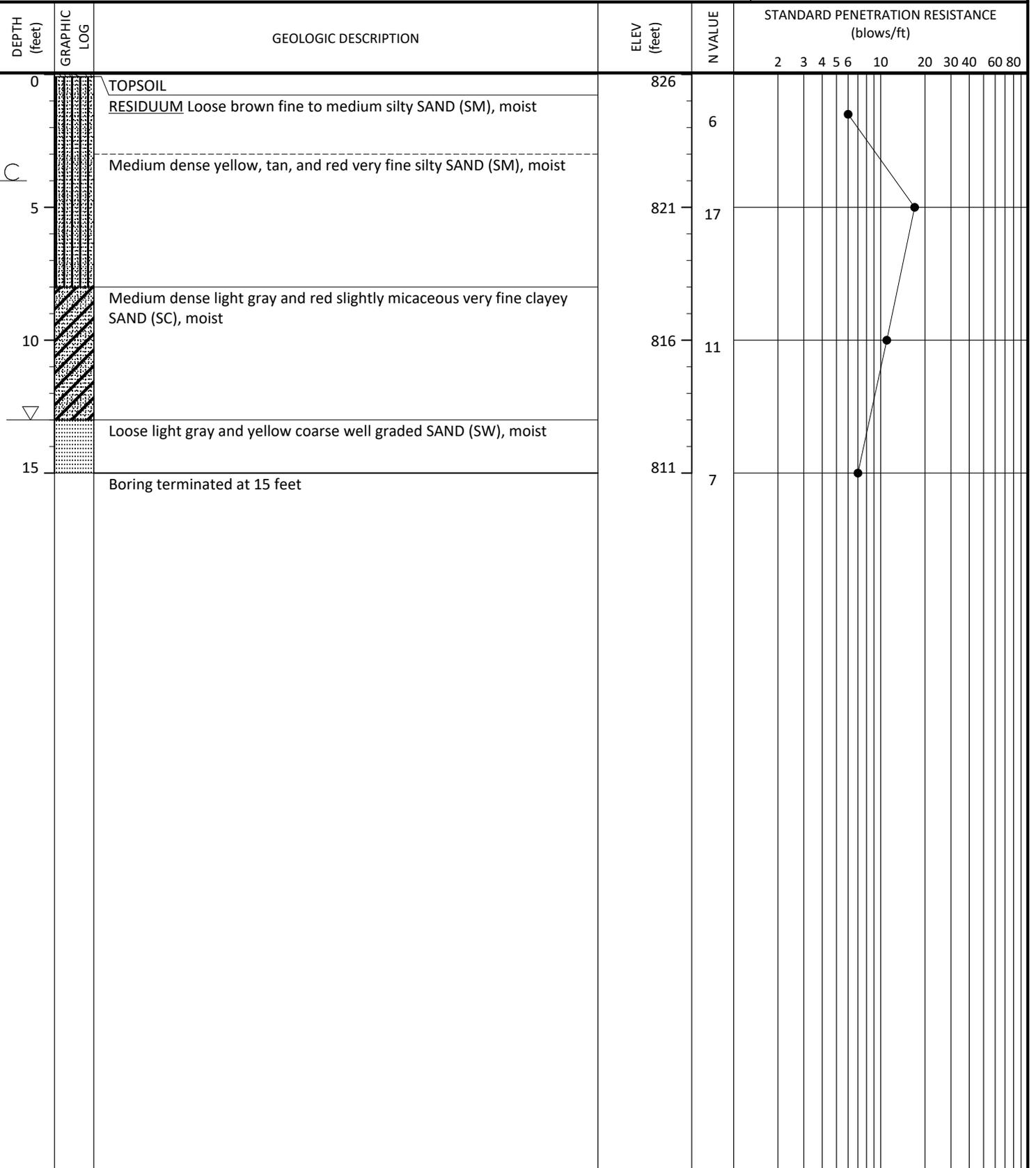
CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	NUMBER OF BLOWS, N	APPROXIMATE RELATIVE DENSITY
SANDS AND GRAVELS	0 - 4	Very Loose
	5 - 10	Loose
	11 - 30	Medium Dense
	31 - 50	Dense
	OVER 50	Very Dense
	SILTS AND CLAYS	NUMBER OF BLOWS, N
0 - 1		Very Soft
2 - 4		Soft
5 - 8		Firm
9 - 15		Stiff
16 - 30		Very Stiff
31 - 50		Hard
OVER 50		Very Hard

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B1

GEOLOGIST:		ELEVATION (feet): 826		NOTES: 1. Groundwater observed at 13 feet at the time of boring. 2. Borehole caved to a depth of 4 feet after drilling.
DATE DRILLED: 1-30-20		BORING DEPTH (feet): 15		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL ∇ TOB (feet): 13 \blacktriangledown 24HR (feet): N/A		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				



**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B2

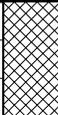
GEOLOGIST:		ELEVATION (feet): 826		NOTES: 1. Groundwater observed at 10 feet at time of boring. 2. Borhole caved to a depth of 5 feet after drilling.
DATE DRILLED: 1-30-20		BORING DEPTH (feet): 15		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL ∇ TOB (feet): 10 \blacktriangledown 24HR (feet): N/A		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																
					2	3	4	5	6	10	20	30	40	60	80						
0		TOPSOIL	826																		
		RESIDUUM - Loose yellowish red and brownish yellow medium silty SAND (SM), trace clay, moist		6																	
5		Medium dense light gray, red, and reddish yellow very fine silty SAND (SM), trace clay, moist	821	25																	
10	∇	Loose light yellowish brown coarse well graded SAND (SW), wet	816	8																	
15		Boring terminated at 15 feet	811	12																	

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B3

GEOLOGIST:		ELEVATION (feet): 825		NOTES: 1. Groundwater observed at 8 feet at time of boring. 2. Groundwater measured at 3 feet the next day after drilling.
DATE DRILLED: 1-30-20		BORING DEPTH (feet): 10		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL ∇ TOB (feet): 8 \blacktriangledown 24HR (feet): 3		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																
					2	3	4	5	6	10	20	30	40	60	80						
0		FILL - Very loose dark brown fine to medium silty SAND (SM), moist	825																		
\blacktriangledown		RESIDUUM - Medium dense light gray, yellow, and red fine clayey SAND (SC), moist		4																	
5			820	15																	
∇		Medium dense brownish yellow medium poorly graded SAND (SP), trace silt, wet																			
10		Boring terminated at 10 feet	815	16																	

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B4

GEOLOGIST:		ELEVATION (feet): 826		NOTES: 1. Groundwater observed at 10 feet at time of boring. 2. Groundwater measured at 4 feet the next day after drilling.
DATE DRILLED: 1-30-20		BORING DEPTH (feet): 10		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL ∇ TOB (feet): 10 \blacktriangledown 24HR (feet): 4		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																	
					2	3	4	5	6	10	20	30	40	60	80							
0		TOPSOIL	826																			
		RESIDUUM - Medium dense grayish brown fine silty SAND (SM), moist		13																		
5		Medium dense brownish yellow, light gray, and red very fine clayey SAND (SC), moist	821	22																		
10		Medium dense weak red and brownish yellow coarse well graded SAND (SW), moist	816	11																		
		Boring terminated at 10 feet																				

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B5

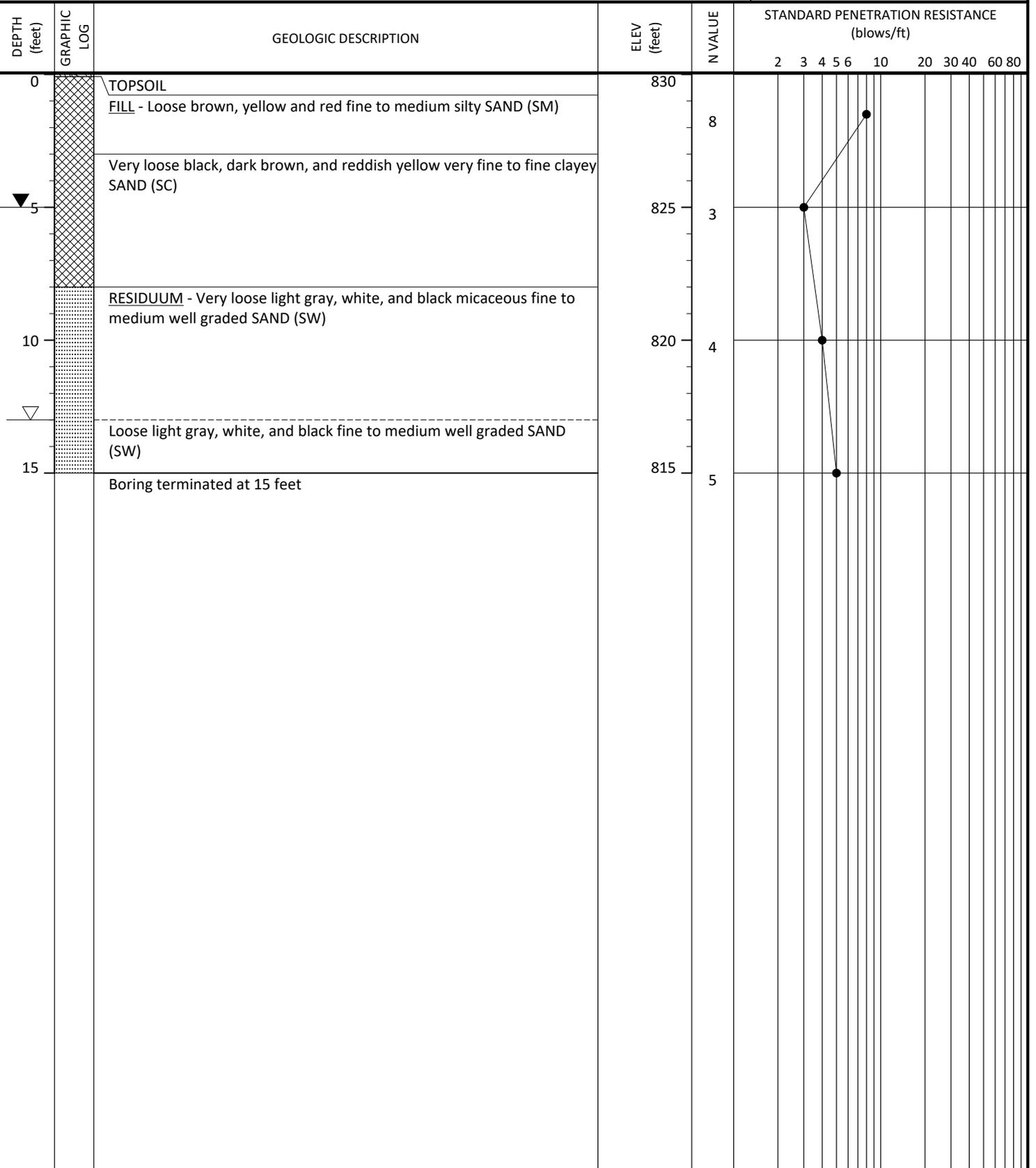
GEOLOGIST:		ELEVATION (feet): 828		NOTES: 1. Groundwater observed at 8 feet at time of boring. 2. Borehole caved to a depth of 5 feet after drilling.
DATE DRILLED: 1-30-20		BORING DEPTH (feet): 10		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL TOB (feet): 8 24HR (feet): N/A		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																
					2	3	4	5	6	10	20	30	40	60	80						
0		TOPSOIL	828																		
		FILL - Loose dark gray and brown medium silty SAND (SM)		9																	
5		Medium dense yellow, light gray, and red fine to medium clayey SAND (SC)	823	20																	
		Very loose dark brown and yellow fine silty SAND (SM), moist																			
10		Boring terminated at 10 feet	818	3																	

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B6

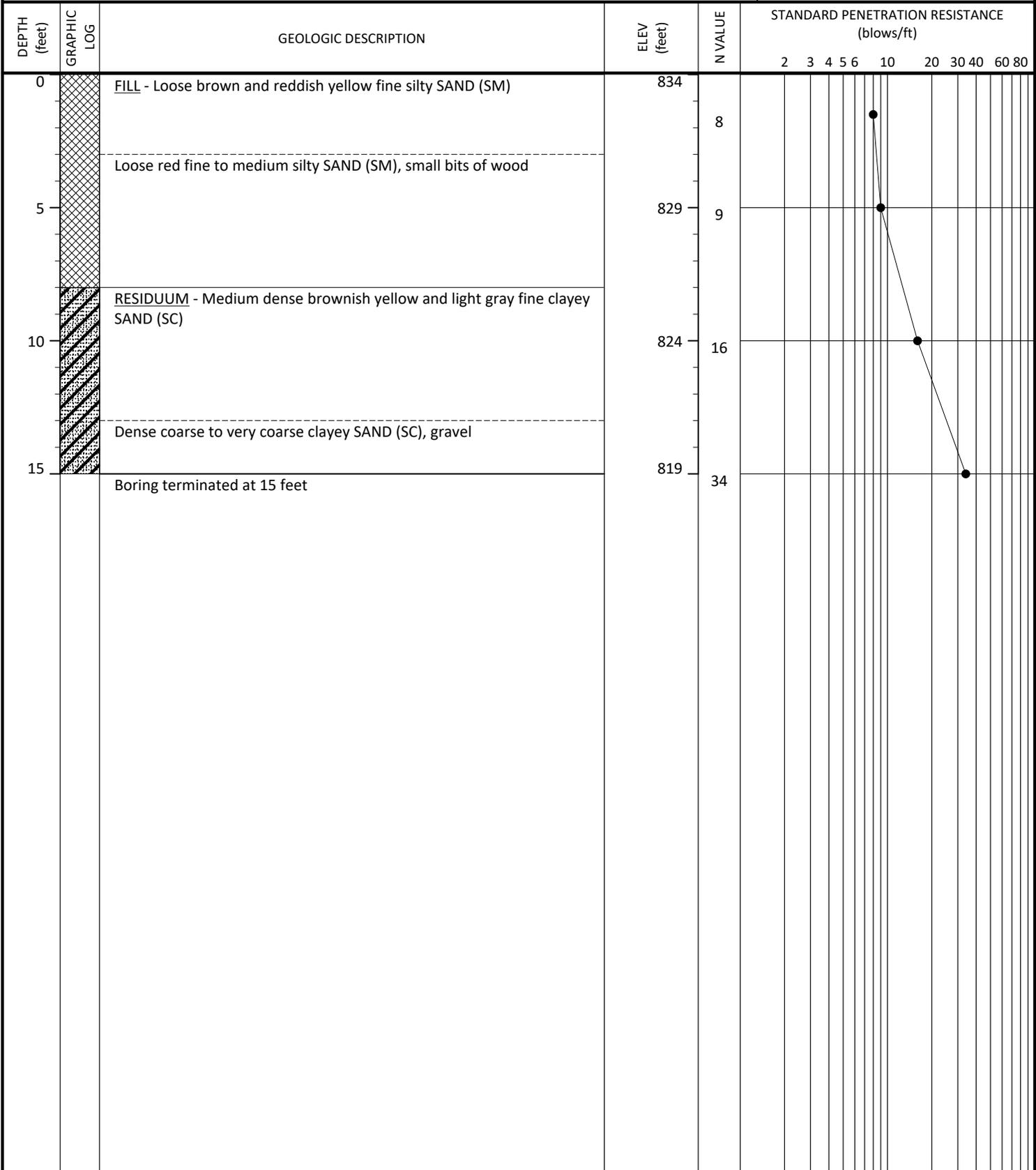
GEOLOGIST:	ELEVATION (feet): 830	NOTES: 1. Groundwater observed at 13 feet at time of boring. 2. Groundwater measured at 5 feet the next day after drilling.
DATE DRILLED: 1-30-20	BORING DEPTH (feet): 15	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): 13 \blacktriangledown 24HR (feet): 5	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		



**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B7

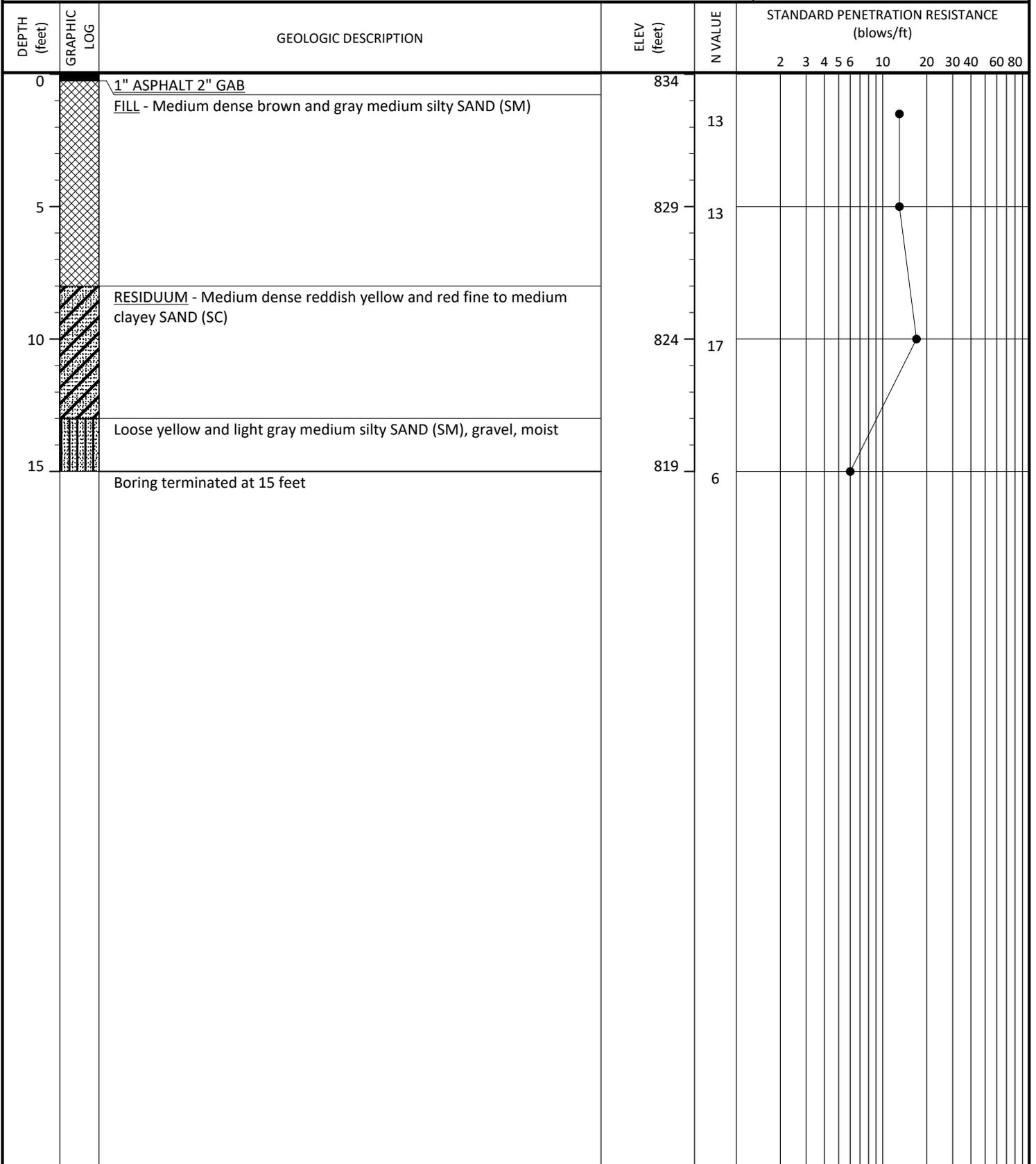
GEOLOGIST:		ELEVATION (feet): 834		NOTES: 1. No groundwater encountered at time of boring (NGWE).
DATE DRILLED: 1-31-20		BORING DEPTH (feet): 15		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL TOB (feet): NGWE 24HR (feet): N/A		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				



**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B8

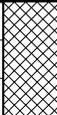
GEOLOGIST:	ELEVATION (feet): 834	NOTES: 1. No groundwater encountered at time of boring (NGWE).
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 15	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		



**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B9

GEOLOGIST:	ELEVATION (feet): 832	NOTES: 1. No groundwater encountered at time of boring.
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 10	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)															
					2	3	4	5	6	10	20	30	40	60	80					
0		FILL - Loose grayish brown and yellow fine to medium silty SAND (SM)	832	6																
5		RESIDUUM - Medium dense brownish yellow, light gray, and white medium silty SAND (SM), trace clay	827	12																
10		Loose yellowish brown and light gray fine to medium silty SAND (SM), trace clay, moist	822	9																
		Boring terminated at 10 feet																		

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B10

GEOLOGIST:	ELEVATION (feet): 831	NOTES: 1. Damp conditions were encountered at time of boring.
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 10	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)															
					2	3	4	5	6	10	20	30	40	60	80					
0		FILL - Loose reddish brown and yellow fine silty SAND (SM), small roots, gravel	831	7																
5		Very loose light gray and brownish yellow very fine to fine clayey SAND (SC).	826	4																
10		Loose light gray very fine to fine clayey SAND (SC)	821	9																

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B11

GEOLOGIST:	ELEVATION (feet): 831	NOTES: 1. No groundwater encountered at time of boring.
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 15	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																
					2	3	4	5	6	10	20	30	40	60	80						
0		TOPSOIL	831																		
		FILL - Very loose strong brown medium silty SAND (SM)		4																	
5		RESIDUUM - Medium dense light yellowish brown, yellowish red, and light gray fine to medium silty SAND (SM), trace clay	826	18																	
10		Loose greenish gray and yellowish brown micaceous fine to medium silty SAND (SM), trace clay	821	7																	
		Loose yellowish brown medium silty SAND (SM), moist																			
15		Boring terminated at 15 feet	816	6																	

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B12

GEOLOGIST:	ELEVATION (feet): 830	NOTES: 1. Groundwater observed at 10 feet at time of boring.
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 15	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): 10 \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																	
					2	3	4	5	6	10	20	30	40	60	80							
0		FILL - Very loose very dark brown medium to coarse silty SAND (SM), organic odor, gravel	830	4																		
5		Very loose yellowish brown medium silty SAND (SM), small roots, moist	825	4																		
10		Very loose brownish yellow medium to coarse poorly graded SAND (SP), wet	820	3																		
15		Firm very pale brown fine sandy SILT (ML), moist	815	5																		
		Boring terminated at 15 feet																				

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B15

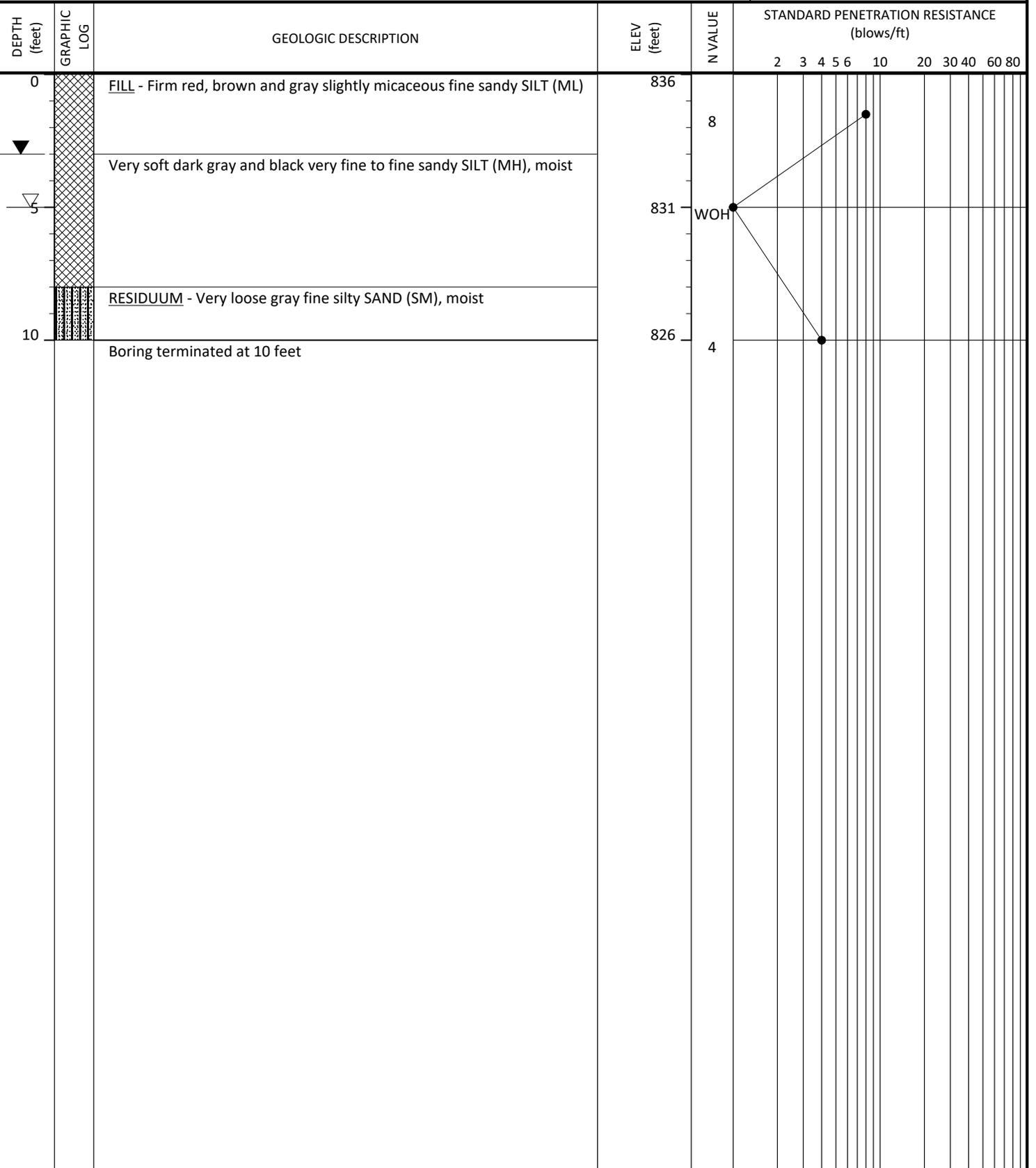
GEOLOGIST:	ELEVATION (feet): 838	NOTES: 1. No groundwater encountered at time of boring.
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 15	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																	
					2	3	4	5	6	10	20	30	40	60	80							
0		RESIDUUM - Loose red very fine to fine sandy SILT (SM)	838																			
		Loose yellowish red fine silty SAND (SM)		7																		
5			833	8																		
10		Loose red, strong brown, and black micaceous fine silty SAND (SM), moist	828	9																		
15		Boring terminated at 15 feet	823	7																		

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B16

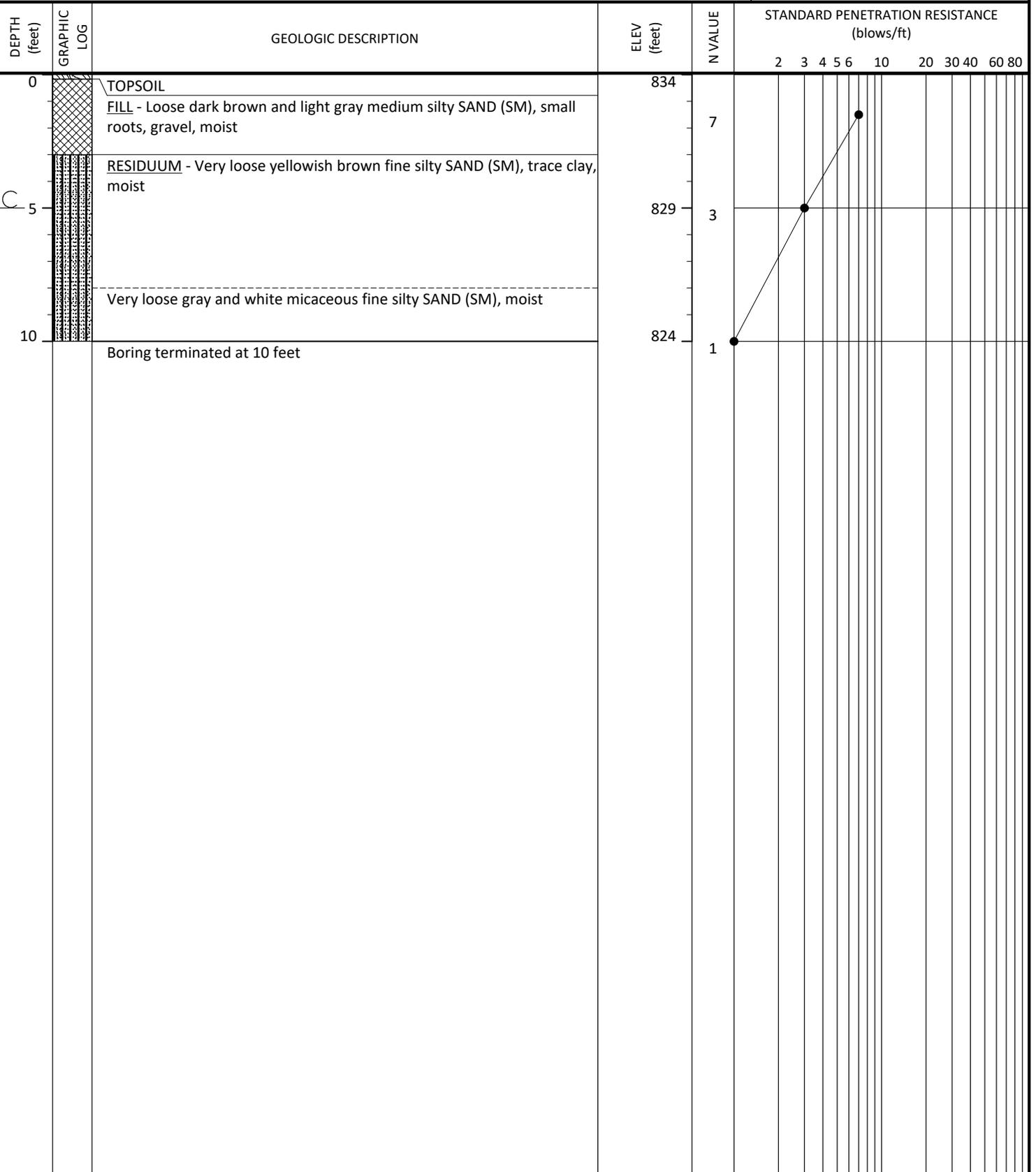
GEOLOGIST:	ELEVATION (feet): 836	NOTES: 1. Groundwater observed at 5 feet at time of boring. 2. Groundwater measured at 3 feet 2hrs after drilling.
DATE DRILLED: 1-31-20	BORING DEPTH (feet): 10	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): 5 \blacktriangledown 24HR (feet): 3	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		



**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B17

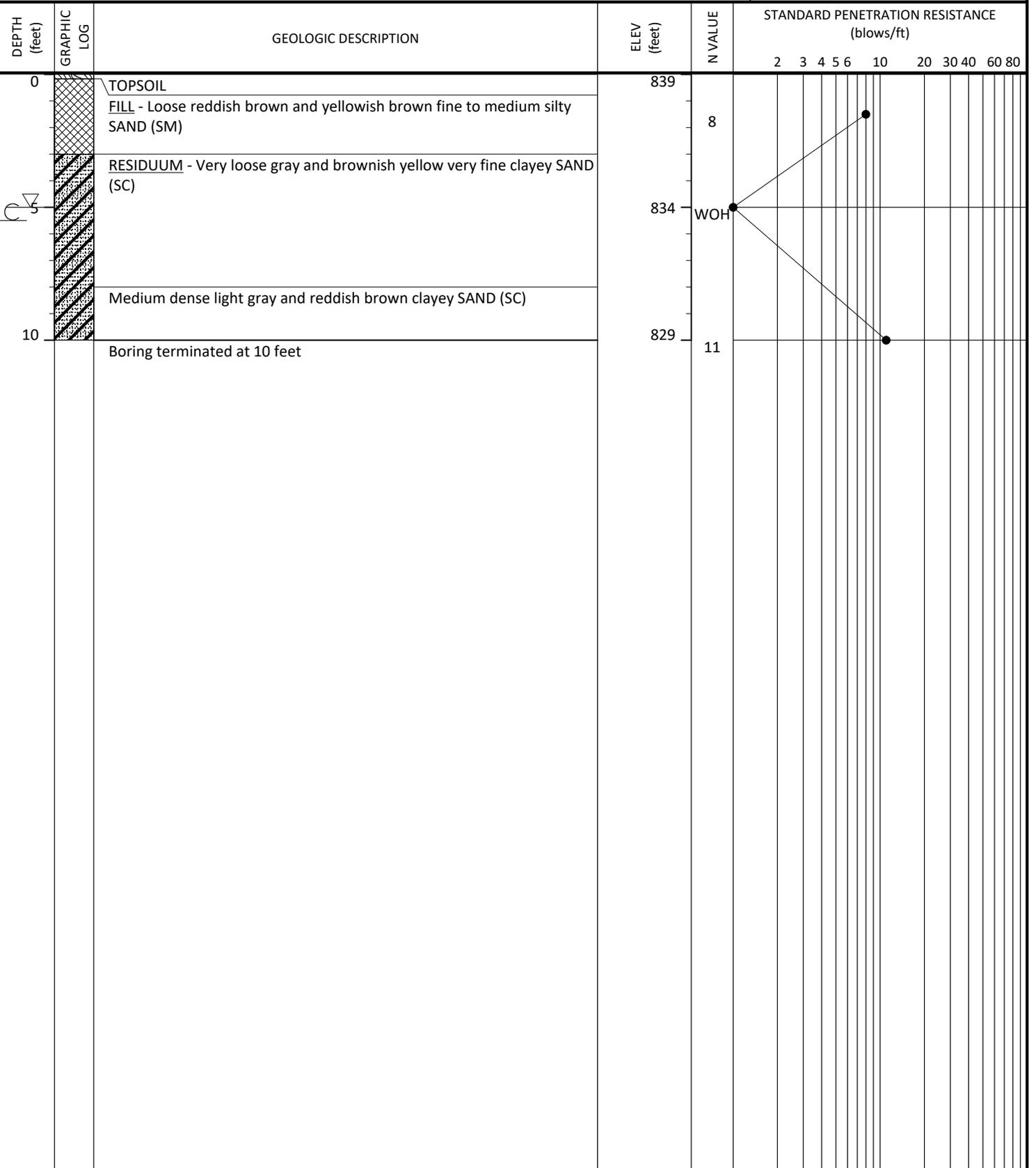
GEOLOGIST:	ELEVATION (feet): 834	NOTES: 1. Damp conditions encountered at time of boring. 2. Borehole caved to a depth of 5 feet after drilling.
DATE DRILLED: 1-30-20	BORING DEPTH (feet): 10	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		



**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B18

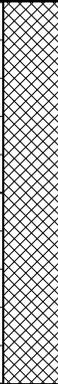
GEOLOGIST:		ELEVATION (feet): 839		NOTES: 1. Groundwater observed at 5 feet at time of boring. 2. Borehole caved to a depth of 5.5 feet after drilling.
DATE DRILLED: 1-30-20		BORING DEPTH (feet): 10		
DRILLER: GABLE DRILLING CO., INC.		WATER LEVEL ∇ TOB (feet): 5 \blacktriangledown 24HR (feet): N/A		
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER				



**CLAYTON COUNTY WATER AUTHORITY
 JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
 CLAYTON COUNTY, GEORGIA**

LOG OF BORING B19

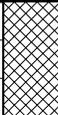
GEOLOGIST:	ELEVATION (feet): 840	NOTES: 1. Damp conditions observed at time of boring. 2. Borehole caved to a depth of 3 feet after drilling.
DATE DRILLED: 1-30-20	BORING DEPTH (feet): 10	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																	
					2	3	4	5	6	10	20	30	40	60	80							
0		FILL - Loose brown and gray slightly micaceous fine to medium silty SAND (SM), trace clay	840																			
		Loose brown and red micaceous fine to medium silty SAND (SM)		7																		
5			Very soft greenish gray and black micaceous fine sandy SILT (ML)	835	7																	
10			Boring terminated at 10 feet	830	WOH																	

**CLAYTON COUNTY WATER AUTHORITY
JESTERS CREEK OUTFALL REPLACEMENT - PHASE 4
CLAYTON COUNTY, GEORGIA**

LOG OF BORING B20

GEOLOGIST:	ELEVATION (feet): 840	NOTES: 1. Damp conditions observed at time of boring. 2. Borehole caved to a depth of 4 feet after drilling.
DATE DRILLED: 1-30-20	BORING DEPTH (feet): 10	
DRILLER: GABLE DRILLING CO., INC.	WATER LEVEL ∇ TOB (feet): NGWE \blacktriangledown 24HR (feet): N/A	
DRILLING METHOD: HOLLOW STEM AUGER WITH AUTOMATIC HAMMER		

DEPTH (feet)	GRAPHIC LOG	GEOLOGIC DESCRIPTION	ELEV (feet)	N VALUE	STANDARD PENETRATION RESISTANCE (blows/ft)																
					2	3	4	5	6	10	20	30	40	60	80						
0		FILL - Medium dense reddish brown medium silty SAND (SM), moist	840																		
5		RESIDUUM - Very stiff light gray and reddish yellow sandy CLAY (CH), moist	835	18																	
10		Loose reddish yellow slightly micaceous fine silty SAND (SM), moist	830	8																	
		Boring terminated at 10 feet																			

ATTACHMENT B

June 16, 2020

Mr. Blake Joyner
Clayton County Water Authority
1600 Battle Creek Road
Morrow, Georgia 30260

Re: Subsurface Investigation
Horizontal Directional Drill Addendum Report
Jesters Creek Outfall Replacement Phase IV
Jonesboro, Clayton County, Georgia
GeoSystems Project No. 20-2730

Dear Mr. Joyner:

GeoSystems Engineering, Inc. (GeoSystems) has completed the authorized additional pilot horizontal directional drill (HDD) boring for the referenced Clayton County Water Authority (CCWA) outfall sewer replacement. This report should be used in conjunction with our previous report, dated March 24, 2020. Included are a description of the HDD investigation procedures, drilling conditions, and our conclusions and recommendations.

PROJECT INFORMATION

The new sewer is indicated to be an 18-inch diameter PVC pipe. Open cut excavation is assumed for installation of the sewer, except for trenchless jack and bore installation beneath Battle Creek Road, between approximate stations 35+45 and 36+55. At the jack and bore location, the new sewer pipe will be installed inside a 36-inch diameter steel casing. Excavations depths required for installation are estimated to vary approximately from 8 to 11 feet in depth for the jack entry and exit pits.

INVESTIGATION PROCEDURES

In addition to the soil test borings previously reported, an HDD boring was completed by Babb Boring, under subcontract to GeoSystems, underneath Battle Creek Road. The HDD boring was performed using a 4-inch diameter steerable pilot bit connected to smaller diameter drilling rods. Location and depth of the boring were determined using a dual-frequency radio transmitter attached behind the pilot bit that relayed the drill position to a hand-held radio receiver at the ground surface. Guidance information for the advancing drill bit was communicated to the HDD operator from another crew member using the radio receiver along the boring alignment. Locations of the drill head were painted at points along the boring alignment by the HDD crew. During the boring operations, soil consistency, indicated by the drilling difficulty, was recorded in the field by the HDD operator.

The HDD boring at Battle Creek Road was initiated at the ground surface approximately 40 feet south of the casing stake surveyed by the CCWA at about station 35+45. The set-back distance allowed for steering the drill bit downward to reach the target crown and invert elevations before steering horizontally along the respective elevations. Once the drill bit was advanced the length of the casing crown elevation to about station 36+55, it was retrieved before it was advanced again along the invert elevation the same distance. Water drilling fluid was added during this boring to help cool and advance the drill bit and was vacuumed off as the drill rods were retrieved.

HORIZONTAL DIRECTIONAL DRILL CONDITIONS

The HDD boring performed underneath Battle Creek Road encountered generally good conditions for the planned conventional jack and bore pipe installation. The ground at this location was firmer at the surface with softer material at elevations along the planned casing alignment underneath the concrete drainage ditch and roadway. The HDD driller recorded soft drilling conditions throughout each boring once at depth.

Our previous soil test borings, B-11 and B-12, at this location encountered medium dense to loose silty sand residual soils and very loose fill material to termination depths of 15 feet respectively. Groundwater was recorded in B-12 at a depth of 10 feet at the time of boring. In general the HDD boring conditions at this location are consistent with the soil test boring data.

CONCLUSIONS AND RECOMMENDATIONS

Based on the soil test and HDD boring data, conventional jack and bore methods appear feasible for installation of the pipeline at the Battle Creek Road crossing. Drilling was performed without difficulty. No rock or other obstructions were encountered.

Installation Procedures

Loose to very loose silty sand residual soils are expected at the crown and invert elevations of the 36-inch diameter steel casing along the crossing length. Boring in loose to very loose sand conditions must be carefully controlled to prevent excess loss of soils into the bore, development of voids in the overburden, and excessive settlement or undermining of the roadway. During the bore, the cutting head of the machine should not be allowed to advance in front of the leading edge of the pipe at any time during installation. The volume of the spoil material removed relative to advancement of the pipe must also be continually monitored and logged to provide possible warning of any excessive soil losses.

Slope Stability/Excavation Shoring

The provided sewer profiles show the pipeline will extend under Battle Creek Road to maximum depths of about 9 to 10 feet below ground and the jack and bore installation pits are expected to require excavations between 8 and 11 feet deep. Our investigation did not include an analysis of slope stability for any temporary or permanent condition. However, based on conditions at this site

and OSHA requirements, we recommend that simple temporary slopes not exceed 1.5(H):1.0(V) for excavations in soil above the water table. Exposed slope faces should be protected from precipitation with an impermeable cover until the work is completed. Also, slope conditions should be inspected daily, during the course of work at the base, for any signs of instability such as tension cracks, bulging, or deterioration of the embankment soils.

Appropriate excavation bracing or trench boxes should be designed by the contractor to support excavations that are not sloped. Recommended earth pressure coefficients for design were provided in our previous subsurface investigation report. The shoring design should be presented to the CCWA for review and approval prior to installation.

We appreciate the opportunity to provide this subsurface investigation for the Clayton County Water Authority. Should you have any questions concerning this report, please call us.

Sincerely,

GeoSystems Engineering, Inc.



Hunter E. Guckert
Project Manager



Larry D. Mullins, P.E.
Principal Engineer

Cc: Clifford W. Beraset
Larry J. Michaels II

ATTACHMENT C

**STATE OF GEORGIA
COUNTY OF CLAYTON**

INTERIM WAIVER AND RELEASE UPON PAYMENT

The undersigned mechanic and/or materialman has been employed by the Clayton County Water Authority to furnish:

_____ [describe materials and/or labor]; for the construction of improvements known as:

_____ [title of the project or building];

which is located in the City of _____, County of _____, and is owned by the Clayton County Water Authority at the following address:

and more particularly described by the following metes and bounds description, land lot district, or block and lot number:

See Attachment: yes no

Upon the receipt of the sum of: \$ _____;

the mechanic and/or materialman waives and releases any and all liens or claims of liens it has upon the foregoing described property through the date signed below and excepting those rights and liens that the mechanic and/or materialman might have in any retained amounts, on account of labor or materials, or both, furnished by the undersigned to or on account of said contractor for said building or premises.

NOTICE: WHEN YOU EXECUTE AND SUBMIT THIS DOCUMENT, YOU SHALL BE CONCLUSIVELY DEEMED TO HAVE BEEN PAID IN FULL THE AMOUNT STATED ABOVE, EVEN IF YOU HAVE NOT ACTUALLY RECEIVED SUCH PAYMENT, 60 DAYS AFTER THE DATE STATED ABOVE UNLESS YOU FILE EITHER AN AFFIDAVIT OF NONPAYMENT OR A CLAIM OF LIEN PRIOR TO THE EXPIRATION OF SUCH 60 DAY PERIOD.

_____ (L.S.)
(Signature of Deponent)

(Printed/Typed Name and Title)

Deponent, individually, and as duly authorized agent and duly elected and acting officer of Contractor

(Company Name)

PERSONALLY APPEARED BEFORE ME, a Notary Public in and for said State and County, the Deponent, who, being personally known to the undersigned and being duly sworn and on oath deposed and said that the within and foregoing statements are true and correct this _____ day of _____, 20____.

Notary Public _____

Commission Expiration Date: _____

(NOTARY SEAL)

(Witness)

(Address)

ATTACHMENT D

**STATE OF GEORGIA
COUNTY OF CLAYTON**

WAIVER AND RELEASE UPON FINAL PAYMENT

The undersigned mechanic and/or materialman has been employed by the Clayton County Water Authority to furnish:

_____ [describe materials and/or labor]; for the construction of improvements known as:

_____ [title of the project or building];

which is owned by the Clayton County Water Authority at the following address:

and more particularly described by the following metes and bounds description, land lot district, or block and lot number:

See Attachment: yes no

Upon the receipt of the sum of: \$ _____;

the mechanic and/or materialman waives and releases any and all liens or claims of liens or any right against any labor and/or material bond it has upon the foregoing described property.

THE MECHANIC AND/OR MATERIALMAN WAIVES AND RELEASES ANY AND ALL LIENS OR CLAIMS OF LIENS IT HAS UPON THE FOREGOING DESCRIBED PROPERTY OR ANY RIGHTS AGAINST ANY LABOR AND/OR MATERIAL BOND ON

ACCOUNT OF LABOR OR MATERIALS, OR BOTH, FURNISHED BY THE UNDERSIGNED TO OR ON ACCOUNT OF SAID CONTRACTOR FOR SAID PROPERTY.

NOTICE: WHEN YOU EXECUTE AND SUBMIT THIS DOCUMENT, YOU SHALL BE CONCLUSIVELY DEEMED TO HAVE BEEN PAID IN FULL THE AMOUNT STATED ABOVE, EVEN IF YOU HAVE NOT ACTUALLY RECEIVED SUCH PAYMENT, 60 DAYS AFTER THE DATE STATED ABOVE UNLESS YOU FILE EITHER AN AFFIDAVIT OF NONPAYMENT OR A CLAIM OF LIEN PRIOR TO THE EXPIRATION OF SUCH 60 DAY PERIOD.

PERSONALLY APPEARED BEFORE ME, the undersigned attesting officer, duly authorized by law to administer oaths (the "Deponent"), who being duly sworn according to law, deposes and says on oath:

1. That Deponent is the duly authorized agent and duly elected and acting officer of _____ (the "Contractor"), and is duly authorized to execute this Final Contractor's Affidavit, Lien Waiver and Indemnification (this "Affidavit") in a representative capacity on behalf of Contractor, as well as in Deponent's individual capacity, and Deponent has made diligent inquiry into and is personally familiar with and has full knowledge of all facts set forth herein.

2. That Contractor acted as the sole general contractor in charge of and directly responsible for the building and construction of all improvements (the "Work") located as reflected above (the "Property"), all of which Work was performed pursuant to the terms of that certain agreement dated _____ (the "Agreement") by and between Contractor and the Clayton County Water Authority as the owner or agent of the owner of the Property (the "Owner"). The Work includes, without limitation, all Work under or related to the Agreement and all change orders to the Agreement, and all supplemental contracts and subcontracts, whether oral or written, for any extra, additional or replacement labor or materials. Contractor is, and performed the Work as, an independent general contractor and Contractor is not an agent of Owner, and all of the Work was furnished and performed at the instance of Contractor as general contractor.

3. That the Work has been fully and finally completed in strict accordance with the terms of the Agreement, and Contractor has at all times since the commencement of the

Work been in direct charge of all aspects of the Work, and Contractor has obtained a current valid permanent certificate of occupancy for the Property and the Work, and the Work has been completed within the boundary lines of the Property.

4. Upon receipt of the sum reflected above, Contractor acknowledges that Owner has paid in full to Contractor the full contract price under the Agreement (the "Contract Price"), which Contract Price includes, without limitation, all amounts and bills for all labor, materials, fixtures and supplies of any type whatsoever used in the Work. Upon receipt of these monies, all contractors, subcontractors, subcontractors of subcontractors, materialmen, suppliers and laborers will be paid in full the agreed price or reasonable value for all materials and supplies ordered, used or furnished and services and labor rendered in connection with or as a part of the Work, and none of such parties have or will have any claim, demand or lien against the Property, and all of the amounts paid by Owner to Contractor under the Agreement have been and will be used to pay for labor or materials used in the Work when no liens or claims of lien were filed or outstanding. There are no disputes regarding the Agreement or any other contracts or subcontracts with respect to the Work or the Property, and, except for bills associated with these final monies, there are no amounts due or unpaid bills of any nature, either for labor or services related to the Work or the Property or any materials which have been or may have been placed upon, or applied or delivered to the Property, and Contractor does hereby unconditionally agree to hold harmless and indemnify Owner from and against all claims for mechanic's or materialman's liens or claims of lien, including, without limitation, any attempted foreclosure thereof, which in any way arise out of or are related to the Work or the Property, including, without limitation, any attorney's fees incurred in connection therewith.

5. That Contractor does hereby for itself, and its employees, suppliers, subcontractors, mechanics and materialmen and all other persons acting for, through, or under Contractor, waive, remise, relinquish and release all right to file or to have filed or to maintain any materialman's or mechanic's lien or liens or claim or claims against the Property or arising out of or related to the Work. This Affidavit is executed and given in favor of and for the benefit of, and may be relied upon by, Owner and each and every party legally or equitably, now or hereafter, owning or holding any interest in the Property.

6. That this Affidavit is a sworn statement made under the provisions of Official Code of Georgia Annotated Section 44-14-361.2, and is made for the purpose of inducing Owner

to pay to Contractor the balance of the Contract Price pursuant to the terms of the Agreement.

_____ (L.S.)
(Signature of Deponent)

(Printed/Typed Name and Title)

Deponent, individually, and as duly authorized agent and duly elected and acting officer of Contractor

(Company Name)

PERSONALLY APPEARED BEFORE ME, a Notary Public in and for said State and County, the Deponent, who, being personally known to the undersigned and being duly sworn and on oath deposed and said that the within and foregoing statements are true and correct this _____ day of _____, 20____.

Notary Public _____

Commission Expiration Date: _____

(NOTARY SEAL)

(Witness)

(Address)

ATTACHMENT E



COVER SHEET

Effective:
May 1, 2019

FOR

VENDOR INFORMATION FORM

*The enclosed Vendor Information Form is used by the Clayton County Water Authority (CCWA) for adding vendors to its financial database system that are awarded procurement or service work. This form has two parts. **Part 1** is designed to obtain general company information. Completion of this part is required to successfully add the vendors to CCWA's financial database system. **Part 2** is intended for information gathering purposes only. While information requested on Part 2 is optional to the vendors, it will help the CCWA obtain business ownership classification description from its vendors.*

Product(s) / Service(s) Provided: Select a NIGP code from the drop-down menu. If the code is unknown, you can search it by clicking the link provided on the form. Go to page 5. At the same time, press CTRL-F. This will open a small FIND box on your screen. In the box, type the key word that best describes your goods or services and click NEXT until you find the best fit. **Write down the 5 digit code number and go to the drop-down menu of this Form to select the code.**

For the purposes of executing this document, the following definitions apply:

- **Small Local Business Enterprise (SLBE)** is one that is at least 51% owned by one or more of the applicant individuals identified and a citizen or lawfully admitted permanent resident of the United States. Independently owned and operated with average annual gross receipts for the previous three years not exceeding (1) Construction Firms- \$18,250,000 (2) Professional Services Firms - \$5,500,000, Architectural Firms - \$3,750,000, Engineering Firms- \$7,500,000 and Goods & Services – less than 250 employees. Locally based, meaning located and operating in Clayton County or the ten (10) counties of Cherokee, Cobb, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Henry, Rockdale and Spalding for at least one year prior to submitting application for certification.
- **A Woman Business Enterprise (WBE)** is one that is at least 51% owned by a Female, who also controls and operates the business, and is a permanent resident of the State of Georgia. The business must have a permanent, functioning office within the State of Georgia and must be lawfully licensed within the relevant jurisdiction.
- **A Minority Business Enterprise (MBE)** is one that is at least 51% owned by one of the minority groups identified below, who also control and operate the business, and are permanent residents of the State of Georgia. The business must have a permanent, functioning office within the State of Georgia and must be lawfully licensed within the relevant jurisdiction.

Minority Groups:

- Hispanic American
 - African American
 - Native American
 - Asian American
 - Pacific Islander
- **A Disabled Citizen Enterprise (DCE) of the US** refers to a business that is at least 51% owned by one or more disabled US citizens, who also control and operate the business, and are permanent residents of the State of Georgia. The business must have a permanent, functioning office within the State of Georgia, and must be lawfully licensed within the relevant jurisdiction.

Vendor Information Forms should be submitted to the Procurement Department.

**For questions related to the verification of certifications, please email
ccwa_slbe_program@ccwa.us**



VENDOR INFORMATION FORM

Effective 5/1/19

PART 1

Vendor Name: _____

Phone Number: _____ Fax #: _____

E-Mail Address: _____

Mailing Address: _____

Pay to Address: _____

Same as above

ACH is a way to move money between banks electronically. If you are interested in ACH payments, please complete all of the information below, and attach a copy of a voided check confirming your account information:

Bank Name: _____

Routing No.: _____ Account No.: _____

Account Name: _____

Remittance to Email Address: _____

Vendors should send all invoices to: [CCWA Accounts Payable@ccwa.us](mailto:CCWA_Accounts_Payable@ccwa.us)

Entity Type: Individual/Sole Proprietor Employee Owned Company Partnership
 Privately Held Corporation/LLC Publicly Owned Company Attorney
 Other ... _____

Social Security or Tax Identification Number (TIN): _____

Payment Terms: NET 30 DAYS Other: _____

PRODUCTS / SERVICES PROVIDED:
Provide NIGP Code(s)

For help finding NIGP Codes, click here: [NIGP Code Listing](#)

Required: A signed W-9 form must be submitted with this form.

PART 2

(For information gathering purposes only. You are not required to complete PART 2).

COMPANY'S OWNERSHIP CLASSIFICATION - See Cover Sheet for additional information.

To participate in the Small Local Business Program, please complete the following section:

SLBE Are you certified? Yes No Certifying Agency _____

County of Primary Business Located: _____

If you are certified as one of the following classifications, please check the appropriate box:

WBE MBE * DCE

* IF MBE, PLEASE Hispanic American African American Pacific Islander

CHOOSE ONE ONLY: Native American Asian American

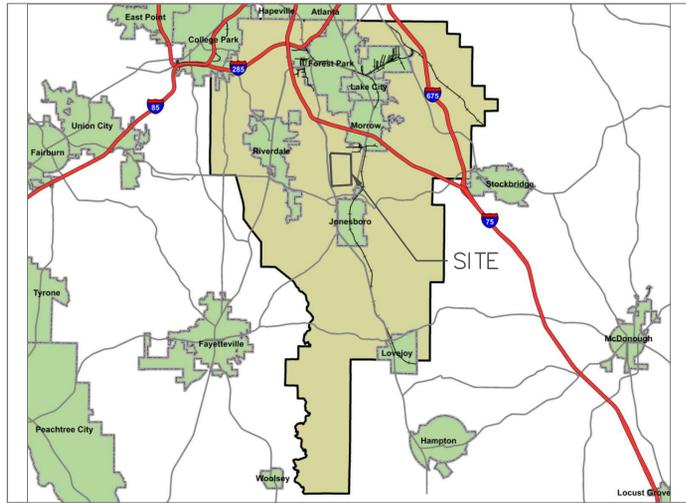
If "Publicly Owned Company" has been chosen, no other designation (Hispanic American, African American, Etc.) may be chosen. This option will serve as your company's classification.

Vendor Information Forms should be submitted to ccwa_slbe_program@ccwa.us.

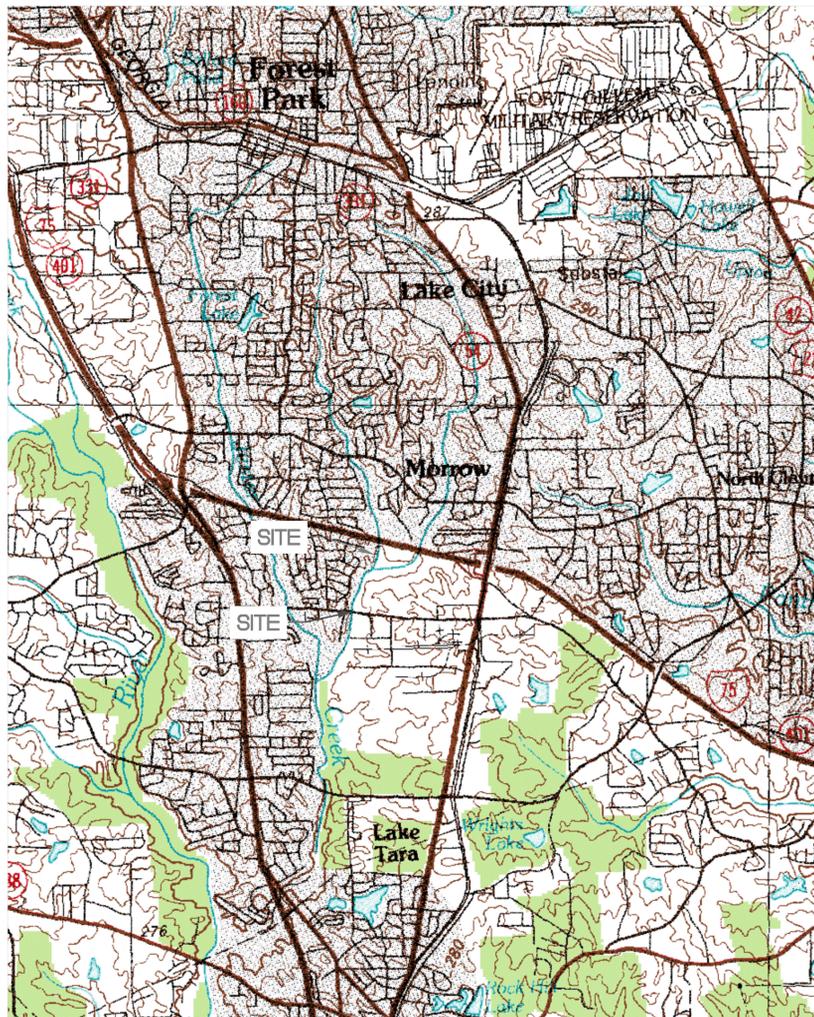
If your company's ownership is certified as SLBE, WBE, MBE, or DCE with the State of Georgia (GDOT) Certification Program, Clayton County, DeKalb County or with the City of Atlanta, please submit a copy of your business certification (including your phone, fax, and email address) to: ccwa_slbe_program@ccwa.us Certification from any other entity is not needed at this time.

CONSTRUCTION DRAWINGS

CONSTRUCTION PLAN FOR JESTERS CREEK OUTFALL REPLACEMENT PHASE 4



LOCATION MAP



USGS TOPOGRAPHIC MAP: ATLANTA GA.
MAP DATE: 1996
SCALE: 1:5000

DRAWING INDEX			
DRAWING #	TITLE	STATIONS	SHEET #
C-1	COVER		1
S-1	SITE PLAN	0+00-25+50	2
S-2	SITE PLAN	25+50-47+50	3
S-3	SITE PLAN	47+50-65+82	4
P-1	PLAN & PROFILE	0+00-13+50	5
P-2	PLAN & PROFILE	13+50-26+50	6
P-3	PLAN & PROFILE	26+50-39+50	7
P-4	PLAN & PROFILE	39+50-51+75	8
P-5	PLAN & PROFILE	51+75-64+50	9
P-6	PLAN & PROFILE	64+50-65+82	10
P-7	CONSTRUCTION DETAILS		11
D-1	DEMOLITION PLAN	0+00-27+50	12
D-2	DEMOLITION PLAN	27+50-52+75	13
D-3	DEMOLITION PLAN	52+75-65+80	14
E-1	EROSION CONTROL	0+00-25+50	15
E-2	EROSION CONTROL	25+50-47+50	16
E-3	EROSION CONTROL	47+50-65+82	17
E-4	EROSION DETAILS & NOTES		18
E-5	EROSION NOTES		19

GENERAL NOTES:

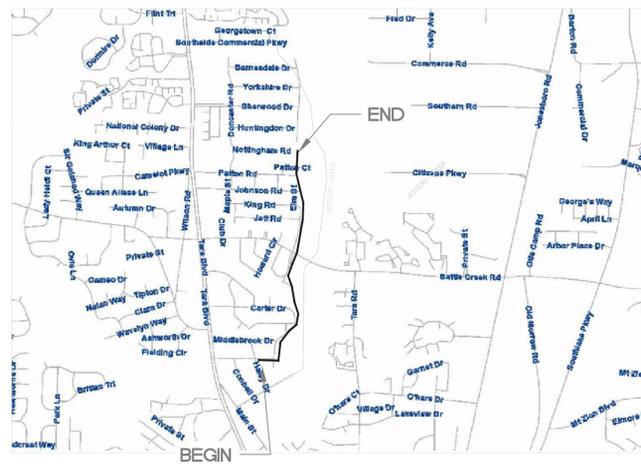
1. **PROJECT PURPOSE**
REPLACE EXISTING DETERIORATED 15-INCH SANITARY SEWER PIPES WITH 6582 L.F. OF 18-INCH SANITARY SEWER PIPE. AND COMPLETE ALL NECESSARY RE-CONNECTIONS.
2. **OWNER/DEVELOPER**
CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW GEORGIA, 30260
OFFICE: (770)961-2130
FAX: (770)960-5229
3. **24 HOUR CONTACT**
CLAYTON COUNTY WATER AUTHORITY
BLAKE JOYNER (CCWA)
GSWCC#000080675
OFFICE: 770-305-9078
CELL: 470-303-4998
4. **PROJECT ADDRESS/LOCATION**
THE WORK WILL START AT THE MAIN JUST TO THE EAST OF HAYLEY DRIVE AND CONTINUE EAST TO THE REAR OF HOMES ABUTTING SHADOW WOOD DRIVE, THEN PROCEED NORTH TO NOTTINGHAM DRIVE JUST BEYOND BARNESDALE DRIVE.
5. **PROJECT FUNDING**
SOURCE NAME: CLAYTON COUNTY WATER AUTHORITY
6. **SITE VISIT**
THE PROPOSED ROUTE AND IMMEDIATE VICINITY WAS VISITED BY THE PLAN DESIGNER ON OCTOBER 27, 2019 PRIOR TO COMPLETING THE EROSION CONTROL PLAN.
7. **TOTAL PROJECT AREA AND DISTURBED AREA**
PROJECT AREA: 618,552 S.F. (14.20 ACRES)
DISTURBED AREA: 539,500 S.F. (12.38 ACRES)
8. **100-YEAR FLOOD PLAIN**
THIS PROJECT DOES NOT CROSS IDENTIFIED 100 YEAR FLOOD HAZARD AREAS IN CLAYTON COUNTY THROUGHOUT THE PROJECT.

CLAYTON COUNTY F.I.R.M. COMMUNITY PANELS:

CLAYTON CO.: PANEL NUMBER 130063C 0086F DATED JUNE 7, 2017
9. **JURISDICTIONAL WATERS**
THE DELINEATION OF JURISDICTIONAL WATERS FOR THIS PROJECT WAS PERFORMED BY CCR ENVIRONMENTAL, INC IN JANUARY OF 2020. BASED ON THE RESULTS OF THE DELINEATION THE PROJECT ROUTE APPEARS TO CROSS JURISDICTIONAL WATERS.
10. **U.S. ARMY CORPS OF ENGINEERS**
A CONSTRUCTION PRE-NOTIFICATION SHALL BE SUBMITTED TO THE U.S.A.C.O.E.
11. **NPDES MONITORING**
STORM WATER RUNOFF ASSOCIATED WITH CONSTRUCTION ACTIVITY SHALL BE MONITORED AS PART OF THIS PROJECT.
12. **STATE WATERS**
BASED ON VISUAL RECONNAISSANCE ON OCTOBER 27, 2019, THE PROJECT ROUTE DOES NOT APPEAR TO CROSS STATE WATERS.
13. **STATE PLANE COORDINATE SYSTEM**
THE CONSTRUCTION DRAWINGS WERE PREPARED USING THE FOLLOWING COORDINATE SYSTEMS.
HORIZONTAL CONTROL: NORTH AMERICAN DATUM 83/94
VERTICAL CONTROL: NATIONAL GEODETIC VERTICAL DATA 88.
GRID ZONE: GEORGIA WEST 1002.

CONSTRUCTION SCHEDULE

ITEM	JAN 2021				FEB 2021				MARCH 2021				APRIL 2021				MAY 2021				JUNE 2021				JULY 2021				AUG 2021				SEPT. 2021				OCT. 2021				NOV. 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
INSTALL EROSION CONTROL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
EROSION CONTROL MAINTENANCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
UTILITY CONSTRUCTION & CLEARING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
REGASSING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				



Know what's below.
Call before you dig.

LEGEND			
	EXISTING SANITARY SEWER MANHOLE	EP	EDGE OF PAVEMENT
	PROPOSED SANITARY SEWER MANHOLE	MP	EXISTING MAIL BOX
	EXISTING WATER VALVE	WV	EXISTING WATER METER
	EXISTING FIRE HYDRANT	WFV	EXISTING WATER METER VAULT
	EXISTING STREET SIGN	OSP	CORRUGATED METAL PIPE
	EXISTING LAMP POST	OLP	REINFORCED CONCRETE PIPE
	EXISTING UTILITY POLE	UP	DUCTILE IRON PIPE
	EXISTING POWER TRANSFORMER	PTV	EXISTING CABLE TV BOX
	EXISTING TELEPHONE MANHOLE	TMH	EXISTING STORM JUNCTION BOX
	EXISTING BUILDING	OB	EXISTING STORM HEADWALL
	EXISTING STORM CATCH BASIN	FCB	EXISTING STORM DRAIN
	EXISTING STORM DROP INLET	SDI	EXISTING UNDERGROUND POWER LINES
	EXISTING STORM CATCH INLET	SCI	EXISTING OVERHEAD POWER LINES
	EXISTING TELEPHONE SWITCH BOX	TSB	EXISTING UNDERGROUND TELEPHONE CONDUIT
	TELEPHONE CABLE MARKER	TCM	EXISTING UNDERGROUND CABLE TV
	EXISTING GUY WIRE	GW	EXISTING 6 INCH SEWER FORCE MAIN
	IRON PIN/PROPERTY CORNER MARKER	IPM	EXISTING SEWER MAN. SIZE & FLOW DIRECTION
	EXISTING TRAFFIC SIGNAL BOX	TSB	EXISTING WATER MAIN & SIZE
	EXISTING GAS METER	GM	EXISTING WATER MAIN OR SERVICE
	EXISTING GAS VALVE	GV	EXISTING STORM MAN SIZE & FLOW DIRECTION
	RIGHT OF WAY	R/W	EXISTING STORM MAN SIZE & FLOW DIRECTION
	PROPERTY LINE	PL	PROPOSED SEWER MAIN
	DEMOLITION/REMOVAL PIPE AND MANHOLE	DRM	DEMOLITION/GRIND/FILL
	DEMOLITION/GRAVEL FILL	DF	DEMOLITION/GRASS FILL
	SALT FENCE TYPE AS SPECIFIED	SFF	DEMOLITION/GRASS FILL
	CONSTRUCTION LIMITS	CL	CONSTRUCTION LIMITS

PLANS PREPARED BY:



CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW, GEORGIA 30260

THESE DRAWINGS ARE THE PROPERTY OF CLAYTON COUNTY WATER AUTHORITY AND MAY NOT BE REPRODUCED, COPIED, OR OTHERWISE REUSED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN CONSENT OF CLAYTON COUNTY WATER AUTHORITY. THE ACCEPTANCE OF THESE DRAWINGS SHALL BE CONSTRUED AS AN ACCEPTANCE OF THE FOREGOING AGREEMENT.

PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175,178 & 207 13TH DISTRICT
CLAYTON COUNTY, GEORGIA



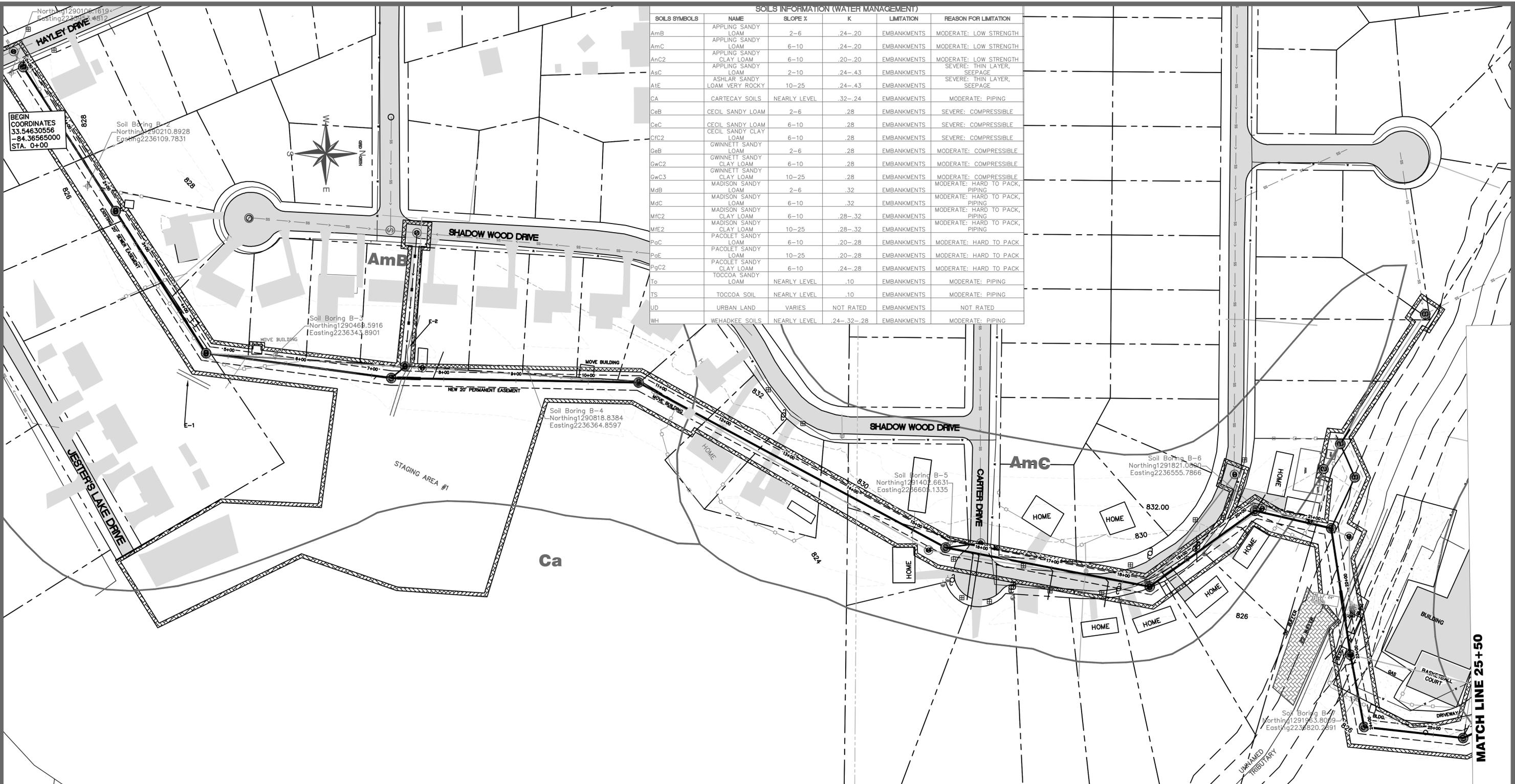
JESTERS CREEK OUTFALL REPLACEMENT - PH 4
SEAL:

REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

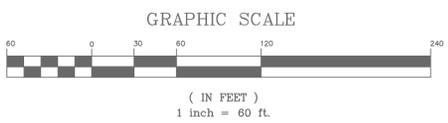
SHEET TITLE: SITE PLAN

DESIGN BY: CCWA	DATE: 08/04/20	JOB #: 81901	SHEET NUMBER 1 OF 19
DRAWN BY: JRM	DRAWING #: C-1	SCALE: N.T.S.	
CHECKED BY:			



SOILS INFORMATION (WATER MANAGEMENT)					
SOILS SYMBOLS	NAME	SLOPE %	K	LIMITATION	REASON FOR LIMITATION
AmB	APPLING SANDY LOAM	2-6	.24-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AmC	APPLING SANDY LOAM	6-10	.24-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AnC2	APPLING SANDY CLAY LOAM	6-10	.20-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AsC	APPLING SANDY LOAM	2-10	.24-.43	EMBANKMENTS	SEVERE: THIN LAYER, SEEPAGE
AtE	ASHLAR SANDY LOAM VERY ROCKY	10-25	.24-.43	EMBANKMENTS	SEVERE: THIN LAYER, SEEPAGE
CA	CARTECAY SOILS	NEARLY LEVEL	.32-.24	EMBANKMENTS	MODERATE: PIPING
CeB	CECIL SANDY LOAM	2-6	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
CeC	CECIL SANDY LOAM	6-10	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
CfC2	CECIL SANDY CLAY LOAM	6-10	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
GeB	WINNETT SANDY LOAM	2-6	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
GwC2	WINNETT SANDY CLAY LOAM	6-10	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
GwC3	WINNETT SANDY CLAY LOAM	10-25	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
MdB	MADISON SANDY LOAM	2-6	.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MdC	MADISON SANDY LOAM	6-10	.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MfC2	MADISON SANDY CLAY LOAM	6-10	.28-.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MfE2	MADISON SANDY CLAY LOAM	10-25	.28-.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
PaC	PACOLET SANDY LOAM	6-10	.20-.28	EMBANKMENTS	MODERATE: HARD TO PACK
PaE	PACOLET SANDY LOAM	10-25	.20-.28	EMBANKMENTS	MODERATE: HARD TO PACK
PgC2	PACOLET SANDY CLAY LOAM	6-10	.24-.28	EMBANKMENTS	MODERATE: HARD TO PACK
To	TOCCOA SANDY LOAM	NEARLY LEVEL	.10	EMBANKMENTS	MODERATE: PIPING
TS	TOCCOA SOIL	NEARLY LEVEL	.10	EMBANKMENTS	MODERATE: PIPING
UD	URBAN LAND	VARIES	NOT RATED	EMBANKMENTS	NOT RATED
WH	WEHADKEE SOILS	NEARLY LEVEL	.24-.32-.28	EMBANKMENTS	MODERATE: PIPING

SOILS INFORMATION WAS OBTAINED USING THE SOIL SURVEY OF CLAYTON, FAYETTE, AND HENRY COUNTIES, GEORGIA PREPARED BY THE USDA SOIL CONSERVATION SERVICE IN COOPERATION WITH UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS, ISSUED SEPTEMBER 1979.



PLANS PREPARED BY:
CLAYTON COUNTY WATER AUTHORITY
 1600 BATTLE CREEK ROAD
 MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOT 175,178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

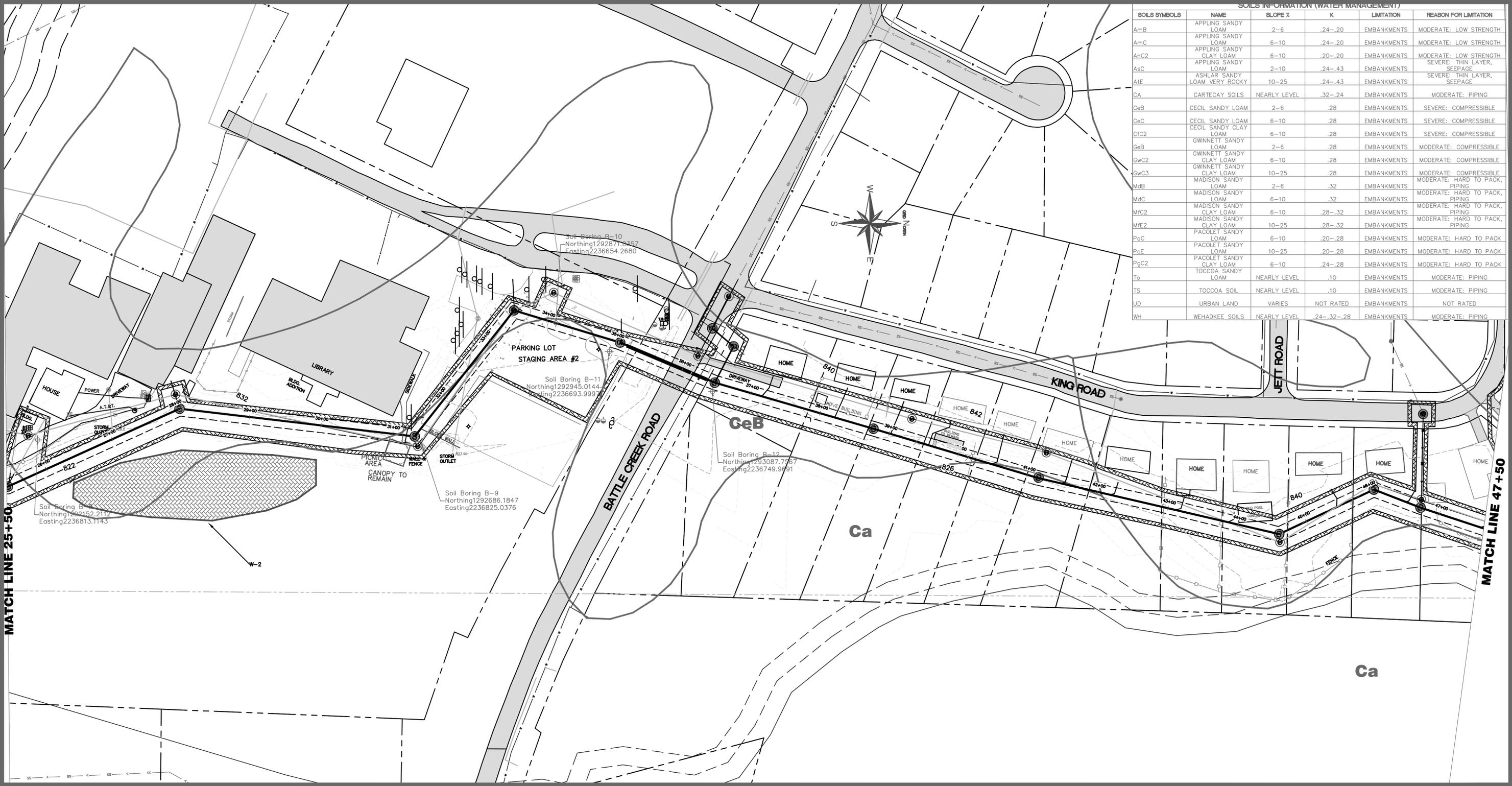
SEAL:

 JESTERS CREEK OUTFALL REPLACEMENT - PH 4

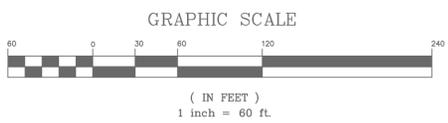
REVISIONS:			
DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE:		SITE PLAN	
DESIGN BY:	CCWA	DATE:	08/04/20
DRAWN BY:	JRM	JOB #:	81901
CHECKED BY:		DRAWING #:	S-1
		SCALE:	1" = 60'
SHEET NUMBER		2	OF 19

SOILS INFORMATION (WATER MANAGEMENT)					
SOILS SYMBOLS	NAME	SLOPE %	K	LIMITATION	REASON FOR LIMITATION
AmB	APPLING SANDY LOAM	2-6	.24-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AmC	APPLING SANDY LOAM	6-10	.24-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AnC2	APPLING SANDY CLAY LOAM	6-10	.20-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AsC	APPLING SANDY LOAM	2-10	.24-.43	EMBANKMENTS	SEVERE: THIN LAYER, SEEPAGE
AtE	ASHLAR SANDY LOAM VERY ROCKY	10-25	.24-.43	EMBANKMENTS	SEVERE: THIN LAYER, SEEPAGE
CA	CARTECAY SOILS	NEARLY LEVEL	.32-.24	EMBANKMENTS	MODERATE: PIPING
CeB	CECIL SANDY LOAM	2-6	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
CeC	CECIL SANDY LOAM	6-10	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
CfC2	CECIL SANDY CLAY LOAM	6-10	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
GeB	GWINNETT SANDY LOAM	2-6	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
GwC2	GWINNETT SANDY CLAY LOAM	6-10	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
GwC3	GWINNETT SANDY CLAY LOAM	10-25	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
MdB	MADISON SANDY LOAM	2-6	.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MdC	MADISON SANDY LOAM	6-10	.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MfC2	MADISON SANDY CLAY LOAM	6-10	.28-.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MfE2	MADISON SANDY CLAY LOAM	10-25	.28-.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
PaC	PACOLET SANDY LOAM	6-10	.20-.28	EMBANKMENTS	MODERATE: HARD TO PACK
PaE	PACOLET SANDY LOAM	10-25	.20-.28	EMBANKMENTS	MODERATE: HARD TO PACK
PgC2	PACOLET SANDY CLAY LOAM	6-10	.24-.28	EMBANKMENTS	MODERATE: HARD TO PACK
To	TOCCOA SANDY LOAM	NEARLY LEVEL	.10	EMBANKMENTS	MODERATE: PIPING
TS	TOCCOA SOIL	NEARLY LEVEL	.10	EMBANKMENTS	MODERATE: PIPING
UD	URBAN LAND	VARIES	NOT RATED	EMBANKMENTS	NOT RATED
WH	WEHADKEE SOILS	NEARLY LEVEL	.24-.32-.28	EMBANKMENTS	MODERATE: PIPING



SOILS INFORMATION WAS OBTAINED USING THE SOIL SURVEY OF CLAYTON, FAYETTE, AND HENRY COUNTIES, GEORGIA PREPARED BY THE USDA SOIL CONSERVATION SERVICE IN COOPERATION WITH UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS, ISSUED SEPTEMBER 1979.



PLANS PREPARED BY:

CLAYTON COUNTY WATER AUTHORITY
 1600 BATTLE CREEK ROAD
 MORROW, GEORGIA 30260

Providing Quality Water and Quality Services To Our Community

THESE DRAWINGS ARE THE PROPERTY OF CLAYTON COUNTY WATER AUTHORITY AND MAY NOT BE REPRODUCED, COPIED, OR OTHERWISE REUSED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN CONSENT OF CLAYTON COUNTY WATER AUTHORITY. THE ACCEPTANCE OF THESE DRAWINGS SHALL BE CONSTRUED AS AN ACCEPTANCE OF THE FOREGOING AGREEMENT.

PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175.178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

SEAL:

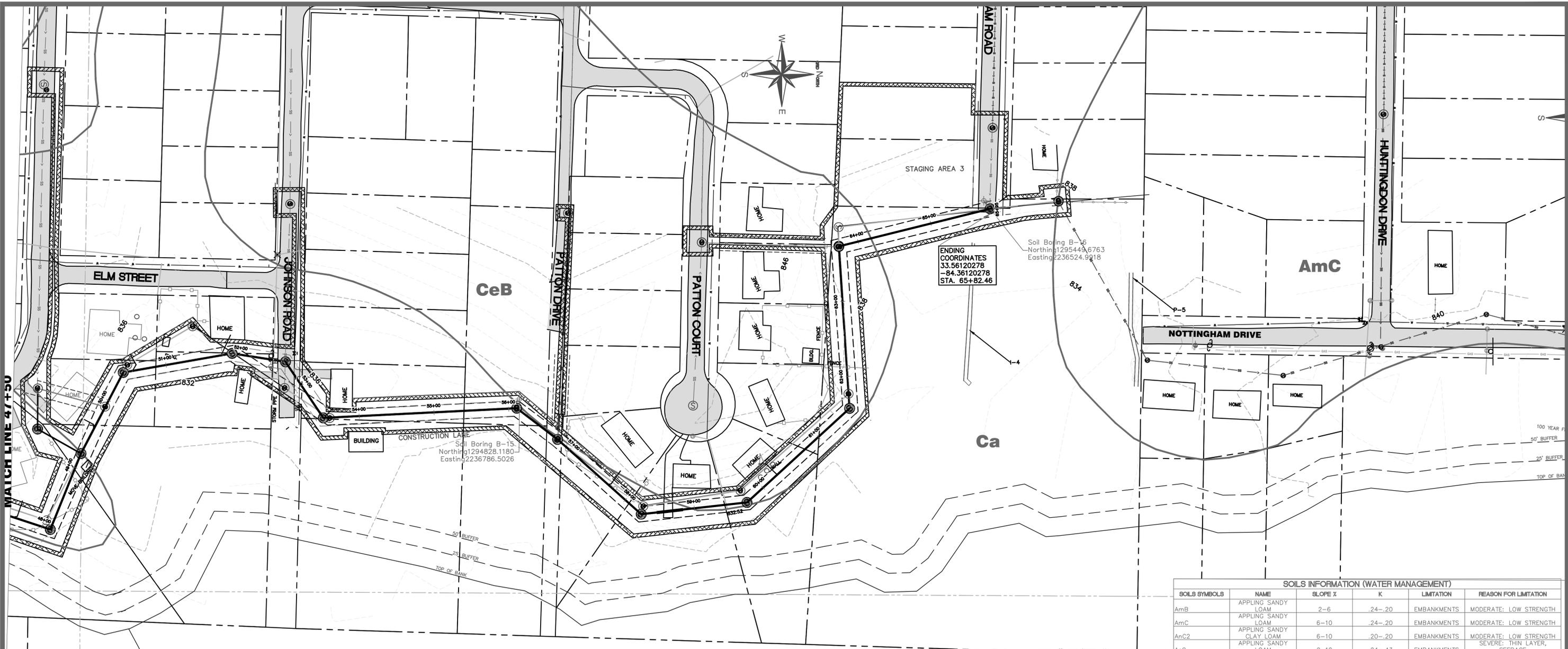
JESTERS CREEK OUTFALL REPLACEMENT - PH 4

REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

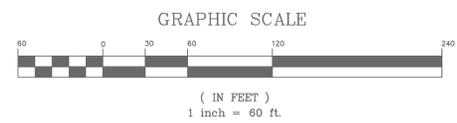
SHEET TITLE: SITE PLAN

DESIGN BY:	CCWA	DATE:	08/04/20
DRAWN BY:	JRM	JOB #:	81901
CHECKED BY:		DRAWING #:	S-2
		SCALE:	1" = 60'
		SHEET NUMBER	3 OF 19



SOILS INFORMATION (WATER MANAGEMENT)					
SOILS SYMBOLS	NAME	SLOPE %	K	LIMITATION	REASON FOR LIMITATION
AmB	APPLING SANDY LOAM	2-6	.24-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AmC	APPLING SANDY LOAM	6-10	.24-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AnC2	APPLING SANDY CLAY LOAM	6-10	.20-.20	EMBANKMENTS	MODERATE: LOW STRENGTH
AsC	APPLING SANDY LOAM	2-10	.24-.43	EMBANKMENTS	SEVERE: THIN LAYER, SEEPAGE
AtE	ASHLAR SANDY LOAM VERY ROCKY	10-25	.24-.43	EMBANKMENTS	SEVERE: THIN LAYER, SEEPAGE
CA	CARTECAY SOILS	NEARLY LEVEL	.32-.24	EMBANKMENTS	MODERATE: PIPING
CeB	CECIL SANDY LOAM	2-6	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
CeC	CECIL SANDY LOAM	6-10	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
CIC2	CECIL SANDY CLAY LOAM	6-10	.28	EMBANKMENTS	SEVERE: COMPRESSIBLE
GeB	GINNETT SANDY LOAM	2-6	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
GwC2	GINNETT SANDY CLAY LOAM	6-10	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
GwC3	GINNETT SANDY CLAY LOAM	10-25	.28	EMBANKMENTS	MODERATE: COMPRESSIBLE
MdB	MADISON SANDY LOAM	2-6	.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MdC	MADISON SANDY LOAM	6-10	.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MfC2	MADISON SANDY CLAY LOAM	6-10	.28-.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
MfE2	MADISON SANDY CLAY LOAM	10-25	.28-.32	EMBANKMENTS	MODERATE: HARD TO PACK, PIPING
PaC	PACOLET SANDY LOAM	6-10	.20-.28	EMBANKMENTS	MODERATE: HARD TO PACK
PaE	PACOLET SANDY LOAM	10-25	.20-.28	EMBANKMENTS	MODERATE: HARD TO PACK
PgC2	PACOLET SANDY CLAY LOAM	6-10	.24-.28	EMBANKMENTS	MODERATE: HARD TO PACK
To	TOCCOA SANDY LOAM	NEARLY LEVEL	.10	EMBANKMENTS	MODERATE: PIPING
TS	TOCCOA SOIL	NEARLY LEVEL	.10	EMBANKMENTS	MODERATE: PIPING
UD	URBAN LAND	VARIES	NOT RATED	EMBANKMENTS	NOT RATED
WH	WEHADKEE SOILS	NEARLY LEVEL	.24-.32-.28	EMBANKMENTS	MODERATE: PIPING

SOILS INFORMATION WAS OBTAINED USING THE SOIL SURVEY OF CLAYTON, FAYETTE, AND HENRY COUNTIES, GEORGIA PREPARED BY THE USDA SOIL CONSERVATION SERVICE IN COOPERATION WITH UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS, ISSUED SEPTEMBER 1979.



PLANS PREPARED BY:
CLAYTON COUNTY WATER AUTHORITY
 1600 BATTLE CREEK ROAD
 MORROW, GEORGIA 30260

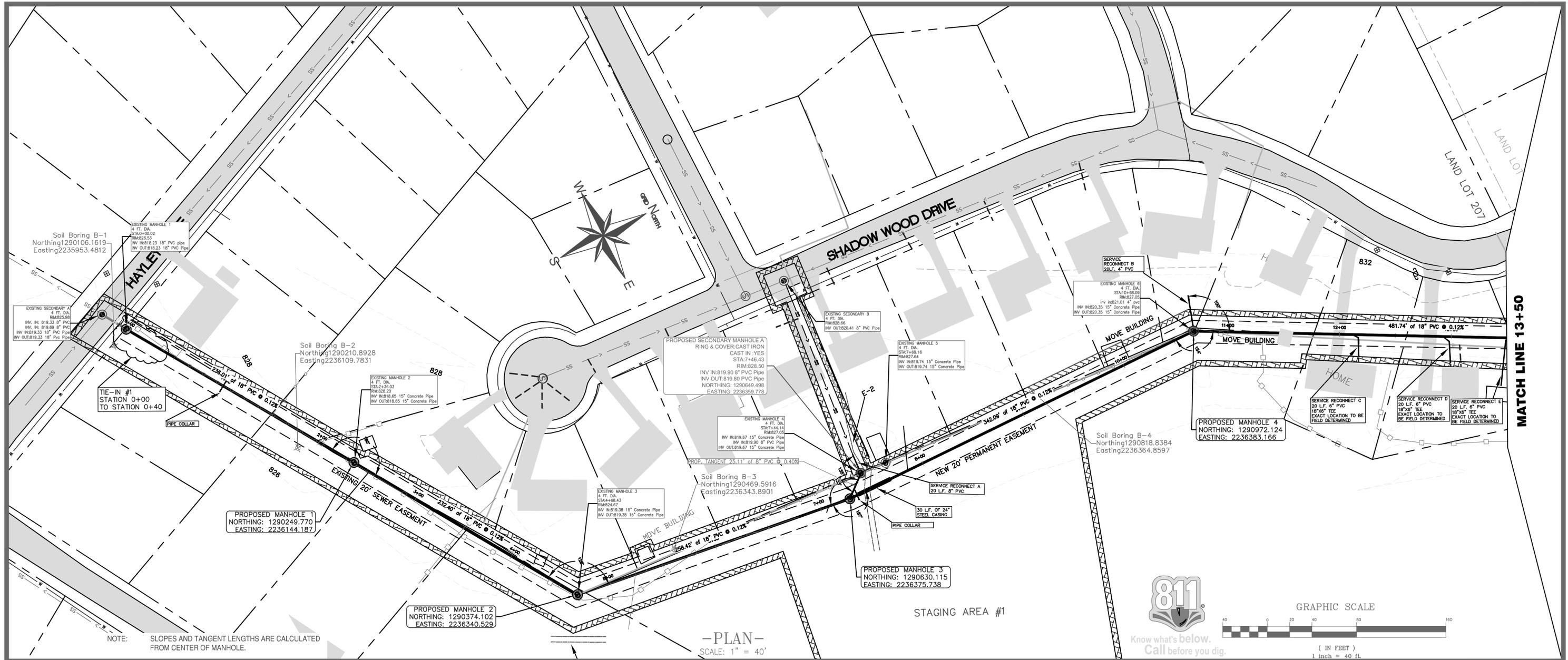
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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOT 175,178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

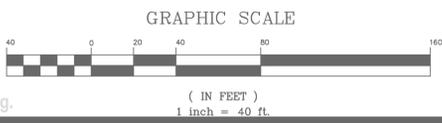
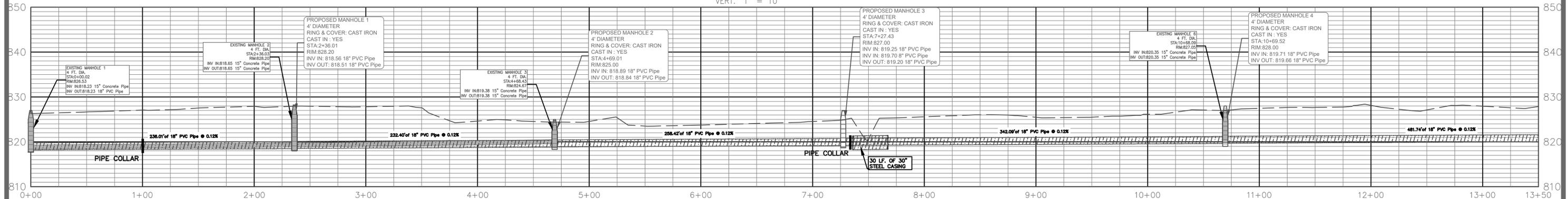


REVISIONS:			
DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: SITE PLAN		
DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	S-3
JRM	SCALE:	1" = 60'
CHECKED BY:	SHEET NUMBER	4 OF 19



-PROFILE-
SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



PLANS PREPARED BY:



CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW, GEORGIA 30260

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PROJECT NAME:

JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
LAND LOT 175, 178 & 207 13TH DISTRICT
CLAYTON COUNTY, GEORGIA



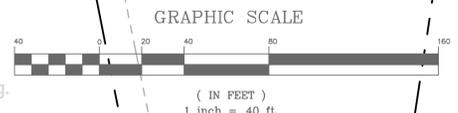
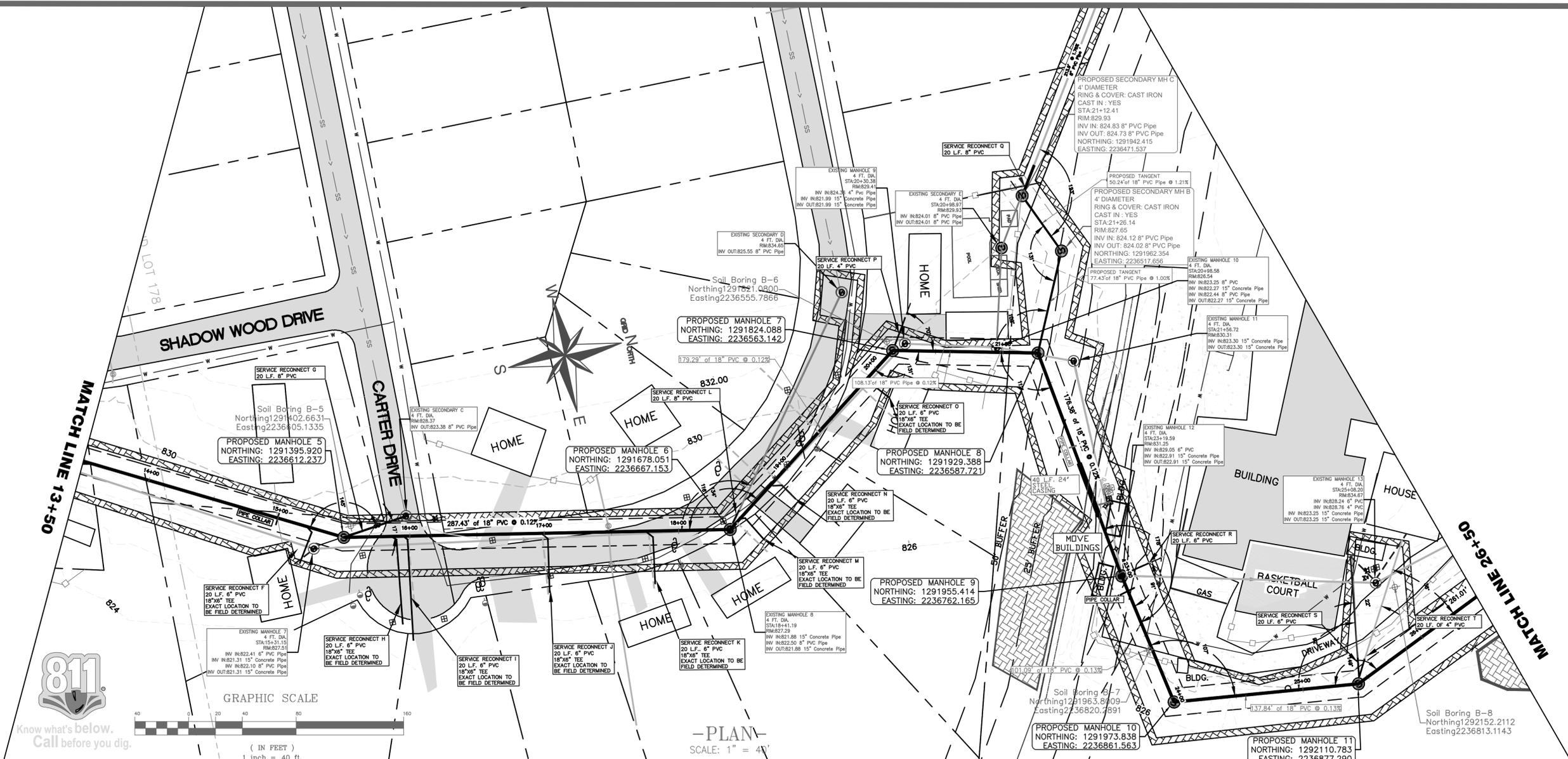
JESTERS CREEK OUTFALL REPLACEMENT - PH 4
SEAL:

REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: PLAN & PROFILE

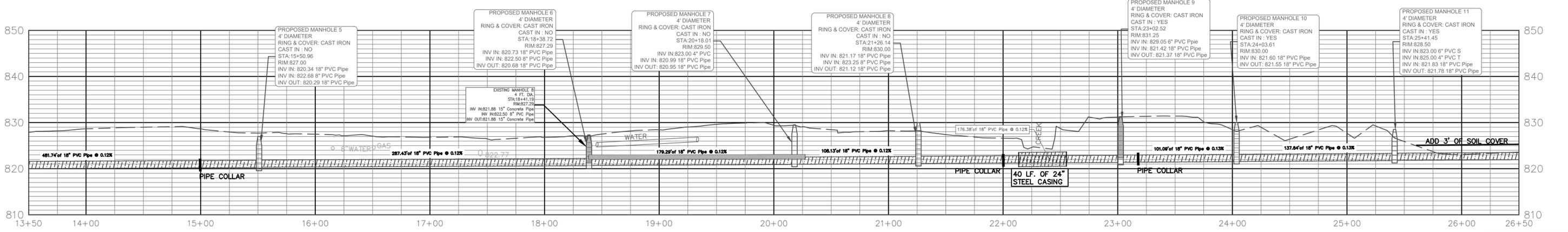
DESIGN BY:	CCWA	DATE:	08/04/20
DRAWN BY:	JRM	JOB #:	81901
CHECKED BY:		DRAWING #:	P-1
		SCALE:	1" = 40'
		SHEET NUMBER	5 OF 19



-PLAN-
SCALE: 1" = 40'

-PROFILE-
SCALE, HORZ. 1" = 40'
VERT. 1" = 10'

NOTE: SLOPES AND TANGENT LENGTHS ARE CALCULATED FROM CENTER OF MANHOLE.



PLANS PREPARED BY:

CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175,178 & 207 13TH DISTRICT
CLAYTON COUNTY, GEORGIA

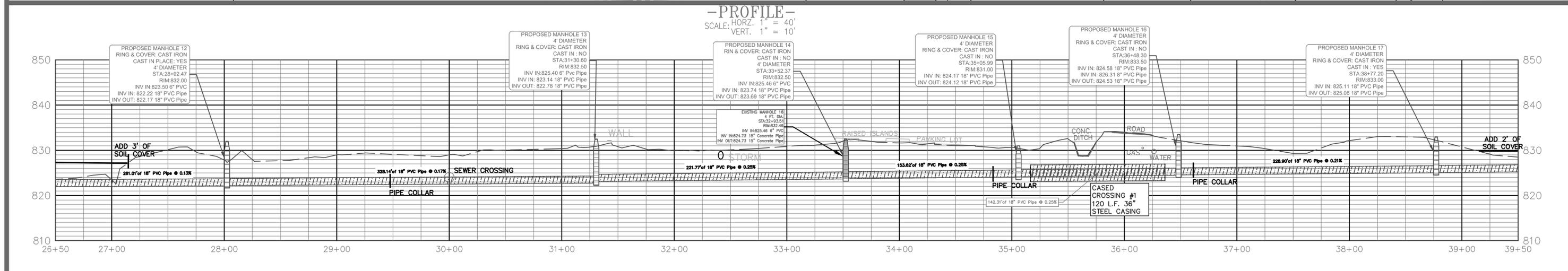
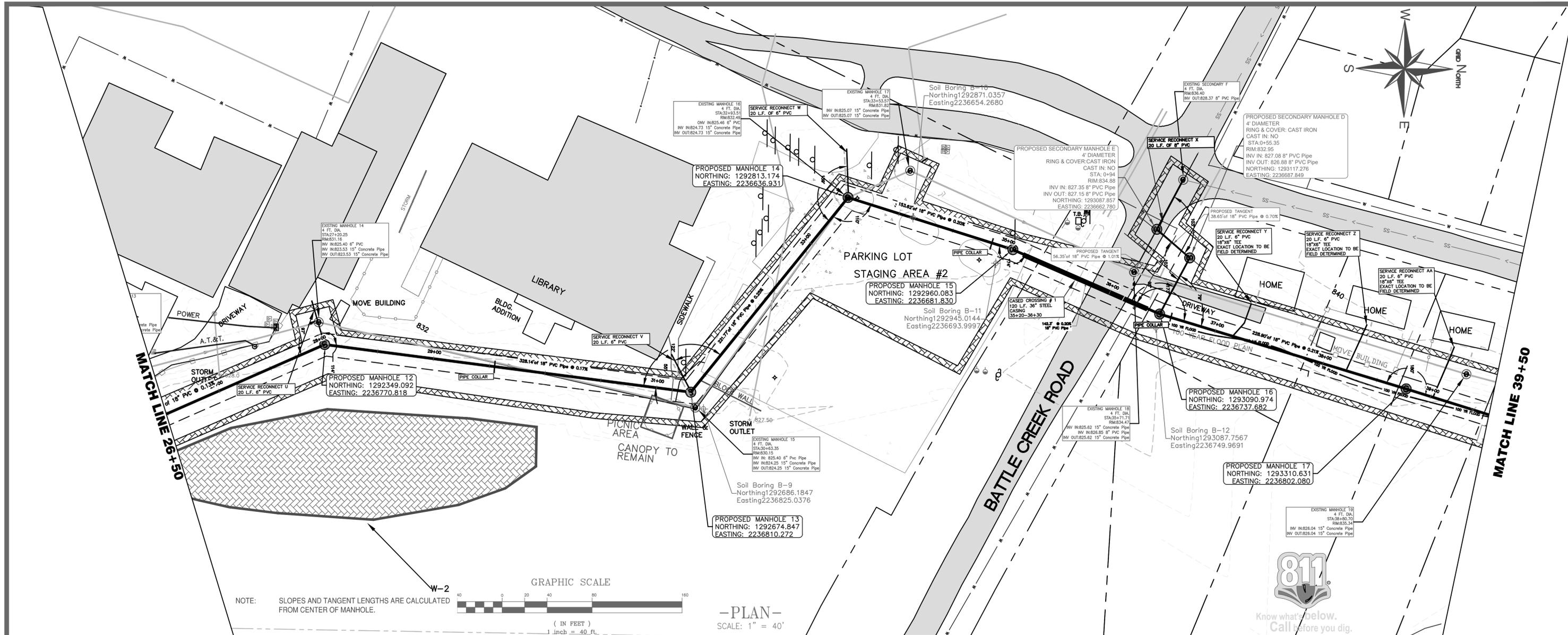
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REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: PLAN & PROFILE

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	P-2
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER	6 OF 19



PLANS PREPARED BY:
CLAYTON COUNTY WATER AUTHORITY
 1600 BATTLE CREEK ROAD
 MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOTS 175,178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

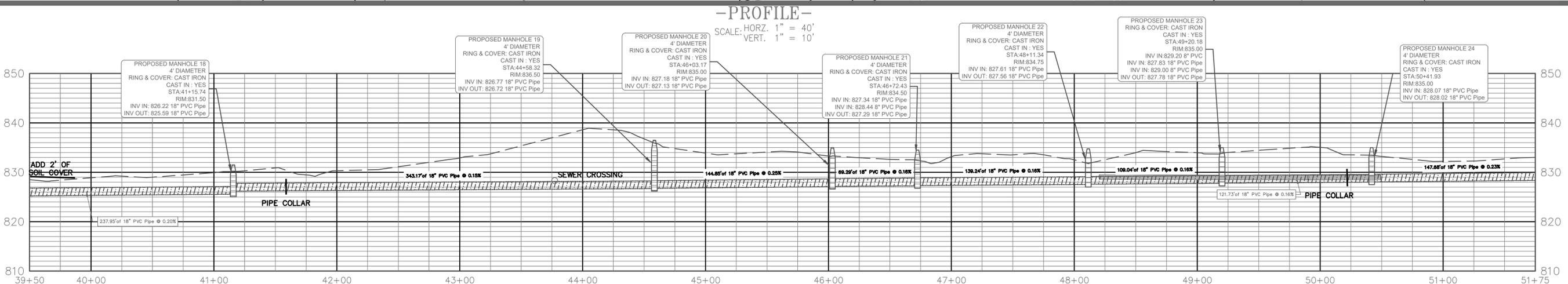
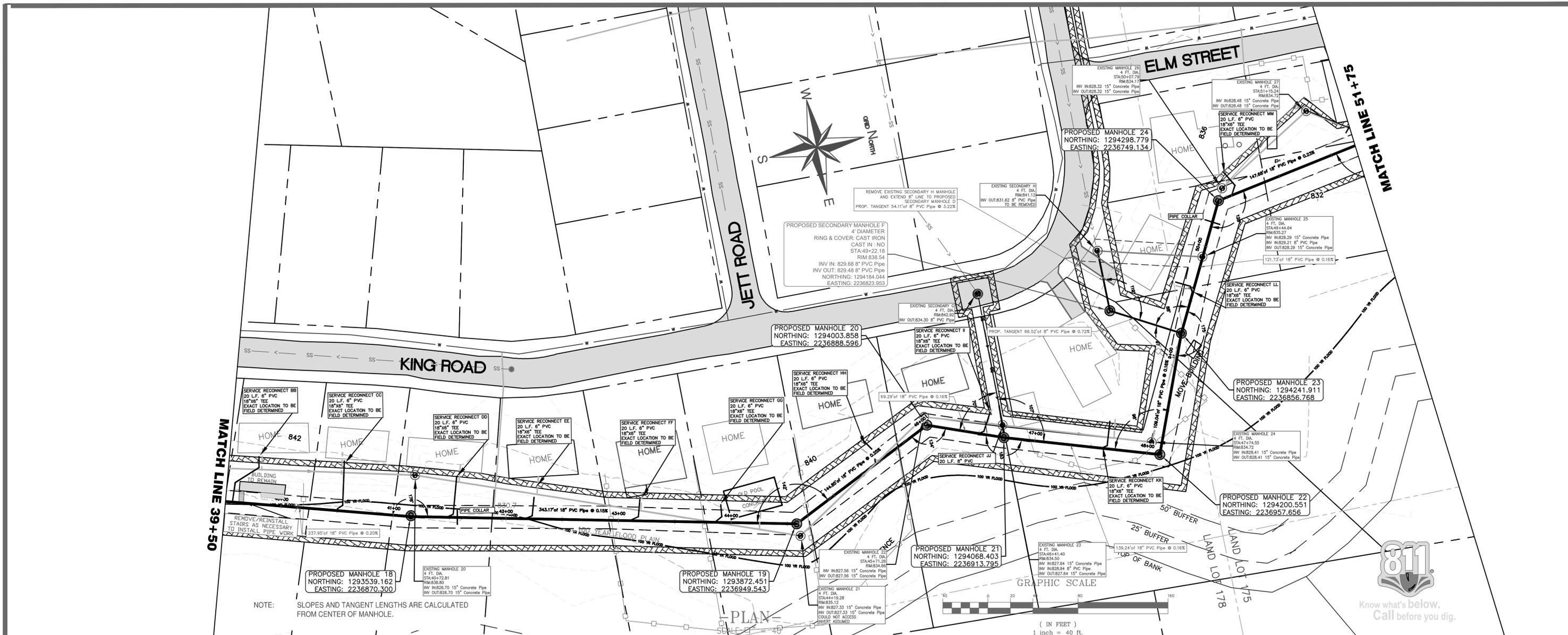
SEAL:

REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: PLAN & PROFILE

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	P-3
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER	7 OF 19



PLANS PREPARED BY:
CLAYTON COUNTY WATER AUTHORITY
 1600 BATTLE CREEK ROAD
 MORROW, GEORGIA 30260

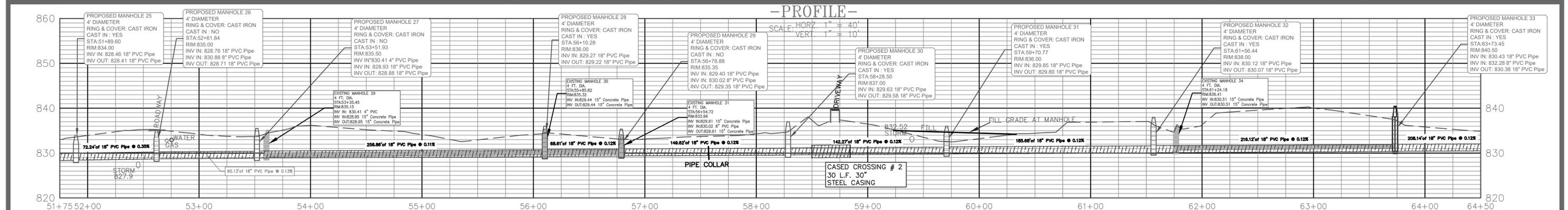
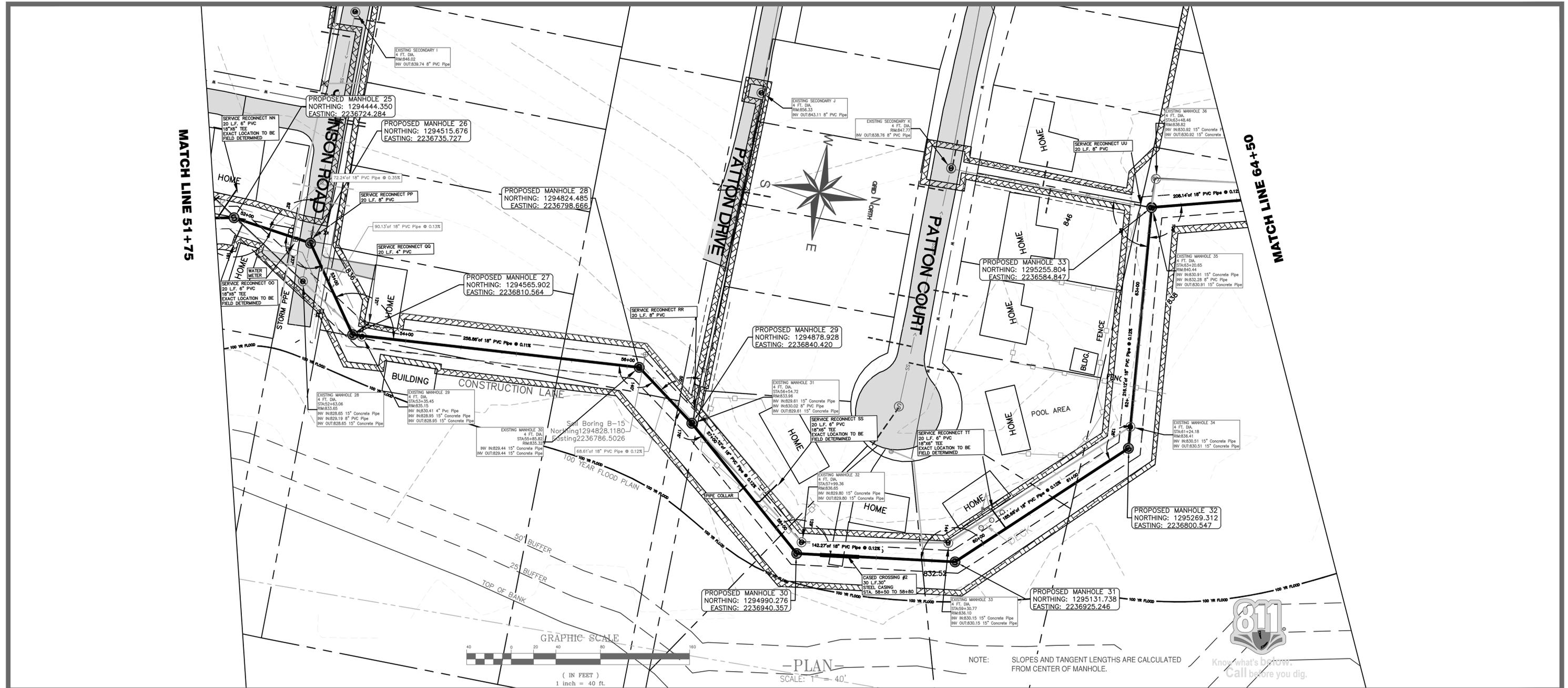
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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOT 175, 178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

SEAL:

REVISIONS:			
DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: PLAN & PROFILE		
DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	P-4
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER	8 OF 19



PLANS PREPARED BY:
CLAYTON COUNTY WATER AUTHORITY
 1600 BATTLE CREEK ROAD
 MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOT 175.178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

SEAL:
 GEORGIA REGISTERED PROFESSIONAL ENGINEER
 CALIFORD W. BERUBEN
 JESTERS CREEK OUTFALL REPLACEMENT - PH 4

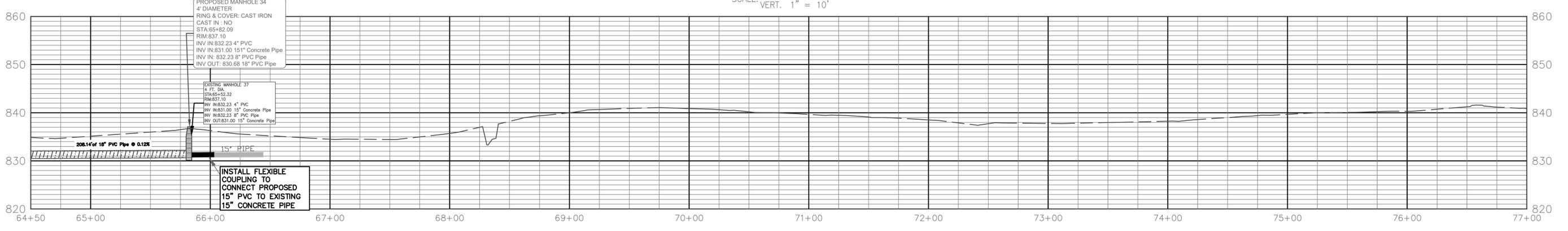
REVISIONS:			
DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: PLAN & PROFILE		
DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	P-5
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER	9 OF 19



NOTE: SLOPES AND TANGENT LENGTHS ARE CALCULATED FROM CENTER OF MANHOLE.

-PROFILE-
SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



PLANS PREPARED BY:

CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175,178 & 207 13TH DISTRICT
CLAYTON COUNTY, GEORGIA

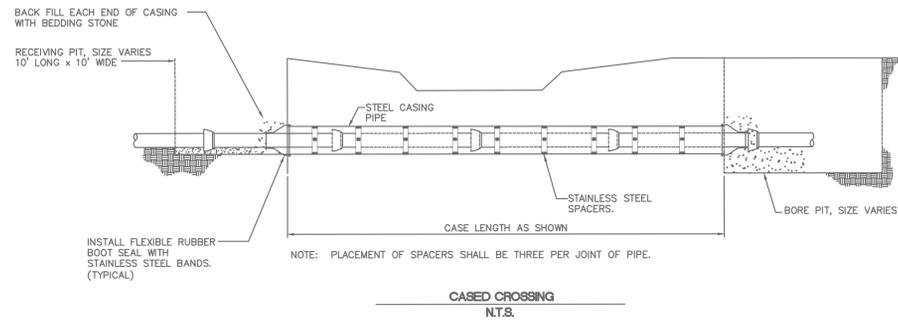
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REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

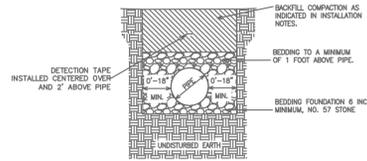
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DESIGN BY:	CCWA	DATE:	08/04/20
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CHECKED BY:		DRAWING #:	P-6
		SCALE:	1" = 40'
		SHEET NUMBER	10 OF 19



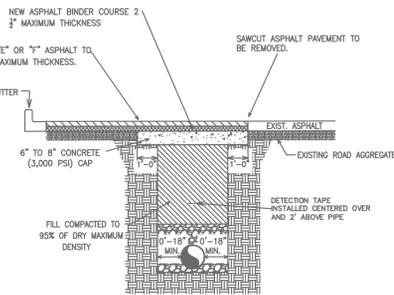
NOTE: PLACEMENT OF SPACERS SHALL BE THREE PER JOINT OF PIPE.

CASED CROSSING
N.T.S.

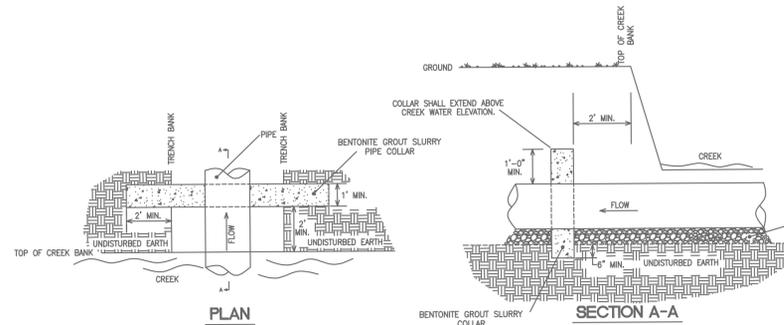


NOTE: 1) UNSUITABLE SOILS ENCOUNTERED IN BOTTOM OF EXCAVATED TRENCH SHALL BE EXCAVATED & REPLACED WITH NO. 57 STONE. ONLY SUITABLE SOIL SHALL BE USED AS BACKFILL.

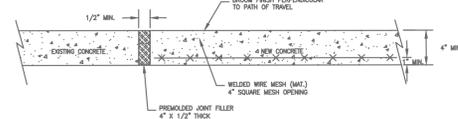
TYPICAL SANITARY SEWER PIPE BEDDING
N.T.S.



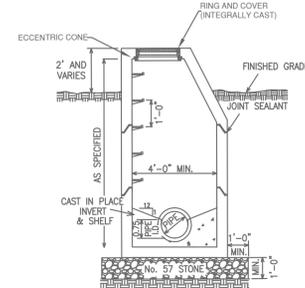
TYPICAL ASPHALT CROSSING
N.T.S.



TYPICAL PIPE COLLAR
N.T.S.



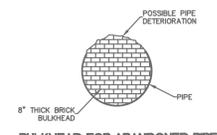
TYPICAL CONCRETE PAVEMENT DETAIL
N.T.S.



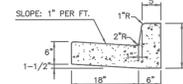
NOTES:

1. MAINTAIN 1/2" CLEARANCE BETWEEN PIPE AND CAST-IN PLACE INVERT DEBRIS.
2. AT ALL EDGES / SURFACES. SHELF AND INVERT SHALL BE TROWEL FINISHED.
3. WHEN BRICK IS USED AS A FILLER, PROVIDE MINIMUM 2 INCHES GROUT OVER BRICK.

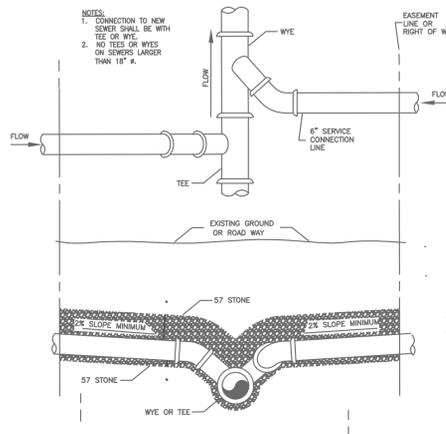
SMALL DIAMETER MANHOLE SECTION
N.T.S.



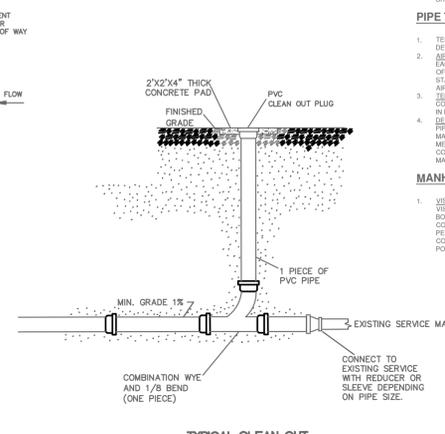
BULKHEAD FOR ABANDONED PIPE
N.T.S.



TYPICAL CURB AND GUTTER
N.T.S.



TYPICAL PIPE LATERAL CONNECTION
N.T.S.



TYPICAL CLEAN-OUT
N.T.S.

GENERAL NOTES

1. CONSTRUCTION OF THE SANITARY SEWER MAIN SHALL CONFORM TO THE CLAYTON COUNTY WATER AUTHORITY CCWA DOCUMENT TITLED "CONSTRUCTION SPECIFICATIONS FOR THE JESTERS CREEK OUTFALL REPLACEMENT PHASE 4".
2. ALL WORK SHALL BE PERFORMED BY A GEORGIA LICENSED UTILITY CONTRACTOR.
3. CONTRACTOR SHALL HAVE A CLAYTON COUNTY WATER AUTHORITY APPROVED SET OF PLANS ON THE JOB SITE AT ALL TIMES.
4. CONTRACTOR SHALL NOTIFY THE CLAYTON COUNTY WATER AUTHORITY 48 HOURS PRIOR TO BEGINNING CONSTRUCTION (770) 861-5150.
5. CONTRACTOR SHALL VERIFY LOCATION AND DEPTHS OF ALL EXISTING UTILITIES IN THE PROJECT AREA PRIOR TO BEGINNING CONSTRUCTION.
6. CCWA SHALL OBTAIN ALL LAND DISTURBANCE ACTIVITY AND GRADING PERMITS.
7. ALL PERMANENT EASEMENTS AND CONSTRUCTION EASEMENTS SHALL BE OBTAINED BY CLAYTON COUNTY WATER AUTHORITY BEFORE CONSTRUCTION BEGINS.
8. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MATERIAL UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
9. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANY FOR SECURING/STABILIZING UTILITY POLES.
10. ALL PETROLEUM PRODUCTS SHALL BE STORED AND USED IN AN AREA THAT PROVIDES A SECONDARY CONTAINMENT FEATURE, AND SHALL BE LOCATED IN AN AREA WITH THE LEAST FORESEEABLE IMPACT IF A CATASTROPHIC EVENT SHOULD OCCUR. EMERGENCY CONTACT NUMBERS AND PROCEDURES FOR SPILLS SHALL BE AVAILABLE ON-SITE.

SITE PREPARATION AND COMPLETION

1. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, FIBERS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE CONSTRUCTION LIMITS INDICATED ON THE APPROVED PLANS.
2. CONTRACTOR SHALL MAINTAIN ALL EXISTING TREES AND SHRUBS.
3. CONTRACTOR SHALL, AT ALL TIMES, MAINTAIN FLAG MEN, SIGNS, LIGHTS, FLARES, BARRICADES, AND OTHER SAFETY DEVICES IN ACCORDANCE WITH THE LATEST CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND AS MAY BE NECESSARY TO PROPERLY PROTECT TRAFFIC UPON THE ROAD AND TO WARN AND SAFEGUARD THE PUBLIC AGAINST HAZARD OR DAMAGE.
4. MATERIAL STAGING AREA SHALL BE COORDINATED WITH CCWA.
5. THE 30-FOOT WIDE CONSTRUCTION LANE SHALL BE CLEARED AT THE CONTRACTOR'S DISCRETION. A 20-FOOT WIDE LANE CENTERED OVER THE PIPE ALIGNMENT SHALL BE CLEARED OF ALL TREES AND DEBRIS.
6. TREES, TRUNKS, AND OTHER CONSTRUCTION DEBRIS SHALL BE REMOVED OFF SITE BY CONTRACTOR.
7. EXCAVATED SOIL NOT USED IN-SITU SHALL BE REMOVED OFF SITE BY CONTRACTOR.
8. REMOVE/REPLACE FENCING AS NECESSARY TO FACILITATE CONSTRUCTION. NO FENCING SHALL BE LEFT DOWN OR UNSECURED OVERNIGHT. ANY FENCING DAMAGED SHALL BE REPLACED WITH NEW TO MATCH EXISTING CONDITIONS AND DIMENSIONS.

EXCAVATION

1. CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLY AND REPLACEMENT OF ROCK EXCAVATION WITH SUITABLE SOIL. SUITABLE SOIL SHALL BE SOIL THAT DOES NOT CONTAIN ORGANIC DEBRIS LARGER OR ROCK GREATER THAN 1/2 INCH IN SIZE.
2. TRENCH BOXES SHALL BE UTILIZED WHEN TRENCHING THROUGH RESIDENTIAL PROPERTY AND PUBLIC RIGHT OF WAY.

INSTALLATION

1. PIPES SHALL BE Laid IN ACCORDANCE WITH APPLICABLE DETAILS. OVER EXCAVATION OR REMOVAL OF UNSUITABLE SOIL SHALL BE REPLACED WITH STONE.
2. PIPES SHALL BE Laid IN DRY CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING.
3. LAYING AND JOINTING OF PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
4. DAMAGED PIPE AND FITTINGS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AS REQUIRED BY THE CURB. REPAIRS SHALL BE COMPLETED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. MANHOLE COVERS NOT LOCATED IN PAVED AREAS SHALL BE INTEGRALLY CAST IN THE TOP CONE SECTION.
6. MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE A RIM ELEVATION NOT LESS THAN 24 INCHES FROM FINISHED GROUND ELEVATION. UNLESS OTHERWISE NOTED.
7. MAINTAIN A 5-FOOT HORIZONTAL SEPARATION AND A 24-INCH VERTICAL SEPARATION BETWEEN ALL WATER AND SEWER LINES UNLESS INDICATED OTHERWISE.
8. INSTALL WARNING TAPE ABOVE PIPE AS INDICATED ON TYPICAL PIPE DETECTION INSTALLATION DETAIL.
9. FROM THE BOTTOM OF PIPE TO PIPE DIAMETER, PIPE BEDDING MATERIAL SHALL BE SHOVEL BLEND CONSOLIDATED USING ANY MEANS PRIOR TO PLACING SUBSEQUENT BACKFILL.
10. BACK FILL UNDERLYING PAVEMENT, DIRT AND GRAVEL, ROADS AND ROAD RIGHT OF WAYS SHALL BE COMPACTED TO 90% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR ANALYSIS (ASTM D-998).
11. BACKFILL NOT UNDERLYING PAVED AREAS SHALL BE COMPACTED TO 90% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR ANALYSIS (ASTM D-998).
12. CREEK CROSSINGS SHALL BE ACCORDING TO THE STANDARD PROCTOR ANALYSIS (ASTM D-998) ABOVE SURFACE WATER LEVEL.
13. ANY EXISTING ROAD SIGN REMOVED FOR CONSTRUCTION SHALL BE REPLACED BY THE END OF THE WORKING DAY.
14. THE CONTRACTOR SHALL NOT CLOSE OR BLOCK ANY HIGHWAY, STREET, OR ROADWAY WITHOUT FIRST OBTAINING PERMISSION FROM THE PROPER AUTHORITY.
15. THE CONTRACTOR SHALL COORDINATE TEMPORARY RELOCATION OF ALL FENCES WITH PROPERTY OWNERS PRIOR TO CROSSING HOME OWNERS PROPERTY IF NECESSARY DUE TO PETS OR LIVESTOCK. THE CONTRACTOR SHALL COORDINATE TEMPORARY RELOCATION OF ALL FENCES WITH EXISTING FENCE MATERIAL UNLESS EXISTING FENCE MATERIALS ARE DAMAGED. IF MATERIALS ARE DAMAGED, CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING WITH NEW MATERIAL.

CONCRETE AND PAVEMENT

1. ALL CONCRETE SHALL HAVE A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS UNLESS NOTED OTHERWISE.
2. SAW CUT ASPHALT AND CONCRETE PAVEMENT TO BE REMOVED. CONTRACTOR SHALL MATCH NEW PAVEMENT EDGES TO EXISTING PAVEMENT EDGES.
3. WIDTH OF PAVEMENT AND CURB REPLACEMENT SHALL NOT EXCEED 12 FEET UNLESS NOTED OTHERWISE.
4. WORK PERFORMED THROUGH AREAS OF PAVEMENT SHALL BE IMMEDIATELY COMPLETED TO GRADE WITH GRADED AGGREGATE BASE. PAVEMENT SHALL BE REPLACED NO LATER THAN THE DAY AFTER REMOVAL. TEMPORARY PAVEMENT REPLACEMENT MAY BE ALLOWED AT THE DISCRETION OF THE CCWA INSPECTOR. ANY IN PLACE PAVEMENT, ADJACENT TO WORK AREAS, THAT IS DAMAGED PRIOR TO PERMANENT REPLACEMENT SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF THE CONTRACTOR.
5. CONCRETE DRIVEWAY SHALL HAVE TOILET OR SAW CUT CONTROL JOINTS SPACED AT NOT GREATER THAN 12 TIMES DRIVEWAY WIDTH. CONTROL JOINTS SHALL BE A MINIMUM DEPTH OF 1 INCH. SAW CUT CONTROL JOINT WITHIN 24 HOURS OF PLACING CONCRETE.
6. ALL DRIVEWAYS WHICH ARE OPEN CUT SHALL BE STABILIZED WITH GRADED AGGREGATE BASE (GAB) AND MAINTAINED UNTIL THE PAVEMENT IS REPLACED.
7. ALL CAST IN PLACE CONCRETE SHALL BE PLACED IN WOOD FORMS UNLESS NOTED OTHERWISE.
8. ALL FORM MATERIAL SHALL BE REMOVED PRIOR TO BACKFILL.
9. CONCRETE FORMS SHALL SUPPORT PLACED CONCRETE FOR A MINIMUM OF 12 HOURS UNLESS NOTED OTHERWISE.
10. CONCRETE TRUCK WASHOUT SHALL BE CONTAINED WITHIN TRENCH WITH NO MATERIAL LEAVING THE SITE OR IMPACTING VEGETATION OR NON-DISTURBED AREAS.

PIPE TESTING

1. TESTING SHALL BE PERFORMED WHEN ALL BACKFILL TO FINISHED AND COMPACTION ARE COMPLETE AND DEWATERING HAS BEEN DISCONTINUED FOR A MINIMUM 24 HOUR PERIOD AT THE LOCATION OF THE TEST.
2. ADDRESSABLE TESTING: GRAVITY SEWER PIPE SHALL BE SUBJECTED TO A LOW AIR PRESSURE TEST AT EACH JOINT. PIPE SHALL BE FREE OF DIRT AND DEBRIS PRIOR TO TESTING. THE INTERNAL AIR PRESSURE OF THE PIPE SHALL BE RAISED TO APPROXIMATELY FOUR (4) PSI. THE TEST SHALL BEGIN WHEN THE STABILIZED PRESSURE IS AT A MINIMUM OF 3.5 PSI. TEST SHALL BE CONSIDERED ACCEPTABLE WHEN AN AIR PRESSURE EQUIVALENT TO THE STABILIZED PRESSURE IS MAINTAINED FOR A PERIOD OF 3 MINUTES.
3. TELEVISION: GRAVITY SEWER PIPE SHALL BE TELEVISION TO ENSURE INTEGRITY. TEST SHALL BE CONSIDERED ACCEPTABLE WHEN THE TELEVISION PIPE DOES NOT REVEAL THE FOLLOWING: CRACKS IN PIPE, PROTRUDING GASKETS, LEAKING JOINTS, PIPE DEFORMATIONS, OTHER DEFICIENCIES.
4. DEFORMED TESTING: GRAVITY SEWER PIPE SHALL BE TESTED FOR DEFORMATION OF THE PIPE. PIPE SHALL BE FREE OF DIRT AND DEBRIS. DEFORMATION MAY NOT BE MORE THAN 2% OF THE PIPE'S MANUFACTURED PUBLISHED DIAMETER. DEFORMATION SHALL BE DETERMINED BY USING A STANDARD MEASURING DEVICE THROUGHOUT THE ENTIRE LENGTH OF THE PIPE SEGMENTS. TEST SHALL BE CONSIDERED ACCEPTABLE WHEN MEASURED DEFORMATION IS LESS THAN 2% OF THE PIPE'S MANUFACTURED PUBLISHED DIAMETER.

MANHOLE TESTING

1. VISUAL TESTING: EACH MANHOLE SHALL BE TESTED. MANHOLE TESTING SHALL BE PERFORMED BY VISUALLY OBSERVING FOR WATER INFILTRATION AT ALL MANHOLE SECTIONS. AT ALL MANHOLE SECTIONS, AT ALL MANHOLE SECTIONS, TESTING SHALL BE PERFORMED WHEN ALL BACKFILL TO FINISH GRADE AND COMPACTION ARE COMPLETE AND DEWATERING HAS BEEN DISCONTINUED FOR A MINIMUM 24 HOUR PERIOD AT THE LOCATION OF THE TEST AND PRIOR TO SEALING HOPE UNDER JOINTS. TEST SHALL BE CONSIDERED ACCEPTABLE WHEN NO WATER INFILTRATION IS OBSERVED AT ANY DESCRIBED OBSERVATION POINTS.



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CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175,178 & 207 13TH DISTRICT
CLAYTON COUNTY, GEORGIA



JESTERS CREEK OUTFALL REPLACEMENT - PH 4

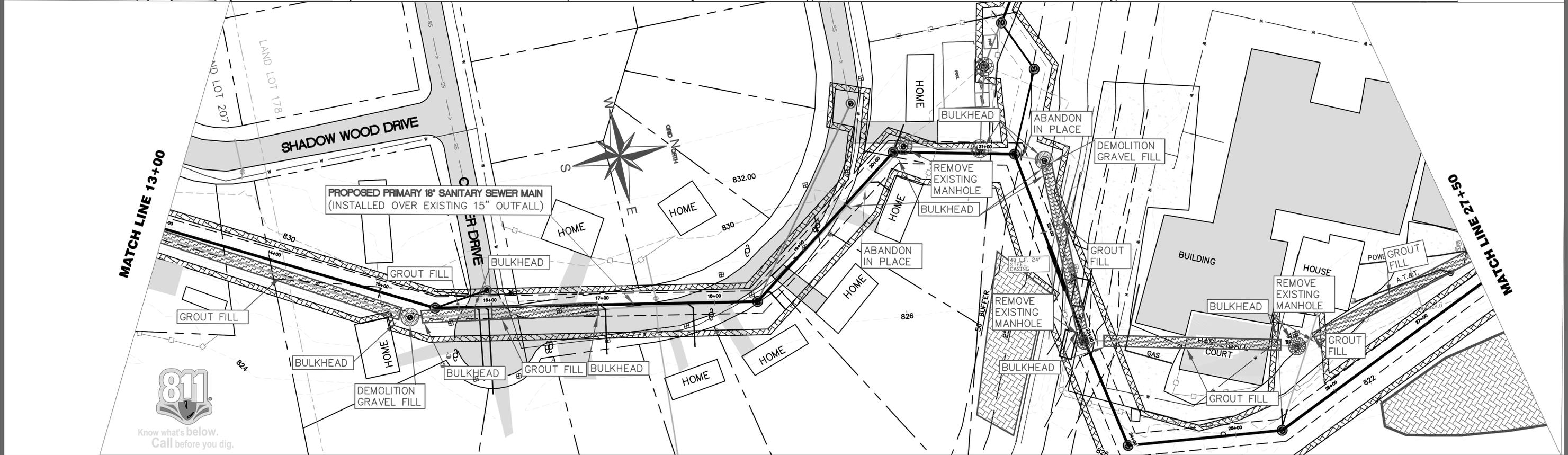
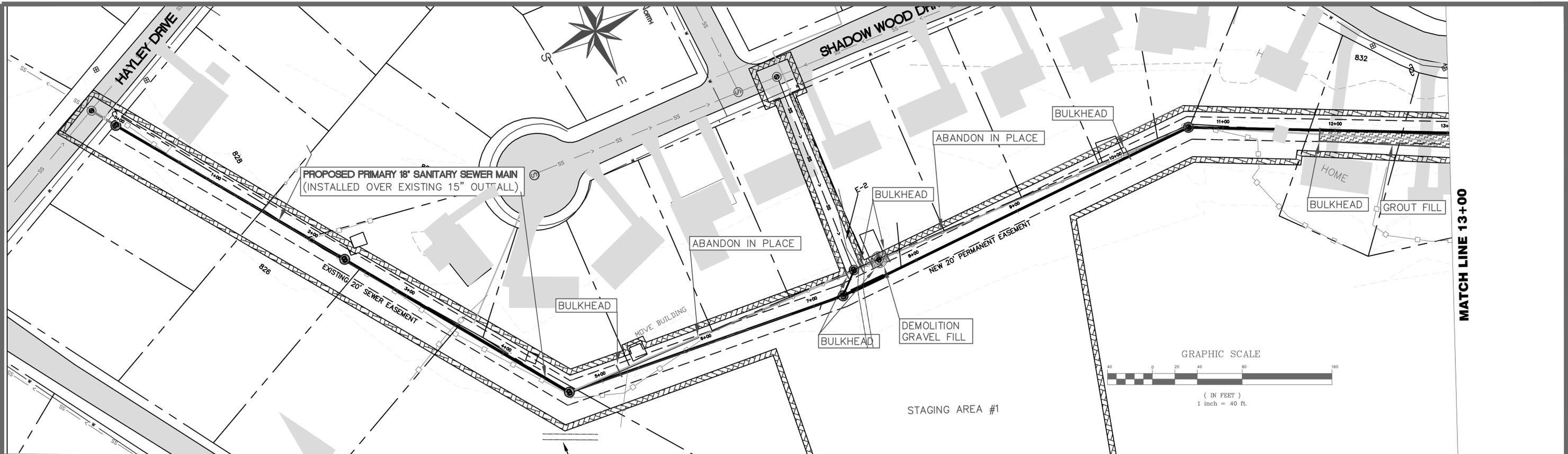
SEAL:

REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: CONSTRUCTION DETAILS

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	P-7
JRM	SCALE:	N.T.S.
CHECKED BY:	SHEET NUMBER	11 OF 19



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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOT 175, 178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

SEAL:
 GEORGIA REGISTERED PROFESSIONAL ENGINEER
 CLAYTON W. BERGQUIST
 JESTERS CREEK OUTFALL REPLACEMENT - PH 4

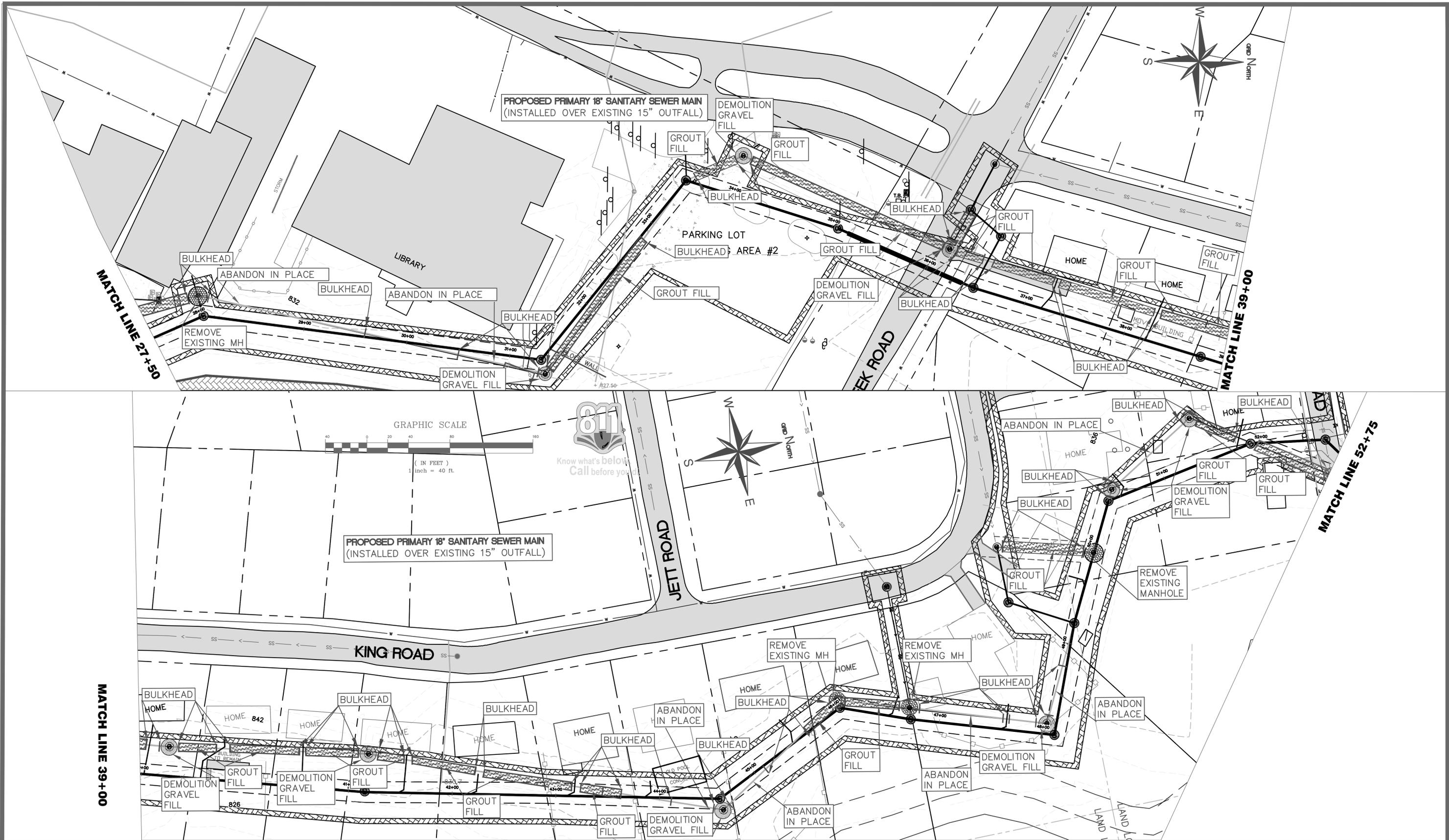
REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: DEMOLITION PLAN

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	D-1
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER	12 OF 19





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 MORROW, GEORGIA 30260

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOTS 175,178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

SEAL:
 GEORGIA REGISTERED PROFESSIONAL ENGINEER
 CLAYTON W. BERGQUIST
 JESTERS CREEK OUTFALL REPLACEMENT - PH 4

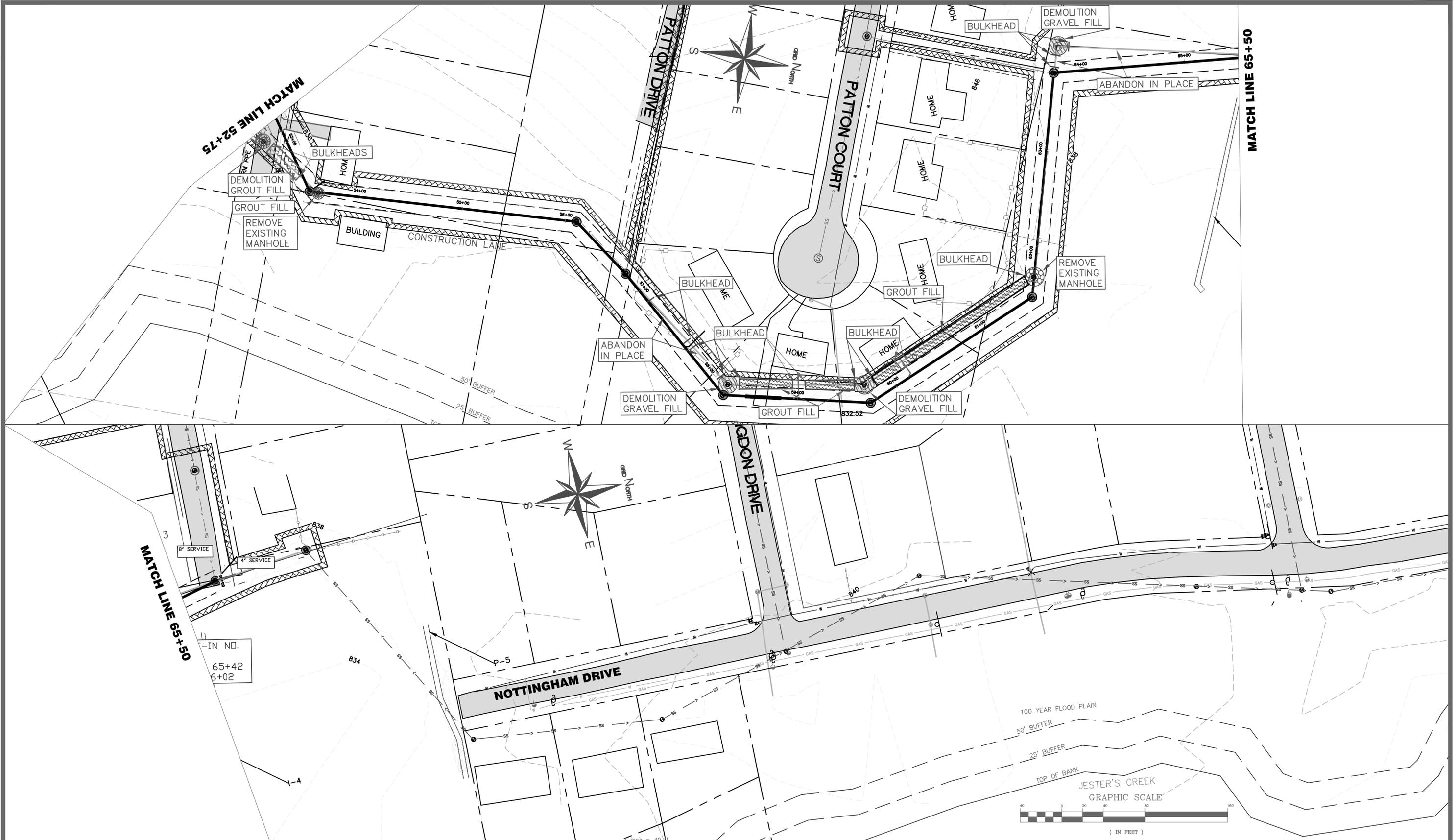
REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: DEMOLITION PLAN

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	D-2
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER	13 OF 19





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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175,178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA



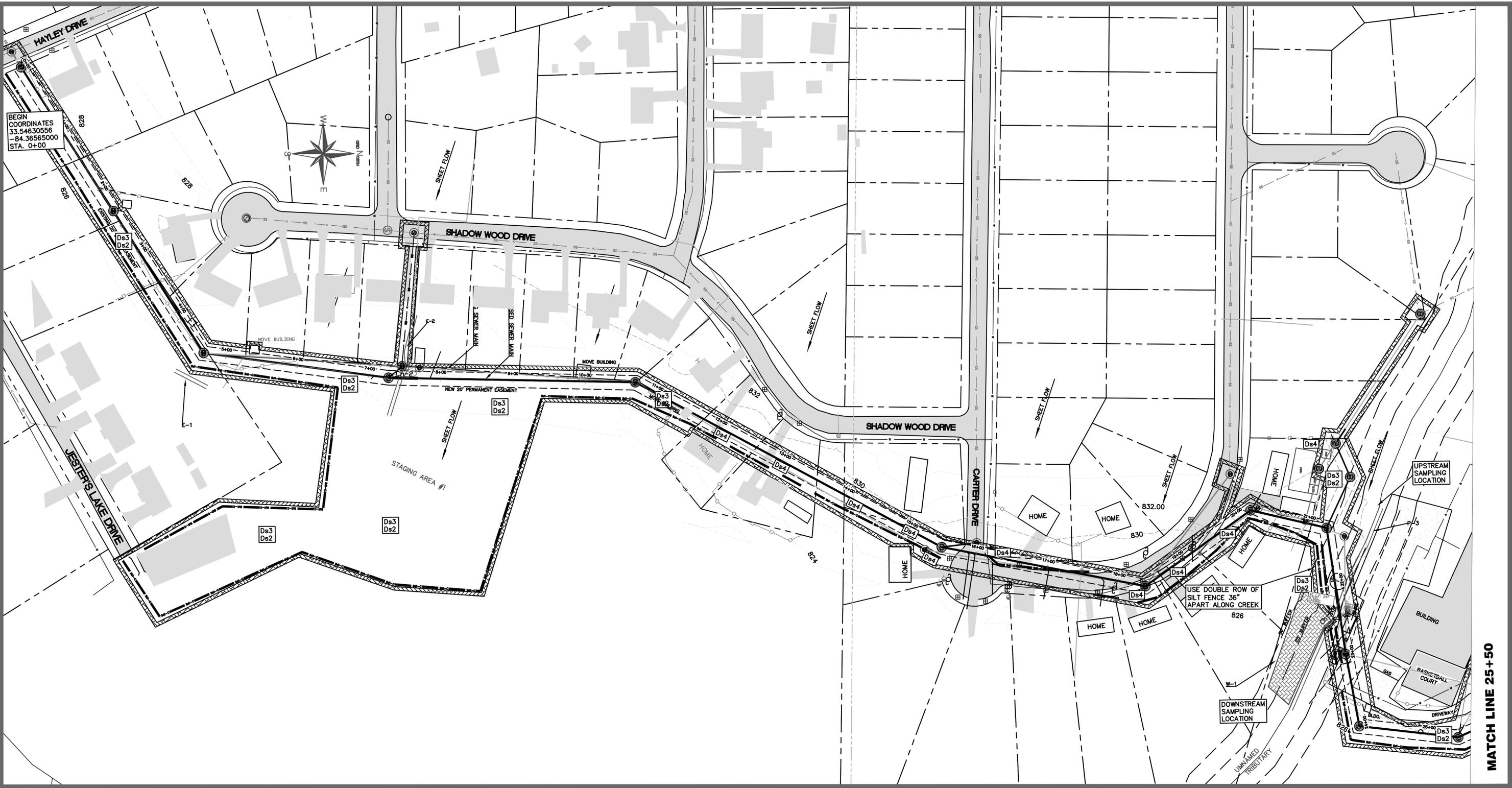
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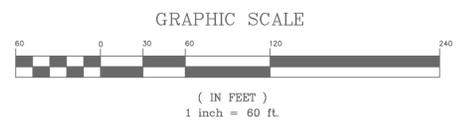
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SHEET TITLE: DEMOLITION PLAN

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	D-3
JRM	SCALE:	1" = 40'
CHECKED BY:	SHEET NUMBER 14 OF 19	



BEGIN
COORDINATES
33.54630556
-84.36565000
STA. 0+00



MATCH LINE 25+50

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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175.178 & 207 13TH DISTRICT
CLAYTON COUNTY, GEORGIA



SEAL:

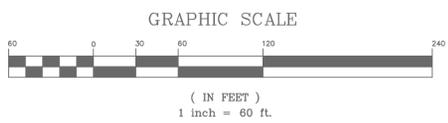
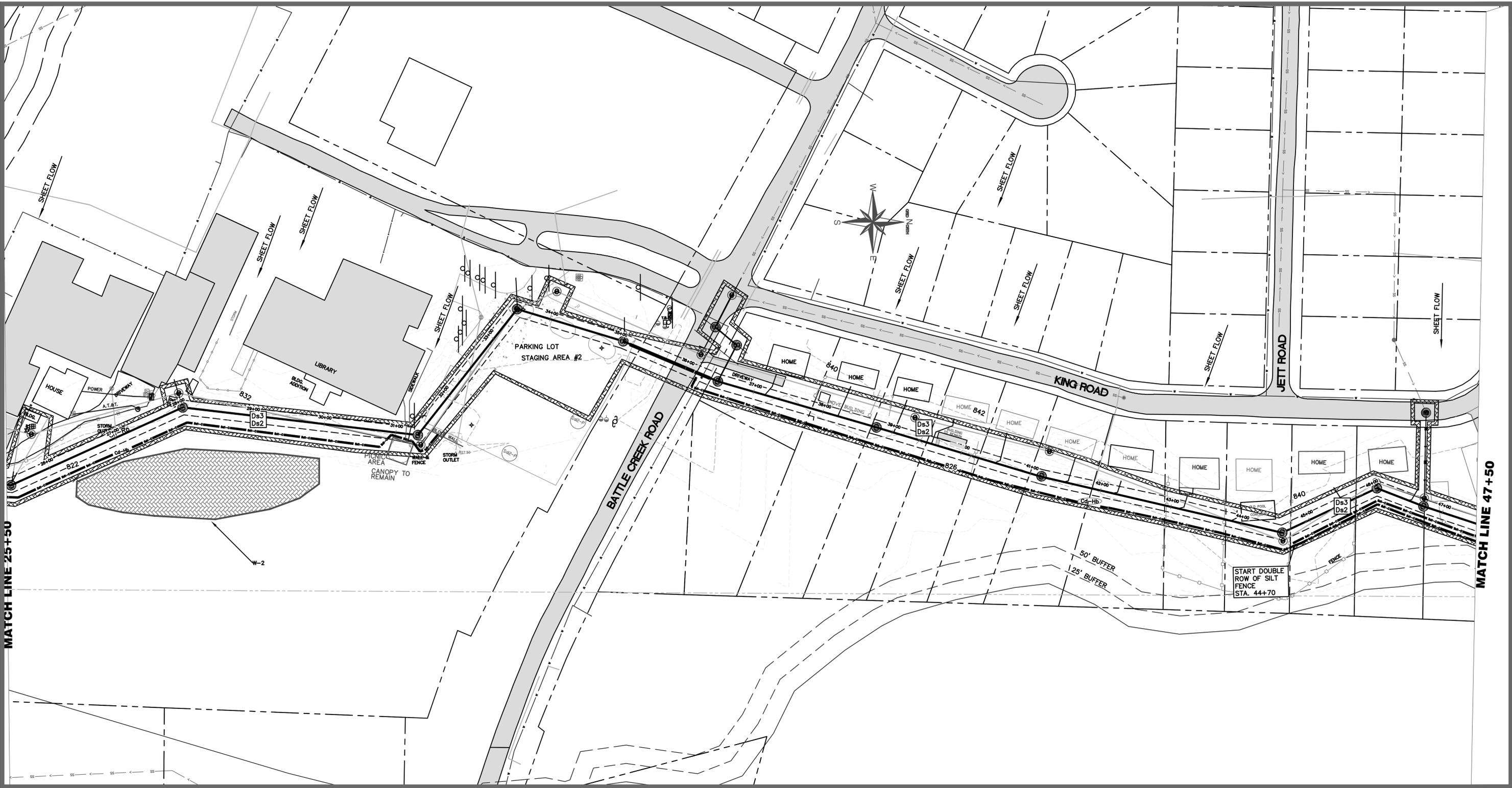
REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: EROSION CONTROL PLAN

DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	E-1
JRM	SCALE:	1" = 60'
CHECKED BY:	SHEET NUMBER	15 OF 19





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 LAND LOT 175,178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA

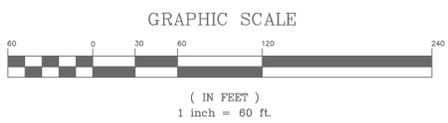
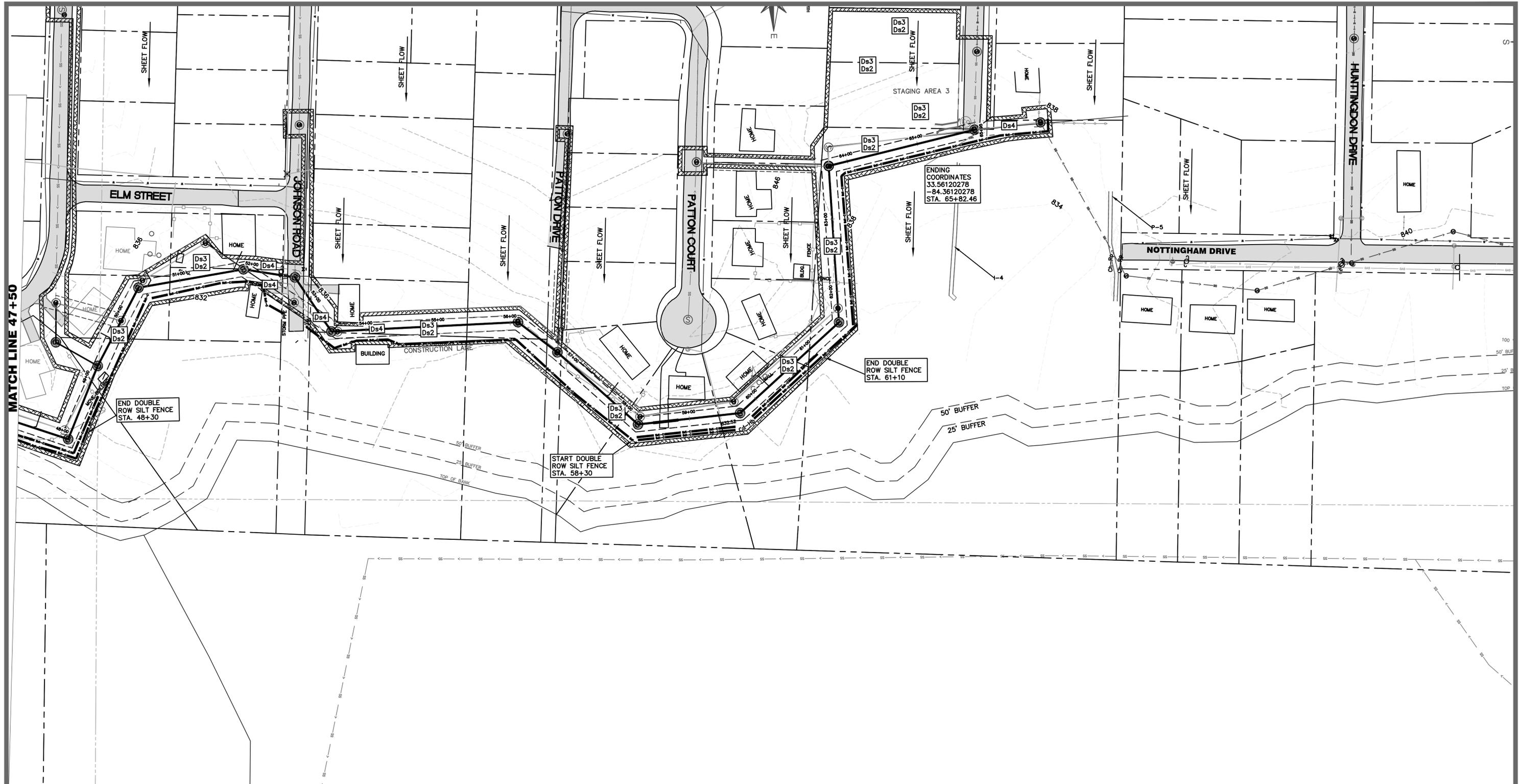
SEAL:

 JESTERS CREEK OUTFALL REPLACEMENT - PH 4

REVISIONS:			
DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: EROSION CONTROL PLAN		
DESIGN BY:	DATE:	08/04/20
CCWA	JOB #:	81901
DRAWN BY:	DRAWING #:	E-2
JRM	SCALE:	1" = 60'
CHECKED BY:	SHEET NUMBER	16 OF 19





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PROJECT NAME:
JESTERS CREEK OUTFALL REPLACEMENT PHASE 4
 LAND LOT 175.178 & 207 13TH DISTRICT
 CLAYTON COUNTY, GEORGIA


 JESTERS CREEK OUTFALL REPLACEMENT - PH 4
SEAL:

REVISIONS:

DATE:	NO.:	REQUESTED BY:	DESCRIPTION:

SHEET TITLE: EROSION CONTROL PLAN

DESIGN BY:	CCWA	DATE:	08/04/20
DRAWN BY:	JRM	JOB #:	81901
CHECKED BY:		DRAWING #:	E-3
		SCALE:	1" = 60'
SHEET NUMBER		17	OF 19

TEMPORARY VEGETATION COVER

- 1/ Temporary cover crops are very competitive and will crowd out perennials if seed
- 2/ Reduce seeding rates by 50% when drilled.
- 3/ PLS is an abbreviation for Pure Live Seed.

SPECIES	SEEDING RATE PER ACRE	PLANTING DATE	PLANTING METHOD	PLANTING DENSITY	PLANTING SPACING	PLANTING DEPTH	PLANTING NOTES
ALICE <td>40 LB. 0.9 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	40 LB. 0.9 LB. PLS						
IN MIXTURES	10 LB. 0.2 LB. PLS						
ALICE <td>4 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	4 LB. 0.1 LB. PLS						
IN MIXTURES	1 LB. 0.02 LB. PLS						
ALICE <td>40 LB. 0.9 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	40 LB. 0.9 LB. PLS						
IN MIXTURES	10 LB. 0.2 LB. PLS						
ALICE <td>40 LB. 0.9 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	40 LB. 0.9 LB. PLS						
IN MIXTURES	10 LB. 0.2 LB. PLS						
ALICE <td>40 LB. 0.9 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	40 LB. 0.9 LB. PLS						
IN MIXTURES	10 LB. 0.2 LB. PLS						
ALICE <td>40 LB. 0.9 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	40 LB. 0.9 LB. PLS						
IN MIXTURES	10 LB. 0.2 LB. PLS						



- 1) LAY SOD WITH TIGHT JOINTS AND IN STRAIGHT LINES. DON'T OVERLAP JOINTS. STAGGER JOINTS AND DO NOT STRETCH SOD.
- 2) ON SLOPES STEEPER THAN 3:1, SOD SHOULD BE ANCHORED WITH PINS OR OTHER APPROVED METHODS. INSTALLED SOD SHOULD BE ROLLED OR RAMMED TO PROVIDE GOOD CONTACT BETWEEN SOD AND SOIL.
- 3) IRRIGATE SOD AND SOIL TO A DEPTH OF 4" IMMEDIATELY AFTER INSTALLATION. SOD SHOULD NOT BE CUT OR SPREAD IN EXTREMELY WET OR DRY WEATHER. IRRIGATION SHOULD BE USED TO SUPPLEMENT RAINFALL FOR A MINIMUM OF 2-3 WEEKS.
- 4) SOD SHOULD BE MACHINE CUT AND CONTAIN 1/2" (+ OR -) OF SOIL, NOT INCLUDING SHOOTS OR THATCH.
- 5) SOD SHOULD BE CUT TO THE DESIRED SIZE WITHIN +/- OR -5% TORN OR UNEVEN PADS SHOULD BE REJECTED.
- 6) SOD SHOULD BE CUT AND INSTALLED WITHIN 36 HOURS OF DIGGING.

LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASONS TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING - ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

PERMANENT VEGETATION COVER

- 1/ Reduce seeding rates by 50% when drilled.
- 2/ PLS is an abbreviation for Pure Live Seed.

SPECIES	SEEDING RATE PER ACRE	PLANTING DATE	PLANTING METHOD	PLANTING DENSITY	PLANTING SPACING	PLANTING DEPTH	PLANTING NOTES
ALICE <td>10 LB. 0.2 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10 LB. 0.2 LB. PLS						
WITH OTHER PERENNIALS <td>6 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	6 LB. 0.1 LB. PLS						
ALICE <td>10 LB. 0.2 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10 LB. 0.2 LB. PLS						
WITH OTHER PERENNIALS <td>6 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	6 LB. 0.1 LB. PLS						
ALICE <td>10 LB. 0.2 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10 LB. 0.2 LB. PLS						
WITH OTHER PERENNIALS <td>6 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	6 LB. 0.1 LB. PLS						
ALICE <td>10 LB. 0.2 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10 LB. 0.2 LB. PLS						
WITH OTHER PERENNIALS <td>6 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	6 LB. 0.1 LB. PLS						
ALICE <td>10 LB. 0.2 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10 LB. 0.2 LB. PLS						
WITH OTHER PERENNIALS <td>6 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	6 LB. 0.1 LB. PLS						
ALICE <td>10 LB. 0.2 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10 LB. 0.2 LB. PLS						
WITH OTHER PERENNIALS <td>6 LB. 0.1 LB. PLS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	6 LB. 0.1 LB. PLS						

DISTURBED AREA STABILIZATION

DS4

N.T.S.

GRADED RIP-RAP STONE

D. & T. NO. 1	SIZE INCHES (CAL. APPROX.)	COMMON USES
TYPE 3	12 9 5	CREEK BANKS, PILE BUTTES, LAKES, RIVERS
TYPE 1	24 12 7	

TABLE C-3

FERTILIZER REQUIREMENTS

- 1/ Apply in spring following seeding.
- 2/ Apply in split applications when high rates are used.
- 3/ Apply in 3 split applications.
- 4/ Apply when plants are pinhead.
- 5/ Apply to grass species only.
- 6/ Apply when plants grow to a height of 2 to 4 inches.

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Maintenance	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 1/2"
	Second Maintenance	6-12-12	1000 lbs./ac.	30
2. Cool season and legumes	First Maintenance	6-12-12	1500 lbs./ac.	0-50 lbs./ac. 1/2"
	Second Maintenance	6-12-12	1000 lbs./ac.	30
3. Ground covers	First Maintenance	10-10-10	1300 lbs./ac.	3
	Second Maintenance	10-10-10	1300 lbs./ac.	3
4. Temporary cover crops seeded alone	First Maintenance	10-10-10	500 lbs./ac.	30 lbs./ac. 5'
	Second Maintenance	10-10-10	500 lbs./ac.	30 lbs./ac. 5'
5. Warm season grasses	First Maintenance	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 2' 6"
	Second Maintenance	6-12-12	1000 lbs./ac.	30 lbs./ac. 2'
5. Warm season grasses and legumes	First Maintenance	6-12-12	1500 lbs./ac.	50 lbs./ac. 6'
	Second Maintenance	6-12-12	1000 lbs./ac.	30 lbs./ac. 6'

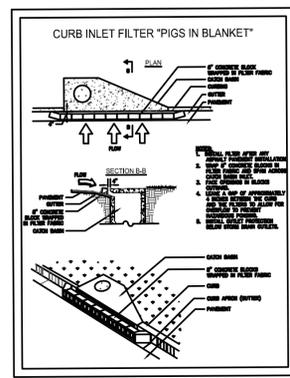
DS3

GRADED RIP-RAP STONE

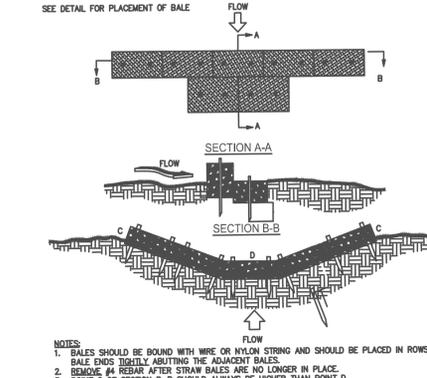
1. NATIONAL STONE ASSOCIATION.
2. AT LEAST 80% OF THE INDIVIDUAL STONE PARTICLES MUST BE EQUAL OR LARGER THAN LISTED SIZE.

FLOW VELOCITY (FT./SEC.)	N.S.A. NO. 1	SIZE INCHES (CAL. APPROX.)	FILTER STONE (S.A. NO. 1)
2.5	R-1	1 1/2 3/4	FS-1
4.5	R-2	3 1 1/2 1	FS-1
6.5	R-3	6 3 2	FS-2
9.0	R-4	12 6 2	FS-2
11.5	R-5	18 9 5	FS-2
13.0	R-6	24 12 7	FS-3
14.5	R-7	30 15 12	FS-3

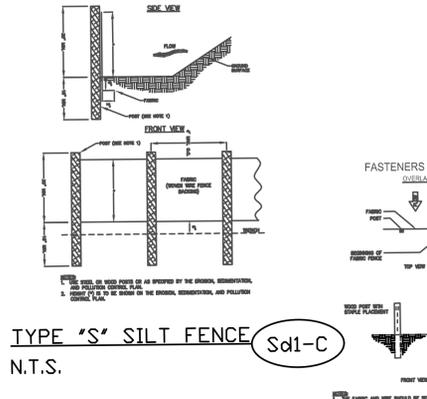
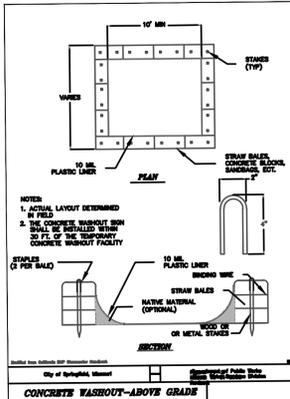
TABLE C-1



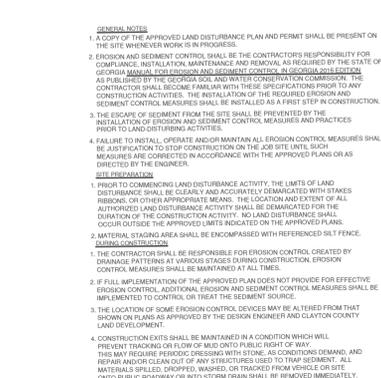
Sd2-P



N.T.S. Cd-Hb

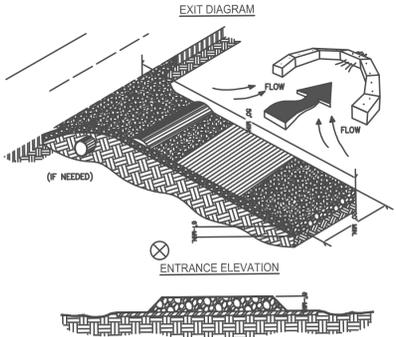


N.T.S. Sd1-C



NOTES:

1. BALES SHOULD BE BOUND WITH WIRE OR NYLON STRING AND SHOULD BE PLACED IN ROWS WITH BALES ENDS TIGHTLY ADJUTING THE ADJACENT BALES.
2. REMOVE 4" REPAIR AFTER STRAW BALES ARE NO LONGER IN PLACE.
3. POINT C OF SECTION B-B SHOULD ALWAYS BE HIGHER THAN POINT D.



ENTRANCE ELEVATION

- NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
 2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
 3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE). GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
 4. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20".
 5. A DIVERSION ROSE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PADDED AREA IS GREATER THAN 2%.
 6. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
 7. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DOWN AT SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
 8. WASHRAKES AND/OR THE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRAKES DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
 9. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANSOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

CONSTRUCTION EXIT N.T.S. Co

AREA #	FEATURE	TOTAL AREA	LINEAR FT. CROSSED	DISTURBED AREA
E1	EPHEMERAL STREAM 1	175 SQ.FT.	0	0 SQ.FT.
E2	EPHEMERAL STREAM 2	700 SQ.FT.	5	100 SQ.FT.
E3	PERENNIAL STREAM 3	825 SQ.FT.	5	100 SQ.FT.
W1	WETLAND 1	5,862 SQ.FT.	CONSTRUCTION LIMITS ADJUSTED FOR NO IMPACT	
W2	WETLAND 2	14,383 SQ.FT.	CONSTRUCTION LIMITS ADJUSTED FOR NO IMPACT	
I4	INTERMITTENT STREAM 4	0.00	0	0 SQ.FT.
TOTAL	EPHEMERAL STREAM	875 SQ.FT.	10'	200 SQ.FT.
TOTAL	INTERMITTENT STREAM	0 SQ.FT.	0	0 SQ.FT.
TOTAL	PERENNIAL STREAM	1,266 SQ.FT.	0	0 SQ.FT.
TOTAL	WETLANDS	20,245 SQ.FT.	CONSTRUCTION LIMITS ADJUSTED FOR NO IMPACT	

NO.	DESCRIPTION
1	1. The contractor shall be responsible for erosion control measures...
2	2. If full implementation of the approved plan does not provide for effective erosion control...
3	3. The location of some erosion control devices may be altered from that shown on plans...
4	4. Construction sites shall be maintained in a condition which will prevent tracking of mud...
5	5. Disturbed soil shall be stabilized with erosion and sediment control measures...
6	6. Erosion control measures shall be installed on all disturbed soil...
7	7. Erosion control measures shall be maintained until all disturbed soil within the construction area...
8	8. The contractor shall remove sediment catch basins...
9	9. All silt and sediment removed from the erosion/sediment control devices shall be disposed...
10	10. Erosion control measures shall be maintained until all disturbed soil within the construction area...
11	11. All silt and sediment removed from the erosion/sediment control devices shall be disposed...
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Section 1: General County Required Notes

- A. ES&PC 24-Hour Contact: BLAKE JOYNER (CCWA) GSWCC Level II Certification Number: 0000080675 Office (770) 305-4998 Mobile (470) 303-9078
B. ES&PC plan prepared by and the person ultimately responsible for the installation and maintenance of erosion and sedimentation control practices on this site and who is to be contacted in the event of a Stop Work Order is: Clifford W. Berosest, GSWCC Level II Certified Design Professional
C. The design professional who prepares the ES&PC Plan is to inspect the installation of the initial sediment storage requirements, perimeter control BMPs in accordance with part IV.A.5 within 7 days after installation.
D. Plans are reviewed in general. Specific details and calculations may not be checked. The engineer's stamp and signature guarantees the accuracy of the calculations and design.
E. Any variations from the permitted plans, changes in design resulting from field conditions, or substitution of construction materials are to be reviewed and approved by the responsible design engineer.
F. The owner/Developer and Engineer have reviewed the appropriate local, state and federal regulations regarding development activities adjacent to flood plains, state waters and wetlands and have determined that this development plan satisfies all the applicable standards.

Section 2: NPDES Notes
Part 1.0 Permit Conditions

- A. A National Pollutant Discharge Elimination System (NPDES) Monitoring Program has been prepared for the project as a requirement of the State of Georgia, Department of Natural Resources, Environmental Protection Division (Georgia EPD) due to more than one (1) acre of land will be disturbed during construction.
B. The following NPDES information has been prepared in general accordance to Georgia EPD's General Permit No. GAR 100002, "Authorization to Discharge Under the National Pollutant Discharge Elimination System, Storm Water Discharges Associated with Construction Activity For Infrastructure Construction Projects", effective August 1, 2018.

General Notice of Intent
The owner (CCWA) is the Primary Permittee and shall obtain coverage under Georgia EPD's General Permit No. GAR 100002. No later than 14 days prior to commencing construction, the CCWA shall submit a Notice of Intent to the Georgia EPD and to Clayton County Transportation and Development who are the issuing authorities of the Land Disturbance Activity Permit.

- B. Proper design, installation and maintenance of erosion and sedimentation control practices shall constitute a complete defense to any allegation of noncompliance.
C. A discharge of storm water runoff from disturbed areas where erosion and sedimentation control practices have not been properly designed, installed or maintained shall constitute a violation of the referenced permit for each day on which such discharge results in the turbidity of construction related storm water being increased more than those values listed in table NTU Target Valve. Maintenance of erosion and sedimentation control practices as a result of routine inspections shall not be considered a violation

Notice of Termination
The CCWA shall terminate coverage under Georgia EPD's General Permit No. GAR 100002 when entire project has undergone final stabilization, all stormwater discharges associated with construction activity that are authorized by this permit have ceased, the site is in compliance with this permit and all temporary BMP's have been removed, a notice of termination shall be submitted to CCWA to the Georgia EPD and to Clayton County Transportation and Development who are the issuing authorities of the Land Disturbance Activity Permit.

Part 2.0 ES&PC Plan Certifications and Statements

A. I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and NPDES the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfall and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100002.

Clifford W. Berosest, P.E.
Clayton County Water Authority
GSWCC Level II Certified Design Professional
Certification Number: 000005289
Expires: 05/06/2018

B. I certify under the penalty of law that this plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my direct supervision.
Clifford W. Berosest, P.E.
Clayton County Water Authority
GSWCC Level II Certified Design Professional
Certification Number: 000005289
Expires: 05/06/2018

C. The design professional who prepares the ES&PC Plan is to inspect the installation of the initial sediment storage requirements, perimeter control BMPs in accordance with part IV.A.5 within 7 days after installation.

Part 3.0 Site Information

Description and Construction Activity
The project consists of replacing approximately 1,000 linear feet of 10-inch Sanitary Sewer & 8,000 linear feet of 12" Sanitary Sewer. The pipe will be laid through existing sanitary sewer easements from Jester's Creek Pathway at Barnsdale Rd. Southerly to Haley Dr. Jonesboro Georgia.

Total project acreage and disturbed acreage is 10.64 acres in Clayton County currently stabilized with asphalt, wooded and grass areas.
RECEIVING WATERS:
Project receiving waters is Jester's Creek and an unnamed tributary to Jester's creek. The project does not impact an onsite wetland area.

Storm Water Discharge
A. Based on a reconnaissance of the project route, performed on 21,001. 2019 surface waters were observed along the proposed route.
B. Peak Runoff Discharges are not estimated for the project because the pipe route is not being developed with impervious surface. Final grades and vegetation will match existing. No change will occur to the pre and post runoff coefficient.

Non-Storm Water Discharges
Non-storm water discharges associated with construction activity at the site shall include the use of potable water to flush clean the interior of the laid pipe. Silt fence and hay bales shall be utilized to prevent soil erosion.
Part 4.0 Storm Water Pollution Controls

Erosion and Sedimentation
A. Initial Perimeter Control BMPs will consist of installing silt fence prior to construction activities.

"Use mulch filter berms, in addition to a silt fence, on the site perimeter wherever construction storm water (including sheet flow) may be discharged from station 0+00 to station 90+00. Mulch filter berms cannot be placed in waterways or areas of concentrated flow."

B. Intermediate Grading and Drainage BMPs
1. Where pavement is removed and excavation completed, No. 57 stone will be installed level with adjacent grades.
2. Silt fence, hay bales and blankets shall be utilized as intermediate BMPs where applicable.

C. Final BMPs
1. All disturbed areas shall be permanently stabilized with paving and vegetation where applicable.

Storm Water Management
The majority of the site area will be stabilized as existing using temporary and permanent seeding in accordance with the Construction Drawings. Temporary silt fence, installed during construction, shall be left in-place until grassed areas have gone through final stabilization. Final stabilization means that all soil disturbing activities at the site have been completed, and that for ungraded areas not covered by permanent structures, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or equivalent permanent stabilization measures have been used.

Other Controls
A. Off-site vehicle tracking of dirt, soils and sediments and the generation of dust shall be minimized or eliminated to the maximum extent practical.

B. Petroleum containers shall be double-walled and placed in locations that produce the least opportunity for accidents. No petroleum products will be intentionally drained onto the ground surface. Free-phase petroleum products accidentally spilled onto the ground surface will be immediately removed using an absorbent material. Absorbent material will subsequently be placed in a sealable container for off site disposal.

Part 4.0 Inspections and Maintenance

General
The Contractor shall perform all inspections as indicated in the following schedule using certified Personnel. Certified Personnel means a person who has successfully completed the appropriate certification course approved by the Georgia soil and water conservation commission for continuing education units, or an equivalent course approved by the Georgia Soil and Water Conservation Commission.

Inspection Schedule
A. Each day when any construction activity occurs on the site, the following items shall be inspected:
1. Areas where petroleum products are stored, used or handled to determine whether spills and leaks have occurred from vehicles and equipment; and
2. Construction site entrance/exit to determine whether off-site tracking of soil is occurring.

B. At least once every seven (7) calendar days and within 24 hours of 0.5 inches or greater rainfall event, the following items shall be inspected:
1. Disturbed areas that have not undergone final stabilization to determine whether erosion is occurring;
2. Areas used for storage of materials that are exposed to precipitation that have not undergone final stabilization to determine whether erosion is occurring; and
3. Erosion control and sedimentation measures identified in Contract Documents to ensure that they are functioning properly.

C. Once per month, the following items shall be inspected:
1. The areas that have undergone final stabilization to determine the evidence or the potential for erosion and sedimentation;
2. Erosion control and sedimentation measures identified in Contract Documents to ensure that they are functioning properly; and
3. Discharge/outfall locations to determine whether erosion and sedimentation control measures are being effective.

Rainfall Data
At the time soil disturbance begins (after clearing and grubbing is completed for a particular drainage area), the Contractor shall measure and record rainfall once every 24-hour period until a Notice of Termination is submitted to the Georgia

PART 5.0 Records and Retention

A. The Primary Permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted to EPD. Copy of all Notices of Intent submitted to EPD. Copy of the Erosion, Sedimentation and Pollution Control Plan. The design professional's report of the results of the inspections

Copy of all sampling information, results and reports. Copy of all inspection reports. Copy of all violation summaries and violation summary reports. Daily rainfall information.

B. All records associated with the NPDES permit shall be retained by the Primary Permittee for a period of three (3) years from the date the Notice of Termination is submitted to EPD.

Maintenance
The Contractor shall maintain erosion and sedimentation controls as detailed in the Construction Notes.

Part 6.0 Storm Water Sampling

Sampling Certification
I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for the monitoring of: (a) all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent streams and other water bodies, or (b) where any such specific identified perennial or intermittent stream and other water body is not proposed to be sampled, I have determined in my professional judgment, utilizing the factors required in the General NPDES Permit No. GAR 100002, that the increase in the turbidity of each specific identified sampled receiving water will be representative of the increase in the turbidity of a specific identified un-sampled receiving water.

Clifford W. Berosest, P.E.
Clayton County Water Authority

Sampling Locations
Sampling location is depicted on the Construction Drawings and are located on an outfall creek leading to Jester's Creek AS SHOWN ON PLAN E-1, PAGE 15. The creek will be sampled just up & downstream of the construction lane prior to entering Jester's Creek. Difference cannot be more than 25 mfu.

The sampling location is assumed to represent all discharge points along the project route. Said representation is based on similar soil types depicted on Drawing E-1 thru E-4 and topography shown throughout the stationing. Additionally, soil erosion and sedimentation control measures located and depicted on the Construction Drawings are consistent in rationale throughout the stationing. Construction of this project shall not alter existing grades or make significant changes in existing vegetative cover along the route.

Sample Types
A. Storm water grab samples shall be collected by manual or automatic means. Two (2) samples shall be collected from each sample point. Prior to collecting samples, each sample container shall be labeled using a permanent marker and clear taped as follows:
Project Title: JESTER'S CREEK OUTFALL, PHASE FOUR Date:
Sample Point: Jester's Creek at Station 23+00 , TRIBUTARY CREEK

B. Samples shall be collected, as practical, from the center and in the middle depth of the stream in clean glass or plastic jars (150 ml or larger) and sealed with appropriate lids. Floating debris shall be kept from entering the sample.

C. Manual, automatic or rising stage sampling may be utilized. Samples should be analyzed immediately, but in no case later than 48 hours after collection. However, samples from automatic samplers must be collected no later than the next business day after their accumulation, unless flow through the automatic analysis is utilized. If an automatic sampling is utilized and the permittee must utilize manual sampling or rising stage sampling during the next qualifying event. Dilution of samples is not required. Samples may be analyzed directly with a properly calibrated turbidimeter. Samples are not required to be cooled.

Sample Frequency
Certified personnel for primary permittees shall conduct inspections at least once every seven (7) calendar days and within 24 hours of the end of the storm that is 0.5 inches rainfall or greater in accordance with Section N.D.4.a.(3)(a) ? (c); "Conduct turbidity sampling after every rain event of 0.5 inch or greater within any 24 hour period, recognizing the exceptions specified in Section N.D.6.d. of the NPDES Permits."

2. In addition to (a) above, for each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a storm water discharge that occurs during normal business hours as defined in this permit either 90 days after the first sampling event or after all mass grading operations have been completed, but prior to submittal of a NOT, in the drainage area of the location selected as the representative sampling location, whichever comes first.

3. At the time of sampling performed pursuant to (1) and (2) above, if BMPs in any area of the site that discharges to a receiving water or from an outfall are not properly designed, installed and maintained, corrective action shall be defined and implemented within two (2) business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours* until the selected turbidity standards are attained, or until post-storm even inspections determine that BMPs are properly designed, installed and maintained; and

4. Where sampling pursuant to (1), (2) or (3) above is required but not possible (or not required because there was no discharge), the permittee, in accordance with Part IV.D.4.a.(6), must include a written justification in the inspection report of why sampling was not performed. Providing this justification does not relieve the permittee of any subsequent sampling obligations under (1), (2) or (3) above.

Sample Analysis and Records
A. Each storm water sample shall be analyzed for Nephelometric Turbidity Units (NTUs) using methodologies and procedures established by 40 CFR Part 136; the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001" or procedures described in the publication "Standard Methods, Edition

B. Should samples be transported from the job site for analysis, a chain-of-custody record shall be prepared to accompany the samples to the laboratory. Results of each analyses shall be recorded. The Contractor shall provide the CCWA with copies of all documentation pertaining to storm water sampling on a monthly basis.

Reporting to the Georgia EPD
The CCWA shall report storm water monitoring analytical results to the Georgia EPD for only those months when storm water samples are collected. The summary of analytical results shall be submitted to Georgia EPD by the 15th day of each month following a qualifying reporting period via return receipt certified mail. Sampling reports shall be submitted to the Georgia EPD at the address listed below.
Mountain District - Atlanta Satellite
Georgia Environmental Protection Division
4244 International Parkway, Suite 114
Atlanta, GA 30354-3906

Section 3: Erosion and Sedimentation Control Notes

Part 1.0 General

A. A copy of the approved land disturbance plan and permit shall be present on the site.

B. Erosion and Sediment control shall be the Contractor's responsibility for compliance, installation, maintenance, and removal as required by the State of Georgia Manual for Erosion and Sediment Control in Georgia 2016 Edition as published by the Georgia Soil and Water Conservation Commission. The Contractor shall become familiar with these specifications prior to any construction activities. The installation of the required erosion and sediment control measures shall be installed as a first step in construction.

C. Stormwater associated with construction activity will be discharged into an Impaired Stream Segment that has been listed for the criterion violated of Bio F (Impaired Fish Community) and/or Bio M (Impaired Macroinvertebrate Community) as based on review of Georgia's 2018, 305(b)/303(d) List Documents - Approved June 14, 2019. Jester's Creek enters the FLINT RIVER WITHIN ONE MILE. A TMDL Implementation Plan Has Not Been Finalized for Flint River.

D. Temporary Sediment Storage
Construction Drainage Area: 115 acres.
Temporary sediment storage required: 67 cy/acre x 115 acres = 7,705 cy.
Sd1 is suited to treat sediment from sheet flow.
1' of Sd1 = 2.22 cy storage
7,615 L.F. OF Sd1 = 16,905 Cy of storage
1 check dam = 6.67 cy of storage
4 check dams = 26.7 cy of storage
16,931.7 cy of storage provided

The temporary storage of sediment using Sd1 is applicable to this project due to stormwater discharge from the site is via sheet flow; The minimum sediment storage requirement is being met, and appropriate BMP's for the site have been designed and should be sufficient to control erosion.

E. Any amendments/revisions to the ES&PC plan which have significant effect on BMPs with a hydraulic component must be certified by the design professional.
F. Failure to install, operate and/or maintain all erosion control measures shall be a justification to stop construction on the job site until such measures are corrected in a justification with the approved plans or as directed by the Engineer.

Part 2.0 Site Preparation

A. Prior to commencing land disturbance activity, the limits of land disturbance shall be clearly and accurately demarcated with stakes ribbons, or other appropriate means. The location and extent of all authorized and disturbance activity shall be demarcated for the duration of the construction activity. No land disturbance shall occur outside the approve limits indicated on the approved plans.

B. Material staging area shall be encompassed with referenced silt fence. Contractor shall provide cover (e.g. plastic sheeting, temporary roofs) for all loose materials to minimize the exposure of these products to precipitation and to stormwater, or a similarly effective means (such as designed to minimize the discharge of pollutants from these areas. Minimization of exposure is not required in cases where exposure of a specific material or product poses little risk to stormwater contamination (such as final products and materials intended for outdoor use).

Part 3.0 During Construction

A. Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for the effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

B. Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.

C. Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wretched vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits.

D. Waste materials shall not be discharged to waters of the state, except as authorized by a section 404 permit.

E. The location of some erosion control devices may be altered from that shown on plans as approved by a Certified Design Professional.

F. Mud and silt are strictly prohibited from leaving the site and depositing on the public thoroughfare.

G. Construction exits shall be maintained in a condition which will prevent tracking or flow of mud onto public right of way. This may require periodic dressing with stone, as conditions demand, and repair and/or clean out of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicle or site onto public roadway or into storm drain shall be removed immediately.

H. Control dust using water or other methods as required to prevent dust from being a nuisance to the public and concurrent with on site work.

I. Disturbed soil shall be stabilized with erosion and sediment control measures each day and prior to any rain event as follows: (A) Disturbed soil shall be returned to final grade, (B) Erosion and Sediment Control devices shall be installed, (C) Graded soil shall be treated with lime and fertilizer, (D) Apply temporary and/or permanent vegetation as required.

J. Straw mulching shall be used with temporary and permanent vegetation applications and shall be free of weed seeds and spread at a rate of 90 pounds per 1,000 square feet. Where matting and blankets symbols are shown along with temporary seeding and permanent vegetation symbol, matting and blankets shall be installed in place of straw mulching.
K. The Contractor shall install matting and blankets within all drainage ditches unless noted otherwise.

L. The Contractor shall be responsible for the repair and/or replacement of any failed or inadequately installed sediment control device. The Contractor shall be responsible for all maintenance of erosion and sediment control devices.

M. The Contractor shall remove accumulated silt when the silt has accumulated to one-half the original height of the barrier.
N. All silts and/or sediment removed from the erosion/sediment control devices shall be disposed of onsite in such a manner as to prevent silt and/or sediments from reentering the control devices and/or exiting the site through the storm drainage systems and/or surface drainage.

O. Concrete truck washout location shall be in a temporary truck wash area located at the site entrance. Washdown of Toots, Mixer chutes Hopper and Rear of Vehicle shall be contained within a pit or trench with no material leaving the site or impacting vegetated or non-disturbed areas. Disposal of material shall include the breaking of material into small amounts for trash disposal or removal from site to an appropriate landfill. At the construction site is prohibited Washout of the drum

P. Paint and/or other chemicals shall be stored in secured facilities with restricted access to employees only. Cleanup and disposal of this material shall be in accordance with all recognized local and federal requirements. All disposal shall be approved to off-site waste facilities classified to accept that material.

Q. All petroleum products shall be stored and used in an area that provides a secondary containment feature, and shall be located in an area with the least foreseeable impact if a catastrophic event should occur. Emergency contact numbers and procedures for spills shall be available on-site.

R. Erosion Control measures will be maintained until all disturbed soil within the construction area has been completely stabilized with permanent vegetation and all roads/driveways have been paved.

S. The following measures will be installed during construction to control pollutants in stormwater that will occur after construction operations have been completed.
Permanent grassing will be established in areas where sheet flow runoff has been disturbed.
Rip rap and fabric will be provided in areas where concentrated flow runoff will occur from outlet structures.
Rip rap and fabric will be provided in permanent easement areas to stabilize channels, stream banks of stream crossings.
Rip rap and fabric and vegetative practices will be provided to stabilize stream banks of stream crossings outside the areas of permanent grassing.

T. Use flocculants or coagulants and/or mulch to stabilize areas left disturbed for more than seven (7) calendar days in accordance with Section III. D.1. of the NPDES Permit.

Part 4.0 Site Completion

A. Final stabilization means that 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the plan (uniformly covered landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

B. The Contractor shall remove silt fence in areas that have undergone final stabilization as determined by CCWA inspectors. Contractor shall dispose solid silt fence in accordance with local regulations.

C. The Contractor shall be responsible for repairing and/or maintaining all job site work areas that are being stabilized or have undergone final stabilization until CCWA has issued a letter of final acceptance.

PLANS PREPARED BY:



CLAYTON COUNTY WATER AUTHORITY
1600 BATTLE CREEK ROAD
MORROW, GEORGIA 30260

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PROJECT NAME:

JESTERS CREEK OUTFALL REPLACEMENT PHASE 4

LAND LOT 175,178 & 207 13TH DISTRICT CLAYTON COUNTY, GEORGIA



SEAL:

REVISIONS:

Table with 4 columns: DATE, NO., REQUESTED BY, DESCRIPTION

SHEET TITLE: EROSION CONTROL NOTES

Table with 3 columns: DESIGN BY (CCWA), DATE (08/04/20), JOB # (81901), DRAWING # (E-6), SCALE (N.T.S.), SHEET NUMBER (19 OF 19)



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