

INVITATION TO BID

**BID NO. 17-0051-4**

**PERRY COVE ROAD STORM DRAINAGE IMPROVEMENTS**

**PRE-BID CONFERENCE: 2:00 PM, JUNE 20, 2017**

**BID OPENING: 2:00 PM, JULY 6, 2017**

THE COMMISSIONERS OF CHATHAM COUNTY, GEORGIA

ALBERT J. SCOTT, CHAIRMAN

COMMISSIONER HELEN J. STONE

COMMISSIONER TABITHA ODELL

COMMISSIONER JAMES J. HOLMES

COMMISSIONER JAMES "JAY" JONES

COMMISSIONER BOBBY LOCKETT

COMMISSIONER DEAN KICKLIGHTER

COMMISSIONER PATRICK J. FARRELL

COMMISSIONER CHESTER A. ELLIS

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

     **X** SURETY REQUIREMENTS - **A Bid Bond of 5% with this ITB.**

     **X** PROPOSAL

     PLANS/SPECIFICATIONS – Plans must be purchased at Clayton Digital Reprographics by logging into [www.cdrepro.com](http://www.cdrepro.com). Login to DFS. New users must register. For technical support contact CDR at (912) 447-5445, fax (912) 233-7020 or email: [cdwest@cdrepro.com](mailto:cdwest@cdrepro.com).

     **X** BID SCHEDULE

     PERFORMANCE BOND – **Required at the time of contract.**

     PAYMENT BOND – **Required at the time of contract.**

     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 PARTICIPATION REPORT, G. SYSTEMATIC ALIEN VERIFICATION FOR ENTITLEMENTS

     **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 of Commissioners have 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/female 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/female 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) 790-1622

**Date: May 31, 2017**

**BID NO. 17-0051-4**

**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 Agent, at **The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia 31406 up to 2:00PM local time, JULY 6, 2017,** 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.

**A Pre-bid Conference** has been scheduled to be conducted at **Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia on JUNE 20, 2017, at 2:00 PM.,** to discuss the specifications and resolve any questions and/or misunderstanding that may arise. **You are encouraged to attend.**

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. The terms "disadvantaged business," "minority business enterprise," and "minority person" are more specifically defined and explained in the Chatham County Purchasing Ordinance and Procedures Manual, Article VII - Disadvantaged Business Enterprises Program.

**This project IS a Special Purpose Local Option Sales Tax (SPLOST) Project. See paragraph 2.25 for MBE/WBE participation goals.**

## **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.
  1. **Mailing Address: Chatham County Purchasing and Contracting, 1117 Eisenhower Drive, Suite C, Savannah, Georgia 31406.**
  2. **Hand Delivery: Purchasing Director, Chatham County Citizens Service Center, 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 **Failure to Bid:** If a bid is not submitted, the business should return this invitation to bid document, stating reason therefore, and indicate whether the business should be retained or removed from the County's bidders list.
- 1.6 **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.
- 1.7 **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.
- 1.8 **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>.
- 1.9 **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.
- 1.10 **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.
- 1.11 **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.

- 1.12 **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.
- 1.13 **Local Preference:** On 27 March 1998, the Board of Commissioners adopted a "**Local Vendor**" Preference Ordinance that gives the lowest Chatham County vendor submitting a responsible bid/quote the opportunity to match the lowest price offered by an out-of-County vendor. If the County vendor confirms in writing to match within 24 hours, the award will be made to the Chatham County vendor. The lowest Chatham County responsive bidder will be afforded the "right to first refusal". "Local Vendor" is defined as a business or supplier which operates and maintains a regular place of business within the geographical boundaries of Chatham County or one of the local Municipalities of the County AND all real and personal property taxes are paid prior to award of a contract or purchase. "**NOT APPLICABLE TO PUBLIC WORKS CONSTRUCTION PROJECTS AND REVENUE PRODUCING BIDS.**" However, contractors are encourage to apply the same method when awarding bids to local M/WBE businesses whenever possible in order to promote growth in Chatham County's economy.
- 1.14 **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 Board contract.

- 1.15 **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 Agent.

- 1.16 **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.
- 1.17 **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.**

- 1.18 **Immigration:** On 1 July , the Georgia Security and Immigration Compliance Act (SB 529, Section 2) became effective. All contractors and subcontractors with 100 or more employees entering into a contract or 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's 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.

## GENERAL CONDITIONS

- 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, A.S.T.M. 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 Agent's attention during the Pre-bid Conference or submitted in writing at least five (5) days preceding the bid opening date.
- 2.3 Not Used.
- 2.4 **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.
- 2.5 **Completeness:** All information required by Invitation for Bids/Proposals must be completed and submitted to constitute a proper bid or proposal.
- 2.6 **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.
- 2.7 **Guarantee/Warranty:** Unless otherwise specified by the County, the bidder shall unconditionally guarantee the materials and workmanship for one (1) year 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.
- 2.8 **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.

- 2.9 **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.
- 2.10 **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.
- 2.11 **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 be submit a bid for the purpose or restricting competition.
- 2.12 **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.
- 2.13 **Procurement Protests:** Objections and protests to any portion of the procurement process or actions of the County staff may be filed with the Purchasing Agent for review and resolution. The Chatham County Purchasing Procedures Manual, Article IX - Appeals and Remedies shall govern the review and resolution of all protests.
- 2.14 **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 unresponsive whenever such bidder/proposer cannot document the ability to deliver the requested product.

- 2.15 **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.

- 2.16 **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.**

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

- I. Name of the Producer (Contractor's insurance Broker/Agent).
- II. Companies affording coverage (there may be several).
- III. Name and Address of the Insured (this should be the Company or Parent of the firm Chatham County is contracting with).
- IV. A Summary of all current insurance for the insured (includes effective dates of coverage).
- V. A brief description of the operations to be performed, the specific job to be performed, or contract number.
- VI. 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.

2.16.2 **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.

2.16.3

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 are updated for the entire term of the County.

- 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.

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

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

Minimum Limits:

\$1 million per claim/occurrence

Coverage Requirement:

If claims-made, retroactive date must precede or coincide with the contract effective date or the date of the Notice to Proceed. The professional must state 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.

2.17 **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.

2.18 **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 Agent 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.

2.19 **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 Agent 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.

2.20 **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.

2.21 **Owner's Rights Concerning Award:** The Owner reserves the right, and sole and complete discretion to waive technicalities and informalities. The Owner further reserves the right, and sole and complete discretion to reject all bids and any bid that is not responsive or that is over the budget, as amended. In judging whether the bidder is responsible, the Owner will consider, but is not limited to consideration of, the following:

- a. Whether the bidder or principals are currently ineligible, debarred, suspended, or otherwise excluded from bidding or contracting by any state or federal agency, department, or authority;
- b. Whether the bidder or principals have been terminated for cause or are currently in default on a public works contract;
- c. Whether the bidder can demonstrate a commitment to safety with regard to Workers' Compensation by having an experience Modification Rate (EMR) over the past three years not having exceeded an average of 1.2; and
- d. Whether the bidder's past work provides evidence of an ability to successfully

complete public works projects within the established time, quality, or cost, or to comply with the bidder's contract obligations; and

- e. Whether the bidder has made a Good Faith Effort to meet local participation goals for local economic impact for Disadvantaged Business Enterprises and Small Business Enterprises.

#### **2.22 Owner's Right to Negotiate with the Lowest Bidder:**

In the event all responsive and responsible bids are in excess of the budget, the Owner, in its sole and absolute discretion and in addition to the rights set forth above, reserves the right either to (i) supplement the budget with additional funds to permit award to the lowest responsive and responsible bid, or (ii) to negotiate with the lowest responsive and responsible bidder (after taking all deductive alternates) only for the purpose of making changes to the Project that will result in a cost to the Owner that is within the budget, as it may be amended.

#### **2.23 Debarred or Suspended Subcontractors.**

CONTRACTOR shall not subcontract, and shall ensure that no subcontracts are awarded at any tier, to any individual, firm, partnership, joint venture, or any other entity regardless of the form of business organization, that is on the Federal Excluded Parties List System (EPLS) at <https://www.epls.gov> or the State of Georgia, DOAS, State Purchasing Exclusion listing, or other local government entity. This includes pending litigation or claims with the County or other government entities. Contractor shall immediately notify County in the event any subcontractor is added to a Federal, State or other Government Entity listing after award of the subcontract.

#### **2.24 Cone of Silence:**

Lobbying of Procurement Evaluation Committee members, County Government employees, and elected officials regarding this product or service solicitation, Invitation to Bid (ITB) or Request for Proposal (RFP) or contract by any member of a proposer's staff, or those people employed by any legal entity affiliated with an organization that is responding to the solicitation is strictly prohibited. Negative campaigning through the mass media about the current service delivery is strictly prohibited. Such actions may cause your proposal to be rejected.

#### **2.25 The Chatham County Board of Commissioners has adopted an aggressive program that establishes goals for minority/female, 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 "Good Faith Effort" in obtaining the goal established for M/WBE participation.

- b. The Chatham County Board of Commissioners adopted a policy establishing goals oriented to increase participation of minority and female owned businesses, through MBE/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 Minority/Female Business Enterprise participation.

**Goals established for this project is 30% Combined.**

- c. A Minority/Female Business Enterprise (M/WBE) is a business concern that is at least 51% owned by one or more minority/female individuals and whose daily business operations are managed and directed by one (1) or more of the minority/female owners.
- 2.26 **LIQUIDATED DAMAGES:** Failure to complete all work within **150** 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 **\$500** for each calendar day in excess of the authorized construction time.
- 2.26 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 M/WBEs. 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** 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 or M/WBE contractors/vendors please contact Connell C. Heyward, Chatham County Minority and Women Business Coordinator, 124 Bull Street, Suite 310, Savannah, Georgia 31401, (912) 652-7828 phone, or (912) 652-7951 fax. Email: [cheyward@chathamcounty.org](mailto:cheyward@chathamcounty.org)**

- 2.27 **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 RFPs 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 ITBs will be read allowed 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.

2.28 **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.

2.29 **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 three (3) years following completion.

2.30 **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.

Final cost of project and completion date.

Number of change orders.

Contracted project completion in days.

Project completed on time. Yes \_\_\_\_\_ No \_\_\_\_\_ Days exceeded \_\_\_\_\_.

List previous contracts your company performed for Chatham County by Project Title, date and awarded/final cost.

Has contractor ever failed to complete a project? If so, provide explanation.

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.**

### **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.

Should the Project begin within any one month, the first invoice shall cover the partial period from the beginning date of the Project through the last day of the month (or on a mutually agreeable time) in which it began. The invoices shall be submitted each month until the Project is completed. Invoices shall be itemized to reflect actual expenses for each individual task; also refer to the requirements concerning changes, delays and termination of work under Sections I-8, 9, and 10 of the contract. Each invoice shall be accompanied by a summary progress report which outlines the work accomplished during the billing period and any problems that may be inhibiting the Project execution. The terms of this contract are intended to supersede all provisions of the Georgia Prompt Pay Act.

As long as the gross value of completed work is less than 50% of the total contract amount, or if the contractor is not maintaining his construction schedule to the satisfaction of the engineer, the County shall retain 10% of the gross value of the completed work as indicated by the current estimate approved by the engineer.

After the gross value of completed work becomes to or exceed 50% of the total contract amount within a time period satisfactory to the County, then the total amount to be retained may be reduced to 5% of the gross value of the completed work as indicated by the current estimate approved by the engineer, until all pay items are substantially completed.

When all work is completed and time charges have ceased, pending final acceptance and final payment the amount retained may be further reduced at the discretion of the County.

The CONTRACTOR may submit a final invoice to the County for the remaining retainage upon COUNTY'S acceptance of the Certificate of Substantial Completion. Final payment constituting the entire unpaid balance due shall be paid by the COUNTY to the

CONTRACTOR when work has been fully completed and the contract fully performed, except for the responsibilities of the CONTRACTOR which survive final payment. The making of final payment shall constitute a waiver of all claims by Chatham County except those arising from unsettled liens, faulty or defective work appearing after substantial completion, failure of the work to comply with the requirements of the Contract Documents, or terms of any warranties required by the Contractor Documents or those items previously made in writing and identified by the COUNTY as unsettled at the time of final application for payment. Acceptance of final payment shall constitute a waiver of all claims by the CONTRACTOR, except those previously made in writing and identified by the CONTRACTOR as unsettled at the time of final application for payment.

**3.3 SURETY REQUIREMENTS and Bonds: (check where applicable)**

- X   A. Such bidder shall post a bid bond, certified check or money order made payable to the Chatham County Finance Department in the amount of 5% of the bid price.
- X   B. Contractor(s) shall be required at time of contract to shall post a payment/performance bond, certified check or money order made payable to the Chatham County Finance Department in the amount of 100% of the bid price if awarded the purchase. Such bond(s) are due prior to contract execution as a guarantee that goods meet specifications and will be delivered per contract. Such bonds will also guarantee quality performance of services and timely payment of invoices to any subcontractors.
- X   C. Whenever a bond is provided, it shall be executed by a surety authorized to do business in the State of Georgia and approved by Chatham County.
- X   D. Bidder acknowledges Chatham County's right to require a Performance and Payment Bond of a specific kind and origin. "Performance Bond" means a bond with good and sufficient surety or surities for the faithful performance of the contract and to indemnify the governmental entity for any damages occasioned by a failure to perform the same within the prescribed time. Such bond shall be payable to, in favor of, and for the protection of the governmental entity for which the work is to be done.

**"Payment Bond" means a bond with good and sufficient surety or sureties payable to the governmental entity for which the work is to be done and intended for the use and protection of all subcontractors and all persons supplying labor, materials, machinery, and equipment in the prosecution of the work provided for in the public works construction contract.**

- X   **E. Forfeit the amount of the Bid Bond if he/she fails to enter into a contract with Chatham County to do and/or furnish everything necessary to provide service and/or accomplish the work stated and/or specified in this bid proposal for the bid amount.**

**3.4 WARRANTY REQUIREMENTS:**

- a. Provisions of item 2.7 apply.
  - b. Warranty required.
- X
- 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 automatic renewal options for four (4) additional one (1) year terms if all parties agree)
- b. One-time Purchase
- X c. Other **ONE TIME CONTRACT**

**3.6 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 of all 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.

**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's. / e-mail

CHATHAM COUNTY, GEORGIA  
SURETY REQUIREMENTS

A Bid Bond for five percent (5%) of the amount of the bid is required to be submitted with each bid.

A Performance Bond for one hundred percent (100%) of the bid shall 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

## **PROPOSAL**

**SPECIFICATIONS FOR:**

**BID NO. 17-0051-4**

### **PERRY COVE ROAD STORM DRAINAGE IMPROVEMENTS**

The project is located in unincorporated Chatham County just north of U.S. Highway 80 as it nears its intersection with Islands Expressway. The project begins at the intersection of Kim Street and Perry Cove Road and extends some 2200 feet to the outfall discharge under Perkins Place.

The work will consist of furnishing all materials, labor and equipment for:  
Clearing and grubbing the right-of-way and easements to the extent shown on the plans,  
installation of storm drain pipes, construction or modification of open channels, utility  
adjustments and associated work as shown on the plans

**This shall be a Line Item contract.**

#### **COMMENCEMENT AND COMPLETION:**

**WORK SHALL BEGIN WITHIN 10 DAYS AFTER RECEIPT OF "NOTICE TO PROCEED". ALL WORK SHALL BE COMPLETED WITHIN 150 CALENDAR DAYS AFTER THE TEN DAY PERIOD.**

PERRY COVE STORM DRAINAGE IMPROVEMENTS  
 CHATHAM COUNTY, GEORGIA  
 JUNE, 2017  
 BID SCHEDULE

ITEM NUMBER	DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL COST
1	Mobilization	Job	Lump Sum	
2	Clearing	Job	Lump Sum	
3	Remove Pipe, All Sizes	760 LF		
4	Remove Drainage Structure	2 EA		
5	Remove Headwall	1 EA		
6	Grading	Job	Lump Sum	
7	Removal of Unsuitable Subgrade Material	200 CY		
8	Foreign Borrow, as directed by owner	400 CY		
9	24" Storm Drain Pipe	38 LF		
10	30" Storm Drain Pipe	272 LF		
11	36" Storm Drain Pipe	320 LF		
12	42" Storm Drain Pipe	96 LF		
13	35" x 53" Elliptical Storm Drain Pipe	248 LF		
14	Grate Inlet	1 EA		
15	Weir Inlet	3 EA		
16	Storm Manhole	1 EA		
17	GDOT Inlet, D-5	2 EA		
18	Headwall 1	Job	Lump Sum	
19	Maintenance of Flow	Job	Lump Sum	
20	Traffic Control	Job	Lump Sum	
21	Utility Coordination	Job	Lump Sum	
22	Lower Water Main	4 Ea		
23	Lower Water Service Line	4 EA		
24	Remove and Reset Water Meter	2 EA	Lump Sum	
25	Remove and Replace Asphalt Pavement	230 SY		
26	Remove and Replace Asphalt Drive	20 SY		
27	Remove and Replace Concrete Drive	54 SY		
28	Remove and Replace Concrete Sidewalk	19 SY		
29	Remove and Reset Mailbox	1 EA		
30	Type A Silt Fence	770 LF		
31	Inlet Sediment Trap	5 EA		
32	Slope Matting	40 SY		
33	Floating Silt Barrier	30 LF		
34	Temporary Grassing	2,000 SY		



ITEM NUMBER	DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL COST
35	Permanent Grassing	2,000 SY		
36	Riprap	150 SY		
37	NPDES Compliance	Job	Lump Sum	
38	Field Condition Allowance	Job	Lump Sum	\$20,000
Total, All Work				

NAME / TITLE

COMPANY

ADDRESS

PHONE / FAX NO'S.

E-MAIL

## 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.**

[illegible]

**SIGNED:** \_\_\_\_\_  
**CONTRACTOR**

# **PERRY COVE STORM DRAINAGE IMPROVEMENTS**

## **SPECIAL CONDITIONS**

### **SECTION 01600**

#### **PART 1 – PROJECT DESCRIPTION**

The project is located in unincorporated Chatham County just north of U.S. Highway 80 as it nears its intersection with Islands Expressway. The project begins at the intersection of Kim Street and Perry Cove Road and extends some 2200 feet to the outfall discharge under Perkins Place.

The work consists of clearing and grubbing the right-of-way and easements to the extent shown on the plans, installation of storm drain pipes, construction or modification of open channels, utility adjustments and associated work as shown on the plans. Compliance with requirements of the NPDES Georgia general permit, with the exception of stormwater monitoring, is included. Traffic will be impacted but roadway and property access must be maintained at all times. Capacity for stormwater flow must be maintained at all times, although temporary blockages are acceptable. A soil erosion and sedimentation control plan is provided and must be implemented prior to, and maintained during, construction. Coordination with utility providers is included.

#### **PART 2 – CONTRACT DOCUMENTS**

##### **2.1 Technical Specifications:**

01600	Special Conditions
02200	Excavation, Filling and Grading
02210	Erosion Control
02221	Excavation, Trenching and Backfilling for Utility Systems
02400	Storm Drainage System
03301	Cast-in-place Concrete

##### **2.2 Drawings:**

1	Cover Sheet
2	General Notes
3-4	Construction Plans
5-6	Erosion and Sediment Control Notes
7-8	Erosion and Sediment Control Plans
9-10	Erosion and Sediment Control Details
11-12	Construction Details
S1-S2	Structural Headwall Details

#### **PART 3 – PRE-CONSTRUCTION INSPECTIONS**

A pre-construction conditions video (standard DVD format) is required and must be submitted to Chatham County Department of Engineering for approval prior to start of any land disturbing work. Special emphasis shall be given to record pre-disturbance condition of roadways, driveways, buildings, utilities and other improvements located within or within 100 feet of the project limits.

This is in addition to other inspections and surveys required of the Contractor or performed by the County. The video shall be prepared by a photographer having experience in similar work and approved by the County. A voice narrative shall identify location and features of the pre-construction video. A typewritten version of the voice narrative shall be provided upon request. Still photographs with a detailed description log may be substituted for the video provided that level of coverage is similar.

#### **PART 4 - STAKING**

The County shall engage a surveyor registered by the State of Georgia to provide initial project control and demarcation of right-of-way and easement lines. Ongoing control of the project work shall be the responsibility of the Contractor. The cost to reestablish initial project controls damaged or lost due to construction activities shall be paid for by the Contractor. The Contractor shall provide access and schedule all work in order to accommodate the survey work by the County's surveyor.

#### **PART 5 – DOCUMENTATION**

5.1 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 with the contract documents. Missing or incomplete documentation of delivered materials may be cause for delay/denial of payment.
2. Copies of soil erosion and sedimentation, including NPDES, reports and forms completed during the pay period.
3. 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 6 – EROSION AND SEDIMENTATION CONTROL**

6.1 The Contractor shall be fully responsible for compliance with the Georgia Water Quality Control Act and completing the approved sediment and erosion control plan contained in the contract documents.

A. The design engineer shall accomplish shall accomplish the initial inspection of the Best Management Practice (BMP) system installation. The Contractor shall perform no land disturbing activities (other than that which is necessary for installation of the BMPs) until after the design engineer has provided to the Contractor a letter stating approval of the initial BMP installations.

B. The Contractor shall be responsible for all inspections of the BMP system (Excluding the initial inspections as described above) and for maintaining records at the site for inspection.

C. The Contractor shall provide the Owner copies of all inspection reports and other records which occur during a pay period with the pay request.

D. The Contractor shall be responsible for preparation of plans, applying for, and obtaining erosion control permit for any impacted areas, or lay down areas proposed by the contractor that are not included in the current plan documents.

## **PART 7 – FINES AND LIQUIDATED DAMAGES**

### **7.1 Fine**

A. A \$200 per day fee shall be assessed against the Contractor and withheld from the 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.

### **7.2 Liquidated Damages**

A. **Liquidated Damages shall be assessed at \$500 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 8 – ALLOWANCE**

### **8.1 Field Condition Allowance**

A. The Field Condition Allowance shown on the bid sheet shall belong to Chatham County. The purpose of this Allowance is to allow the County to designate actions associated with completion of the project which are not indicated on the plans, but which are dictated by field conditions. Bidders shall not use this Allowance to assume any Contractor costs known or unknown at the bidding. Chatham County must approve use of the Allowance. All bidders shall include this Field Condition Allowance within their base bid. Any unused allowance shall revert to Chatham County.

## **PART 9 – SPECIAL REQUIREMENTS OF CONSTRUCTION**

1. 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 County will not pay for testing in support of contractor operations/schedule. The contractor will be required to pay for failed tests.

2. Clearing debris may not be chipped and spread on the project site.
3. The project site may be accessed via U.S. Highway 80 and Kim Street. Construction exits will be required at the locations shown on the plans or as necessary to prevent soil deposition on pavement.
4. The Contractor shall comply with all local, state and federal regulations as they pertain to construction activities (erosion control, etc.).
5. All efforts have been made to identify every underground and above ground utility; 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 not shown to be abandoned shall be repaired immediately if broken during construction.
6. Work hours shall be limited to 7:00 am to 7:00 pm Monday through Friday and shall exclude weekends and holidays unless otherwise approved by Chatham County.
7. **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.
8. Watering past the date of substantial completion of the work shall be provided on seeded areas to achieve full coverage to match existing conditions and as accepted by Chatham County.
9. A detailed construction schedule for the project shall be provided to and approved by Chatham County prior to beginning demolition or construction.
10. It is anticipated that the work will be completed under traffic. The contractor shall plan to complete the work in a manner which allows one lane of traffic movement at all times. The County will consider contractor requests for road closures if the contractor can show or confirm that this action is in the best interest of the County and the project.

In either case, the contractor is responsible for providing all measures of traffic control including, but not limited to, flagmen, warning and directional signs, channelization devices, and barriers. If a closure is approved, the contractor shall develop the detour plan for County review and implement the detour if accepted.

The contractor shall develop a traffic control plan for review and approval by the County. No work shall commence on the site until the plan has been accepted.

11. Submittals for the following items are required:
  - Storm drain pipe
  - Storm drain structures

- Silt fence
  - Grassing
12. The contractor shall be responsible for the continued functioning of the storm drainage system throughout the course of the project.

## **PART 10 – MEASUREMENT AND PAYMENT**

### **10.1 Measurement**

The items listed in the proposal shall be considered as sufficient to complete the work in accordance with the drawings 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 in place. The unit of measurement shall be the unit shown on the bid form. Payment for unit price items shall be based upon the actual quantity multiplied by the unit prices. Where work is to be performed at a lump sum price, the lump sum shall include all operations and elements necessary to complete the work. No payment will be made for any material wasted, unused, rejected or used for the convenience of the Contractor.

### **10.2 Payment**

#### **A. Mobilization**

Mobilization of equipment and commencement of project. This will be paid lump sum price in the Bid Proposal and shall not to exceed 5% of the total bid price for the project.

#### **B. Clearing**

Clearing shall include removal of all vegetative materials such as trees, shrubs and grass as required to complete the work as shown on the plans. Removal of stumps and roots is a part of clearing. Demolition shall also include the removal of all manmade items required to complete the work as shown on the plans, with the exception of items specifically listed in the Bid Schedule. Payment shall be at the lump sum price in the Bid Proposal

#### **C. Remove Existing Pipe, All Sizes**

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove existing pipes and dispose of them off-site. Measurement shall be based on the actual linear feet of pipe, of whatever size type, removed as shown on the plans or directed by the owner.

D. Remove Drainage Structure

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the existing drainage structure and to dispose of it off-site.

E. Remove Headwall

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials, and equipment required to remove the headwall and to dispose of it off-site.

F. Grading

Payment shall be at the lump sum price in the Bid Proposal and shall include all labor, materials and equipment required. The item shall include bulk excavation, channel excavation, filling, and grading of channels and shoulders. The item shall also include construction staking, bonds, insurance and all other work required to complete the project and which is not covered by a separate item.

G. Remove Unsuitable Subgrade Material

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the material as directed by the owner and dispose of it off-site. Measurement shall be based on before and after cross sections or such other method as may be accepted by the owner.

H. Foreign Borrow

Payment shall be at the unit price in the Bid Proposal and shall include all labor, equipment and materials required to obtain, transport and install borrow material to replace subgrade or soil material determined by the owner to be unsuitable. Measurement shall be by trench sections or such other method as may be accepted by the owner. Foreign borrow shall include fill material required to install pipes or fill above them if the owner determines that the materials removed from the trench or excavated elsewhere on the site are not suitable for use on the project.

I. Storm Drainage

1. Pipe: The length of pipe will be paid for on a linear foot basis, as measured along the centerline, from end of pipe to end of pipe. Payment shall be at the unit price in the Bid Proposal for each storm pipe and will constitute full compensation for all pipes, joints, filter fabric, bedding,



trenching, excavation, backfill, compaction, dewatering, and all incidental labor and material necessary to complete the construction of the pipes as required by the plans and specifications.

2. Structures: Payment shall be made at the contract unit price for each type of structure. Payment should include all material, equipment and labor required to install the structures in accord with the contract documents. Structures include storm drain inlets, manholes, and headwalls.

J. Lower Water Main

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to lower the existing water main to avoid conflict with the proposed storm drain, including connecting to the existing pipe to remain.

L. Lower Water Service Line

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to lower the existing water service line to avoid conflict with the proposed storm drain, including connecting to the existing line.

M. Remove and Reset Water Meter

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the existing water meter, reset the meter as shown, and connect the existing and new service lines to the meter.

N. Remove and Replace Pavement

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the existing pavement as required for storm drain installation, dispose of it offsite and install the replacement section shown on the plans. The owner will determine whether proposed removal limits are acceptable; excessive pavement removal will not be paid for.

O. Remove and Replace Asphalt Drive

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the existing asphalt drive and base and to install the replacement driveway section noted on the plans.

Measurement shall be based on the actual number of square yards constructed as shown on the plans or directed by the owner.

P. Remove and Replace Concrete Drive

Payment shall be at the unit price in the Bid Proposal and shall include all labor, equipment required to remove the existing concrete drive, dispose of the material off-site, and install a replacement 6" thick concrete after the storm drain installation is complete. Measurement shall be based on the actual number of square yards of 6" thick concrete drive installed as shown on the plans or directed by the owner.

Q. Remove and Replace Concrete Sidewalk

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the existing sidewalk, dispose of the material off-site, and install a new 4" thick sidewalk after the storm drain installation is complete. Measurement shall be based on the actual number of square yards of sidewalk installed as shown on the plans or directed by the owner.

R. Traffic Control

Payment shall be at the lump sum price in the Bid Proposal and shall include all materials and labor required to control and maintain traffic movement through the work zone. This includes, but is not limited to, signs, barricades, flagmen, temporary and permanent markings and channelization devices.

S. Utility Coordination

Payment shall be at the lump sum price in the Bid Proposal and shall include all measures associated with coordinating the installation of the new storm drain with existing public and private utilities. This will include arranging for location and adjustments.

T. Maintenance of Flow

Payment shall be at the lump sum price in the Bid Proposal and shall include all materials, labor and equipment necessary to maintain the flow of stormwater, sanitary sewer and water as shown on the plans or directed by the owner.

U. Remove and Reset Mailbox

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to remove the existing mailbox, store it during work in the area, and reset the mailbox when work in the area is complete.

V. Silt Fence

Payment shall be at the unit price for each type in the Bid Proposal and shall include all labor, materials, and equipment required to install the silt fence, maintain it during the construction period, remove it when stabilization is completed, and restore the area where the fence was installed.

Measurement shall be on the basis of the actual number of linear feet of each type of silt fence installed as shown on the plans or directed by the owner.

W. Riprap

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to place the filter fabric and stone riprap. Measurement shall be based on the actual number of square yards placed as shown on the plans or directed by the owner.

X. Floating Silt Barrier

Payment shall be at the unit price in the Bid Proposal and shall include all labor, materials and equipment required to install the floating silt barrier, maintain it during the construction period and remove it when construction is complete. Measurement shall be based on the actual number of linear feet installed as shown on the plans or directed by the owner.

Y. NPDES Compliance

Payment shall be at the unit price in the Bid Proposal and shall include all measures required to comply with the Georgia general permit except for stormwater sampling, testing and reporting. Chatham County will engage a third party for stormwater sampling, testing and reporting.

Z. Grassing

Payment shall be at the unit price in the Bid Proposal for each type of grassing and shall include all labor, materials and equipment required to establish the temporary / permanent vegetation on the disturbed areas. This shall include watering and mowing until acceptance by the County. Measurement shall be based on the actual number of square yards of temporary / permanent grassing in place.

AA. Slope Matting

Payment shall be at the unit price in the Bid Proposal and shall include all labor, material and equipment to place matting on the channel slopes to prevent erosion until vegetation is established. Measurement shall be on the basis of the actual number of square yards of matting installed as shown on the plans or directed by the owner.

BB. Inlet Sediment Trap

Payment shall be at the unit price in the Bid Proposal and shall include all labor, equipment and materials required to install the sediment traps, maintain them during construction, and remove them when work is complete. Measurement shall be based on the actual number of sediment traps installed as shown on the plans or directed by the owner.

SECTION 02200  
EXCAVATION, FILLING AND GRADING

1. SCOPE:

Under this heading shall be included the following:

- a) Excavation required for structures.
- b) Sub-cut excavation as required or designated.
- c) Excavation as required for roadways.
- d) Shoring, sheeting and bracing as required.
- e) Wasting and disposal of excess or unsuitable materials.
- f) Furnishing and placing borrow material.
- g) Furnishing and placing granular foundation material.
- h) Compaction of all materials.
- i) Dewatering or unwatering as necessary to complete the excavations to the required depths and as necessary to maintain the excavation sufficiently dry so that all work can be accomplished.
- j) Site grading as required, including excavation and backfill.
- k) Preparation of subgrades.
- l) All other work specified herein.

Excavation and backfill for outside utility systems and other underground piping is specified in Section 02221 of these Specifications.

2. GENERAL:

The Contractor shall accept the site in its existing condition, and shall assume the risk of encountering whatever materials as may occur. Chatham County will hire a third party testing firm to perform required geotechnical and materials testing and field observations. Contractor shall coordinate his work and schedule through the County for the necessary testing.

3. SOILS:

No geotechnical investigation has been performed. The Contractor shall make his own determination of the soil structure and site conditions as they may affect the work.

4. DEWATERING AND PROTECTION AGAINST WATER:

The Contractor shall remove water from the site and shall lower the ground water level as necessary to complete the excavations to the required depths and as required to maintain the excavations sufficiently dry so that all required work can be accomplished. The Contractor shall do such well construction, well pointing, sheeting, ditching, diking and pumping and shall construct necessary drains, channels, sumps and cofferdams to keep his excavations and new structures clear of ground water, storm water or sewage and to keep his construction areas dry during the progress of the work and until the finished work is accepted by the Owner, except as otherwise specified.

The Contractor shall be responsible for the effect of dewatering operations on adjacent property and for the effect on water supplies located in the vicinity of the project.

Adequate measures and protection shall be provided by the Contractor to protect his work from damage from uplift due to ground water, storm water, or flood water. Any damages which may result shall be the Contractor's responsibility.

The Contractor shall accept all responsibility for damage to the work of this Contract because of floods and water pressures and other water damages and shall accept all risks of floods and other events which may occur.

All water discharged by pumping operations shall be discharged so as not to interfere with work under this Contract or with existing structures and operations. Route of dewatering pipe shall be subject to the Owner's review. Discharge facilities and water quality shall comply with applicable regulations of State and Federal agencies.

Dewatering operations shall be uninterrupted and continuous during the course of the work so as not to endanger any construction in place or to present a hazard to workmen in and around the site. The Contractor shall take all measures necessary including, but not limited to, standby equipment and constant attendance to ensure that the dewatering system remains operational and effective throughout the period of time that it is required.

5. MATERIALS:

a) Earth Fill.

Earth fill, including pavement subgrades, shall consist of all suitable materials from required excavations. Suitable materials for earth fill shall generally be composed of sands, clay-sand mixtures and silt-sand mixtures classified as SW, SP, SM or SC (low plasticity only) by the Unified Soil Classification System. Clay-sand and silt-sand mixtures must be approved by the soil technician prior to being incorporated in fills. Clays, silts, and organic soils will be considered as unsuitable materials.

b) Excavated Materials.

All suitable materials from excavations shall be used in the permanent construction required under these Specifications. Suitable materials shall be excavated separately from materials to be wasted and the suitable materials shall be segregated by loads during the excavation operations and shall be placed in temporary stockpiles and later placed in the designated locations. Excavated materials, which, after drainage, are suitable for the embankment but which, when excavated, are too wet for immediate compaction in the embankment, shall be placed temporarily in stockpiles until the moisture content is reduced sufficiently to permit them to be placed in the earth fills.

c) Excess Materials.

All excess material from required excavations shall be removed from the site unless written authorization is given by the Owner's representative to stockpile the material on the site.

6. EXCAVATION:

Excavation shall include the loosening, loading, removing, transporting, stockpiling and disposing of all materials, wet or dry, necessary to be removed to construct all structures included in this Contract to the lines and grades, and at the locations, shown on the Contract Drawings. Excavation for outside piping, storm sewers and utilities systems is included in other Sections of these Specifications.

Excavation for structures shall conform to the depth and dimensions necessary for the proper installation of all structures detailed on the Contract Drawings. Unless shown on the Drawings excavation shall not be carried below the elevations shown on the Drawings. Where bottoms of excavations are slightly unstable and the Drawings do not require a stabilized granular backfill and the Engineer does not direct additional excavation and replacement, the Contractor may provide a gravel course, but such work will be considered as for the Contractor's convenience and will not be considered as extra work.

Where any unauthorized excavation is made below the elevation indicated on the Contract Drawings, the excavation shall be restored to the proper elevation with compacted, well graded granular backfill. Such backfill shall be compacted as specified in the Article entitled "Compaction".

Excavation for pipes under and adjacent to structures shall be made after the installation of the granular backfill. Excavations shall be made to the required depths, grades, alignment, and trench widths required for the installation of the pipe. Temporary sheeting and bracing shall be used as required to confine the trench size and width. Trench size and width shall conform to the requirements in Section 02221.

Excavation shall be made for roadways and other site work to the required depths, grades and alignment.

Excavations, where conditions require, shall be properly shored, sheeted and braced by the Contractor to maintain excavation in a condition to permit the safe and efficient installation of all items of Contract work. Upon completion of the various Contract items, all temporary forms, shores and bracing shall be removed. While being withdrawn, all voids left by the sheeting and bracing shall be carefully filled with sand and compacted.

7. UNSUITABLE MATERIAL:

Where material encountered is unsuitable for subgrade construction of roads, buildings and walks, such material shall be excavated to the required depth of compaction (generally two feet below pavement base course), disposed of off the site and property of the Owner and replaced with suitable material. Unsuitable materials are those classified as MH, CH, OH, OL, and Peat in accordance with the Unified Soil Classification System. Excess water in material will not be a basis for establishing unsuitable material regardless of gradation. The Owner's representative shall be notified immediately upon encountering of unsuitable material.

8. BORROW:

It is anticipated that suitable material for required fill and backfill can be obtained from required excavation. Suitable materials shall be secured by the Contractor from off-site sources if required.

9. BACKFILLING:

All excavation shall be backfilled to the lines and grades shown on the Contract Drawings. Backfill adjacent to structures shall not be placed until forms, form lumber and all debris from construction has been entirely removed from around the work. No backfilling shall be done in unsuitable weather or over ground that is frozen or too wet.

Backfill shall not be placed against structures until the concrete has cured at least 7 days. Backfill, in general, shall be placed in horizontal layers not in excess of 12 inches in thickness, except in the cases of embankment construction around structures and under roadway and piping locations, where backfill shall be placed in 6 inch layers, with each layer thoroughly compacted as specified hereinafter, prior to the addition of the succeeding layer.

Fill immediately adjacent to walls shall be hand tamped and special care shall be taken to prevent any wedging action or eccentric loading against the walls.

Fill material shall be free of organics, roots or other deleterious materials, including frozen material, stones or cobbles over 6 inches in maximum dimension. It shall be non-plastic granular material containing less than 25 percent fines passing the No. 200 sieve.

10. COMPACTION:

a) General.

Compaction of earth fill and all pavement subgrades shall be performed to the percentages of maximum standard or modified dry densities and to the depths as shown on the drawing or as follows:

1. Subgrades Under Paved Areas and Structures.  
100 Percent Standard (ASTM Test D698) 24 inches
2. Pedestrian Traffic Subgrades.  
97 Percent Standard (ASTM Test D698) 12 Inches



3. Unpaved Areas To Be Grassed Or Sodded.  
95 Percent Standard (ASTM Test D698) Full Depth

b) Moisture Content.

All compaction shall be performed at material moisture contents within 3 percentage points, plus or minus of optimum. Compaction and proof rolling equipment shall be as may be required for the type of fill being compacted.

11. TESTING:

a) General.

Chatham County will select and employ an approved testing laboratory for the purpose of identifying soils, checking densities, and classifying soils materials during construction. Payment for the testing will be by the County, except for payments for retests due to failure of the original test, which will be debited from amounts due to the Contractor.. Copies of all test results shall be furnished to the Owner's representative.

The number and location of tests shall be determined by the Owner's representative in consultation with the Contractor.

b) Moisture Density Tests.

Testing shall be in accordance with ASTM Method D698. A test shall be performed on each type of material used in the work regardless of source. Tests will be accompanied by particle-size analyses of the soils tested (ASTM Methods D421 and D422). Changes in color, gradation, plasticity or source of fill material will require the performance of additional tests. Copies of all test results shall be furnished to the Owner's representative.

c) Field Density Tests.

Tests shall be made in accordance with ASTM Method D1556 and/or ASTM Method D 2922 or such other test as may be accepted by the Owner. If any compaction test reveals that fill or backfill is not compacted as specified, the Contractor shall scarify and recompact as required to achieve the specified density. Additional compaction tests shall be made to verify proper compaction. These additional tests, required due to failure of the original test, shall be paid for by the Contractor and not be reimbursed by the Owner.

d) Submittals.

The soils technicians will submit formal reports of all compaction tests and retests to the Contractor, and Owner's representative as soon as possible upon completion of the required tests.

This report information is to include but not be limited to the following:

1. Date of the test and date submitted.
2. Location of test.
3. Wet weight, moisture content and dry weight of field sample.
4. Description of soil.

5. Maximum dry density and moisture content of the lab sample which best matches the field sample in color, texture, grain size and maximum dry density.
6. Ratio of field dry density to maximum lab dry density expressed as a percentage.
7. Comments concerning the field density passing or failing the specified compaction.
8. Comments about recompaction if required.

e) Compaction Results.

The soils technician is to advise the Owner's representative and Contractor immediately of any compaction tests failing to meet the specified minimum requirements. No additional lift is to be placed on a lift with any portion failing.

12. GRADING:

Upon completion of other construction operations, the entire site, within the limits shown on the Drawings, shall be brought to the finished grades shown. All surfaces shall be sloped to the grades indicated and which will provide proper drainage. All surfaces shall be raked smooth and shall be free of all vegetable matter, debris and stones larger than 2-1/2 inches.

SECTION 02210  
EROSION CONTROL

1. SCOPE:

Under this section shall be included all measures both temporary and permanent to control erosion and sedimentation, and protect all surface waters and property both on and off site. This shall include all labor, materials and equipment necessary to meet the requirements of this Section.

2. GENERAL:

It is the intent of this Specification that the Project and the Contractor comply with all applicable requirements of the Erosion and Sedimentation Act of 1975, local regulations and ordinances, and the current edition of the Manual for Erosion and Sediment Control in Georgia. Chatham County will hire a third party NPDES firm to perform the required weekly and monthly inspections, sampling and reporting if this is necessary on the project. Contractor shall provide qualified personnel to perform the daily inspections indicated on the plans.

The Manual for Erosion and Sediment Control in Georgia further defines practices and requirements. The Contractor is responsible for maintaining all sediment and erosion control measures on the project site during construction. The Contractor is responsible for any damage caused due to failure to implement these requirements.

3. PLANS:

A Soil Erosion and Sedimentation Control Plan is included in the Contract Documents and is to be implemented as a part of the procedures necessary to implement requirements of the Act and applicable local regulations.

4. IMPLEMENTATION:

Implementation of the requirements of the Act is based on the following principles:

- a) The disturbed area and the duration of exposure to erosion elements should be minimized.
- b) Stabilize disturbed areas immediately.
- c) Retain or accumulate runoff.
- d) Retain sediment.
- e) Do not encroach upon watercourses.

5. SYMBOLS:

The Soil Erosion and Sedimentation Control Plan contains standard symbols for the different types of measures for implementing the Act. These symbols are defined for conditions, design criteria and construction specifications in Sections II and III of the Manual.

6. SPECIFIC REQUIREMENTS:

a) All disturbed areas shall be grassed by sodding or seeding, fertilizing, mulching and watering to obtain a ground cover which prevents soil erosion.

b) A temporary construction egress pad shall be installed and maintained at any point where construction vehicles enter a paved road, street or parking area. The pad shall be used to prevent mud from leaving the construction area. The pad shall be constructed as shown in the Manual for Erosion and Sediment Control.

c) All measures installed for sediment control shall be checked at the beginning and end of each day when construction is occurring to ascertain that the measures are in place and functioning properly.

d) Erosion control measures shall be inspected by the Contractor after each rainfall event and at least daily during prolonged periods of continuous rainfall. Contractor shall make repairs and adjustments as necessary to maintain the effectiveness of all sediment and erosion control measures.

e) All temporary erosion control measures shall be removed and disposed of off-site once final inspections are complete and vegetative cover is established. Final payment and/or retainage may not be released until the temporary measures are removed.

SECTION 02221  
EXCAVATION, TRENCHING AND BACKFILL FOR UTILITY SYSTEMS

1. SCOPE:

Under this heading shall be included the excavation, trenching and backfilling required for all underground utility systems.

Utility systems include sanitary sewers, storm sewers, water piping and force mains.

2. GENERAL:

Underground piping and utility systems which are to be installed in trenches whose lowest point of excavation is below the existing ground level, and which are unaffected by an excavation for structures, may be installed at any time during the course of the work. Piping and systems to be installed in or over fill, backfill or new embankments shall not be installed until all earthwork has been completed to rough grade, nor until settlement of the fill or embankment has taken place.

Braced and sheeted trenches and open trenches shall comply with all state laws and regulations, and local ordinances relating to safety, life, health and property. Also, this shall conform to the Occupational Safety and Health Standards for Excavations, Final Rule (29 CFR Part 1926) as printed in the October 31, 1989 issue of the Federal Register.

The sides and bottoms of the trenches shall be protected against any instability which may interfere with the proper laying of the pipe and as necessary for the safety of the workmen and others and as may be necessary to protect adjacent structures. Refer to safety requirements of the General Conditions and Special Conditions. Protective systems for trenches shall be utilized by the Contractor and shall conform with Section 1926.652, 29 CFR Part 1926, Final Rule.

3. LOCATION AND PROTECTION OF UTILITIES AND STRUCTURES:

It shall be the responsibility of the Contractor to acquaint himself with the location of all utilities and structures both present and proposed, also all existing surface structures which may be affected by work under the Contract. The location of any underground structures furnished, shown on the Plans or given on the site are based upon the available records but are not guaranteed to be complete or correct, and are given only to assist the Contractor in making a determination of the existence of underground structures.

Overhead utilities, poles, etc., shall be protected against damage by the Contractor, and if damaged by the Contractor, shall be replaced by him. The Contractor shall notify those who maintain utilities sufficiently in advance of the proposed construction so that they may locate, uncover and disclose such work. If the progress of construction necessitates the removal or relocation of poles, overhead utilities and obstructions, the Contractor shall make all arrangements and assume all costs of the work involved.

The Contractor shall provide for the continuance of the flow of any sewers, drains, water pipes, and water courses, and the like. Where such facilities, water courses, or electric overhead wires or conduits are interfered with by the work of the Contractor, the interruption shall be a minimum and shall be scheduled in advance with the Engineer and the utility owner.

The Contractor shall restore all facilities interfered with to their original condition or acceptable equivalent. The cost of such restoration or damage caused directly by his work shall be paid for by the Contractor and shall be included in the prices bid for the items to which it pertains.

4. EXCAVATION AND TRENCHING:

a) Excavation.

Excavate all materials encountered. See Article 9 for payment for removal of unsuitable materials.

b) Caution in Excavation.

The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures in the trench zone may be determined before being damaged. He shall be held responsible for the repair or replacement of such structures when broken or otherwise damaged because of his operations.

c) Subsurface Explorations.

The Contractor shall make explorations and excavations at no additional charge to the Owner to determine the location of existing underground structures.

d) Depth of Trench.

Utilities and other piping shall be laid in open trenches as shown and specified. Trenches shall be excavated to the designated lines and grades, beginning at the outlet end and progressing toward the upper end in each case. Trenches for pipe shall be shaped to the lower 1/3 of the pipe and provide uniform and continuous bearing. Bell holes shall be dug to allow ample room for working fully around each joint.

e) Width of Trench.

Trenches shall be of minimum width to provide ample working space for making joints and tamping backfill. Width on each side of barrel of pipe shall be as shown on the Plans. Sides of trenches shall be closely vertical to top of pipe and shall be sheet piled and braced where soil is of unstable nature. Above the top of the pipe, trenches may be sloped. The width of the trench above this level may be wider for sheeting and bracing and the performance of the work.

f) Alignment and Grade.

Trenches shall be excavated on the alignments shown on the Plans, and to the depth and grade necessary to accommodate the pipes at the elevations shown. Where

elevations of the invert or centerline of a pipe are shown at the ends of a pipe, the pipe shall be installed at a continuous grade between the two elevations.

g) Over Excavation.

Excavation in excess of the depth required for proper shaping shall be corrected by bringing to grade the invert of the trench with compacted coarse, granular material at no additional expense to the Owner. Bell holes shall be excavated to relieve bells of all load, but shall be small enough to ensure that support is provided throughout the length of the pipe barrel.

Excavation in excess of the depths required for manholes and other structures shall be corrected by placing a subfoundation of 1500 psi concrete, at no additional expense to the Owner.

If trenches are excavated to widths in excess of those specified, or if the trench walls collapse, the pipe shall be laid in accordance with the next better class of bedding at the expense of the Contractor.

5. TRENCHES:

Trenches shall be maintained in a safe condition to prevent hazardous conditions to persons working in or around the trench.

Braced and sheeted trenches and open trenches shall comply with all State and Federal Laws and Regulations, and local ordinances relating to safety, life, health and property.

The top portion of the trench may be excavated with sloping or vertical sides to any width which will not cause damage to adjoining structures, roadways, utilities, etc. The bottom of the trenches shall be graded to provide uniform bearing and support each section of the pipe on undisturbed soil at every point along its entire length, except for the portions of the pipe sections excavated for bell holes and for the sealing of pipe joints. Bell holes and depressions for joints shall be dug after the trench bottom has been graded and in order that the pipe rests upon the trench bottom for its full length and shall be only of such length, depth and width for making the particular type of joints. The bottom of the trench shall be rounded so that at least the bottom one-third of the pipe shall rest on undisturbed earth for the full length of the barrel as jointing operations will permit. This part of the excavation shall be done manually only a few feet in advance of the pipe laying by workmen skilled in this type of work.

The sides of all trenches and excavation for structures shall be held by stay bracing, or by skeleton or solid sheeting and bracing according to conditions encountered, to protect the excavation, adjoining property and for the safety of personnel. Bracing and shoring may be removed when the level of the backfilling has reached the elevation to protect the pipe work and adjacent property. When sheeting or shoring above this level cannot be safely removed, it may be left in place. Timber left in place shall be cut off at least 2 feet below the surface. No sheeting below the level of the top of the pipe may be removed.

6. DEWATERING AND PROTECTION AGAINST WATER:

The Contractor shall remove water from the site and shall lower the ground water level as necessary to complete the excavations to the required depths and so that all required work can be accomplished in the dry. The Contractor shall do such well construction, well pointing, sheeting, ditching, and pumping, and shall construct necessary drains, channels and sumps to keep his excavations and new structures clear of ground water, storm water or sewage and to keep his construction areas dry during the progress of the Work.

Adequate measures and protection shall be provided by the Contractor to protect his work from damage from uplift due to ground water, storm water, or flood water. Any damages which may result shall be the Contractor's responsibility.

The Contractor shall accept all responsibility for damage to the work of this Contract because of floods and water pressures and other water damages and shall accept all risks of floods and other events which may occur.

All water discharged by pumping operations shall be discharged so as not to interfere with work under this Contract or with existing structures and operations. Water from dewatering operations shall be conveyed to the existing drainage features, using piping and pumping facilities provided by the Contractor.

Route of dewatering pipe shall be subject to the Owner's review. Discharge facilities and water quality shall comply with applicable regulations of State and Federal agencies.

Dewatering operations shall be uninterrupted and continuous during the course of the work so as not to endanger any construction in place or to present a hazard to workmen in and around the site. The Contractor shall take all measures necessary including, but not limited to, standby equipment and constant attendance to ensure that the dewatering system remains operational and effective throughout the period of time that it is required.

No water shall be allowed to run over any uncompleted portions of the work. No units of the work shall be constructed under water. The cost of dewatering shall be included in the price bid for the item of work for which it is required.

7. PILING EXCAVATED MATERIALS:

All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing roadways.

8. LIMIT TO LENGTH OF OPEN TRENCH:

The routine of operation shall be so organized to keep the length of open trench to a practicable minimum.

9. REMOVAL OF UNSUITABLE BEDDING MATERIAL:

Where, in the opinion of the Owner's representative, the subgrade of the pipe trench is unsuitable material, the Contractor shall remove the unsuitable material 6" deep and furnish and



place stone backfill in the trench to stabilize the subgrade. 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. Stone backfill will be limited to areas where well pointing and other conventional methods of dewatering will not produce a dry bottom. Stone shall be placed 6" deep and 18" wider than the pipe at the barrel. The pipe shall be carefully bedded in the stone as specified or in accordance with the manufacturer's recommendations. Should overdepth excavation be necessary to remove unsuitable material below the specified bedding and to replace it with satisfactory material, the Contractor will be paid for this work, based on the following requirements:

a) Unsuitable materials for bedding are those classified as MH, CH, OL, OH and PT in accordance with the Unified Soil Classification System. Excavated soils that are too wet to compact shall not be classified unsuitable due to high moisture content alone.

b) When the trench is excavated to the plan depth or as required by these Specifications, and soft or other material not suitable for bedding purposes is encountered in the trench, the Contractor shall immediately notify the Owner's representative for inspection and measurement of the unsuitable material to be removed.

c) No overdepth excavation or backfilling of the overdepth excavated trench shall start until proper measurements of the trench have been taken by the Owner's representative for the determination of the quantity in cubic yards of unsuitable material excavated. Backfill material and backfilling shall conform to the requirements specified in Article 12 below.

d) No payment will be made for any overdepth excavation of soft unstable material due to the failure of the Contractor to provide adequate means to keep the trench dry.

e) No payment will be made for any overdepth excavation of the unsuitable material and replacement not inspected and measured by the Owner's representative prior to excavation.

#### 10. BEDDING OF CONCRETE PIPE:

Pipe shall be laid on foundations prepared in accordance with ASTM C12 as modified herein and in accordance with the various classes of bedding required by the trench width and trench depth for the size of pipe to be laid. Bedding shall be included in the appropriate unit price bid for concrete pipe.

a) Class "A" Bedding.  
Class "A" Bedding shall be achieved by either of the following two construction methods:

##### 1. Concrete Cradle.

The pipe shall be bedded in a monolithic cradle of plain or reinforced concrete having a minimum thickness under the pipe barrel of one-fourth the inside diameter of the pipe but in no case less than 4 inches and extending up the sides to a height of at least one-

fourth of the pipe outside diameter. The cradle shall have a width equal to the full width of the trench as excavated. The pipe shall be laid to line and grade on concrete blocking after which the concrete shall be placed to the limits described. Concrete shall be 3,000 psi concrete.

2. Concrete Arch.

The pipe shall be bedded in crushed stone or rounded gravel bedding material having a minimum thickness under the pipe barrel of one-fourth the outside diameter of the pipe but in no case less than 4 inches and shall extend up the sides of the pipe to the horizontal centerline. The top half of the pipe shall be covered with a monolithic plain or reinforced concrete arch having a thickness of one-fourth the inside diameter of the pipe but in no case less than 4 inches at the crown of the pipe. The arch shall have a width equal to the full width of the trench as excavated.

b) Class "B" Bedding.

Class "B" Bedding shall be achieved by either of two construction methods:

1. The bottom of the trench excavation shall be shaped to conform to a cylindrical surface with a radius at least 2 inches greater than the radius of the outside of pipe with a width sufficient to allow 6/10 of the width of the pipe barrel to be bedded in fine granular fill placed in the shaped excavation. Carefully compacted backfill shall be placed at the sides of the pipe to a thickness of at least 12 inches above the top of the pipe.

2. The pipe may be bedded in compacted crushed stone, placed on a flat trench bottom. The crushed stone bedding shall have a minimum thickness of 1/4 the outside pipe diameter and shall extend halfway up the pipe barrel at the sides. The remainder of the side fills and a minimum depth of 12 inches over the top of the pipe shall be billed with carefully compacted material.

c) Class "C" Bedding.

Class "C" Bedding shall be achieved by either of two construction methods:

1. The pipe shall be bedded in an earth foundation formed in the trench bottom by a shaped excavation which will fit the pipe barrel with reasonable closeness for a width of at least 50 percent of the outside pipe diameter. The side fills and area over the pipe to a minimum of 12 inches above the top of the pipe and shall be filled with compacted fill.

2. The pipe shall be bedded in compacted granular material placed on a flat trench bottom. The granular bedding shall have a minimum thickness of 4 inches under the barrel and shall extend 1/6 of the outside diameter up the pipe barrel at the sides. The remainder of the side fills and to a minimum depth of 12 inches over the top of the pipe shall be filled with compacted backfill. Class "C" Bedding shall be used except where the use of Class "A" or Class "B" bedding is shown on the Plans.

d) Class "D" Bedding.

Class "D" Bedding is achieved by shaping bell holes only on a flat trench and no care is taken to secure compaction at the sides and immediately over the pipe. This type bedding is not permitted.

e) Bell Holes.

Bell holes shall be provided in all classes of bedding to relieve pipe bells of all load, but small enough to insure that support is provided throughout the length of the pipe barrel.

f) Stone Bedding. (Backfill)

Stone Bedding material shall consist of crushed stone or pea gravel, clean and graded, 95 to 100 percent of which shall pass a 3/4 inch sieve with 95 to 100 percent retained on a No. 4 sieve. Bedding material shall be placed on a flat bottom trench and thoroughly compacted by tamping or slicing with a flat blade shovel. Compacted bedding material shall be extended up the sides of the pipe to the heights shown for the various classes of bedding.

g) Overwidth Excavation.

If trenches are excavated to widths in excess of those specified below, or if trench walls collapse, pipe shall be laid in accordance with the requirements for at least the next better class of bedding at the expense of the Contractor.

h) Borrow Backfill.

Borrow backfill will be required if there is not sufficient suitable material available from other parts of the work to backfill the trenches. Borrow backfill from approved borrow pits shall be used. Only those soils in the borrow pits that meet the specified requirements for suitable material shall be used.

i) Trench Widths.

Trench widths at the top of the pipe and depths for concrete pipes using the various bedding classes, shall not exceed those shown on the Plans.

11. BEDDING OF PVC PIPE:

a) Pipe shall be bedded true to line and grade with uniform and continuous support from a firm base in accordance with ASTM D2321 as modified herein. Blocking shall not be used to bring the pipe to grade. Bedding material shall be included in the unit price for PVC pipes.

b) Embedment materials listed here include a number of processed materials plus the soil types defined by the USCS Soil Classification Systems in ASTM D2487. These materials are grouped into categories according to their suitability for this application:

1. Class I.

Angular 6 to 40 mm (1/4 to 1-1/2 inches), graded stone including a number of fill materials that have regional significance such as coral, slag, cinders, crushed stone, and crushed shells.

2. Class II.

Coarse sands and gravels with maximum particle size of 40 mm (1-1/2 inches), including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW and SP are included in this class.

3. Class III.

Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Soil types GM, GC, SM and SC are included in this class.

4. Class IV.

Silt, silty clays and clays including inorganic clays and silts of medium to high plasticity and liquid limits. Soil types MH, ML, CH and CL are included in this class. These materials are not to be used for bedding, haunching or initial backfill.

5. Class V.

This class includes the organic soils OL, OH and PT as well as soils containing frozen earth, debris, rocks larger than 40 mm (1-1/2 inches) in diameter, and other foreign materials. These materials shall not be used for bedding, haunching or initial backfill.

c) Compaction of foundation, bedding, haunching and initial backfill shall extend to the trench wall.

d) Embedment material in the area around the pipe shall be installed with care. Care shall be used to ensure that sufficient material has been worked under the haunch of the pipe to provide adequate side support. Precautions must be taken to prevent movement of the pipe during placing of the material through the pipe haunch. Place initial backfill material in three stages: First, to the center line of the pipe; second, to the top of the pipe; and third, to a point 12 inches above the top of the pipe. Compact each stage of haunching and initial backfill by hand or mechanical tamping to a minimum of 90 percent Standard Proctor Density. Where unstable trench walls exist because of migratory materials such as waterbearing silts or fine sands, care shall be taken to prevent the loss of side support through the migratory action.

e) Avoid contact between the pipe and compaction equipment. Compaction of haunching, initial backfill and backfill material shall be done in such a way so that compaction equipment will not have a damaging effect on the pipe.

f) Trench depths, using the various bedding classes, shall not exceed those shown below:

### MAXIMUM TRENCH DEPTH

<u>Pipe Size</u>	<u>Class IV Bedding Not To Be Used</u>	<u>Class III Bedding</u>	<u>Class I or Class II Bedding</u>
All Sizes		16'	30'

Density (Standard Proctor) of 90 percent minimum in pipe zone.

g) ASTM D2321 "Underground Installation of Flexible Thermoplastic Sewer Pipe" shall be used in conjunction with the above.

#### 12. BACKFILLING:

Backfilling consists of placing suitable materials removed during the excavation into the excavated areas, placing embedment materials and compacting the same to a density equal to or greater than what exists before excavation or as specified herein.

Under backfilling operations is also included removal of excess materials and debris from the site, leveling all depressions caused by operation of equipment and maintaining the backfilled areas until accepted by the Owner.

All backfill material shall be free of stones, concrete and clay lumps larger than 1/3 cubic foot. Roots, stumps and rubbish which will decompose will not be permitted in the backfill. Backfill material shall have its moisture content corrected, as may be necessary before being placed in the trench to bring the moisture content to approximately "optimum" for good compaction. Any rock, stone, concrete, clay lumps larger than 1/3 cubic foot in volume, rubbish and debris shall be removed from the site and disposed of by the Contractor in a lawful manner.

Backfilling operations in this work are referred to herein as Backfilling at the Pipe Zone, Type "A" and Type "B".

Backfilling in the excavated areas below parts of proposed structures shall be referred to hereinafter as Type "A" Backfilling.

Where trenches cross or extend under structures or into present roadways, future roadways or parking areas as shown on the Plans, the backfilling shall be referred to hereinafter as Type "A" Backfilling.

Backfilling in all other areas shall be referred to hereinafter as Type "B" Backfilling.

#### a) Backfilling at the Pipe Zone.

Throughout the entire construction, backfilling at the pipe zone shall include bedding and shall be as follows: Backfill material shall be placed below, around each side, and

over the top of the pipe, in approximately horizontal layers to a height of 12 inches over the top of the pipe. Layers shall be of such thickness to facilitate the required compaction. This backfill shall be well compacted by using mechanical tamping equipment in such manner as not to damage the pipe, pipe joints or shift the pipe alignment. Workmen shall not be permitted to walk over the pipe until at least 12 inches of compacted fill has been placed over the pipe. The Contractor shall not use water to obtain compaction except for adding water to the backfill material before placing in the trench to bring the moisture content to approximately "optimum" for good compaction.

b) Type "A" Backfilling.

Type "A" backfilling consists of placing sand and gravel or other suitable materials excavated from the trench in the trench in 6 inch thick layers from a point 12 inches above the top of the pipe and mechanically tamped or compacted by rolling until the backfill density after compaction is equal to 98 percent of the maximum density obtainable at optimum moisture content as determined by the Standard Proctor Test (ASTM D698). No water shall be used to secure compaction except for adding water to the backfill material before placing in the trench to bring moisture content to approximately "optimum" for good compaction. Each 6 inch thick layer shall be mechanically tamped before additional backfill material is placed in the excavated area.

c) Type "B" Backfilling.

Type "B" Backfilling consists of placing sand and gravel or other suitable material excavated from the trench in the trench in 12 inch thick compacted layers from a point 12 inches above the top of the pipe. Each 12 inch thick layer shall be compacted before additional backfill material is placed in the excavation. Only mechanical tamping, use of roller or small tractor will be allowed. The density of the backfilled material after compaction shall be not less than 95 percent of the maximum density obtainable at optimum moisture content as determined by the Standard Proctor Test (ASTM D698). Except in the upper 12 inches, water shall be added to backfill material only before being placed in the trench in order to bring the moisture content to approximately "optimum" for good compaction.

13. UTILITY CONSTRUCTION IN OTHER EXCAVATION:

Where utilities are required to be constructed in areas also requiring excavation and backfill for other work, coordinate the work so that the parts come together properly and the construction of the various parts can be done without damage to other parts. Place bedding which will form bearing for pipes, using suitable material and shaping to the lower 1/3 of the pipe to provide uniform and continuous bearing. Compaction of backfill material which will form bearing shall be equal to that specified hereinbefore under Type "A" Backfilling. After the pipe or other utility is placed, backfilling shall proceed as specified hereinbefore following the requirements specified under "Backfilling at the Pipe Zone," "Type 'A' Backfilling", and "Type 'B' Backfilling" as applicable.

14. TESTING:

a) General.

Chatham County shall select an approved testing laboratory for the purpose of identifying soils, checking densities, and classifying soils materials during construction. All testing will be paid for by the County, except for retests of previous failures, which may be debited from funds due to the Contractor. Copies of all test results shall be furnished to the Owner's representative.

b) Moisture-Density Tests.

Testing shall be in accordance with ASTM Method D69. A test shall be performed on each type of material used in the work regardless of source. Tests will be accompanied by particle-size analyses of the soils tested (ASTM Methods D421 and D422). Changes in color, gradation, plasticity or source of fill material will require the performance of additional tests. Copies of all test results shall be furnished to the Owner's representative.

c) Field Density Tests.

Tests shall be made in accordance with ASTM Method D1556 or such other test as may be acceptable to the County. Tests shall be made in accordance with the following minimum schedule or as required by the soils technician or as may be directed by the Engineer:

One test for each lift of backfill for each 500 feet of trench or fraction thereof.

d) Submittals.

The soils technicians will submit formal reports of all compaction tests and retests. The reports are to be furnished to the Owner and the Owner's representative as soon as possible upon completion of the required tests.

This report information is to include but not be limited to the following:

1. Date of the test and date submitted.
2. Location of test.
3. Wet weight, moisture content and dry weight of field sample.
4. Description of soil.
5. Maximum dry density and moisture content of the lab sample which best matches the field sample in color, texture, grain size and maximum dry density.
6. Ratio of field dry density to maximum lab dry density expressed as a percentage.
7. Comments concerning the field density passing or failing the specified compaction.
8. Comments about recompaction if required.

e) Compaction Results.

If any compaction test reveals that fill or backfill is not compacted as specified, the Contractor shall scarify and recompact as required to achieve the specified density. Additional compaction tests shall be made to verify proper compaction. These additional tests, required due to failure of the original test, shall be paid for by the Contractor without reimbursement by the Owner.

The soils technician is to advise the Owner's representative and the Contractor's Superintendent immediately of any compaction tests failing to meet the specified minimum requirements. No additional lift is to be placed on a lift with any portion failing.

15. CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS:

a) Excavation, Trenching and Backfilling Operations.

Excavation, trenching and backfilling along highways, streets and roadways shall be in accordance with the applicable regulations of the State Highway Department and City of Pooler Engineer with reference to construction operations, safety, traffic control, road maintenance and repair.

b) Protection of Traffic.

Provide suitable signs, barricades and lights for protection of traffic, in locations where traffic may be endangered by construction operations. All signs removed by reason of construction shall be replaced as soon as condition which necessitated such removal has been cleared. No highway, street or roadway shall be closed without first obtaining permission from the proper authorities.

c) Construction Operations.

The Contractor shall construct all work along highways, streets and roadways using the following sequence of construction operations, so as to least interfere with traffic:

1. Stripping.

Where the pipe line is laid along road shoulders, sod, topsoil and other material suitable for shoulder restoration shall be stripped and stockpiled for replacement.

2. Trenching, Laying and Backfilling.

Excavate trenches, install pipe line and backfill. The trench shall not be opened any further ahead of pipe laying operations than is necessary for proper laying operations. Trenches shall be progressively backfilled and consolidated and excess material removed immediately.

3. Shaping.

Immediately after completing backfilling operation, reshape any damage to cut and fill slopes, side ditch lines, and shall replace top soil, sod and any other materials removed from shoulders.



d) Excavated Material.

Excavated material shall not be placed along highways, streets, and roadways in such manner as to obstruct traffic. Roadways and pavement will be maintained free of earth material and debris.

e) Drainage Structures.

All side ditches, culverts, cross drains and other drainage structures shall be kept clear of excavated material and be free to drain at all times.

f) Maintaining Highways, Streets, Roadways and Driveways.

The Contractor shall furnish a road grader which shall be available for use at all times for maintaining highways, streets and roadways. All such streets, highways and roadways shall be maintained in suitable condition until completion and final acceptance of the work.

Repair all driveways that are cut or damaged. Maintain them in suitable condition until completion and final acceptance of the work.

16. REMOVING AND RESETTING FENCES:

Where existing fences must be removed to permit construction, the Contractor shall remove such fences. As construction progresses, reset the fences in their original location and to their original condition. All costs of removing and resetting fences and such temporary works as may be required shall be included in the prices for the utility line.

17. PROTECTING TREES, SHRUBBERY AND LAWNS:

Trees and shrubbery along trench lines shall not be disturbed unless absolutely necessary. Trees and shrubbery necessary to be removed shall be properly heeled-in and replanted. Heeling-in and replanting shall be done under the direction of an experienced nurseryman. Where utility trenches cross established lawns, sod shall be cut, removed, stacked and maintained in suitable condition until replaced. Topsoil underlying lawn areas shall likewise be removed and kept separate from general excavated materials. Removal and replacement of sod shall be done under the direction of an experienced nurseryman.

SECTION 02400  
STORM DRAINAGE SYSTEM

1. SCOPE:

Under this heading shall be included all operations in connection with the installation of the storm drainage system.

2. EXCAVATION AND BACKFILL:

Excavation and backfilling shall be as specified in Section 02221, Excavation, Trenching and Backfilling for Utility Systems.

3. DELIVERY, STORAGE, AND HANDLING OF MATERIALS:

a) Delivery and Storage.

Materials delivered to site shall be inspected for damage, unloaded, and stored with the minimum of handling. Do not store materials directly on the ground. Inside of pipes and fittings shall be kept free of dirt and debris.

b) Handling.

Materials shall be handled in such a manner as to insure delivery to the trench in sound undamaged condition. Pipe shall be carried to the trench, not dragged. Gasket materials and plastic materials that are not to be installed immediately shall not be stored in the direct sunlight.

4. PIPE FOR CULVERTS AND STORM DRAINS:

Pipe for culverts and storm drains shall be as indicated and shall conform to requirements for the following types.

a) Concrete Pipe.

Except where noted pipe 12 inches and larger shall be reinforced concrete pipe conforming to ASTM C76, Class III. Pipe smaller than 12 inches shall be non-reinforced concrete pipe conforming to ASTM C14.

b) Concrete Elliptical Pipe.

Except where noted elliptical pipe 35" x 53" and larger shall be reinforced concrete elliptical pipe conforming to ASTM C507.

1) Joints.

Joints shall be made by use of a continuous rubber gasket conforming to the requirements of ASTM C443. Type II or III rubber gaskets shall be used on the pipe. Joints which do not fit tightly and uniformly shall be grouted after that segment of the line has been installed. All joints under pavement shall be wrapped with a two foot wide strip of non-woven filter fabric lapped two feet.

The assembly of the gasketed joint shall be performed as recommended by the pipe manufacturer. The elastomeric gaskets may be supplied separately in cartons or prepositioned in the bell joint or coupling at the factory. In all cases, clean the gasket, the bell or coupling interior, especially the groove spigot area to remove any dirt or foreign material before assembling. Inspect the gasket, pipe spigot bevel, gasket groove, and seating surfaces for damage or deformation. When gaskets are separate, use only gaskets which are designed for and supplied with the pipe. Insert them as recommended by the manufacturer.

Lubricant should be applied as specified by the pipe manufacturer. Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly.

5. DRAINAGE STRUCTURES:

Drainage structures shall be of the following types, constructed of the materials specified for each type and in accordance with the indicated details.

a) Manholes and Inlets.

Construction shall be of precast reinforced concrete, complete with frames and covers or gratings. Precast concrete manholes and inlets shall be designed for the required depth and to sustain the required wheel loads and/or surface pressures. When manholes and inlets are to be constructed of prefabricated materials, shop drawings shall be submitted for approval before ordering the material.

b) Connection to Existing Inlets and/or Manholes.

Pipe connections to existing inlets and/or manholes shall be in such a manner that the finished work will conform as nearly as practicable to the applicable requirements specified for new inlets and/or manholes, including all necessary concrete work, cutting and shaping.

6. MATERIALS FOR DRAINAGE STRUCTURES:

a) Mortar.

Mortar for connections to other drainage structures, and brick or block construction shall conform to ASTM C270, Type M, except the maximum placement time shall be one half hour.

Hydrated lime may be added to the mixture of sand and cement in a quantity equal to 25 percent of the volume of cement used. Hydrated lime shall conform to F.S. SS-L-351, Type M, or ASTM C141, Type A.

The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar but in no case shall exceed 5 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 after the ingredients are mixed with water.

b) Precast Reinforced Concrete Manholes.

Manholes shall conform to ASTM C478 or AASHTO M199. Joints between precast concrete risers and tops shall be flexible plastic gasket and shall provide a flexible watertight joint. Flexible plastic gasket shall be RAM-NEK or equal.

c) Bricks.

Bricks shall conform to ASTM C62, Grade SW; ASTM C55, Grade S-I or S-II; or ASTM C32, Grade MS. 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 a quantity not more than 25 percent of the volume of cement. The joints shall be filled completely and shall be smooth and free from surplus mortar on the inside of the structure. Brick structures shall be plastered with 3/4 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. For round structures, brick shall be laid radially with every sixth course a stretcher course.

d) Frame and Cover or Gratings.

Fabrication shall be from one or more of the material options presented in F.S. RR-F-621, except the malleable cast iron option shall conform to ASTM A220, Grade 40010. Weight, shape, size and waterway openings for grates and curb inlets shall be as indicated on the plans. Frames and covers for curb inlets and for areas not subject to vehicular traffic or storage may be malleable iron if so indicated. Malleable iron frames and covers shall conform to ASTM A220 and shall be of the weight, shape and size indicated.

7. BEDDING:

See Section 02221 "Excavation, Trenching and Backfill for Utility Systems," for additional requirements.

8. PLACING PIPE:

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. Pipe shall be moved horizontally into place by use of a winch or other suitable means. A backhoe bucket or other means which could damage the pipe shall not be used. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. All pipe in place shall be inspected before backfilling, and those damaged during placement shall be removed and replaced at no additional cost to the Owner. No additional compensation will be given to the Contractor for the required diversion of drainage and/or dewatering of trenches.

9. BACKFILLING:

Backfilling shall be done in accordance with Section 02221, "Excavation, Trenching and Backfill for Utility Systems."

10. STONE RIPRAP:

a) Materials.

The stone used for stone slope protection shall be sound, rough, dense and resistant to the action of air and water and satisfactory to the Owner's representative. The stone shall have a density of not less than 150 pounds per cubic foot. Neither the breadth nor the thickness of any piece of stone shall be less than one-third of its length. The stone will be subject to inspection on delivery and if found to be improper gradation or quality, it will be rejected. The stone shall consist of quarry run sizes, graded as specified below:

STONE SLOPE PROTECTION

SIZE OF STONE	PERCENT OF TOTAL WEIGHT SMALLER THAN THE GIVEN SIZE
------------------	--------------------------------------------------------

Class I

100 lb.	100
60 lb.	80
25 lb	50
2 lb.	Not to Exceed 10

b) Placement.

The slope protection shall be placed in such a manner as to produce a reasonable well-graded mass of material with the minimum practicable percentage of voids, and shall be constructed within the limits and to the lines, grades, and sections shown on the Plans. A tolerance of plus 6 inches or minus 3 inches from the limits shown on the Plans will be allowed in the finished surface on the slope protection except that the extreme of this tolerance shall not be continuous over an area greater than 100 square feet. Filter fabric (Mirafi 700X or approved equal) shall be placed and toed-in before placing riprap. Materials shall be placed in horizontal layers starting on the lower edge of the section and worked up the slope. Dumping down the slope will not be permitted. Materials shall not be dropped from a height greater than 3 feet. Any damage to the slope due to the fault of the Contractor shall be repaired at no expense to the Owner.

## SECTION 03301

### CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
  - 1. Foundations including headwall foundations.
  - 2. Concrete walls.
  - 3. Foundation walls.
  - 4. Slabs-on-grade.
- B. Related Sections include the following:
  - 1. Section 02200 "Excavation, Filling and Grading".

##### 1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

##### 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- C. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."
- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
3. ACI 318, "Building Code Requirements for Reinforced Concrete".
4. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice".

- E. Supervision: All reinforced concrete construction shall be performed under the personal supervision of the contractor's superintendent. The superintendent shall keep a record of all concrete placed on the job. The record shall show in detail the area placed, the time and date of the placement and weather conditions which existed at the time of placement. Upon completion of the work, this record shall be turned over to the Engineer.
- F. Concrete Testing Service: Owner shall engage a qualified independent testing agency to perform material evaluation tests.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
  2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

#### 2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
  2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
    - a. High-density overlay, Class 1 or better.
    - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
    - c. Structural 1, B-B or better; mill oiled and edge sealed.
    - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.
- D. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- F. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- G. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- H. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
  2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
  3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

## 2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.



- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- C. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.
- D. Plain-Steel Wire: ASTM A 82.
- E. Deformed-Steel Wire: ASTM A 496.
- F. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.
- G. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

## 2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
  - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
  - 3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.
  - 4. For foundations, support reinforcing a maximum of 4'-0" on center.

## 2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type II. Supplement with the following:
    - a. Fly Ash: ASTM C 618, Class F.
    - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Silica Fume: ASTM C 1240, amorphous silica.

- C. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source .
  - 1. Maximum Coarse-Aggregate Size: 1 inch nominal.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C 94/C 94M and potable.

## 2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.
  - 1. Available Products:
    - a. Boral Material Technologies, Inc.; Boral BCN.
    - b. Euclid Chemical Company (The); Eucon CIA.
    - c. Grace Construction Products, W. R. Grace & Co.; DCI.
    - d. Master Builders, Inc.; Rheocrete CNI.
    - e. Sika Corporation; Sika CNI.
- D. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
  - 1. Available Products:

- a. Axim Concrete Technologies; Catexol 1000CI.
- b. Boral Material Technologies, Inc.; Boral BCN2.
- c. Cortec Corporation; MCI 2000.
- d. Grace Construction Products, W. R. Grace & Co.; DCI-S.
- e. Master Builders, Inc.; Rheocrete 222+.
- f. Sika Corporation; FerroGard-901.

## 2.7 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

- 1. Available Products:

- a. Axim Concrete Technologies; Cimfilm.
- b. Burke by Edoco; BurkeFilm.
- c. ChemMasters; Spray-Film.
- d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Aquafilm.
- e. Dayton Superior Corporation; Sure Film.
- f. Euclid Chemical Company (The); Eucobar.
- g. Kaufman Products, Inc.; Vapor Aid.
- h. Lambert Corporation; Lambco Skin.
- i. L&M Construction Chemicals, Inc.; E-Con.
- j. MBT Protection and Repair, Div. of ChemRex; Confilm.
- k. Meadows, W. R., Inc.; Sealtight Evapre.
- l. Metalcrete Industries; Waterhold.
- m. Nox-Crete Products Group, Kinsman Corporation; Monofilm.
- n. Sika Corporation, Inc.; SikaFilm.
- o. Symons Corporation, a Dayton Superior Company; Finishing Aid.
- p. Unitex; Pro-Film.
- q. US Mix Products Company; US Spec Monofilm ER.
- r. Vexcon Chemicals, Inc.; Certi-Vex EnvioAssist.

- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Available Products:

- a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
- b. Burke by Edoco; Aqua Resin Cure.
- c. ChemMasters; Safe-Cure Clear.
- d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; W.B. Resin Cure.
- e. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
- f. Euclid Chemical Company (The); Kurez DR VOX.
- g. Kaufman Products, Inc.; Thinfilm 420.
- h. Lambert Corporation; Aqua Kure-Clear.
- i. L&M Construction Chemicals, Inc.; L&M Cure R.
- j. Meadows, W. R., Inc.; 1100 Clear.
- k. Nox-Crete Products Group, Kinsman Corporation; Resin Cure E.
- l. Symons Corporation, a Dayton Superior Company; Resi-Chem Clear Cure.
- m. Tamms Industries, Inc.; Horncure WB 30.
- n. Unitex; Hydro Cure 309.
- o. US Mix Products Company; US Spec Maxcure Resin Clear.
- p. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Available Products:

- a. Anti-Hydro International, Inc.; AH Clear Cure WB.
- b. Burke by Edoco; Spartan Cote WB II.
- c. ChemMasters; Safe-Cure & Seal 20.
- d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Cure and Seal WB.
- e. Dayton Superior Corporation; Safe Cure and Seal (J-18).
- f. Euclid Chemical Company (The); Aqua Cure VOX.
- g. Kaufman Products, Inc.; Cure & Seal 309 Emulsion.
- h. Lambert Corporation; Glazecote Sealer-20.
- i. L&M Construction Chemicals, Inc.; Dress & Seal WB.
- j. Meadows, W. R., Inc.; Vocomp-20.
- k. Metalcrete Industries; Metcure.
- l. Nox-Crete Products Group, Kinsman Corporation; Cure & Seal 150E.
- m. Symons Corporation, a Dayton Superior Company; Cure & Seal 18 Percent E.
- n. Tamms Industries, Inc.; Clearseal WB 150.
- o. Unitex; Hydro Seal.
- p. US Mix Products Company; US Spec Hydrasheen 15 percent

- q. Vexcon Chemicals, Inc.; Starseal 309.
- G. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- 1. Available Products:
    - a. Burke by Edoco; Spartan Cote WB II 20 Percent.
    - b. ChemMasters; Safe-Cure Clear.
    - c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; High Seal.
    - d. Dayton Superior Corporation; Safe Cure and Seal (J-19).
    - e. Euclid Chemical Company (The); Diamond Clear VOX.
    - f. Kaufman Products, Inc.; SureCure Emulsion.
    - g. Lambert Corporation; Glazecote Sealer-20.
    - h. L&M Construction Chemicals, Inc.; Dress & Seal WB.
    - i. MBT Protection and Repair, Div. of ChemRex; MasterKure-N-Seal VOC.
    - j. Meadows, W. R., Inc.; Vocomp-20.
    - k. Metalcrete Industries; Metcure 0800.
    - l. Nox-Crete Products Group, Kinsman Corporation; Cure & Seal 200E.
    - m. Sonneborn, Div. of ChemRex; Kure-N-Seal.
    - n. Symons Corporation, a Dayton Superior Company; Cure & Seal 18 Percent E.
    - o. Tamms Industries, Inc.; Clearseal WB STD.
    - p. Unitex; Hydro Seal 18.
    - q. US Mix Products Company; US Spec Radiance UV-25
    - r. Vexcon Chemicals, Inc.; Starseal 0800.
- H. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- 1. Available Products:
    - a. Burke by Edoco; Cureseal 1315.
    - b. ChemMasters; Spray-Cure & Seal Plus.
    - c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Sealcure 1315.
    - d. Dayton Superior Corporation; Day-Chem Cure and Seal (J-22UV).
    - e. Euclid Chemical Company (The); Super Diamond Clear.
    - f. Kaufman Products, Inc.; Sure Cure 25.
    - g. Lambert Corporation; UV Super Seal.
    - h. L&M Construction Chemicals, Inc.; Lumiseal Plus.
    - i. Meadows, W. R., Inc.; CS-309/30.

- j. Metalcrete Industries; Seal N Kure 0.
  - k. Sonneborn, Div. of ChemRex; Kure-N-Seal 5.
  - l. Tamms Industries, Inc.; LusterSeal 300.
  - m. Unitex; Solvent Seal 1315.
  - n. US Mix Products Company; US Spec CS-25
  - o. Vexcon Chemicals, Inc.; Certi-Vex AC 1315
- I. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
1. Available Products:
- a. Burke by Edoco; Cureseal 1315 WB.
  - b. ChemMasters; Polyseal WB.
  - c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Sealcure 1315 WB.
  - d. Euclid Chemical Company (The); Super Diamond Clear VOX.
  - e. Kaufman Products, Inc.; Sure Cure 25 Emulsion.
  - f. Lambert Corporation; UV Safe Seal.
  - g. L&M Construction Chemicals, Inc.; Lumiseal WB Plus.
  - h. Meadows, W. R., Inc.; Vocomp-30.
  - i. Metalcrete Industries; Metcure 30.
  - j. Symons Corporation, a Dayton Superior Company; Cure & Seal 31 Percent E.
  - k. Tamms Industries, Inc.; LusterSeal WB 300.
  - l. Unitex; Hydro Seal 25.
  - m. US Mix Products Company; US Spec Radiance UV-25.
  - n. Vexcon Chemicals, Inc.; Vexcon Starseal 1315.

## 2.8 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types I for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Reglets: Fabricate reglets of not less than 0.0217-inch- thick, galvanized steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- F. Dovetail Anchor Slots: Hot-dip galvanized steel sheet, not less than 0.0336 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

## 2.9 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
  4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

## 2.10 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

Contractor/supplier shall be responsible for preparing mix designs for Owner review and approval.

- B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
  - 2. Combined Fly Ash and Pozzolan: 25 percent.
  - 3. Ground Granulated Blast-Furnace Slag: 50 percent.
  - 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
  - 5. Silica Fume: 10 percent.
  - 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
  - 7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, and concrete with a water-cementitious materials ratio below 0.50.
  - 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
- E. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

## 2.11 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Concrete: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.47.



3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size. For exterior concrete.
5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size. For exterior concrete.

## 2.12 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.13 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
  1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
  2. Provide batch ticket for each batch discharged and used in the Work indicating Project identification name and number, date, mix type, time, quantity and amount of water.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
  1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
  2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
  3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Provide Class A for concrete surfaces exposed to view and inside of tank walls. Provide Class C for other concrete surfaces.
- C. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- D. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
  - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
  - 2. Class B, 1/4 inch Class C, 1/2 inch Class D, 1 inch for rough-formed finished surfaces.
- E. Construct forms tight enough to prevent loss of concrete mortar.
- F. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete.

- J. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- K. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- L. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- M. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  - 3. Install dovetail anchor slots in concrete structures as indicated.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
  - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
  - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

### 3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
  - 1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer. Wet the joint prior to subsequent pour. Remove any standing water prior to pour. Subsequent pours shall be a minimum of 48 hours apart.
  - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
  2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
  2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
  3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  2. Maintain reinforcement in position on chairs during concrete placement.
  3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  4. Slope surfaces uniformly to drains where required.
  5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  1. Apply to concrete surfaces not exposed to view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities. Apply to all visible surfaces.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces except at walkways. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

### 3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Broom Finish: Apply a broom finish to exterior concrete.
  1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

### 3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions

after placing, screeding, and bull floating or darbying concrete, but before float finishing.

- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue moist curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
    - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
    - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
    - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
  - 2. Curing Compound: Apply curing compound on exposed interior slabs and on exterior slabs, walks and curbs. Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

### 3.10 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.



1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

### 3.11 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch

wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

### 3.12 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner shall engage a qualified testing agency to perform tests and to submit reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
  - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C 31/C 31M.
  - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
  - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
  - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
  - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified

compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

11. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device (Windsor Probe not Swiss Hammer) may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate dos not comply with the Contract Documents.

END OF SECTION

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 procurement Perry Cove Storm Drainage Improvements (PROJECT) 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 **Perry Cove Storm 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 women 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 \_\_\_\_\_, \_\_\_, 201\_\_ 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 \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
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 \_\_\_\_\_, \_\_\_, 201\_\_ 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 \_\_\_\_\_, 201\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:

\_\_\_\_\_

**ATTACHMENT E**

**CHATHAM COUNTY, GEORGIA**

**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 or 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.

Bidder must verify Sub-Tier Contractors and Suppliers are not debarred, suspended, ineligible, pending County litigation or pending actions from any of the above government entities.

**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 Women 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:

## REFERENCE FORM

**REFERENCES - \$499,999 or more:** On July 25, 2003 the Board of Commissioners directed that all construction projects with a bid of \$499,999 or less, for bidders to be responsive each must provide information on the most recent three (3) projects with similar scope of work as well as other information to determine experience and qualifications as follows. 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

- a. Project Name: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Owner: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City and State: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone & Fax: \_\_\_\_\_  
 \*Architect or Engineer: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone & Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_
- 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 FORM**

**REFERENCES - \$499,999 or more:** On July 25, 2003 the Board of Commissioners directed that all construction projects with a bid of \$499,999 or less, for bidders to be responsive each must provide information on the most recent three (3) projects with similar scope of work as well as other information to determine experience and qualifications as follows. 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

- a. Project Name: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Owner: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City and State: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone & Fax: \_\_\_\_\_  
 \*Architect or Engineer: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone & Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_
- 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 FORM

**REFERENCES - \$499,999 or more:** On July 25, 2003 the Board of Commissioners directed that all construction projects with a bid of \$499,999 or less, for bidders to be responsive each must provide information on the most recent three (3) projects with similar scope of work as well as other information to determine experience and qualifications as follows. 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

- a. Project Name: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Owner: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City and State: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone & Fax: \_\_\_\_\_  
 \*Architect or Engineer: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Phone & Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_
- 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 BID

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. **ORIGINAL SURETY BOND (5% OF BID) ALONG WITH SURETY REQUIREMENTS SHEETS FILLED OUT.**
3. **BID SHEET COMPLETELY FILLED OUT AND SIGNED.**
4. **"LIST OF SUBCONTRACTORS" SHEET FILLED OUT WITH ALL SUBCONTRACTORS AND SUPPLIERS.**
5. **"% 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.**
6. SECTION 2.31 OF ITB - **REFERENCES:** Read this section and submit the correct number of "References" (based on total dollar amount of project) Note: Supply ALL the information that is requested for each Reference. *NOTE: Forms for Reference Information are attached to this Bid Package.*
7. **ALL FIRMS REQUESTING TO DO BUSINESS WITH CHATHAM COUNTY MUST REGISTER ON-LINE AT [HTTP://PURCHASING.CHATHAMCOUNTY.ORG](http://PURCHASING.CHATHAMCOUNTY.ORG).**
8. **COMPLETE AND SUBMIT ALL ATTACHMENTS TO THE ITB (Attachments A thru H). D-2 IS TO BE FILLED OUT FOR EACH SUBCONTRACTOR.**

\_\_\_\_\_  
NAME/TITLE

\_\_\_\_\_  
COMPANY NAME

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
CITY/STATE/ZIP

\_\_\_\_\_  
PHONE NUMBER

\_\_\_\_\_  
FAX NUMBER

LEGAL NOTICE  
CC NO. 166848  
**Invitation to Bid**

Sealed Bids will be received until **2:00 P.M.** on **JULY 6, 2017** and publicly opened in **Chatham County Purchasing & Contracting Department, at The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia 31406**, for: **BID NO : 17-0051-4 PERRY COVE STORM DRAINAGE IMPROVEMENTS.**

**PRE-BID CONFERENCE:** Conference will be held at **The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia** on **JUNE 20, 2017, at 2:00 P.M.** You are encouraged to attend.

The Bid Package can be downloaded and printed from the County website <http://purchasing.chathamcounty.org> Also, all firms requesting to do business with Chatham County must also register on-line at website: <http://purchasing.chathamcounty.org>


**Plans must be purchased at Clayton Digital Reprographics by logging into [www.cdrepro.com](http://www.cdrepro.com). Login to DFS. New users must register. For technical support contact CDR at (912) 447-5445, fax (912) 233-7020 or email: [cdwest@cdrepro.com](mailto:cdwest@cdrepro.com).**

For any additional questions regarding this bid , please contact Robert Marshall, Senior Procurement Specialist, at 912-790-1622.or [rmarshall@chathamcounty.org](mailto:rmarshall@chathamcounty.org)

Bid Bond is required at the time of bid. (5% of total bid)  
Payment and Performance Bonds (100% of bid) will be required for this project at the time of contract award.

**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: June 5, 2017  
Please send affidavit to:  
Chatham County Purchasing & Contracting Department  
1117 Eisenhower Drive, Suite C  
Savannah, Georgia 31406  
(912) 790-1622