

INVITATION TO BID

BID NO. 22-0018-4

OUACCO ROAD OUTFALL DITCH DRAINAGE IMPROVEMENTS

PRE-BID CONFERENCE: 10:00 A.M. MARCH 1, 2022

(AUDIO ONLY)

BID OPENING 2:00 P.M. MARCH 15 , 2022

THE COMMISSIONERS OF CHATHAM COUNTY, GEORGIA

CHESTER A. ELLIS, CHAIRMAN

COMMISSIONER HELEN J. STONE

COMMISSIONER TANYA MILTON

COMMISSIONER LARRY RIVERS

COMMISSIONER AARON R. WHITELY

COMMISSIONER BOBBY LOCKETT

COMMISSIONER DEAN KICKLIGHTER

COMMISSIONER PATRICK J. FARRELL

COMMISSIONER KENNETH A. ADAMS

R. JONATHAN HART, COUNTY ATTORNEY

CHATHAM COUNTY, GEORGIA

DOCUMENT CHECK LIST

The following documents, when marked, are contained in and made a part of this Bid Package or are required to be submitted with the bid. It is the responsibility of the bidder to read, complete and sign, where indicated, and return these documents with his/her bid. **FAILURE TO DO SO MAY BE CAUSE FOR DISQUALIFYING THE BID.**

 X GENERAL INFORMATION AND INSTRUCTIONS TO BID WITH ATTACHMENTS

 SURETY REQUIREMENTS (Bid Bond of 5%) **N/A for this project**

 X PROPOSAL

 X PLANS/DRAWINGS – **There are three Drawing sheets attached to this bid document**

 X BID SCHEDULE

 PERFORMANCE BOND **N/A for this project**

 PAYMENT BOND **N/A for this project**

 CONTRACT

 X LEGAL NOTICE

 X ATTACHMENTS: A. DRUG FREE WORKPLACE; B. NONDISCRIMINATION STATEMENT; C. DISCLOSURE OF RESPONSIBILITY STATEMENT; D. CONTRACTOR & SUBCONTRACTOR AFFIDAVIT AND AGREEMENT E. BIDDER'S CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION; F. M/WBE COMPLIANCE REPORT; G. SAVE AFFIDAVIT; H GOOD FAITH EFFORT GUIDLINES

 X DOCUMENTATION OF ABILITY TO PERFORM BID REQUIREMENTS. THIS MAY BE REQUIRED OF BIDDERS AFTER SUBMISSION OF BIDS.

COUNTY TAX CERTIFICATE REQUIREMENT - Contractor must supply a copy of their Tax Certificate from their location in the State of Georgia, as proof of payment of the occupational tax where their office is located.

CURRENT TAX CERTIFICATE NUMBER

CITY _____

COUNTY _____

OTHER _____

The Chatham County Board of Commissioners has established goals to increase participation of minority and woman owned businesses. In order to accurately document participation, businesses submitting bids or proposals are encouraged to report ownership status. A minority or woman owned business is defined as a business with at least 51% ownership by one or more minority/female individuals and whose daily business operations are managed and directed by one (1) or more of the minority/woman owners. Please check ownership status as applicable:

African-American_____ Asian American_____ Hispanic_____

Native American or Alaskan Indian_____ Woman_____

In the award of Competitive Sealed Proposals, minority/woman participation may be one of several evaluation criteria used in the award process when specified as such in the Request for Proposal.

RECEIPT IS HEREBY ACKNOWLEDGED OF ADDENDA NUMBER(S)_____

The undersigned bidder certifies that he/she has received the above listed and marked documents and acknowledges that his/her failure to return each, completed and signed as required, may be cause for disqualifying his/her bid.

BY:_____

DATE

SIGNATURE

TITLE:_____

COMPANY:_____

CHATHAM COUNTY, GEORGIA OFFICE
OF THE PURCHASING DIRECTOR
1117 EISENHOWER DRIVE, SUITE C
SAVANNAH, GEORGIA 31406 (912)
790-1623

Date: **February 10, 2022**

BID NO. 22-0018-4

GENERAL INFORMATION FOR INVITATION FOR BID

This is an invitation to submit a bid to supply Chatham County with construction, equipment, supplies and/or services as indicated herein. Sealed bids will be received at the Office of the Purchasing Director, **at The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia 31406 up to 2:00 P.M. March 15, 2022** at which time they will be opened and publicly read. **The County reserves the right to reject all bids that are non-responsive or not responsible.**

Instructions for preparation and submission of a bid are contained in this Invitation To Bid package. Please note that specific forms for submission of a bid are required. Bids must be typed or printed in ink.

Due to the current Pandemic, An **Audio Only Pre-Proposal Conference** has been scheduled for **MARCH 1, 2022 at 10:00 AM.**, Participants may attend by calling **1-888-585-9008**, conference room code **743-636-882**, to discuss the specifications and resolve any questions and/or misunderstanding that may arise. Firms attending remotely are asked to mute phones when not speaking, in consideration of others. **You are encouraged to call and participate.**

Any changes to the conditions and specifications must be in the form of a written addendum to be valid; therefore, the Purchasing Director will issue a written addendum to document each approved change. Generally when addenda are required, the bid opening date will be changed.

Chatham County has an equal opportunity purchasing policy. Chatham County seeks to ensure that all segments of the business community have access to supplying the goods and services needed by County programs. The County affirmatively works to encourage utilization of disadvantaged and minority business enterprises in our procurement activities. The County provides equal opportunity for all businesses and does not discriminate against any persons or businesses regardless of race, color, religion, age, sex, national origin or handicap.

This project IS a Special Purpose Local Option Sales Tax (SPLOST) Project. See paragraph 2.20 for M/WBE participation goals.

SECTION I INSTRUCTIONS TO BIDDERS

- 1.1 **Purpose:** The purpose of this document is to provide general and specific information for use in submitting a bid to supply Chatham County with equipment, supplies, and/or services as described herein. All bids are governed by the Code of Chatham County, Chapter 4, Article IV, and the laws of the State of Georgia.

1.2 **How to Prepare Bids: All bids shall be:**

- a. Prepared on the forms enclosed herewith, unless otherwise prescribed, and **all documents must be submitted.**
- b. Typewritten or completed with pen and ink, signed by the business owner or authorized representative, with all erasures or corrections initialed and dated by the official signing the bid. **ALL SIGNATURE SPACES MUST BE SIGNED.**

Bidders are encouraged to review carefully all provisions and attachments of this document prior to submission. Each bid constitutes an offer and may not be withdrawn except as provided herein.

1.3 **How to Submit Bids: All bids shall be:**

- a. **An original and duplicate copy must be submitted in a sealed opaque envelope, plainly marked with the bid number and title, date and time of bid opening, and company name.**
- b. Mailed or delivered as follows in sufficient time to ensure receipt by the Purchasing Director on or before the time and date specified above.

**Chatham County Purchasing and Contracting
Purchasing Director
1117 Eisenhower Drive
Suite C
Savannah, Georgia 31406**

BIDS NOT RECEIVED BY THE TIME AND DATE SPECIFIED WILL NOT BE OPENED OR CONSIDERED.

- 1.4 **How to Submit an Objection:** Objections from bidders to this invitation to bid and/or these specifications should be brought to the attention of the County Purchasing Director in the following manner:

- a. When a pre-bid conference is scheduled, bidders shall either present their oral objections at that time or submit their written objections at least two (2)

days prior to the scheduled pre-bid conference.

- b. When a pre-bid conference is not scheduled, the bidder shall submit any objections he may have in writing not less than five (5) days prior to the opening of the bid.
- c. The objections contemplated may pertain to form and/or substance of the invitation to bid documents. Failure to object in accordance with the above procedure will constitute a waiver on the part of the business to protest this invitation to bid.

- 1.5 **Errors in Bids:** Bidders or their authorized representatives are expected to fully inform themselves as to the conditions, requirements, and specifications before submitting bids. Failure to do so will be at the bidder's own risk. In case of error in extension of prices in the bid, the unit price will govern.
- 1.6 **Standards for Acceptance of Bid for Contract Award:** The County reserves the right to reject any or all bids and to waive any irregularities or technicalities in bids received whenever such rejection or waiver is in the best interest of the County. The County reserves the right to reject the bid of a bidder who has previously failed to perform properly or complete on time contracts of a similar nature, or a bid from a bidder whom investigation shows is not in a position to perform the contract.
- 1.7 **Bid Tabulation:** Tabulations for all bids will be posted for thirty (30) days after the bid opening in the Office of Purchasing and Contracting, 1117 Eisenhower Drive, Suite C, Savannah, Georgia 31406 or can be reviewed on the Purchasing web site 24/48 hours after opening at <http://purchasing.chathamcounty.org>.
- 1.8 **Bidder:** Whenever the term "bidder" is used it shall encompass the "person," "business," "contractor," "supplier," "vendor," or other party submitting a bid or proposal to Chatham County in such capacity before a contract has been entered into between such party and the County.
- 1.9 **Responsible / Responsive Bidder:** *Responsible Bidder* means a person or entity that has the capability in all respects to perform fully and reliably the contract requirements. *Responsive Bidder* means a person or entity that has submitted a bid or proposal that conforms in all material respects to the requirements set forth in the invitation for bids or request for proposals.
- 1.10 **Compliance with Laws:** The bidder and/or contractor shall obtain and maintain all licenses, permits, liability insurance, workman's compensation insurance and comply with any and all other standards or regulations required by federal, state or County statute, ordinances and rules during the performance of any contract between the contractor and the County. Any such requirement specifically set forth in any contract document between the contractor and the County shall be supplementary to this section and not in substitution

thereof.

- 1.11 **Contractor:** Contractor or subcontractor means any person or business having a contract with Chatham County. The Contractor/Vendor of goods, material, equipment or services certifies that they will follow equal employment opportunity practices in connection with the awarded contract as more fully specified in the contract documents.
- 1.12 **Local Preference:** On 27 March 1998, the Board of Commissioners adopted a Local Vendor Preference Ordinance. The local preference policy was amended in January 2016. This Ordinance does not apply to construction contracts. However, contractors are encouraged to apply the same method when awarding bids to local and local M/WBE businesses whenever possible in order to promote growth in Chatham County's economy. **NOTE: Local Preference does not apply to Public Works Construction contracts.**
- 1.13 **Debarred Firms and Pending Litigation:** Any potential proposer/firm listed on the Federal or State of Georgia Excluded Parties Listing (Barred from doing business) **will not** be considered for contract award. Proposers **shall disclose** any record of pending criminal violations (Indictment) and/or convictions, pending lawsuits, etc., and any actions that may be a conflict of interest occurring within the past five (5) years. Any proposer/firm previously defaulting or terminating a contract with the County will not be considered.
- ** All bidders or proposers are to read and complete the Disclosure of Responsibility Statement enclosed as an Attachment to be returned with response. Failure to do so may result in your solicitation response being rejected as non-responsive.**
- Bidder acknowledges that in performing contract work for the Board, bidder shall not utilize any firms that have been a party to any of the above actions. If bidder has engaged any firm to work on this contract or project that is later debarred, Bidder shall sever its relationship with that firm with respect to the Board contract.
- 1.14 **Performance Evaluation:** On 11 April 2008, the Chatham County Board of Commissioners approved a change to the County Purchasing Ordinance requiring Contractor/Consultant Performance Evaluations, as a minimum, annually, prior to contract anniversary date.
- Should Contractor/Consultant performance be unsatisfactory, the appointed County Project Manager for the contract may prepare a Contractor/Consultant Complaint Form or a Performance Evaluation to the County Purchasing Director.
- 1.15 **Payment of Taxes:** No contract shall be awarded unless all real and personal property taxes have been paid by the successful contractor and/or subcontractors as adopted by the Board of Commissioners on 8 April 1994.
- 1.16 **State Licensing Board for General Contractors:** Pursuant to Georgia law, the following types of contractors must obtain a license from the State Licensing Board of Residential

and General Contractors by 1 July 2008 :

***Residential - Basic Contractor** (Contractor work relative to detached one-family and two-family residences and one-family townhouses not over three stories in height).

***Residential - Light Commercial Contractor** (Contractor work or activity related to multifamily and multiuse light commercial buildings and structures).

***General Contractor** (Contractor work or activity that is unlimited in scope regarding any residential or commercial projects).

See “Checklist for Submitting Bid” for the type of license required for this project.

- 1.17 **Immigration:** On 1 July 2008, the Georgia Security and Immigration Compliance Act (SB 529, Section 2) became effective. Contractors and subcontractors entering into a contract or performing work must sign an affidavit that he/she has used the E-Verify System. E-Verify is a no-cost federal employment verification system to insure employment eligibility. Affidavits are enclosed in this solicitation. You may download M-274 Handbook for Employers at <http://www.dol.state.ga.us/spotlight/employment/rules>. You may go to <http://www.uscis.gov> to find the E-Verify information.

Systematic Alien Verification for Entitlements (SAVE) Program: O.C.G.A. 50-36-1, required Georgia counties to comply with the federal **Systematic Alien Verification for Entitlements (SAVE) Program**. SAVE is a federal program used to verify that applicants for certain public benefits are legally present in the United States. Contracts with the County are considered public benefits. Therefore, the successful bidder will be required to provide the Affidavit Verifying Status for Chatham County Benefit Application prior to receiving any County contract. The affidavit is included as part of this bid package but is only required of the successful bidder.

Protection of Resident Workers: Chatham County Board of Commissioners actively supports the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification, and nondiscrimination. Under the INA, employers may hire only persons who may legally work in the United States (i.e., citizens and nationals of the U.S.) and aliens authorized to work in the U.S. The employer must verify the identity and employment eligibility of anyone to be hired, which includes completing the Employment Eligibility Verification Form (I-9). The Contractor shall establish appropriate procedures and controls so no services or products under the Contract Documents will be performed or manufactured by any worker who is not legally eligible to perform such services or employment.

- 1.18 **Surcharge:** Unless otherwise stated in this bid, all prices quoted by the contractor/vendor must be F.O.B. Chatham County, Savannah, GA. with all delivery handling, surcharges, and other charges included in the bid price. Failure to do so may cause rejection of the bid. The County will not pay additional surcharges.

SECTION II GENERAL TERMS, CONDITIONS AND EXCEPTIONS

- 2.1 **Specifications:** Any obvious error or omission in specifications shall not inure to the benefit of the bidder but shall put the bidder on notice to inquire of or identify the same from the County. Whenever herein mentioned is made of any article, material or workmanship to be in accordance with laws, ordinances, building codes, underwriter's codes, ASTM regulations or similar expressions, the requirements of these laws, ordinances, etc., shall be construed to be the minimum requirements of these specifications.
- 2.2 **Multiple Bids:** No vendor will be allowed to submit more than one (1) bid. Any alternate proposals must be brought to the Purchasing Director's attention during the Pre-bid Conference or submitted in writing at least five (5) days preceding the bid opening date.
- 2.3 **Prices to be Firm:** Bidder warrants that bid prices, terms and conditions quoted in his bid will be firm for acceptance for a period of sixty (60) days from bid opening date, unless otherwise stated in the bid.
- 2.4 **Completeness:** All information required by Invitation for Bids/Proposals must be completed and submitted to constitute a proper bid or proposal.
- 2.5 **Quality:** All materials, or supplies used for the construction necessary to comply with this proposal shall be of the best quality, and of the highest standard of workmanship. Workmanship employed in any construction, repair, or installation required by this proposal shall be of the highest quality and meet recognized standards within the respective trades, crafts and of the skills employed.
- 2.6 **Guarantee:** Unless otherwise specified by the County, the bidder shall unconditionally guarantee the materials and workmanship on all material and/or services. If, within the guarantee period, any defects occur which are due to faulty material and or services, the contractor at his expense, shall repair or adjust the condition, or replace the material and/or services to the complete satisfaction of the County. These repairs, replacements or adjustments shall be made only at such time as will be designated by the County as being least detrimental to the operation of County business.
- 2.7 **Liability Provisions:** Where bidders are required to enter or go onto Chatham County property to take measurements or gather other information in order to prepare the bid or proposal as requested by the County, the bidder shall be liable for any injury, damage or loss occasioned by negligence of the bidder, his agent, or any person the bidder has designated to prepare the bid and shall indemnify and hold harmless Chatham County from any liability arising therefrom. The contract document specifies the liability provisions required of the successful bidder in order to be awarded a contract with Chatham County.
- 2.8 **Cancellation of Contract:** The contract may be canceled or suspended by Chatham

County in whole or in part by written notice of default to the Contractor upon non-performance or violation of contract terms. An award may be made to the next low bidder, for articles and/or services specified or they may be purchased on the open market and the defaulting Contractor (or his surety) shall be liable to Chatham County for costs to the County in excess of the defaulted contract prices. See the contract documents for complete requirements.

- 2.9 **Patent Indemnity:** Except as otherwise provided, the successful bidder agrees to indemnify Chatham County and its officers, agents and employees against liability, including costs and expenses for infringement upon any letters patent of the United States arising out of the performance of this Contract or out of the use or disposal for the account of the County of supplies furnished or construction work performed hereunder.
- 2.10 **Certification of Independent Price Determination:** By submission of this bid, the bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that in connection with this procurement:
- (1) The prices in this bid have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
 - (2) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly to any other bidder or to any competitor; and
 - (3) No attempt has been made or will be made by the bidder to induce any other person or firm to submit or not submit a bid for the purpose or restricting competition.
- 2.11 **Award of Contract:** The contract, if awarded, will be awarded to that responsible bidder whose bid/proposal will be most advantageous to Chatham County, price and other factors considered. The Board of Commissioners will make the determination as to which bid or proposal that serves as the best value to Chatham County.
- 2.12 **Procurement Protests:** Objections and protests to any portion of the procurement process or actions of the County staff may be filed with the Purchasing Director for review and resolution. The Chatham County Purchasing Ordinance – Part 9 Vendor Disputes shall govern the review and resolution of all protests.
- 2.13 **Qualification of Business (Responsible Bidder or Proposer):** A responsible bidder or proposer is defined as one who meets, or by the date of the bid acceptance can meet, certifications, all requirements for licensing, insurance, and registrations, or other documentation required by the Design Professional engaged to develop Scope of Work, specifications and plans. These documents will be listed in the Special Conditions further on in this solicitation. Chatham County has the right to require any or all bidders to submit

documentation of the ability to perform, provide, or carry out the service or provide the product requested.

Chatham County has the right to disqualify the bid or proposal of any bidder or proposer as being unresponsive or irresponsible whenever such bidder/proposer cannot document the ability to deliver the requested product.

- 2.14 **Chatham County Tax Certificate Requirement:** A current Chatham County Tax Certificate is required unless otherwise specified. Please contact the Building Safety and Regulatory Services at (912) 201-4300 for additional information.

NOTE: No contract shall be awarded unless all real and personal property taxes have been paid by the successful contractor and/or subcontractors as adopted by the Board of Commissioners on 8 April 1994.

- 2.15 **Insurance Provisions, General:** The selected contractor shall be required to procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Bid.
It is every contractor's responsibility to provide the County Purchasing and Contracting Division current and up-to-date Certificates of Insurance for multiple year contracts before the end of each term. **Failure to do so may be cause for termination of contract.**

2.15.1 General Information that shall appear on a Certificate of Insurance:

Name of the Producer (Contractor's insurance Broker/Agent).

Companies affording coverage (there may be several).

Name and Address of the Insured (this should be the Company or Parent of the firm Chatham County is contracting with).

A Summary of all current insurance for the insured (includes effective dates of coverage).

A brief description of the operations to be performed, the specific job to be performed, or contract number.

Certificate Holder (This is to always include Chatham County).

Chatham County as an Additional Insured: Chatham County invokes the defense of sovereign immunity. In order not to jeopardize the use of this defense, the County **is not** to be included as an Additional Insured on insurance contracts.

2.15.2 **Minimum Limits of Insurance** to be maintained for the duration of the contract:

- a. **Commercial General Liability:** Provides protection against bodily injury and property damage claims arising from operations of a Contractor or Tenant. This policy coverage includes: premises and operations, use of

independent contractors, products/completed operations, personal injury, contractual, broad form property damage, and underground, explosion and collapse hazards. Minimum limits: \$1,000,000 bodily injury and property damage per occurrence and annual aggregate.

- b. **Worker's Compensation and Employer's Liability:** Provides statutory protection against bodily injury, sickness or disease sustained by employees of the Contractor while performing within the scope of their duties. Employer's Liability coverage is usually included in Worker's Compensation policies, and insures common law claims of injured employees made in lieu of or in addition to a Worker's Compensation claim. Minimum limits: \$500,000 for each accident., disease policy limit, disease each employee and Statutory Worker's Compensation limit.
- c. **Business Automobile Liability:** Coverage insures against liability claims arising out of the Contractor's use of automobiles. Minimum limit: \$1,000,000 combined single limit per accident for bodily injury and property damage. Coverage should be written on an Any Auto basis.

2.15.3 Special Requirements:

- a. **Claims-Made Coverage:** The limits of liability shall remain the same as the occurrence basis, however, the Retroactive date shall be prior to the coincident with the date of any contract, and the Certificate of Insurance shall state the coverage is claims-made. The Retroactive date shall also be specifically stated on the Certificate of Insurance.
- b. **Extended Reporting Periods:** The Contractor shall provide the County with a notice of the election to initiate any Supplemental Extended Reporting Period and the reason(s) for invoking this option.
- c. **Reporting Provisions:** Any failure to comply with reporting provisions of the policies shall not affect coverage provided in relation to this request.
- d. **Cancellation:** Each insurance policy that applies to this request shall be endorsed to state that it shall not be suspended, voided, or canceled, except after thirty (30) days prior to written notice by certified mail, return receipt requested, has been given to the County.
- e. **Proof of Insurance:** Chatham County shall be furnished with certificates of insurance and with original endorsements affecting coverage required by this request. The certificates and endorsements are to be signed by a person authorized by the insurer to bind coverage on its behalf. All certificates of insurance are to be submitted prior to, and approved by, the County before services are rendered. The Contractor must ensure Certificate of Insurance

is updated for the entire term of the Contract.

- f. **Insurer Acceptability:** Insurance is to be placed with an insurer having an A.M. Best's rating of A and a five (5) year average financial rating of not less than V. If an insurer does not qualify for averaging on a five year basis, the current total Best's rating will be used to evaluate insurer acceptability.
- g. **Lapse in Coverage:** A lapse in coverage shall constitute grounds for contract termination by the Chatham County Board of Commissioners.
- h. **Deductibles and Self-Insured Retention:** Any deductibles or self-insured retention must be declared to, and approved by, the County. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-insured retention as related to the County, its officials, officers, employees, and volunteers; or the Contractor shall procure a bond guaranteeing payment of related suits, losses, claims, and related investigation, claim administration and defense expenses.

2.15.4 **Additional Coverage for Specific Procurement Projects:**

- a. **Professional Liability:** Insure errors or omission on behalf of architects, engineers, attorneys, medical professionals, and consultants.

<u>Minimum Limits:</u>	\$1 million per claim/occurrence
<u>Coverage Requirement:</u>	If claims-made, retroactive date must precede or coincide with the contract effective date or the date of the Notice to Proceed. The professional <u>must state</u> if tail coverage has been purchased and the duration of the coverage.

- b. **Builder's Risk: (For Construction or Installation Contracts)** Covers against insured perils while in the course of construction.
Minimum Limits: All-Risk coverage equal 100% of contract value
Coverage Requirements: Occupancy Clause - permits County to use the facility prior to issuance of Notice of Substantial Completion.

2.16 **Compliance with Specification - Terms and Conditions:** The Invitation to Bid, Legal Advertisement, General Conditions and Instructions to Bidders, Specifications, Special Conditions, Vendor's Bid, Addendum, and/or any other pertinent documents form a part of the bidders proposal or bid and by reference are made a part hereof.

2.17 **Signed Bid Considered Offer:** The signed bid shall be considered an offer on the part of the bidder, which offer shall be deemed accepted upon approval by the Chatham County Board of Commissioners, Purchasing Director or his designee. In case of a default on the

part of the bidder after such acceptance, Chatham County may take such action as it deems appropriate, including legal action for damages or lack of required performance.

2.18 **Notice to Proceed:** The successful bidder or proposer shall not commence work under this Invitation to Bid until a written contract is awarded and a Notice to Proceed is issued by the Purchasing Director or his designee. If the successful bidder does commence any work or deliver items prior to receiving official notification, he does so at his own risk.

2.19 **Payment to Contractors:** Instructions for invoicing the County for products delivered to the County are specified in the contract document.

- a. Questions regarding payment may be directed to the Finance Department at (912) 652-7900 or the County's Project Manager as specified in the contract documents.
- b. Contractors will be paid the agreed upon compensation upon satisfactory delivery of the products or completion of the work as more fully described in the contract document.
- c. Upon completion of the work or delivery of the products, the Contractor will provide the County with an affidavit certifying all suppliers, persons or businesses employed by the Contractor for the work performed for the County have been paid in full.
- d. Chatham County is a tax exempt entity. Every contractor, vendor, business or person under contract with Chatham County is required by Georgia law to pay State sales or use taxes for products purchased in Georgia or transported into Georgia and sold to Chatham County by contract. Please consult the State of Georgia, Department of Revenue, Sales and Use Tax Unit in Atlanta (404) 656-4065 for additional information.

2.20 The Chatham County Board of Commissioners has adopted an aggressive program that establishes goals for local, minority/woman, small and disadvantaged business participation in construction, professional services, and general procurement.

- a. The Chatham County Board of Commissioners under Georgia law may reject any bid as non-responsive if they feel a bidder did not exercise a Good Faith Effort in obtaining the goal established for Local / M/WBE participation.
- b. The Chatham County Board of Commissioners adopted a policy establishing goals oriented to increase participation of minority and woman owned businesses, through Local / M/WBE certification and development. In order to accurately document participation, businesses submitting bids, quotes or proposals are encouraged to report ownership status. A bidder or vendor that is certified by any agency of the Federal Government or State of Georgia may submit a copy of their certification

with their bid as proof of qualifications. Bidders that intend to engage in joint ventures or utilize subcontractors must submit to the County Contracts Administrator, a report on Local/Minority/Woman Business Enterprise participation.

Goals established for this project is 30% Combined.

c. A Minority/Woman Business Enterprise (M/WBE) is a business concern that is at least 51% owned by one or more minority/woman individuals and whose daily business operations are managed and directed by one (1) or more of the minority/woman owners.

2.21 Bidders or proposers are required to make a **Good Faith Effort**, where subcontracting is to be utilized in performing the contract, to subcontract with or purchase supplies from qualified Local / M/WBE's. Bidders or proposers are required to state if they intend to subcontract any part of the work. Goals will be established for each contract at the onset. **Forms** requiring the signatures of bidders or proposers are enclosed as **Attachments** and must be completed and returned with your bid response. If forms are not completed and submitted, the bid may be considered nonresponsive.

Each bidder or proposer is required to maintain records of such efforts in detail adequate to permit a determination of compliance with these requirements. All contracts will reflect **Good Faith Efforts. (See Attachment H)** and reporting requirements for the term of the contract. The County particularly urges general contractors to give emphasis to subcontracting with local area firms.

For information on the program and Local/M/WBE contractors/vendors please contact Connell C. Heyward, Chatham County Minority and Women Business Coordinator, 1117 Eisenhower Drive, Suite 101, Savannah, Georgia 31406, (912) 652-7828 phone, (912) 652-7951 fax.

2.22 **GEORGIA OPEN RECORDS ACT** - The responses will become part of the County's official files without any obligation on the County's part. Ownership of all data, materials and documentation prepared for and submitted to Chatham County in response to a solicitation, regardless of type, shall belong exclusively to Chatham County and will be considered a record prepared and maintained or received in the course of operations of a public office or agency and subject to public inspection in accordance with the Georgia Open Records Act, Official Code of Georgia Annotated, Section 50-18-70, et. Seq., unless otherwise provided by law.

Responses to RFP's shall be held confidential from all parties other than the County until after the contract is awarded by the Board of Commissioners.

The vendor and their bid price in response to the ITB will be read aloud at public bid openings. After Bid Tabulations, the ITB shall be available for public viewing.

Chatham County shall not be held accountable if material from responses is obtained

without the written consent of the vendor by parties other than the County, at any time during the solicitation evaluation process.

- 2.23 **GEORGIA TRADE SECRET ACT of 1990** - In the event a Bidder/Proposer submits trade secret information to the County, the information must be clearly labeled as a Trade Secret. The County will maintain the confidentiality of such trade secrets to the extent provided by law.
- 2.24 **CONTRACTOR RECORDS** -The Georgia Open Records Act is applicable to the records of all contractors and subcontractors under contract with the County. This applies to those specific contracts currently in effect and those which have been completed or closed for up to three (3) years following completion. Again, this is contract specific to the County contracts only.
- 2.25 **EXCEPTIONS**-All proceedings, records, contracts and other public records relating to procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Georgia Open Records Act except as provided below:
- a. Cost estimates relating to a proposed procurement transaction prepared by or for a public body shall not be open to public inspection.
 - b. Any competitive sealed bidding bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of all bids but prior to award, except in the event that the County decides not to accept any of the bids and to rebid the contract. Otherwise, bid records shall be open to public inspection only after award of the contract. Any competitive negotiation offer or, upon request, shall be afforded the opportunity to inspect proposal records within a reasonable time after the evaluation and negotiations of proposals are completed but prior to award except in the event that the County decides not to accept any of the proposals and to reopen the contract. Otherwise, proposal records shall be open to the public inspection only after award of the contract except as provided in paragraph "c" below. Any inspection of procurement transaction records under this section shall be subject to reasonable restrictions to ensure the security and integrity of the records.
 - c. Trade secrets or proprietary information submitted by a bidder, offer or contractor in connection with a procurement transaction shall not be subject to public disclosure under the Georgia Open Records Act; however, the bidder, offer or contractor must invoke the protections of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary.
 - d. Nothing contained in this section shall be construed to require the County, when procuring by "competitive negotiation" (Request for Proposal), to furnish a

statement of the reasons why a particular proposal was not deemed to be the most advantageous to the County.

2.26 **LIQUIDATED DAMAGES:** Failure to complete all work within **60** calendar days plus any extension authorized in writing by the County shall entitle the County to deduct as "Liquidated Damages" from the monies due the Contractor the amount of **\$200** for each calendar day in excess of the authorized construction time.

2.27 **REFERENCES - \$500,000 or more:** For bidders to be responsive each must provide information on the most recent five (5) projects with similar scope of work as well as other information to determine experience and qualifications as follows:

- a. Project Name: _____
- Location: _____
- Owner: _____
- Address: _____
- City _____ and _____ State: _____
- Contact: _____
- Phone & Fax: _____
- *Architect _____ or _____ Engineer: _____
- Contact: _____
- Phone & Fax: _____
- b. The awarded bid amount and project start date.
- c. Final cost of project and completion date.
- d. Number of change orders.
- e. Contracted project completion in days.
- f. Project completed on time. Yes ___ No ___ Days exceeded _____.
- g. List previous contracts your company performed for Chatham County by Project Title, date and awarded/final cost.
- h. Has contractor ever failed to complete a project? If so, provide explanation.
- i. Have any projects ever performed by contractor been the subject of a claim or lawsuit by or against the contractor? If yes, please identify the nature of such claim or lawsuit, the court in which the case was filed and the details of its resolution.

\$499,000 and less: Provide references from owners of at least three (3) projects of various sizes. Include government owners if possible. If the contractor has performed any work for the Chatham County Board of Commissioners within the last five (5) years, at least one (1) of the three (3) owner references must be from the appropriate party within the Chatham County Government. Provide in the format as in (a) above on the attached form.

Failure to provide the above information may result in your firm's bid being rejected and ruled as non-responsive.

NOTE: FORMS FOR YOU TO FILL OUT FOR YOUR REFERENCES ARE ATTACHED TO THE BACK OF THIS BID PACKAGE.

SECTION III ADDITIONAL CONDITIONS

- 3.1 **METHOD OF COMPENSATION.** The compensation provided for herein shall include all claims by the CONTRACTOR for all costs incurred by the CONTRACTOR in the conduct of the Project as authorized by the approved Project Compensation Schedule and this amount shall be paid to the CONTRACTOR after receipt of the invoice and approval of the amount by the COUNTY. The COUNTY shall make payments to the CONTRACTOR within thirty (30) days from the date of receipt of the CONTRACTOR's acceptable statement on forms prepared by the CONTRACTOR and approved by the COUNTY.

- 3.2 **SURETY REQUIREMENTS and Bonds:**
N/A FOR THIS PROJECT

- 3.3 **AUDITS AND INSPECTIONS:**

At any time during normal business hours and as often as the County may deem necessary, the Contractor and his subcontractors shall make available to the County and/or representatives of the Chatham County Department of Internal Audit for examination all of its records with respect to all matters covered by this Contract. It shall also permit the County and/or representatives of the Department of Internal Audit to audit, inspect, examine and make copies, excerpts or transcripts from such records of personnel, conditions of employment and other data relating to all matters covered by this Contract. All documents to be audited shall be available for inspection at all reasonable times in the main offices of the County or at the offices of the Contractor as requested by the County.

- 3.4 **WARRANTY REQUIREMENTS: (SEE TECHNICAL SPECIFICATIONS FOR WARRANTIES DETAIL)**

- a. Provisions of item 2.7 apply.
- b. Warranty required.
 - 1. Standard warranty shall be offered with bid.
 - 2. Extended warranty shall be offered with bid. The cost of the extended warranty will be listed separately on the bid sheet.

- 3.5 **TERMS OF CONTRACT: (check where applicable):**

- a. Annual Contract (With renewal options for four (4) additional one (1) year terms if all parties agree)
- b. One-time Purchase
- X c. Other **ONE TIME CONTRACT**

CONVERSATIONS OR CORRESPONDENCE REGARDING THIS SOLICITATION OR REPORT BETWEEN PROSPECTIVE OFFERORS AND PERSONS OUTSIDE THE CHATHAM COUNTY PURCHASING OFFICE WILL NOT BE CONSIDERED OFFICIAL OR BINDING UNLESS OTHERWISE SPECIFICALLY AUTHORIZED

WITHIN THIS DOCUMENT.

The undersigned bidder or proposer certifies that he/she has carefully read the preceding list of instructions to bidders and all other data applicable hereto and made a part of this invitation; and, further certifies that the prices shown in his/her bid/proposal are in accordance with all documents contained in this Invitation for Bids/ Proposals package, and that any exception taken thereto may disqualify his/her bid/proposal.

This is to certify that I, the undersigned bidder, have read the instructions to bidder and agree to be bound by the provisions of the same.

This _____ day of _____ 20 ____.

BY _____

SIGNATURE

TITLE

COMPANY

Phone / Fax No.

CHATHAM COUNTY, GEORGIA
SURETY REQUIREMENTS

A Bid Bond for five percent (5%) of the amount of the bid **is NOT** required to be submitted with each bid.

A Performance Bond for one hundred percent (100%) of the bid **shall NOT** be required of the successful bidder.

The Bidder certifies that he/she has examined all documents contained in this bid package, and is familiar with all aspects of the proposal and understands fully all that is required of the successful bidder. The Bidder further certifies that his/her bid shall not be withdrawn for thirty (30) days from the date on which his bid is publicly opened and read.

The Bidder agrees, if awarded this bid, he/she will:

- A. Furnish, upon receipt of an authorized Chatham County Purchase Order, all items indicated thereon as specified in this bid proposal for the bid amount, or;
- B. Enter a contract with Chatham County to do and/or furnish everything necessary to provide the service and/or accomplish the work as stated and/or specified in this bid proposal for the bid amount, and;
- C. Furnish, if required, a Performance Bond, and acknowledges Chatham County's right to require a Performance Bond of a specific kind and origin, and;
- D. Forfeit the amount of the Bid Bond if he/she fails to enter a contract with Chatham County as stated in (B) above, within fifteen (15) days of the date on which he/she is awarded the bid, and/or;
- E. Forfeit the amount of the Performance Bond if he/she fails to execute and fulfill the terms of the contract entered. The amount of forfeiture shall be:
 - 1. The difference between his/her bid and the next lowest, responsible bid that has not expired or been withdrawn, or;
 - 2. The difference between his/her bid and the amount of the lowest, responsible bid received as a result of rebidding, including all costs related to rebidding.

COMPANY

DATE

SIGNATURE

TITLE

TELEPHONE NUMBER

INVITATION TO BID

SPECIFICATIONS FOR:

BID NO. 22-0014-4

Quacco Road Outfall Ditch Drainage Improvements

The project is located adjacent to the Keys of the Kingdom Christian Fellowship Church at 17 Quacco Road. The project consists of the removal of vegetation/trees and reshaping the ditch within an existing drainage easement. A culvert will be installed on the south end of the project near the Slate Apartment Complex property line.

This shall be a Unit Price Line Item contract.

Commencement and Completion:

WORK SHALL BEGIN WITHIN TEN (10) DAYS AFTER RECEIPT OF “NOTICE TO PROCEED”. FINAL DELIVERABLE IS DUE WITHIN 60 CALENDAR DAYS AFTER THE TEN DAY PERIOD.

Bid Sheet **Quacco Road Outfall Ditch Drainage Improvement** **January 2022**

Item	Description	Quantity	Unit	Unit Price	Item Total
1.	General Conditions / Mobilization	1	LS		
2.	Traffic Control	1	LS		
3.	Inlet Sediment Protection	1	EA		
4.	Remove Existing Chain Link Fence	1	LS		
5.	Clearing, Grubbing, and Tree Removal	1	LS		
6.	Grading Complete	1	LS		
7.	Remove/Replace Unsuitable Soils	100	CY		
8.	Storm Drain Pipe, 18" RCP, H1-10	16	LF		
9.	Modification to Existing Roof Inlet	1	LS		
10.	Temporary Grassing	0.3	AC		
11.	Permanent Grass	0.3	AC		
12.	Field Condition Allowance				\$2,000.00

Total Estimated Cost	
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	NAME / TITLE
	COMPANY
	ADDRESS
	PHONE / EMAIL

LIST OF SUBCONTRACTORS

I do _____, do not _____, propose to subcontract some of the work on this project. I propose to subcontract work to the following subcontractors: **NOTE: M/WBE PARTICIPATION.**

<i>NAME AND ADDRESS</i>	<i>TYPE OF WORK</i>

SIGNED: _____
CONTRACTOR

SECTION 01 00 00 - GENERAL REQUIREMENTS

PART 1 – POST-CONSTRUCTION INSPECTION

1.1 POST-CONSTRUCTION INSPECTION

- A. The Contractor shall provide and pay all costs of a video inspection record of the completed pipe systems produced by a qualified sewer inspection company or agency (Chatham County or City of Savannah inspection crews are acceptable, however the Contractor shall remain responsible for paying all costs). The video inspection record shall be provided on standard DVD and compatible with County viewing software. All deficiencies identified by the inspection shall be corrected by the Contractor prior to acceptance of the work as substantially complete.

PART 2 – STAKING

2.1 CONSTRUCTION STAKING AND CONTROL OF WORK

- A. The Owner shall have a registered surveyor establish benchmarks for vertical and horizontal controls. The construction stakeout, demarcation of project limits, and property lines shall be the responsibility of the Contractor. Ongoing control of the project work shall be the responsibility of the Contractor. The cost for resurvey work to reestablish initial project controls shall be paid for by the Contractor.

PART 3 - DOCUMENTATION

3.1 DOCUMENTATION TO BE PROVIDED WITH REQUESTS FOR PAYMENT

- A. In addition to the documentation described elsewhere in the Contract Documents, the Contractor shall submit with each request for payment the following:
 1. Copies of material delivery tickets. The Contractor shall be responsible for collecting these documents at the time of delivery. The delivery tickets shall not relieve the Contractor of his responsibility to ensure the materials are in accordance with the contract documents. Missing or incomplete documentation of delivered materials may be cause for delay/denial of payment.
 2. Prior to submitting a request for payment, the Contractor shall review the extent of work completed with the County's representative for accuracy and completeness.

PART 4 – EROSION AND SEDIMENTATION CONTROL

4.1 DUTIES

- A. The Contractor will be responsible for installation, maintenance and repair of the sedimentation and erosion control facilities and for any modifications or adjustments necessary for the project to remain in compliance with the Georgia Erosion and Sedimentation Act during performance of the work. The Contractor will have on site at all times of construction activity a Georgia Soil and Water Conservation Commission Level 1A certified person.
- B. The total contract amount will be reduced by an amount as specified in the fines section below for each occurrence of failure to conform to the sediment and erosion control requirements of the contract. For the purpose of this paragraph an occurrence shall be defined as each 24-hour period with consecutive 24-hour periods being measured as separate occurrences. This fee shall be in addition to any penalties or assessments made against the Contractor for non-compliance of the Georgia Water Quality Control Act.

PART 5 - FINES AND LIQUIDATED DAMAGES

5.1 FINE

- A. A \$200 per day fee shall be assessed against the Contractor and withheld from the Lump Sum Contract Price for each and every day that the erosion and sedimentation control plan is not in proper operation. This fee shall be in addition to any penalties or assessments made against the Contractor for non-compliance of the Georgia Water Quality Control Act.

5.2 LIQUIDATED DAMAGES

- A. Liquidated Damages shall be assessed at \$200 per calendar day for work not completed within the Contract period. The full amount of liquidated damages will be deducted from the final payment to the Contractor.

PART 6 - ALLOWANCE

6.1 FIELD CONDITION ALLOWANCE

- A. The Field Condition Allowance shown on the bid sheet shall belong to Chatham County. Bidders shall not use this Allowance to assume any Contractor costs known or unknown at the time of bidding. Chatham County must approve use of the Allowance. Bidders shall include this Field Condition Allowance within their base bid. Any unused allowance shall revert to Chatham County.

PART 7 - SPECIAL REQUIREMENTS OF CONSTRUCTION

7.1 REQUIREMENTS

- A. Work hours shall be limited to 7:00 am to 7:00 pm daily. Any work requiring testing services shall be limited to Monday through Friday and shall exclude holidays unless otherwise approved by Chatham County.
- B. All work is to be performed within the existing parcel, right of ways, and easements. **The Contractor shall clearly mark the limits of the easement.** Permission to use private property outside of these areas shall be obtained by the Contractor in writing. Copies of such agreements shall be provided to the Chatham County Engineering Department.
- C. Watering past the date of substantial completion of the work shall be provided on seeded areas to achieve full coverage of the area as accepted by Chatham County.
- D. The Contractor shall provide traffic control during the construction of the project when appropriate. No road closures are expected for this project. **No work shall commence until a detailed traffic control plan is reviewed and approved by Chatham County.**
- E. Unsuitable material shall be removed and replaced with suitable material meeting the requirements of the specifications. Measurement of unsuitable material shall exclude excavation of all materials within the limits of excavation shown on the drawings. Measurements of unsuitable material shall be made by cross section method as approved by Chatham County. Measurement by truck count will not be allowed unless otherwise stated.
- F. The Contractor shall be responsible for the continued functioning of the stormwater conveyance system throughout the course of the work.
- G. The County will pay for all materials testing as required by the contract. Testing will be performed by an independent testing lab that is hired by the County. The Contractor will be required to pay for failed tests.
- H. Effort has been made to identify underground and above ground utilities; however, the Contractor has the ultimate obligation to proceed with caution when a suspected utility line is present in the excavation. Any lines which are damaged during construction shall be repaired immediately. Chatham County is not responsible for and damaged lines shown or not shown on the plans.

-
- I. **The Contractor shall obtain an Encroachment permit from the Department of Public Works prior to any work within County rights of way.** All work is to be performed within the existing rights of way and easements as shown on the plans unless coordinated with others.

END OF SECTION 01 00 00

SECTION 01 20 00 – MEASUREMENT AND PAYMENT

PART 1 – MEASUREMENT

1.1 MEASUREMENT

- A. The items listed in the proposal shall be considered as sufficient to complete the work in accordance with the plans and specifications. Any portion of the work not listed in the bid form shall be deemed to be a part of the item which it is associated with and shall be included in the cost of the unit shown on the bid form. Payment for the unit shown on the bid form shall be considered to cover the cost of all labor, material, equipment and performing all operations necessary to complete the work. The unit of measurement shall be the unit shown on the bid form.

PART 2 – PAYMENT

2.1 EROSION AND SEDIMENTATION CONTROL

- A. Payment for erosion and sedimentation control shall be based on the line item price as shown on the bid proposal. The cost of each erosion control device shall include all equipment, labor and materials necessary for installation, maintenance, and removal.

2.2 TRAFFIC CONTROL

- A. Payment shall be the lump sum contract price. Payment shall include all labor, equipment and materials necessary for the installation, implementation, maintenance, and removal of all traffic control devices.

2.3 SITEWORK

- A. Clearing, Grubbing, and Tree Removal – Payment shall be at the lump sum contract price. Payment shall include equipment, materials, and labor necessary for clearing and grubbing and removal of all trees within the limits of disturbed areas. Stumps may remain but must be ground to be six inches below finished grade.
- B. Grading Complete – Payment shall be at the lump sum contract price. Payment shall include equipment, materials, and labor necessary for grading of site, construction of swales, removing and replacing topsoil, all excavation, backfill, compaction, borrow, staking, and construction supervision.
- C. Remove and Replace Unsuitable Soils as Directed – Payment shall be at the unit contract price per cubic yard. Payment shall include equipment, materials, and labor necessary for excavation and disposal, borrow material, backfilling, and compaction. Clearing and grubbing and removing topsoil in this area shall be paid under the line item Grading.

2.4 STORMWATER SYSTEM

- A. Modification to Existing Roof Inlet – Payment shall be at the unit contract price basis. Payment shall include equipment, materials, and labor necessary for the modifications as shown on the plans.
- B. Storm Pipe – Payment shall be at the unit contract price per linear foot. Payment shall be made for installed pipe as measured along the centerline from end of pipe to end of pipe. Payment will constitute full compensation for all pipe, joints, filter fabric, bedding, trenching, excavation, backfill, compaction, televising and all incidental labor and material necessary to complete the construction of pipe.

2.5 LANDSCAPING

- A. Temporary Grassing – Payment shall be at the contract unit price per square yard. Measurements will be made for the actual square yardage. Payment will include furnishing and placing seed and fertilizer where directed and protecting and maintaining seed in all graded and disturbed areas.
- B. Permanent Grassing – Payment shall be at the contract unit price per square yard. Measurements will be made for the actual square yardage. Payment will include furnishing and placing seed and fertilizer where directed and protecting and maintaining seed or sod in all graded and disturbed areas.

END OF SECTION 01 20 00

SECTION 31 10 00 – SITE CLEARING

PART 1 – PRODUCTS

None in this Section

PART 2 – EXECUTION

2.1 CLEARING

- A. Clearing shall consist of the felling, and cutting of trees into sections, and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, fences, rubbish and other objectionable material occurring within the area of construction, except such trees and vegetation as may be indicated or directed to be left standing. Only those trees, shrubs, lawns, sidewalks, fences, etc. that fall within the limits of construction or that interfere with proper construction practices shall be removed. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter. Limbs and branches to be pruned shall be cut to Natural Target Pruning standards by a certified arborist. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations, by the erection of timber 4' high chain link fencing barriers. Such barriers must be placed and be approved by the Owner before construction operations can proceed. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work. Clearing operations shall be conducted so as to prevent damage by falling trees to trees left standing, to existing structures and installation, and to those under construction, and so as to provide for the safety of employees and others.

2.2 TREE REMOVAL

- A. Where indicated or directed, trees and stumps shall be removed from areas outside those areas designated for clearing and grubbing. This work shall include the felling of such trees and the removal of their stumps and roots. Trees shall be disposed of as hereinafter specified.

2.3 DISPOSAL

- A. Disposal of trees, branches, snags, brush, stumps, etc., resulting from the clearing and grubbing shall be the responsibility of the Contractor and shall be disposed of by removal from the site of this work. All costs in connection with disposing of the material will be at the Contractor's expense. All liability of any nature resulting from the disposal of the cleared and grubbed material shall become the responsibility of the Contractor. The disposal of all materials cleared and grubbed will be in accordance with the rules and regulations of the local, State, and Federal authorities.

2.4 GRUBBING

- A. Grubbing shall consist of the removal and disposal of stumps, roots larger than 1/2 inch in diameter, and matted roots from the designated grubbing areas. This material, together with logs and other organic or metallic debris not suitable for foundation and subgrade purposes, shall be excavated and removed to a depth of not less than 18-inches below the original surface level of the ground in embankment areas and not less than 2-feet below the finished earth surface in excavated areas. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

2.5 EXISTING TREE PROTECTION

A. Site Development Projects

1. Tree Protection Zones shall be established and maintained on a site for all trees which are to be saved. A Tree Protection Zone shall be defined as one-foot lateral radius per inch diameter breast height (dbh) surrounded by a tree protection fence.
2. No trenching, root raking, grading, driving or parking, storage or disposal of construction materials shall occur within any Tree Protection Zone at any time during clearing or construction of the project.
3. Trenching is not allowed within Tree Protection Zones. Tunneling shall replace trenching in all Tree Protection Zones. Tunneling shall be performed at the minimum depth of 24" below existing grade.

2.6 REMOVE AND REPLACE SIGNS

- A. Where existing signs must be removed, they shall be removed neatly and stored carefully or installed in a temporary location as directed by the Engineer. Reinstallation of the signs shall match their previous location and height. The existing materials shall be used, provided they are not damaged. Any damaged materials shall be replaced with new material equal to and matching in appearance the existing material.

END OF SECTION 31 10 00

SECTION 31 20 00 – EARTH MOVING

PART 1 – PRODUCTS

1.1 MATERIALS

- A. General: Where the terms "approved", "suitable", "unsuitable" and similar designations are used in specifications section pertaining to earthwork, it means earth or material designated as being approved, suitable or unsuitable for their intended use by the soils technician of the Engineer.
- B. Suitable Soil Materials are defined as those complying with ASTM D-2487 soil classification groups: GW, GP, GM, SM, SW, and SP.
- C. Unsuitable Soil Materials are defined as those complying with ASTM D-2487 soil classification groups GC, SC, MH, ML, CL, CH, OL, OH, PT. Clays, silts, and organic soils will be considered as unsuitable materials. Excess water in materials will be a basis for establishing unsuitable material regardless of gradation.
- D. Backfill and Fill Materials shall be suitable soil materials, free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter. Suitable materials for earth fill shall generally be composed of sands, sand clays, and silt-sand mixtures and shall be approved by the soils technician or the Engineer prior to being incorporated in fills.
- E. Borrow shall consist of sand or sand clay soils capable of being readily shaped and compacted to the required densities, and shall be free of roots, trash and other deleterious material.

PART 2 – EXECUTION

2.1 TOP SOIL

- A. Contractor shall strip and stockpile topsoil.
- B. Topsoil shall be placed to a depth of 4" over all disturbed areas.
- C. Any remaining topsoil will be hauled off site and disposed of at the Contractor's expense.
- D. Additional topsoil shall meet Georgia Department of Transportation Specification 893.1. Any additional topsoil which is required to repair disturbed areas and complete the contract shall be provided by the Contractor at his expense.

2.2 EXCAVATION

- A. Excavation is unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
- B. All excavation shall be in conformity with the lines, grades and cross sections shown on the Plans or established by the Engineer. All suitable material removed in the excavation shall be used as far as practicable in formation of embankment, subgrades and shoulders and at such other places as may be indicated on the Plans or directed by the Engineer.
- C. Unauthorized Excavation consists of removal or loosening of materials beyond indicated subgrade elevations or dimensions without specific directions of the Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, and as specified herein shall be at Contractor's expense. Under footings, foundation bases, or retaining walls, fill unauthorized excavations by extending indicated bottom elevation of footing or base to the bottom of the excavation, without altering required top elevation. Elsewhere, backfill and compact unauthorized walls, fill unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.
- D. Additional Excavation: When excavation has reached required subgrade elevations and unsuitable materials exist, carry excavations deeper and replace excavated materials as directed by the Engineer. Dispose of unsuitable material as directed by the Engineer. The Contractor shall dispose

- of unsuitable and surplus materials except where the Engineer permits the use of such fill slopes, or unless specific disposal areas are shown on the Plans.
- E. Dewatering: Prevent surface water and subsurface or ground water flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of roadway subgrades and foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches. The Contractor will be responsible for all damage incurred in handling water conditions.
 - F. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage and to minimize erosion. Locate and retain soil materials away from edge of excavations. Do not store within drip-line of trees indicated to remain.
 - G. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending of sufficient distance from footings and foundations to permit placing and removal of concrete framework, installations to permit placing and removal of concrete framework, installation of services, other constructions, and for inspection. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
 - H. Proper drainage shall be maintained at all times.
 - I. Perform excavation within the critical root zones of large trees to remain by hand or by other approved means which will not result in twisting, tearing, breakage or other injury to roots remaining on the tree. Protect existing trees and shrubs at all times during earthwork operations. No trees shall be removed without prior approval of the Park and Tree Department.

2.3 BORROW

- A. Shall be excavated and hauled by the Contractor from his own sources and shall meet the requirements as specified.
- B. Borrow shall be procured by the Contractor.
- C. Contractor shall bear all expenses in developing borrow sources including drying material, haul roads, excavation and hauling.

2.4 GROUND SURFACE PREPARATION FOR FILL

- A. All vegetation such as roots, brush, heavy sods, heavy growth of grass, decayed vegetation matter, rubbish, and other unsuitable material within the areas to be filled shall be stripped and removed prior to beginning the fill operation.
- B. Sloped ground surfaces steeper than 1 vertical to 4 horizontal, on which fill is to be placed shall be plowed, stepped, benched or broken up as directed, in such a manner that the fill material will bond with the existing surface.
- C. Surfaces on which fill is to be placed and compacted shall be wetted or dried as may be required to obtain the specified compaction.

2.5 FILL

- A. Shall be reasonably free from roots, organic material, trash and stones having maximum dimensions of 6 inches.

- B. Shall be placed in successive horizontal layers of 8 inches (4 inches for hand tamped compaction) in loose depth for the full width of the cross-section and compacted as required with heavy compaction equipment.

2.6 FINISH GRADING

- A. All areas covered by the project including excavated and filled sections and adjacent transition areas shall be smooth graded and free from irregular surface changes.
- B. Degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, supplemented with hand raking and finishing, except as otherwise specified.
- C. The finished surface of unpaved areas shall be not more than 0.05' feet above or below the established grade or designed cross-section. Grading shall be done in order that no ponding will occur.
- D. Ditches shall be finished smooth to reduce erosion and permit adequate drainage.

2.7 DISPOSAL OF WASTE MATERIAL

- A. All vegetation, roots, brush, sod, broken pavements, curb and gutter, rubbish, and other unsuitable or surplus material stripped or removed from the limits of construction shall be disposed of by the Contractor.

2.8 PROTECTION

- A. Protect existing trees and shrubs at all times during earthwork operations. No trees shall be removed without prior acceptance of the Owner.
- B. The Contractor shall be responsible for protection of below grade utilities shown on the drawings or indicated to him by the Owner at all times during earthwork operations.
- C. Graded areas shall be protected from traffic, erosion, settlement, or any washing away that may occur from any cause prior to acceptance.
- D. Any repair or reestablishment of grades prior to final acceptance shall be at the Contractors expense.

PART 3 – TESTING

3.1 COMPACTION TESTING

- A. General: Compaction of earth fill and all pavement subgrades shall be performed to the percentage of maximum standard of modified dry densities and to the depths as indicated below:
 - 1. Roadway Subgrades: 100% Standard (ASTM Test D-698) Compact top 12" in Parking areas and top 15" in Driveways.
 - 2. Subgrades under pavement removed and replaced for utility installations: 100% Standard (ASTM Test D-698) to 12 inch depth.
 - 3. Structural Fill under all structures, slabs and steps: 98% Standard (ASTM Test D-698). Compact top 12 inches of subgrade and each layer of fill.
 - 4. Subgrade below Sidewalks and Curb and Gutters: 97% Standard (ASTM Test D-698) Compact top 6 inches.
 - 5. Unpaved Areas to be grassed, sodded or landscaped: 90% Standard (ASTM Test D-698) full depth.
 - 6. All other areas not described above: as directed by the Engineer.
- B. Moisture Control: All compaction shall be performed at material moisture contents within 3 percentage points, plus or minus, of optimum. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove, and replace, or scarify and air dry, soil material that is too wet to permit

compaction to specified density. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing until moisture content to a satisfactory value.

- C. Field Density Tests: Tests shall be made in accordance with ASTM Method D-1556 and/or ASTM 2922. Minimum testing frequency shall be based on the most stringent of the following requirements (as applicable).
 - 1. One every layer of fill;
 - 2. One every 200 cubic yards of fill;
 - 3. One every 250 square yards of roadway subgrade of fill;
 - 4. Areas where degree of compaction is in question;
 - 5. Additional tests may be required by the Engineer in areas deemed critical;
 - 6. If in opinion of Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, additional compaction and testing will be required.
- D. Proof Rolling: Proof rolling of the subbase or subgrade of all areas of new road paving will be required. Equipment shall have a minimum axle load of 6,000 pounds and a maximum axle load of 15,000 pounds or as determined by the Engineer.

END OF SECTION 31 20 00

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROL

PART 1 - PRODUCTS

1.1 CHEMICALS FOR DUST CONTROL

- A. Calcium Chloride, Anionic Asphalt Emulsion, Latex Emulsion or Resin-in-Water Emulsion may be used for dust control.

1.2 SILT FENCE FABRIC

- A. Silt fence fabric shall be a woven fabric certified to meet FHWA's Task Force 25 minimum roll average per ASTM-D-4354. The geotextile fabric shall be a woven sheet of plastic yarn, of a long chain synthetic polymer composed of at least 85% by weight propylene, ethylene, amide, ester, or vinylidene chloride, and shall contain stabilizer and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultra-violet and/or heat exposure. The fabric should be finished so that the filaments will retain their relative position with respect to each other. The fabric shall be free of defects, rips, holes, or flaws. The fabric shall meet the following requirements:
 - 1. Woven Fabrics
 - a. Grab Strength 90 lbs.
 - b. Mullen Burst Strength 250 lbs.
 - c. UV Resistance 90%
 - d. Permittivity 15 gal/min/sf
- B. Product shall be equivalent to EXXON GTF-180 Fabric or AMOCO Woven Construction Fabric No. 1380.
- C. Silt fencing shall not be placed in waterways or areas of concentrated flow.

1.3 HAY BALES

- A. Hay bales rectangular in shape shall be bound with wire or nylon to securely contain the material. Pine straw bales may be used in lieu of hay bales. Bales shall be placed in a single row, lengthwise, on the contour and embedded in the soil to a depth of four (4) inches. Bales must be securely anchored in place by stake or bars driven through the bales.

1.4 PLASTIC FILTER FABRIC

- A. Plastic filter fabric shall be a pervious sheet of plastic yarn, of a long chain synthetic polymer composed of at least 85% by weight propylene, ethylene, amide, ester, or vinylidene chloride, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultra-violet and/or heat exposure. The cloth should be finished so that the filaments will retain their relative position with respect to each other. The cloth shall be free of defects, rips, holes, or flaws. During shipment and storage, the filter fabric shall be wrapped in a protective material. The fabric shall meet the following requirements:
 - 1. Woven Fabrics:
 - a. Tensile Strength (any direction) 200 lbs.
 - b. Bursting Strength 400 psi
 - c. Elongation Before Breaking 15%
 - d. Permittivity 4 gal/min/sf
- B. Product shall be equivalent to EXXON GTF-400E or AMOCO Woven Construction Fabric No. 2002.
- C. Seams - Fabric may be sewn together with thread of a material having the same chemical requirements as the material forming the fabric or shall be bonded by cementing or by heat. The

strength of the seams shall be equal to that of the unaged fabric. Fabrics to be used under Rip-Rap are allowed to be bonded or sewn together forming sections not less than six feet wide.

1.5 SHEET PILING

- A. Sheet piling shall be treated timber (0.5 CCA), steel (minimum 3/8-inch thick), or other material accepted on a case by case basis by the Engineer for the site at which the piling is used.

1.6 STONE

- A. Stone shall be hard quarry, granite or field stone and shall be of such quality that the stone will not disintegrate on exposure to water or weather. The stone size, type and weight shall be as shown in conjunction with the structure with which it is associated. The stone shall be accepted by the Engineer prior to delivery.

1.7 TREATED TIMBERS

- A. Treated timbers (0.5 CCA) shall be a nominal 4" by 4" and of varying length to accommodate the size of the proposed structure.

1.8 RIP-RAP

- A. Rip-rap shall be hard quarry or field stone, and shall be of such quality that they will not disintegrate on exposure to water and weather. The stone shall range in weight from a minimum of 25 pounds to a maximum of 150 pounds. At least 50 percent of the stone pieces shall weigh more than 60 pounds. The stone pieces shall have a minimum plane dimension of 12 inches. The stone analysis, source and other pertinent data shall be submitted for review by the Engineer prior to delivery. The filter fabric for permanent Rip-rap shall be Mirafi 140N or equivalent. Rip Rap shall not be placed on slopes steeper than 1.5 horizontal to 1.0 vertical.

PART 2 – EXECUTION

2.1 GENERAL

- A. Every effort shall reasonably be employed by the Contractor to control erosion with the use of, but not limited to, terraces, grassing, and silt fencing during the project. All erosion and sedimentation control measures or facilities, whether temporary or permanent, shall be continuously maintained by the Contractor so as to be effective, or as ordered by the Owner.

2.2 CONSTRUCTION EXIT

- A. Construction exits shall be located at the exits of the project to remove mud from the tires of all vehicles leaving the site. The construction exit shall consist of a minimum of six (6) inch thick pad of washed stone meeting Section AASHTO M288-96, Section 7.4, Stabilization Requirements. The aggregate size shall be in accordance with National Stone Association R-2 (1½"-3½" diameter in size and of the necessary length to accomplish the task for which it is intended. The pad may require periodic top dressing with 2" of similar stone. Geotextiles are required and a Separation/Stabilization fabric to keep the aggregate stone from becoming contaminated with subgrade soils. The geotextile shall be based on AASHTO M288-96 Specifications. The entrance area must be excavated to a depth of 3 inches and be cleaned of all vegetation and roots. Geotextile underliner must be placed the full length and width of the entrance.

2.3 DISTURBED AREA STABILIZATION

- A. Vegetative cover will be placed on completed areas. This vegetative plan will be carried out on road cut and fill slopes, shoulders, and other critical areas created by construction. Plant grass seed as soon as construction in an area is completed. Planting will be made to control erosion, to reduce damage from sediment and runoff to downstream areas and to improve the safety and beauty of the development area.

1. Due to grading and construction, the areas to be treated are mainly subsoil and substrate. Fertility is low and the physical characteristics of the exposed material are unfavorable to all but the hardiest plants.
2. Conventional Seeding Equipment - Grade, shape and smooth where needed to provide for safe equipment operation at seeding time and for maintenance purposes. The lime and fertilizer in dry form will be spread uniformly over the area immediately before seedbed preparation. A seedbed will be prepared by scarifying to a depth of 1 to 4 inches as determined on site. The seedbed must be well pulverized, smoothed and firmed. Seeding will be by a cultipacker-seeder, drill, rotary seeder, mechanical seeder, hand seeder or hydro-seeding. Seed will be distributed uniformly over a freshly prepared seedbed and covered lightly. Within 24 hours after seeding, with exception to hydro-seeding, straw or hay mulch will be spread uniformly over the area, leaving about 25 percent of the ground surface exposed. Mulch will be spread with blower-type mulch equipment or by hand and anchored immediately after it is spread. A disk harrow with the disk set straight or a special packer disk may be used to press the mulch into the soil.
3. The per acre application rates are as follows using conventional seeding equipment on slopes less than 3:1:

Soil Treatment	Application Rate/Acre
Agricultural limestone	4000#/acre
Fertilizer, 10-10-10 (with micro-nutrients)	1500#/acre
Mulch, straw or hay	4000#/acre

Seed Species	Application Rates/Acre	Planting Dates
Hulled common bermuda	10#	3/1 - 9/30
Rye grass	50#	10/1 - 2/28
Hay mulch	4000#	N/A

Top-dressing: Apply when plants are 2-4 inches tall

Fertilizer (Ammonium Nitrate 33.5%) at 300#/acre

If the project extends in to the second year, fertilizer shall be applied at the rate of 800#/acre.

2.4 DUST CONTROL ON DISTURBED AREAS

- A. Dust raised from vehicular traffic will be controlled by wetting down the access road with water or by the use of a deliquescent chemical, such as calcium chloride, if the relative humidity is over 30%. Chemicals shall be applied in accordance with the manufacturer's recommendations. Calcium chloride, anionic asphalt emulsion, latex emulsion or resin-in-water emulsion may be used for dust control.

2.5 SEDIMENT BARRIER

- A. Sediment barrier shall be constructed of hay bales (pine bales) anchored and embedded into the soil to prevent washout or water washing under the barrier. A minimum of two (2) re-bars, steel pickets or 2" x 2" stakes shall be used per bale and shall be long enough to extend through the bale and be driven into the ground a minimum of 1-1/2 feet. Where two (2) rows are called for, the bales shall be staggered. Bales shall be embedded in the soil to a depth of 4 inches. Bales shall be placed in a single row, lengthwise, on the contour and embedded in the soil to a depth of four (4) inches. Bales must be securely anchored in place by stakes or bars driven through the bales.

2.6 SILT FENCE

- A. Silt fence shall be placed at the approximate location shown on the plans and installed in accordance with the Georgia Erosion and Sediment Control Manual recommendations. Silt fence shall not be placed in waterways or areas of concentrated flow.

2.7 STONE PLACEMENT

- A. The minimum thickness or depth of the stone layer shall be shown on the drawings or the detail with which the device is associated. When used with a plastic filter fabric, the stone placing shall begin in a trench at the bottom of the slope with the filter fabric wrapped in stone. The entire mass of stone shall be placed so as to be in conformance with the lines, grades, and thickness shown on the drawings.

2.8 RIP-RAP

- A. Rip-rap shall be placed in accordance with the notes on the drawings. Any rip rap that shall be permanent shall have an underlayment of filter fabric.

2.9 STORM DRAIN OUTLET PROTECTION

- A. Storm drain outlets shall be paved or have a rock or other energy dispersion device associated with it, as called for on the drawings. The length shall be a minimum of six (6) times the pipe diameter and placed on a 1% grade unless otherwise specified on the drawings. To prevent undermining of the rip-rap apron a separation geotextile shall be used beneath the entire length of apron. The geotextile shall be specified in accordance with AASHTO M288-96, Section 7.5, "Permanent Erosion Control Requirements".

2.10 INLET SEDIMENT TRAP

- A. The Contractor shall erect silt fence or hay bales at and around inlets under construction. Existing inlets in paved areas shall be protected by the use of concrete blocks wrapped with filter fabric as per detail. Sufficient quantities of selected devices shall be utilized to completely protect the entire length of the inlet. Contractor may alternately construct a temporary baffle in the inlet on the effluent pipe per detail providing that accumulated sediment be removed after each erosion event.

2.11 SITE RESTORATION

- A. The site shall be restored in a manner suitable to accommodate the erosion control device or system of devices for the use which they are intended.

2.12 TOPSOIL

- A. If topsoil is stripped and stored on site to be used after construction, the stockpile side slopes shall be 2:1 or flatter. Stockpiled topsoil shall not obstruct natural drainage. Topsoil replacement shall be spread at minimum of 4" thickness.

2.13 SITE SAFETY

- A. The Contractor shall incorporate and utilize all necessary fencing and other safety barriers as necessary, or directed by Owner, to prevent trespassing into potentially dangerous areas of the erosion control area.

END OF SECTION 31 25 00

SECTION 32 90 00 – PLANTING

PART 1 – PRODUCTS

1.1 MATERIALS GENERAL

- A. The Contractor shall, at the time of delivery, furnish the Engineer invoices of all materials, received in order that the application rate of materials may be determined.

1.2 TOPSOIL

- A. Topsoil shall be existing soil on site amended per soil test recommendations.

1.3 PLANT MATERIALS

- A. Provide all plant materials as indicated on the plans. In the event of any discrepancies between quantities of plants indicated on the plant schedule and those indicated on the plan, plan quantities shall govern.
- B. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae, and shall have healthy, well developed root systems. Plants shall be from a local nursery when possible.
- C. Plants shall possess a normal balance between height and width. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of plant and not from branch tip to tip. Plants larger in size than specified may be used with no change in contract price.
- D. Plants shall be dug from firm natural balls of earth, of diameter not less than recommended by American Standard for Nursery Stock and of sufficient depth to include fibrous and feeding roots. Plants will not be accepted if ball is cracked or broken before or during planting operations.

1.4 FERTILIZER

- A. 10-10-10, commercial fertilizer of accepted type, conforming to state fertilizer laws.

1.5 LIME

- A. Lime shall be agricultural grade, ground limestone and shall conform to the requirements of the Georgia Department of Agriculture. Lime to be added based on soil tests.

1.6 SEED

- A. All seed shall conform to all State Laws and to all requirements and regulations of the Georgia Department of Agriculture.
- B. The several varieties of seed shall be individually packaged or bagged, and tagged to show name of seed, net weight, origin, germination, lot number, and other information required by the Department of Agriculture.
- C. The Engineer reserves the right to test, reject, or accept all seed before seeding.
- D. Mixtures of different types of seed called for in the seeding schedule shall be weighted and mixed in the proper proportions at the site of the work in the presence of the Engineer.

1.7 SEEDING SCHEDULE

- A. Hulled Bermuda Seeds are to be used at a rate of 40 pounds per acre, and at a depth of 1/4 to 1/8 inch. Pure line seed to be 82% by weight, with a maximum weed seed of 0.50%.
- B. In shaded areas, or other areas as directed by the Owner or Engineer, the Contractor shall use a mixture of hulled Bermuda seed at a rate of 25 pounds per acre and carpet seed at a rate of 30 pounds per acre.
- C. Temporary grassing shall consist of annual rye grass seed at a rate of 75 pounds per acre.

- D. In areas where existing grasses are to be matched, the Contractor shall sow the seed at the rate recommended by the seed distributor.

1.8 STRAW MULCH

- A. Straw mulch material shall consist of straw or hay. Straw shall be stalks of wheat, rye, barley, oats, or other accepted straw. Hay shall consist of timothy, peavine, alfalfa, coastal bermuda or other grasses from accepted sources. These materials shall be reasonably dry and shall be reasonably free from mature seed-bearing stalks, roots, or bulblets or Johnson Grass, Nutgrass, Sandbur, Wild Garlic, Wild Onion, Wild Mustard, Crotalaria, Pigweed, Witchweed and Coclebur. The Contractor shall also comply with all State and Federal domestic plant quarantine regulations.

1.9 EXCELSIOR MULCH

- A. Excelsior mulch shall consist of wood fibers cut from sound, green timber. The average length of the fibers shall be 4 to 6 inches. The cut shall be made in such a manner as to provide maximum strength of fiber, but at a slight angle to the natural grain of the wood so as to cause splintering of the fibers when weathering in order to provide adherence to each other and to the soil.

1.10 WOOD CELLULOSE FIBER MULCH

- A. Wood cellulose fiber mulch shall be made from wood chips particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form a homogenous slurry. The mulch fibers shall intertwine physically to form a strong moisture holding mat on the ground surface and allow rainfall to percolate the underlying soil. The mulch shall be heat processed so as to contain no germination or growth inhibiting factors. It shall be dyed (non-toxic) an appropriate color to facilitate metering of material.
- B. Suppliers shall be prepared to certify that laboratory and field testing of their project has been accomplished, and that it meets all of the foregoing requirements based upon such testing.
- C. Weight specifications for this material from suppliers and for all applications shall refer only to air dry weight of fiber material. Absolute air dry weight is based on the normal weight standard of the Technical Association of the Pulp and Paper Industry for wood cellulose and is considered equivalent to 10% moisture. Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content.

1.11 SOD

- A. Sod shall be densely rooted, good quality centipede grass, free from noxious weeds. The sod shall be obtained from areas where the soil is reasonably fertile. The sod shall be raked free of all debris and the grass mowed to two inches before cutting. The sod shall contain practically all of the dense root system and not be less than one (1) inch thick. Sod shall be cut in uniform strips not less than twelve (12) inches in width and not less than twenty-four (24) inches in length.

1.12 PRODUCT REVIEW

- A. The Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 2 - EXECUTION

2.1 STAND OF GRASS

- A. Before acceptance of the seeding performed for the establishment of permanent vegetation, the Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and the winter weather and be capable of re-establishment in the spring.

- B. Before acceptance of the seeding performed for the establishment of temporary vegetation, the Contractor will be required to produce a stand of grass sufficient to control erosion for a given area and length of time before the next phase of construction or the establishment of permanent vegetation is to commence.

2.2 SEEDING DATES AND RATES OF APPLICATION

- A. Seeding shall be performed during the periods and at the rates specified in the seeding schedules. Seeding work may, at the discretion of the Contractor, be performed throughout the year using the schedule prescribed for the given period. Seeding work shall not be conducted when the ground is frozen or excessively wet. The Contractor will be required to produce a satisfactory stand of grass regardless of the period of the year the work is performed.

2.3 PREPARATION

- A. The areas to be seeded or sodded shall be made smooth and uniform and shall conform to the finished grade and cross section shown on the plans or as otherwise designated. Minor shaping and smoothing of uneven and rough areas outside the graded section shall be performed as directed by the Engineer in order to provide for more effective erosion control and for ease of subsequent mowing operations.
- B. The areas to be grassed, if not loose, shall be loosened to a minimum depth of 3 inches before agricultural lime, fertilizer, seed or sod is applied. The areas to be seeded shall be cleared of stones larger than 2-1/2-inches, in any dimension, roots, and other debris.

2.4 APPLYING LIME AND FERTILIZER

- A. Following advance preparation and placing selected material for shoulders and slopes when called for in the contract, lime if called for based on soil tests and fertilizer shall be spread uniformly over the designated areas and shall be thoroughly mixed with the soil to a depth of approximately 2 inches. Fertilizer shall be applied at the rate of 500 pounds per acre for the initial application, unless otherwise directed by the Engineer. Lime shall be applied at the rate determined by the soil test. Unless otherwise provided, lime will not be applied for temporary seeding. In all cases where practicable, acceptable mechanical spreaders shall be used for spreading fertilizer. On steep slopes subject to slides and inaccessible to power equipment, the slopes shall be adequately scarified. Fertilizer may be applied on steep slopes by hydraulic methods as a mixture of fertilizer and seed. When fertilizer is applied in combination seed and fertilizer drills, no further incorporation will be necessary. The fertilizer and seed shall be applied together when the method of seeding (Wood Cellulose Fiber Mulch) is used. Any stones larger than 2-1/2 inches in any dimension, larger clods, roots, or other debris brought to the surface shall be removed.

2.5 SEEDING

- A. Seed shall be sown within 24 hours following the application of fertilizer and lime and preparation of the seedbed as specified in Section 2.04. Seed shall be uniformly sown at the rate specified by the use of acceptable mechanical seed drills. Rotary hand seeders, power sprayers or other satisfactory equipment may be used on steep slopes or on other areas that are inaccessible to seed drills.
- B. The seeds shall be covered and lightly compacted by means of a cultipacker or light roller if the drill does not perform this operation. On slopes inaccessible to compaction equipment, the seed shall be covered by dragging spiked chains, by light harrowing or by other satisfactory methods.
- C. Apply water with fine spray immediately after each area has been sown.
- D. Do not sow seed when ground is too dry, during windy periods or immediately following a rain.
- E. All seeded areas seeded with permanent grasses shall be uniformly mulched in a continuous blanket immediately following seeding and compacting operations, using at least 2 tons of straw per acre.

2.6 SEEDING (EXCELSIOR MULCH)

- A. Seed shall be sown as specified in Section 2.05. Within 24 hours after the covering of seed, excelsior mulch shall be uniformly applied at the rate of 2 tons per acre. The mulch may be applied hydraulically or by other acceptable methods. Should the mulch be placed in a dry condition, it shall be thoroughly wetted immediately after placing. The Engineer may require light rolling of the mulch to form a tight mat.

2.7 SEEDING (WOOD CELLULOSE FIBER MULCH)

- A. After the lime has been applied and ground prepared as specified in Section 2.04, wood cellulose fiber mulch shall be applied at the rate of 1,500 pounds per acre in a mixture of seed and fertilizer. Hydraulic equipment shall be used for the application of fertilizer, seed and slurry of the prepared wood pulp. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide an even distribution of the slurry on the various areas to be seeded. The slurry tank shall have a minimum capacity of 1,000 gallons. The seed, fertilizer, wood pulp mulch, and water shall all be combined into the slurry tank for distribution of all ingredients in one operation by the hydraulic seeding method specified herein. The materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be so regulated that the amounts and rates of application shall result in a uniform application of all materials at rates not less than the amount specified. Using the color of the wood pulp as a guide, the equipment operator shall spray the prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream so as to fall like rain, allowing the wood fibers to build upon each other until an even coat is achieved.

2.8 SODDING

- A. Sod shall be placed between March 1st and December 1st.
- B. Sod shall be placed within 48 hours of cutting.
- C. Sod shall be moist when laid and placed on moist ground. The sod shall be carefully placed by hand, beginning at the toe of slopes and working upwards. The length of the strips shall be at right angles to the flow of surface water. All joints shall be tightly butted and end joints shall be staggered at least 12 inches. The sod shall be immediately pressed firmly into the ground by tamping or rolling. Fill all joints between strips with fine screened soil. Sod on slopes shall be pegged with sod pegs to prevent movement. The sod shall be watered, mowed, weeded, repaired or otherwise maintained, to insure the establishment of a uniform healthy stand of grass until acceptance.

2.9 LAYOUT OF TREES, SHRUBS, AND GROUND COVERS

- A. All plants shall be placed in the proper location as shown on construction plans, allowing Owner to review all plant locations prior to actual planting. The Owner may make minor adjustments which shall not be cause for changes to the contract price.

2.10 OBSTRUCTIONS BELOW GROUND

- A. Prior to excavating planting holes, Contractor shall determine the exact location of electrical, phone, other cables, conduits, water, drainage, and sewer lines and any other subsurface structures and take precautions to protect them. Any damage to underground utilities shall be repaired immediately at the Contractor's expense.

2.11 PLANTING TREES AND SHRUBS

- A. Shall be same as grown in the nursery and/or container soil level. Adjust bottom soil mix to insure proper planting level with the proposed surrounding grades. Check plants to insure proper vertical alignment.
- B. Fill holes to proper height, and thoroughly tamp before setting the plant. Set plant in upright position in the center of the hole, and compact the backfill mixture around the ball or roots. Add soil amendments as required to improve fertility of existing soils and plant growing conditions.
 1. When balled or burlapped plants are set, compact topsoil around base of ball to fill all voids. All bindings shall be removed and the top half of burlap removed from around root ball. If burlap is made of natural fibers it can be laid back from the root mass or can be cut away. Remove all burlap if it is made of non-degradable material/fabric. All weeds growing on the root mass shall be removed prior to planting.
 2. Containerized plants shall have the container removed prior to planting. Care shall be taken to protect root mass from injury and the root mass intact. If root mass shows evidence of being bound or matted, three vertical 1/2" deep cuts shall be made on alternate sides of the root mass and roots pulled away slightly. All weeds growing in the root mass shall be removed prior to planting.
 3. Root of bare root plants shall be spread out and topsoil carefully worked in among them. Remove with a clean cut, any broken or frayed roots.

2.12 WATERING

- A. Thoroughly water each plant when the hole is 1/3 full, again at 2/3 full and then complete backfilling. Once backfilling is complete, water again, then tamp the soil in place until the surface of the backfill is level with the surrounding area and the plant bears the same relation of finished grade as it bore to existing grade before being dug.
- B. Earth saucers shall be constructed around the perimeter of planting holes of all trees and all single planted shrubs. Earth saucers shall be minimum 3" high and compacted to retain water. Earth saucers shall not be installed in areas where the subsoil is very poorly drained or around mass shrub/groundcover plantings.
- C. All trees and shrubs to be hand watered on a regular basis as necessary during the warranty period.

2.13 STAKING OF TALL PLANTS

- A. Shall be done only if site / environment conditions make it required. If required, trees, shrubs, and palms shall be staked as indicated on the details.

2.14 MULCHING

- A. All plants shall be mulched with an evenly thick layer of clean mulch immediately after planting. Mass plant beds shall be completely mulched to the limits of the bed as shown on the plans. Limit of mulching for individual trees and shrubs shall be slightly beyond the saucer berm. The areas mulched shall be tidy and clean in appearance.

2.15 PRUNING

- A. Remove all dead, broken or bruised branches after planting using clean sharp tools.

2.16 WEEDING

- A. All planted areas shall be kept free from weeds and undesirable grasses until final acceptance by the Owner.

2.17 INSECT AND DISEASE CONTROL

- A. All plant material shall be disease or insect free upon arrival to the site, however, should any plants show signs of insect or disease infestations, Contractor shall identify nature of infestation and

submit to Owner a proposed method of control. Contractor shall treat all infested plants at its expense. Should the infestation be wide spread and uncontrollable, plants affected shall be removed from site, fresh plants brought in and all other plants treated to prevent infestation of remaining plants at Contractor's expense.

2.18 MAINTENANCE

- A. Protect all plantings until accepted by Owner. All damage, regardless of cause, shall be immediately repaired and plants replaced if necessary. Erect temporary fences, barricades, signs and other protection as needed to prevent trampling. Contractor is not responsible for replacement of damaged or missing plants and plant materials due to vandalism or other acts beyond the control of the Contractor if proper barriers or other safeguards have been maintained.
- B. Maintenance shall include but is not limited to watering, weeding, cultivating, removal of dead material, mulch reapplication, resetting plants to proper grades or upright position, lawn mowing fertilizing, and other necessary operations.
- C. The Contractor shall repair immediately any areas damaged as a result of construction operations or erosion.
- D. The Contractor shall maintain all proposed plantings until final acceptance is issued by the Owner.
- E. At the end of the maintenance period, all plants shall be in a healthy growing condition. During the maintenance period, should the appearance of any plant indicate weakness and probability of dying, immediately replace without additional cost to the Owner. Replacements required because of vandalism or other causes beyond the control of the Contractor are not part of this contract.

2.19 ACCEPTANCE

- A. Before release of the performance bond on the seeding and sodding performed for the establishment of permanent vegetation, the Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and the winter weather and be capable of reestablishment in the spring.

END OF SECTION 32 90 00

SECTION 33 40 00 – STORMWATER UTILITIES

PART 1 – PRODUCTS

1.1 PIPE

- A. Concrete Pipe - Shall be reinforced Class III and shall conform to ASTM Specification C-76.
 - 1. Joints - Shall be water tight flexible rubber gasket and shall meet ASTM Specification C-443 and AASHTO M-198. Each joint shall be wrapped in filter cloth. The cloth shall be at least 2" wide, shall overlap by 50% and shall be secured prior to backfill.
 - 2. Filter Fabric - Mirafi 140N or equivalent.
 - 3. Concrete pipe shall be designed with no lifting holes. The lifting holes will jeopardize the structural integrity and hydraulic capacity of the pipe once installed.
 - 4. A minimum depth of 12 inches cover is required for RCP Class III.
- B. Plastic Pipe - Shall be rigid heavy duty corrugated polyethylene pipe manufactured by Advance Drainage Systems (ADS), or accepted equivalent, and shall conform to AASHTO M 252.

1.2 DRAINAGE STRUCTURES

- A. Details - See plans.
- B. Concrete - Reinforced and non-reinforced.
 - 1. Shall have a compressive strength of 3,000 PSI in 28 days. Concrete shall be ready mixed conforming to ASTM C-94.
 - 2. Reinforcing steel shall conform to ASTM A-615, Grade 60. Mesh reinforcing shall conform to ASTM A-185. Reinforcing shall be covered by a minimum 1" of concrete for covers and 1-1/2" for walls and flooring and 3" where concrete is deposited directly against the ground.
 - 3. Expansion joint filler materials shall conform to ASTM Specification D-1751, to AASHTO M-90 or shall be resin impregnated fiberboard conforming to the physical requirements of ASTM Specification D-1752.
- C. Mortar – Mortar used at connections of pipe and drainage structures shall be composed of one part by volume of Portland cement and two parts of sand. The Portland cement shall conform to ASTM C-150, Type I or II. The sand shall conform to AASHTO Standard M-45 and shall be of an accepted gradation. Hydrated lime may be added to the mixture of sand and cement in an amount equal to 25% of the volume of cement used. Hydrated lime shall conform to ASTM C-141, Type A. The quantity of water in the mixture shall be sufficient to produce a workable mortar, but shall in no case exceed 7 gallons of water per sack of cement. Water shall be clean and free of harmful acids, alkalies and organic impurities. The mortar shall be used within 30 minutes from the time the ingredients are mixed with water.
- D. Brick Masonry - Brick shall conform to ASTM Specification C- 62, Grade SW or C-55, Grade P-I or P-II. Mortar for jointing and plastering shall consist of one part Portland cement and two parts fine sand. Lime may be added to the mortar in the amount not more than 25% of the volume of cement. The joints shall be completely filled and shall be smooth and free from surplus mortar on the inside of the structure. Brick structures shall be plastered with 1/2-inch of mortar over the entire outside surface of the walls. For square or rectangular structures, brick shall be laid in stretcher courses with a header course every sixth course, and for round structures, brick shall be laid radially with every sixth course a stretcher course.
- E. Precast - Shall be constructed in accordance with ASTM C-478 and conform to the details on the project drawings.
 - 1. Joints - Shall be tongue and groove sealed with flexible gaskets or mastic sealant. Gaskets shall be O-Ring or Type A or B "Tylox" conforming to A.S.T.M. C-443 and mastic shall be "Ram-nek",

- or equivalent, with primer. The primer shall be applied to all contact surfaces of the manhole joint at the factory in accordance with the manufacturer's instructions.
2. Steps - Shall be aluminum alloy equivalent to Neenah R-1982-W or polypropylene equivalent to M.A. Industries, Type PS-1 or PS-1-PF. The steps shall be installed at the manhole factory and in accordance with the recommendations of the step manufacturer. Manholes will not be acceptable if steps are not installed accordingly, and properly aligned vertically.
 3. Leaks - No leaks in the manhole will be acceptable. All repairs made from inside the manhole shall be made with mortar composed of one part Portland cement and two parts clean sand; the mixing liquid shall be straight bonding agent equivalent to "Acryl 60".
- F. Frames, Covers & Grates shall conform to the details shown on the project drawings. Grates in pavement and in other flush-mounted type surfaces shall be of a "bicycle-safe" configuration consisting of 45 degrees diagonal bars or slotted grates with a maximum clear opening of 1" and a maximum length of 4". In any case, the long dimension of the openings shall be located transverse to the direction of traffic.

1.3 STONE BACKFILL

- A. Shall be graded crushed granite with the following gradation:

Square Opening Size	Percent Passing by Weight
1"	100%
3/4"	90% to 100%
3/8"	0% to 65%
No. 4	0% to 25%
No. 100	0% to 10%

1.4 SAND BACKFILL

- A. Shall be free from clay and organic material. Not more than 10% shall pass the No. 100 sieve.

1.5 BORROW

- A. Where it is determined by the Engineer that sufficient suitable material is not available from the site to satisfactorily backfill the pipe to at least 2 feet above the top of the pipe, the Contractor shall furnish suitable sandy borrow material to accomplish the requirements. The material shall have not more than 60% passing the No. 100 sieve, nor more than 20% passing the No. 200 sieve.

PART 2 – EXECUTION & TESTING

2.1 LOCATION AND GRADE

- A. The line and grade of the sewer and ditches and the position of all manholes and other structures are shown on the drawings. The grade line as given on the profile or mentioned in these specifications means the invert or bottom of the inside of the pipe or bottom of ditch. The Contractor shall be responsible for the proper locations and grade of the sewers. The pipe line shall be straight and show a uniform grade between manholes.

2.2 EXCAVATION FOR PIPE

- A. Excavated material shall be piled a sufficient distance from the trench banks to avoid overloading to prevent slides or cave-ins.
- B. Remove from site all material not required or suitable for backfill.
- C. Grade as necessary to prevent water from flowing into excavations.
- D. Remove all water accumulating in the excavation from surface flow, seepage or otherwise, by pumping or other accepted method.
- E. Sheet piling, bracing or shoring as necessary for the protection of the work and safety of personnel.

2.3 TRENCHING FOR PIPE

- A. Trenching for Pipe - The width of trenches at any point below the top of the pipe shall not be greater than the outside diameter of the pipe, plus 2'-0" for pipes measuring through 30-inches, and 3'-0" for pipes greater than 30-inches, to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipes. Sheet piling and bracing where required shall be placed within the trench width as specified. Care shall be taken not to over-excavate. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures shall be necessary. Cost of this re-design and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the Owner.
- B. Removal of Unstable Material - Where wet or otherwise unstable soil, incapable of supporting the pipe, as determined by the Owner, is encountered in the bottom of the trench, such material shall be removed to the depth required and replaced to the proper grade with select material, compacted as provided in Paragraph 2.08, "BACKFILLING PIPE", hereinafter.

2.4 BRACING AND SHEETING

- A. The sides of all trenches shall be securely held by stay bracing, or by skeleton or solid sheet piling and bracing, as required by the soil conditions encountered, to protect the adjoining property and for safety. Where shown on the drawings or where directed by the Owner, the Contractor must install solid sheet piling to protect adjacent property and utilities. The sheet piling shall be steel or timber and the Contractor shall submit design data, including the section modules of the members and the arrangement for bracing at various depths, to the Engineer for review before installing the sheet piling. It shall penetrate at least 3 feet below the pipe invert. Sheet piling shall be removed in units when the backfilling has reached the elevation necessary to protect the pipe, adjoining property and utilities. When sheet piling or shoring above the elevation cannot be safely removed, it shall be left in place. Timber left in place shall be cut off at least 2 feet below the surface. No separate payment shall be made for bracing and sheet piling except where shown on the drawings or authorized by the Owner.

2.5 BEDDING

- A. The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe. The trench bottom shall be dewatered before laying pipe by the use of well points. Where the nature of the soil is such that well points will not remove the water, the Contractor shall construct sumps and use sump pumps to remove all water from the bedding surface. The pipe shall be carefully bedded in a soil foundation that has been accurately shaped and rounded to conform to the lowest one-fourth (1/4) of the outside portion of circular pipe, or to the lower curved portion of arch pipe for the entire length of the pipe. When necessary, the bedding shall be tamped to compact it to 98% of optimum density. Bell holes and depressions for joints shall be only of such length, depth and width as required for properly making the particular type joint.
- B. Stone Backfill - Where, specified by the Engineer or construction plans, the subgrade of the pipe trench shall be removed six inches (6") deep and furnish and place stone backfill in the trench to stabilize the subgrade. The stone shall be 3/4-inch graded but variations in the gradation will be permitted upon acceptance by the Engineer. Attention is invited to the fact that the presence of water does not necessarily mean that stone backfill is required. If well points or other types of dewatering will remove the water, the Contractor shall be required to completely dewater the trench in lieu of stone backfill. Pipe shall be carefully bedded in the stone as specified above.
- C. Sand Backfill - Where in the opinion of the Engineer, the character of the soil is such that the material even though dewatered is unsuitable for pipe bedding, an additional foot of excavation shall be made and replaced with clean sand furnished by the Contractor.

2.6 PLACING PIPE

- A. Each pipe shall be carefully examined before being laid and defective or damaged pipe shall not be used. Pipe lines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. All pipe in place shall have been checked before backfilling. When storm drain pipe terminates in a new ditch, the headwall or end section together with ditch pavement, if specified, shall be constructed immediately as called for on the plans. Ditch slopes and disturbed earth areas shall be grassed and mulched as required. The Contractor will be responsible for maintaining these newly constructed ditches and take immediate action subject to acceptance to keep erosion of the ditch bottom and slopes to a minimum during the life of the contract. No additional compensation will be given to the Contractor for the required diversion of drainage and/or dewatering of trenches. Grassing of the completed earth surface of the trench backfill shall conform to the technical specification for Grassing.
- B. Concrete Pipe - Laying shall proceed upgrade with the spigot ends of bell and spigot pipe and the tongue ends of tongue and groove pipe pointing in the direction of the flow.

2.7 JOINTS IN PIPES

- A. Concrete Pipe - Flexible watertight joint shall be made with rubber-type gaskets for concrete pipe. The design of joints and the physical requirements for rubber-type gaskets shall conform to ASTM Specification C-443 or AASHTO Standard M-198. Gaskets and jointing materials shall have not more than one splice, except that two splices of the rubber gasket type will be permitted if the nominal diameter of the gasket exceeds 54-inches.
 - 1. Installation of Filter Fabric at Joint - After each joint is joined together the Contractor shall place two layers of filter fabric around the joint a minimum width of four feet, centered on the joint.

2.8 BACKFILLING PIPE

- A. After the bedding has been prepared and the pipe installed, select material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of the pipe in layers not exceeding six inches (6") in compacted depth. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to insure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compaction shall continue until the fill has reached an elevation of at least 12-inches above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical tampers or rammers in layers not to exceed 8-inches. Soil density relations tests and moisture density relations tests may be performed by a testing firm or laboratory and shall be taken as directed in conformance with the compaction requirements specified in subparagraph "COMPACTION" hereinafter. Deficiencies shall be corrected by the Contractor without additional cost to the Owner. Where it is necessary in the opinion of the Owner, any sheeting and/or portions of bracing used shall be left in place. Untreated sheeting shall not be left in place beneath structures or pavements.
- B. For pipe placed in fill sections, the backfill material and the placement and compaction procedures shall be as specified above and in subparagraph "COMPACTION" hereinafter. The fill material shall be uniformly spread in layers longitudinal on both sides of the pipe, not exceeding six inches (6") in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12-inches above the top of the pipe shall extend a distance of not less than twice the outside diameter on each side of the pipe or 12 feet, whichever is less. After the backfill has reached at

least 12-inches above the top of the pipe, the remainder of the fill shall be placed and thoroughly compacted in layers not exceeding 8-inches.

- C. In compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert at any stage of the construction shall be at the Contractor's risk. Any pipe damaged thereby shall be repaired or replaced at the expense of the Contractor.

2.9 COMPACTION

- A. Soil and compaction tests shall be made by a testing laboratory accepted by the Owner and shall be made at the Owner's direction and expense. Failed tests shall be rescheduled at the Owner's direction and retesting shall be paid for by the Contractor. Laboratory tests of the soil shall be made in accordance with AASHTO Method T-99. In-place density tests shall be made in accordance with AASHTO Method T-191 or T-238. Results of the tests shall be furnished to the Owner by the testing laboratory. The minimum number of tests required shall be as follows:

Backfill over pipe in traffic areas	1 per 100 lf or less for each 4 feet of depth or portion thereof. (Minimum of 2 for any line segment.)
-------------------------------------	--

Backfill over pipe in non-traffic areas	1 per 200 lf or less for each 6 feet of depth or portion thereof.
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The minimum percent of compaction of the backfill material (in accordance to AASHTO T-99) shall be as follows:

In traffic areas	100%
In non-traffic areas	95%

2.10 DRAINAGE STRUCTURES

- A. Drainage structures shall be constructed of the materials specified for each type and in accordance with the details shown on the drawings.

2.11 MANHOLES

- A. Manholes shall be constructed where shown on the drawings or where directed by the Owner. The channel in the bottom of the manholes shall be smooth and properly shaped. Special care must be exercised in laying the channel in adjacent pipes to grade. The tops of manholes shall be built to grades designed by the Owner. Manhole sections with either honeycomb defects; exposed reinforcing; broken/fractured tongue or groove; or cracked walls will be subject to rejection by the Engineer for use on the project. When mastic sealant is used, improperly applied primer will also be cause for rejection.

2.12 LEAKAGE

- A. All visible leaks shall be repaired, regardless of the amount of leakage.

2.13 CONNECT PIPE TO EXISTING STRUCTURES

- A. The Contractor shall connect the system to the existing structure where indicated. A hole not more than 4-inches larger than the outside diameter of the new pipe shall be cut neatly in the structure, the new pipe laid so that it is flush with the inside face of the structure, and the annular space around the pipe filled with a damp, expanding mortar or grout to make a watertight seal.

2.14 CLOSING PIPE

- A. When the work or pipe laying is suspended, either for night or at other times, the end of the sewer must be closed with a tight cover. The Contractor will be held responsible for keeping the sewer free from obstructions.

2.15 REGRADE EXISTING DITCH

- A. Designated existing ditches shall be regraded and shaped to provide a bottom with a uniform slope, without depressions that hold water, and that conforms to the plan grades. The side slopes shall be smooth and uniform, dressed by hand if necessary, conforming to the indicated slopes.

2.16 CONSTRUCT NEW DITCHES

- A. New ditches as shown on the construction drawings shall be graded and shaped to provide a bottom with a uniform slope, without depressions that hold water, and that conforms to the plan grades. The side slopes shall be smooth and uniform, dressed by hand if necessary, conforming to the indicated slopes. Ditches with side slope greater than 3:1(H:V) shall be stabilized by means of woven jute fabric engineered for erosion control and soil stabilization, or approved equal.

2.17 CLEANING

- A. Prior to televising and before acceptance of the storm systems, all storm lines shall be cleaned to the satisfaction of the Engineer. Where any obstruction occurs, the Contractor will be required to clean the lines by means of flushing and rods and swabs or other instruments.

2.18 TELEVISIONING

- A. After the completion of cleaning, all constructed storm lines must be televised and the video submitted to the Chatham County Department of Engineering for approval. Accordingly, all storm lines that are installed within accepted public right-of-ways and easements will be televised, including the first section of private lines between manholes that are connected to the public lines. In addition, storm lines from stormwater detention basins to the County system shall be televised.

2.19 RECORD DATA

- A. The Contractor is required to keep accurate, legible records of the location of all new storm lines and structures during construction. These records will be made available to the Engineer before his final review for incorporation into the Record Drawings. Final payment to the Contractor will be withheld until all such information is received and accepted.

END OF SECTION 33 40 00

ATTACHMENT A

DRUG - FREE WORKPLACE CERTIFICATION

THE UNDERSIGNED CERTIFIES THAT THE PROVISIONS OF CODE SECTIONS 50-24-1 THROUGH 50-24-6 OF THE OFFICIAL CODE TO GEORGIA ANNOTATED, RELATED TO THE **DRUG-FREE WORKPLACE**, HAVE BEEN COMPLIED WITH IN FULL. THE UNDERSIGNED FURTHER CERTIFIES THAT:

1. A Drug-Free Workplace will be provided for the employees during the performance of the contract; and
2. Each sub-contractor under the direction of the Contractor shall secure the following written certification:

_____ (CONTRACTOR) certifies to Chatham County that a Drug-Free Workplace will be provided for the employees during the performance of this contract known as **QUACCO ROAD OUTFALL DITCH DRAINAGE IMPROVEMENTS** pursuant to paragraph (7) of subsection (B) of Code Section 50-24-3. Also, the undersigned further certifies that he/she will not engage in the unlawful manufacture, sale, distribution, possession, or use of a controlled substance or marijuana during the performance of the contract.

CONTRACTOR

DATE

NOTARY

DATE

ATTACHMENT B

PROMISE OF NON-DISCRIMINATION STATEMENT

Know All Men By These Presence, that I (We), _____
Name

_____, _____
Title Name of Bidder
(herein after Company) in consideration of the privilege to bid/or propose on the following
Chatham County project procurement QUACCO ROAD OUTFALL DITCH
DRAINAGE IMPROVEMENTS hereby consent, covenant and agree as follows:

- (1) No person shall be excluded from participation in, denied the benefit of or otherwise discriminated against on the basis of race, color, national origin or gender in connection with the bid submitted to Chatham County or the performance of the contract resulting therefrom;
- (2) That it is and shall be the policy of this Company to provide equal opportunity to all business persons seeking to contract or otherwise interested with the Company, including those companies owned and controlled by racial minorities, and women;
- (3) In connection herewith, I (We) acknowledge and warrant that this Company has been made aware of, understands and agrees to take affirmative action to provide minority and woman owned companies with the maximum practicable opportunities to do business with this Company on this contract;
- (4) That the promises of non-discrimination as made and set forth herein shall be continuing throughout the duration of this contract with Chatham County;
- (5) That the promises of non-discrimination as made and set forth herein shall be and are hereby deemed to be made a part of and incorporated by reference in the contract which this Company may be awarded;
- (6) That the failure of this Company to satisfactorily discharge any of the promises of non-discrimination as made and set forth above may constitute a material breach of contract entitling the County to declare the contract in default and to exercise appropriate remedies including but not limited to termination of the contract.

Signature

Date

ATTACHMENT C
DISCLOSURE OF RESPONSIBILITY STATEMENT

Failure to complete and return this information will result in your bid/offer/proposal being disqualified from further competition as non-responsive.

1. List any convictions of any person, subsidiary, or affiliate of the company, arising out of obtaining, or attempting to obtain a public or private contract or subcontract, or in the performance of such contract or subcontract.

2. List any indictments or convictions of any person, subsidiary, or affiliate of this company for offenses such as embezzlement, theft, fraudulent schemes, etc. or any other offenses indicating a lack of business integrity or business honesty which affects the responsibility of the contractor.

3. List any convictions or civil judgments under states or federal antitrust statutes.

4. List any violations of contract provisions such as knowingly (without good cause) to perform, or unsatisfactory performance, in accordance with the specifications of a contract.

5. List any prior suspensions or debarments by any governmental agency.

6. List any contracts not completed on time.

7. List any penalties imposed for time delays and/or quality of materials and workmanship.

8. List any documented violations of federal or any state labor laws, regulations, or standards, occupational safety and health rules.

I, _____, as _____
Name of individual Title & Authority

of _____, declare under oath that

Company Name _____

the above statements, including any supplemental responses attached hereto, are true.

Signature

State of _____

County of _____

Subscribed and sworn to before me on this _____ day of _____

20__ by _____ representing him/herself to be

_____ of the company named herein.

Notary Public

My Commission expires:

Resident State: _____

DPC Form #45

ATTACHMENT D

CONTRACTOR AFFIDAVIT under O.C.G.A. § 13-10-91(b)(1)

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 engaged in the physical performance of services on behalf of CHATHAM COUNTY has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

Federal Work Authorization User Identification Number

Date of Authorization

Name of Contractor

Name of Project

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, ___, 20__ in _____(city), _____(state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

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

NOTARY PUBLIC

My Commission Expires:

SUBCONTRACTOR AFFIDAVIT under O.C.G.A. § 13-10-91(b)(3)

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 _____ (name of contractor) on behalf of CHATHAM COUNTY has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91 (b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five (5) business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five (5) business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

Federal Work Authorization User Identification Number

Date of Authorization

Name of Subcontractor

Name of Project

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, ____, 20__ in _____(city), _____(state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME

ON THIS THE _____ DAY OF _____, 20__.

NOTARY PUBLIC

My Commission Expires:

ATTACHMENT E

BIDDER'S CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

The undersigned certifies, by submission of this proposal or acceptance of this contract, that neither Contractor nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency, State of Georgia, City of Savannah, Board of Education of local municipality. Bidder agrees that by submitting this proposal that Bidder will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the Bidder or any lower tier participant is unable to certify to this statement, that participant shall attach an explanation to this document.

Certification - the above information is true and complete to the best of my knowledge and belief.

(Printed or typed Name of Signatory)

(Signature)

(Date)

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001

END OF DOCUMENT Mod. CC P & C 6/2005

ATTACHMENT F

Chatham County
Minority and Woman Business Enterprise Program
M/WBE Participation Report

Name of Bidder: _____

Name of Project: _____

Bid No: _____

M/WBE Firm	Type of Work	Contact Person/ Phone #	City, State	%	MBE or WBE

MBE Total _____

WBE Total _____%

M/WBE Combined _____%

The undersigned should enter into a formal agreement with M/WBE Contractor identified herein for work listed in this schedule conditioned upon execution of contract with the Chatham County Board of Commissioners.

Signature _____ Print _____

Phone () _____

Fax () _____

ATTACHMENT G

Systematic Alien Verification for Entitlements (SAVE) Affidavit Verifying Status for Chatham County Benefit Application

By executing this affidavit under oath, as an applicant for a Chatham County, Georgia Business License or Occupation Tax Certificate, Alcohol License, Taxi Permit, Contract or other public benefit as reference in O.C.G.A. Section 50-36-1, I am stating the following with respect to my bid for a Chatham County contract for _____. [Name of natural person applying on behalf of individual, business, corporation, partnership, or other private entity]

1.) _____ I am a citizen of the United States.

OR

2.) _____ I am a legal permanent resident 18 years of age or older.

OR

3.) _____ I am an otherwise qualified alien (8 * USC 1641) or non-immigrant under the Federal Immigration and Nationality Act (8 USC 1101 et seq.) 18 years of age or older and lawfully present in the United States.*

In making the above representation under oath, I understand that any person who knowingly and willfully makes a false, fictitious, or fraudulent statement or representation in an affidavit shall be guilty of a violation of Code Section 16-10-20 of the Official Code of Georgia.

Signature of Applicant:

Date

Printed Name:

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

* _____
Alien Registration number for non-citizens.

Notary Public
My Commission Expires:

ATTACHMENT H

Guidance Concerning Good Faith Efforts for Chatham County

I. When, the County, establish a contract goal, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by M/WBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve an M/WBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient M/WBE participation, even if they were not fully successful.

II. In any situation in which the County requires a bidder to use the good faith efforts mechanism of this rule shall apply. It is up to the County to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain M/WBE participation sufficient to meet the M/WBE contract goal. Mere pro forma efforts are not good faith efforts to meet the M/WBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call, meeting quantitative formulas is not required.

III. The rule also strongly cautions County officials against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of M/WBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits County officials from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions which the County should consider as part of the bidder's good faith efforts to obtain M/WBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified M/WBEs who have the capability to perform the work of the contract. The bidder should solicit this interest within sufficient time to allow the M/WBEs to respond to the solicitation. The bidder must determine with certainty if the M/WBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by M/WBEs in order to increase the likelihood that the M/WBE goals will be achieved. This includes, where appropriate, breaking out contract

work items into economically feasible units to facilitate M/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested M/WBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested M/WBEs. It is the bidder's responsibility to make a portion of the work available to M/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available M/WBE subcontractors and suppliers, so as to facilitate M/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of M/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for M/WBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including M/WBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using M/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract M/WBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from M/WBEs if the price difference is excessive or unreasonable.

E. Not rejecting M/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested M/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested M/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of M/WBEs.

V. In determining whether a bidder has made good faith efforts, County officials may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average M/WBE participation obtained by other bidders, County officials may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

I acknowledge receipt of the Good Faith Effort guidelines.

NAME / TITLE

SIGNATURE

COMPANY

REFERENCE #1

\$499,000 and less: Provide references from owners of at least three (3) projects of various sizes. Include government owners if possible. If the contractor has performed any work for the Chatham County Board of Commissioners within the last five (5) years, at least one (1) of the three (3) owner references must be from the appropriate party within the Chatham County Government. Provide in the format as in (a) above on the attached form.

a. Project Name: _____

Location: _____
Owner: _____
Address: _____
City _____ and _____ State: _____
Contact: _____
Phone & Fax: _____
*Architect _____ or _____ Engineer: _____
Contact: _____
Phone & Fax: _____

- b. The awarded bid amount and project start date.
- c. Final cost of project and completion date.
- d. Number of change orders.
- e. Contracted project completion in days.
- f. Project completed on time. Yes____ No____ Days exceeded_____.
- g. List previous contracts your company performed for Chatham County by Project Title, date and awarded/final cost.
- h. Has contractor ever failed to complete a project? If so, provide explanation.
- i. Have any projects ever performed by contractor been the subject of a claim or lawsuit by or against the contractor? If yes, please identify the nature of such claim or lawsuit, the court in which the case was filed and the details of its resolution.

REFERENCE #2

\$499,000 and less: Provide references from owners of at least three (3) projects of various sizes. Include government owners if possible. If the contractor has performed any work for the Chatham County Board of Commissioners within the last five (5) years, at least one (1) of the three (3) owner references must be from the appropriate party within the Chatham County Government. Provide in the format as in (a) above on the attached form.

a. Project Name: _____

Location: _____

Owner: _____

Address: _____

City _____ and _____ State: _____

Contact: _____

Phone & Fax: _____

*Architect _____ or _____ Engineer: _____

Contact: _____

Phone & Fax: _____

- b. The awarded bid amount and project start date.
- c. Final cost of project and completion date.
- d. Number of change orders.
- e. Contracted project completion in days.
- f. Project completed on time. Yes ___ No ___ Days exceeded _____.
- g. List previous contracts your company performed for Chatham County by Project Title, date and awarded/final cost.
- h. Has contractor ever failed to complete a project? If so, provide explanation.
- i. Have any projects ever performed by contractor been the subject of a claim or lawsuit by or against the contractor? If yes, please identify the nature of such claim or lawsuit, the court in which the case was filed and the details of its resolution.

REFERENCE #3

\$499,000 and less: Provide references from owners of at least three (3) projects of various sizes. Include government owners if possible. If the contractor has performed any work for the Chatham County Board of Commissioners within the last five (5) years, at least one (1) of the three (3) owner references must be from the appropriate party within the Chatham County Government. Provide in the format as in (a) above on the attached form.

a. Project Name: _____

Location: _____

Owner: _____

Address: _____

City _____ and _____ State: _____

Contact: _____

Phone & Fax: _____

*Architect _____ or _____ Engineer: _____

Contact: _____

Phone & Fax: _____

- b. The awarded bid amount and project start date.
- c. Final cost of project and completion date.
- d. Number of change orders.
- e. Contracted project completion in days.
- f. Project completed on time. Yes___ No___ Days exceeded_____.
- g. List previous contracts your company performed for Chatham County by Project Title, date and awarded/final cost.
- h. Has contractor ever failed to complete a project? If so, provide explanation.
- i. Have any projects ever performed by contractor been the subject of a claim or lawsuit by or against the contractor? If yes, please identify the nature of such claim or lawsuit, the court in which the case was filed and the details of its resolution.

CHECKLIST FOR SUBMITTING

Sign below and submit this sheet with Bid

NOTE: All of the following items must be submitted with your Bid to be considered responsive.

1. **ACKNOWLEDGMENT OF ANY/ALL ADDENDUMS** (Page 3 of ITB).
2. **SURETY REQUIREMENTS SHEET FILLED OUT** (Page 21 of ITB).
3. **ORIGINAL SURETY BOND (5% OF BID)**
4. **BID SHEET COMPLETELY FILLED OUT AND SIGNED.**
5. **LIST OF SUBCONTRACTORS SHEET FILLED OUT WITH ALL SUBCONTRACTORS AND SUPPLIERS.**
6. **% TO MBE SUBCONTRACTORS/SUPPLIERS SHEET COMPLETELY FILLED OUT SHOWING \$ AMOUNT AS WELL AS % OF PROJECT THAT IS PROJECTED TO GO TO MBE/WBE SUBCONTRACTORS/SUPPLIERS.**
7. **REFERENCES:** Supply ALL the information that is requested for each Reference. *NOTE: Forms for Reference Information are attached to this Bid Package.*
8. **ALL FIRMS REQUESTING TO DO BUSINESS WITH CHATHAM COUNTY MUST REGISTER ON-LINE AT [HTTP://PURCHASING.CHATHAMCOUNTY.ORG](http://PURCHASING.CHATHAMCOUNTY.ORG).**
9. **COMPLETE AND SUBMIT ALL ATTACHMENTS TO THE ITB (Attachments A thru G).**
10. **SUBMIT A COPY OF YOUR BUSINESS TAX CERTIFICATE.**
11. **COPY OF W-9.**

NAME/TITLE

COMPANY NAME

ADDRESS

CITY/STATE/ZIP

PHONE NUMBER

FAX NUMBER

LEGAL NOTICE
CC NO. 168587
Invitation to Bid

Sealed Bids will be received until **2:00 P.M.** on **MARCH 15, 2022** and publicly opened in the **Chatham County Purchasing & Contracting Department, at The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia 31406**, for: **BID NO : 22-0018-4 QUACCO ROAD OUTFALL DITCH DRAINAGE IMPROVEMENTS.**

PRE-BID CONFERENCE: Due to the current Pandemic, the Pre-Bid Conference will be **Audio Only.** **Contact number for the conference is listed in the Invitation To Bid.** **The Audio Only Conference** will be held on **MARCH 1, 2022, at 10:00 A.M.** You are encouraged to call and participate.

The Bid Package can be downloaded and printed from the County Purchasing and Contracting website <http://purchasing.chathamcounty.org>.

For additional information concerning specifications, please contact Robert Marshall, Senior Procurement Specialist at (912) 790-1622 or rmarshall@chathamcounty.org

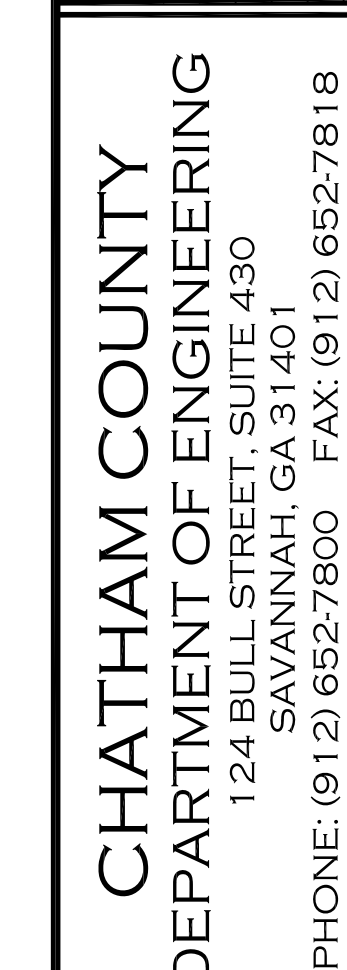
Bid Bond and Payment and Performance Bonds **are not required** for this project

CHATHAM COUNTY HAS THE AUTHORITY TO REJECT ALL BIDS AND WAIVE MINOR FORMALITIES.

"CHATHAM COUNTY IS AN EQUAL OPPORTUNITY EMPLOYER, M/F/H, ALL BIDDERS ARE TO BE EQUAL OPPORTUNITY EMPLOYERS"


MARGARET H. JOYNER, PURCHASING DIRECTOR

SAVANNAH NEWS/PRESS INSERT: Feb 15, 2022

[illegible]

QUACCO ROAD OUTFALL DITCH DRAINAGE IMPROVEMENTS CHATHAM COUNTY

COVER SHEET

DATE:	1.20.202
DESIGNED:	KD
APPROVED:	
SCALE:	NT
SHEET	
CO	



**Know what's below.
Call before you dig.**



GENERAL NOTES:

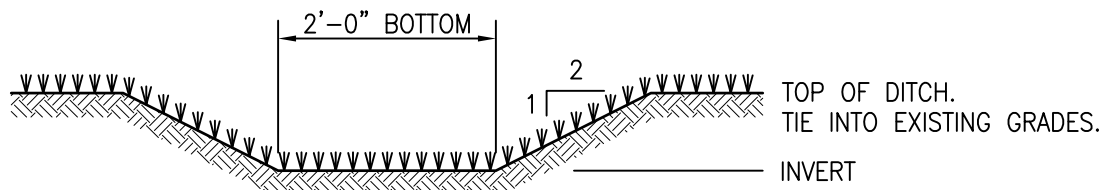
- (1) CONTRACTOR WILL BE REQUIRED TO ATTEND A PRE-CONSTRUCTION CONFERENCE WITH CHATHAM COUNTY PRIOR TO BEGINNING CONSTRUCTION.
- (2) HORIZONTAL DATUM IS NAD 83. VERTICAL DATUM IS NAVD 88 UNLESS OTHERWISE NOTED.
- (3) SURVEY AND TOPOGRAPHIC INFORMATION TAKEN FROM A SURVEY BY EMC ENGINEERING SERVICES INC.
- (4) CHATHAM COUNTY SHALL ESTABLISH HORIZONTAL AND VERTICAL CONTROL POINTS ON SITE IN ADVANCE OF CONSTRUCTION. THIS INFORMATION WILL BE PROVIDED TO THE SELECTED CONTRACTOR.
- (5) THE CONTRACTOR SHALL GRASS ALL AREAS DISTURBED BY CONSTRUCTION IMMEDIATELY AFTER THE DISTURBANCE.
- (6) THE CONTRACTOR SHALL PROTECT AND SAVE ALL SPECIMEN TREES AND/OR ANY TREE DESIGNATED ON THE PLANS OR BY THE OWNER.
- (7) THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
- (8) THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY BRACING, SHEETING, AND DEWATERING TO COMPLETE THE PROJECT. PROTECT THE CONSTRUCTION WORKERS' AND ALL ADJACENT STRUCTURES, TREES, LANDSCAPING, AND IS RESPONSIBLE FOR ALL REPAIR AND COST TO RETURN AREA TO ORIGINAL CONDITION.
- (9) CONTROL OF STORMWATER THROUGHOUT THE CONSTRUCTION PERIOD SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE EXISTING DRAINAGE CONVEYANCES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD UNTIL REPLACED OR PLUGGED. ALL PENALTIES, CLAIMS, AND FEES IMPOSED ON THE OWNER AS A RESULT OF DAMAGE CAUSED BY ACTIONS OF THE CONTRACTOR, THEIR EMPLOYEES OR SUBCONTRACTORS SHALL BE BORNE IN FULL BY THE CONTRACTOR.
- (10) CONTRACTOR SHALL MAINTAIN SITE ON A DAILY BASIS TO PROVIDE FOR POSITIVE DRAINAGE. CONTRACTOR, AT HIS COST, SHALL GRADE SITE AND PROVIDE NECESSARY TEMPORARY DRAINAGE SWALES TO ENSURE STORM WATER DOES NOT POND ON SITE.
- (11) SITE DRAINAGE SHOULD BE ESTABLISHED TO PREVENT ANY PONDING WATER CONDITIONS WITHIN THE CONSTRUCTION AREA AND TO FACILITATE THE RAPID RUN OFF OF STORM WATER.
- (12) CONTRACTOR SHALL FLUSH ALL RETAINED INLETS AND PIPE AT THE COMPLETION OF CONSTRUCTION TO REMOVE ANY SILT AND DEBRIS. THE FLUSHING AND CLEANING OF DROP INLETS, CULVERTS AND PIPES (EXISTING AND PROPOSED) SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE PROJECT AND THE COST SHALL BE INCLUDED IN THE COST FOR PIPE ON THE PROJECT. ANY WASTE MATERIAL REMOVED IS TO BE PROPERLY DISPOSED OF AND KEPT OUT OF ADJACENT STREAMS AND WATER BODIES.
- (13) ALL SUITABLE MATERIAL EXCAVATED DURING CONSTRUCTION SHALL BE USED ON SITE. ANY EXCESS MATERIAL SUITABLE OR UNSUITABLE SHALL BE DISPOSED OFFSITE.
- (14) IT IS THE OBLIGATION OF THE CONTRACTOR TO MAKE THEIR OWN INTERPRETATION OF ALL SURFACE AND SUBSURFACE DATA AVAILABLE AS TO THE NATURE AND EXTENT OF THE MATERIALS TO BE EXCAVATED, WASTED, GRADED, AND COMPACTED. THE INFORMATION SHOWN ON THESE PLANS IN NO WAY GUARANTEES THE AMOUNT OR NATURE OF THE MATERIAL TO BE ENCOUNTERED.
- (15) ALL WORK SHALL CONFORM TO APPLICABLE STATE, COUNTY, AND MUNICIPAL REQUIREMENTS AND CODES.
- (16) ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN AN ACCEPTABLE WASTE DISPOSAL AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL CONSTRUCTION DEBRIS.
- (17) THE CONTRACTOR SHALL NOT BEGIN CONSTRUCTION UNTIL THE PROPER PERMITS HAVE BEEN ISSUED.
- (18) TREE PROTECTION BARRICADES SHALL BE INSTALLED PRIOR TO ANY CLEARING ACTIVITY AND MAINTAINED UNTIL INSTRUCTED BY THE OWNER OR ENGINEER TO REMOVE THEM.
- (19) THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANY WAY INDICATED THEREBY, WHETHER BY DRAWING OR NOTES, OR IN ANY OTHER MANNER, ARE BASED ON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE OWNER OR THE ENGINEER.
- (20) ALL EXISTING UTILITIES SHOWN ARE APPROXIMATE LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR WRITTEN NOTIFICATION TO ALL RESPECTIVE UTILITY OWNERS FOR FIELD VERIFICATION. CONTRACTOR MUST FIELD VERIFY THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES PRIOR TO ANY WORK ONSITE. ALL COSTS ASSOCIATED WITH DAMAGES, REPAIRS, FINES, PENALTIES, OR FEES ASSOCIATED WITH EXISTING UTILITIES SHALL BE BORNE SOLELY BY THE CONTRACTOR.
- (21) A RIGHT OF WAY ENCROACHMENT PERMIT SHALL BE OBTAINED FROM THE CHATHAM COUNTY PUBLIC WORKS DEPARTMENT PRIOR TO PERFORMING CONSTRUCTION ACTIVITIES IN THE RIGHT OF WAY.
- (22) THE CONTRACTOR SHALL "SAFE UP" THE WORK AREA AT THE COMPLETION OF EACH DAYS WORK IN ORDER TO PROTECT THE PUBLIC.

GENERAL UTILITY NOTES:

- (1) CONTRACTOR SHALL VERIFY THE SIZE, MATERIAL, AND LOCATION, INCLUDING DEPTH, OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
- (2) CONTRACTOR SHALL CONTACT THE ONE LOCATE UTILITY PROTECTION NUMBER (811) A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO DIGGING FOR LOCATION OF ANY UTILITIES. CONTACT ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES.
- (3) CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH LOCAL UTILITY COMPANIES. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND ANY NECESSARY REPAIRS TO EXISTING UTILITY LINES.
- (4) ALL UTILITY POLES ADJACENT TO PROPOSED CONSTRUCTION MUST BE SECURED PRIOR TO ANY ADJACENT DISTURBANCE AND THE CONSTRUCTION PROCEDURE MUST BE ACCEPTABLE TO THE UTILITY COMPANY.
- (5) THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES BEFORE WORK COMMENCES, VERIFY UTILITIES WITHIN THE PROJECT LIMITS, AND NOTIFY THE ENGINEER OF CONFLICTS OR VARIANCES TO THE PLANS PRIOR TO BEGINNING WORK OR PURCHASING MATERIALS.
- (6) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.
- (7) CONTRACTOR SHALL REROUTE EXISTING UTILITIES AS NECESSARY TO ALLOW FOR THE PROPOSED WORK. CONTRACTOR SHALL COORDINATE THE REROUTING WITH THE APPROPRIATE UTILITY COMPANY AS APPLICABLE.
- (8) UTILITY SERVICE TO EXISTING FACILITIES SHALL NOT BE INTERRUPTED DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE ANY TEMPORARY RELOCATIONS WITH RESPECTIVE OWNERS AND UTILITY PROVIDERS.
- (9) ALL STRUCTURE TOPS ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE AND SET TOPS RELATIVE TO FINISHED GRADES AS SHOWN ON THE DETAIL.
- (10) ANY DEFECTIVE, DAMAGED, OR UNSOUND PIPE SHALL BE REJECTED. ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM INSIDE OF PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH AND SHALL BE KEPT CLEAN BY ACCEPTABLE MEANS DURING AND AFTER LAYING. CARE SHALL BE TAKEN TO PREVENT DIRT FROM ENTERING THE JOINT SPACE. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS THE ENDS OF THE PIPE SHALL BE CLOSED BY ACCEPTABLE MEANS AND NO TRENCH WATER SHALL BE PERMITTED IN THE PIPE.
- (11) ALL STORM DRAIN JOINTS ARE TO BE DOUBLE WRAPPED IN FILTER FABRIC.
- (12) UPON COMPLETION OF CONSTRUCTION, IT SHALL BE THE OWNER'S RESPONSIBILITY TO MAINTAIN ALL WATER, SEWER, AND DRAINAGE INFRASTRUCTURE WITHIN THE PROPERTY LIMITS OR AS INDICATED ON THE PLANS.
- (13) UTILITY CONTACT INFORMATION:
- (a) WATER – CONSOLIDATED UTILITIES
- (b) SEWER – CONSOLIDATED UTILITIES
- (c) POWER – GEORGIA POWER
- (d) GAS – ATLANTA GAS LIGHT
- (e) TELEPHONE – HARGRAY COMMUNICATIONS
- (f) CABLE TV – HARGRAY COMMUNICATIONS

TRAFFIC CONTROL:

QUACCO ROAD SHALL NOT BE CLOSED DURING CONSTRUCTION. A "TRUCKS ENTERING HIGHWAY" SIGN (W42-7) SHALL BE INSTALLED 50 FEET FROM THE ACCESS DRIVE ALONG QUACCO ROAD IN BOTH DIRECTIONS. THE CONTRACTOR SHALL DEVELOP A TRAFFIC CONTROL AND SIGNAGE PLAN AND SUBMIT IT TO THE COUNTY FOR REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION. PAYMENT SHALL BE IN THE LUMP SUM PRICE BID FOR TRAFFIC CONTROL.



NOTES:

1. SIDE SLOPES SHALL BE 2:1 MAX.
2. DITCH SHALL SLOPE FROM QUACCO ROAD TO THE SOUTHWARD AT 0.50%.

DITCH DETAIL

NTS

TEMPORARY GRASSING:

AGRICULTURAL LIME: APPLY 1 TON/ACRE
FERTILIZER: FOR SOILS WITH VERY LOW FERTILITY, APPLY 500–700 LBS. 10–10–10 PER ACRE FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL.

PERMANENT GRASSING:

AGRICULTURAL LIME IS REQUIRED AT THE RATE OF ONE TO TWO TONS PER ACRE UNLESS SOIL TESTS INDICATE OTHERWISE. GRADED AREAS REQUIRE LIME APPLICATION. IF LIME IS APPLIED WITHIN SIX MONTHS OF PLANTING PERMANENT PERENNIAL VEGETATION, ADDITIONAL LIME IS NOT REQUIRED. SOIL TEST ARE REQUIRED PRIOR TO PERMANENT VEGETATION.

PERMANENT GRASSING SHALL BE SEEDED BY HYDRAULIC SEEDING.

HYDRAULIC SEEDING:

MIX THE SEED (INOCULATED IF NEEDED), FERTILIZER, AND WOOD CELLULOSE OR WOOD PULP FIBER MULCH WITH WATER AND APPLY IN A SLURRY UNIFORMLY OVER THE AREA TO BE TREATED. APPLY WITHIN ONE HOUR AFTER THE MIXTURE IS MADE.

MULCHING

MULCH IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCH APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER. SELECT THE MULCHING MATERIAL FROM THE FOLLOWING AND APPLY AS INDICATED.

1. DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE. DRY HAY SHALL BE APPLIED AT A RATE OF 2-1/2 TONS PER ACRE.
2. WOOD CELLULOSE MULCH OR WOOD PULP FIBER WILL BE USED WITH HYDRAULIC SEEDING. IT SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE. DRY STRAW OR DRY HAY SHALL BE APPLIED (AT THE RATE INDICATED ABOVE) AFTER HYDRAULIC SEEDING.
3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER, WHICH INCLUDES A TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 3/4:1 OR STEEPER.
4. SERICEA LESPEDEZA HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF THREE TONS PER ACRE.
5. PINE STRAW OR PINE BARK SHALL BE APPLIED AT A THICKNESS OF 3 INCHES FOR BEDDING PURPOSES. OTHER SUITABLE MATERIALS IN SUFFICIENT QUALITY MAY BE USED WHERE ORNAMENTALS OR OTHER SUITABLE MATERIALS IN SUFFICIENT QUANTITY MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED. THIS IS NOT APPROPRIATE FOR SEEDED AREAS.
6. WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLOCK SOD, MULCH IS NOT REQUIRED.
7. BITUMINOUS TREATED ROVING MAY BE APPLIED ON PLANTED AREAS ON SLOPES, IN DITCHES OR DRY WATERWAYS TO PREVENT EROSION. BITUMINOUS TREATED ROVING SHALL BE APPLIED WITHIN 24 HOURS AFTER AN AREA HAS BEEN PLANTED. APPLICATION RATES AND MATERIALS MUST MEET GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

WOOD CELLULOSE AND WOOD PULP FIBERS SHALL NOT CONTAIN GERMINATION OR GROWTH INHIBITING FACTORS. THEY SHALL BE EVENLY DISPERSED WHEN AGITATED IN WATER. THE FIBERS SHALL CONTAIN A DYE TO ALLOW VISUAL METERING AND AID IN UNIFORM APPLICATION DURING SEEDING.

APPLYING MULCH:

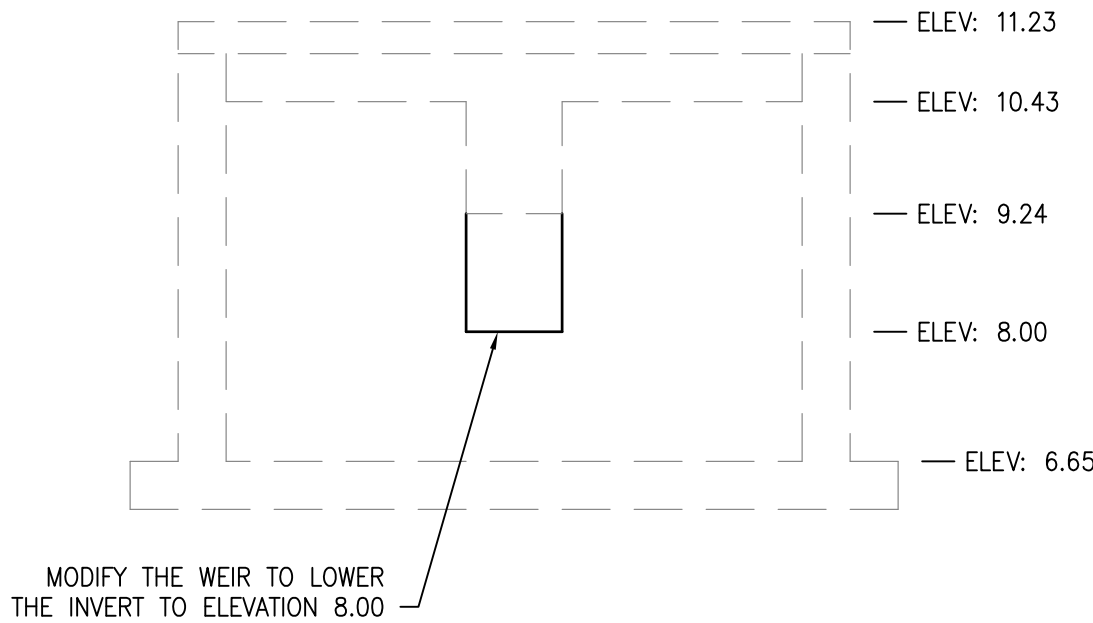
STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY WITHIN 24 HOURS AFTER SEEDING AND/OR PLANTING. THE MULCH MY BE SPREAD BY BLOWER-TYPE SPREADING EQUIPMENT, OTHER SPREADING EQUIPMENT OR BY HAND. MULCH SHALL BE APPLIED TO COVER 75% OF THE SOIL SURFACE.

WOOD CELLULOSE OR WOOD FIBER MULCH SHALL BE APPLIED UNIFORMLY WITH HYDRAULIC SEEDING EQUIPMENT.

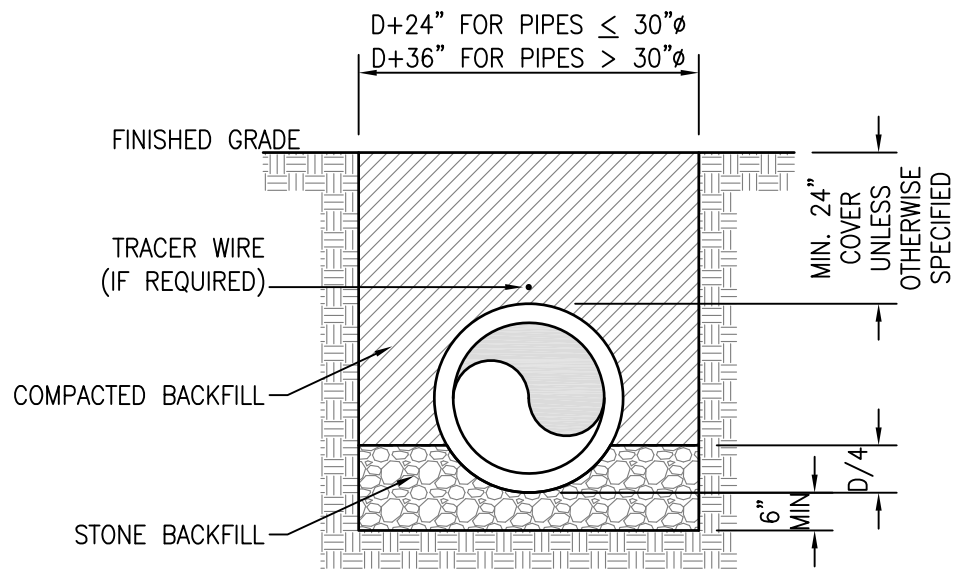
FERTILIZER: SEE CHART ABOVE FOR FERTILIZER REQUIREMENTS AND RATES.

PERMANENT GRASSING FERTILIZER RATES				
TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 LBS./AC. 1000 LBS./AC. 400 LBS./AC.	50-100 LBS./AC. 1/2/30
2. COOL SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 LBS./AC. 1000 LBS./AC. 400 LBS./AC.	0-50 LBS./AC. 1/
3. GROUND COVERS	FIRST SECOND MAINTENANCE	10-10-10 10-10-10 10-10-10	1300 LBS./AC. 3/ 1300 LBS./AC. 3/ 1100 LBS./AC.	
4. PINE SEEDINGS	FIRST	20-10-5	ONE 21-GRAM PELLET PER SEEDING PLACED IN THE CLOSING HOLE	
5. SHRUB LESPEDEZA	FIRST MAINTENANCE	0-10-10 0-10-10	700 LBS./AC. 700 LBS./AC.	
6. TEMPORARY COVER CROPS SEEDED ALONE	FIRST	10-10-10	500 LBS./AC.	30 LBS./AC. 5/
7. WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 LBS./AC. 800 LBS./AC. 400 LBS./AC.	50-100 LBS./AC. 2/6/ 50-100 LBS./AC. 2/ 30 LBS./AC.
8. WARM SEASON GRASSES & LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 LBS./AC. 1000 LBS./AC. 400 LBS./AC.	50 LBS./AC. 6/

- 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 PRUNED.
- 5/ APPLY TO GRASS SPECIES ONLY.
- 6/ APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.



MODIFICATIONS TO THE EXISTING STORM STRUCTURE



NOTES:

1. COMPACTED BACKFILL SHALL BE 100% STD COMPACTION FOR TRAFFIC AREAS AND 95% STD COMPACTION FOR NON-TRAFFIC AREAS.
2. STONE SHALL BE #57 STONE.
3. BACKFILLING SHALL BE ACCOMPLISHED WITH LAYERS NOT EXCEEDING 6" LIFTS TO 12" ABOVE THE PIPE THEN LAYERS NOT EXCEEDING 8" LIFTS TO FINISHED GRADE.

TYPICAL TRENCH SECTION

NTS

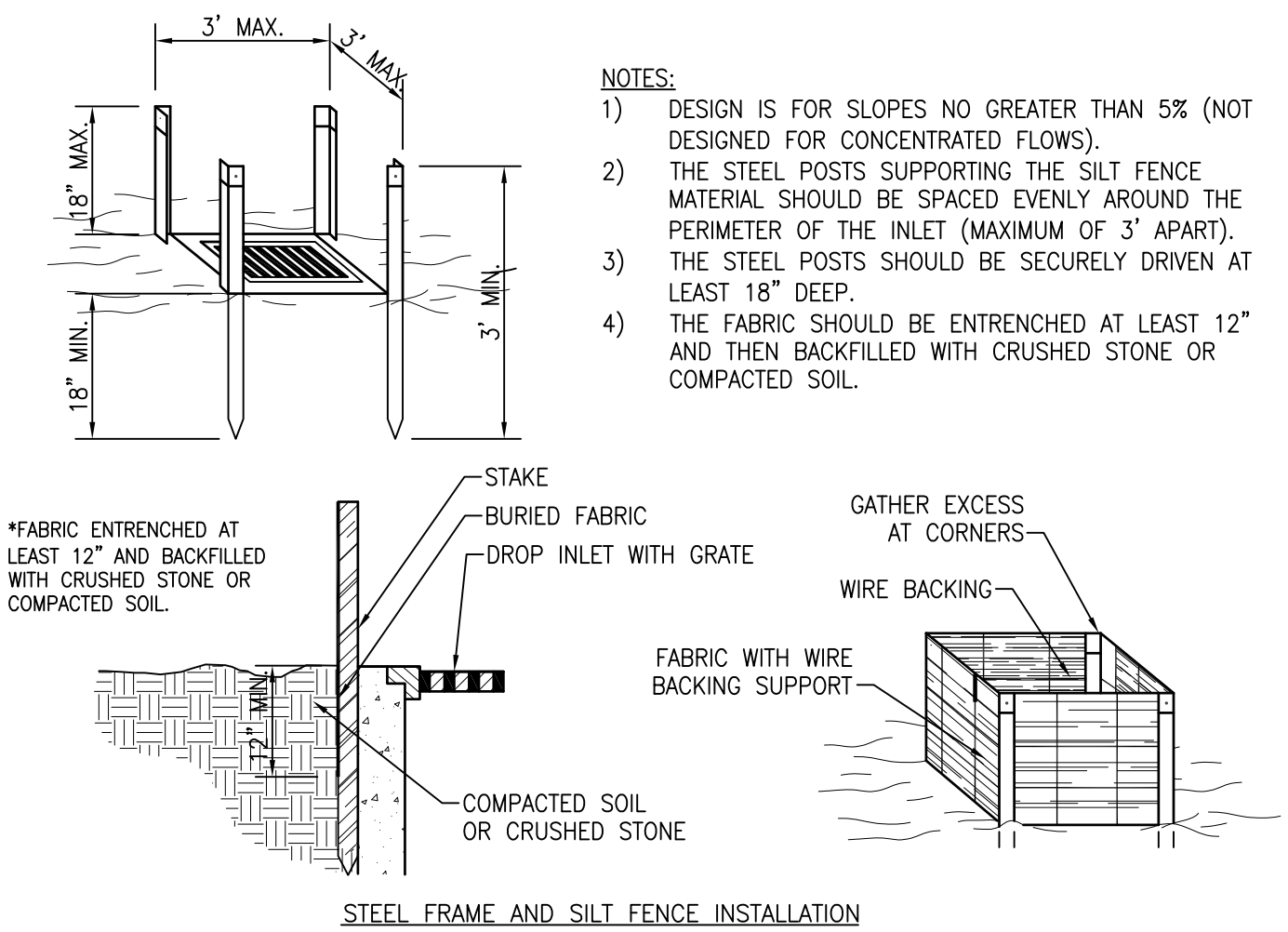
TEMPORARY GRASS	MONTH OF PLANTING	**SEEDING RATE/ACRE ALONE (PLS)	**SEEDING RATE/ACRE MIX (PLS)	REMARKS
[Ds2]				
ANNUAL LESPEDEZA ²	FEBRUARY	40 LBS.	10 LBS.	–
BARLEY	OCT – DEC	3 BU. (144 LBS.)	0.5 BU. (24 LBS.)	WINTER HARDY
BROWN TOP MILLET	APRIL – JUNE	40 LBS.	10 LBS.	QUICK DENSE COVER
OATS	SEPT – NOV	4 BU. (128 LBS.)	1 BU. (32 LBS.)	NOT AS WINTER HARDY AS RYE OR BARLEY
PEARL MILLET	APRIL – AUG	50 LBS.	–	NOT RECOMMENDED FOR MIXTURES
RYE	OCT – DEC	3 BU. (168 LBS.)	0.5 BU. (28 LBS.)	DROUGHT TOLERANT WINTER HARDY
RYEGRASS	SEPT – DEC	40 LBS.	–	NOT RECOMMENDED FOR MIXTURES
SUDAN GRASS	APRIL – JULY	60 LBS.	–	NOT RECOMMENDED FOR MIXTURES
TRITICALE	OCT – DEC	3 BU. (144 LBS.)	0.5 BU. (24 LBS.)	LOWER PART OF SOUTHERN COASTAL PLAIN
WEEPING LOVEGRASS	MARCH – MAY	4 LBS.	2 LBS.	–
WHEAT	OCT – DEC	3 BU. (180 LBS.)	0.5 BU. (30 LBS.)	–

PERMANENT GRASS	MONTH OF PLANTING	** SEEDING RATE/ACRE ALONE (PLS)	** SEEDING RATE/ACRE MIX (PLS)	REMARKS
[Ds3]				
BAHIA, PENSACOLA	MARCH – MAY	60 LBS.	30 LBS.	–
BERMUDA (HULLED)	MARCH – MAY	10 LBS	6 LBS.	FULL SUN
BERMUDA SPRIGS	APRIL – MAY	40 CU. FT	–	TIFT 44 OR TIFT 78 (78 FOR SOUTHER COASTAL PLAIN ONLY)
BERMUDA (UNHULLED)	NOV – JAN	10 LBS.	6 LBS.	PLANT W/TEMP COVER; I.E. WINTER ANNUALS
CENTPEDE	NOV – MAY	BLOCK SOD ONLY	BLOCK SOD ONLY	DROUGHT TOLERANT; WINTER HARDY
MAIDENCANE	FEB – MARCH	2' X 3' SPACING	2' X 3' SPACING	VERY WET SITES; RIVERBANKS & SHORELINES
PANICGRASS	MARCH – APRIL	20 LBS.	20 LBS.	GROWS WELL ON SAND DUNES, BORROW AREAS, & GRAVEL PITS
SERICEA LESPEDEZA (SCARIFIED)	MARCH – MAY	60 LBS.	–	EXCELLENT ON ROAD BANKS
SERICEA LESPEDEZA (SEED-BEARING HAY)	OCT– JAN	3 TONS	–	–
SERICEA LESPEDEZA (UNSCARIFIED)	SEPT – FEB	75 LBS.	–	MIX W/WINTER ANNUALS
WEEPING LOVEGRASS	MARCH – MAY	4 LBS.	2 LBS.	DROUGHT TOLERANT; ROAD BANKS

** SEEDING RATE CALCULATIONS:

- THE TERM PURE LIVE SEED (PLS) IS USED TO EXPRESS THE QUALITY OF SEED & TO DETERMINE THE AMOUNT OF SEED NEEDED TO ACHIEVE A GIVEN SEEDING RATE.
- PLS = % GERMINATION X % PURITY
- EXAMPLE: COMMON BERMUDA SEED : PLS = 70% GERMINATION X 80% PURITY = 56%
- WITH THE PLS %, ONE CAN DETERMINE THE AMOUNT OF SEED NEEDED.
- EXAMPLE: SEEDING RATE = 10 LBS PLS /ACRE X 56% PLS = 17.9 LBS/ACRE
- THEREFORE, 17.9 LBS OF SEED IS REQUIRED TO ACHIEVE A RATE OF 10 LBS/ACRE PLS

DISTURBED AREA STABILIZATION WITH GRASSING



STEEL FRAME AND SILT FENCE INSTALLATION

(Sd2–F)

FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION



CHATHAM COUNTY
DEPARTMENT OF ENGINEERING
124 BULL STREET, SUITE 430
SAVANNAH, GA 31401
PHONE: (912) 652-7800 FAX: (912) 652-7818

QUACCO ROAD OUTFALL DITCH
DRAINAGE IMPROVEMENTS
CHATHAM COUNTY

CONSTRUCTION NOTES AND DETAILS

DATE: 1.20.2022
DESIGNED: KDH
APPROVED:
SCALE: NTS

SHEET
C1



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

SHEET
C2