INVITATION TO BID PROPOSAL

BID NO. 10-11-1-4

PIPEMAKERS CANAL - PHASE II - SECTION 1 - DRAINAGE IMPROVEMENTS

PREBID CONF: 2:00PM, JUNE 8, 2010 MANDATORY ATTENDANCE

BID OPENING: 2:00PM, JUNE 29, 2010

THE COMMISSIONERS OF CHATHAM COUNTY, GEORGIA

PETE LIAKAKIS, CHAIRMAN

COMMISSIONER HELEN J. STONE	COMMISSIONER HARRIS ODELL JR.
COMMISSIONER JAMES J. HOLMES	COMMISSIONER DAVID M. GELLATLY
COMMISSIONER PATRICK O. SHAY	COMMISSIONER DEAN KICKLIGHTER
COMMISSIONER PATRICK J. FARRELL	COMMISSIONER PRISCILLA D. THOMAS

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)
<u>X</u> PROPOSAL
PLANS/DRAWINGS - (Plans and Specifications are available and must be purchased at the Purchasing Department for \$50 non-refundable)
X BID SCHEDULE
PERFORMANCE BOND - UPON AWARD OF CONTRACT
PAYMENT BOND - UPON AWARD OF CONTRACT
CONTRACT
X LEGAL NOTICE
X AFFIDAVIT OF PAYMENT
X ATTACHMENTS: A. DRUG FREE WORKPLACE; B. NONDISCRIMINATION STATEMENT; C. DISCLOSURE OF RESPONSIBILITY STATEMENT; D. IMMIGRATION & SECURITY FORM; E. CONTRACTOR/SUBCONTRACTOR AFFIDAVIT & AGREEMENT; F. BIDDER'S CERT REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY & VOLUNTARY EXCLUSION.
DOCUMENTATION OF ABILITY TO PERFORM BID REQUIREMENTS. THIS MAY BE REQUIRED OF BIDDERS AFTER SUBMISSION OF BIDS.
<u>COUNTY TAX CERTIFICATE REQUIREMENT</u> - 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

owned businesses. In order to accurately document participation, businesses submitting bids or proposals are encouraged to report ownership status. A minority or female business is defined as a business with 51% or greater minority of female ownership. Please check ownership status as applicable:
African-American Asian American Hispanic
Native American or Alaskan Indian Female
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 NUMBERS
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:_____

The Chatham County of Commissioners have established goals to increase participation of minority and female

CHATHAM COUNTY, GEORGIA OFFICE OF THE PURCHASING AGENT POST OFFICE BOX 15180 SAVANNAH, GEORGIA 31416 (912) 790-1622

Date: May 11, 2010 BID NO. 10-11-1-4

GENERAL INFORMATION FOR INVITATION FOR BID/PROPOSAL

This is an invitation to submit a bid or proposal to supply Chatham County with construction, equipment, supplies and/or services as indicated herein. Sealed bids or proposals will be received at the Office of the Purchasing Agent, at The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia, up to 2:00PM, JUNE 29, 2010 at which time they will be opened and publicly read. The County reserves the right to reject all bids or proposals for any bid or proposal that is non-responsive or not responsible.

Instructions for preparation and submission of a bid or proposal are contained in this Invitation For Bid/Proposal package. Please note that specific forms for submission of a bid/proposal are required. Bids must be typed or printed in ink. If you do not submit a bid/proposal, return the signed bid invitation sheet and state the reason; otherwise, your name may be removed from our bidders list.

A MANDATORY pre-bid conference has been scheduled to be conducted at the <u>Chatham County Purchasing</u> & <u>Contracting Office located at The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia, at 2:00PM, JUNE 8, 2010 to discuss the specifications and resolve any questions and/or misunderstanding that may arise. <u>Your firm must be represented at this conference</u> to submit a bid for this project.</u>

Any changes to the conditions and specifications must be in the form of a written addendum to be valid; therefore, the Purchasing Agent 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 <u>Chatham County Purchasing Ordinance and Procedures Manual</u>, Article VII - Disadvantaged Business Enterprises Program.

This project <u>is</u> Special Purpose Local Option Sales Tax (SPLOST) Project. See paragraph 2.22 for MBE/WBE participation goals.

INSTRUCTIONS TO BIDDERS/PROPOSERS

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

 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 Bid Proposals:** All bid proposals shall be:
 - a. Submitted in sealed opaque envelopes, 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 Agent on or before the time and date specified above.
 - 1. Mailing Address: Purchasing Agent, Post Office Box 15180, Savannah, Georgia 31416.
 - 2. Hand Delivery: Purchasing Agent, Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia.

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 Agent 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.
- Bidder: Whenever the term "bidder" is used it shall encompass the "person," "business," "contractor," "supplier," "vendor," or other party submitting a bid or proposal to Chatham County in such capacity before a contract has been entered into between such party and the County.
- 1.9 **Responsible / Responsive Bidder:** Responsible Bidder means a person or entity that has the capability in all respects to perform fully and reliably the contract requirements. Responsive Bidder means a person or entity that has submitted a bid or proposal that conforms in all material respects to the requirements set forth in the invitation for bids or request for proposals.
- 1.10 **Compliance with Laws:** The bidder and/or contractor shall obtain and maintain all licenses, permits, liability insurance, workman's compensation insurance and comply with any and all other standards or regulations required by federal, state or County stature, ordinances and rules during the performance of any contract between the contractor and the County. Any such requirement specifically set forth in any contract document between the contractor and the County shall be supplementary to this section and not in substitution thereof.
- 1.11 **Contractor:** Contractor or subcontractor means any person or business having a contract with Chatham County. The Contractor/Vendor of goods, material, equipment or services certifies that they will follow equal employment opportunity practices in connection with the awarded contract as more fully specified in the contract documents.
- *Local Preference: On 27 March, 1998 the Board of Commissioners adopted a Local Vendor Preference Ordinance. This Ordinance does not apply to construction contracts. However, contractors are encouraged to apply the same method when awarding bids to local and local M/WBE businesses when ever possible in order to promote growth in Chatham County's economy. NOTE: Local Preference does not apply to Public Works Construction contracts.

- 1.13 **Debarred Firms and Pending Litigation:** Any potential proposer/firm listed on the Federal or State of Georgia Excluded Parties Listing (Barred from doing business) **will not** be considered for contract award. Proposers **shall disclose** any record of pending criminal violations (Indictment) and/or convictions, pending lawsuits, etc., and any actions that may be a conflict of interest occurring within the past five (5) years. Any proposer/firm previously defaulting or terminating a contract with the County will not be considered. Also, any contractor or subcontractor that has pending litigation with the County will not be considered for contract award.
 - ** 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.

- 1.14 **Performance Evaluation:** On April 11, 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.
- 1.15 **Payment of Taxes**: No contract shall be awarded unless all real and personal property taxes have been paid by the successful contractor and/or subcontractors as adopted by the Board of commissioners on April 8, 1994.
- 1.16 State Licensing Board for General Contractors: Pursuant to Georgia law, the following types of contractors must obtain a license from the State Licensing Board of Residential and General Contractors by July 1, 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).

A copy of your licence must be a part of your bid documents at the time of the bid opening.

1.17 **Immigration:** On July 1, 2008 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 performing work must sign an affidavit that he/she has used the E-Verify System. E-Verify is a no-cost federal employment verification system to insure employment eligibility. Affidavits are enclosed in this

solicitation. You may download M-274 Handbook for Employers at http://www.dol.state.ga.us/spotlight/ employment/rules. You may go to http://www.uscis.gov. To find the E-Verify information.

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 mention 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 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:** Unless otherwise specified by the County, the bidder shall unconditionally guarantee the materials and workmanship on all material and/or services. If, within the guarantee period any defects occur which are due to faulty material and or services, the contractor at his expense, shall repair or adjust the condition, or replace the material and/or services to the complete satisfaction of the County. These repairs, replacements or adjustments shall be made only at such time as will be designated by the County as being least detrimental to the operation of County business.
- 2.8 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 <u>Chatham County Purchasing Procedures Manual</u>, 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 unresponsible 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 (912) 201-4300 for additional information.

- 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 <u>is not</u> 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 mus 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

<u>Coverage Requirement:</u> If claims-made, retroactive date must precede or coincide

with the contract effective date or the date of the Notice to Proceed. The professional 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) 652-7905 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 or contractor 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.
- Indemnification: The CONTRACTOR agrees to protect, defend, indemnify, and hold harmless Chatham 2.21 County, Georgia, its commissioners, officers, agents, and employees from and against any and all liability, damages, claims, suits, liens, and judgments, of whatever nature, including claims for contribution and/or indemnification, for injuries to or death of any person or persons, or damage to the property or other rights of any person or persons caused by the CONTRACTOR or its subcontractors. The CONTRACTOR's obligation to protect, defend, indemnify, and hold harmless, as set forth herein above shall include, but not be limited to, any matter arising out of any actual or alleged infringement of any patent, trademark, copyright, or service mark, or any actual or alleged unfair competition, disparagement of product or service, or other business tort of any type whatsoever, or any actual or alleged violation of trade regulations. CONTRACTOR further agrees to investigate, handle, respond to, provide defense for, and to protect, defend, indemnify, and hold harmless Chatham County, Georgia, at his sole expense, and agrees to bear all other costs and expenses related thereto, even if such claims, suits, etc., are groundless, false, or fraudulent, including any and all claims or liability for compensation under the Worker's Compensation Act arising out of injuries sustained by any employee of the CONTRACTOR or his subcontractors or anyone directly or indirectly employed by any of them.

The CONTRACTOR'S obligation to indemnify Chatham County under this Section shall not be limited in any way by the agreed-upon contract price as shown in Article II or to the scope and amount of coverage provided by any insurance maintained by the CONTRACTOR including, without limitation to, the insurance required to be maintained by the CONTRACTOR pursuant to Section II-4 of the Contract.

- 2.22 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/FBE 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% MBE/WBE combined.

- c. A Minority/Female Business Enterprise (M/FBE) is a business concern that is at least 51% owned by one or more minority/female individuals (2) and whose daily business operations are managed and directed by one or more of the minority/female owners.
- 2.23 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 all questions regarding M/WBE paticipation and Good Faith Effort only, contact: Arneja Riley, Chatham County M/WBE Coordinator, 124 Bull Street, Suite 310 Savannah, Ga. 31401. Ph 912-652-7860; fax 912-652-7849; e-mail alriely@chathamcounty.org or http://purchasing.chathamcounty.org

2.24 **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 IFBs will be read allowed at public bid openings. After Bid Tabulations, the IFB 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.

- 2.25 **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.
- 2.26 **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 th three (3) years following completion. Again, this is contract specific to the County contracts only.
- 2.27 **EXCEPTIONS-**All proceedings, records, contracts and other public records relating to procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Georgia Open Records Act except as provided below:
 - a. Cost estimates relating to a <u>proposed</u> procurement transaction prepared by or for a public body shall not be open to public inspection.
 - b. Any competitive sealed bidding bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of all bids but prior to award, except in the event that the County decides not to accept any of the bids and to rebid the contract. Otherwise, bid records shall be open to public inspection only after award of the contract. Any competitive negotiation offeror, upon request, shall be afforded the opportunity to inspect proposal records within a reasonable time after the evaluation and negotiations of proposals are completed but prior to award except in the event that the County decides not to accept any of the proposals and to reopen the contract. Otherwise, proposal records shall be open to the public inspection only after award of the contract except as provided in paragraph "c" below. Any inspection of procurement transaction records under this section shall be subject to reasonable restrictions to ensure the security and integrity of the records.
 - c. Trade secrets or proprietary information submitted by a bidder, offeror or contractor in connection with a procurement transaction shall not be subject to public disclosure under the Georgia Open Records Act; however, the bidder, offeror or contractor must invoke the protections of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary.
 - d. Nothing contained in this section shall be construed to require the County, when procuring by "competitive negotiation" (Request for Proposal), to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous to the County.

2.28	REFERENCES - \$500,000 or more: On July 25, 2003 the Board of Commissioners directed that
	all construction projects with a bid of \$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:	
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.

\$499,000 and less: Provide references from owners of at least three (3) projects of various sizes for which contractor was the prime contractor. 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 **Price Change:** Preference shall be given to the bidder submitting the lowest and best firm price as his bid. Should it be found that due to unusual market conditions it is to the best interest of the County to accept a price with an escalation clause, the following shall apply:

The contract price shall be frozen for a specified period. This period must be shown on your bid <u>10-11-1-4</u> Cost data to support any proposed increase must be submitted to the Purchasing Agent not less than ten (10) days prior to the effective date of any such requested price increase.

Any adjustment allowed shall consist of bona fide material cost increases which may be passed on to the consumer.

No adjustment shall be made to compensate a supplier for inefficiency in operation, or for additional profit.

Bids indicating "price in effect at time of shipment" will be considered invalid.

3.2. <u>METHOD OF COMPENSATION</u>. 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.

- 3.2.1. **FORCE ACCOUNT:** When no agreement is reached for additional work to be done at Lump Sum or Unit Prices, then such additional work shall be done based on the following Cost-Plus-Percentage basis of payment. The Georgia Department of Transportation specifications for the use of a force account will not be used.
 - a. For work performed by the prime contractor/general contractor, the contractor shall be reimbursed for actual cost incurred in doing the work, and an additional payment of 15% to cover overhead and profit.
 - b. For work performed by a sub-contractor, the sub-contractor shall be reimbursed for actual cost incurred in doing the work, and an additional payment of 10% to cover overhead and profit. The contractor shall be allowed an overhead and profit mark-up not to exceed 7% on the subcontractor's price. The County shall not recognize subcontractors of subcontractors.
 - c. The term "Actual Cost" shall include the cost of material and labor as follows:
 - i. Material cost Direct cost of material, sales tax, freight and equipment rental.
 - ii. Labor cost Man hour cost listed separately by trade, payroll costs including workman's compensation, social security, pension and retirement.
 - d. The term "Overhead and Profit" shall include bonds (Payment & Performance, Roof & Wall), insurance (Liability, Builders Risk), permits, supervision costs (cost of subcontractor to supervise own work, cost of contractor to supervise work of sub-contractor), proposal preparation and all administrative costs.
- 3.2.2. <u>LIQUIDATED DAMAGES</u>: Failure to complete the work within the duration of **300 calendar days** plus any extension authorized in writing by the County Engineer shall entitle the County to deduct as "Liquidated Damages" from the monies due the Contractor the amount of **\$800** for each calendar day in excess of the authorized construction time.
- 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 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, and;
 - 3.4 Warranty Requirements: (Check where applicable):
 - a. Provisions of item 2.12 apply.
 - b. Warranty required.
 - 1. Standard warranty shall be offered with bid.
 - 2. Extended warranty shall be offered with bid. The cost of the extended warranty will be listed separately on the bid sheet.
- 3.5 Terms of Contract: (check where applicable):
 - a. Annual Contract
 - b. One-time Purchase
- X c. Other ONE TIME CONTRACT

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

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

This is to certify that I, the undersigned bidder, he provisions of the same.	ave read the instructions to bidder and agree to be bound by the
This day of	20
BY_	
SIGNATURE	
TITLE	
COMPANY	
Phone / Fax No's.	

Project Description and Special Conditions For Pipemakers Canal - Phase II, Section 1, Drainage Improvements

Project Description:

The project is located in Unincorporated Chatham County and Garden City east of Dean Forest Road and south of Bourne Avenue generally along the Pipemakers Canal waterway, a distance of approximately 14,000 feet.

The work consists of clearing trees and vegetation, widening the existing waterway, installing new storm drain pipes, construction of rock surfaced maintenance roads, and associated work as detailed on the construction drawings. A soil erosion and sedimentation control plan is required and must be implemented prior to, and maintained during construction of the work. Capacity for storm water drainage must be maintained at all times and a preconstruction video must be completed before start of work.

The project bid schedule is set up for flexibility in bidding and awarding of the contract based on bid amounts and available budget. The project is broken up into three reaches as follows:

Reach 1	Base Bid	Station 75+00 to station 122+00	(length = 4700 lf +/-)
Reach 2	Additive Alternative 1	Station 122+00 to Station 140+00	(length = 1800 lf +/-)
Reach 3	Additive Alternative 2	Station 140+00 to Station 215=00)	(length =7500 lf +/-)

The description of work for each reach, and associated project sheets are shown on Sheet 4 of 35. Contractors shall bid the entire project as broken out in the bid schedule. The base bid for Reach 1 will be used to award the bid to the most responsible bidder. The unit prices for the additive alternative 1 and additive alternative 2 shall be the same as quoted for like items in the base bid.

Contract Documents Include:

1.	7	Technical (Specifications
	A.	01500	Special Conditions
	В.	01600	Supplemental Special Conditions
	C.	01700	Measurement and Payment
	D.	02010	Subsurface Exploration
	E.	02100	Clearing
	F.	02200	Earthwork
	G.	02270	Erosion and Sedimentation Control
	Н.	02400	Storm Drainage

- I. 02830 Chain Link Fencing and Gates
- 2. Drawings
 - A. Dwg. 01 Cover
 - B. Dwg. 02 General Notes and Legend
 - C. Dwg. 03 Key Plan and Canal Layout
 - D. Dwg. 04 Parcel Map
 - E. Dwg. 05 Plan and Profile Sta. 215+99.55 to Sta. 207+25.52
 - F. Dwg. 06 Plan and Profile Sta. 207+25.52 to Sta. 192+77.85
 - G. Dwg. 07 Plan and Profile Sta. 192+77.85 to Sta. 178+18.83
 - H. Dwg. 08 Plan and Profile Sta. 178+18.83 to Sta. 162+69.31
 - I. Dwg. 09 Plan and Profile Sta. 162+69.31 to Sta. 147+23.76
 - J. Dwg. 9A Access Road From Parcel No. 48 Plan and Profile
 - K. Dwg. 10 Plan and Profile Sta. 147+23.76 to Sta. 132+01.53
 - L. Dwg. 10A Access Road From Parcel No. 36 Plan and Profile
 - M. Dwg. 11 Plan and Profile Sta. 132+01.53 to Sta. 117+33.08
 - N. Dwg. 12 Plan and Profile Sta. 117+33.08 to Sta. 4+45.61
 - O. Dwg. 12A-B Access Road from Parcel No. 23 Plan
 - P. Dwg. 13 Plan and Profile Sta. 4+45.61 to Sta. 90+50
 - O. Dwg. 13A State Route 21 Driveways
 - R. Dwg. 13B Access Road from Daniel Street Plan and Profile
 - S. Dwg. 14 Plan and Profile Sta. 90+50 to Sta. 75+00
 - T. Dwg. 15 Cross Sections Sta. 213+00 to Sta. 75+00
 - U. Dwg. 16 Construction Details
 - V. Dwg. 17 Construction Details
 - W. Dwg. 18-22 Initial Erosion Control Plans
 - X. Dwg. 23-27 Intermediate Erosion Control Plans
 - Y. Dwg. 28-32 Final Erosion Control Plans
 - Z. Dwg. 32A-E Access Road Erosion Control Plans
 - AA. Dwg. 33-34 Erosion Control Notes
 - BB. Dwg. 35 Erosion Control Details

Available Lands and County Owned Properties

Available lands are described in the drawings and technical specifications and include existing drainage rights of ways and easements. Available lands do not include public roads or highways except as permitted by the controlling agency (e.g. City of Garden City, Georgia Department of Transportation, etc.).

Subject to the zoning regulations of local jurisdictions, the following properties are available for use during construction. The properties are offered "as is" and shall be prepared for use at the Contractor's sole expense and risk. All permits required by Federal, state, or local jurisdictions for use of the land shall be secured by the Contractor prior to disturbance of the land. Use of the land shall be in strict compliance with local building and zoning regulations.

1. Property of Chatham County along the south bank of Pipemakers Canal and east of Dean Forest Road subject to conditions above and the following conditions. The area may be accessed from Dean Forest Road by way of the existing curb cut and maintenance road along the canal. Not more than two acres may be

cleared and used by the Contractor. The Contractor shall maintain not less than 100 feet of vegetated buffer between Dean Forest Road and the area cleared. All stone material, fill material, debris and other foreign materials shall be removed from the site upon completion of the project work, and the ground shall be seeded and mulched to establish complete ground coverage. The project sediment and erosion control plan shall be modified and approved by the Natural Resources Conservation Service prior to disturbing this site. This area can be used as a lay down area for equipment, drainage pipes, headwalls and flared end sections. The area cannot be filled as it could impact the floodway.

- 2. Property of Chatham County along the south bank of Pipemakers Canal and north of Smith Avenue, at the end of Daniel Avenue subject to conditions above and the following conditions. The area may be accessed from Daniels Avenue. The entire site may be cleared and used by the Contractor. All stone material, fill material, debris and other foreign materials shall be removed from the site upon completion of the project work, and the ground shall be seeded and mulched to establish complete ground coverage. The project sediment and erosion control plan shall be modified and approved by the Natural Resources Conservation Service prior to disturbing this site.
- 3. Property of Garden City along the south bank of Pipemakers Canal and north of Big Hill Road subject to conditions above and the following condition. The area behind the ball fields may be used by the Contractor. All stone material, fill material, debris and other foreign materials shall be removed from the site upon completion of the project work, and the ground shall be seeded and mulched to establish complete ground coverage. The project sediment and erosion control plan shall be modified and approved by the Natural Resources Conservation Service prior to disturbing this site. Use of this site must be coordinated by the Contractor directly with the City of Garden City.

Erosion and Sedimentation Control:

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.

- 1. The Contractor shall be responsible for filing to the Georgia Department of Natural Resources (GDNR) the project Notice of Intent (NOI) form 14 days prior to the start of construction. The original copy of the certified return receipt and a copy of the NOI shall be maintained on site and be made available for inspection at all times.
- 2. The design engineer 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. The plans have been reviewed and approved by GDNR-NRCS that were designed by a level II certified design professional. A copy of current GSWCC certification is included with these special conditions.
- 3. 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. This includes water quality monitoring testing and recording requirements.
- 4. The Contractor shall be responsible for filing to the GDNR the project Notice of Termination (NOT) form. The original copy of the certified return receipt and a copy of the NOT shall be provided to the Owner along with the Contractor's request for final payment.
- 5. The Contractor shall provide to the Owner copies of all inspection reports and water quality monitoring reports, copies of all correspondence between the Contractor and GDNR and other records within 7 days of the date of such reports/records.

- 6. 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.
- 7. A \$300 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 or when reports are not provided within the time required by the contract documents. 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.

Rain Days:

The time of completion includes an allowance for Rain Days that is based upon normal and anticipated rainfall events for the region for the duration of the contract.

A rain day shall be considered to have occurred if the amount of rain measured at the normal ending time of a scheduled work day exceeds 0.10 inch and the Contractor provides satisfactory evidence that expected work was not performed on such day as a result of rainfall.

Wet conditions and flowing water caused by groundwater, tides and storm surges, base-flow drainage, storm drainage caused by wet weather conditions, and other causes of wet conditions at the job site shall not be considered as rain days or in any other way considered to be unexpected. The Contractor shall plan the work and take necessary precautions in order to safely and continuously perform and protect the work under these conditions.

Special Conditions from Property Acquisitions:

The following special conditions are per agreements, with Chatham County and the property owners, and are hereby incorporated as special conditions to the contract. The contractor must comply with these following conditions.

Parcel No. 1

The contractor shall erect a gate at the intersection of the maintenance road and the property owner's former property line to allow access for canal construction and maintenance activities only. Bid price to include a farm gate, two wood post, chain, lock, and key. Provide a key to county representative and construction inspector.

The sole purpose and use of the maintenance road shall be for canal construction and maintenance only.

Parcel No. 3

The contractor shall maintain the drainage into Pipemakers Canal. The drainage into Pipemakers canal shall not be impacted by the construction of this project.

Parcel No. 28

The contractor shall maintain drainage into Pipemakers canal. The project will be constructed, and maintained in a manner that will provide for drainage from the property to the canal.

Chatham County agrees that the existing parking lot security lights currently located within the required right of way and owned by Georgia Power, previously Savannah Electric and Power Company (SEPCO) and leased by the Grantors tenant will be relocated at the county's expense as part of the projects utility relocation process. The county agrees said light relocation will be coordinated with grantors representative.

Parcel No. 35

The contractor shall maintain drainage into the Pipemakers Canal. The project will be constructed, and maintained in a manner that will provide for drainage from the property to the canal.

Parcel No.39

The contractor shall not complete any work from the centerline of canal to right of way of parcel 39 (station 122+50 to 139+00) See attached exhibit typical construction detail to construct the portion of the canal on the south side that is adjacent to parcel 39.

Parcel No. 43

The contractor shall maintain drainage into the Pipemakers Canal. The project will be constructed, and maintained in a manner that will provide for drainage form the property to the canal.

Parcel No. 55

The contractor shall maintain and protect the drainage pipe located at Station 193+20+/- currently providing drainage into Pipemakers Canal. The contractor shall repair and /or replace said pipe for any damage during construction at no cost to county or property owner.

Geotechnical Reports

The report is provided for the contractors use, to have a general understanding of the subsurface materials. The design engineer used this information and anticipated the condition at the time the soil borings were taken and classification of these materials.

The geotechnical report for this project as follows, and is included in the contract document.

Report of Subsurface Exploration for Proposed Pipemakers Canal Widening Station 412+13 to 60+00 (data outside limits of the project is for information only) Completed by ECS, Ltd and dated December 26, 2001

The contractor shall be responsible for using means and methods for mobilizing and using equipment for construction, and minimizing any negative impact to the construction area. The geotechnical information should be used to avoid equipment getting stuck, maintaining stock piles away from the canal edge, and construction of the proposed improvements.

Permits

The Contractor shall be responsible for compliance with the rules and regulations of all Federal, state and local agencies.

- 1. The contractor shall comply with Department of the Army Permit No. 200502009 which is included in the contract documents.
- 2. The contractor should pay special attention to memo of agreement from the GA State Historic Preservation division, and that dredging and widening of the canal will be monitored by a county representative knowledgeable in recognition of pre historic and historic artifacts, features, and structures and that the contractor shall adhere to the requirements, if any of the above are discovered during construction.
- 3. Georgia Department of Transportation. The Owner has secured no permits for work required within the limits of Georgia state rights of ways. The Contractor shall be responsible for obtaining and posting all necessary permits for completing the work within the limits of Georgia state rights of ways, and paying for all costs (permits, flagmen, signs and detours, etc. as required to complete the work).
- 4. Railroads (Norfolk Southern, CSX). The Owner has secured no permits for work required within the limits of railroad rights of ways. The Contractor shall be responsible for obtaining and posting all necessary permits for completing the work within the limits of railroad rights of ways, including paying for all costs (special insurance, flagmen, and other conditions required by the railroad companies).

Other Special Provisions

- 1. The Contractor shall not enter upon or perform work, including not installing BMPs, beyond the north bank of the Pipemakers Canal between the Norfolk and Southern Railroad No. 2 (Station 139+00) and the CSX Railroad No. 2 (Station 122+50) without specific written authorization from the Owner. All work within these limits shall be performed from the south bank of the channel. (Note: The Contract Bid Schedule includes the quantity for all construction on the north side of the channel.)
- 2. The Contractor shall selectively cut understory vegetation to enable the Owner to survey and cross-section the existing channel (Contractor to cut survey line) prior to any land disturbance activities. The vegetation cut shall be at not less than 200 foot intervals along the channel, not less than 5 feet wide and extend to the clearing limits as shown on the drawings. The locations of cross sections shall be at even 200 foot stations unless otherwise agreed to between the Owner and Contractor. The cross sections shall be plotted by the Owner with copies provided to the Contractor and shall be used as the basis of determining existing ground conditions for the computation of earthwork quantities for final payment.
- 3. Item "Disposal of Spoil Material at Litchfield" on the bid form shall be clean soil material excavated from the Pipemakers channel up to the amount specified in the contract documents or as ordered by the Owner.
 - A. The material shall be transported to the Chatham County Mitigation Site located in Chatham County on Basin Road off US 17 and south of SR 204. At the mitigation site, the spoil material shall be off-loaded at one or more locations specified by the Owner. No disposal operations at the mitigation site shall be conducted on weekends, County observed holidays, or on any day between the hours of 5:00 PM and 8:00 AM local time. Measurement of this item shall be made by the truck load.
 - B. For the purpose of this measurement, a unit truck load shall mean a volume of 12 cubic yards measured in the truck dump body. With written agreement from the Owner, prorated measurements may be made for trucks of greater or lesser capacity. (For example, a 16 cubic yard truck body would me measured as 16/12 = 1.33 unit truck loads.)
 - C. The spoil material shall be uncontaminated, free from oil and grease, containing no rubble, lumber or other waste materials, and containing no tree limbs, stumps or trunks.

- D. Payment shall be made for item "Disposal of Spoil Material at Litchfield" at the contract unit price identified on the bid schedule for each unit truckload that is delivered to the mitigation site and receives an approved delivery certificate. Delivery tickets shall be provided by the contractor and approved by the Owner prior to use.
- E. Chatham County will charge the Contractor a tipping fee of \$10 for each delivery of spoil material to the mitigation site. The Contractor shall pay all tipping fees to the County prior to the County's release of the final 2.5% retained amount.

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 will 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	DATE		
SIGNATURE	TITLE			
TELEPHONE NUMBER				

PROPOSAL

SPECIFICATIONS FOR:

PIPEMAKERS CANAL - PHASE II - SECTION 1 - DRAINAGE IMPROVEMENTS

BID NO. 10-11-1-4

The project is located in Unincorporated Chatham County and Garden City east of Dean Forest Road and south of Bourne Avenue generally along the Pipemakers Canal waterway, a distance of approximately 14,000 feet.

The work consists of clearing trees and vegetation, widening the existing waterway, installing new storm drain pipes, construction of rock surfaced maintenance roads, and associated work as detailed on the construction drawings. A soil erosion and sedimentation control plan is required and must be implemented prior to, and maintained during construction of the work. Capacity for storm water drainage must be maintained at all times and a preconstruction video must be completed before start of work.

The project includes liquidated damages for not completing work within the specified time.

Note: This shall be a unit price contract. Quantities are approximate and payment shall be for actual inplace work measurements.

COMMENCEMENT AND COMPLETION:

BASE BID ONLY:

WORK SHALL BEGIN WITHIN 10 DAYS AFTER RECEIPT OF "NOTICE TO PROCEED". ALL WORK SHALL BE COMPLETED WITHIN 300 CALENDAR DAYS AFTER THE TEN DAY PERIOD.

NOTE: If **Alternate 1** is accepted, an additional <u>60 calendar days</u> will be added to the contract. If **Alternate 2** is accepted, an additional <u>150 calendar days</u> will be added to the contract.

BASE BID SCHEDULE

Base Bid:	Reach 1 Sta. 75+00 to Sta. 122+00	SCHEDULE	Page 1		April 29, 2010
	Canal Widening		· · · · · · · · · · · · · · · · · · ·		
ITEM NO.		EST. QTY.	UNIT	UNIT PRICE	TOTAL PRICE
A. SITEWO					
11	Mobilization (Less than 2% of Job)	JOB	LS		
2	Earthwork				
	2A. Excavation and Disposal	48,840	CY		
	2B. Select, Fill, in place	16,900	CY		
3	Clearing and Grubbing	14.60	ACRES	***************************************	
			l	SUBTOTAL	
o Epocio	IN CONTROL			SUBTOTAL	
	Silt Fence	23,650	LF		
<u>4</u> 5	Rip Rap	200	SY		
	Construction Exits	2	EA		
6		18,560	SY		
7	Jute mesh		SY		
8	Grassing	35,700	SY		
9	6" Revetment liner for slope protection	6,600			
10	Maintenance of Erosion Control	JOB	LS		
	Deduction for non-conformance with				
	sediment and erosion control requirements.				
	The actual deduction shall be calculated				Do not bid
	based on the number of daily occurrences of				
	non-compliance. Includes base bid and			_	
11	alternative work.	0	<u>EA</u>	-\$300.00	
				SUBTOTAL	
	DRAINAGE		T . =		
12	18" RCP	72	LF_		
13	24" RCP	164	LF		
14	30" RCP	124	<u>LF</u>	·····	
15	42" RCP	48	LF_		
16	48" RCP	48	<u>LF</u>		
17	18" Headwall	2	EA		
18	24" Headwall	4	EA		
19	30" Headwall	3	EA		
	Remove and Replace unsuitable material as				
20	directed by the Engineer	2,100	CY		
				SUBTOTAL	
D. MISCEI	LANEOUS ITEMS		· · · · · · · · · · · · · · · · · · ·		
	Relocate existing telephone pole near Sta.				
21	3+00	JOB	LS		
Mari 1	1- (0)	1			
	Remove and relocate (3) existing power	1			
22	poles near Sta. 99+00	JOB	LS		
	poles near Sta. 99+00 Install filter fabric under access road	26,200	SY		
22	poles near Sta. 99+00 Install filter fabric under access road 6" Access road stone base with filter fabric				AAA-AAH
22 23	poles near Sta. 99+00 Install filter fabric under access road	26,200	SY		

Base Bld:	Canal Widening		Page 2		
					TOTAL DDIOG
ITEM NO.	DESCRIPTION	EST, QTY.	UNIT	UNIT PRICE	TOTAL PRICE
26	Demucking as directed by the Engineer	13,000	CY		
	Install rip rap over Cable TV line at Sta.				
27	99+00	215	SY		
28	Construction Staking for the project.	JOB	LS		
	Remove 480 LF of chain link fence between				
29	Sta. 112+00 and 4+50	JOB	LS		
	Install 598 LF of chain link fence between				
30	Sta. 112+00 and 4+50	598	LF		
	Install chain link gate at access road from				
31	Export Blvd. near sta. 117+00	JOB	LS		**************************************
32	Perform work in CSX R\W at Sta. 122+00	JOB	LS		- India
33	Relocate forcemain	JOB	LS		
34	Special conditions	JOB	LS		
				SUBTOTAL	
	SUE	TOTAL BAS	E BID C	ANAL WIDENING	

	Treach 1 Sta. 7 5 700 to Sta. 122 700				
Base Bid:	Daniel Street Access Road				
ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	TOTAL PRICE
A. SITEWO	PRK				
1	Earthwork				
	1A. Excavation and Disposal	200	CY		
	1B. Select Fill, in place	1,000	CY		
2	Clearing and Grubbing	0.33	ACRES		
				SUBTOTAL	
B. EROSIC	ON CONTROL	The state of the s			
3	Sitt Fence	1,420	LF		
4	Construction Exits	1	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	1,600	SY		
7	Jute Mesh	800	SY		
8	Installation of Rip Rap	10	SY		
				SUBTOTAL	
C. MISCEL	LANEOUS				
9	6" Access road stone base with filter fabric	750	SY		
	Geogrid under access road (Tensar BX				
10	1200)	3900	SY		
11	Filter Fabric Under Road Embankment	1,600	SY		
				SUBTOTAL	
	SUB TOTAL BASE	BID DANIEL	STREET	ACCESS ROAD	

	Reach 1 Sta. 75+00 to Sta. 122+00				
	Highway 21 Access		· · · · · · · · · · · · · · · · · · ·		
ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	TOTAL PRICE
A. SITEWO					
	Earthwork: Includes excavation fill and				
11	grading	JOB	LS		
2	Clearing and Grubbing	0.50	ACRES		
				SUBTOTAL	
B. EROSIC	N CONTROL				
3	Silt Fence	1,440	LF		
4	Construction Exits	3	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	2,420	SY		
7	Jute Mesh	670	SY		
8	Installation of Rip Rap	80	SY		
9	Inlet Sediment Traps	2	EA		
				SUBTOTAL	
C. MISCEL	LANEOUS			ALCOHOLD STATE	
10	24" RCP	87	LF		
11	36" RCP	150	LF		
12	24" FES	2	EA		
13	36" FES	1	EA		
14	24" Headwall	1	EA		
15	36" Headwall	1	EA		
16	Grate Inlet	1	EA		
17	Ditch Inlet	1	EA		
18	1.25" 9:5mm Super Pave	75	SY		
19	2" 19mm Superpave	75	SY		
20	5" 25mm Superpave	75	SY		
21	8" Graded Aggregate Base	75	SY		
22	8 Ft. Chain Link Fence	320	LF		
23	4 Ft. Wire Fence	150	LF		
24	24 Ft. Farm Gate	1	EA		
25	20 Ft. Farm Gate	1	EA		
26	6" Access road stone base with filter fabric	1,600	SY		
12.//	Geogrid under access road (Tensar BX				
27	1200)	4,800	SY		
28	Filter Fabric Under Road Embankment	1,600	SY		
				SUBTOTAL	
	SUB TOTAL BA	SE BID HIGH	WAY 21 A	CCESS	

Base Bio	: Parcel No. 23 Access Road				
. SITEV	/ORK		and the second		
1	Clearing and Grubbing	0.90	ACRES		
2	Earthwork				
	2A. Select Fill, in place	250	CY		
				SUBTOTAL	
3. EROS	ION CONTROL				
3	Silt Fence	1,000	LF		
4	Construction Exits	1	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	1,000	SY		
7	Jute Mesh	500	SY		
				SUBTOTAL	
C. MISCI	ELLANEOUS				
8	6" Access road stone base with filter fabric	4,400	SY		
9	Filter Fabric Under Road Embankment	4,400	SY		
	**************************************	SUBTOTAL			
	SUB TOTAL BASE	BID PARC	EL NO. 23 A	ACCESS ROAD	

	Reach 1 Sta. 75400 to Sta. 122400				
Base Bid:	Parcel 1 Access Road			The state of the s	
A. SITEW					
11	Clearing and Grubbing	0.37	ACRES		
2	Earthwork			AMMAN CHITTING ANTONIO TO TOTALISMA RANGES AND RAPID BATTAN RATE RATE AND THE TOTAL TO	
•	2A. Select Fill, in place	525	CY		
			SUBTOTAL		
B. EROSI	ON CONTROL CONTROL				
3	Silt Fence	1,100	LF		
4	Construction Exits	11	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	1,790	SY		
7	Installation of Rip Rap	25	SY		
				SUBTOTAL	
. MISCE	LLANEOUS				
8	6" Access road stone base with filter fabric	700	SY		
9	Filter Fabric Under Road Embankment	1,175	SY		
10	Geogrid under access road (Tensar Bx 1200)	1,175	SY		
11	48" CMP	35	LF		
12	24 Ft. Farm Gate	1	EA	·	
	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			SUBTOTAL	
	SUB TOTAL BAS	E BID PAR	CEL NO. 1		

	Parcel 28 Access Road From Export Blvd.				
A. SITEWO					
1	Clearing and Grubbing	0.30	ACRES		
	Grading: Placement of fill in roadside ditch				
	and grading as needed for positive drainage				
	with in the Export Blvd. R\W and along the				
2	access road.	JOB	LS		
				SUBTOTAL	
B. EROSIO	ON CONTROL CONTROL				
3	Silt Fence	800	LF L		
4	Construction Exits	11	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	1,452	SY		
7	Installation of Rip Rap	20	SY		
8	Inlet Sediment Trap	11	EA		
				SUBTOTAL	
C. MISCEL	LANEOUS				
9	6" Access road stone base with filter fabric	775	SY		
10	29"x45" ERCP	40	LF		
11	30" RCP	40	LF		
12	29"x45" Headwall	1	EA		
13	30" Headwall	1	EA		
14	Grate inlet	1	EA		
15	Relocate Power Pole	1	EA		
16	Traffic Control along Export Blvd.	JOB	LS		
			SUBTOTAL		
	SUB TOTAL BASE	BID PARC	EL NO. 28	ACCESS ROAD	

PIPEMAKER'S CANAL PHASE 2, SECTION 1 EMC PROJECT NO. 00-0153

ADD ALTERNATE 1 BID SCHEDULE

ΓΕΜ NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	TOTAL PRICI
SITEW	ORK				
1	Mobilization (Less than 2% of Job)	JOB	LS		
2	Earthwork				
	2A. Excavation and Disposal	19,350	CY		
	2B. Select, Fill, in place	4,400	CY		
3	Clearing and Grubbing	7.00	ACRES		
				SUBTOTAL	
. EROSIO	ON CONTROL				
4	Silt Fence	10,860	LF		
5	Rip Rap	10	SY		
6	Construction Exits	1	EA		
7	Jute mesh	9,650	SY		
8	Grassing	16,800	SY		
9	Maintenance of Erosion Control	JOB	L.S		
	The actual deduction shall be calculated			İ	m /111
	based on the number of daily occurrences of non-compliance. Includes base bid and			CHETOTAL	Do not bid
	based on the number of daily occurrences of	1000 0.000		SUBTOTAL	Do not bid
. STORN	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. A DRAINAGE			SUBTOTAL	Do not bid
STORN 10	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. A DRAINAGE 18" RCP	40	LF	SUBTOTAL	Do not bid
	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. A DRAINAGE	40	LF EA	SUBTOTAL	Do not bid
10	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. A DRAINAGE 18" RCP		EA	SUBTOTAL	Do not bid
10	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. ### DRAINAGE 18" RCP 18" Headwall				Do not bid
10 11 12	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer	1	EA	SUBTOTAL	Do not bid
10 11 12	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer LLANEOUS ITEMS	100	EA CY		Do not bid
10 11 12 9 MISCE 13	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer LLANEOUS ITEMS Install filter fabric under access road	100	EA CY		Do not bid
10 11 12 0, MISCE 13 14	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer LLANEOUS ITEMS Install filter fabric under access road 6" Access road stone base with filter fabric	1 100 12,000 6,010	EA CY SY SY		Do not bid
10 11 12 MISCE 13 14 15	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer LLANEOUS ITEMS Install filter fabric under access road 6" Access road stone base with filter fabric Geogrid (Tensar BX 1200)	1 100 12,000 6,010 28,300	EA CY SY SY SY		Do not bid
10 11 12 0, MISCE 13 14	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer LLANEOUS ITEMS Install filter fabric under access road 6" Access road stone base with filter fabric Geogrid (Tensar BX 1200) Demucking as directed by the Engineer	1 100 12,000 6,010	EA CY SY SY		Do not bid
10 11 12 2 MISCE 13 14 15 16	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. M DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer LLANEOUS ITEMS Install filter fabric under access road 6" Access road stone base with filter fabric Geogrid (Tensar BX 1200) Demucking as directed by the Engineer Perform work in Norfolk Southern R\W at	1 100 12,000 6,010 28,300 5,600	EA CY SY SY CY		Do not bid
10 11 12 2) MISCE 13 14 15 16	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. ### DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer **LLANEOUS ITEMS** Install filter fabric under access road 6" Access road stone base with filter fabric Geogrid (Tensar BX 1200) Demucking as directed by the Engineer Perform work in Norfolk Southern R\W at Sta. 139+00	1 100 12,000 6,010 28,300 5,600 JOB	EA CY SY SY CY LS		Do not bid
10 11 12 2 MISCE 13 14 15	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. ### DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer **LLANEOUS ITEMS** Install filter fabric under access road 6" Access road stone base with filter fabric Geogrid (Tensar BX 1200) Demucking as directed by the Engineer Perform work in Norfolk Southern R\W at Sta. 139+00 Construction Staking for the project.	1 100 12,000 6,010 28,300 5,600	EA CY SY SY CY		Do not bid
10 11 12 2 MISCE 13 14 15 16	based on the number of daily occurrences of non-compliance. Includes base bid and alternative work. ### DRAINAGE 18" RCP 18" Headwall Remove and Replace unsuitable material as directed by the Engineer **LLANEOUS ITEMS** Install filter fabric under access road 6" Access road stone base with filter fabric Geogrid (Tensar BX 1200) Demucking as directed by the Engineer Perform work in Norfolk Southern R\W at Sta. 139+00	1 100 12,000 6,010 28,300 5,600 JOB	EA CY SY SY CY LS		Do not bid

r	ate 1: Reach 2 Sta. 122+00 to Sta. 140+00				
ITEM NO.	pate 1: Parcel No. 36 Access Road DESCRIPTION	EST. QTY.	UNIT	UNIT PRICE	TOTAL PRICE
A. SITEWO	1	ESI, WIT.	LONI	UNIT PRICE	TOTAL PRICE
A. SHEVVA	4	T	l l		
<u> </u>	Earthwork	0.040	CY		
2	1A. Select Fill, in place	3,240	4		
	Clearing and Grubbing	1.00	ACRES	CURTOTAL	
	AV SAVIEDO			SUBTOTAL	
	ON CONTROL	1 5 500	T		
3	Silt Fence	3,500	LF		
4	Construction Exits	1	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	4,840	SY		
7	Jute Mesh	3,110	SY		
88	Installation of Rip Rap	36	SY		
			S	UBTOTAL	
C. MISCEL	LANEOUS				
9	Class IV 24" RCP	28	LF		
10	Class Iil 24" RCP	80	LF		
11	24" Headwall	2	EA		
12	24" FES	2	EA		
13	6" Access road stone base with filter fabric	2,200	SY		
	Geogrid under access road (Tensar BX				
14	1200)	10,850	SY		
15	Filter Fabric Under Road Embankment	4,850	SY		
		J.,		SUBTOTAL	
	SUB TOTAL ADD ALTERNA	ATE 1 PARCI	L NO. 36	ACCESS ROAD	

PIPEMAKER'S CANAL PHASE 2 SECTION 1 EMC PROJECT NO. 00-0153

ADD ALTERNATE 2 BID SCHEDULE

	Alternate 2: Reach 3 Sta. 140+00 to Sta. 215+00 A						
	ate 2: Canal Widening	COT 071/	LANDET 7	LIMIT DOLOG	TOTAL DOLOE		
ITEM NO.		EST, QTY.	UNIT	UNIT PRICE	TOTAL PRICE		
A. SITEWO		JOB	LS				
1	Mobilization (Less than 2% of Job) Earthwork	JUB	Lo		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
2		88,810	CV				
	2A. Excavation and Disposal		CY				
	2B. Select, Fill, in place	20,760	ACRES				
3	Clearing and Grubbing	27.65	ACRES	SUBTOTAL			
				SUBTUTAL			
B. EROSIC	N CONTROL						
4	Silt Fence	45,000	LF				
5	Rip Rap	480	SY				
6	Construction Exits	3	EA				
7	Jute mesh	36,880	SY				
8	Grassing	67,500	SY				
9	Maintenance of Erosion Control	JOB	LS				
	Deduction for non-conformance with						
	sediment and erosion control requirements.						
	The actual deduction shall be calculated				(°) & latel		
	based on the number of daily occurrences of				Do not bid		
	non-compliance. Includes base bid and						
	alternative work.			SUBTOTAL			
C. STORM	DRAINAGE						
10	18" RCP	232	LF				
11	24" RCP	40	LF				
12	36" RCP	48	LF				
13	42" RCP	88	LF				
14	48" RCP	52	LF				
15	54" RCP	52	LF				
16	18" Headwall	6	EA				
17	24" Headwall	1	EA				
18	36" Headwall	1	EA				
·····	Remove and Replace unsuitable material as						
19	directed by the Engineer	1,100	CY				
***************************************				SUBTOTAL			
	AMPONO ITEMA						
	LANEOUS ITEMS	E0 000	ev.	I The state of the	e de la companya de l		
20	Install filter fabric under access road	50,000	SY				
21	6" Access road stone base with filter fabric	25,000	SY				
22	Geogrid (Tensar BX 1200)	117,500	SY				
23	Demucking as directed by the Engineer	25,100	CY				
C 2	Install rip rap over Travis Field force main at	205	ev				
24	Sta. 164+00	225	SY				
25	Install rip rap over gas lines at Sta. 162+00	470	SY				
26	Construction Staking for the project.	JOB	LS				
	Todales account ordinary for the project.	<u>~~</u>		SUBTOTAL			
	CUP TOTAL A	ΝΟ ΔΙ ΤΕΡΙ	ATF 2 C	NAL WIDENING			

Add Alternate 2: Reach 3 Sta. 140+00 to Sta. 215+00

Add Alte	rnate 2: Parcel No. 48 Access Road				
A. SITEM	/ORK				
1	Earthwork				
	1A. Select Fill, in place	760	CY		
2	Clearing and Grubbing	0.34	ACRES		
				SUBTOTAL	
3. EROS	ION CONTROL				
33	Silt Fence	1,375	LF		
4	Construction Exits	1	EA		
5	Maintenance of Erosion Control	JOB	LS		
6	Grassing	1,630	SY		
7	Jute Mesh	730	SY		
8	Installation of Rip Rap	27	SY		
				SUBTOTAL	and the management of the state
C, MISCE	ELLANEOUS				
9	18" RCP	40	LF L		
10	18" Headwall	1	<u>EA</u>		
11	Class IV 24" RCP	28	LF		
12	24" FES	2	EA		manauana maraharan da maraharan
13	6" Access road stone base with filter fabric	980	SY		
	Geogrid under access road (Tensar BX				
14	1200)	3,800	SY		
15	Filter Fabric Under Road Embankment	1,630	SY		
16	8" Aggregate Base	70	SY		
17	1-1/2" 12.5mm Superpave	70	SY		
				SUBTOTAL	
	SUB TOTAL ADD ALTERNATE	PARCEL	NO AR AC	CESS ROAD	

PIPEMAKER'S CANAL PHASE 2 SECTION 1 EMC PROJECT NO. 00-0153 BID SUMMARY

BASE BID REACH 1: STA. 75+00 TO STA. 122+00	
CANAL WIDENING SUB TOTAL	
DANIEL STREET ACCESS ROAD SUB TOTAL	
HIGHWAY 21 ACCESS ROAD SUB TOTAL	
PARCEL NO. 23 ACCESS ROAD SUB TOTAL	
PARCEL NO. 1 ACCESS ROAD SUB TOTAL	
PARÇEL NO. 28 ACCESS ROAD SUB TOTAL	
TOTAL BASE BID	
ADD ALTERNATE 1: REACH 2 STA, 122+00 TO STA, 140+00 Deduction for non-conformance Do not bid CANAL WIDENING SUB TOTAL	
PARCEL NO. 36 ACCESS ROAD SUB TOTAL	AU VIII
TOTAL ADD ALTERNATE 1	W. W. Carlotte and
ADD ALTERNATE 2: REACH 3 STA. 140+00 TO STA. 215+00	
CANAL WIDENING SUB TOTAL	THE CONTRACTOR OF THE CONTRACT
PARCEL NO. 48 ACCESS ROAD SUB TOTAL	
TOTAL ADD ALTERNATE 2	
NAME / TITLE	
COMPANY	
ADDRESS	
PHONE / EAY NO'S	

LIST OF SUBCONTRACTORS

NAME AND ADDRESS	TYPE OF WORK
	plan data data data data data data data da
444	
,	

SIGNED:		
	CONTRACTOR	

		1	- 	T				1				T		 1
COMMENTS							ALL THE PROPERTY OF THE PROPER							
% AMOUNT TO M.B.E.														The state of the s
% SUBCONTRACTED														
	AMOUNT													
	PROJECT													

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 SHEET FILLED OUT (Page 15 of ITB)
- 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 M/WBE SUBCONTRACTORS / SUPPLIERS.
- 6. SECTION 2.28 OF ITB (page 15) REFERENCES: Read this section and submit the correct number of "References" (based on total dollar amount of project) Note: Supply <u>ALL</u> the information that is requested for each Reference. NOTE: Forms for Reference Information are attached to this Bid Package.
- 7. COMPLETE AND SUBMIT ALL ATTACHMENTS TO THE ITB (Attachments A thru E).
- 8. SUBMIT A COPY OF YOUR STATE OF GEORGIA CONTRACTORS LICENSE.

NAME / TITLE	
COMPANY	
ADDRESS	
PHONE / FAX NO'S.	der .

TECHNICAL SPECIFICATIONS

FOR PIPEMAKERS CANAL WIDENING PHASE 2 SECTION 1

PREPARED FOR:

CHATHAM COUNTY

EMC PROJECT NO. 00-0153

MARCH 2005

Revised MARCH 2010

PIPEMAKER'S CANAL WIDENING PHASE 2 SECTION 1 TECHNICAL SPECIFICATIONS INDEX

SECTION	TITLE
01500	PROJECT DESCRIPTION AND SPECIAL CONDITIONS
01600	SUPPLEMENTAL SPECIAL CONDITIONS
01650	ADDITIONAL SUPPLEMENTAL SPECIAL CONDITIONS
01700	MEASUREMENT AND PAYMENT
02010	SUBSURFACE EXPLORATION
02100	CLEARING
02200	EARTHWORK
02270	EROSION AND SEDIMENTATION CONTROL
02400	STORM DRAINAGE
02830	CHAIN LINK FENCING AND GATES

Project Description and Special Conditions For Pipemakers Canal Phase 2 Section 1 Drainage Improvements Section 01500

Project Description:

The project is located in Unincorporated Chatham County and Garden City east of Dean Forest Road and south of Bourne Avenue generally along the Pipemakers Canal waterway, a distance of approximately 14,000 feet.

The work consists of clearing trees and vegetation, widening the existing waterway, installing new storm drain pipes, construction of rock surfaced maintenance roads, and associated work as detailed on the construction drawings. A soil erosion and sedimentation control plan is required and must be implemented prior to, and maintained during construction of the work. Capacity for storm water drainage must be maintained at all times and a preconstruction video must be completed before start of work.

The project bid schedule is set up for flexibility in bidding and awarding of the contract based on bid amounts and available budget. The project is broken up into three reaches as follows:

Reach 1	Base Bid	Station 75+00 to station 122+00	(length = 4700 lf +/-)
Reach 2	Additive Alternative 1	Station 122+00 to Station 140+00	(length = 1800 lf +/-)
Reach 3	Additive Alternative 2	Station 140+00 to Station 215+00	(length = 7500 lf +/-)

The description of work for each reach, and associated project sheets are shown on Sheet 4 of 35. Contractors shall bid the entire project as broken out in the bid schedule. The base bid for Reach 1 will be used to award the bid to the most responsible bidder. The unit prices for the additive alternative 1 and additive alternative 2 shall be the same as quoted for like items in the base bid.

<u>Contract Documents Include:</u>

1.	B. 01600 Supple C. 01650 Addition D. 01700 Measur E. 02010 Subsur F. 02100 Clearin G. 02200 Earthw H. 02270 Erosion I. 02400 Storm	Description and Special Conditions mental Special Conditions onal Supplemental Special Conditons rement and Payment face Exploration ng vork n and Sedimentation Control
2.	Drawings	
2.	A. Dwg. 0.1	Cover
	B. Dwg. 02	General Notes and Legend
	C. Dwg. 03	Key Plan and Canal Layout
	D. Dwg. 04	Parcel Map
	E. Dwg. 05	Plan and Profile Sta. 215+99.55 to Sta. 207+25.52
	F. Dwg. 06	Plan and Profile Sta. 207+25.52 to Sta. 192+77.85
	G. Dwg. 07	Plan and Profile Sta. 192+77.85 to Sta. 178+18.83
	H. Dwg. 08	Plan and Profile Sta. 178+18.83 to Sta. 162+69.31
	I. Dwg. 09	Plan and Profile Sta. 162+69.31 to Sta. 147+23.76
	J. Dwg. 9A	Access Road From Parcel No. 48 Plan and Profile
	K. Dwg. 10	Plan and Profile Sta. 147+23.76 to Sta. 132+01.53
	L. Dwg. 10A	Access Road From Parcel No. 36 Plan and Profile
	M.Dwg. 11	Plan and Profile Sta. 132+01.53 to Sta. 117+33.08
	N. Dwg. 12	Plan and Profile Sta. 117+33.08 to Sta. 4+45.61
		Access Road from Parcel No. 23 Plan
	P. Dwg. 13	Plan and Profile Sta. 4+45.61 to Sta. 90+50
	Q. Dwg. 13A	State Route 21 Driveways
	R. Dwg. 13B	Access Road from Daniel Street Plan and Profile
	S. Dwg. 14	Plan and Profile Sta. 90+50 to Sta. 75+00
	T. Dwg. 15	Cross Sections Sta. 213+00 to Sta. 75+00
	U. Dwg. 16	Construction Details Construction Details
	V. Dwg. 17	Initial Erosion Control Plans
	W.Dwg. 18-22	Intermediate Erosion Control Plans
	X. Dwg. 23-27	Final Erosion Control Plans
	Y. Dwg. 28-32	Access Road Erosion Control Plans
		4 Erosion Control Notes
	BB. Dwg. 35-3	Erosion Control Details
	DD. DWg. 33	LIOSION COMMON DOMING

Available Lands and County Owned Properties

Available lands are described in the drawings and technical specifications and include existing drainage rights of ways and easements. Available lands do not include public roads or highways except as permitted by the controlling agency (e.g. City of Garden City, Georgia Department of Transportation, etc.).

Subject to the zoning regulations of local jurisdictions, the following properties are available for use during construction. The properties are offered "as is" and shall be prepared for use at the Contractor's sole expense and risk. All permits required by Federal, state, or local jurisdictions for use of the land shall be secured by the Contractor prior to disturbance of the land. Use of the land shall be in strict compliance with local building and zoning regulations.

- 1. Property of Chatham County along the south bank of Pipemakers Canal and east of Dean Forest Road subject to conditions above and the following conditions. The area may be accessed from Dean Forest Road by way of the existing curb cut and maintenance road along the canal. Not more than two acres may be cleared and used by the Contractor. The Contractor shall maintain not less than 100 feet of vegetated buffer between Dean Forest Road and the area cleared. All stone material, fill material, debris and other foreign materials shall be removed from the site upon completion of the project work, and the ground shall be seeded and mulched to establish complete ground coverage. The project sediment and erosion control plan shall be modified and approved by the Natural Resources Conservation Service prior to disturbing this site. This area can be used as a lay down area for equipment, drainage pipes, headwalls and flared end sections. The area cannot be filled as it could impact the floodway.
- 2. Property of Chatham County along the south bank of Pipemakers Canal and north of Smith Avenue, at the end of Daniel Avenue subject to conditions above and the following conditions. The area may be accessed from Daniels Avenue. The entire site may be cleared and used by the Contractor. All stone material, fill material, debris and other foreign materials shall be removed from the site upon completion of the project work, and the ground shall be seeded and mulched to establish complete ground coverage. The project sediment and erosion control plan shall be modified and approved by the Natural Resources Conservation Service prior to disturbing this site.
- 3. Property of Garden City along the south bank of Pipemakers Canal and north of Big Hill Road subject to conditions above and the following condition. The area behind the ball fields may be used by the Contractor. All stone material, fill material, debris and other foreign materials shall be removed from the site upon completion of the project work, and the ground shall be seeded and mulched to establish complete ground coverage. The project sediment and erosion control plan shall be modified and approved by the Natural Resources Conservation

Service prior to disturbing this site. Use of this site must be coordinated by the Contractor directly with the City of Garden City.

Erosion and Sedimentation Control:

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.

- 1. The Contractor shall be responsible for filing to the Georgia Department of Natural Resources (GDNR) the project Notice of Intent (NOI) form 14 days prior to the start of construction. The original copy of the certified return receipt and a copy of the NOI shall be maintained on site and be made available for inspection at all times.
- 2. The design engineer 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. The plans have been reviewed and approved by GDNR-NRCS that were designed by a level II certified design professional. A copy of current GSWCC certification is included with these special conditions.
- 3. 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. This includes water quality monitoring testing and recording requirements.
- 4. The Contractor shall be responsible for filing to the GDNR the project Notice of Termination (NOT) form. The original copy of the certified return receipt and a copy of the NOT shall be provided to the Owner along with the Contractor's request for final payment.
- 5. The Contractor shall provide to the Owner copies of all inspection reports and water quality monitoring reports, copies of all correspondence between the Contractor and GDNR and other records within 7 days of the date of such reports/records.
- 6. 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.
- 7. A \$300 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 or when reports are not provided within the time required by the contract documents. 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.

Rain Days:

The time of completion includes an allowance for Rain Days that is based upon normal and anticipated rainfall events for the region for the duration of the contract.

A rain day shall be considered to have occurred if the amount of rain measured at the normal ending time of a scheduled work day exceeds 0.10 inch and the Contractor provides satisfactory evidence that expected work was not performed on such day as a result of rainfall.

Wet conditions and flowing water caused by groundwater, tides and storm surges, baseflow drainage, storm drainage caused by wet weather conditions, and other causes of wet conditions at the job site shall not be considered as rain days or in any other way considered to be unexpected. The Contractor shall plan the work and take necessary precautions in order to safely and continuously perform and protect the work under these conditions.

Special Conditions from Property Acquisitions:

The following special conditions are per agreements, with Chatham County and the property owners, and are hereby incorporated as special conditions to the contract. The contractor must comply with these following conditions.

Parcel No. 1

The contractor shall erect a gate at the intersection of the maintenance road and the property owner's former property line to allow access for canal construction and maintenance activities only. Bid price to include a farm gate, two wood post, chain, lock, and key. Provide a key to county representative and construction inspector.

Parcel No. 3

The contractor shall maintain the drainage into Pipemakers Canal. The drainage into Pipemakers canal shall not be impacted by the construction of this project.

Parcel No. 28

The contractor shall maintain drainage into Pipemakers canal. The project will be constructed, and maintained in a manner that will provide for drainage from the property to the canal.

Parcel No. 35

The contractor shall maintain drainage into the Pipemakers Canal. The project will be constructed, and maintained in a manner that will provide for drainage from the property to the canal.

Parcel 39

The contractor shall not complete any work from the centerline of canal to right of way of parcel 39 (station 122+50 to 139+00) See attached exhibit typical construction detail to construct the portion of the canal on the south side that is adjacent to parcel 39.

Parcel No. 43

The contractor shall maintain drainage into the Pipemakers Canal. The project will be constructed, and maintained in a manner that will provide for drainage form the property to the canal.

Parcel No. 55

The contractor shall maintain and protect the drainage pipe located at Station 193+20+/-currently providing drainage into Pipemakers Canal. The contractor shall repair and /or replace said pipe for any damage during construction at no cost to county or property owner.

Geotechnical Reports

The report is provided for the contractors use, to have a general understanding of the subsurface materials. The design engineer used this information and anticipated the condition at the time the soil borings were taken and classification of these materials.

The geotechnical report for this project as follows, and is included in the contract document.

Report of Subsurface Exploration for Proposed Pipemakers Canal Widening Station 412+13 to 60+00 (data outside limits of the project is for information only) Completed by ECS, Ltd and dated December 26, 2001

The contractor shall be responsible for using means and methods for mobilizing and using equipment for construction, and minimizing any negative impact to the construction area. The geotechnical information should be used to avoid equipment getting stuck, maintaining stock piles away from the canal edge, and construction of the proposed improvements.

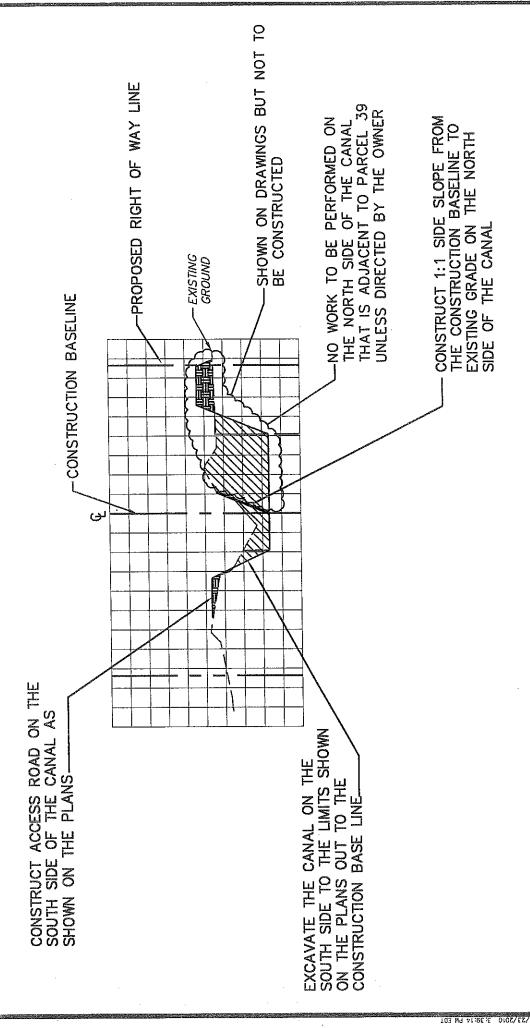
Permits

The Contractor shall be responsible for compliance with the rules and regulations of all Federal, state and local agencies.

- 1. The contractor shall comply with Department of the Army Permit No. 200502009 which is included in the contract documents.
- 2. The contractor should pay special attention to memo of agreement from the GA State Historic Preservation division, and that dredging and widening of the canal will be monitored by a county representative knowledgeable in recognition of pre historic and historic artifacts, features, and structures and that the contractor shall adhere to the requirements, if any of the above are discovered during construction.
- 3. Georgia Department of Transportation. The Owner has secured no permits for work required within the limits of Georgia state rights of ways. The Contractor shall be responsible for obtaining and posting all necessary permits for completing the work within the limits of Georgia state rights of ways, and paying for all costs (permits, flagmen, signs and detours, etc. as required to complete the work).
- 4. Railroads (Norfolk Southern, CSX). The Owner has secured no permits for work required within the limits of railroad rights of ways. The Contractor shall be responsible for obtaining and posting all necessary permits for completing the work within the limits of railroad rights of ways, including paying for all costs (special insurance, flagmen, and other conditions required by the railroad companies).

Other Special Provisions

- 1. The Contractor shall not enter upon or perform work, including not installing BMPs, beyond the north bank of the Pipemakers Canal between the Norfolk and Southern Railroad No. 2 (Station 139+00) and the CSX Railroad No. 2 (Station 122+50) without specific written authorization from the Owner. All work within these limits shall be performed from the south bank of the channel. (Note: The Contract Bid Schedule includes the quantity for all construction on the north side of the channel.)
- 2. The Contractor shall selectively cut understory vegetation to enable the Owner to survey and cross-section the existing channel (Contractor to cut survey line) prior to any land disturbance activities. The vegetation cut shall be at not less than 200 foot intervals along the channel, not less than 5 feet wide and extend to the clearing limits as shown on the drawings. The locations of cross sections shall be at even 200 foot stations unless otherwise agreed to between the Owner and Contractor. The cross sections shall be plotted by the Owner with copies provided to the Contractor and shall be used as the basis of determining existing ground conditions for the computation of earthwork quantities for final payment.



ENC ENGINEERING SERVICES, INC.

TYPICAL CONSTRUCTION DETAIL TO CANAL ON THE SOUTH SIDE THAT IS CONSTRUCT THE PORTION OF THE ADJACENT TO PARCEL 39

DATE: DECEMBER 2009 GRAPHICS PROJECT REVIEW: SCALE: WIDENING PROJECT PHASE 2 SECT. 1 CHATHAM COUNTY, GEORGIA PIPEMAKERS CANAL PREPARED FOR:

TDB

00-0153

BW BW.

D:\2008\p\081955 Pipemakers Canal Bidding Task Brder #7\dwg\Parcel I and 28 access.dwg 3/1/2010 2:30:52 PM EST

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH

STATESBORO & VALDOSTA

CHATHAM COUNTY, GEORGIA

Prepared for:

CHATHAM COUNTY

CHECKED BY:

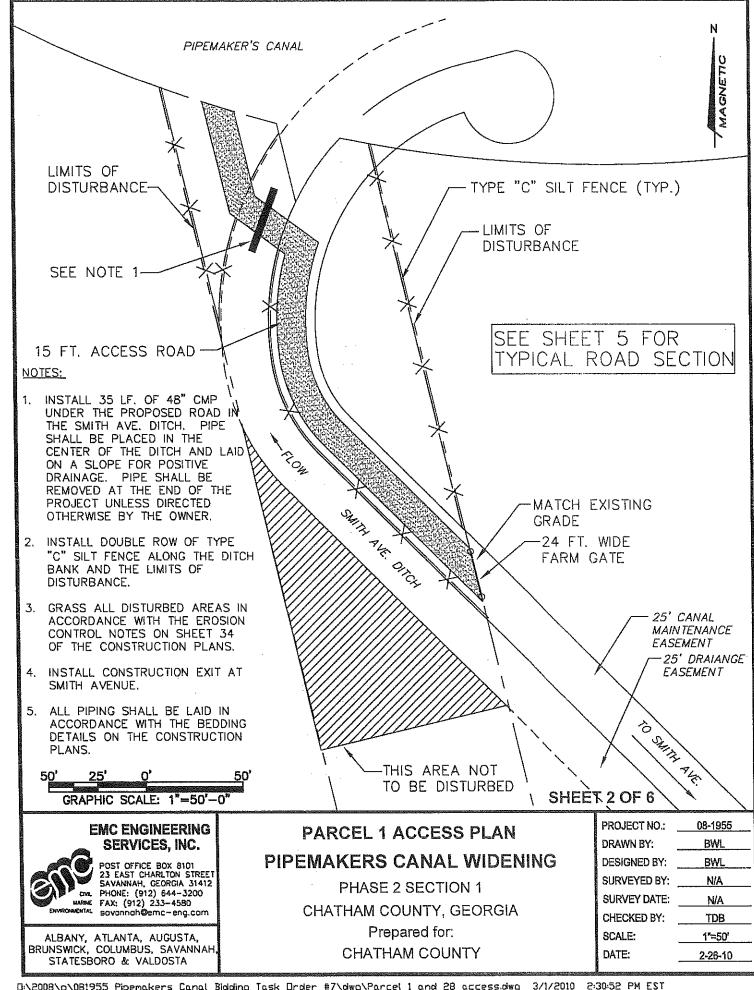
SCALE:

DATE:

TDB

1"=200"

2-26-10



PIPEMAKERS CANAL

SEE SHEET 4 FOR ACCESS ROAD DETAILS

200' 100' 0' 200' GRAPHIC SCALE: 1"=200'-0"

SHEET 3 OF 6

EMC ENGINEERING SERVICES, INC.



POST OFFICE BOX 8101
23 EAST CHARLTON STREET
SAVANNAH, GEORGIA 31412
PHONE: (912) 644-3200
FAX: (912) 233-4580
sovannah@emc-eng.com

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

PARCEL 28 ACCESS EXHIBIT PIPEMAKERS CANAL WIDENING

PHASE 2 SECTION 1
CHATHAM COUNTY, GEORGIA
Prepared for:
CHATHAM COUNTY

PROJECT NO.: 08-1955

DRAWN BY: BWL

DESIGNED BY: BWL

SURVEYED BY: N/A

SURVEY DATE: N/A

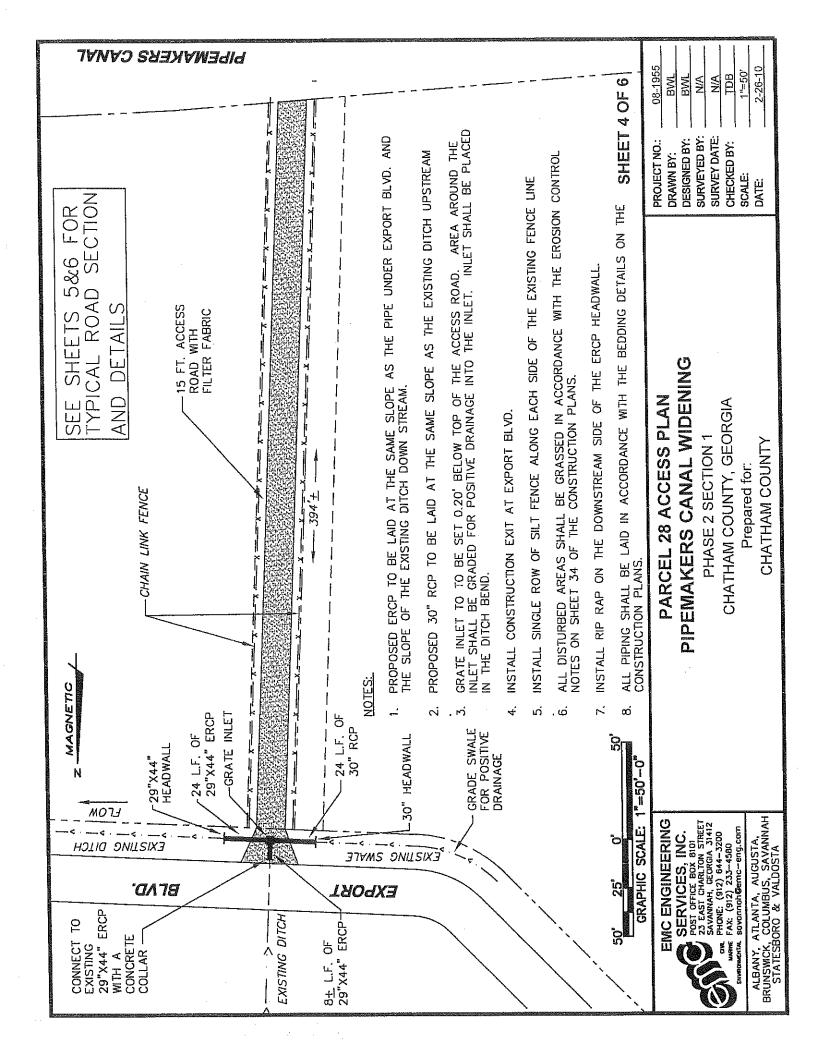
CHECKED BY: TDB

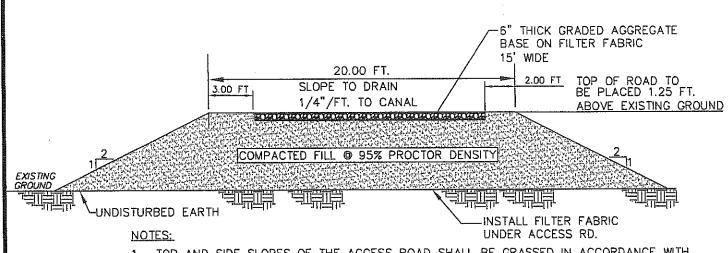
1"=200"

2-26-10

SCALE:

DATE:

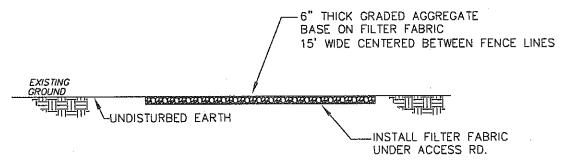




- TOP AND SIDE SLOPES OF THE ACCESS ROAD SHALL BE GRASSED IN ACCORDANCE WITH THE SOIL EROSION NOTES AND DETAILS.
- REFER TO SECTION 02200 FOR THE TECHNICAL SPECIFICATIONS FOR THE TYPE OF MATERIAL THAT WILL BE ACCEPTABLE FOR THE ACCESS ROAD.
- 3. GRADED AGGREGATE BASE SHALL BE IN ACCORDANCE WITH GDOT STD. 815.2.01.
- 4. FILTER FABRIC TO BE MIRAFI HP570 OR EQUAL.

PARCEL 1 TYPICAL ACCESS ROAD SECTION

NOT TO SCALE



NOTES:

- SIDES OF THE ACCESS ROAD SHALL BE GRASSED IN ACCORDANCE WITH THE SOIL EROSION NOTES AND DETAILS.
- 2. GRADED AGGREGATE BASE SHALL BE IN ACCORDANCE WITH GDOT STD. 815.2.01.
- 3. FILTER FABRIC TO BE MIRAFI HP570 OR EQUAL.

PARCEL 28 TYPICAL ACCESS ROAD SECTION

NOT TO SCALE

SHEET 5 OF 6

EMC ENGINEERING SERVICES, INC.

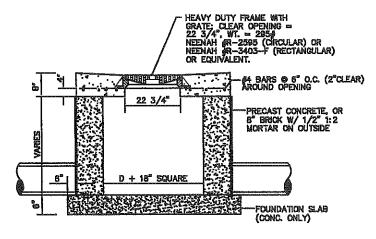
POST OFFICE BOX 8101
23 EAST CHARLTON STREET
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sovannah@emc-eng.com

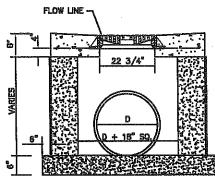
ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH STATESBORO & VALDOSTA

PARCEL 1 & 28 ACCESS ROAD SECTIONS PIPEMAKERS CANAL WIDENING

PHASE 2 SECTION 1
CHATHAM COUNTY, GEORGIA
Prepared for:
CHATHAM COUNTY

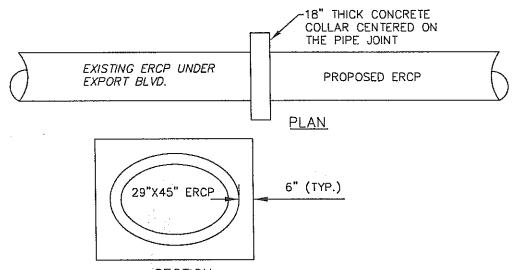
PROJECT NO.:	08-1955
DRAWN BY:	BWL
DESIGNED BY:	BWL
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	TDB
SCALE:	AS SHOWN
DATE:	2-26-10





GRATE INLET DETAIL

NOT TO SCALE



18" THICK CONCRETE COLLAR 4,000 PSI CONCRETE **SECTION**

ERCP PIPE COLLAR DETAIL

NOT TO SCALE

SHEET 6 OF 6

EMC ENGINEERING SERVICES, INC.



POST OFFICE BOX B101
23 EAST CHARLTON STREET
SAVANNAH, GEORGIA 31412
CIVIL PHONE: (912) 644-3200
MARNE FAX: (912) 233-4580
MENTAL SOVORNOH @emc-eng.com

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

PARCEL 28 DETAILS PIPEMAKERS CANAL WIDENING

PHASE 2 SECTION 1
CHATHAM COUNTY, GEORGIA
Prepared for:
CHATHAM COUNTY

PROJECT NO.:	08-1955
DRAWN BY:	BWL
DESIGNED BY:	BWL
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	TDB
SCALE:	AS SHOWN
DATE:	2-26-10
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SUPLEMENTAL SPECIAL CONDITIONS OF THE CONTRACT

SECTION 01600

SPECIAL CONDITIONS OF THE CONTRACT Section 01500 INDEX

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SUPPLEMENTAL SPECIAL CONDITIONS SECTION 01600

01 - Definitions

Where used in the contract documents, the following words and terms shall have the meanings indicated. The meanings shall be applicable to the singular, plural, masculine and feminine of the words and terms.

<u>Construction Inspector</u>. The person or persons designated, in writing, by the Engineer and approved by the Owner to act as its representative at the construction site and to perform construction inspection services and administrative functions (including archeological monitoring) relating to this contract. Initial contact by the Contractor with the Engineer or Owner shall be through the Construction Inspector.

<u>Contract Documents</u>. Those contract documents prepared for bidding and as amended by addenda.

<u>Contractor</u>. The individual, partnership, corporation, or combination thereof, including joint ventures who enter into the contract with the Owner for the performance of the work. The term covers subcontractors, equipment and material suppliers, and their employees.

<u>Engineer</u>. The authorized representative of the Owner. The Engineer may perform all submittal reviews, conduct site visits as needed, attend progress meetings, issue plan clarifications, attend final inspections, review monthly pay requests, instruct the construction inspector, direct all testing and review all claims. The term Engineer covers all engineering disciplines that pertain to the work (civil, geotechnical, and electrical).

Owner: Chatham County Georgia

02 - Permits and Regulations

Permits, licenses, and easements of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor including, but not limited to, business licenses, street maintenance decals, construction easements, burning permits, etc. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. Copies of all permits to be provided to the Owner and Engineer.

The Contractor shall comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified.

03 - Responsibilities of the Contractor

A. Subcontractors, Manufacturers and Suppliers:

The Contractor shall be responsible for the adequacy, efficiency and sufficiency of subcontractors, manufacturers, suppliers and their employees.

B. Contractor's Employees:

The Contractor shall be responsible for the adequacy, efficiency and sufficiency of his employees. Workers shall have sufficient knowledge, skill and experience to perform properly the work assigned to them.

C. Attention to Work:

The Contractor, acting through his representative, shall give personal attention to and shall manage the work so that it shall be prosecuted faithfully. When his representative is not personally present at the project site, his designated alternate shall be available and shall have the authority to act on the contract.

D. Employee Safety:

The Contractor alone shall be responsible for the safety of his and his subcontractor's employees. The Contractor shall maintain the project site and perform the work in a manner which meets the Owner's responsibility under statutory and common law for the provision of a safe place to work.

E. Public Safety and Convenience:

The Contractor shall conduct his work so as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work and to insure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Engineer and the proper governmental authority. Fire hydrants on or adjacent to the work shall be accessible to fire fighting equipment. Temporary provisions shall be made by the Contractor to insure the use of sidewalks, private and public driveways and proper functioning of gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses.

E. Cooperation With the Construction Inspector:

The Contractor, when requested, shall assist the Construction Inspector in obtaining safe access to work which is to be inspected. The Contractor shall provide the

Construction Inspector with information requested in connection with the inspection of the work.

04 - Drawings Furnished

Unless otherwise provided in the Contract Documents, the Owner will furnish to the Contractor, free of charge, up to 5 copies of drawings and specifications necessary for the execution of the work with delivery of the Notice to Proceed.

05 - Ownership of Drawings

All drawings, specifications and copies thereof furnished by the Owner shall not be reused on other work, and with the exception of the signed Contract, sets are to be returned to the Owner on request, at the completion of the work. All models are the property of the Owner.

06 - Reference Standards

Reference to the Standards of any technical society, organization or association or to codes of local or state authorities, shall mean the latest standard, code, specifications, or tentative standard adopted and published at the date of taking bids, unless specifically stated otherwise.

07 - Division of Specifications and Drawings

Specifications and drawings are divided into groups for the convenience of the Owner. These divisions are not for the purpose of apportioning work or responsibility for work among subcontractors, suppliers and manufacturers.

08 - Materials, Appliances & Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, supervision and other facilities necessary for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new. The Contractor shall furnish satisfactory evidence as to the kind and quality of materials in accordance with paragraph 01500-26.

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him. If at any time before the commencement or during the progress of work, tools, equipment and supervision appear to the Engineer to be insufficient, inefficient or inappropriate to secure the quality of work required or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, to improve their character, to augment their number, or to substitute new tools, plant or equipment, as the case may be, and the Contractor shall conform to such order; but the failure of the Engineer to demand such increase of efficiency, number, or improvements

shall not relieve the Contractor of his obligation to secure the quality of work and the rate of progress necessary to complete the work within the time required by this contract to the satisfaction of the Engineer.

09 - Survey Information

The Owner's representative will establish reference bench marks and base line identified on the drawings. From the information provided, the Contractor shall develop and make such additional surveys as are needed for construction, such as control lines, slope stakes, batter boards, stakes for pipe locations and other working points, lines, and elevations. Survey work shall be performed under the supervision of a qualified person. Contractor shall pay all cost to reestablish reference bench marks and survey control monuments destroyed by this operation.

10 - Inspection of Work

If the specifications, the Engineer's instructions, laws, ordinances, or Α. General: any public authority require any work to be specially tested or approved, the Contractor shall give the Engineer and Construction Inspector notice of its readiness for inspection. Such notice shall be a minimum of two working days. If the inspection is by an authority other than the Engineer, the Contractor shall furnish the date fixed for such inspection. Inspections by the Engineer shall be promptly made and where practicable at the source of supply. If the Engineer instructs the Contractor that inspection of certain phases of the work must be made prior to proceeding, the Contractor shall furnish such inspection, promptly and in such manner as to allow the Contractor to prosecute the work without delay. At such time as the Contractor has completed the work in its entirety the Contractor shall make written request for a final inspection. Such request shall be made no less than seven (7) calendar days prior to the requested date of inspection. An inspection will be made by the Engineer, Construction Inspector and Owner and a determination will be made as to whether or not the work is in fact complete. Acceptance will not be given nor final payment released until all "punch list" items are complete and record drawings have been approved. The "Punch List" shall not be considered all inclusive and therefore each requested final inspection may generate additional "punch list" items as the Contractor is responsible for completion of all work described in the contract documents.

11 - Inspection and Testing of Materials

The Owner shall provide inspection of workmanship and testing of all materials incorporated in the work by a testing lab. Inspection and testing of materials and workmanship shall be at the Owners discretion and for the purpose of establishing that all material and workmanship have been provided in general accordance with the contract documents. The Contractor shall give to the Construction Inspector a minimum of 24 hours notice (not to include Weekends and Holidays) prior to placement of any concrete; fill material, backfill material, street base or sub-base material. Failure of the Contractor to give

such notice shall be cause for the Owner to suspend operations of the Contractor which may impact testing. Such suspension of the Contractor's operations shall not be considered an unavoidable delay and any loss sustained by the Contractor shall be borne by the Contractor. The Contractor shall schedule tests with the lab and also notify the Construction Inspector of this action. The Contractor shall be responsible for the payment of retesting of failed tests and for standby costs due to the failure of the Contractor or their suppliers to be ready for the testing procedure so scheduled by the Contractor.

Material or workmanship which does not meet the requirements of the Contract Documents shall be removed and replaced by the Contractor immediately and at the Contractor's expense. Subsequent inspection or testing of said material or workmanship shall be provided by the Owner. However, all costs associated with said subsequent inspection or testing shall be deducted from monies otherwise due the Contractor.

12 - Substantial Completion

At such time as the Contractor has completed the work and prior to requesting a final inspection, the Contractor shall make written request for an inspection for substantial completion. Such request shall be made no less than seven (7) calendar days prior to the requested date of inspection. An inspection will be made by the Engineer and a determination will be made as to whether or not the work is in fact substantially complete and a "punch list" will be developed.

13 - Access

The Contractor shall maintain safe access to the property owners adjacent to the Project covered by the Contract. All access provided by the contractor shall be to the satisfaction of the respective property owners.

14 - Project Management

The Contractor shall schedule and coordinate the work of the Contractor and all subcontractors and others involved to maintain the accepted progress schedule. The Contractor's duties shall also include the planning of the work, the scheduling of ordering and delivery of materials, and checking and control of all work under this contract.

The Contractor shall be responsible for complete supervision and control of their subcontractors as though they were his own forces. Notice to the Contractor shall be considered notice to all affected subcontractors.

15 - Entry

The right of access to the work wherever it is in preparation or progress shall be extended to the Owner and representatives of appropriate regulatory agencies. The Contractor shall provide facilities for such access and inspection.

16 - Restoration

The Contractor shall conduct his operations so that restoration of roadways, driveways, curb and gutter, ditches and easements progresses with the work. If the Engineer determines that inadequate progress is being made with the restoration, he may shutdown the Contractor's operations until the restoration is caught up. Such a shut-down shall be considered required due to the failure of the Contractor to perform as described in this paragraph and therefore shall not constitute a time delay and/or unavoidable delay for the Contractor. Any cost associated with such shutdown as described in this paragraph, including re-mobilization, shall be borne by the Contractor.

Any areas that are disturbed and work is subsequently suspended by the Contractor for a period of more than 24 hours shall be cleaned of debris and shall be graded so as to facilitate effective drainage. Street signs, mailboxes, fences, planters, etc. shall be restored within 24 hours of disturbance. The Contractor shall make inspections of all areas disturbed since the commencement of construction for the purpose of insuring restoration efforts have been effective. Such inspections shall be made daily and deficiencies shall be corrected within 24 hours.

In the event the restoration is not done, the Owner shall reserve the right to employ others to perform the restoration work. The Owner will back charge the Contractor for this service.

17 - Completion of "Punch List" Items

Prior to completion of the project, the Contractor shall request an inspection and any deficiencies found at that time will be noted on a "Punch List". The development of a "Punch List" shall not delay or terminate the accumulation or assessment of liquidated damages as established in the contract.

18 - Authority of Contractor

A. Contractor's Representative:

The Contractor shall notify the Owner, Engineer and Construction Inspector in writing of the name of the person who will act as the Contractor's representative and shall have the authority to act in matters relating to this Contract. This person shall have authority to carry out the provisions of the Contract and to supply materials, equipments, tools and labor without delay for the performance of the work.

B. Construction Procedures:

The Contractor shall supervise and direct the work. He has the authority to determine the means, methods, techniques, sequences and procedures of construction, except in those instances where the Owner, to define the quality of an item of work, specifies in the contract, a means, method, technique, sequence or procedure for the construction of that item of work.

19 - Owner-Contractor Coordination

Cooperation:

The Contractor agrees to permit entry to the site of the work by the Owner or other contractors performing work on behalf of the Owner. The Contractor shall afford the Owner, other subcontractors and their employees, reasonable facilities and cooperation and shall arrange his work and dispose of his materials in such a manner as to not interfere with the activities of the Owner or of others upon the site of the work. The Contractor shall promptly make good any injury or damage that may be sustained by other contractors or employees of the Owner at his hands. The Contractor shall join his work to that of others and perform his work in proper sequence in relation to that of others.

If requested by the Contractor, the Owner shall arrange meetings with other contractors performing work on behalf of the Owner to plan coordination of construction activities. The Owner shall keep the Contractor informed of the planned activities of other contractors.

Differences or conflicts arising between the Contractor and other contractors employed by the Owner or between the Contractor and the works of the Owner with regard to their work shall be submitted to the Engineer for his decision in the matter. If the work of the Contractor is affected or delayed because of any act or omission of other contractors or of the Owner, the Contractor may submit for the Engineer's consideration, a documented request for a change order.

20 - Interpretation of Specifications and Drawings

A. General:

The specifications and drawings are intended to be explanatory of each other. Work specified on the drawings and not in the specifications, or vice versa, shall be executed as if specified in both.

B. Request For Clarification:

In the event the work to be done or matters relative thereto are not sufficiently detailed or explained in the contract documents, the Contractor shall apply to the Engineer for further explanations as may be necessary and shall conform thereto so far as may be consistent with the terms of the contract. In the event of doubt or question arising respecting the true meaning of the specifications or drawings, reference shall be made to the Engineer for his decision.

21 - Discrepancies in Specifications and Drawings

A. Errors and Omissions:

If the Contractor, in the course of the work, becomes aware of any claimed errors or omissions in the contract documents or in the Owner's field of work, he shall immediately inform the Engineer in writing. The Engineer shall promptly review the matter and if he finds an error or omission has been made, he shall determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the contract, the Engineer shall issue an appropriate change order. After discovery of an error or omission by the Contractor, related work performed by the Contractor shall be done at his risk unless authorized, in writing, by the Owner.

B. Conflicting Provisions:

In cases of conflict between the specifications and drawings, the specifications shall govern. Figure dimensions on drawings shall govern over scale dimensions and detail drawings shall govern over general drawings. In the event an item of work is described differently in two or more locations on the drawings and in the specifications, the Contractor shall request a clarification from the Engineer. For any event where the Contractor claims any ambiguities or discrepancies within the specifications, the Contractor shall assume that the higher, greater and most stringent specification or standard applies.

22 - Material, Equipment and Workmanship

Unless otherwise specifically stated in the contract documents, the Contractor shall provide and pay for material, labor, tools, equipment, water, light, power, transportation, supervision, and temporary construction of any nature, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the work within the specified time. Material and equipment shall be new and of the quality specified. Equipment offered shall be current modifications, which have been in successful regular operation under comparable conditions. Construction work shall be executed in conformity with the standard practice of the trade.

23 - Demonstration of Compliance With Contract Requirements

A. Inspection:

To demonstrate his compliance with the contract requirements, the Contractor shall assist the Engineer and Construction Inspector in their performance of inspection work. The Contractor shall grant the Engineer and Construction Inspector access to the work and to the site of the work, and to the places where work is being prepared, or whence materials, equipment or machinery are being obtained for the work. The

Contractor shall provide information requested by the Engineer and Construction Inspector in connection with inspection work.

If the contract documents, laws, ordinances, or any public regulatory authority require parts of the work to be specially inspected, tested or approved, the Contractor shall give the Engineer adequate prior written notice of the availability of the subject work for examination.

All work shall be inspected by the Construction Inspector or the Engineer prior to it being covered. If parts of the work are covered in contravention of the Engineer or Inspector's directive, the cost of exposing the work for inspection and closing shall be borne by the Contractor regardless of whether or not the work is found to be in compliance with the contract.

If any work is covered in the absence of the Engineer or Inspector's directive to the contrary, the Contractor shall, if directed by the Engineer, uncover, expose or otherwise make available for inspection, portions of covered work. If it is found that such work is defective, the Contractor shall bear the expense of uncovering and reconstructing. If the work is found to be in compliance with the contract, the Contractor will be allowed an increase in the contract price, or an extension in the contract time, or both via a change order.

24 - Project Meetings

1:0 General

Project meetings will be held on site as often as deemed necessary by the Engineer throughout the construction period. Meetings will normally be held monthly. Contractor's representatives shall attend.

The purpose of the meetings will be to discuss schedule, progress, coordination, submittals and job-related problems.

25 - Overtime and Shift Work

Overtime and shift work may be established as a regular procedure by the Contractor with reasonable notice and written permission of the Owner. No work other than overtime and shift work established, as a regular procedure shall be performed between the hours of 6:00 p.m. and 7:00 a.m. nor on Sundays or holidays except such work as is necessary for the proper care and protection of the work already performed or in case of an emergency.

Contractor agrees to pay the Owner's costs of overtime inspection except those occurring as a result of overtime and shift work established as a regular procedure. Overtime inspection shall include inspection required during holidays and weekends, and between the hours of 6:00 p.m. and 7:00 a.m. on weekdays. Costs of overtime inspection will cover

engineering, inspection, general supervision and overhead expenses which are directly chargeable to the overtime work. Contractor agrees that Owner shall deduct such charges from payments due the Contractor.

26 - Submittal Procedure

1.0 General

The Contractor shall submit descriptive information, which will enable the Engineer to determine whether the Contractor's proposed materials, equipment, or methods of work are in general conformance to the design concept and in compliance with the drawings and specifications.

2.0 Contractor's Responsibilities

The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment, or method of work shall be as described in the submittal. The Contractor shall verify in writing that all features of all products conform to the requirements of the specifications and drawings. Submittal documents shall be clearly edited to indicate only those items, models, or series of material or equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall insure that there is no conflict with other submittals and shall notify the Engineer in each case where his submittal may affect the work of another contractor or the Owner. The Contractor shall insure coordination of submittals among the related crafts and subcontractors.

The contractor may authorize in writing a material or equipment supplier to deal directly with the Engineer with regard to a submittal. These dealings shall be limited to contract interpretations.

3.0 Transmittal Procedure

A. General

Eight (8) copies of submittals regarding material and equipment shall be accompanied by the Submittal Transmittal Form in this section. A separate form shall be used for each specific item, class of material, or piece of equipment. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers and specification section and paragraph. Submittals for various items shall be made with a single form when the items taken together constitute a manufacture's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: "XXXY"; where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the first, second, and third resubmittals, respectively. Submittal 026B, for example, is the second resubmittal of submittal 026.

B. Deviation from the Contract

If the Contractor proposes to provide material, equipment, or method of work, which deviates from the project manual, he shall indicate so under "deviations" on the transmittal form accompanying the submittal copies.

C. Submittal Completeness

Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.

4.0 Review Procedure

Review shall not extend to means, methods, techniques, sequences, or procedures of construction, or to verifying quantities, dimensions, weights or gages, or fabrication processes, or to safety precautions, or programs incident thereto. Review of a separate item, as such, will not indicate approval of the assembly in which the item functions.

The Contractor shall submit eight copies of all specified information. Unless otherwise specified, within 14 calendar days after receipt of the submittal, the Engineer shall review the submittal and return three copies of the submittal to the contractor with comments. The returned submittal shall indicate one of the following actions:

- If the review indicates conformance with the drawings and specifications, submittal copies will be marked "NO EXCEPTIONS TAKEN". In this event, the Contractor may begin to implement the work or incorporate the material or equipment covered by the submittal.
- 2. If the review indicates limited corrections are required, submittal copies will be marked "MAKE CORRECTIONS NOTED". The Contractor may begin implementing the work or incorporate the materials or equipment covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in O&M data, a corrected copy shall be provided.
- 3. If the review indicates that the submittal is insufficient or contains incorrect data, submittal copies will be marked "AMEND AND RESUBMIT". Except at his own risk, the Contractor shall not undertake work covered by this

submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED".

4. If the review indicates that the submittal does not comply with the plans and specifications, submittal copies will be marked "REJECTED - SEE REMARKS". Submittals with deviations which have not been clearly identified will be rejected. Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".

5.0 Effect of Review of Contractor's Submittals

Review of drawings, methods of work, or information regarding materials or equipment the Contractor proposed to provide, shall not relieve the Contractor of his responsibility for errors and omissions therein and shall not be regarded as an assumption of risks or liability by the Owner or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, or the method of work, material, or equipment so reviewed. A mark of "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Engineer has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

27 - Requests for Substitution

The Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified. The Engineer will consider offers for substitution only from the Contractor and will not acknowledge or consider such offers from suppliers, distributors, manufacturers, or subcontractors. The Contractor's offers of substitution shall be made in writing to the Engineer on the request for substitution form in this section and shall include sufficient data to enable the Engineer to assess the acceptability of the material or equipment for the particular application and requirements.

If the offered substitution necessitates changes to or coordination with other portions of the work, the data submitted shall include drawings and details showing such changes. Contractor agrees to perform these changes as part of the substitution of material or equipment at no additional cost to the Owner. Within thirty (30) calendar days after receipt of the offer of substitution, the Engineer will review the material submitted by the Contractor and advise the Contractor of objections if any, to the proposed substitution, such action shall not relieve the Contractor from responsibility for the efficiency, sufficiency, quality and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name. Any cost differential associated with a substitution shall be reflected in the offer and the contract documents shall be modified by a change order.

28 - Manufacturer's Directions

Manufactured articles, material and equipment shall be applied, installed, connected, erected, adjusted, tested, operated and maintained as recommended by the manufacturer, unless otherwise specified. Manufacturer's installation instructions and procedures shall be provided prior to installation of the manufactured articles, material and equipment. Manufacturers directions shall be included as part of the submittal procedure.

29 - Product Data

Data required by the Owner for inspecting, testing, operating or maintaining parts of the work shall be provided by the Contractor. Unless otherwise specified, such information shall consist of six (6) copies and shall be provided at the time the referenced material or equipment is delivered to the job site. The data shall include such items as shop drawings, erection drawings, reinforcing steel schedules, testing and adjusting instructions, operations manuals, maintenance procedures, parts lists and record drawings. When applicable, information and data to be provided shall be identified by the specified equipment number. Extraneous material on the pages or drawings provided shall be crossed out, and the equipment or material to be supplied shall be clearly marked. Such information is to be provided as part of the work under this contract and its acceptability determined under normal material submittal procedures.

30 - Record Drawings

It shall be the primary responsibility of the Engineer and Construction Inspector to gather and prepare detailed information in the field for preparation of record drawings at the end of the project. However, the Contractor shall maintain a neat set of updated construction drawings. The record drawings maintained by the contractor shall include horizontal and vertical locations of the project work, buried utilities, dimensions, any approved changes to the drawings during construction and any other revisions with descriptive notes. All revisions made by the contractor shall be in color. These plans shall be available during normal working hours at the job site for review by the Engineer's project inspector, and at the completion of the project shall become the property of the Owner and shall be delivered to the Engineer. Failure to do so will result in Contractor's final payment being withheld.

31 - Protection of the Public and Property

The Contractor shall provide and maintain all necessary watchmen, barricades, lights, flagmen and warning signs and take all necessary precautions for the protection of the public. The Contractor shall provide a plan at the Pre-construction meeting. This plan shall include the contractors proposed method for the diversion of stormwater flow.

32 - Protection of the Owner's Property

The Contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Owner's property from injury or loss arising in connection with this Contract. The Contractor shall adequately protect adjacent private and public property, as provided by Law and Contract Documents.

Before parking any heavy equipment on non-project property, the contractor must request and receive written permission from the Owner.

33 - Maintenance of Traffic and Sequence of Operations:

A. General: The following conditions will apply:

- 1. A traffic control plan shall be submitted for approval by the Engineering Director, hereinafter referred to in this section as the Engineer, prior to any construction operations. Furthermore, a right-of-way permit must be obtained from the Engineering Department.
- 2. All signage for construction operations, lane and street closures, as well as detours, shall be performed in accordance with the current Federal and State Manual on Uniform Traffic Control Devices on Traffic Controls and Temporary Street Construction and Maintenance.
- 3. The work shall be arranged and conducted so that it can be performed with the least interference to all vehicular and pedestrian traffic.
- 4. No property owner shall be denied vehicular access to their property for any length of time, other than that as determined by the Engineer, is absolutely necessary.
- Two-way traffic must be maintained on all public roads and streets, except that during periods of off-peak use, one-way traffic, properly controlled by a certified DOT flagman, will be permitted at the discretion of the Engineer. Each time there is to be a change in the number of lanes open to traffic; it shall be approved by the Engineer.
- 6. The Engineer may approve detours around construction sites when one open traffic lane is not feasible.
- 7. For closing of minor residential streets, a 24-hour advance notice to all residences is required.
- 8. For lane closures involving signalized intersections or arterial streets, a 48-hour advance notice is required to all residences and businesses.

- 9. Complete street closures involving collectors and arterial streets, requiring a traffic detour, require 4 working days advance notice in order to coordinate a news release in the newspaper and notification to all residences and businesses.
- 10. In order to provide the greatest possible convenience to the public, the Contractor shall remove all lane closure markings and devices immediately when work is complete in the area that the work is being performed or temporarily suspended for any length of time.

B. Safety

- The Contractor performing the work shall be responsible for the erection and maintenance of all traffic control devices during construction.
- 2. At the end of work each day, the Contractor shall remove all equipment, tools, and any other hazards in the traveled portion of the roadway.
- When construction necessitates suspension of an existing traffic signal operation, the Contractor shall furnish, at his expense, an off-duty police officer to regulate and maintain traffic control at the site.

3. Enforcement

In the event that compliance with these measures is not achieved, the Traffic Engineer may shut down all operations being performed. The Engineer shall also withhold any payments due until the above requirements have been met. At any time during the course of the work, the Engineer may, at his discretion and by whatever means necessary, correct any situation that he deems hazardous to the health and welfare of the public. Work performed by the Traffic Engineer, or any entity enlisted by the Traffic Engineer, to correct situations of public hazard shall be deducted from monies due the Contractor.

4. Compensation

There will be no separate pay item for maintenance of traffic.

34 - Lot Corners

In the course of the construction work, it may be necessary to disturb and remove the established lot or property corners of some of the properties. The Contractor shall be required to record all property corners prior to construction and pay to replace them after the construction is completed. A list of all recorded property corners shall be provided to the Engineer, Owner and Construction Inspector. All lot or property corners removed as described above, or all lot or property corners destroyed by the Contractor's operations

shall be replaced by an approved Land Surveyor registered in the State of Georgia. The Contractor shall pay for the replacement and certification of the lot corners reset.

35 - Existing Utilities

All known utility facilities are shown schematically on the plans and are not necessarily accurate in location as to plan or elevation. Utilities such as service lines or unknown facilities not shown on the plans will not relieve the Contractor of his responsibility under this requirement. The Contractor shall be responsible for the cost of repairs to any damaged underground facilities; even when such facilities are not shown on the drawings. The Contractor shall contact all utility companies prior to beginning work and request an accurate location of their respective utilities. "Existing Utility Facilities" shall mean any utility that exists on the project in its original, relocated or newly installed position.

The Contractor shall call, by law, the Utility Location and Coordination Council in Atlanta at 1-800-282-7411 and shall request that all owners of utilities, including gas companies, electric companies, telephone companies, cable television companies and governmental units, prior to starting any excavation of the project, locate and mark their respective facilities. Adequate time shall be allowed for this work and be indicated on the project schedule.

All Contractors' operations shall be conducted as to interfere as little as possible with utility service. Any proposed interruption by the Contractor must be approved in advance by the respective utility's owner.

The existence and location of underground utilities will be investigated and verified in the field by the Contractor before starting work. The location of all known interferences based on the best information available has been shown on the drawings, but this information may not be complete or accurate.

Water lines and gas lines and appurtenances and sewer lines uncovered by the Contractor shall be protected and kept in service by the Contractor and the Contractor shall notify the respective utility's owner that the line has been or will be uncovered. The Contractor shall use adequate braces and slings or other appropriate methods to keep the lines in service, and any repairs made necessary by his operation shall be made at the Contractor's expense.

The Contractor shall familiarize himself with and comply with the provisions of O.C.G.A. Section 25-9-1 et. seq.

If any public or private utility lines, pipes, facilities, or structures are damaged or broken by the operations of the Contractor as a result of being disturbed, exposed or unsupported, the Contractor shall be responsible for the complete and prompt restoration of the same and shall hold the County harmless from any claims or causes or action for damage and for any liability which may arise there from.

The Contractor is responsible for coordinating with the respective utility's owner any relocation, adjustment, holding or replacement of utility facilities.

Power poles to be relocated shall be moved by the Georgia Power Company. Telephone poles will be moved by Southern Bell. Gas lines to be relocated or lowered will be moved by the Atlanta Gas Light Company. The relocation, holding or replacement of any existing utilities shall be considered consequential to the work and any cost associated therewith shall be borne by the Contractor.

36 - Special Protection of Trees

The Contractor shall comply with the County Tree Ordinance. Refer to Section 02100, "Clearing," for procedures and requirements.

37 - Material Delivery, Handling, and Storage

The Contractor shall schedule and sequence the delivery of material and equipment such that installation can be accomplished in a timely manner. The Contractor shall thoroughly examine all material and equipment upon delivery and shall not accept delivery of defective or damaged material or equipment. All material shall be handled and stored in accordance with manufacturers written recommendations.

Nylon slings and chokers shall be used for lifting all material and equipment. Chains, cables, wire rope, or other such items that may cause change to factory-applied coatings shall not be used for handling of material or equipment.

No lifting holes in pipe.

Material and equipment shall be stored as compactly and neatly as practicable at points convenient for the Contractor and which do not damage the work or interfere with or are otherwise hazardous to traffic. Material and equipment shall be stored so as to facilitate inspection and to insure preservation of their quality and fitness for use. All material and equipment shall be stored on wooden skids or platforms such as not to be in direct contact with the ground.

38 - Maintenance during Construction

The Contractor shall maintain the work from the beginning of construction operations until final acceptance of the Project. This maintenance shall constitute continuous and effective work prosecuted day by day with adequate equipment and forces to the end that roadways or structures are kept in satisfactory condition at all times, including satisfactory signing or marking as appropriate, and control of traffic where required by use of traffic control devices as required by the State of Georgia.

Upon completion of the work, the Contractor shall remove all construction signs and barricades before final acceptance of the Project.

39 - Emergencies

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor is, without special instructions or authorization from the Owner, hereby permitted to act at his discretion to prevent such threatening loss or injury. He shall also act, without appeal, if so authorized or instructed by the Owner. The Contractor shall supply the Engineer with two (2) emergency phone numbers for contact 24 hours per day in the event of an emergency. After attempting contact with the Contractor via the emergency phone numbers, the Contractor cannot be reached or should he fail to respond, the Owner may remedy the situation by whatever means as may be necessary and deduct the cost for same from any monies due the Contractor.

40 - Safety and Health

The Contractor shall comply with Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29, C.F.R. Copies of these regulations may be obtained from Labor Building, 14th and Constitution Avenue N.W., Washington, D.C. 20013.

The Contractor shall also comply with the provisions of the Federal Occupational Safety and Health Act as amended and the High Voltage Act of the State of Georgia, O.C.G.A. Section 46-3-30 through 46-3-40, and all federal, state, county, and city codes, regulations, and standards.

41 - Accidents

The Contractor shall provide at the site such equipment and medical facilities as are necessary to supply first-aid service to anyone who may be injured in connection with the work. The Contractor shall report in writing to the Owner all accidents whatsoever arising out of, or in connection with, the performance of the work, whether on or adjacent to the site, which causes death, personal injury, or property damages, giving full details and statement of witnesses. In addition, if death or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Contractor or any sub-contractor an account of any accident, the Contractor shall promptly report the facts to the Owner, giving full details in writing of the claim.

The Contractor shall provide his Superintendent and Foreman who are on the site of the work, the name of hospital and phone number, map to the hospital, rescue service numbers and the name and phone number of the doctor he proposes to use in case of accident.

42 - Load Limits

The Contractor shall be governed by the local load limit requirements of the Georgia Standard Specifications on State, County or City maintained roadways. The Contractor shall be responsible for his damage to existing streets and roads.

43 - Sanitary Provisions

The Contractor shall provide temporary sanitary facilities for the use of the workmen during the progress of the work. The sanitary facilities shall conform to the requirements of the Federal Occupational Safety and Health Administration. All facilities shall be removed at the completion of the Contract.

44 - Construction Buildings

Should the Contractor desire, he may erect structures for housing tools, machinery and supplies; structures will be permitted only at places approved by the Engineer. Their surroundings shall be maintained at all times in a sanitary and satisfactory manner. On or before the completion of the work, all such structures shall be removed, together with all rubbish and trash, and the site shall be restored to its original condition at the expense of the Contractor. Structures will not be permitted for the housing of men.

45 - Cleaning Up

The Contractor shall, as directed by the Owner, remove at his own expense from the Owner's property and from all public and private property all temporary structures, rubbish and waste materials resulting from his operations. Clean up shall be concurrent with the work. Where complete restoration is not reasonable until testing or inspection is complete, the Contractor shall, at minimum, remove all debris and trash and perform grading such that the area is left neat and without depressions that may hold water. The sufficiency of temporary clean up shall be at the discretion of the Construction Inspector.

46 - Electrical Energy

The Contractor shall make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light required for the proper completion of this contract during its entire progress. The Contractor shall provide all temporary wiring, switches, connections and meters.

There shall be sufficient artificial light, by means of electricity, so that all work may be done in a workmanlike manner when there is not sufficient daylight.

The Contractor shall remove all temporary electrical service and appurtenances prior to final acceptance by the Owner.

Where permanent electrical service is required, the Contractor shall request to the Engineer, in writing, an inspection of the electrical components of the work. Such request for inspection shall be given a minimum of 48 hours in advance. At such time as the electrical components of the work have been inspected and approved, the Contractor shall request from the Owner, in writing, an electrical service. Such request for electrical service shall be given a minimum of ten (10) days in advance.

47 - Water Supply

The Contractor shall provide all water required to successfully perform the work. All water provided by the Contractor, which is not potable, shall be clearly marked as such. All water shall be metered with a meter supplied by the Owner of the water system the water is being taken from and shall be obtained only with written authorization of the water system Owner. The Contractor shall be required to pay all costs associated with meters or back flow prevention devices.

48 - Environmental Impact

The Contractor shall conduct his operations so as to minimize, to the greatest extent possible, adverse environmental impact.

- A. <u>Noise</u>. All equipment and machinery shall be provided with exhaust mufflers maintained in good working order so as to reduce operating noise to meet all local noise ordinances. In addition, operation of equipment and machinery shall be limited to daylight hours, except with the permission of the Owner, based on critical need for the operation.
- B. <u>Dust/Smoke</u>. All equipment movements shall be accompanied by a minimum of dust. Traveled surfaces and earthwork shall be maintained in a moist condition to avoid the generation of dust or the airborne movement of particulate matter under all prevailing atmospheric conditions.
 - Burning operations shall be conducted only with the Owner's written permission. The Contractor shall be responsible for obtaining all permits and complying with all codes, ordinances and regulations pertaining to the burning.
- C. <u>Traffic.</u> Trucks carrying spoil, fill, concrete or other materials shall be routed over roads, which will result in the least effect on traffic and nuisance to the public. All material shall be loaded in a manner, which will preclude the loss of any portion of the load in transit, including covering, if necessary. All trucks shall comply with all load limits.
- D. <u>Siltation</u>. All points of concentrated runoff from rainfall shall be visually monitored to determine that no eroded material leaves the construction site. Measures shall be taken to promptly eliminate offsite deposition of eroded material, including the installation of silt fencing and detention basins.

49 - Construction Progress:

The Contractor shall furnish such manpower, materials, facilities and equipment as may be necessary to insure the prosecution and completion of the work in accordance with the accepted schedule. If work falls fourteen (14) days or more behind the accepted construction schedule, the Contractor agrees that he will take some or all of the following actions to return the project to the accepted schedule. These actions may include the following:

- Increase manpower in quantities and crafts.
- 2. Increase the number of working hours per shift, shifts per working day, working days per week, or the amount of equipment, or any combination of the foregoing.

3. Reschedule activities.

If requested by the Engineer, the Contractor shall prepare a proposed schedule revision demonstrating a plan to make up the lag in progress and insure completion of the work within the contract time. The proposed revision shall be submitted to the Engineer in accordance with Section 01500, Paragraph 42. Upon receipt of an acceptable proposed schedule, the revision to the construction schedule shall be made in accordance with Section 1500, Paragraph 18. All actions to return the project to the acceptable schedule are at the Contractor's expense.

The Contractor shall pay all costs incurred by the Owner which result from the Contractor's action to return the project to its accepted schedule. The Contractor agrees that the Owner shall deduct such charges from payments due the Contractor. It is further understood and agreed that none of the services performed by the Engineer in monitoring, reviewing and reporting project status and progress shall relieve the Contractor of responsibility for planning and managing construction work in conformance with the construction schedule.

Delays:

Notice of Delays: When the Contractor foresees a delay in the prosecution of the work and, in any event, immediately upon the occurrence of a delay which the Contractor regards as unavoidable, he shall notify the Engineer or Construction Inspector in writing of the probability of the occurrence of such delay, the extent of the delay, and its possible cause. The Contractor shall utilize the Notice of Delay

form in this section for reporting such delay. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Engineer shall determine how long the delay shall continue and to what extent the prosecution and completion of the work are being delayed thereby. He shall also determine whether the delay is to be considered avoidable or unavoidable and shall notify the Contractor of his determination. The Contractor agrees that no claim shall be made for delays which are not called to the attention of the Engineer or Construction Inspector at the time of their occurrence.

- 1. Avoidable Delays: Avoidable delays in the prosecution of the work shall include delays which could have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor or his subcontractors. Avoidable delays include:
 - a. Delays which may in themselves be unavoidable but which affect only a portion of the work and do not necessarily prevent or delay the prosecution of other parts of the work nor the completion of the whole work within the contract time.
 - b. Time associated with the reasonable interference of other contractors employed by the Owner which do not necessarily prevent the completion of the whole work within the contract time.
- Unavoidable Delays: Unavoidable delays in the prosecution or completion of 2. the work shall include delays which result from causes beyond the control of the Contractor and which could not have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor or his subcontractors. Delays in completion of the work of other contractors employed by the Owner will be considered unavoidable delays insofar as they interfere with the Contractor's completion of the work. Delays due to normal weather conditions shall not be regarded as unavoidable as the Contractor agrees to plan his work with prudent allowances for interference by normal weather conditions. Delays caused by acts of God, fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes and freight embargoes shall be considered as unavoidable delays insofar as they prevent the Contractor from proceeding with at least 75 percent of the normal labor and equipment force for at least 5 hours per day toward completion of the current controlling items on the accepted construction schedule.

Should abnormal conditions prevent the work from beginning at the usual starting time, or prevent the Contractor from proceeding with 75 percent of the normal labor and equipment force for a period of at least 5 hours per day, and the crew is dismissed as a result thereof, he will not be charged for the working day whether or not conditions change so that the major portion of the day could be considered to the suitable for work on the controlling item.

Extension of Time:

 Avoidable Delays: In case the work is not completed in the time specified, including extensions of time as may have been granted for unavoidable delays, the Contractor will be assessed liquidated damages, as specified.

The Owner may grant an extension of time for avoidable delay if he deems it in his best interest. If the Owner grants an extension of time for avoidable delay, the Contractor agrees to pay the liquidated damages.

- Unavoidable Delays: For delays which the Contractor considers to be 2. unavoidable, he shall submit to the Engineer complete information demonstrating the effect of the delay on the controlling operation in his construction schedule. The submission shall be made within thirty (30) calendar days of the occurrence which is claimed to be responsible for the unavoidable delay. The Engineer shall review the Contractor's submission and determine the number of days of unavoidable delay and the effect of such unavoidable delay on controlling operations of the work. The Owner agrees to grant an extension of time to the extent that unavoidable delay affect controlling operations in the construction schedule. During such extension of time, neither extra compensation or engineering inspection and administration nor damages for delay will be charged by the Contractor to the Owner, It is understood and agreed by the Contractor and Owner that time extensions due to unavoidable delays will be granted only if such unavoidable delay involve controlling operations which would prevent completion of the whole work within the specified contract time. It is understood and agreed by the Contractor and Owner that during such extension of time, no extra compensation shall be paid to the Contractor.
- 3. DAMAGES FOR DELAYS: For the period of time that any portion of the work remains unfinished after the time fixed for completion in the contract documents, as modified by extensions of time granted by the Owner, it is understood and agreed by the Contractor and the Owner that the Contractor shall pay the Owner the liquidated damages, specified.

50 - Omissions

The drawings and specifications shall both be considered as a part of the contract. Any work and material shown in the one and omitted in the other, or described in the one and not in the other, or which may fairly be implied by both or either, shall be furnished and performed as through shown in both, in order to give a complete and first class job.

51 - Differing Site Conditions

- A. The Contractor shall promptly, and before such conditions are disturbed, notify the Engineer in writing of: (1) subsurface or latent physical conditions differing materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract. The Engineer or Construction Inspector shall promptly investigate the conditions, and if he finds that such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performances of any part of the work under this contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the contract modified in writing accordingly.
- B. No claim of the Contractor under this clause shall be allowed unless the Contractor has given the required notice.
- C. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

SUBMITTAL TRANSMITTAL

				P
SORMI	CT Dinemaker'	c Canal Widening Phase	2 Section 1	
		96-4-1		
CONTR	ACTOR			
DATE_				-14000
		s transmitted for subr		
NO.	DATE	COPIES	DESCRIPTION/EQUIPMENT NO.	1
]
		l		
	with no exception	ons Illowing deviations:	I herein is in compliance with the specifications:	
NO			DEVIATION	
	(Contrac	tor's Signature)		
			$\phi = p^{\alpha}$	
SUBMITTAL REVIEW				
		RAL COMPLIANCE W ECTNESS OF DIMENS	TH CONTRACT DOCUMENTS NO. RESPONSIBILIT SIONS OR DETAILS	ΥK
Rema	rks:	was a second of the second of		
NO EX	CEPTIONS TAK	EN		
MAKE	CORRECTIONS	NOTED	· · · · · · · · · · · · · · · · · · ·	
ADME	END AND RESUB	MIT		
REJE	CTED - SEE REN	MARKS	· 	
Date		·	v	

Engineer

REQUEST FOR SUBSTITUTION

PROJE- PROJE- CONTR DATE_	ITAL No. CT Pipemaker's Canal Widening Phase 2 Section P-96-4-1 ACTOR	ection 1
NO.	MATERIAL/EQUIPMENT SPECIFIED	MATERIAL/EQUIPMENT SUBSTITUTION
We have	verified that the material transmitted herein is in	compliance with the specifications:
	with an average and	
	with no exceptions except for the following deviations:	
NO.		DEVIATION
		AND THE PROPERTY OF THE PROPER
	(Contractor's Signature)	
OUDER	TAL DELUCIA	•
SUBIVITI	TAL REVIEW	
		ks:
	ONTRACT DOCUMENTS NO	
	NSIBILITY IS ASSUMED FOR CTNESS OF DIMENSIONS OR DETAILS	
40 11112		
	NO EXCEPTIONS TAKEN	
	MAKE CORRECTIONS NOTED	
		
	ADMEND AND RESUBMIT	
	REJECTED - SEE REMARKS	
Date		By
		Engineer

NOTICE OF DELAY

CONSTRUCTION		on 1
PROJECT NO.	P-96-4-1	A1 1
CONTRACTOR:		
	•	
Notice is hereby g	iven that a delay has or will occur	r and is described as follows:
	·	
ATTICLE BOOK TON	- ALLEN AND AND AND AND AND AND AND AND AND AN	
	and the state of t	
Ву	•**	
Col	ntractor	DATE
Received		
Co	nstruction Inspector	DATE
	g 141 apt out	
Fn	gineer	DATE
Saun I E	9.11001	
Response to Not	ice:	
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· · · · · · · · · · · · · · · · · · ·		
Co	nstruction Inspector	DATE
	·	
		DATE
*	aineer	DATE

SECTION 01650 SUPPLEMENTAL SPECIAL CONDITIONS

- 1. <u>General Conditions</u>: The General and Special Conditions shall apply to all work in this contract, except as otherwise specified in the Supplemental Special Conditions. Requirements of the Supplemental Special Conditions supersede those of the General and Special Conditions.
- 2. <u>Water Diversion</u>: The Contractor shall be responsible for the diversion of all water during the construction of the project. The contractor shall maintain positive drainage through out all phases of construction without causing any flooding erosion, etc. All costs for water diversion will be included in the contractors' earthwork price.
- 3. <u>Construction Schedules</u>: Contractor shall submit an updated schedule and sequence of operations for completing the work with each pay request or at the request of the Engineer or Owner. The Contractors Schedule shall include the following:
 - A. Start/finish duration all activities.
 - B. Identification of all activities along the critical path.
 - C. Identification of all activities that involve the Owner.
 - D. Narrative of construction logic.
 - E. Name of person who prepared schedule.
 - F. Identification of all activities over 14 days.

Contractor's construction schedule shall also conform to the Special Conditions section of the contract.

- <u>Pre-Bid Conference and Site Visit:</u> All contractors are required to attend a mandatory prebid conference and mandatory site visit. No bid will be accepted from a contractor who has not attended the pre-bid conference and visited the site.
- Adjustment of Discrepancies: In all cases of discrepancies between the various dimensions and details shown on drawings, or between the drawings and these specifications, the more expensive construction shall be estimated before construction is started. Following the start of construction, the matter shall be submitted to the engineer for clarification. Without such a decision, discrepancies shall be adjusted by the Contractor who shall bear all of the extra expense involved.
- 6. The Contractor shall protect freshly placed concrete from vandalism or other damage.
- 7. In the event that there is any sanitary sewer service, water service or gas service damage, it must be immediately repaired, as to minimize the inconvenience to the public.
- 8. The Contractor shall comply with all local, state and federal regulations as they pertain to construction activities (erosion control, etc.).
- 9. 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.
- 10. The Contractor shall engage the services of a Land Surveyor, Registered in the State of Georgia to conduct and supervise all survey work required for the construction project, including the establishment of horizontal and vertical locations of project features in accordance with the Construction Plans.

SECTION 01650 SUPPLEMENTAL SPECIAL CONDITIONS

- 11. Purchase of American made equipment and products: This recipient is hereby notified that it is encouraged, to the extent feasible, to purchase American-made equipment and products with funding provided under this Project in accordance with Congressional intent as set forth in the resolution contained in Public Law 103-317, Section 607 (a) and (b).
- Office Trailer: Contractor shall include in their earthwork bid price the cost of providing a trailer to be used the Owner, Engineer and Inspector. This trailer shall be placed in a location near the contractor's construction office trailer and shall be large enough to accommodate a 4' x 10' conference table, 1 elevated table for construction plans, 1 desk, 1 file cabinet, 2 chairs, and 8 folding chairs. This furniture shall be provided with the trailer. The trailer shall be equipped with lights, electric service, heat and air conditioning, and telephone. Sanitary facilities shall also be provided. Utility costs to be borne by the Contractor.
- 13. <u>Controlling Specifications</u>: Should differences be found in the respective sections, Section 01600, Supplemental Special Conditions, shall have control over the Special Conditions and the Technical Specifications; addenda and minutes of pre-bid and pre-award conferences shall have control over the Supplemental Special Conditions.
- 14. <u>Soil Compaction</u>: All structures shall have a compaction of 95% standard proctor density or greater as called for in the drawings and specifications.
- 15. Proposed Structures within Right-of-Way: All proposed drainage structures shall be placed within the proposed right-of-ways. If during the course of construction the Contractor determines that any of the proposed improvement will not fit within the proposed right-of-ways he shall immediately notify the Engineer in writing so that any adjustments can be made.
- 16. <u>Backfill/Fill Placement Operations:</u> During the placement and compaction of backfill, the contractor shall take all necessary measures to place backfill and compact it at the proper moisture content so that there will be no pumping of the backfill during placement. No fill shall be placed on top of any fill material that is found to be pumping even if the fill that is being placed is meeting and passing the compaction requirements. If any fill is found to be pumping, it shall be stabilized by the contractor at no additional cost or time to the Owner before placing the next lift. Any backfill lifts shall be no more than 12" but shall not exceed the capacity of compaction equipment.
- 17. <u>Shop Drawing Submittals:</u> The following is a list of generally described shop drawing submittals that will be required for the project. The engineer and Owner expect to see all submittals for the project to be submitted and reviewed within the first two months of the project.
 - a) Chain Link Fence and Gates
 - b) Asphalt Mix Design
 - c) Base Material for Pavement
 - d) Channel Liner
 - e) Filter Fabric
 - f) Geogrid
 - g) Fill Material
 - h) Storm Drainage

SECTION 01650 SUPPLEMENTAL SPECIAL CONDITIONS

- i) Stone
- j) Erosion Control Material
- k) Gassing
- Any other items not listed but are outlined in the drawings and specifications or as requested by the engineer

18. Agreements with Property Owners:

Any agreement made by the Contractor for additional accesses from the property owners along the project route shall be made in writing. A copy of any agreements shall be furnished to the Owner, Engineer, and Construction Inspector.

19. Corps of Engineers Permit:

The permit at the end of this section shall be part of the contract. The Contractor shall comply with all of the requirements in the permit.

20. Norfolk and Southern Railroad Right of Way:

The attached drawing shows the extent of the work that is to be performed in the Norfolk and Southern right of way between stations 138+00 to 140+00. The work consists of extending the canal access roads from the right of way to the top of the railroad embankment. Prior to performing any of this work the contractor shall obtain all necessary permits, licenses, etc. from the Norfolk and Southern railroad. A copy of all agreements, permits, licenses etc. shall be furnished to the owner, engineer, and construction inspector.

21. CSX Transportation Railroad and Right of Way:

The two attached drawings show the extent of the work that is to be performed in the CSX right of way between stations 121+50 and 123+50. The work consists of extending the canal access roads from the edge of the right of way to the toe of the railroad embankment and placing rip-rap to the limits shown on the drawing. Prior to performing any of this work the contractor shall obtain all necessary permits, licenses etc. from CSX Transportation. A copy of all agreements, permits, licenses etc. shall be furnished to the owner, engineer, and construction inspector.

22. Work within Highway 21 Right of Way:

All work that is shown to be performed in the Highway 21 Right of Way shall be in accordance with Georgia Department of Transportation Standard Specifications and Details, latest edition.

23. Asphalt Base and Paving:

All asphalt base and paving materials shall meet the requirements of the Georgia Department of Transportation Standard Specifications, latest edition. The installation of all asphalt base and pavement shall be in accordance with the latest edition of the Georgia Department of Transportation Standard Specifications.

SUPPLEMENTAL SPECIAL CONDITIONS

24. Notice of Intent and Notice of Termination:

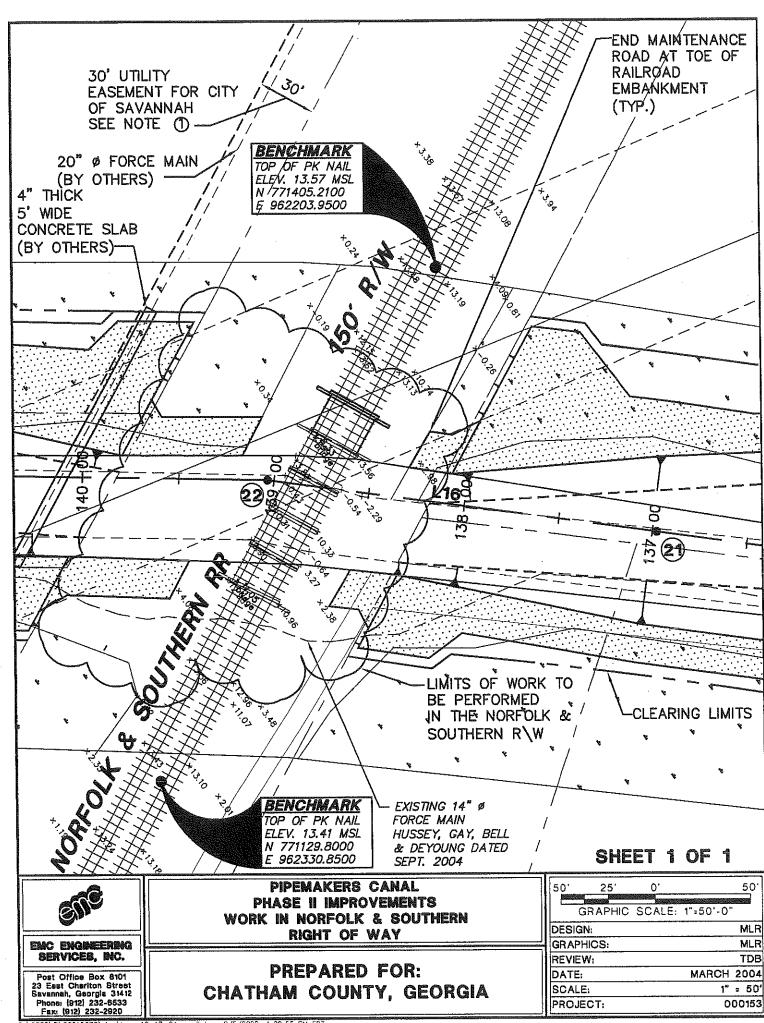
The contractor that is awarded the project will be required to submit the Notice of Intent at the beginning of the project and to submit the Notice of Termination at the completion of the project. The contractor shall pay all necessary fees that are associated with this work. Copies of the Notice of Intent, Fee and Notice of Termination Forms have been included at the end of this section.

25. Channel Liner:

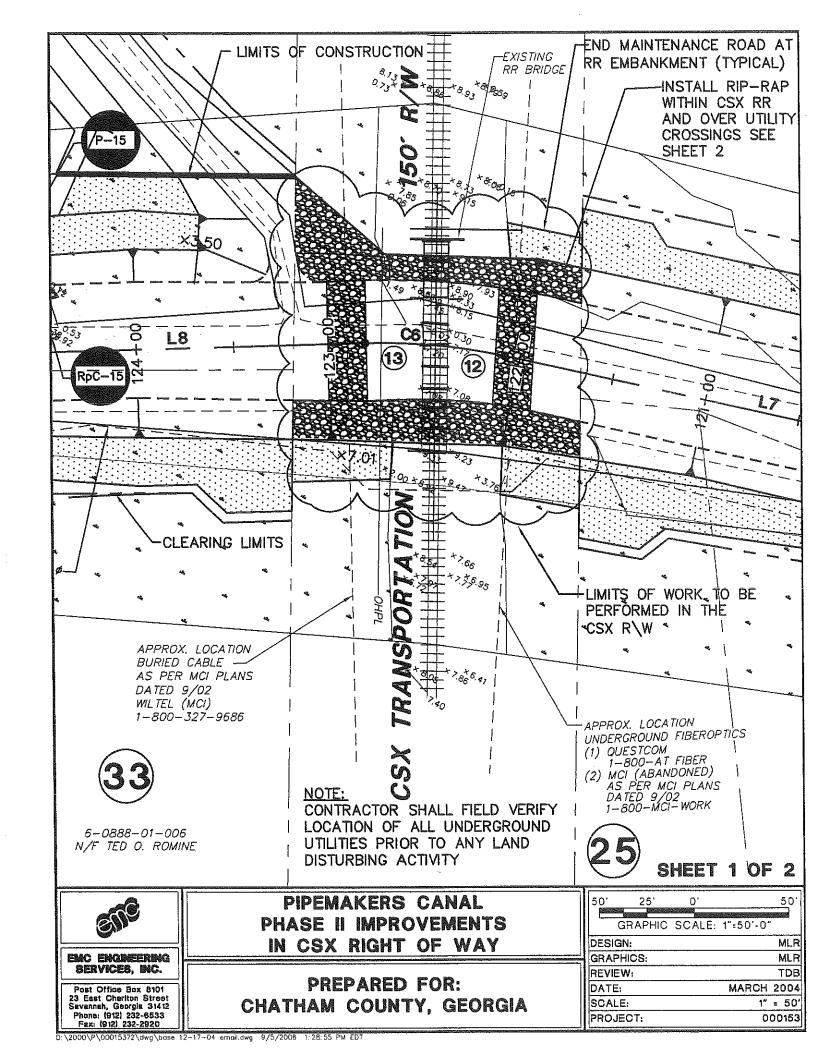
Materials: Fabric shall be woven of 100 percent nylon of which at least 50 percent by weight shall be bulk-textured fiber. Fabric shall consist of double-layer open selvage fabric joint in a mat configuration. Grout shall consist of a mixture of Portland cement, fine aggregate and water proportioned as to provide a pumpable slurry. Grout shall have a compressive strength of 2500 PSI at 28 days. Compressive strength testing shall conform with ASTM C-31 and C-39. To relieve hydrostatic pressure weep tubes shall be installed in the fabric prior to filling. The weep tubes shall be placed 5 to 10 feet on center. The revetment manufacturer shall verify the weep tube spacing. Fabric shall have a minimum thickness of 6" when filled with grout.

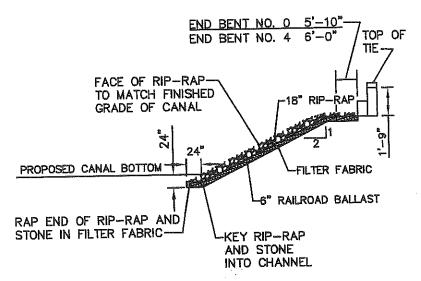
Installation: Fabric shall be inspected and stored in a clean, dry area where it will not be subject to direct sunlight, moisture or mechanical damage. Prior to grout injection, the dual-walled fabric shall be positioned over a geotextile filter fabric. Grout shall be injected between the top and bottom layers of fabric through small slits cut in the upper layer of fabric. The sequence of grout injection shall be such as to ensure complete filing of the revetment-forming fabric to the thickness specified. Any mat measuring less than 90 percent of the average of all thickness measurement shall be re-injected with grout until average thickness has been attained.

FND OF SECTION



:\2000\P\00015372\dwg\base 12-17-04 emoil.dwg 9/5/200B 1:28:55 PM EDT





DETAIL "A"

END
BENT
NO. 0

RIP-RAP W/FILTER
FABRIC AND BEDDING
STONE TYP. BOTH SIDES

24'-0"

34'-0"

34'-0"

END
BENT
NO. 4

FLEV. (-)4.74

SEE DETAIL "A"

NOTES:

- 1. RIP-RAP TO BE TYPE 1 AND CONFORM TO GA DOT SECTION 805.
- 2. BEDDING STONE TO BE RAILROAD BALLAST AND MEET THE REQUIREMENTS OF CSX TRANSPORTATION.
- 3. RIP-RAP AND BEDDING STONE TO BE PLACED ON WOVEN FILTER FABRIC. FABRIC TO BE MIRAFI 500X OR EQUAL.
- RIP-RAP AND BEDDING STONE TO BE PLACED ALONG THE SIDE SLOPES ON BOTH SIDES OF THE CANAL THAT
 FALL INSIDE THE 150' RAILROAD R/W.
- 5. PERFORM ALL EXCAVATION AS NEEDED TO CONSTRUCT THE CANAL CROSS SECTION SHOWN THROUGHOUT THE ENTIRE RAILROAD R/W.

TYPICAL SECTION AT CSX RAILROAD BRIDGE STA. 122+50 LOOKING EAST (DOWNSTREAM)

NOT TO SCALE

SHEET 2 OF 2



ENC ENGREERING SERVICES, INC.

Post Office Box 6101 23 East Chariton Street Savannah, Georgia 31412 Phone: (612) 232-6533

PIPEMAKERS CANAL PHASE II IMPROVEMENTS IN CSX RIGHT OF WAY

PREPARED FOR: CHATHAM COUNTY, GEORGIA

MLR
MLR
TDB
MARCH 2004
AS SHOWN
000153

Fax: [912] 232-2920 | 100\P\n0015372\dwn\base 12-17-04 email.dwg 8/12/2008 12:41:57 PM EDT

Sep 17 08 08:20a

Plan Review # CH 9036



COASTAL SOIL & WATER CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL PLAN REVIEW

DB/14/08 DATE ON PLANS Chatham Local Issuing Authority 08/15/08 DATE RECEIVED BY GSWCC

49.15 TOTAL PROJECT ACRES Chatham County

49.15 TOTAL DISTURBED ACRES

Pipem	akers Canal Widening Phase 2-Section	11	From I-95 to Dean Forest Road, Catham			
· · · · · · · · · · · · · · · · · · ·	NAME OF PROJECT		ADDRE	SS		
		001 & 6-0003-01-004 (2 of man		Willey .		
	SPECIFIC INFORMATION ON	I PROJECT (INCLUDING LAND LO	T & DISTRICT NUMBER)			
	EMC Ben Lockhart	8917	04/13/09 Cape Fo	ear & Ogeechee		
Plan Designer		level II cert#	Expiration date	Soil Series		
Fax-232-2920	tel- 912 232-6533					
Chatham County		P.O.Box 8161, Savannah, Ga 31312		652-780D		
Α.	PPLICANT	ADDRESS		PHONE NUMBER		
				Fax #:		
	RE	PORT OF TECHNICAL REVIEW				
sec	e erosion and sediment control plan for the diment control ordinance or rules and reg provisions of the Erosion and Sedimenta	ulations governing land-disturbin				
Th	e erosion and sediment control plan does	not meet said requirements in t	he Chatham County throi	ugh failure to		

Other:

Note: NRCS review and District approval of this ESPC plan does not exempt the permittee from other permits required.

Also this technical Review does not include the provisions found in the State General Permit nor does it absolve the owner from the requirements and responsibilities outlined in the permit.

Technical review by: Ann A. Welch

GSWCC Level II cert.# 66 Organization: NRCS

Date: 08/21/08

The technical review as accomplished and reported above was done at the request of and is concurred in by the Coastal

Soil and Water Conservation District.

include the following:

DISTRICT CURERUSOR

DATE

NPDES GENERAL PERMITS - FEE FORM

State of Georgia
Department of Natural Resources
Environmental Protection Division

PLEASE PRINT OR TYPE THIS FORM.
SUBMIT ORIGINAL FORM AND PAYMENT TO:

EPD - Construction Land Disturbance Fees P. O. Box 932858 Atlanta, GA 31193-2858



PLEASE MAKE CHECKS PAYABLE TO: Department of Natural Resources - EPD (DO NOT MAIL CASH)

COMPLETE THE FOLLOWING (do not leave any sections blank - if not applicable, mark "N/A"):

Primary Permittee's Name:	Project Construction Site Name:		
Address:			
City:	Construction Site Street Address:		
State: Zip Code:	(please provide sufficient information to accurately locate the construction site)		
Contact Telephone:	Is the construction site located within the city limits?		
	☐ YES ☐ NO		
	City: (applicable if the site is located within the jurisdictional boundaries of the municipality)		
	County:		
Acres Disturbed (to the nearest tenth (1/10 th) acre) In an area with a certified Local Issuing Authority (Do not include fees payable to the Local Issuing Authority)	X \$40/acre = (acres)		
Acres Disturbed (to the nearest tenth (1/10 th) acre) In an area with no certified Local Issuing Authority	X \$80/acre =		
Acres Disturbed (to the nearest tenth (1/10 th) acre) (By an entity exempt from a certified Local Issuing Autho	rity's		
regulation pursuant to statute)	TOTAL FEE SUBMITTED =		
	CHECK NUMBER:		
Submitted By (Printed Name):	Title:		
Signature:	Date:		

ATTACH CHECK HERE
VOID IF SUBMITTED WITHOUT PAYMENT

,
egiszpeszzzek

For Official Use Only

NOTICE OF INTENT

VERSION 2008

State of Georgia
Department of Natural Resources
Environmental Protection Division

For Coverage Under the 2008 Re-Issuance of the NPDES General Permits To Discharge Storm Water Associated With Construction Activity

PRIMARY PERMITTEE

NOTIC	E OF INTENT (Check Only One):						
	Initial Notification (New Facility/Construction Site)						
	Re-Issuance Notification (Existing Facility/Construction Site)						
	Change of Information (Applicable only if the NOI was submitted after August 1, 2008)						
COVE	RAGE DESIRED (Check Only One):						
□ GAF	R100001 - Stand Alone 🛛 GAR100002 - Infrastructure 🗍 GA	R100003 - Common Development					
i.	SITE/OWNER/OPERATOR INFORMATION						
Project	Construction Site Name:						
GPS Lo	ocation of Construction Exit (degrees/minutes/seconds):						
	Latitude'" Longitude	0 ''					
Constru	uction Site Street Address:						
City (a	oplicable if the site is located within the jurisdictional boundaries of the m	unicipality):					
County	··						
Comm	on Development Name (applicable only to General NPDES Permit No. G	GAR100003):					
Owner	Owner's Name: Phone:						
Addres	Address: City: State: Zip Code:						
Duly A	Duly Authorized Representative (optional): Phone:						
Opera	Operator's Name (optional): Phone:						
Addres	ss: City:	State:Zip Code:					

Facility/Construction Site Contact: Phone: _____Phone: ____

II. CONSTRUCTION SITE ACTIVITY INFORMATION

Start Da	ate (mo	onth/date/year):	//	Completi	tion Date (month/date/year)://
Estimat	ed Dis	turbed Acreage (ac.	res, to the nearest t	enth (1/10 th) acre	e):
Does th	e Ero:	sion Sedimentation	and Pollution Con e (i.e., primary, sec	trol Plan (Plan) p	provide for disturbing more than 50 acres at any one y permittees), or more than 50 contiguous acres total
		YES			
		NO		•	
		N/A - if the Plan wand No. GAR10000	vas submitted prior 33 for Stand Alone a	to the effective of and Common Dev	date of the General NPDES Permit No. GAR100001 evelopment construction activities.
		N/A – if construction to linfrastructure const		covered under	the General NPDES Permit No. GAR100002 for
Constr	uction	Activity Type:	☐ Commercial	☐ Industrial	☐ Municipal
			☐ Linear	☐ Utility	☐ Residential
Ш.		CEIVING WATER			
A.	Nai	me of Initial Receivir	ng Water(s):		
			rout Stream		Narm Water Fisheries Stream
B.					
	Na				No Water Fishering Stroom
	_		rout Stream		Warm Water Fisheries Stream eam □ Warm Water Fisheries Stream
C.		Sampling of Receiv			
D.		Sampling of Outfall			a Site Size (acres):
		mber of Sampling C		_	
E.	Does the facility/construction site discharge linear mile upstream of and within the same as "not supporting" its designated use(s)			arge storm water me watershed as s), as shown on violated, "Bio F" category 4a, 4b o	ter Drainage Area (square miles): r into an Impaired Stream Segment, or within one (s, any portion of an Impaired Stream Segment identifie n Georgia's 2008 and subsequent "305(b)/303(d) Li " (Impaired Fish Community) and/or "Bio M" (Impaire or 5, and the potential cause is either "NP" (nonpoi
		YES, Name of Im	npaired Stream Seg	ment(s):	
		NO			
		N/A — if the NOI GAR100001 and	was submitted wit No. GAR100003 fo	hin 90 days afte or Stand Alone ar	er the effective date of the General NPDES Permit N nd Common Development construction activities.
		N/A – if the NOI	was submitted prio	r to January 1, 20	2009 for the General NPDES Permit No. GAR100002

F.	Max	Does the facility/construction site discharge storm water into an Impaired Stream Segment where a Total Maximum Daily Load (TMDL) Implementation Plan for "sediment" was finalized at least six (6) months prior to the submittal of the NOI ? (Check Only One):			
		YES, Name of Impaired Stream Segment(s):			
		NO			
		N/A – if the NOI was submitted within 90 days after the effective date of the General NPDES Permit No. GAR100001 and No. GAR100003 for Stand Alone and Common Development construction activities.			
		N/A – if the NOI was submitted prior to January 1, 2009 for the General NPDES Permit No. GAR100002 for Infrastructure construction activities.			
IV.	АТ	TACHMENTS (Applicable Only to New Facilities/Construction Sites)			
Indicat	e if th	e items listed below are attached to this Notice of Intent:			
		Location map identifying the receiving water(s), outfall(s) or combination thereof to be monitored.			
	4.,,	Erosion, Sedimentation and Pollution Control Plan (if the project is greater than 50 acres regardless of the existence of a certified Local Issuing Authority in the jurisdiction OR if the project is in a jurisdiction where there is no certified Local Issuing Authority regulating that project regardless of acreage).			
	991,	Written authorization from the appropriate EPD District Office if the Plan disturbs more than 50 acres at any one time for each individual permittee (i.e., primary, secondary or tertiary permittees), or more than 50 contiguous acres total at any one time (applicable only to General NPDES Permits No. GAR100001 and No. GAR100003).			
		List of known secondary permittees (applicable only to General NPDES Permit No. GAR100003).			
		Schedule for the timing of the major construction activities.			
٧.	C	ERTIFICATIONS (Owner or Operator or Both to Initial as Applicable)			
	wi	l certify that the receiving water(s) or the outfall(s) or a combination of receiving water(s) and outfall(s) ll be monitored in accordance with the Erosion, Sedimentation and Pollution Control Plan.			
	ac the	I certify that the Erosion, Sedimentation and Pollution Control Plan (Plan) has been prepared in scordance with Part IV of the General NPDES Permit No. GAR100001, No. GAR100002 or No. GAR100003, e Plan will be implemented, and that such Plan will provide for compliance with this permit.			
	e\ th kr	I certify under penalty of law that this document and all attachments were prepared under my direction is supervision in accordance with a system designed to assure that certified personnel properly gather and valuate the information submitted. Based upon my inquiry of the person or persons who manage the system, or ose persons directly responsible for gathering the information, the information submitted is, to the best of my nowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting lise information, including the possibility of fines and imprisonment for knowing violations.			
Own	er's P	rinted Name: Title:			
Sign	ature:	Date:			
		Printed Name: Title:			
Sign	ature:	Date:			

INSTRUCTIONS

NOTICE OF INTENT - PRIMARY PERMITTEE

For Coverage Under the 2008 Re-Issuance of the NPDES General Permits To Discharge Storm Water Associated With Construction Activity

Please print or type the Notice of Intent (NOI) form.. Any NOI that contains illegible or incomplete information will not be accepted, will be returned and the construction site will not be granted Permit coverage. All information requested on the NOI must be submitted in order for the NOI to be valid. Any information requested on the NOI that is not applicable to the primary permittee or to the construction site must be marked "N/A." Please do not leave any sections blank in the NOI.

Who must file a Notice of Intent Form - The Owner and/or Operator of a facility/construction site that has a discharge of storm water where construction activities occur must apply for a National Pollutant Discharge Elimination System (NPDES) Permit. The Georgia Environmental Protection Division (EPD) re-issued the General NPDES Permits for Storm Water Discharges Associated with Construction Activity on August 1, 2008. The Permits are available for review at the EPD District Offices and on the EPD website, www.gaepd.org. It is highly recommended that the permittees read and understand the terms and conditions of the Permits prior to submitting a NOI. Please contact the appropriate EPD District Office as listed on the following pages for assistance in completing the NOI.

Where to file a Notice of Intent Form - The NOI and the attachments, as applicable, must be submitted to the appropriate EPD District Office as listed on the following pages. Please submit only the first three pages of this document with the applicable attachments.

Section I - Site/Owner/Operator Information

The construction site name and location information (i.e., GPS location of construction exit, street address, city, county) must be sufficient to accurately locate the construction site. If the construction site does not have a street address, please provide sufficient information to accurately locate the construction site. If additional space is needed, attach the location information to the NOI.

A duly authorized representative may be either a named individual or any individual occupying a named position that the primary permittee has authorized to sign all reports, certification statements, or other information requested by EPD.

The facility/construction site contact is the person who the primary permittee has assigned the responsibility for the daily on-site operational control.

Please do not leave any blanks in this section. Any information requested on the NOI that is not applicable to the primary permittee or to the construction site must be mark "N/A."

Section II - Construction Site Activity Information

For construction activities that began prior to the effective date of the Permits, the start date (month/date/year) must be the actual start date of construction activities.

Estimated disturbed acreage is the total number of acres, to the nearest tenth (1/10th) acre, that will be disturbed by the primary permittee and all secondary permittees.

Please do not leave any blanks in this section. Any information requested on the NOI that is not applicable to the primary permittee or to the construction site must be mark "N/A."

Section III - Receiving Water Information

If the facility/construction site discharges storm water directly or indirectly to the receiving water(s), and not through a municipal separate storm sewer system (MS4), enter the name of the receiving water(s) and indicate whether the water(s) is a trout stream or a warm water fisheries stream. Attach a written description and location map identifying the receiving water(s).

If the facility/construction site discharges storm water to a municipal separate storm sewer system (MS4), enter the name of the owner/operator of the MS4 (e.g., city name or county name) and the name of the receiving water(s) at the point of discharge from the MS4. A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that is owned and/or operated by a city or county which is designed or used for collecting or conveying storm water. It may be necessary to contact the city or county that owns and/or operates the MS4 to determine the name of the receiving water(s). Indicate whether the receiving water(s) is a trout stream or a warm water fisheries stream. Attach a written description and location map identifying the receiving water(s).

Any permittee who intends to obtain coverage under the Permits for storm water discharges associated with construction activity into an Impaired Stream Segment, or within one (1) linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment identified as "not supporting" its designated use(s), as shown on Georgia's 2008 and subsequent "305(b)/303(d) List Documents (Final)" at the time of NOI submittal, must satisfy the requirements of Part III.C. of the Permits if the Impaired Stream Segment has been listed for criteria violated, "Bio F" (Impaired Fish Community) and/or "Bio M" (Impaired Macroinvertebrate Community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff). Those discharges that are located within one (1) linear mile of an Impaired Stream Segment, but are not located within the watershed of any portion of that stream segment, are excluded from this requirement. Georgia's 2008 and subsequent 305(b)/303(d) List Documents (Final)" can be viewed on the EPD website, www.gaepd.org/Documents/305b.html.

If a Total Maximum Daily Load (TMDL) Implementation Plan for sediment has been finalized at least six (6) months prior to the permittee's submittal of the NOI, the Erosion, Sedimentation and Pollution Control Plan (Plan) must address any site-specific conditions or requirements included in the TMDL Implementation Plan that are applicable to the permittee's discharge(s) to the Impaired Stream Segment within the timeframe specified in the TMDL Implementation Plan. If the TMDL Implementation Plan establishes a specific numeric wasteload allocation that applies to an permittee's discharge(s) to the Impaired Stream Segment, then the permittee must incorporate that allocation into the Erosion, Sedimentation and Pollution Control Plan and implement all necessary measures to meet that allocation. A list of TMDL Implementation Plans can be viewed on the EPD website, www.gaepd.org.

Please do not leave any blanks in this section. Any information requested on the NOI that is not applicable to the primary permittee or to the construction site must be mark "N/A."

Section V - Certifications

The owner and/or operator must sign the Notice of Intent and initial the certification statements on the lines provided. Federal and State statutes provide specific requirements as to who is authorized to sign the Notice of Intent forms. A Notice of Intent form signed by an unauthorized person will not be valid. Please be aware that Federal and State statutes provide for severe penalties for submitting false information on this Notice of Intent form. Federal and State regulations require that the Notice of Intent form be signed as follows:

- For a corporation, by a responsible corporate officer;
- · For a partnership or sole proprietorship, by a general partner or the proprietor; and
- For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

GEORGIA EPD DISTRICT OFFICES

All required correspondence, including but not limited to Notices of Intent, Notices of Termination, Erosion, Sedimentation and Pollution Control Plans, certifications and any other reports shall be sent to the following EPD District Offices:

A. For facilities/construction sites located in the following counties: Bibb, Bleckley, Chattahoochee, Crawford, Dooly, Harris, Houston, Jones, Lamar, Macon, Marion, Meriwether, Monroe, Muscogee, Peach, Pike, Pulaski, Schley, Talbot, Taylor, Troup, Twiggs, Upson

Information shall be submitted to:

West Central District Office Georgia Environmental Protection Division 2640 Shurling Drive Macon, GA 31211-3576 (478) 751-6612 B. For facilities/construction sites located in the following counties:

Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Johnson, Laurens, McDuffie, Montgomery, Richmond, Screven, Treutlen, Warren, Washington, Wheeler, Wilkinson

Information shall be submitted to:

East Central District Office

Georgia Environmental Protection Division

1885-A Tobacco Road Augusta, GA 30906-8825

(706) 792-7744

C. For facilities/construction sites located in the following counties: Baldwin, Banks, Barrow, Butts, Clarke, Elbert, Franklin, Greene, Hall, Hancock, Hart, Jackson, Jasper, Lincoln, Madison, Morgan, Newton, Oconee, Oglethorpe, Putnam, Stephens, Taliaferro, Walton, Wilkes

Information shall be submitted to:

Northeast District Office

Georgia Environmental Protection Division

745 Gaines School Road Athens, GA 30605-3129

(706) 369-6376

D. For facilities/construction sites located in the following counties:

Carroll, Clayton, Coweta, DeKalb,

Douglas, Fayette, Fulton, Gwinnett, Heard, Henry, Rockdale, Spalding

Information shall be submitted to:

Mountain District - Atlanta Satellite

Georgia Environmental Protection Division 4244 International Parkway, Suite 114

Atlanta, GA 30354-3906

(404) 362-2671

E. For facilities/construction sites located in the following counties:

Bartow, Catoosa, Chattooga, Cherokee,
Cobb, Dade, Dawson, Fannin, Floyd, Forsyth, Gilmer, Gordon, Habersham, Haralson, Lumpkin, Murray, Paulding,
Pickens, Polk, Rabun, Towns, Union, Walker, White, Whitfield

Information shall be submitted to:

Mountain District - Cartersville Office Georgia Environmental Protection Division

P.O. Box 3250

Cartersville, GA 30120-1705

(770) 387-4900

F. For facilities/construction sites located in the following counties: Appling, Atkinson, Bacon, Brantley, Bryan, Bulloch, Camden, Candler, Charlton, Chatham, Clinch, Coffee, Effingham, Evans, Glynn, Jeff Davis, Liberty, Long, McIntosh, Pierce, Tattnall, Toombs, Ware, Wayne

Information shall be submitted to:

Coastal District - Brunswick Office

Georgia Environmental Protection Division

One Conservation Way Brunswick, GA 31520-8687

(912) 264-7284

G. For facilities/construction sites located in the following counties: Baker, Ben Hill, Berrien, Brooks, Calhoun, Clay, Colquitt, Cook, Crisp, Decatur, Dodge, Dougherty, Early, Echols, Grady, Irwin, Lanier, Lee, Lowndes, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Telfair, Terrell, Thomas, Tift, Turner, Webster, Wilcox, Worth

information shall be submitted to:

Southwest District Office

Georgia Environmental Protection Division

2024 Newton Road Albany, GA 31701-3576

(229) 430-4144

For Official Use Only

NOTICE OF TERMINATION

VERSION 2008

State of Georgia Department of Natural Resources Environmental Protection Division

To Cease Coverage Under the NPDES General Permits
To Discharge Storm Water Associated With Construction Activity

I.	PERMIT TYPE (Check Only One):							
		☐ GAR100001	- Stand Alone					
		☐ GAR100002	– Infrastructure)				
		☐ GAR100003	- Common Dev	/elopment				
II .	SITE / PERMITTEE INFORMA	TION						
Proj	ect Construction Site Name:							
GPS	Location of Construction Exit (de	grees/minutes/second	ds):					
	Latitude°'	" Longitud	de° _		Ħ .			
	struction Site Location (information		•					
Sub	division Name (if applicable):		Lot Number(s)	(if applicable)):			
Con	nmon Development Name <i>(applica</i>	ble only to General N	IPDES Permit I	No. GAR1000	903):			
Cor	struction Site Street Address:			era wezer-kulore zaki, ilika ar-ki-i zer-prezintziaka waka-i erkar-kiri	Name of the State			
City	(applicable if the site is located w	ithin the jurisdictional	boundaries of t	he city):				
Cou	ınty:		<u>,</u>					
Ow	ner's Name:		MILITER OF THE STATE OF THE STA	Phone:				
Add	lress:	City;	State:	Zip C	ode:			
Dul	y Authorized Representative (option	onal):		Phone:	A A A A A A A A A A A A A A A A A A A			
Оре	erator's Name (optional):			Phone:				
Add	dress:	City:	State:	Zip C	Code:			
Fac	cility/Construction Site Contact:			Phone:				

TYPE OF PERMITTEE (Check Only One and Complete):

Primary Permittee's Name:	L. Control of the Con	the state of the s	Phone:
Address:	City:	State:	Zip Code:
Attached to this Notice of Talenth telephone number for each so (applicable only to General N	econdary permittee a IPDES Permit No. G	at the site for which thi AR100003).	is NOT is submitted
Attached to this Notice of telephone number for the leg for which this NOT is submitted.	al title holders for ea	ch remaining undevel	oped lot(s) at the site
☐ Secondary Permittee (applicabl	e only to General NF	PDES Permit No. GAR	100003)
Primary Permittee's Name:			Phone:
Address:			
☐ Tertiary Permittee (applicable c			
Primary Permittee's Name (optional			
Address:			
Addicss.			
III. SITE ACTIVITY INFORMAT	TION		
Start Date (month/date/year):	// Comple	etion Date (month/date	e/year):/
Disturbed Acreage:			
Check Only One:			
☐ Constructi	on Activity Ceased a	nd Final Stabilization	Completed
☐ No Longe	Owner and/or Oper	ator of Facility/Constru	uction Site
Construction Activity Type:	☐ Commercial	☐ Industrial ☐ Utility	☐ Municipal ☐ Residential
☐ Name of Initial Receiving Water	(s):		
☐ Name of MS4 Owner/Operator	(if annlicable):		
☐ Mame of Mo4 Owner/Operator	ıı appılcavi c)		

CERTIFICATIONS (Owner or Operator or Both to Initial as Applicable) IV.

I certify under penalty of law that either: (a) all storm construction activity from the portion of the construction activity whave ceased or have been eliminated; (b) all storm water discharactivity from the identified site that are authorized by General N Section I of this form have ceased; (c) I am no longer an Owner or Canew Owner or Operator has assumed operational control for the where I previously had ownership or operational control; and/or if Notice of Termination under Part VI.A.2. of General NPDES Perm written correspondence with return receipt certified mail (or similar sholder of each remaining lot(s) that these lot Owners or Operators purposes of General NPDES Permit No. GAR100003. I understar Termination, that I am no longer authorized to discharge storm activity by the general permit, and that discharging pollutants construction activity to waters of Georgia is unlawful under the Geotthe Clean Water Act where the discharge is not authorized by a NPI.	there I was an Owner or Operator arges associated with construction PDES Permit number indicated in Operator at the construction site and se portions of the construction site I am a primary permittee filing this nit No. GAR100003, I will notify by service) to the subsequent legal title will become tertiary permittees for and that by submitting this Notice of water associated with construction in storm water associated with orgia Water Quality Control Act and
I certify under penalty of law that this document and all att direction or supervision in accordance with a system designed properly gather and evaluate the information submitted. Based persons who manage the system, or those persons directly resport the information submitted is, to the best of my knowledge and belief aware that there are significant penalties for submitting false info fines and imprisonment for knowing violations.	achments were prepared under my to assure that certified personnel upon my inquiry of the person or asible for gathering the information, true, accurate and complete. I am
Owner's Printed Name:	Title:
Signature:	Date:
Operator's Printed Name:	Title:
Signature:	Date:

INSTRUCTIONS

NOTICE OF TERMINATION

NPDES General Permits for Storm Water Discharges Associated With Construction Activity

Please print or type the Notice of Termination (NOT) form. Any NOT that contains illegible or incomplete information will not be accepted and will be returned. All information requested on the NOT must be submitted in order for the NOT to be a valid. Any information requested on the NOT that is not applicable to the owner and/or operator or the construction site must be marked "N/A." Please do not leave any sections blank in the NOT.

Who must file a Notice of Termination (NOT) Form - When the facility/construction site has undergone final stabilization and all storm water discharges from construction activities that are authorized by the NPDES General Permits have ceased or when the Owner and/or Operator of the site changes, the permittee of the facility/construction site must submit a Notice of Termination.

Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or equivalent permanent stabilization measures (such as the use of rip rap, gabions, permanent mulches or geotextiles) have been used. Permanent vegetation shall consist of: planted trees, shrubs, perennial vines; a crop of perennial vegetation appropriate for the time of year and region; or a crop of annual vegetation and a seeding of target crop perennials appropriate for the region. Final stabilization applies to each phase of construction.

Where to file NOT Forms - The NOT and attachments, as applicable, must be submitted to the appropriate EPD District Office as listed on the following pages. Please submit only the first three pages of this document with the applicable attachments.

Section I - Permit Type

Indicate the NPDES General Permit number (i.e., No. GAR100001, No. GAR100002, or No. GAR100003) for which this form is being submitted.

Section II - Site / Permittee Information

The construction site name and location information (i.e., GPS location of construction exit, street address, city, county) must be sufficient to accurately locate the construction site. If the construction site does not have a street address, please provide sufficient information to accurately locate the construction site. If additional space is needed, attach the location information to the NOT.

A duly authorized representative may be either a named individual or any individual occupying a named position that the permittee has authorized to sign all reports, certification statements, or other information requested by EPD.

The facility/construction site contact is the person who the permittee has assigned the responsibility for the daily on-site operational control.

Please do not leave any blanks in this section. Any information requested on the NOT that is not applicable to the permittee or to the construction site must be marked "N/A."

Section III - Site Activity Information

Indicate by marking the appropriate box why this NOT has been submitted: (1) the facility/construction site has undergone final stabilization and all storm water discharges from construction activities that are authorized by the NPDES General Permits have ceased or (2) the Owner and/or Operator of the site have changed.

Mark the appropriate boxes to indicate the types of construction activities that were conducted at the facility/construction site.

Please do not leave any blanks in this section. Any information requested on the NOT that is not applicable to the permittee or to the construction site must be marked "N/A."

Section IV - Certifications

The owner and/or operator must sign the Notice of Termination and initial the certification statements on the lines provided. Federal and State statutes provide specific requirements as to who is authorized to sign the Notice of Termination forms. A Notice of Termination form signed by an unauthorized person will not be valid. Please be aware that Federal and State statutes provide for severe penalties for submitting false information on this Notice of Termination form. Federal and State regulations require that the Notice of Termination form be signed as follows:

- For a corporation, by a responsible corporate officer;
- For a partnership or sole proprietorship, by a general partner or the proprietor; and
- For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

GEORGIA EPD DISTRICT OFFICES

All required correspondence, including but not limited to Notices of Intent, Notices of Termination, Erosion, Sedimentation and Pollution Control Plans, certifications and any other reports shall be sent to the following EPD District Offices:

A. For facilities/construction sites located in the following counties:

Bibb, Bleckley, Chattahoochee, Crawford, Dooly, Harris, Houston, Jones, Lamar, Macon, Marion, Meriwether, Monroe, Muscogee, Peach, Pike, Pulaski, Schley, Talbot, Taylor, Troup, Twiggs, Upson

Information shall be submitted to:

West Central District Office

Georgia Environmental Protection Division

2640 Shurling Drive Macon, GA 31211-3576

(478) 751-6612

B. For facilities/construction sites located in the following counties: Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Johnson, Laurens, McDuffie, Montgomery, Richmond, Screven, Treutlen, Warren, Washington, Wheeler, Wilkinson

Information shall be submitted to:

East Central District Office

Georgia Environmental Protection Division

1885-A Tobacco Road Augusta, GA 30906-8825

(706) 792-7744

C. For facilities/construction sites located in the following counties:

Baldwin, Banks, Barrow, Butts, Clarke, Elbert, Franklin, Greene, Hall, Hancock, Hart, Jackson, Jasper, Lincoln, Madison, Morgan, Newton, Oconee, Oglethorpe, Putnam, Stephens, Taliaferro, Walton, Wilkes

Information shall be submitted to:

Northeast District Office

Georgia Environmental Protection Division

745 Gaines School Road Athens, GA 30605-3129

(706) 369-6376

D. For facilities/construction sites located in the following counties:

Carroll,

Clayton,

Coweta,

DeKalb, Douglas, Fayette, Fulton, Gwinnett, Heard, Henry, Rockdale, Spalding

Information shall be submitted to:

Mountain District - Atlanta Satellite

Georgia Environmental Protection Division 4244 International Parkway, Suite 114

Atlanta, GA 30354-3906

(404) 362-2671

E. For facilities/construction sites located in the following counties: Bartow, Catoosa, Chattooga, Cherokee, Cobb, Dade, Dawson, Fannin, Floyd, Forsyth, Gilmer, Gordon, Habersham, Haralson, Lumpkin, Murray, Paulding, Pickens, Polk, Rabun, Towns, Union, Walker, White, Whitfield

Information shall be submitted to:

Mountain District - Cartersville Office Georgia Environmental Protection Division

P.O. Box 3250

Cartersville, GA 30120-1705

(770) 387-4900

F. For facilities/construction sites located in the following counties: Appling, Atkinson, Bacon, Brantley, Bryan, Bulloch, Camden, Candler, Charlton, Chatham, Clinch, Coffee, Effingham, Evans, Glynn, Jeff Davis, Liberty, Long, McIntosh, Pierce, Tattnall, Toombs, Ware, Wayne

Information shall be submitted to:

Coastal District - Brunswick Office

Georgia Environmental Protection Division

One Conservation Way Brunswick, GA 31520-8687

(912) 264-7284

G. For facilities/construction sites located in the following counties:

Baker, Ben Hill, Berrien, Brooks, Calhoun, Clay, Colquitt, Cook, Crisp, Decatur, Dodge, Dougherty, Early, Echols, Grady, Irwin, Lanier, Lee, Lowndes, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Telfair, Terrell, Thomas, Tift, Turner, Webster, Wilcox, Worth

Information shall be submitted to:

Southwest District Office

Georgia Environmental Protection Division

2024 Newton Road Albany, GA 31701-3576

(229) 430-4144

DEPARTMENT OF THE ARMY PERMIT

PERMITTEE: Chatham County Engineering Department

Attention: A.G. Bungard 124 Bull Street, Room 430 Savannah, Georgia 31412-8161

PERMIT NUMBER: 200502009

ISSUING OFFICE: Savannah District

US Army Corps of Engineers

Post Office Box 889

Savannah, Georgia 31402-0889

NOTE: The term "you" and its derivatives used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate District or Division office of the US Army Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

PROJECT DESCRIPTION: To impact approximately 51.87 acres of waters of the United States for construction of Phase II drainage improvements in 28,800 linear feet of Pipemakers Canal. These impacts include approximately 7.23 acres of wetland excavation, 8.64 acres of mechanized clearing in wetlands, 10.10 acres of wetland fill, 2.90 acres of open water fill and excavation from approximately 23.0 acres of open water (existing canal bottom). Beginning at Station 75+00 the canal will be widened to a 60' bottom width, with 2:1 side slopes. The bottom width will be reduced in steps over the length of the project, to a minimum width of 35' at Station 363+63. The entire channel will be deepened by approximately 4'. Twenty-foot wide maintenance roads will be constructed along both banks of the canal.

PROJECT LOCATION: The project will extend from latitude 32° 7' 29.4" north and longitude 81 8' 54.9" west, at Station 75+00, approximately 2500' north of Highway 21, in Garden City, Chatham County; to latitude 32° 7' 53.9" north and longitude 81 14' 22.1" west, at Station 363+00, approximately 4500' east of Interstate 95, near Pooler, in Chatham County, Georgia.

PERMIT CONDITIONS:

General Conditions.

1. The time limit for completing the work authorized by this Individual Permit ends on August 31, 2013. If you find that you need more time to complete the authorized activity, you must submit a request for your permit extension at least one month prior to the above date.

- 2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
- 3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
- 4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
- 5. If a conditioned Water Quality Certification has been issued for your project, you must comply with conditions specified in the certification as Special Conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
- 6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.
- 7. The permitee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States because of any such removal or alteration.

Special Conditions

1. Prior to the commencement of any work in jurisdictional waters of the United States, which have been identified in Section 1 of the project area, the permittee shall purchase 131 credits from the following mitigation banks: Morgan Mitigation Bank (7 credits), Black Creek Mitigation Bank (92 credits), and Millhaven Plantation Mitigation Bank (32 credits). The mitigation banks must provide this office with written notification of the purchases before any work may commence. The notices should reference the USACE file number assigned to this project.

- 2. Prior to the commencement of any work in jurisdictional waters of the United States, which have been identified in Section 2 of the project area, the permittee shall purchase 71 credits from the following mitigation banks: Morgan Mitigation Bank (3 credits), Black Creek Mitigation Bank (50 credits), and Millhaven Plantation Mitigation Bank (18 credits). The mitigation banks must provide this office with written notification of the purchases before any work may commence. The notices should reference the USACE file number assigned to this project.
- 3. To mitigate for adverse effects to Pipemakers Canal, a property determined eligible for inclusion in the National Register of Historic Places through consultation with the Georgia State Historic Preservation Officer, the permittee shall adhere to all of the stipulations identified in the document entitled, "MEMORANDUM OF AGREEMENT AMONG THE US ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT, THE GEORGIA STATE HISTORIC PRESERVATION DIVISION, AND THE COUNTY OF CHATHAM, STATE OF GEORGIA, CONCERNING THE TREATMENT OF HISTORIC PROPERTIES TO BE AFFECTED BY THE PROPOSED PHASE II WIDENING AND DRAINAGE IMPROVEMENT PROJECT TO PIPEMAKERS CANAL, CHATHAM COUNTY, GEORGIA." For your convenience, we have included a signed copy of this document.
- 4. The permittee shall obtain a Stream Buffer Variance, if required, prior to conducting any work that would encroach on a water of the state. Variances are issued by the Director of the Georgia Environmental Protection Division, as defined in the Georgia Erosion and Sedimentation Control Act of 1975, as amended.
- 5. All excavated material shall be deposited on an appropriate high ground site, as stipulated in this permit, and contained so as to preclude any entry into any surface waters and/or wetlands. Any other erosion control device(s) deemed appropriate by the Savannah District Commander shall be installed immediately upon such a request.
- 6. The permittee shall ensure that the project's master drainage plan is designed and implemented to avoid inadvertent drainage of wetlands and inadvertent water diversion resulting in a reduction of hydrology in wetlands. The permittee shall also ensure that secondary road ditches and/or small after-project drainage ditches do not inadvertently impact wetlands or waters of the US.
- 7. This permit does not authorize the interference with any existing or proposed Federal Project and the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or results from existing or future operations undertaken by the United States in the public interest.
- 8. All fill material shall be taken from an area that is free of contaminants and pollutants and that does not contain buried cultural resources.
- 9. The permittee shall insure that this project complies with all applicable rules, requirements and/or regulations of the Federal Emergency Management Agency pertaining to construction activities in designated flood plains or flood ways.

- 10. As defined in Georgia's Sediment and Erosion Control Act, the permittee shall use appropriate erosion and siltation controls and maintain them in effective operating condition during construction. All exposed soil and other fills shall be permanently stabilized at the earliest practicable date.
- 11. The permittee shall insure that this project complies with all applicable rules, requirements and/or regulations of the Georgia Environmental Protection Division-Flood Plain Management (GADNR-FPM) Section and/or Federal Emergency Management Agency pertaining to construction activities in designated flood plains or flood ways. For your convenience, a copy of the GADNR-FPM requirements is attached.
- 12. The permittee shall comply with all conditions included in the attached Section 401 Water Quality Certification.
- 13. The permittee shall accomplish all work in accordance with the plans and drawings enclosed hereto which are incorporated in and made a part of this permit.
 - a. Phase II drainage improvements: Section 1 and Section 2 Divide at SR 307
 - b. Vicinity Map (Sheet 1 of 71)
 - c. Drawings of Wetland Impacts for Section 2 (Sheets 2 25)
 - d. Drawings of Wetland Impacts for Section 1 (Sheets 26 49)
 - e. Storm Drainage Schedule for Sections 1 and 2 (Sheets 50-51)
 - f. Cross Sections Notes (Sheet 52)
 - g. Drawings of Proposed Cross Sections (Sheets 53 71)

FURTHER INFORMATION:

- 1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
 - 2. Limits of this Authorization.
- a. This permit does not obviate the need to obtain other federal, state, or local authorizations required by law.
 - b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.

- d. This permit does not authorize interference with any existing or proposed federal projects.
- 3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
- 4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
- 5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require reevaluation include, but are not limited to, the following:
 - a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision. Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7, or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order, which requires you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate.
- d. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the US Army Corps of Engineers will normally consider a request for an extension of time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE)

3 Sep 2003
(DATE)

This permit becomes effective when the federal official, designated to act for the Secretary of the Army, has signed below.

for Edward J. Kertis
Colonel, US Army
District Engineer

5 5ep 08
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (DATE)

Regulatory Division

CERTIFICATION OF COMPLIANCE

WITH

DEPARTMENT OF THE ARMY PERMIT

PERMIT NUMBER: 200502009

PERMITTEE: Chatham County Engineering Department

Attention: A.G. Bungard 124 Bull Street, Room 430 Savannah, Georgia 31412-8161

Within 30 days of completion of the activity authorized by this permit, sign this certification and return it to the following address:

Commander
US Army Engineer District, Savannah
Attention: Regulatory Division
Post Office Box 889
Savannah, Georgia 31402-0889

Please note that your permitted activity is subject to compliance inspection by an US Army Corps of Engineers' representative. If you fail to comply with the permit conditions, it may be subject to suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit.

Signature of Permittee/Date



DEPARTMENT OF THE ARMY SAVANNAH DISTRICT, CORPS OF ENGINEERS 100 W. OGLETHORPE AVENUE SAVANNAH, GEORGIA 31402-0889

MEMORANDUM OF AGREEMENT AMONG

THE US ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT,
THE GEORGIA STATE HISTORIC PRESERVATION DIVISION,
AND THE COUNTY OF CHATHAM, STATE OF GEORGIA,
CONCERNING THE TREATMENT OF HISTORIC PROPERTIES
TO BE AFFECTED BY THE PROPOSED PHASE II WIDENING AND DRAINAGE
IMPROVEMENT PROJECT
TO PIPEMAKER'S CANAL, CHATHAM COUNTY, GEORGIA

SUBJECT: Mitigation of Adverse Effects to the Drainage Canal Known as Pipemaker's Canal, a Property Determined Eligible for Inclusion in the National Register of Historic Places, Resulting from the Implementation of a Proposed Widening and Deepening Drainage Improvement Project, Phase II Leg, from Station 75+00, Garden City, Georgia to Station 363+00, Pooler Vicinity, Chatham County Georgia, DA Permit Application No. 200502009

- 1. WHEREAS, the US Army Corps of Engineers (USACE), Savannah District has determined that the proposed Phase II Leg of the three-phase widening and drainage improvement project, in Chatham County, Georgia, will have an effect on Pipemaker's Canal, a property determined eligible for inclusion in the National Register of Historic Places through consultation with the Georgia State Historic Preservation Officer (GASHPO) pursuant to 36 CFR 800.4(c)(2), regulations implementing Section 106 of the National Historic Preservation Act (16 USC 470f); and
- 2. WHEREAS, the proposed undertaking requires an Individual Department of the Army Permit under Section 404 of the Clean Water Act; and
- 3. WHEREAS, the stipulations of this Memorandum of Agreement (MOA) among the parties listed above are intended to sufficiently and adequately mitigate the adverse effects to the Pipemaker's Canal; and
- 4. WHEREAS, Chatham County, Georgia, has participated in this consultation, and has been invited to concur in this Memorandum of Agreement (MOA); and
- 5. WHEREAS, the proposed Phase II Widening project is approximately 5.45 miles in length, beginning at canal Station 75+00, located approximately 2,500 feet north of Georgia State Route 21, in Garden City, Chatham County, Georgia, and ending at Station 363+00, approximately 4,500 feet east of Interstate 95, near Pooler, Chatham County, Georgia (see Attached Figure 1, Appendix A); and

- 6. WHEREAS, the definitions given in Appendix B are applicable throughout this Memorandum of Agreement;
- 7. NOW, THEREFORE, the USACE, Savannah District, the GASHPO, and the County of Chatham in the state of Georgia, agree that the undertaking shall be implemented in accordance with the following stipulations, to take into account the effects of the undertaking on historic properties, specifically on the Pipemaker's Canal itself.

STIPULATIONS

- 8. The USACE, Savannah District shall ensure that the following measures are carried out:
- A. <u>Documentary</u>, Written Historical and Descriptive, and Photographic Recordation of the <u>Pipemaker's Canal</u>
- (1) The applicant shall prepare, or have prepared, a written report concerning the history and development of the Pipemaker's Canal, originally Pipemaker's Creek, including verbal text, graphic and cartographic information, and photographic information. The documentation package, per discussions between the USACE, Savannah District and the GASHPO, and in part due to the local level of significance of the historic property, and its lack of associated engineering structures, is not intended to be done to Historic American Engineering Record standards for submission to the National Park Service. The documentation package will be prepared with the intention that it be submitted and acceptable to the Georgia State Historic Preservation Office (Georgia Department of Natural Resources, Historic Preservation Division).
- (2) <u>Written Historical and Descriptive Text</u>: The verbal historical and descriptive information provided on the history of the development of the canal, its significance in terms of the history and development of the city of Savannah and Chatham County, and description of the evolution of and current state of configuration shall be prepared in a prose report containing the following elements:
 - (a) An introduction;
- (b) A description of the original, Natural Pipemaker's Creek, and the history of development insofar as it known of development and land use along the creek;
- (c) A description of the conversion of Pipemaker's Creek into Pipemaker's Canal, and a history of modifications to it;
 - (d) A description of its original and existing physical environment;

- (e) A conclusion;
- (f) A bibliography, or references cited, section, in an appropriate, accepted format of the author's choosing; and
- (g) Footnotes or endnotes, in an accepted style of the author's choosing, so long as it remains consistent throughout the document.
- (3) Graphic and Cartographic Information: Graphic and Cartographic information, appropriately numbered and cross-referenced with the text, and including appropriate legends or keys including scale of the drawing, orientation relative to the cardinal directions, and explanation of any symbols used, in the case of maps, should be integrated into the body of the report.
- (a) Maps. At a minimum, the report should include the following maps: 1) A location map showing the existing Pipemaker's Canal in relationship to relevant portions of Chatham County and the City of Savannah, from its confluence with the Savannah to at least the end of the Phase II Widening construction area, based on a current County highway map; 2) A portion of the appropriate, current, U.S. Geological Survey 7.5-Minute Topographic Quadrangle Map showing the Canal in relationship to topography and the built environment in its vicinity. The map should be produced at a 1:1 ratio with the base map scale, i.e., at 1:24,000 scale; 3) Selected historical maps showing the original Pipemaker's Creek, the original canalization of Pipemaker's Creek, and such historical maps as may be available that show any significant alterations of the canal. Photographic reproductions of historical maps or engineering plans of the canal provided they are of good quality, scale and legibility, will be acceptable.
- (b) <u>Graphics</u>. If the report contains any statistical data, consideration of the use of tables, graphs or charts that would appropriately summarize such data should be given, and such graphics as are found appropriate incorporated into the report. Other graphics that should be incorporated into the report are cross-section profiles of the existing canal at selected locations (points) along the canal (e.g., at the beginning and terminal ends of the widening project).
- (4) <u>Photographic Information</u>: The report should included selected photographs of the canal as it currently exists, its more or less immediate surroundings, and historical photographs of the canal and its immediate surroundings. The photography should be medium-format. The use of both black and white, and color photography is suggested. Digital photography will be acceptable, provided a compact disc or memory chip containing the stored images is provided. For film photography, the negatives should be provided. Photographic standards, including the photographic paper used for printing, should conform to the US Department of the

(b) If it is determined that additional exploratory testing and evaluative examinations of any unanticipated find for which work has temporarily been stopped is necessary before making a determination of eligibility on any such anticipated find, the signatories to this agreement shall consult to determine the method of examination, and the extent, necessary to make such a determination. In such cases: 1) The amount of additional exploratory investigation shall be limited to that necessary to make a determination of eligibility or ineligibility, and shall be for the purpose of answering fairly specific questions; e.g., are intact or semi-intact features or structures present? Is there a buried archaeological level (horizon) relating to a specific archaeological period or phase of prehistoric or historic significance?: 2) In the event that additional evaluation of an unanticipated find is necessary, the signatories to this Agreement shall make such a determination within five calendar days of the unanticipated find; 3) The signatories to this Agreement shall at that time come to an agreement about the methods and scope-of-work needed to conduct the evaluation. The applicant shall then conduct, or cause to be conducted, sufficient exploratory archaeological evaluation and provide the results of that additional work to the USACE, Savannah District and the GASHPO along with its recommendation on eligibility or ineligibility of the unanticipated find. The results should be provided in written report form with appropriate supporting maps, graphics and photographs, conforming to the GASHPO's standards and guidelines for archaeological assessment reports, and the Secretary of the Interior's standards and guidelines for archaeological documentation. The additional exploratory archaeological work necessary to be conducted for the evaluation of the unanticipated find or finds encountered should not exceed five working days, including preparation of a draft report of findings; 4) The GASHPO and the USACE, Savannah District shall consider the information and recommendations provided by the applicant and the applicant's consultant, and come to a determination of eligibility or ineligibility in accordance with the provisions of 36 CFR 800.4(c)(2); 5) If it is determined that the unanticipated find should be considered ineligible for inclusion in the National Register of Historic Places, the applicant and the applicant's construction contractor shall be notified that they may proceed with the activities being conducted within the area where work was stopped because of the unanticipated find(s); 6)-If it is determined that the unanticipated find(s) should be considered eligible for inclusion in the National Register of Historic Places, pursuant to 36 CFR 800.4(c)(2), the applicant shall prepare, or have prepared by a qualified consultant, a research design and compatible, commensurate, scope-of-work for conducting archaeological data recovery work, in accordance with the Archeological and Historic Preservation Act of 1974. This research design and scope-work shall be provided by the applicant to the GASHPO and USACE, Savannah District for review and comment prior to its implementation. The signatory parties to this Agreement will then consult to determine if modifications to the research design and scope of

Interior, National Park Service Standards for National Register nomination forms and field photography (Note: These are not the same as Historic American Engineering Record or Historic American Buildings Survey Standards (HABS/HAER); the standards required herein would not meet HABS/HAER standards).

- (5) <u>Submission of Report</u>. A draft report, when completed, shall be provided under a letter of transmittal to all signatories to this Agreement for review and comment. Once all parties have commented, or waived comments, the report shall be revised in accordance with those comments and resubmitted. Because the ultimate accepting agency for the report is the GASHPO, their comments shall be weighted most heavily, and shall supersede any other comments in the case of conflicting comments. All parties shall have 45 days from the time of their receipt of the report for review and comment, unless otherwise agreed upon by the signatories to the Agreement in advance. The GASHPO shall provide a letter notifying all signatories to this Agreement of its acceptance of the final draft of the documentation report, once it determines that all revisions are acceptable, and no further revisions are necessary.
- B. Monitoring of Dredging and Widening the Pipemaker's Canal During Construction, Unanticipated Finds: The excavation and dredging of the Pipemaker's Canal Phase II Construction Leg, from Station 75+00 to Station 363+00 shall be monitored by someone knowledgeable in the recognition of prehistoric and historic artifacts, features and structures.
- (1) Should the excavation or bottom-deepening dredging of the Canal encounter artifacts or features indicative of an archaeological site, the applicant shall temporarily cease work in the immediate vicinity of the find, and notify the USACE, Savannah District and the GASHPO. The GASHPO and the USACE shall review the information on the finds and make a determination of eligibility concerning them. If necessary, these agencies may request the applicant to contract a qualified archaeologist under the Secretary of the Interior's Professional Qualifications Standards to provide additional exploratory and evaluative examinations/investigations of the site.
- (a) If it is determined that no additional exploratory and evaluative examinations of any unanticipated find for which work has been temporarily stopped is necessary to make a determination of eligibility or ineligibility for inclusion in the National Register, the USACE, Savannah District and the GASHPO, in consultation with Chatham County, shall make a determination of eligibility decision within five calendar days of the unanticipated find.

work should be made prior to, or during the implementation of the data recover program. Data recovery efforts shall be limited to the physical limits of the areas being adversely affected through excavation; 7) Any exploratory, evaluative testing, or subsequent data recovery excavations, shall be conducted y an appropriate person or persons meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology; 8) Any data recovery excavations undertaken in accordance with the Archaeological and Historic Preservation Act of 1974 shall be reported in a manner that conforms to the Secretary of the Interior's standards and guidelines for archaeological documentation; 9) In the event that an unanticipated find is determined eligible and that data recovery excavations should be conducted, the applicant and the applicant's construction contractor shall not resume construction work or dredging within the area within which work was halted at the time of the unanticipated find until such time as the requisite fieldwork has been completed, and a preliminary report of the results, i.e., an end of fieldwork report, has been prepared and reviewed by the signatories to this Agreement. After consultation among the signatories to the Agreement, and by consensus, if it is determined that the end of fieldwork report indicates that the data recovery work is complete, and satisfactory in terms of the agreed upon research design and scope-of-work, the USACE, Savannah District, after notifying GASHPO of its intent, shall provide the applicant, Chatham County, notification that it may resume work within that area within which work was restricted because of the unanticipated find.

9. Execution and Implementation. Execution and implementation of this Memorandum of Agreement by the USACE, Savannah District and the GASHPO, and Chatham County, its subsequent submission to and acceptance by the Advisory Council, and the implementation of its terms, is evidence that the USACE, Savannah District, has afforded the Advisory Council on Historic Preservation an opportunity to comment on Chatham County's Phase II Widening of portions of the Pipemaker's Canal, Chatham County, Georgia, and its effect on historic properties, and that the USACE, Savannah District has taken into account the effects of the undertaking on historic properties.

US ARMY CORPS OF ENGINEERS,

SAVANNAH DISTRICT

Edward J. Kertis
Colonel, US Army

Commanding

Date:

CHATHAM COUNTY, GEORGIA

(Name and Title of Signer)

PETE LIAKAKIS, Chairman Date: Date:

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GEORGIA DEPARTMENT OF NATURAL RESOURCES, HISTORIC

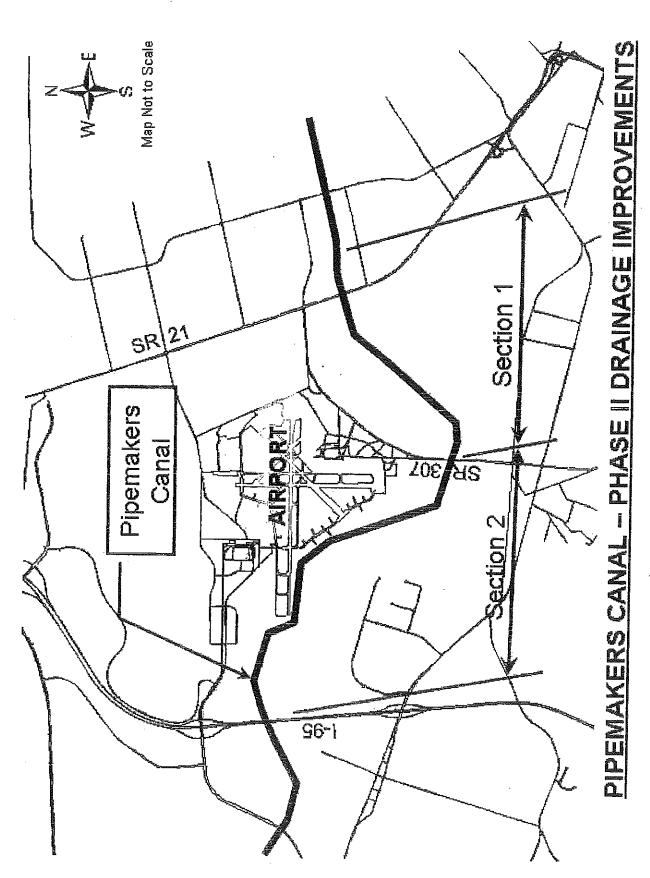
PRESERVATION DIVISION

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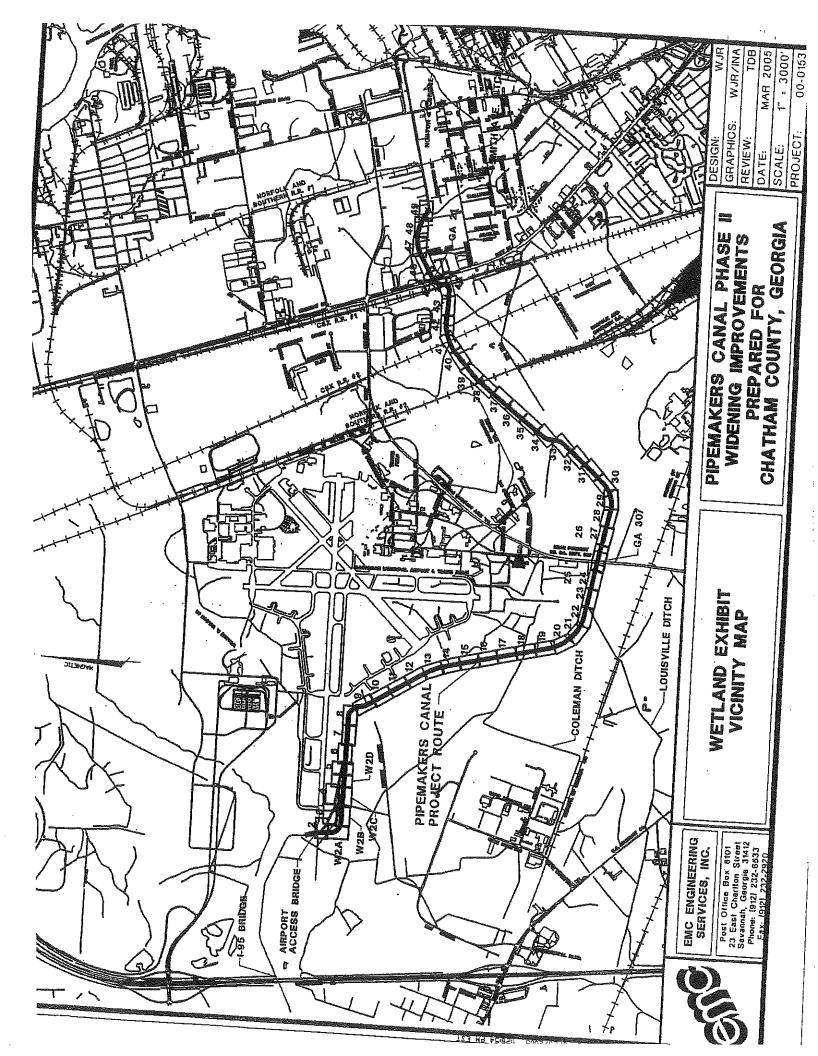
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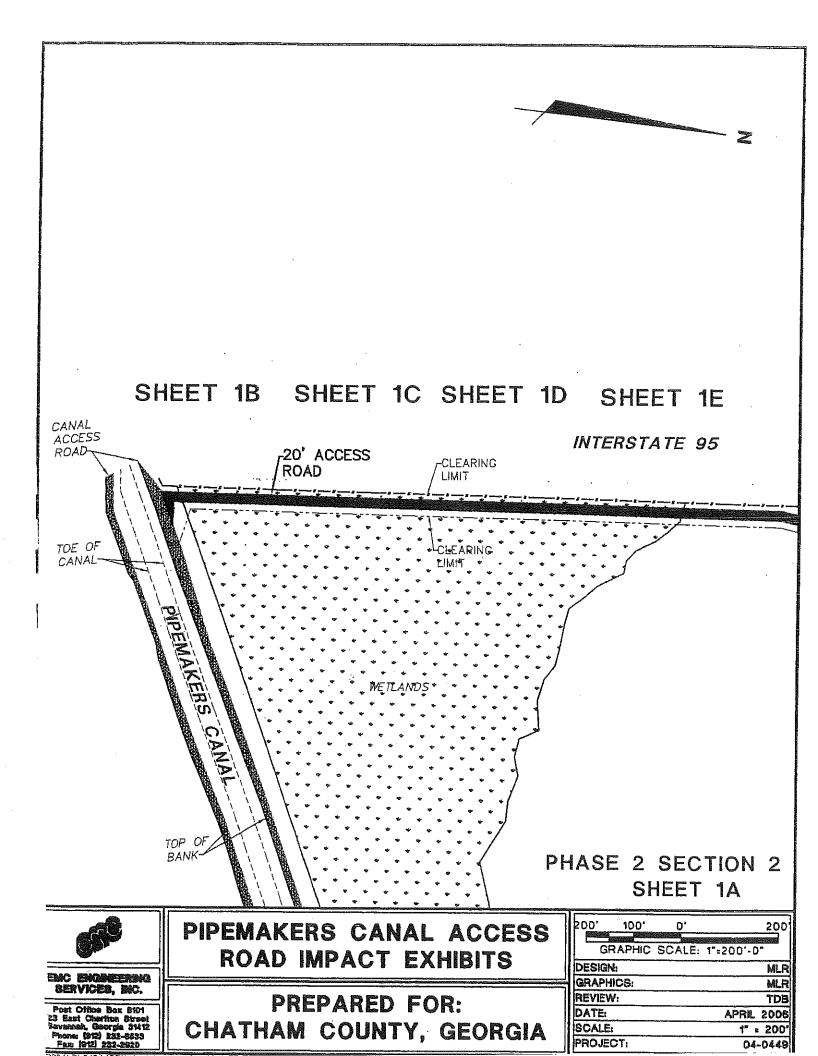
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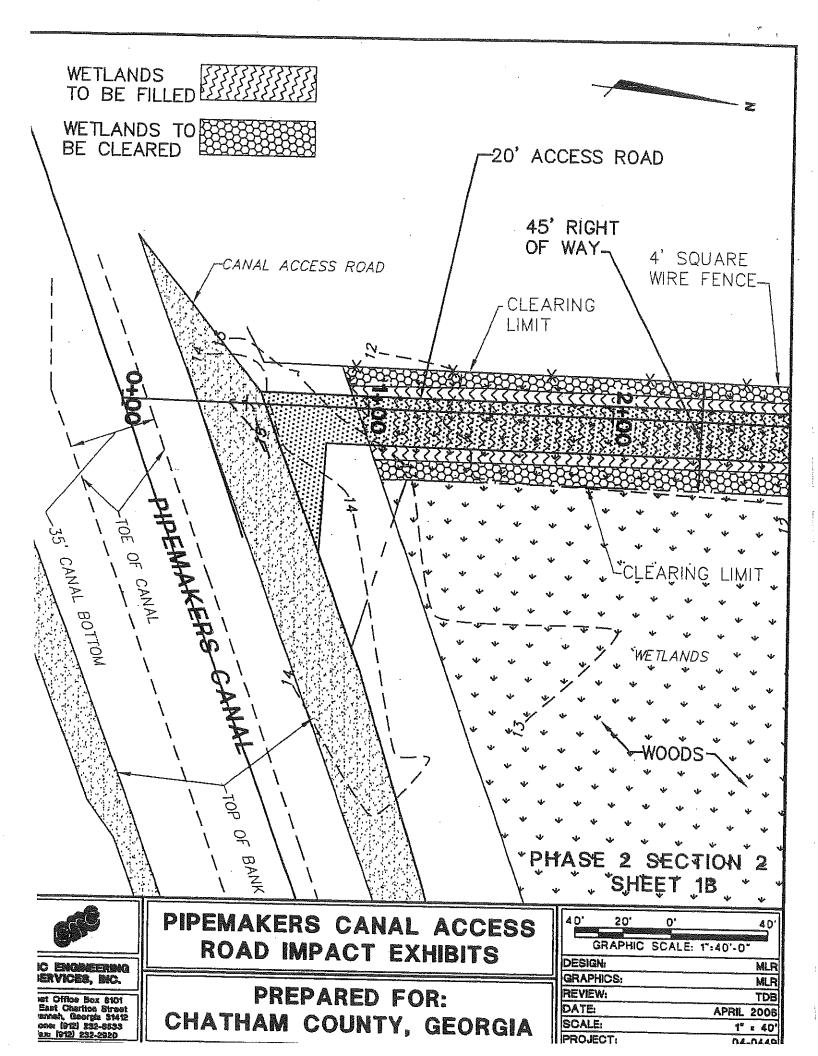
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Section 1 and Section 2 Divide at SR 307







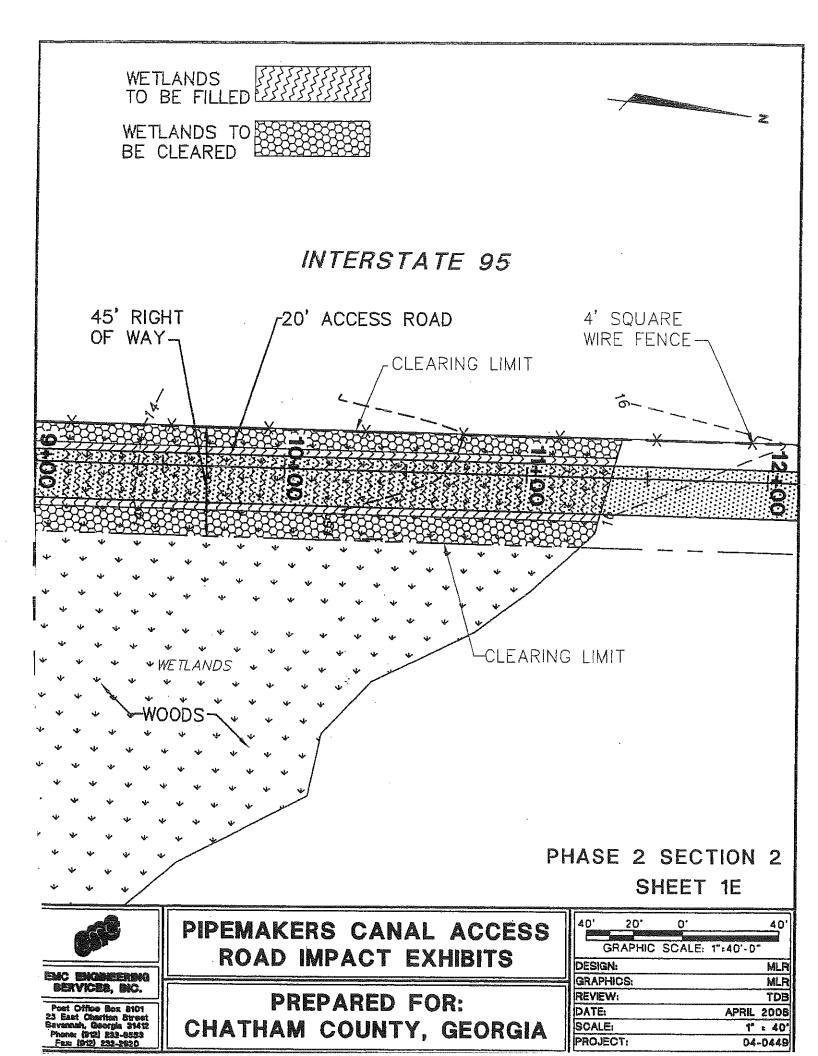
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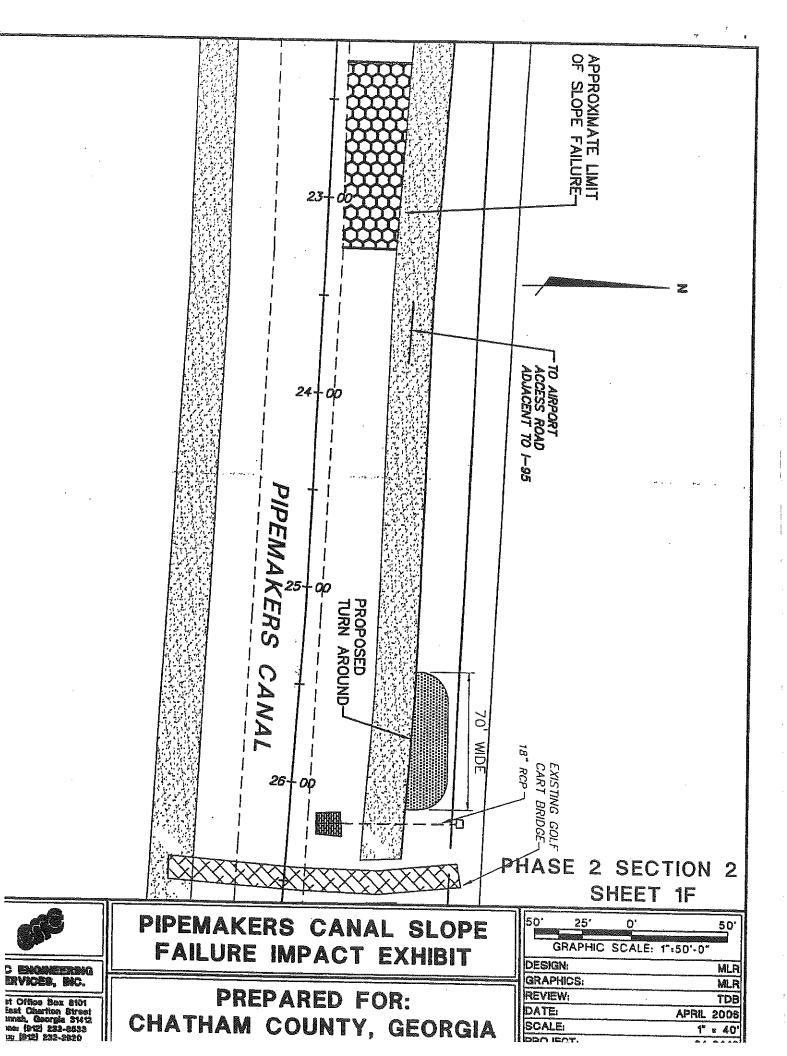
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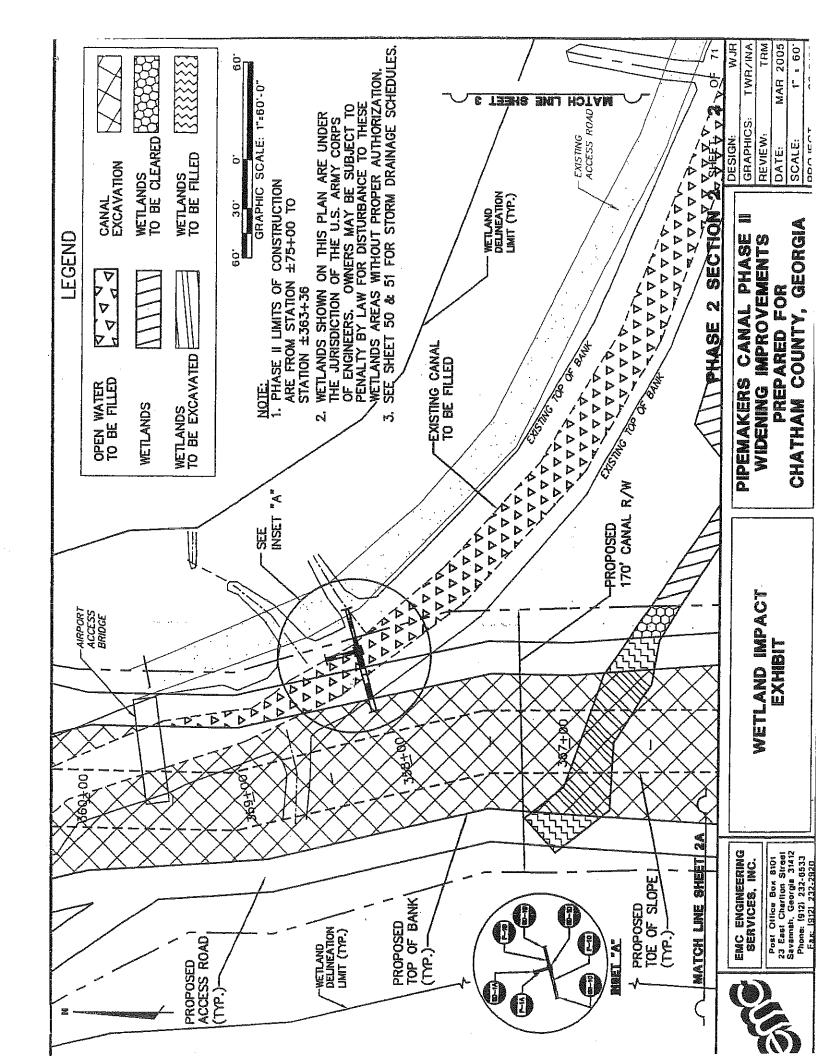
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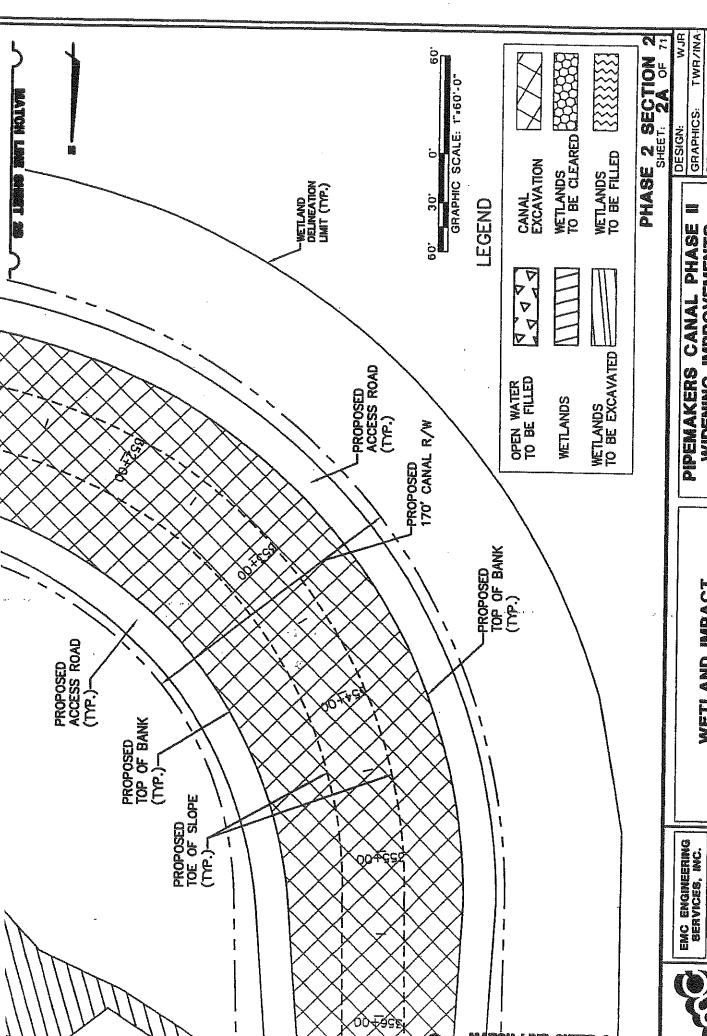
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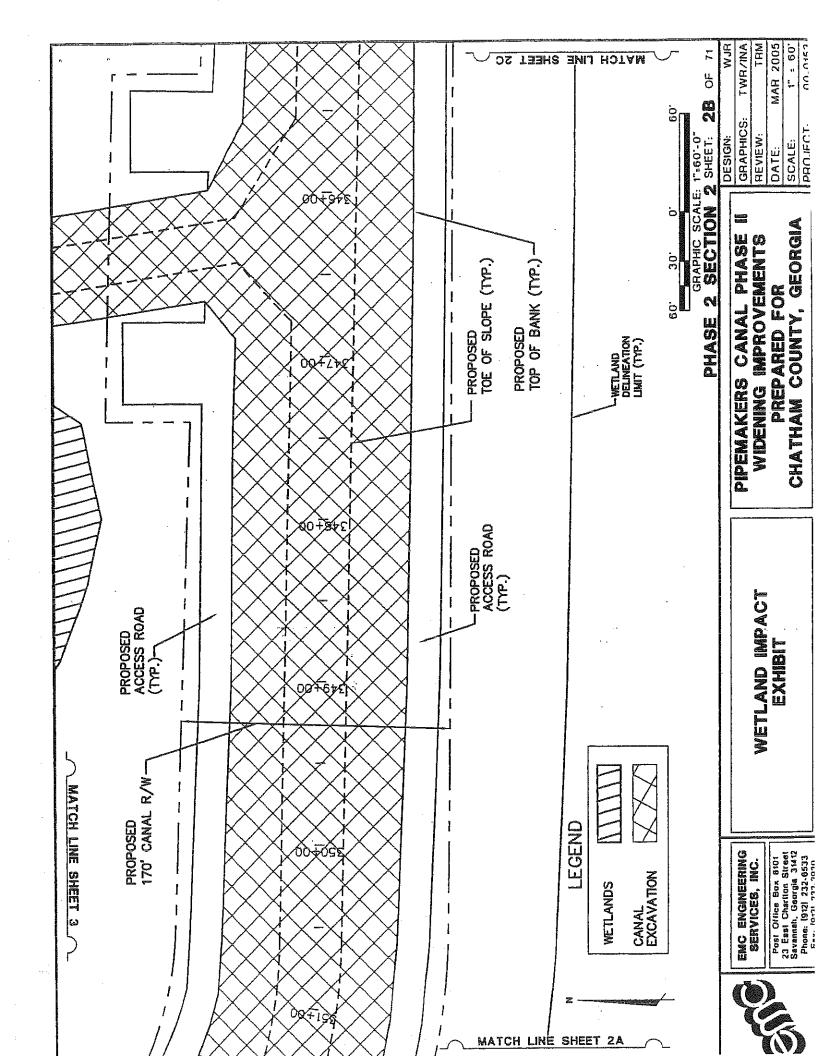
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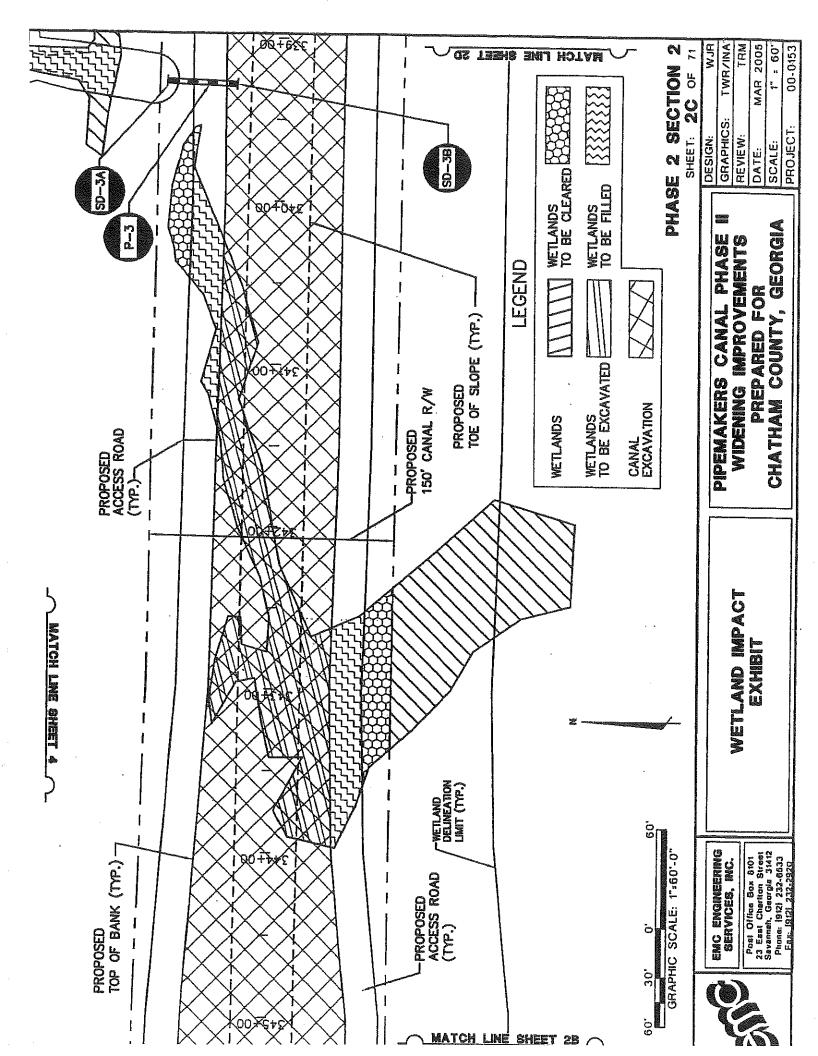
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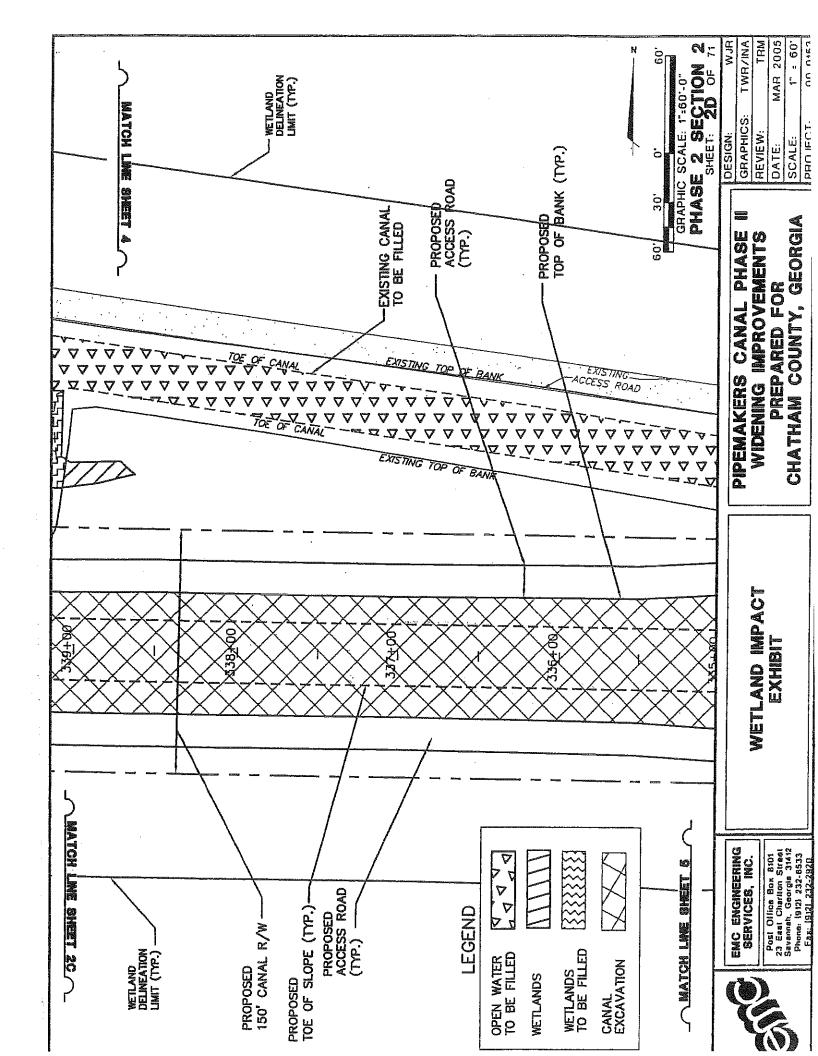
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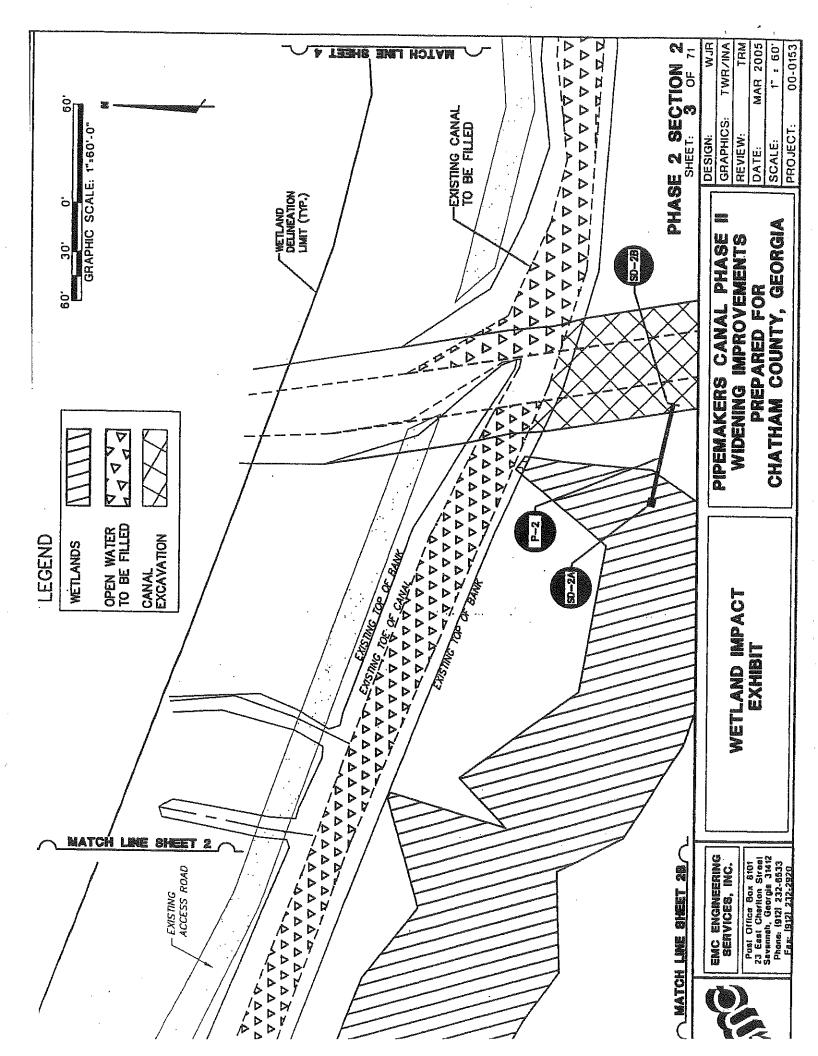
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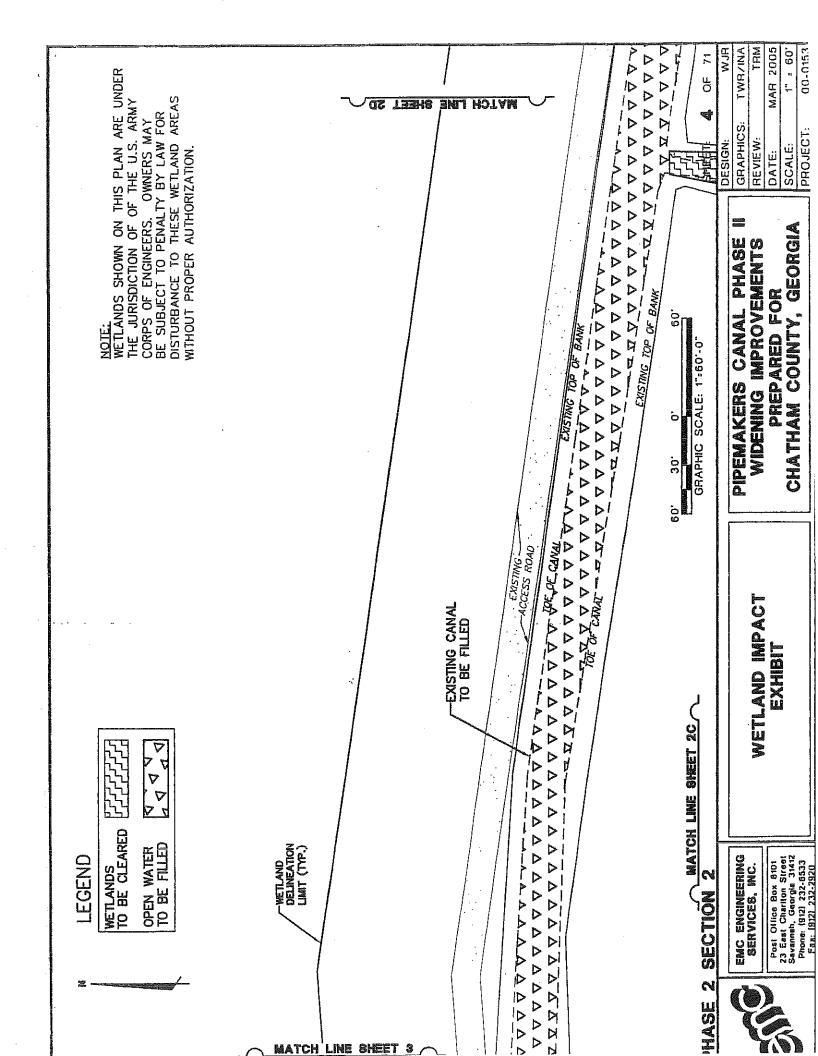
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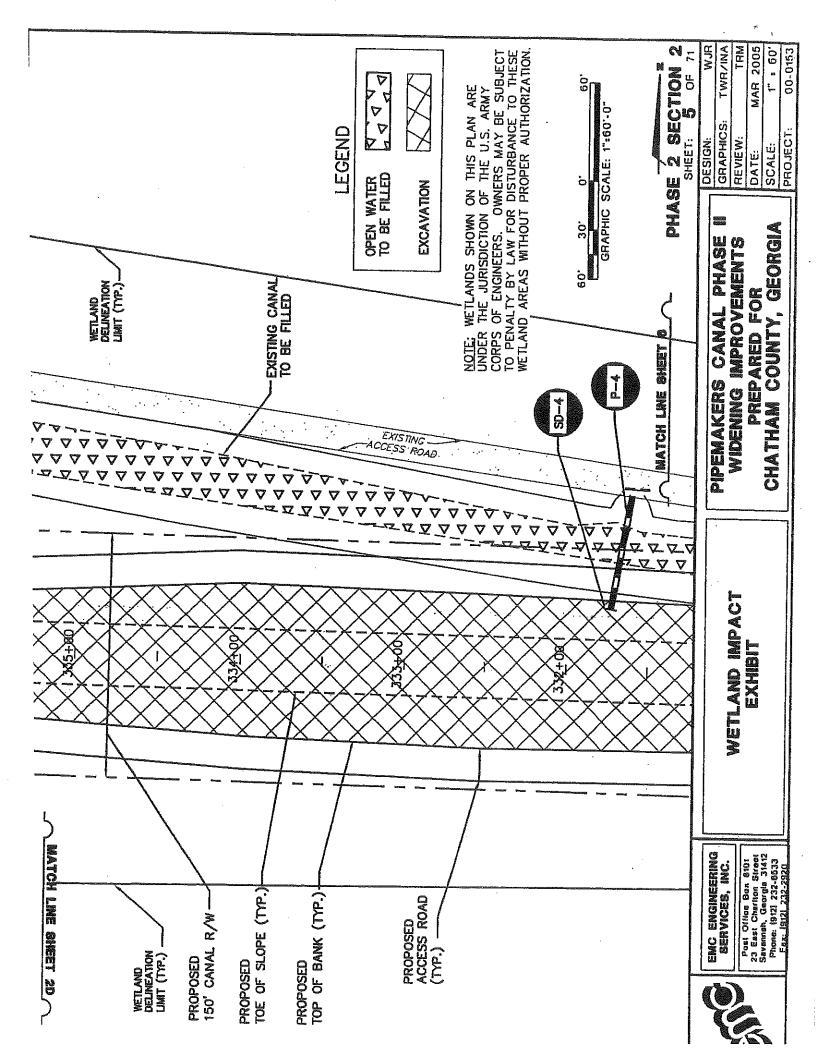


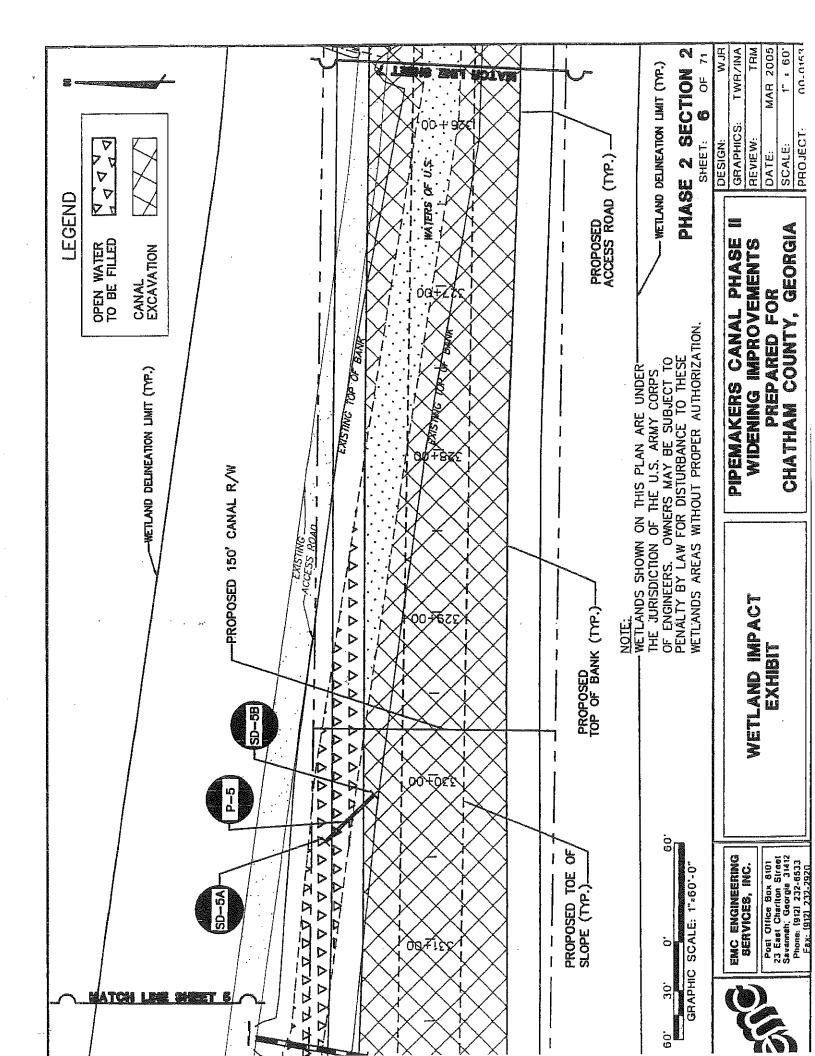


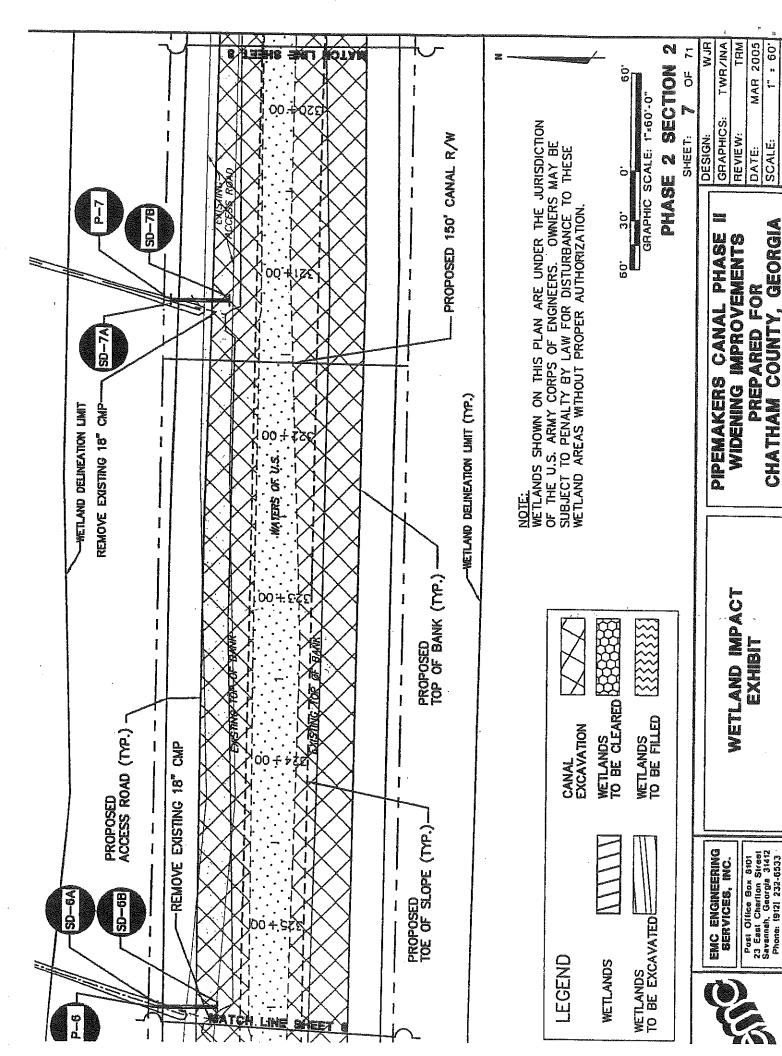










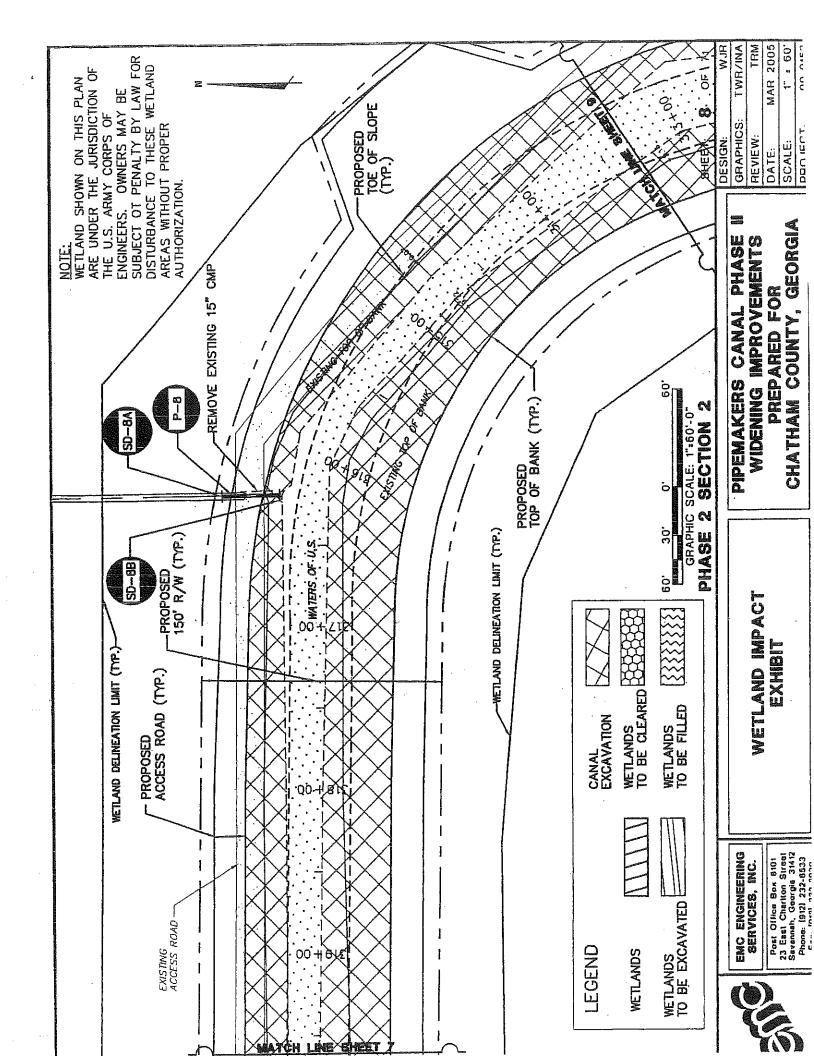


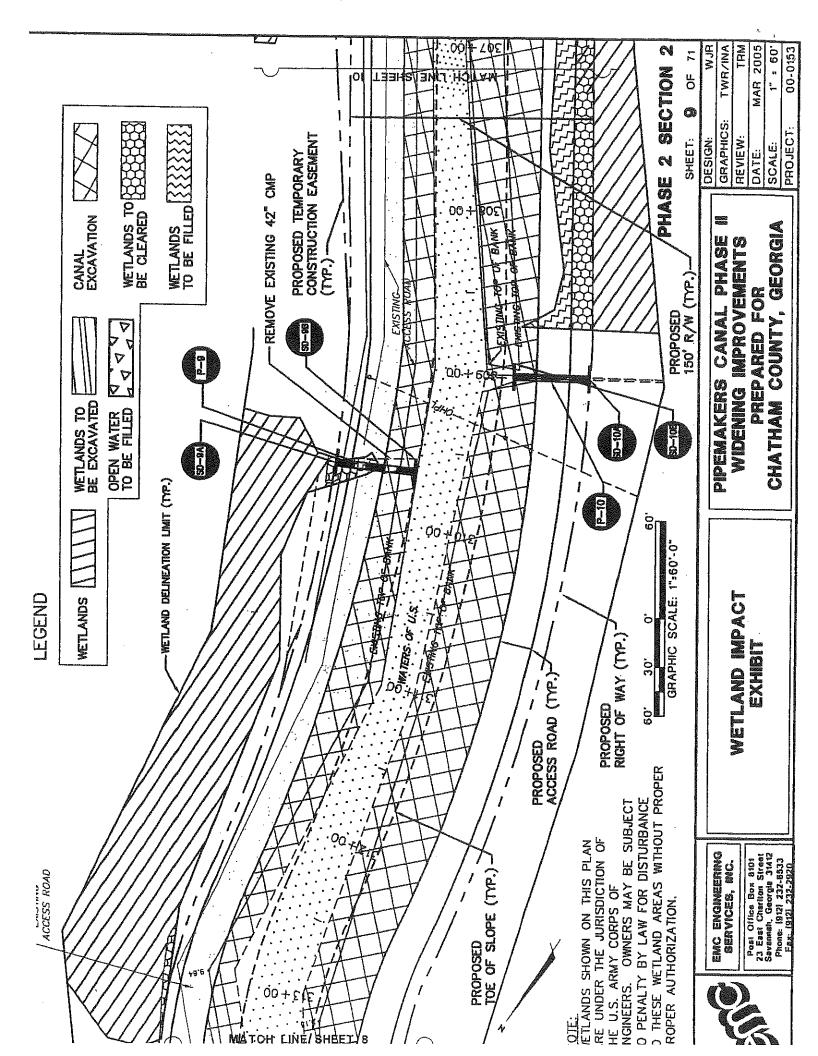
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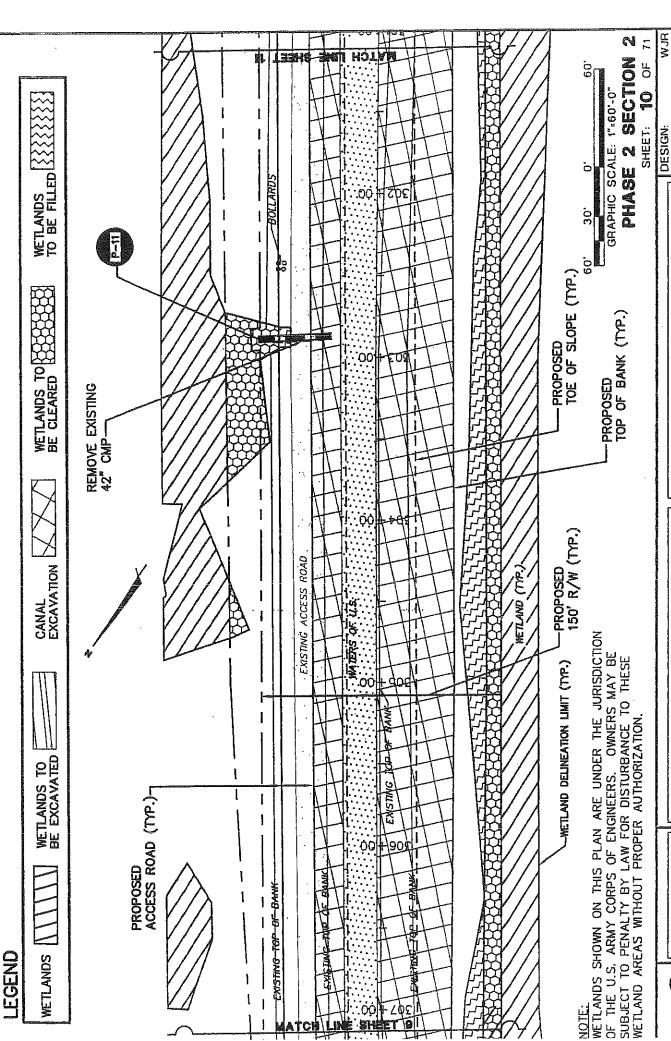
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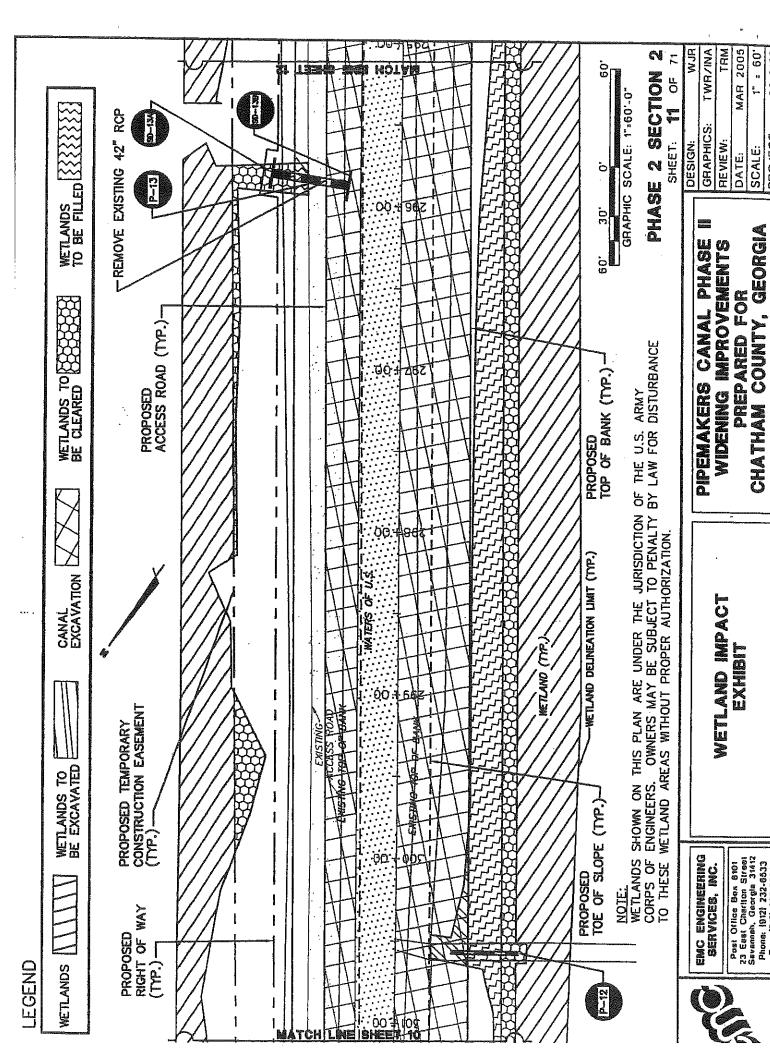
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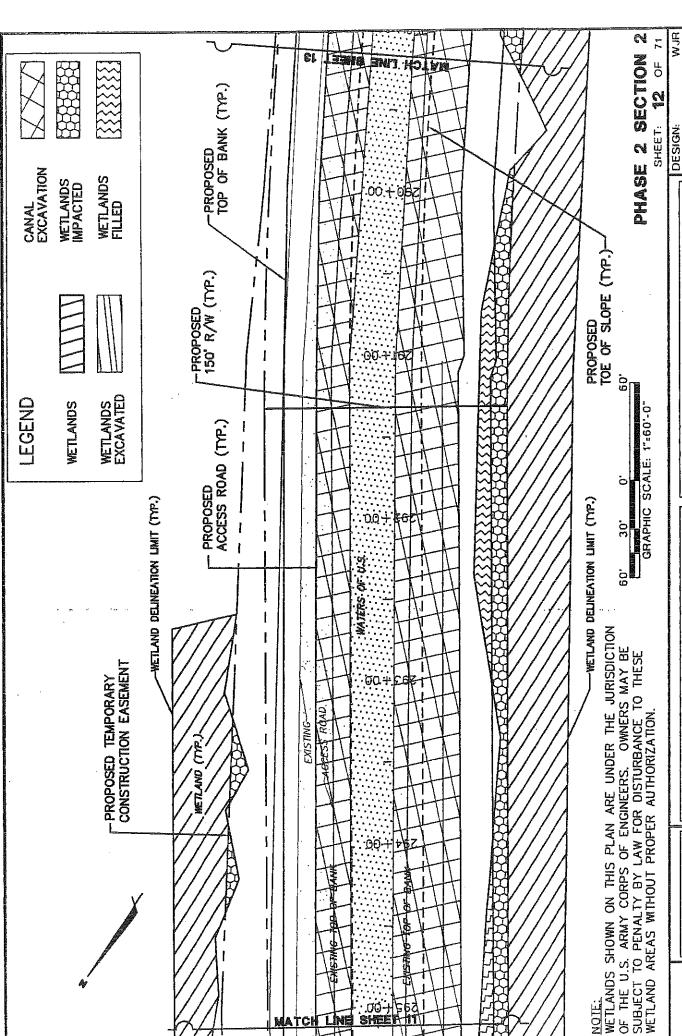
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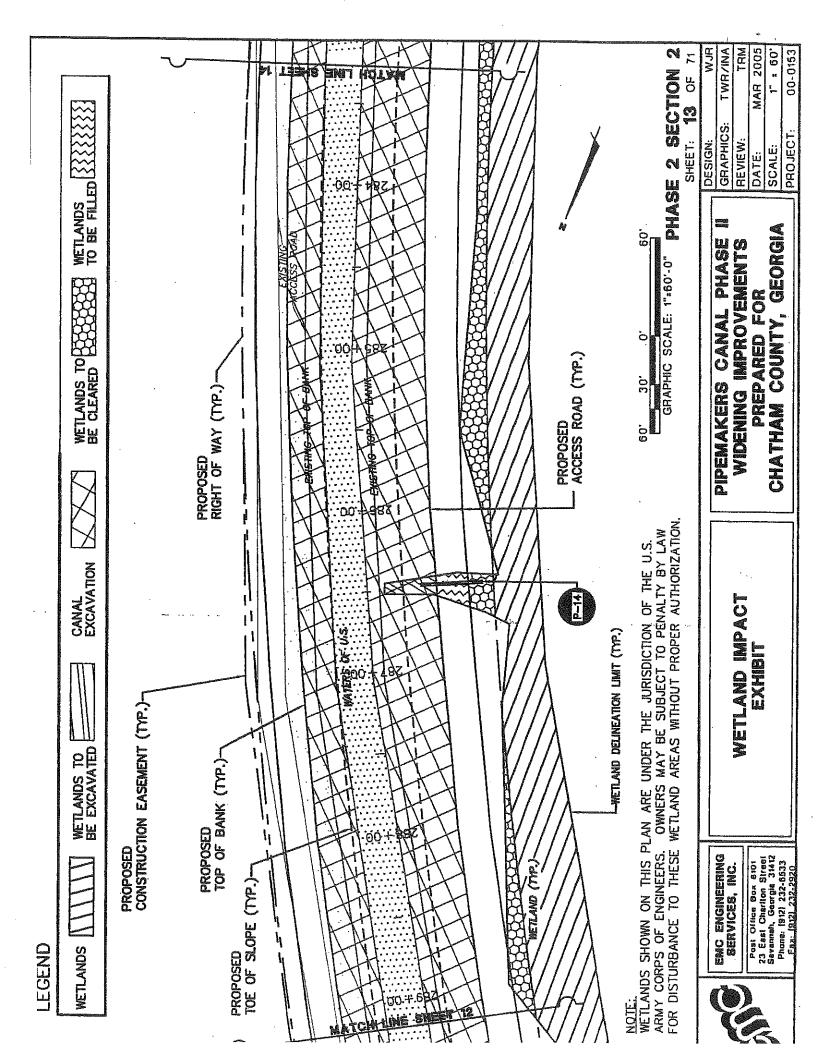
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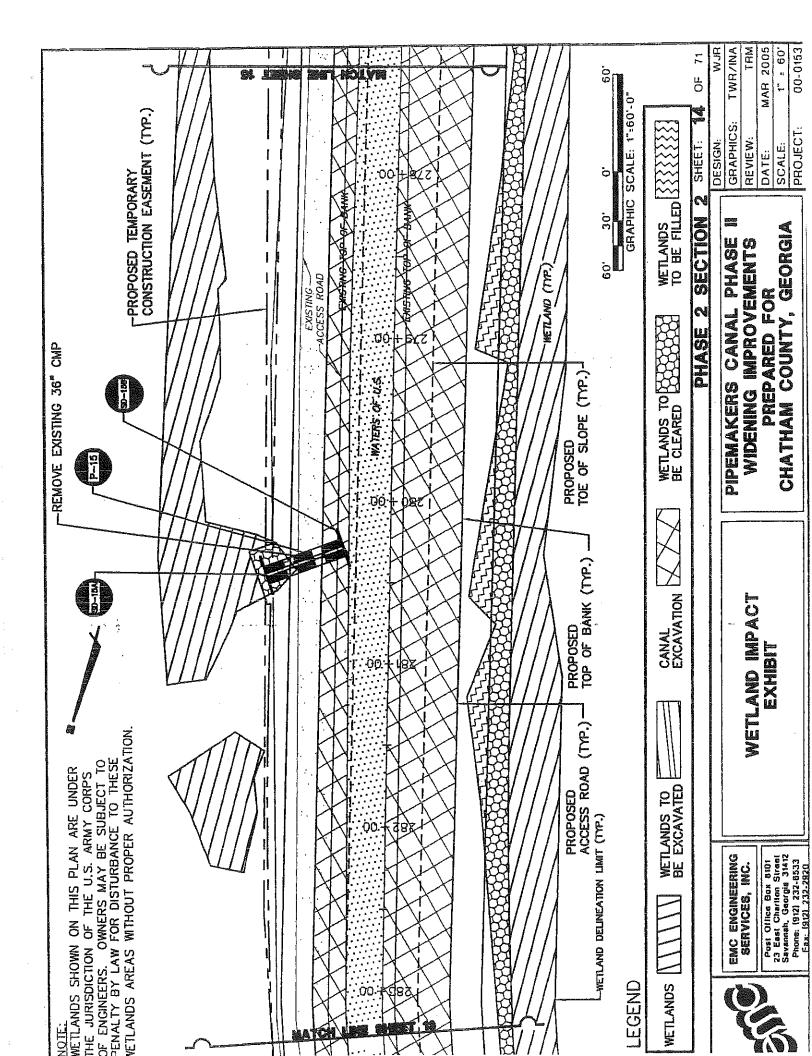
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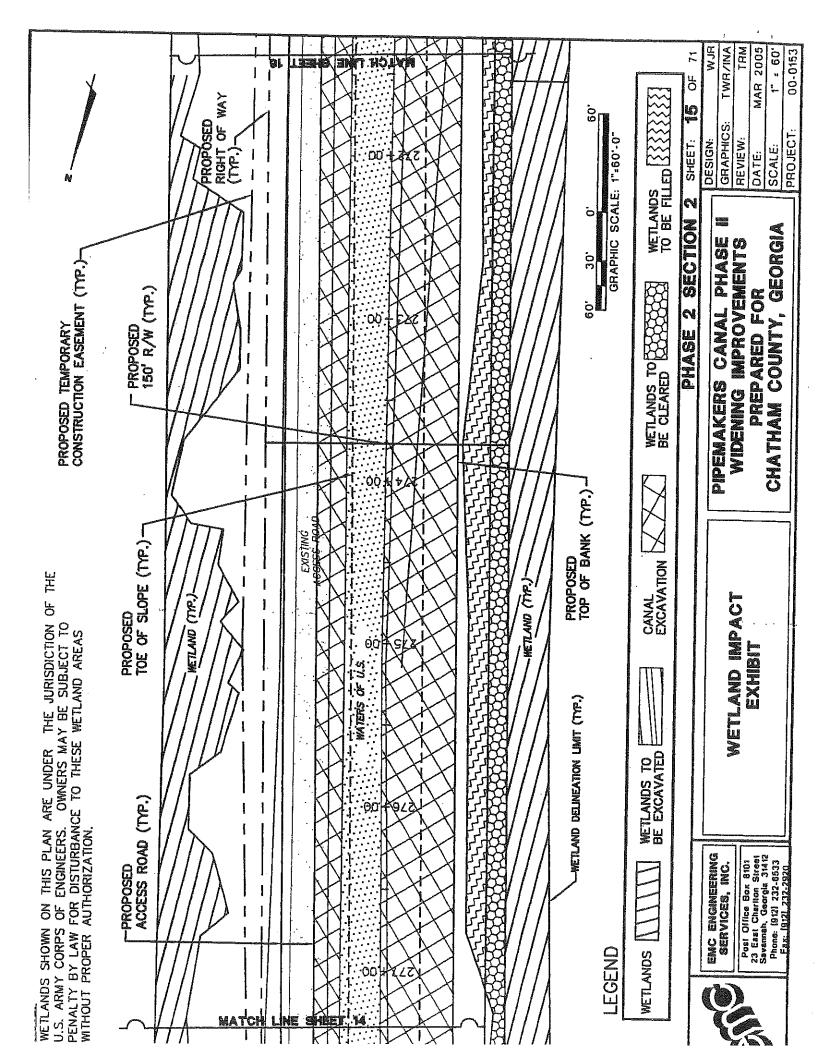
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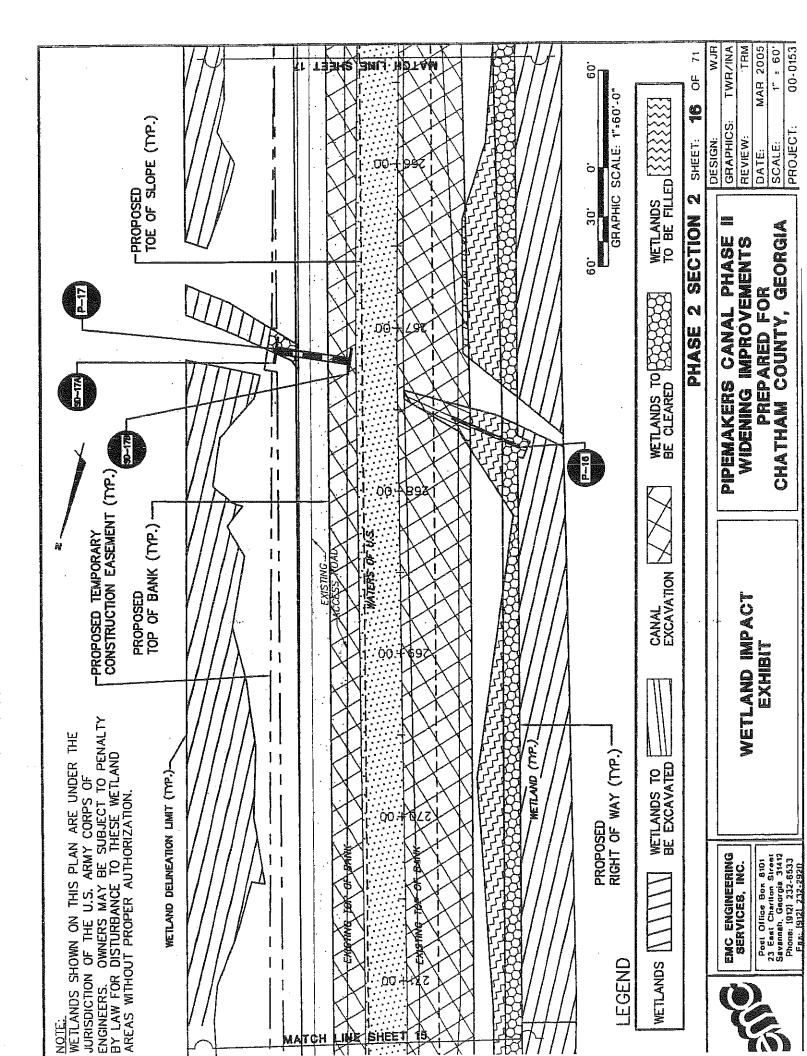
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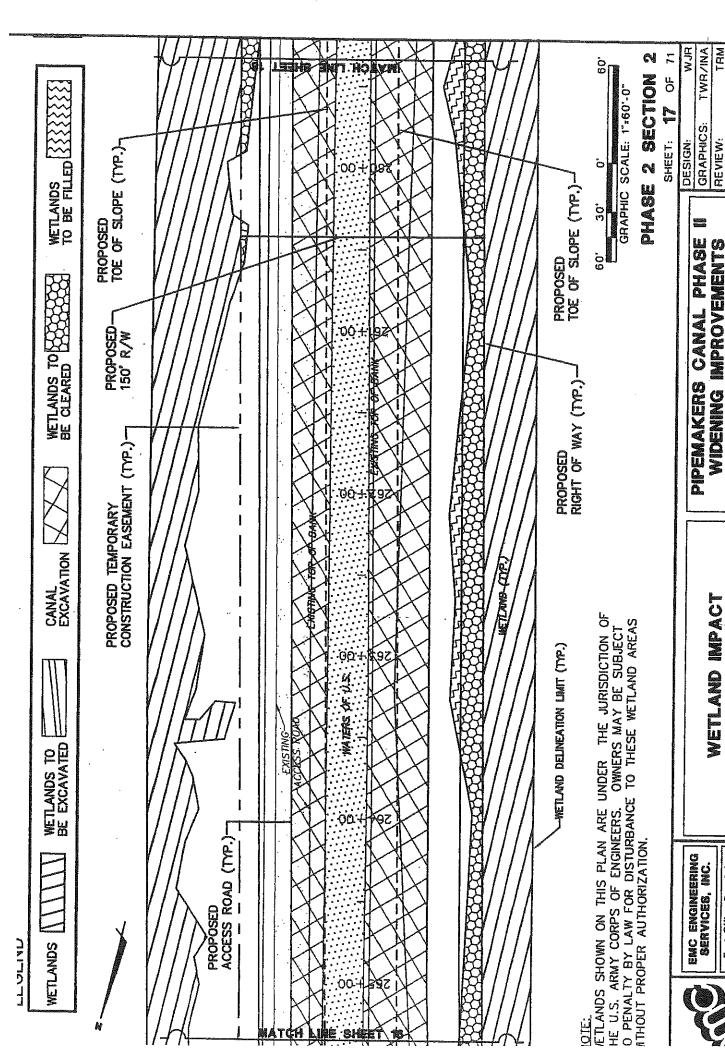
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23 East Charlton Street
Savannah, Georgia 31412
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Fax. (912) 232-9220











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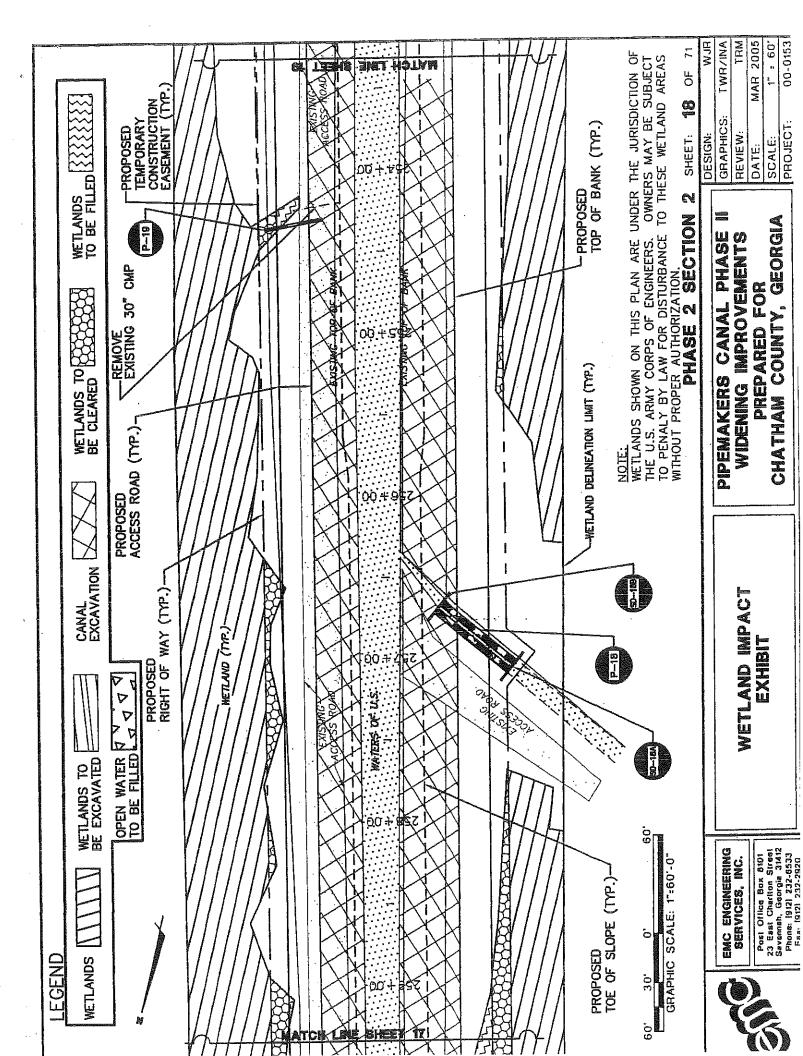
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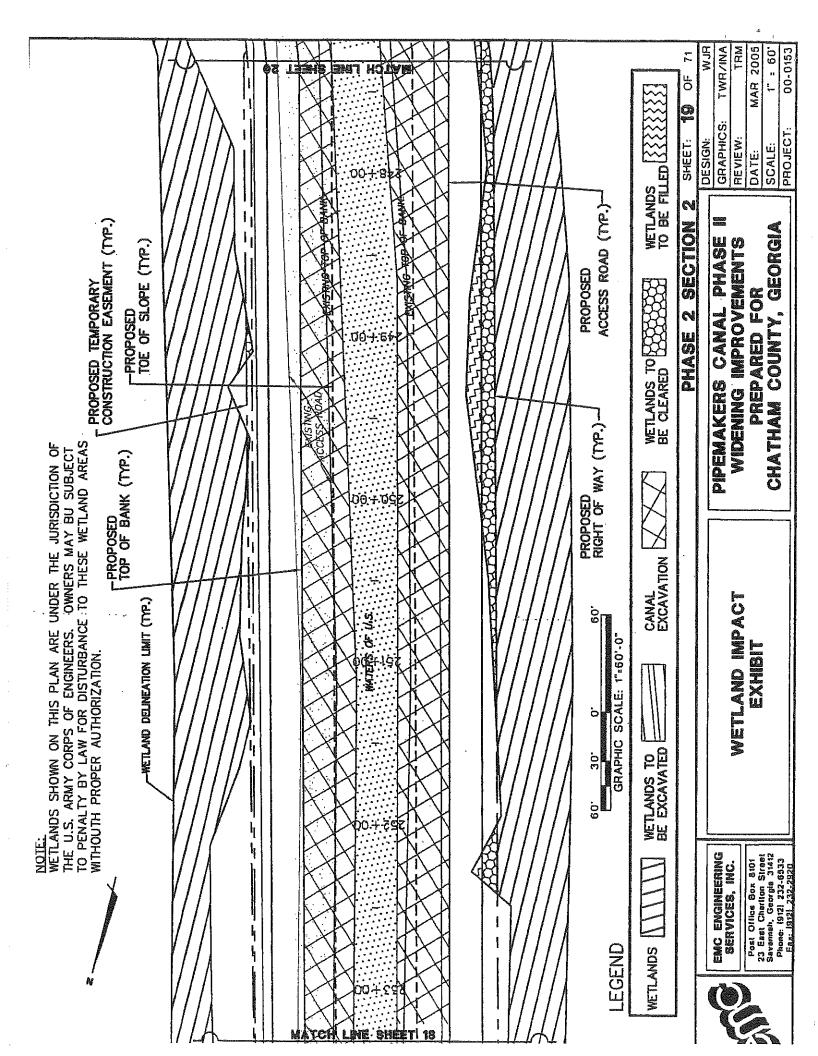
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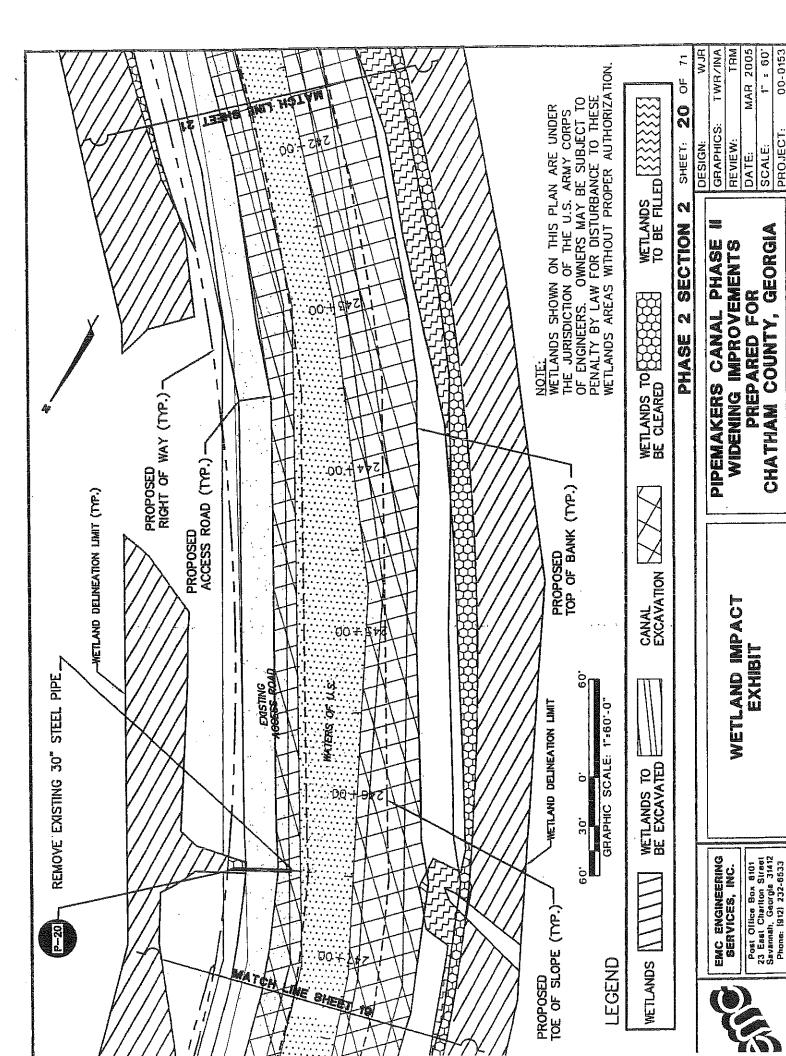
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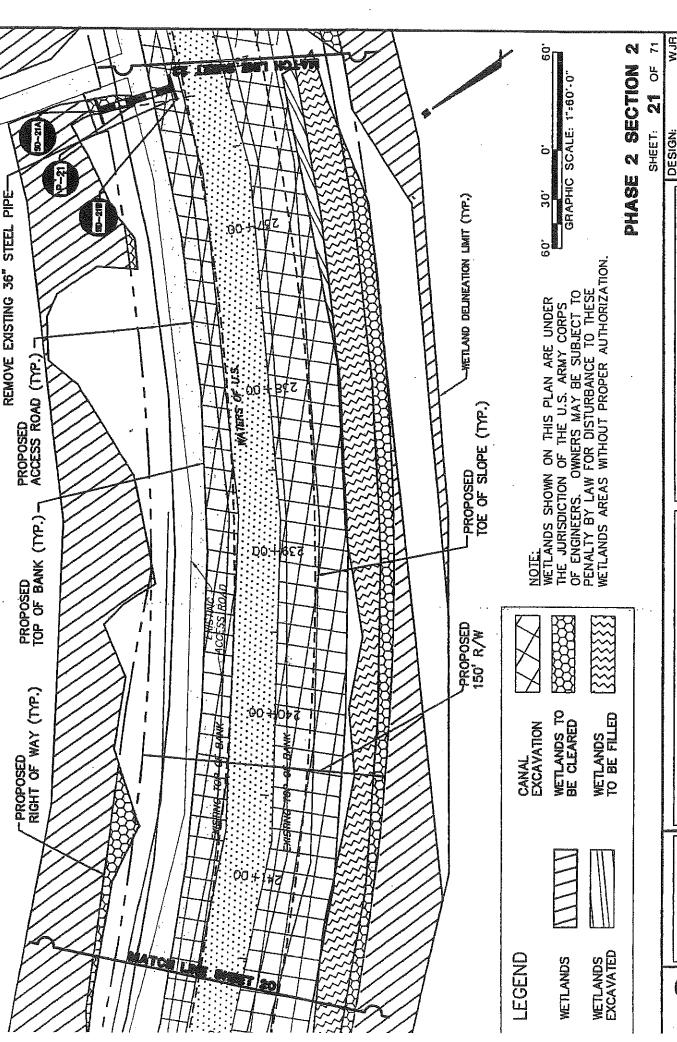


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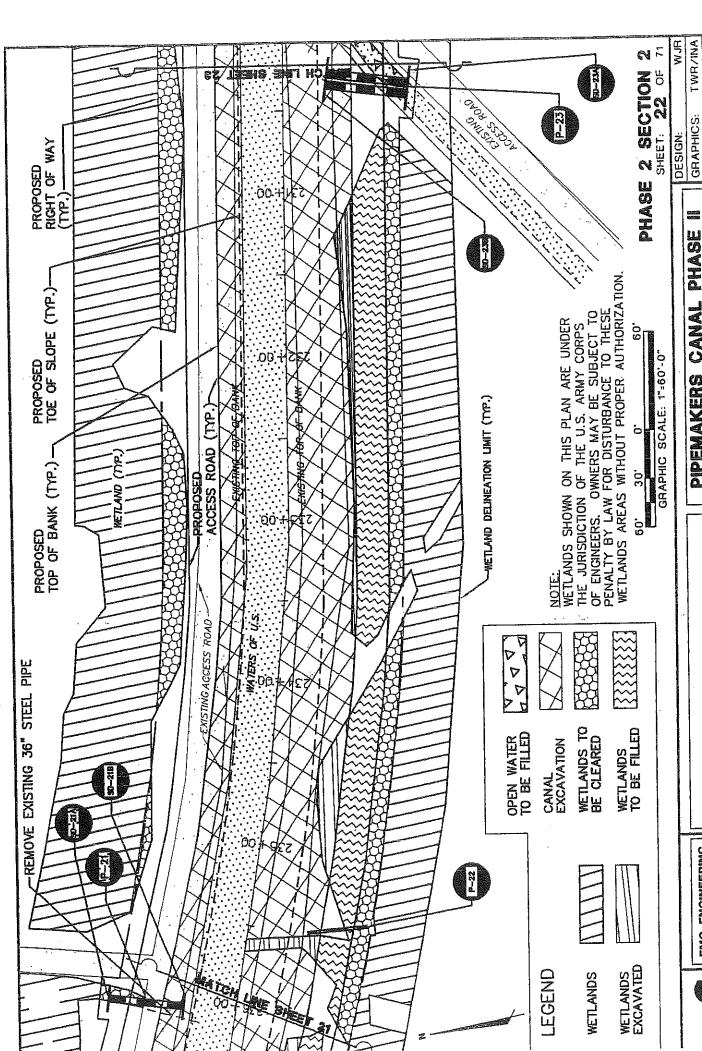
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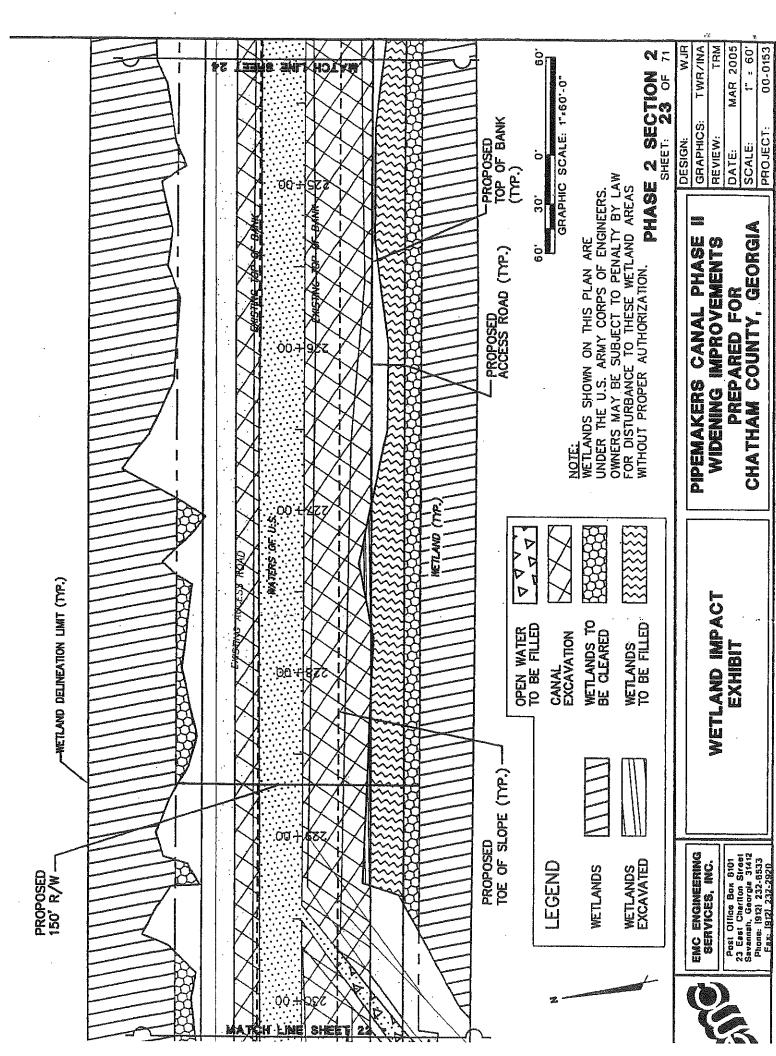
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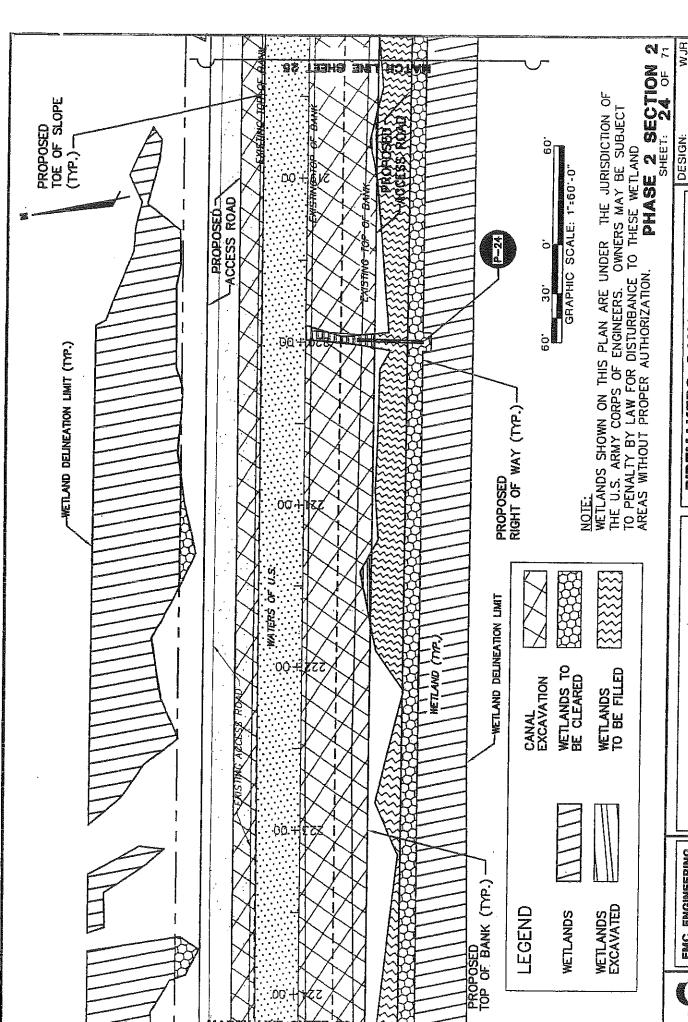
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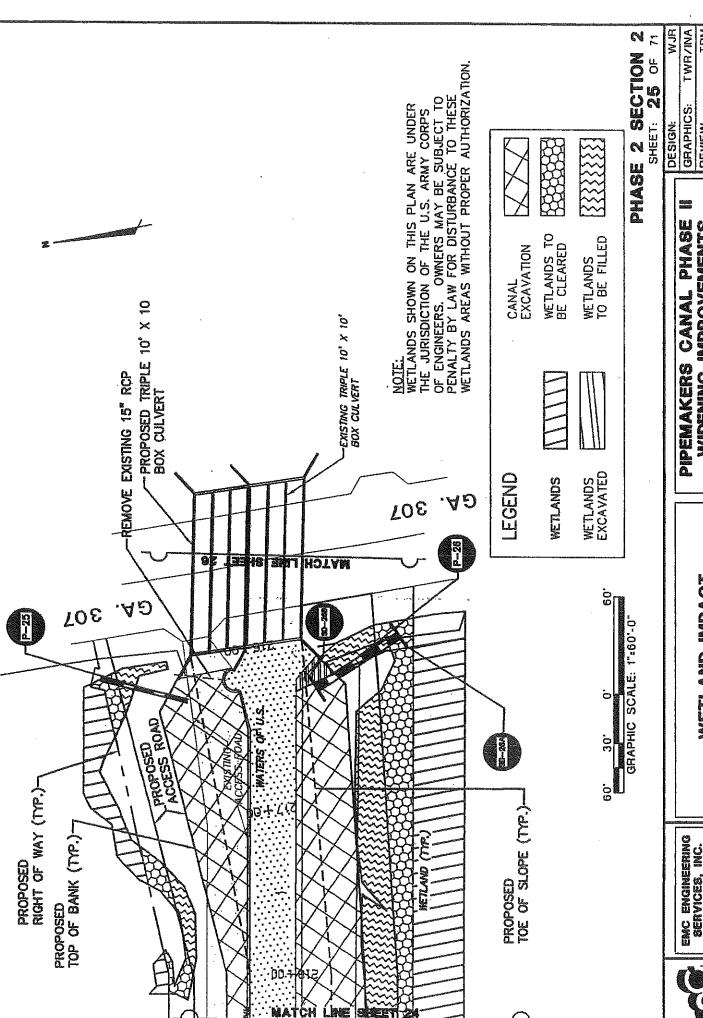
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REVIEW:

Post Office Box 8101
23 Eset Charlton Street
Savannah, Georgia 31412
Phone: 19121 232-8633
Eax. 1912 232-2620

WETLAND INPACT

EMC ENGINEERING SERVICES, INC.

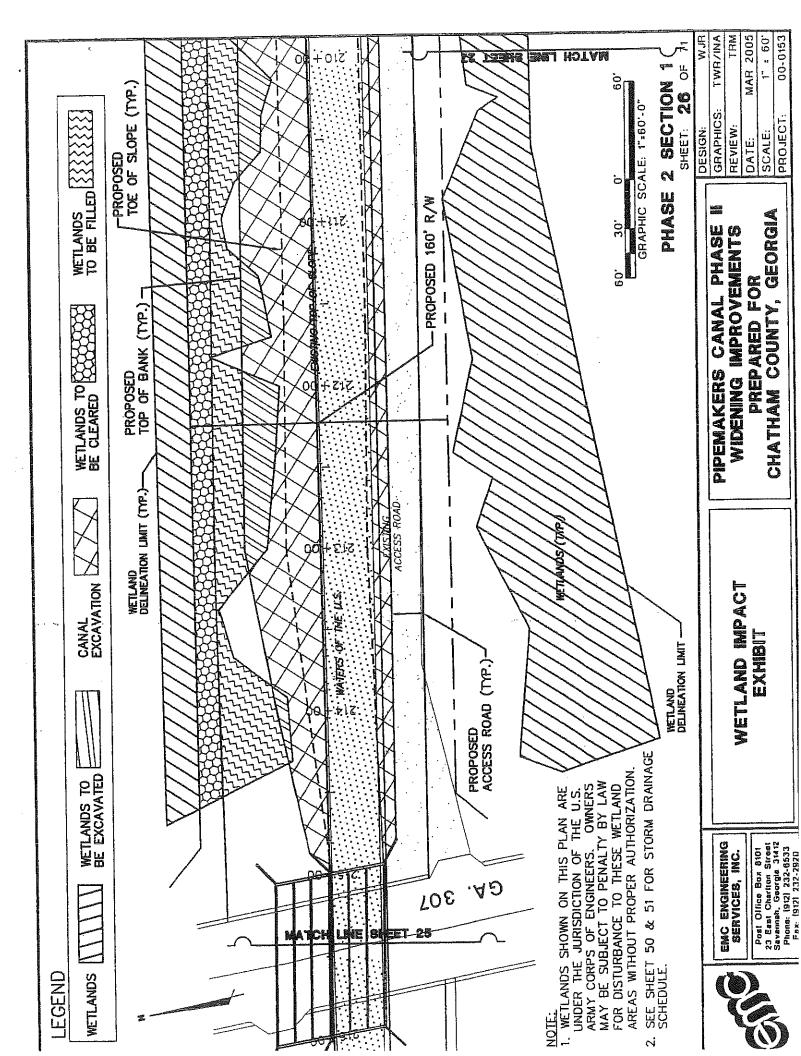


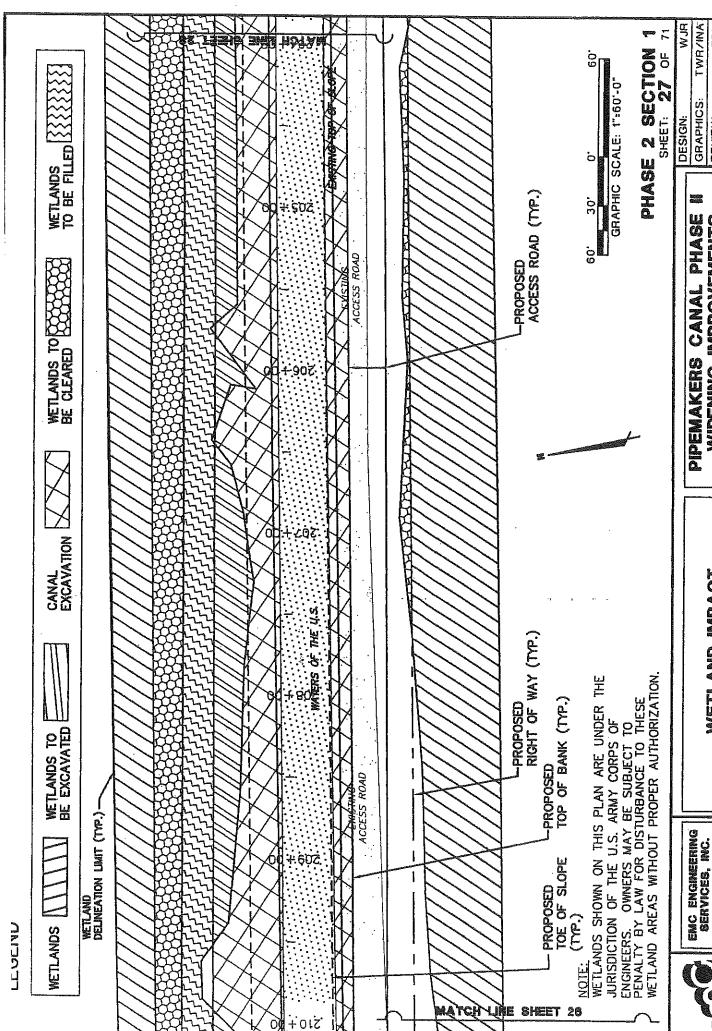
LOVAMI QUVILIA

Post Office Box 8101 23 East Charlon Street Savamah, Georgia 31412 Phone: 1912| 232-6933 Eax. [912] 232-5930

PREPARED FOR CHATHAM COUNTY, GEORGIA PIPEMAKERS CANAL PHASE STRUMENT OF THE STRUMENTS

TWR/JINA **MAR 2005** 1" - 60' 00-0153 GRAPHICS: PROJECT: REVIEW: SCALE DATE



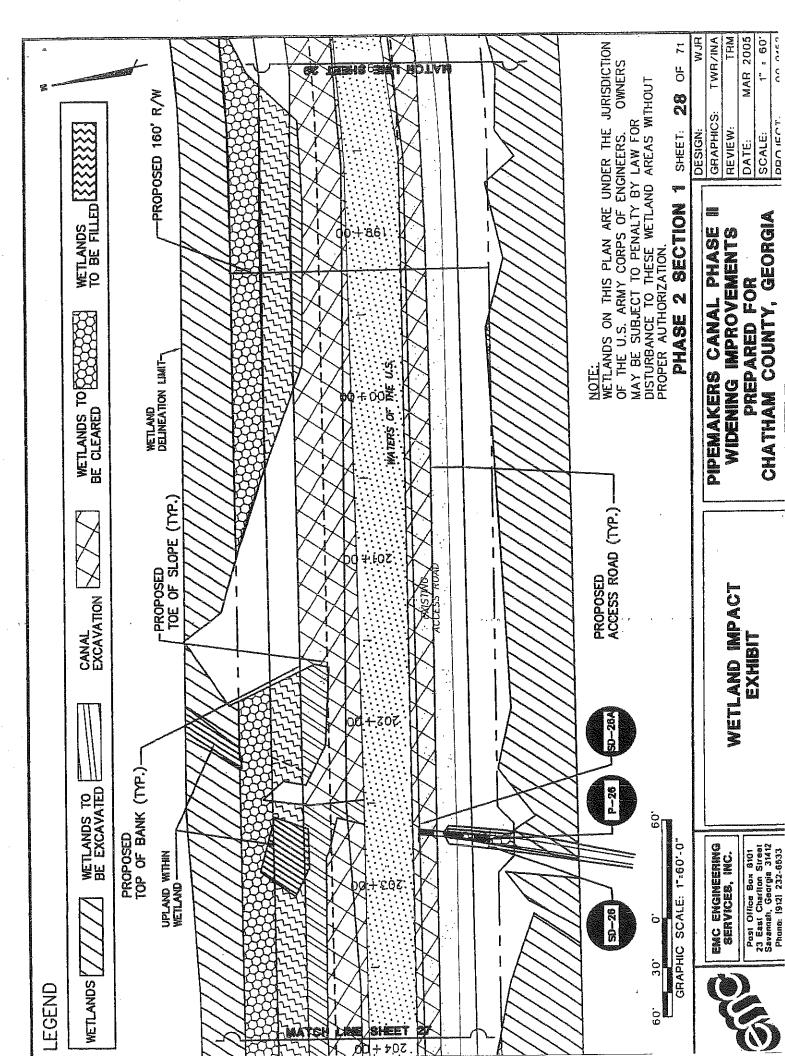


Wetland Impact

CHATHAM COUNTY, GEORGIA PIPEMAKERS CANAL PHASE OLUMNO CANDON OR MINING STREET

TWR/INA MAR 2005 00-0153 GRAPHICS: PROJECT: REVIEW: SCALE DATE:

Post Office Box 8101
23 East Charlton Street
Savannah, Georgia 31412
Phone: (912) 222-2920

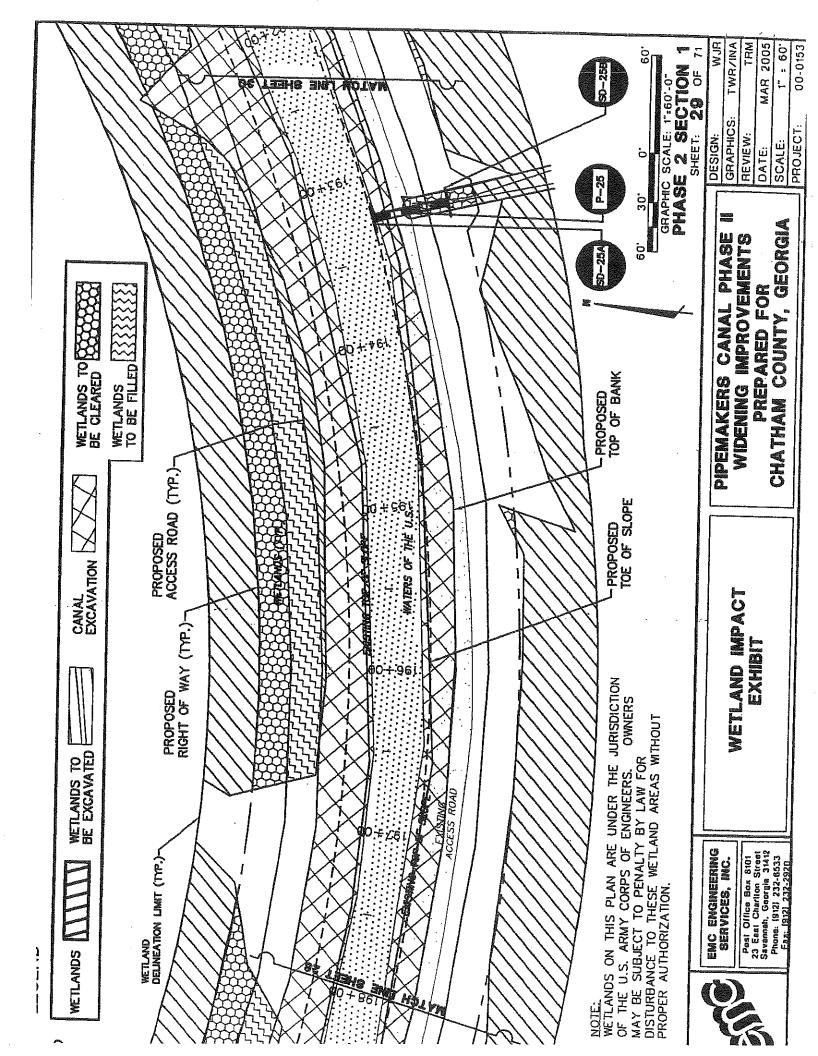


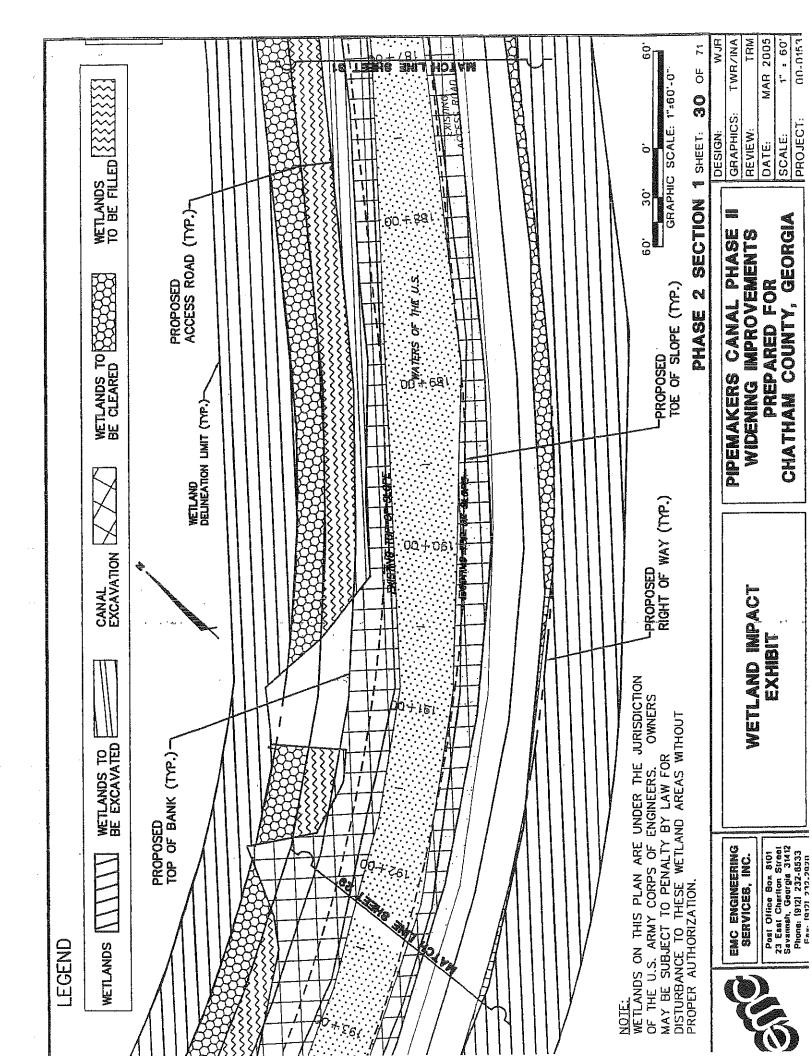
1" = 60' חח חיגה

רםם וביע.

SCALE:

CHATHAM COUNTY, GEORGIA

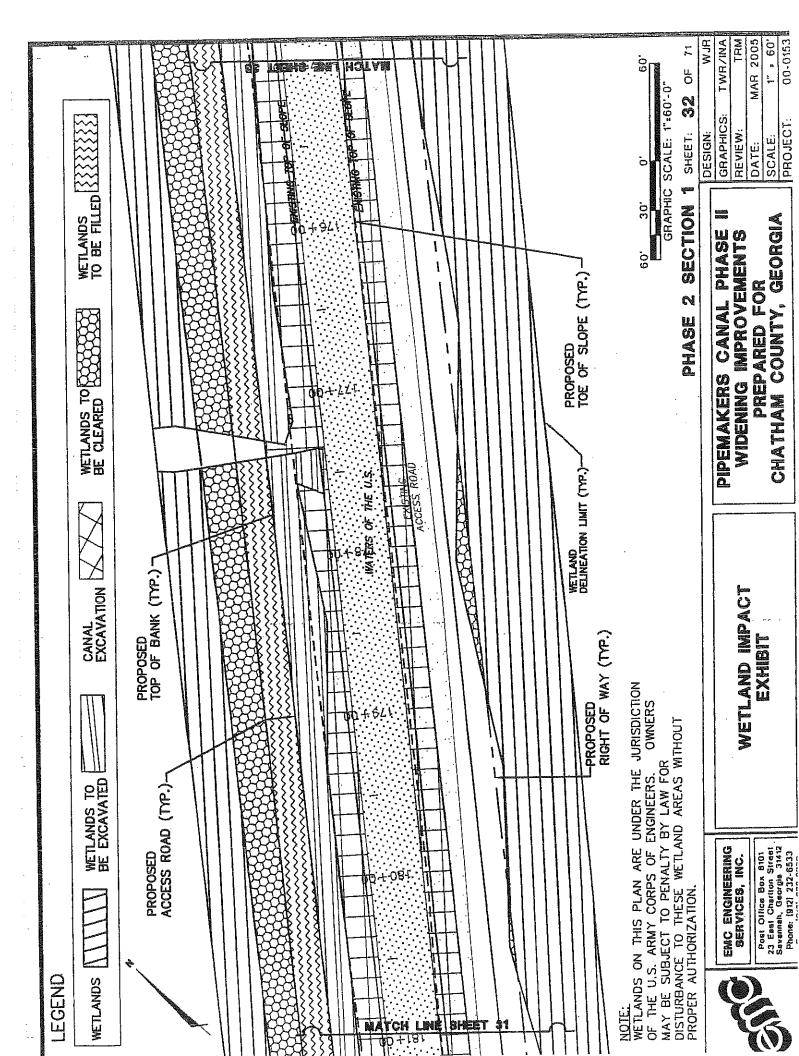


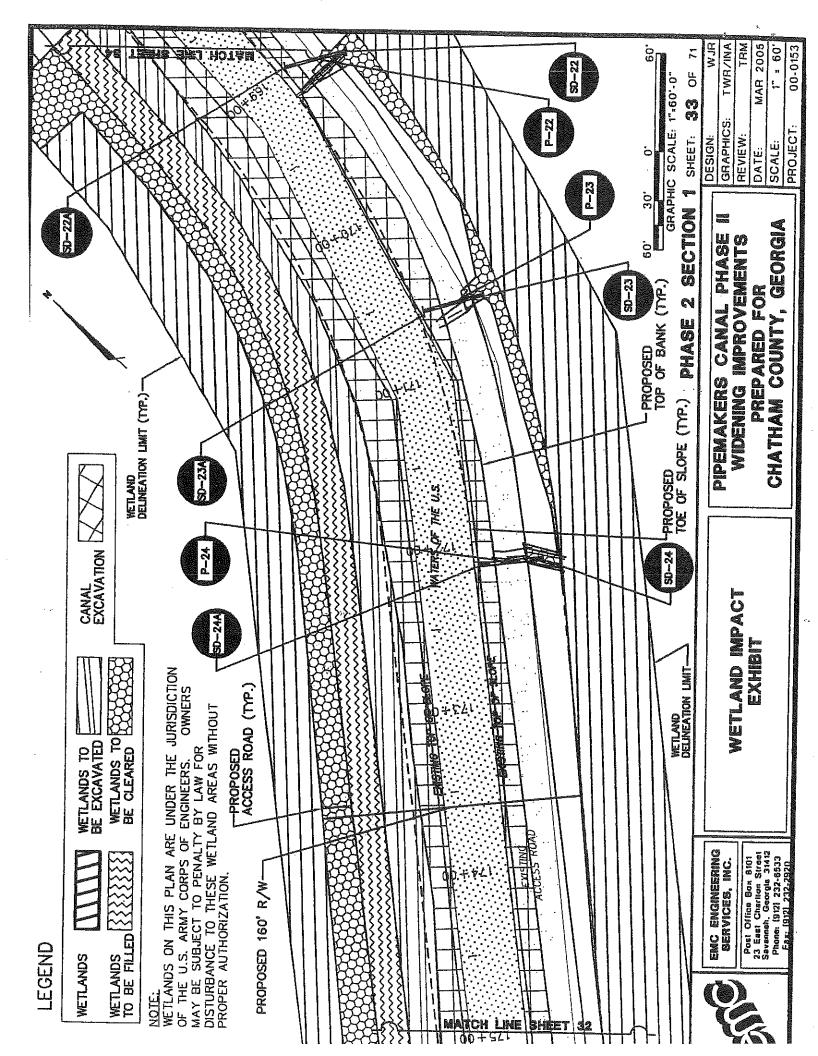


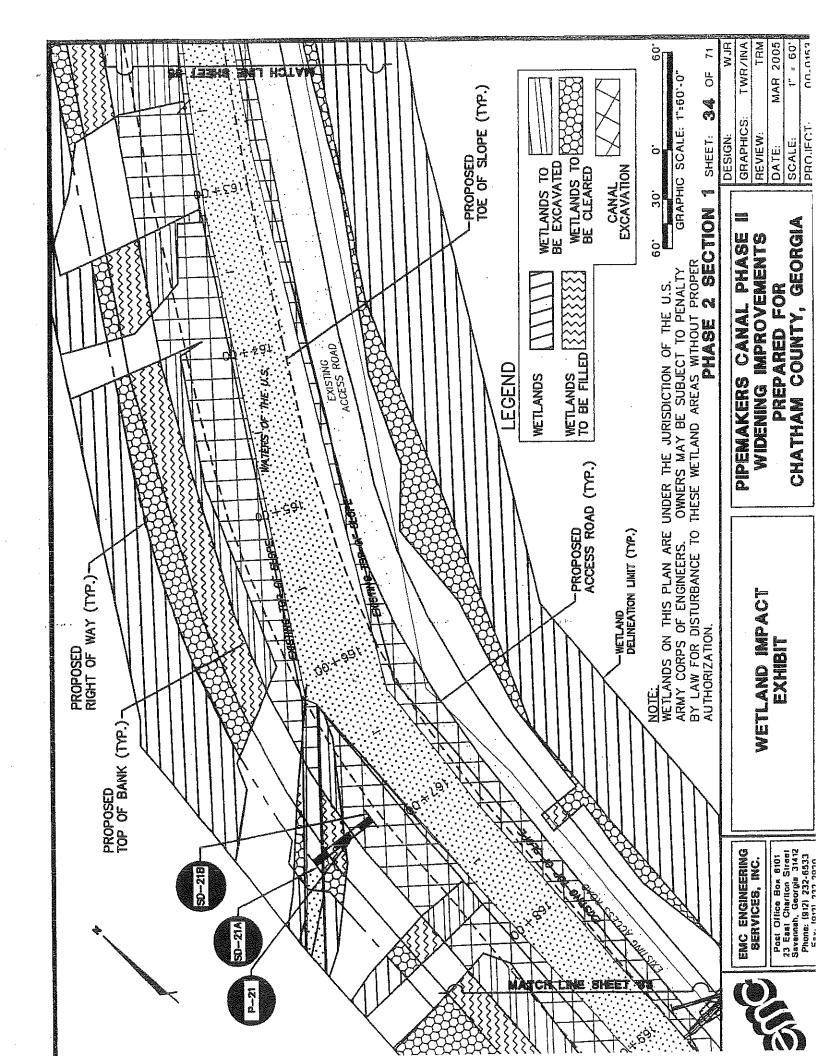
Post Office Box 8101 23 Essi Charton Street Savannah, Georgia 31412 Phone: (912) 232-6533 Fax. (912) 232-2920

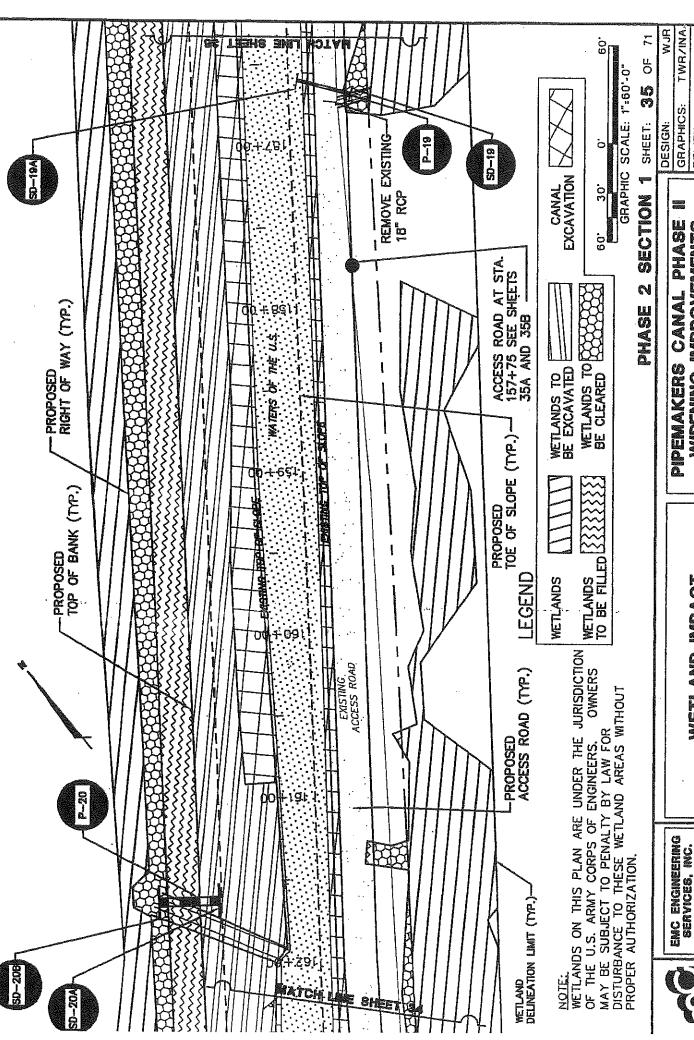
PREPARED FOR CHATHAM COUNTY, GEORGIA PIPEMAKERS CANAL PHASE WIDENING IMPROVEMENTS

TWR/INA Ä MAR 2005 00-0153 PROJECT: REVIEW SCALE: DATE





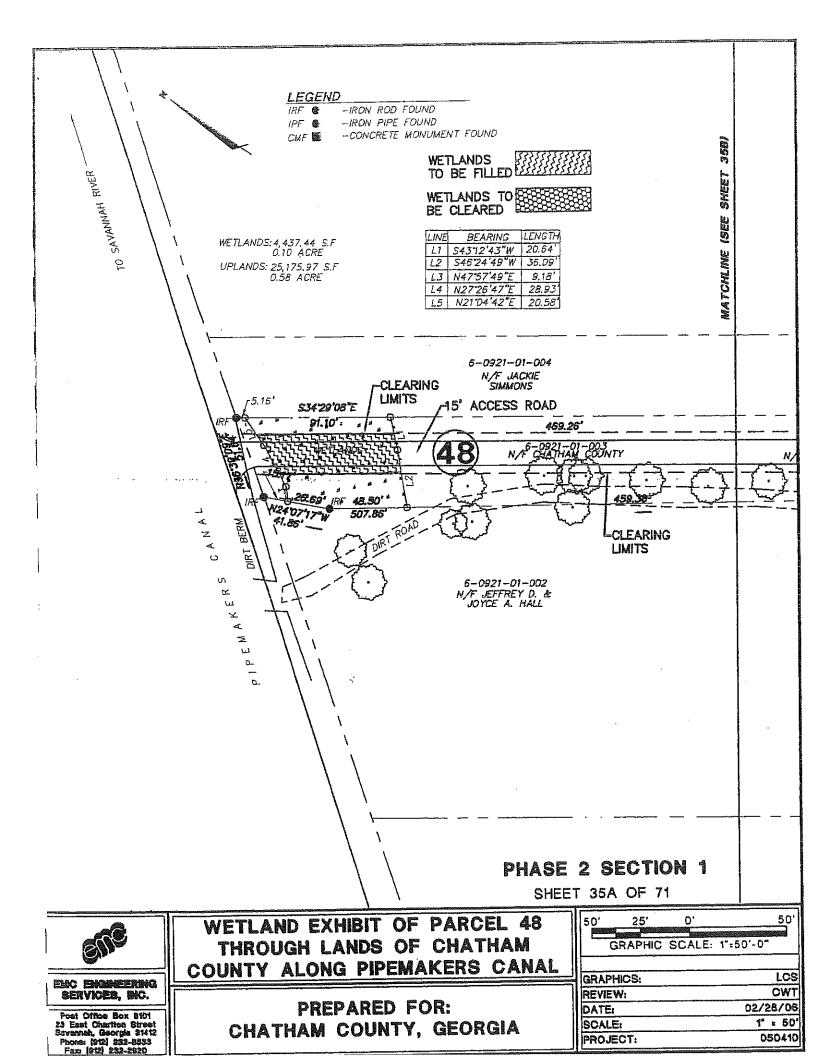


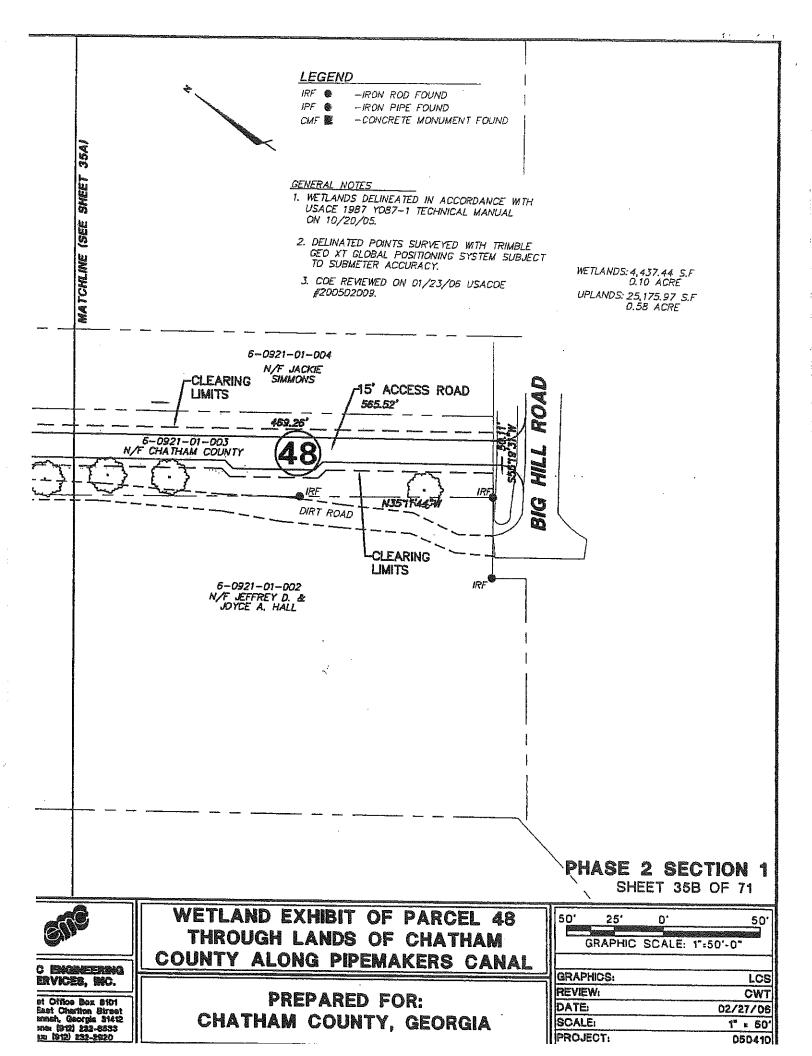


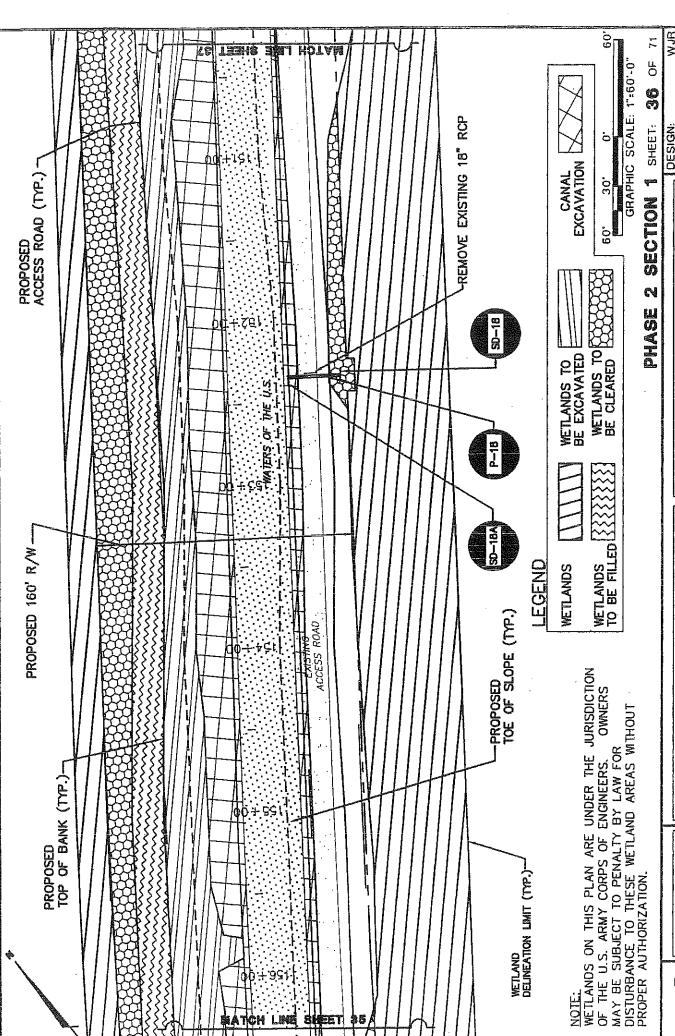
WHEN BEACH

Post Office Bon 6101 23 Essi Charlton Street Savannah, Georgia 31412 Phone: 1912) 232-6533

PIPEMAKERS CANAL PHASE I WIDENING IMPROVEMENTS PREPARED FOR CHATHAM COUNTY, GEORGIA







Wetland Impact

CHATHAN COUNTY, GEORGIA PDEMAKERS CANAL PLASE PARPARE TOT

MAR 2005

TWR/INA

GRAPHICS:

REVIEW:

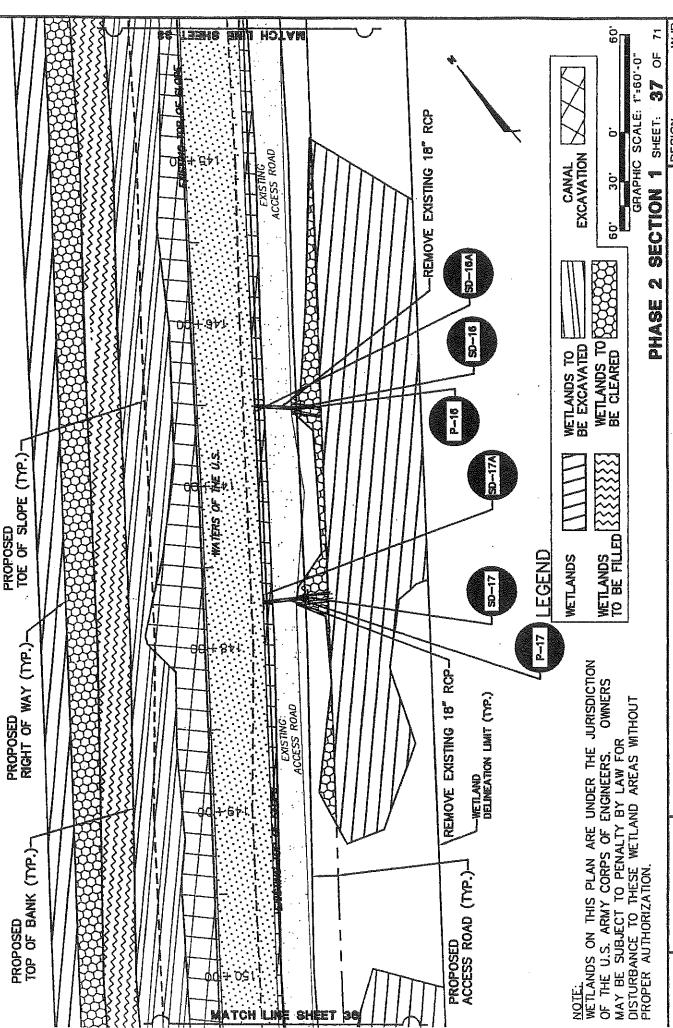
00-0153

PROJECT:

1": 60'

SCALE DATE

Post Office Box 8101 23 East Chariton Strest Savannah, Georgia 31412 Phone: 1912 122-6533 Fax: [912] 232-2920 enc engineering Services, inc.



METLAND MPACT

Post Office Box 8101 23 East Charlton Street Savenest, Georgia 31412

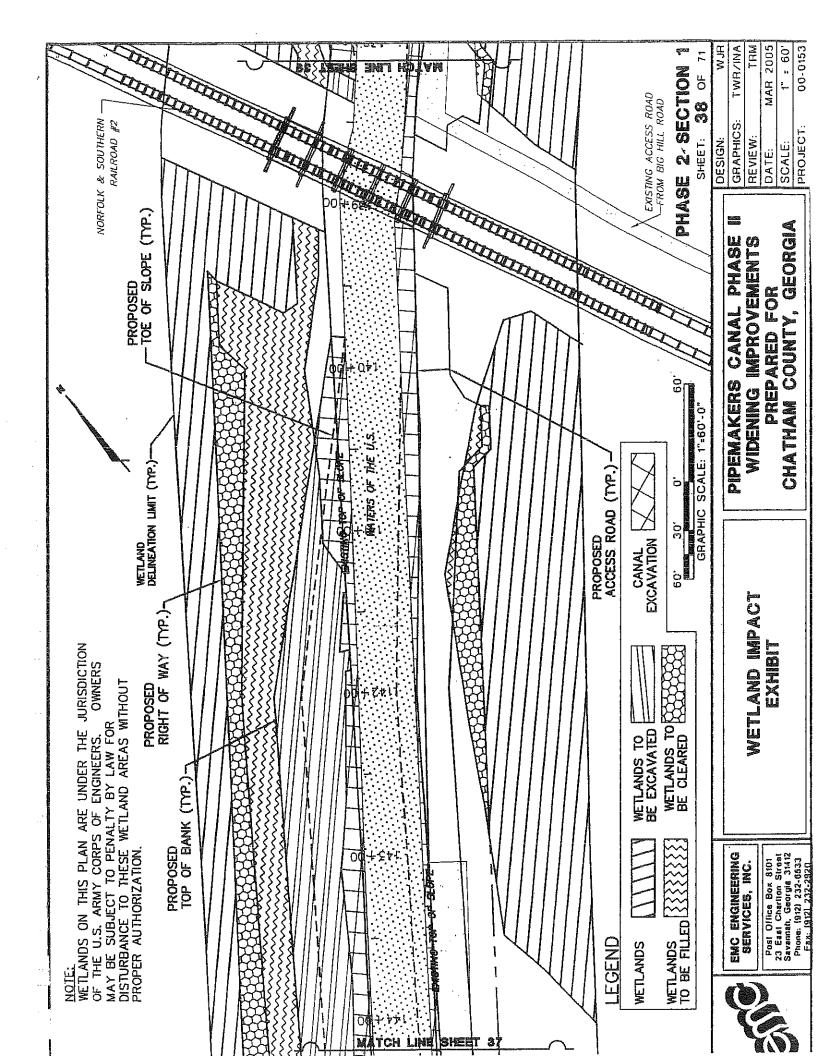
Phone: (912) 232-8533

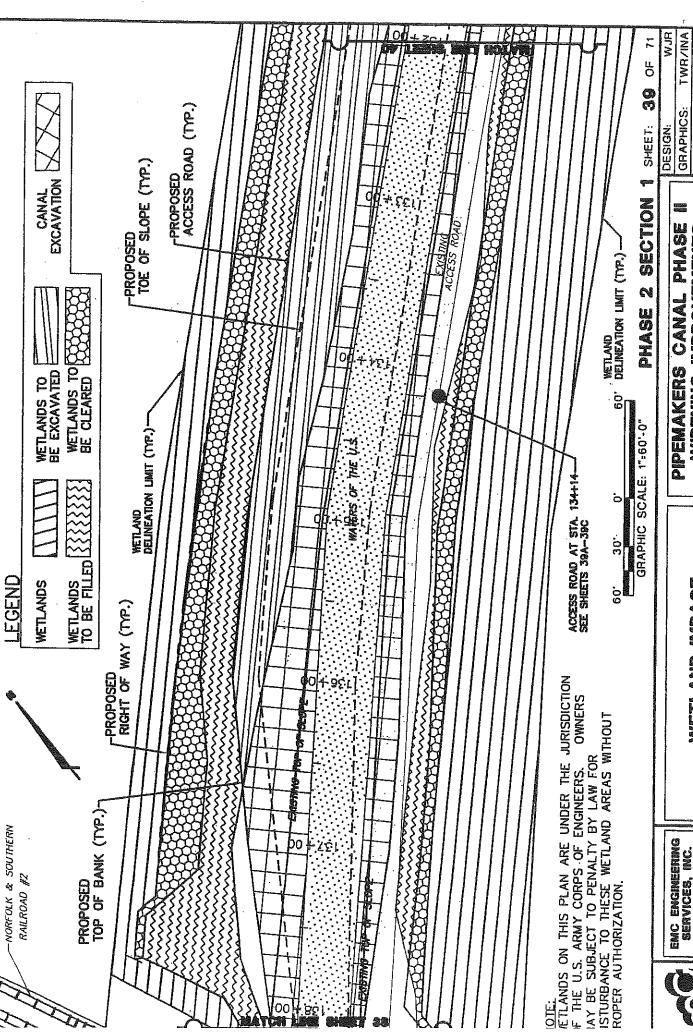
Eas. 19121 232-2920

EMC ENGINEERING SERVICES, INC.

CHATHAM COUNTY, DEORGIA PURAKERS CANAL PEASE SECTION OF

WJR THE MAR 2005 TWR/INA 1" : 60' 00-0153 GRAPHICS: PROJECT: REVIEW: DESIGN: SCALE DATE:





LOYCH ORVILLA

CHATHAM COUNTY, GEORGIA PIPEMAKERS CANAL PHASE STUBBLE BASOLUBIAN SINCE PREPARE TOR

GRAPHICS: PROJECT: REVIEW: SCALE: DATE:

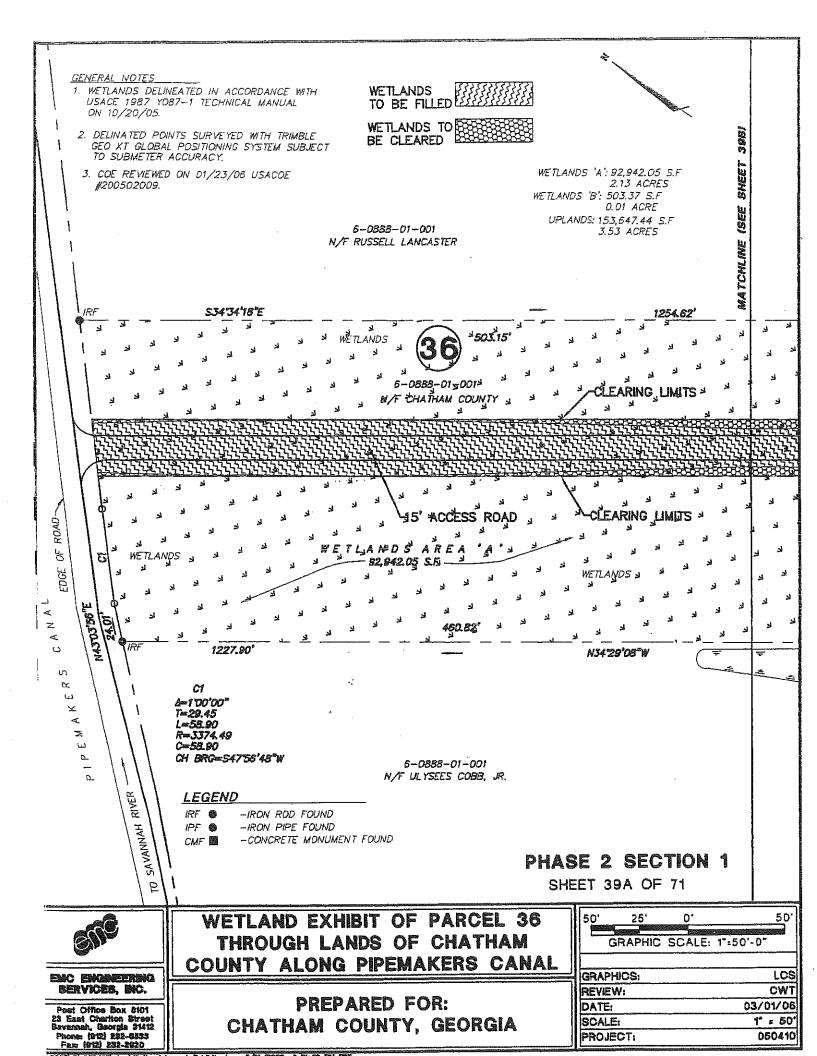
TWRZINA

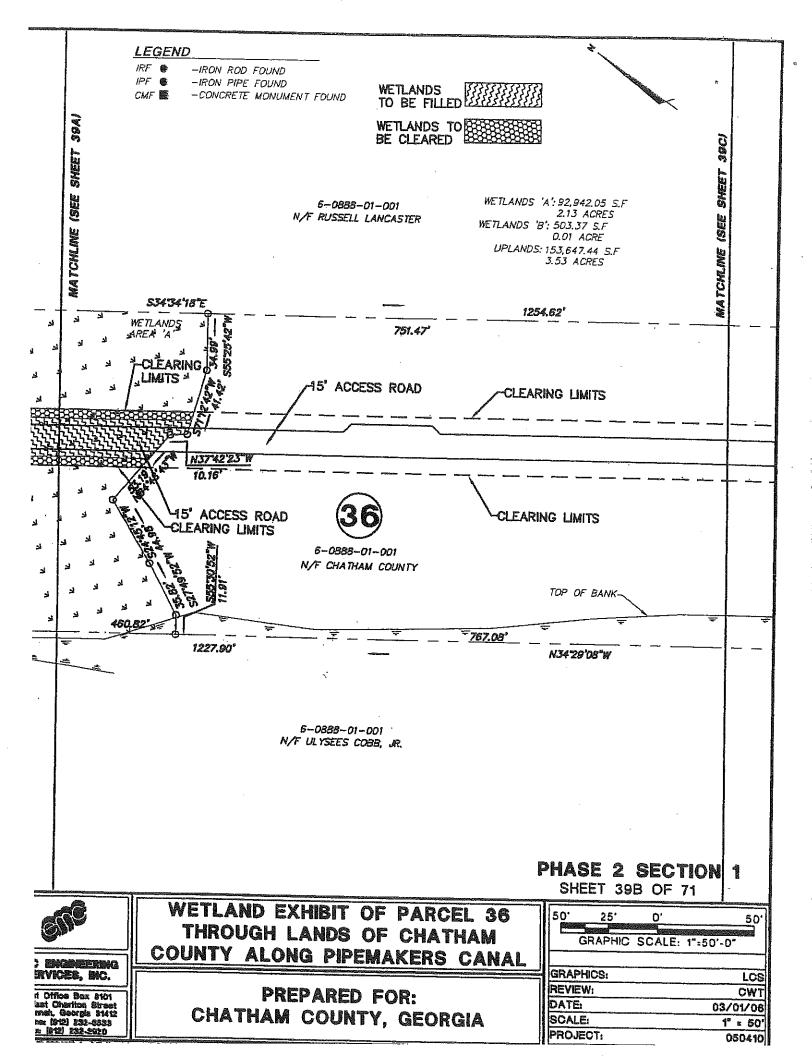
MAR 2005

00-0153

Post Office Box 8101 23 East Charlon Street Savannah, Georgia 31412 Phone: 1912l 232-6533

5nx; [912] 232-2920





LEGEND -IRON ROD FOUND IPF 🐠 -IRON PIPE FOUND 398 -CONCRETE MONUMENT FOUND CMF 🌉 SHEET (SEE WETLANDS 'A': 92,942.05 S.F 2.13 ACRES 6-0888-01-001 WETLANDS 'B': 503.37 S.F N/F RUSSELL LANCASTER MATCH. INF 0.01 ACRE UPLANDS: 153,647.44 S.F 3.53 ACRES 53434'18'E 1254.62 751.47 BEARING LENGTH N16"35"10"E 22.44" S65"23"50"E 25.60" LINE LI -15' ACCESS ROAD S25'01'38"W 19.63" CLEARING LIMITS L4 N72"01"05"W 22.45 WETLANDS AREA 'B.' 503.37 S.F CLEARING LIMITS 6-0888-01-001 N/F CHATHAM COUNTY 767.08 1227.90 N34'29'08"W 6-0888-01-001 N/F ULYSEES COBB, JR. PHASE 2 SECTION 1 **SHEET 39C OF 71** WETLAND EXHIBIT OF PARCEL 36 501 D' 50 THROUGH LANDS OF CHATHAM

Post Office Box 8101 23 East Obstion Street Savanneh, Georgia 31412 Phones (812) 222-6653 Fee: (812) 232-2820

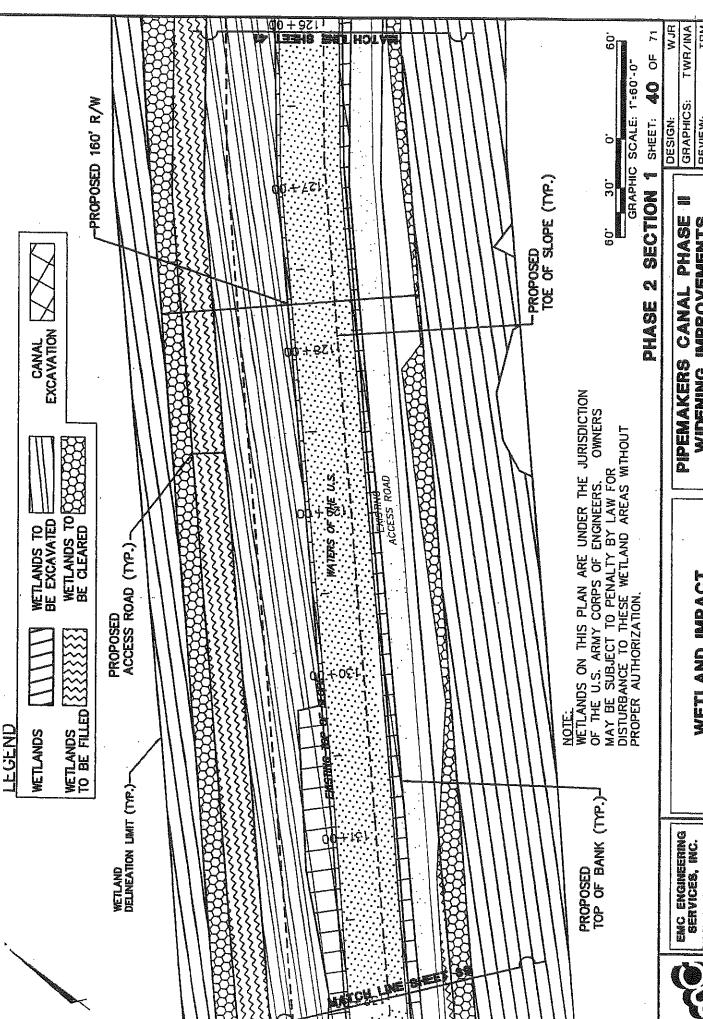
A/Othern/9/Peris.

Dic Brokedien SERVICES, SIC.

County along pipemakers canal

PREPARED FOR: CHATHAM COUNTY, GEORGIA

GRAPHIC SCALE:	1":50"-0"
GRAPHICS:	LCS
REVIEW:	CWT
DATE:	03/01/06
SCALE	1° ₅ 50'
PROJECT:	050410



WETLAND BEACH

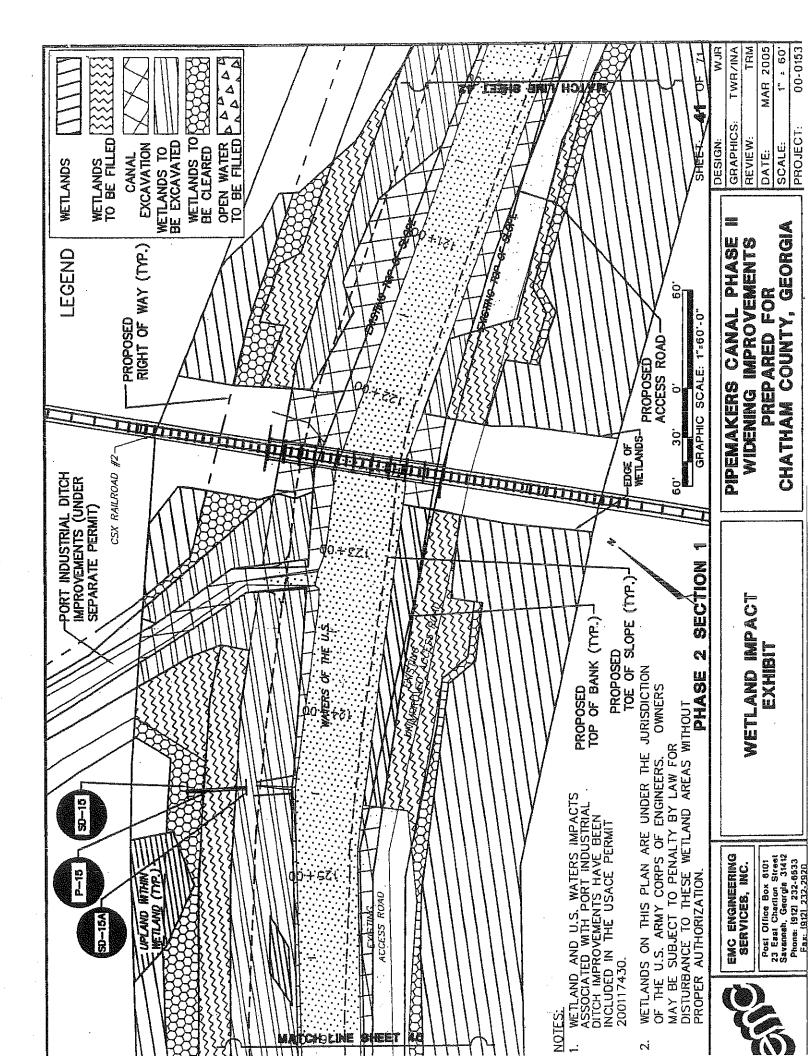
Past Office Box 8101 23 East Charlon Street Savamah, Georgie 31412 Phone: 1921 222-6533

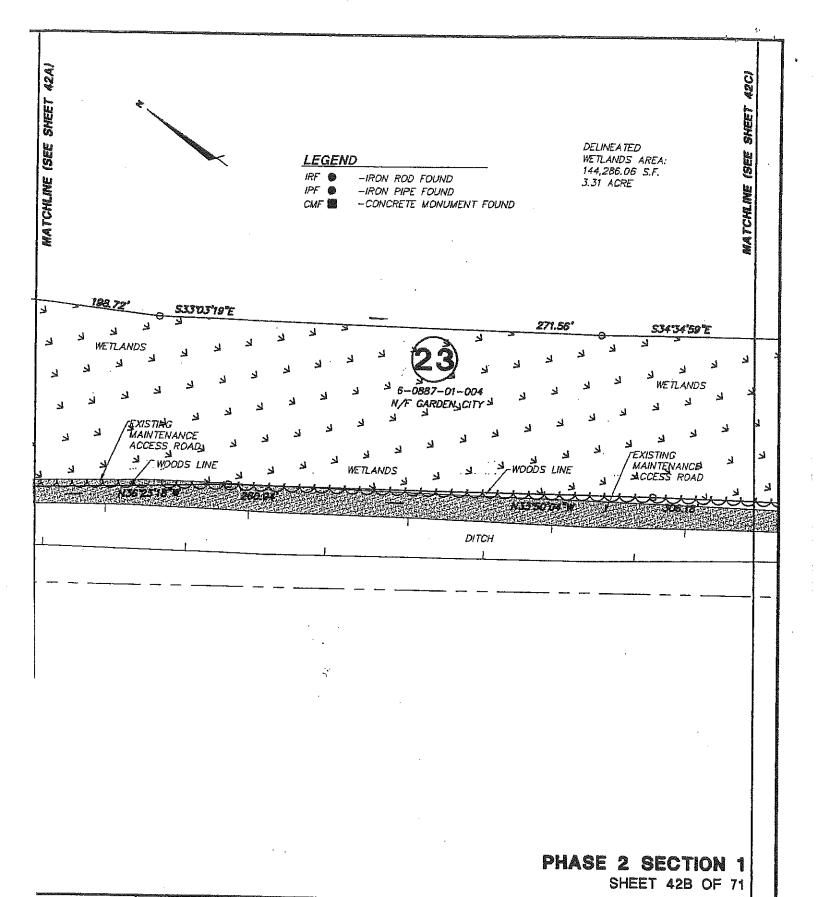
CHATHAM COUNTY, GEORGIA WIDENING IMPROVIEMENTS

HEVIEW: SCALE DATE

MAR 2005 00-0153 1" = 60

PROJECT.





WETLAND EXHIBIT OF PARCEL 23 THROUGH LANDS OF GARDEN CITY ALONG PIPEMAKERS CANAL

ervices, bic.

it Office Box 8101 last Charlion Street ranch, Georgie \$1412 ne: (812) 232-6538 us (812) 232-2520

PREPA	AR	ED	FO	R.
CHATHAM C	OL	INT	Y,	GEORGIA

50'	25′	0,		50'
}	GRAPHIC	SCALE:	1"=50'-0"	
GRA	PHICS:			LCS
REV	EWi			CWT
DAT	Ē:		03/0	1/06
SCA	LEi		1 ° (50
PRO	JECT:		05	0410

MATCHLINE (SEE SHEET DELINEATED WETLANDS AREA: 144,286.06 S.F. 3.31 ACRE LEGEND -IRON ROD FOUND IRF 🝩 IPF 🚭 -IRON PIPE FOUND -CONCRETE MONUMENT FOUND CMF 🧱 269.07 168.93 WETLANDS 6-0883-01-804 N# GARDEN CITY EXISTING rEXISTING " MAINTENANCE MAINTENANCE ACCESS ROAD **CEXISTING** ACCESS ROAD MAINTENANCE #bods LINE ACCESS ROAD N36'04'18"W HJJ20'49'W DITCH ÷ PHASE 2 SECTION 1 SHEET 42C OF 71 WETLAND EXHIBIT OF PARCEL 23 50' 50' 25' THROUGH LANDS OF GARDEN CITY GRAPHIC SCALE: 1":50'-0" ALONG PIPEMAKERS CANAL LCS GRAPHICS: enc encheering SERVICES, NC.

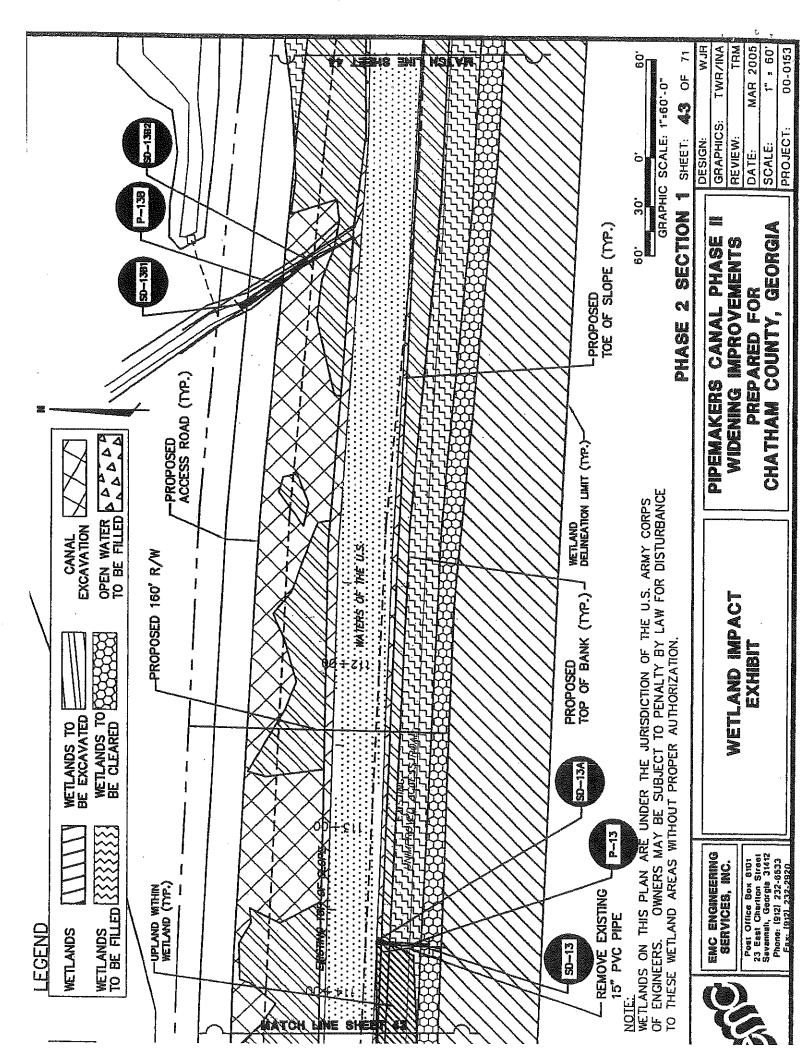
Post Office Box 8101 23 East Charlton Street Savanah, Gaorgia 51412 Phone: (912) 232-6535 Fax: (912) 232-2820 PREPARED FOR: CHATHAM COUNTY, GEORGIA
 GRAPHICS:
 LCS

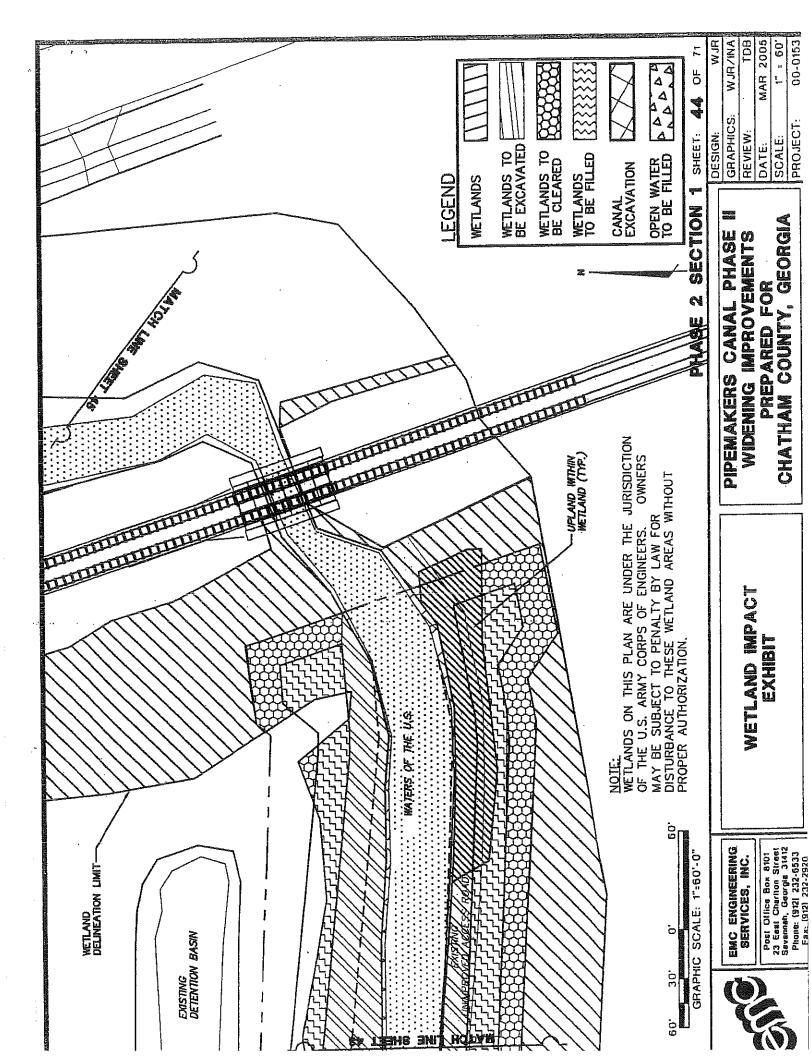
 REVIEW:
 CWT

 DATE:
 03/01/06

 SCALE:
 1° ± 50°

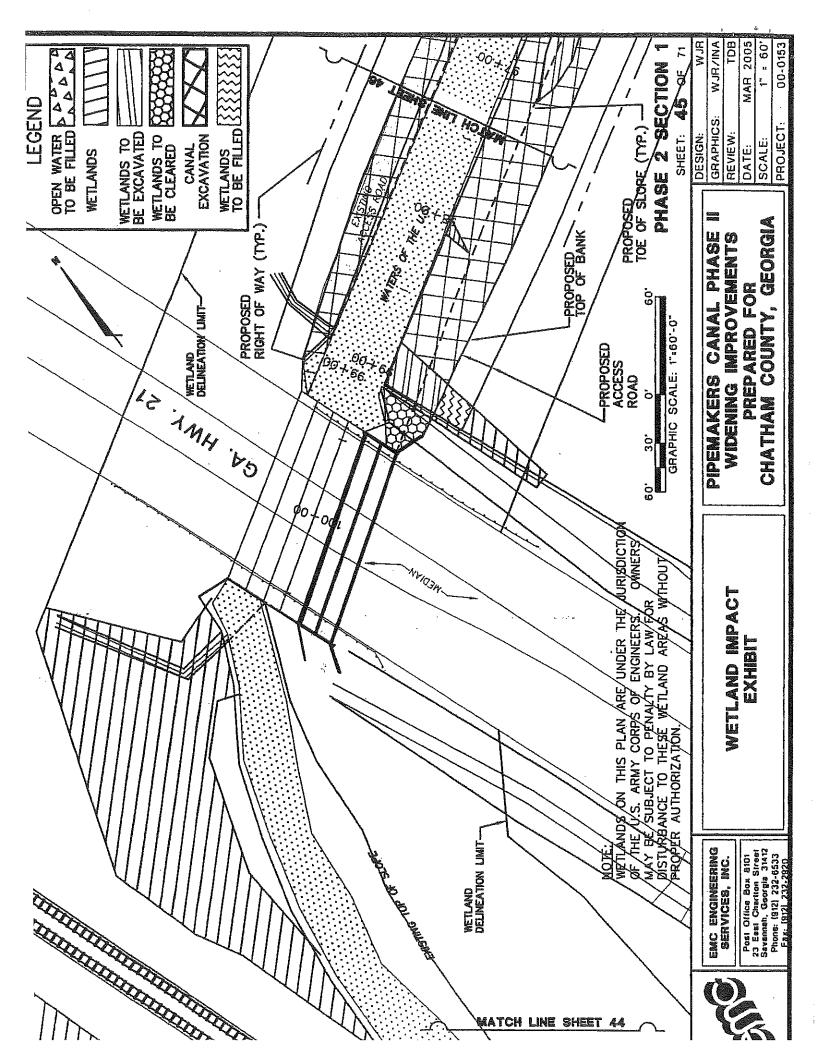
 PROJECT:
 050410

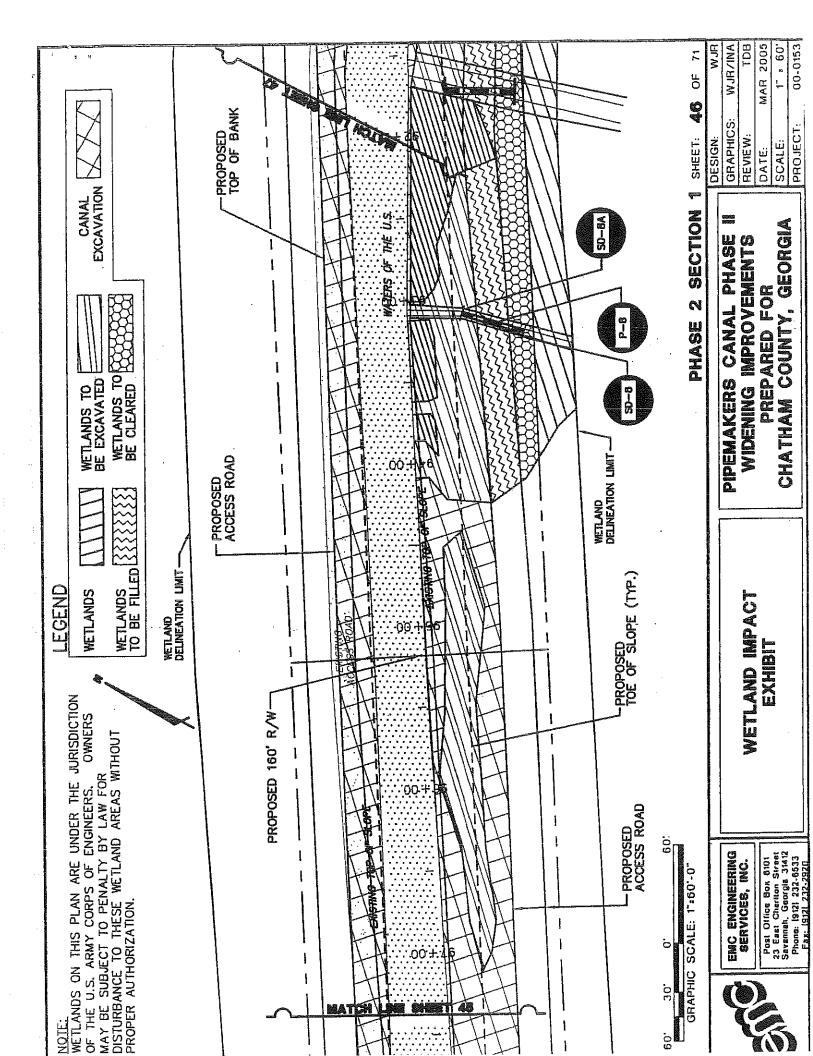


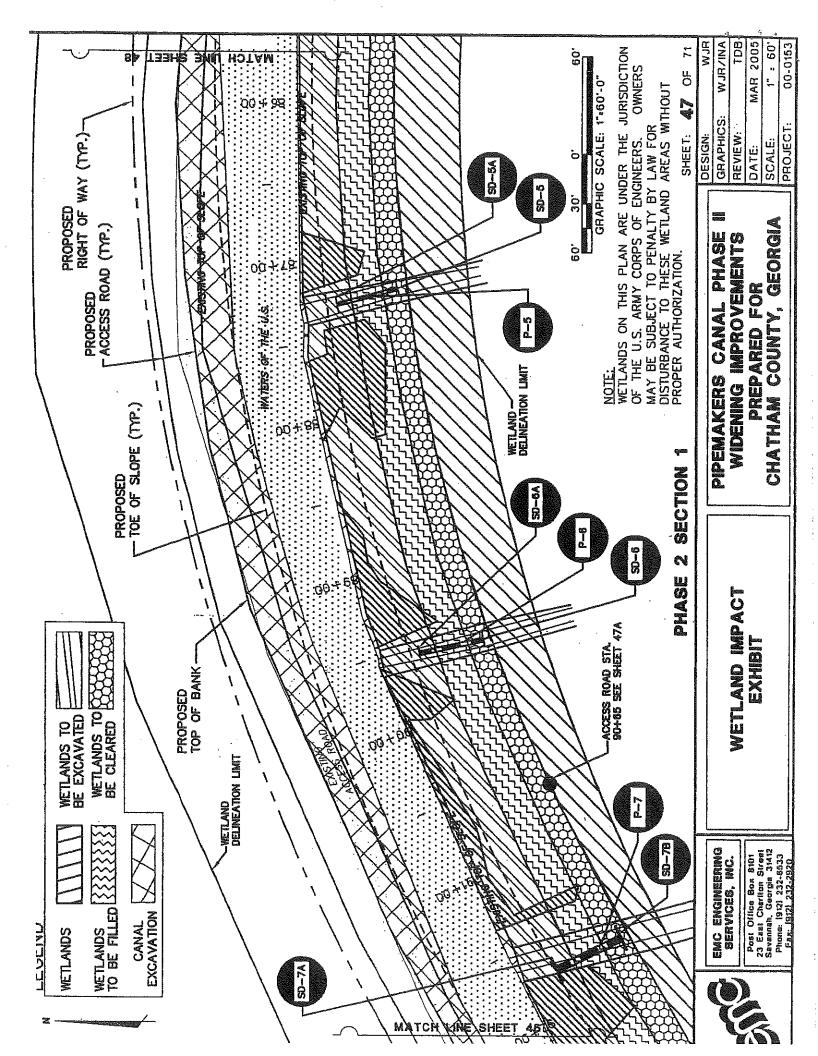


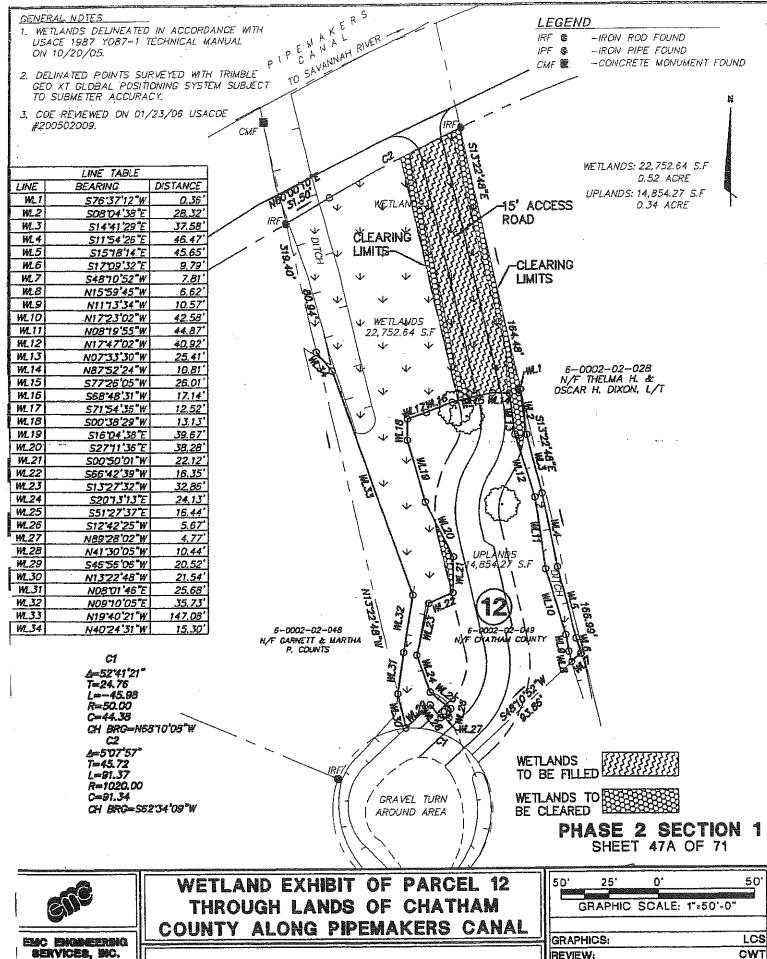
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PROJECT:







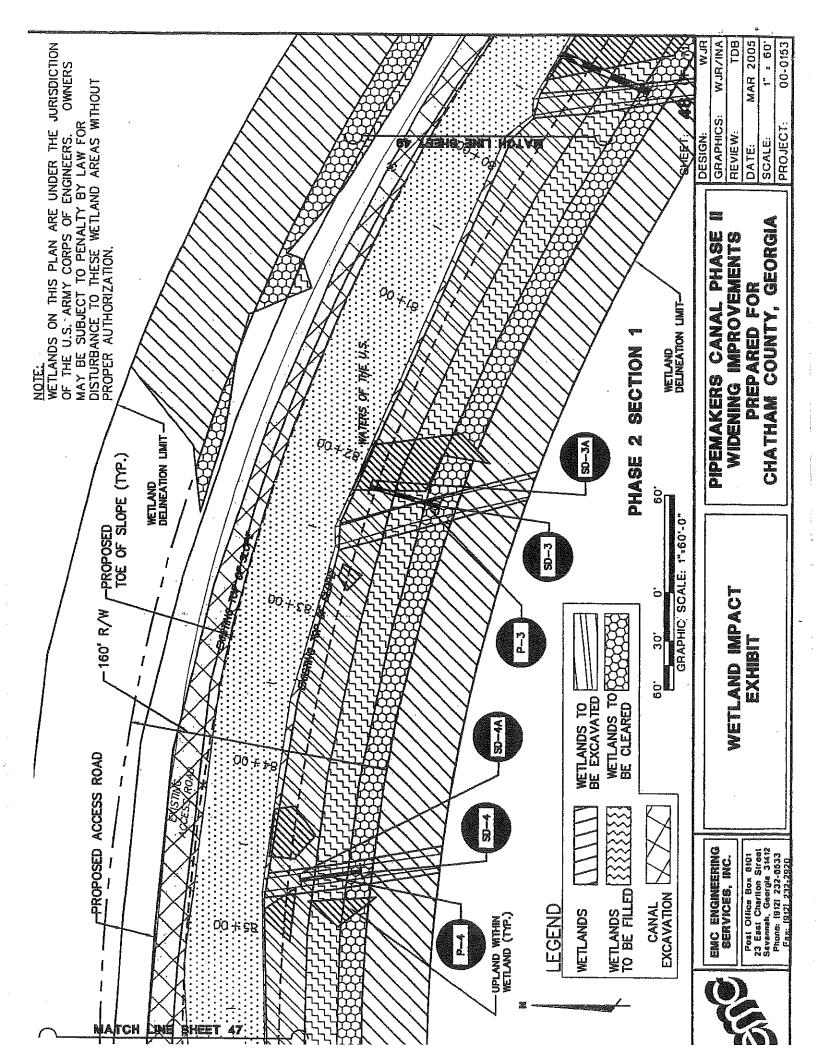


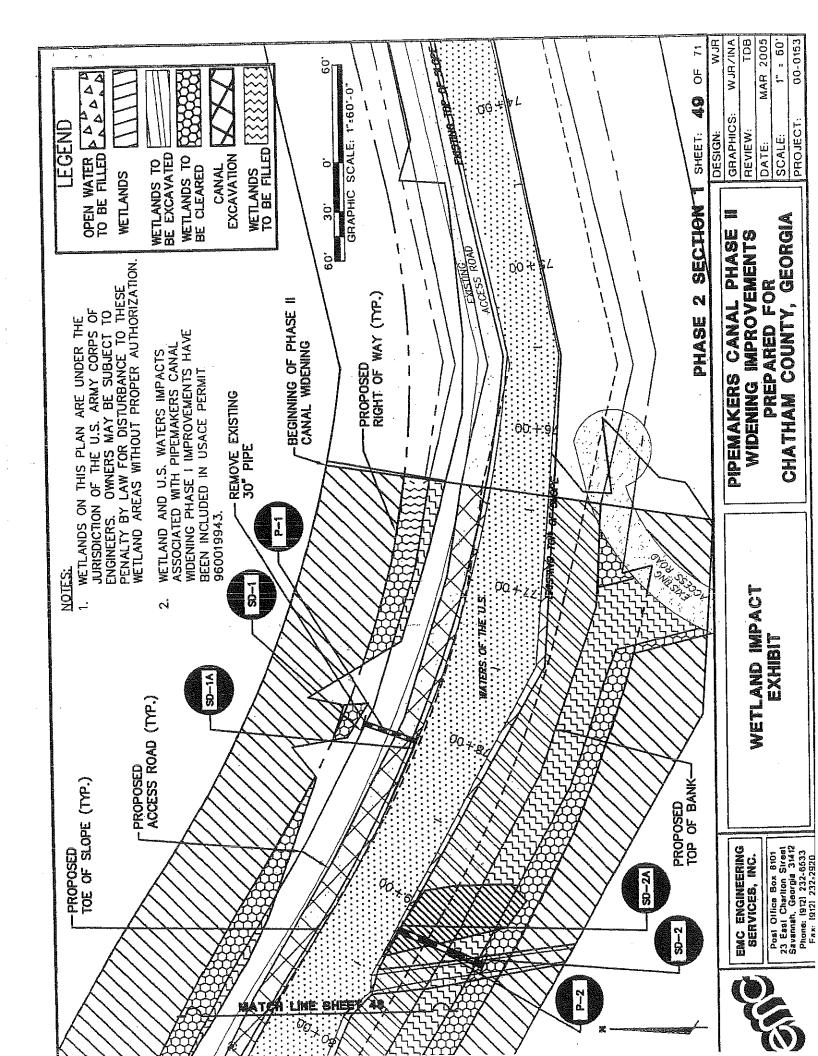
Post Office Box 8101 29 East Charlton Street Bovennah, Georgia 91412 Phones (912) 252-9533 Fau: (912) 232-2620

PREPARED FOR: CHATHAM COUNTY, GEORGIA

NAME OF THE OWNERS OF THE OWNERS OF THE OWNER, THE OWNE

GRAPHIC SUP	LE: 1 :50 -0
GRAPHICS:	LCS
REYIEW:	CWT
DATE:	03/01/06
SCALE	1" = 50'
PROJECTI	050410





		DRAINAGE	i	SCHEDEL		
4	Decree	19		LE OUT	HOM	EN COPE
P-1A			7.25	7.35	18 L.F.	0.5%
SD-17	24" HEADWALL	10.25	7.25	1	1	
면 면	6.4	1	7.35	7.35	24 L.F.	0.5%
SD-1B	24" HEADWALL	10.23	7.35	ı		ı
₽ <u>-1</u> 0	36" RCP	ı	7.35	7.17	36 L.F.	0.5%
SD-1C	36" HEADWALL	11.17	1	7.17	1	ı
SD-1D	- A		7.35	7.35	l	ı
P-2	18" RCP	1	6.63	6.33	60 L.F.	0.5%
SD-2A	DROP INLET	9.50	9.50	6.63	1.	ı
SD-2B	18" HEADWALL	9.85	l	6.33	1	
P-3	24" RCP	ı	4.00	2.14	42 L.F.	4.4%
SD-3A	24" HEADWALL	7.00	4.00	l	1	ı
S-0S	24" HEADWALL	5.14	-	2.14	¹	ı
р 1	36" RCP	ı	6.34	5.80	72 LF.	0.75%
SD-4A	36" HEADWALL	9.80	ı	5.80	ı	ı
P-5	24" RCP	ı	7.10	5.48	42 LF.	3.9%
SD-5A		10.10	7.10	1	_	ı
SD-5B	24" HEADWALL	8.48	١	5.48	ı	ı
P-6	~	ı	7.58	6.85	36 L.F.	2.0%
SD-6A	ı	10.08	7.58			ı
SD-6B		9.35	İ	6.85		ı
P-7	18" RCP	ı	5.10	4.71	42 L.F.	0.9%
SD-7A	- 1	7.60	5.10	ı	1	1
SD7B		7.21	I	4.71		ı
P-8	18" RCP	ı	5.80	4.67	36 LF.	3.1%
SD8A	18" HEADWALL	8.30	5.80	· I		ı
SD-8B	18" HEADWALL	8.01	ı	4.67	I	1
P-9	48° RCP	·	1.10	0.81	49 LF.	0.6%
SD-9A	48" HEADWALL	6.10	1.10	ı	ı	ı
SD-98	48" HEADWALL	5.81	ı	0.81	ì	ı
P-10			2.20	1.92	47 LF.	0.6%
SD-16 20-16		7.20	2.20	ı	ı	ı
SD-10B	48" HEADWALL	6.92	ì	1.92	1	ı
			•			

	STORM DRA	DRAINAGE		SCHEDE		
ď	DESCRIPTION	10		LE OUT	HEWGIN	#10#E
P-11	42" RCP		3.30	2.80	45 LF.	0.9%
P-12	24" RCP	l	5.50	5.20	4. L.	0.7%
P-13		1	2.80	2.51	49 LF.	0.6%
SD-13A	54" HEADWALL	8.30	2.80	1	ŀ	1
SD-13B	54" HEADWALL	8.01	-	2.51		1
P-14	18" RCP	ı	4.00	3.71	38 L.F.	0.8%
P-15	DOUBLE 54" RCP	-	1.50	1.19	52 LF.	0.6%
SD-15A	DOUBLE 54" HEADWALL	7.00	1.50	1	ı	ı
SD-15B	DOUBLE 54" HEADWALL	6.69		1.19	l	1
P-16	18" RCP	1	4.00	3.69	46 L.F.	0.7%
P-17	46" RCP	-	1.60	1.32	47 L.F.	0.6%
SD-17A	48" HEADWALL	6.60	1.60	I	1	ı
SD-17B	48" HEADWALL	6.32	ı	1.32	I	
P-18	DOUBLE 48" RCP	ı	0.70	0.34	60 LF.	0.6%
SD-18A	DOUBLE 48" HEADWALL	5.70	0.70	1		1
SD-18B	DOUBLE 48" HEADWALL	5.34	ı	0.34	ı	-
P-19	18" RCP	l	2.90	2.61	36 LF.	0.8%
P-20	18" RCP	ı	2.50	2.28	36 L.F.	%9 '0
P-21	48" RCP		-1.32	-1.60	47 LF.	0.6%
SD-21A	48" HEADWALL	3.68	-1.32	Į	ł	ì
SD-21B	48" HEADWALL	3.40	I	-1.60	1	1
P-22	18° RCP	1	3.00	2.81	38 LF.	0.5%
P-23	DOUBLE 60" RCP		-0.35	-0.75	51 L.F.	0.8%
SD-23A	DOUBLE BO" HEADWALL	3.53	-2.47	1	1	l
SD-23B	DOUBLE 60" HEADWALL	3.12	ı	-2.88	İ	1
P-24	18" RCP	1	2.00	1.68	40 LF.	0.8%
P-25		ı	4.60	4.30	54 LF.	0.6%
P-26	54" RCP	1	2.10	1.80	81 LF.	0.5%
SD-26A	54" HEADWALL	7.60	2.10	I	1	ı
SD-26B	54" HEADWALL	7.30	-	1.80	1	ı

50 OF 71 SHEET:

WIDENING IMPROVEMENTS
WIDENING IMPROVEMENTS
PREPARED FOR
CHATHAM COUNTY, GEORGIA

MAR 2005

00-0153 1" : 60"

PROJECT

SCALE: DATE:

MLR/INA

DESIGN: GRAPHICS:

REVIEW:



STORM DRAINAGE SCHEDULE PHASE II, SECTION 2

Post Office Box 8101 23 East Charllon Street Savannah, Georgia 31412 Phone: 1912] 232-6533 Fax. 1912] 232-2920

DESCRIPTION	P O	LE. W.	E OUT	LENGTH	100 TO
30" RCP	ı	-2.50	-2.79	34 L.F.	0.9%
30" HEADWALL	0.00	-2.50	ı	l	١
1	0.71	1	-2.79	l	1
42" RCP	ı	-4.50	-4.79	57 L.F.	0.5%
42" HEADWALL	0.00	-4.50	-	1	1
ı	-0.29	I	-4.79	ı	1
1 -	1	-3.40	-3.72	45 L.F.	0.7%
24" HEADWALL	-0.40	-3.40	1	l	ł
	-0.72	ł	-3.72	I	1
,	ı	-2.00	-2.30	38 L.F.	0.8%
18" HEADWALL	0.50	-2.00	1	j	ı
18" HEADWALL	0.20	1	-2.30	l	1
24" RCP		-2.40	-2.71	39 L.F.	0.8%
24" HEADWALL	0.60	-2.40	l	1	i
24" HEADWALL.	0.29	1	-2.71	ı	1
30" RCP	١	-2.90	-3.19	45 L.F.	0.7%
30" HEADWALL	0.60	-2.90	ı	,	. 1
30" HEADWALL	0.31		-3.19	ı	1
48" RCP	1	-3.50	-3.82	45 L.F.	0.7%
48" HEADWALL	1.18	ı	-3.82	l	
48" HEADWALL	1.50	-3.50	1	ı	ı
24" RCP	1	-0.40	-0.69	41 LF.	O.7%
24" HEADWALL	2.60	-0.40	1	ì	ì
t	2.31	-	-0.69	I	ł
150	1	-0.31	-0.48	34 L.F.	0.5%
18" HEADWALL	2.19	-0.31	i	ı	
18" HEADWALL	2.02	ı	-0.48	1	1
30" RCP	-	1.81	-2.33	50 L.F.	1.0%
30" HEADWALL	0.69	-1.81		ı	1
30" FES ·	l	l	-2.33	I.	
24" RCP	!	1.19	-1.36	34 L.F.	0.5%
24" HEADWALL	1.81	-1.19	ı	1	1
STREET STILL BE C	4		9		_

							and the same		., .,			مِست			~~~									~т	г	—т	-т	Ţ		- T	<u>_</u>	T		
		0.8%	Į	1	0.7%	_	1	0.5%		1	0.5%	1	ı	0.5%		١	0.8%	1	1	86.0	1	i	0.9%	1	1	0.8%	١	ı	0.8%		1	0.8%	!	
Ш	LEMOTH	37 L.F.	1	ı	28 L.F.	ı	I	28 L.F.	,		33 L.F.	1	1	35 L.F.	1	1	36 L.F.	1	ì	44 L.F.	1	l	44 L.F.	1		37 L.F.	1	1	38 L.F.	1		39 L.F.	-	1
SCHEDU	IE OUT	-1.10	1	5	0.35	ı	0.35	-1.33	1	-1.33	0.17	ļ	0.17	0.14	I	0.14	-4.09	-4.09	_	-2.11	-	-2.11	-2.11	ı	-2.11	-1.60	1	-1.60	-1.10	1	1.10	-2.61	ı	-2.61
		-0.80	-0.80	1	0,55	0.55	1	-1.19	-1.19	ļ	0.34	0.34	1	0.31	0.31	ı	-3.80	1	-3.80	1.71	1.71	1	-1.71	-1,71	ı	-1.30	-1.30	ı	-0.80	-0.80	ı	-2.30	-2.30	ì
DRAINAGE	401	1	1.70	1.40		3.05	2.85	_	1.31	1.17	1	2.84	2.67	1	2.81	2.64	1	1.91	1.20	ı	3.29	2.89	ı	3.29	2.89	1	1.20	0.30	١	1.70	1.40	I	0.70	0.39
STORE DE	DESCRIPTION	18° RCP	18" HEADWALL	18" HEADWALL	18" RCP	18" HEADWALL		18" RCP	18" HEADWALL	18" HEADWALL	18" RCP	18" HEADWALL	18" HEADWALL	18" RCP	18" HEADWALL	18" HEADWALL	60" RCP	60" HEADWALL	60" HEADWALL	L	48" HEADWALL	Ē.	48" RCP	48" HEADWALL	48" HEADWALL	18" RCP	18" HEADWALL	18" HEADWALL	18" RCP	18" HEADWALL	18" HE	24" RCP	24" HEADWALL	24" HEADWALL
	6	P-15	SD-15	SD-15A	P-16	SD-16	SD-16A	P-17	SD-17	SD-17A	P-18	SD-18	SD-18A	P-19	SD-19	SD-19A	P-20	SD-20A	SD-20B	P-21	SD-21A	SD-21B	P-21	SD-21A	SD-21B	P-22	SD-22	SD-22A	P-23	SD-23	SD-23A	P-24	SD-24	SD-24A

51 OF 71 SHEET:

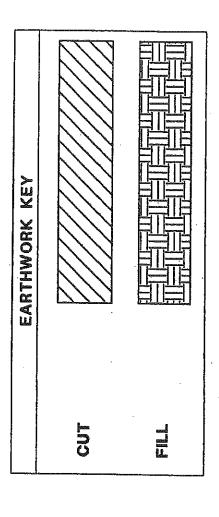
		DESIGN	MLR
PIPEMAKERS CANAL PHASE	SCANAL	GRAPHICS:	MLR/INA
	WDENING MPROVEMENTS	REVIEW:	TDB
		DATE	MAR 2005
		SCALE:	1" = 60'
		PROJECT:	00-0153

Post Office Box 6101 23 East Charlton Sirset Savannah, Georgia 31412 Phone: 1912] 232-5533 Fax. [912] 232-2920 EMC ENGINEERING SERVICES, INC.

STORM DRAINAGE SCHEDULE PHASE II, SECTION 1

NOTES

- 1. ALL CANAL SIDE SLOPES ARE 2H:1V UNLESS OTHERWISE NOTED.
- PERPENDICULAR TO THE CONSTRUCTION CANAL CROSS SECTIONS WERE CUT BASELINE. d
- CANAL AND INSIDE LIMITS OF CONSTRUCTION SHALL BE GRASSED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTES. M
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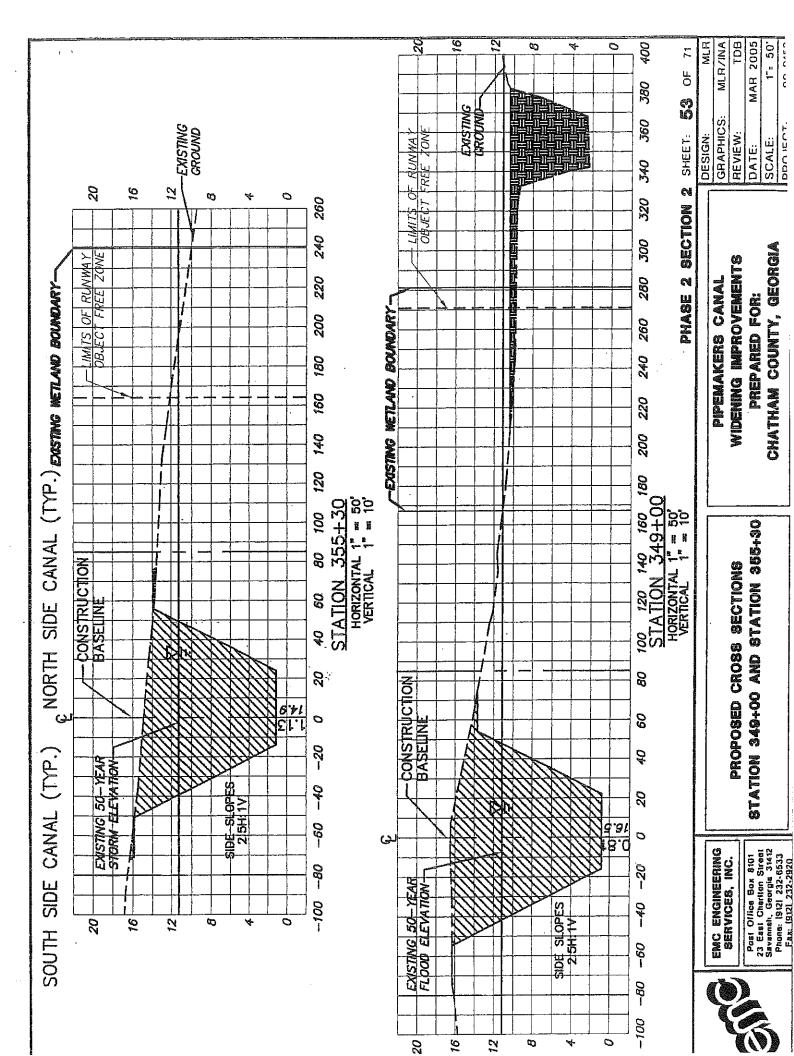
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EMC ENGINEERING SERVICES, INC.

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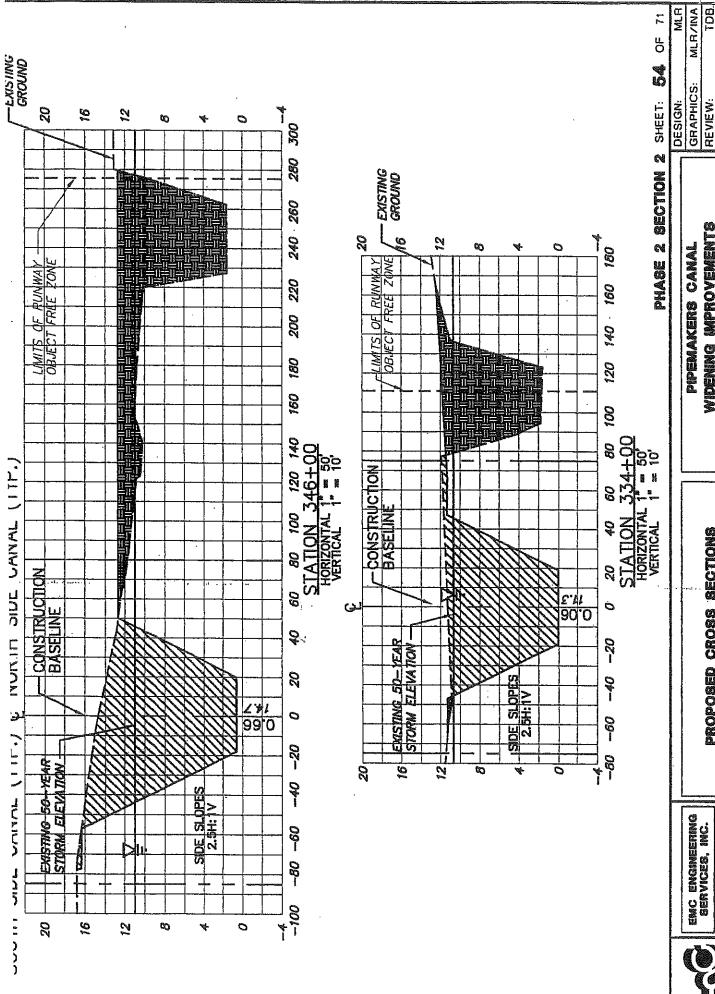
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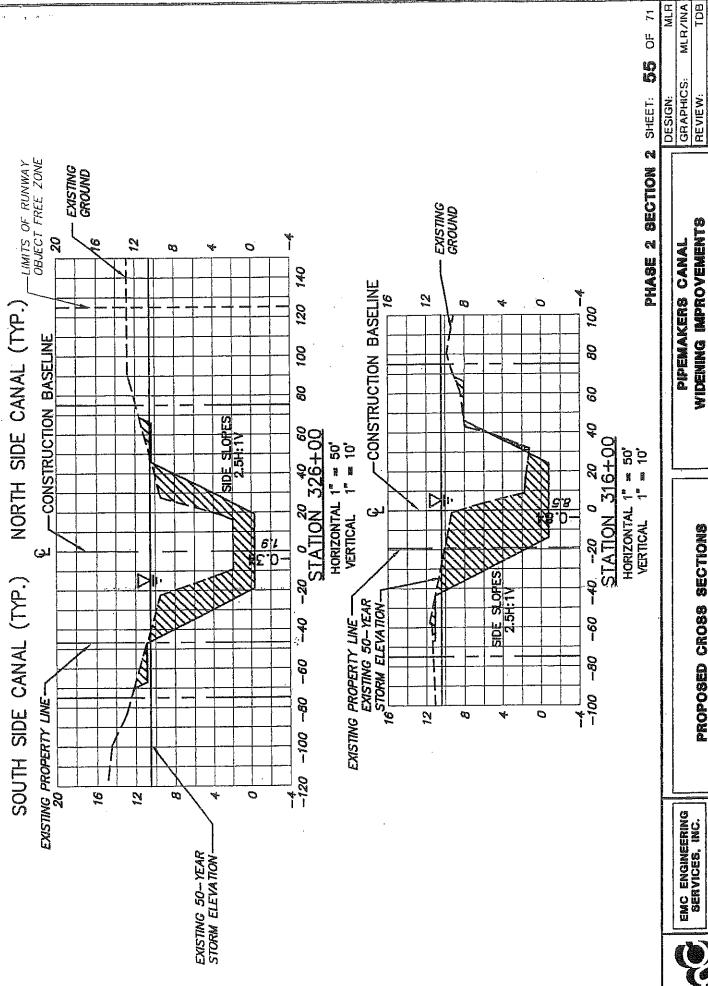
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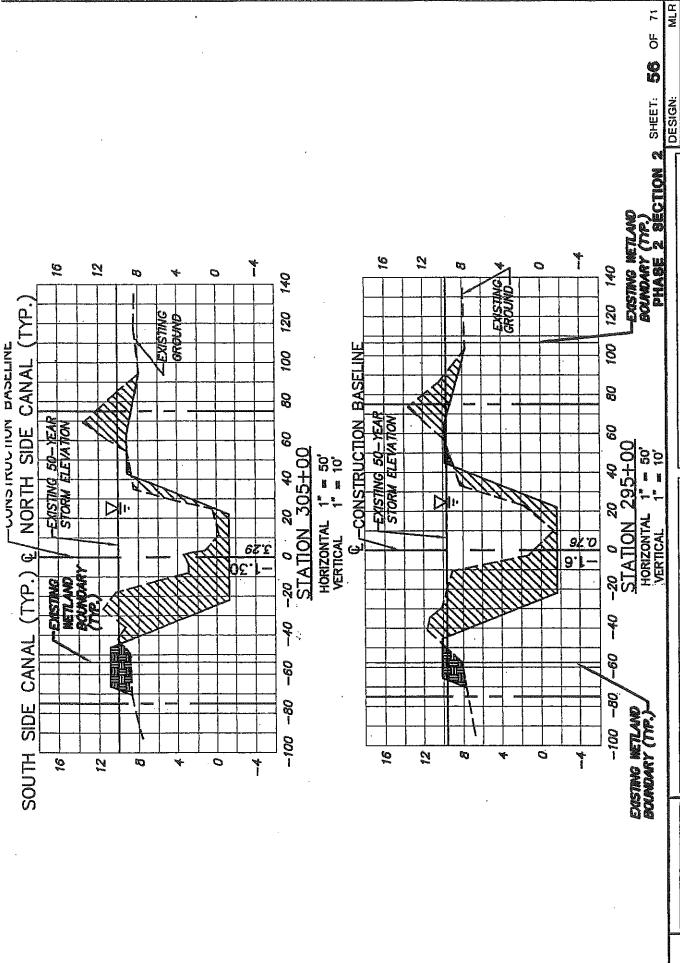
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Savannah, Georgia 31412
Phone: (912) 232-6533
Fax: (912) 232-2320

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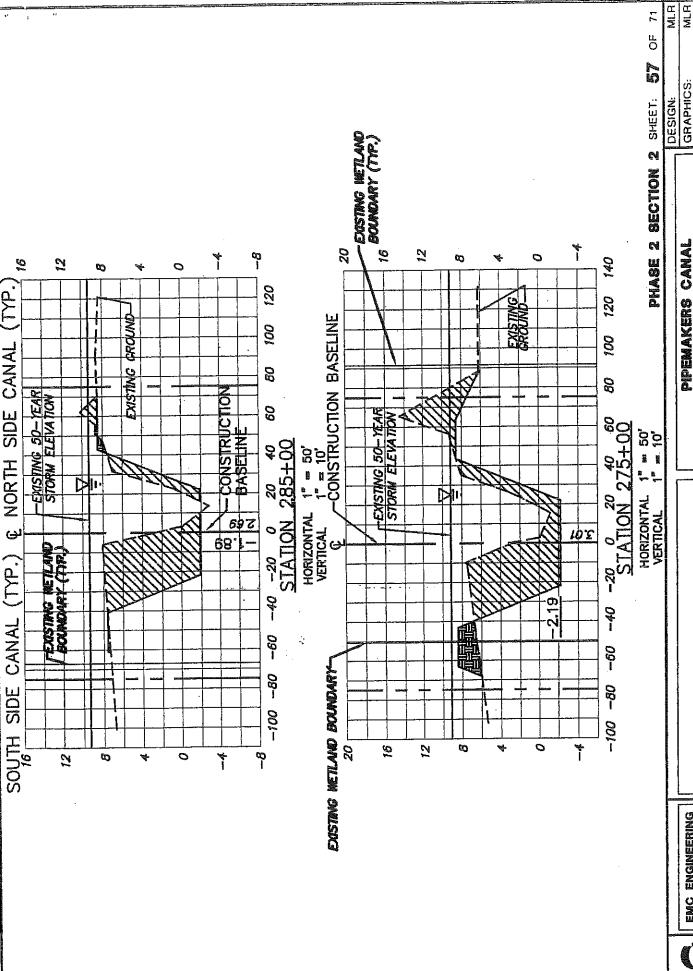
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PROPOSED CROSS SECTIONS

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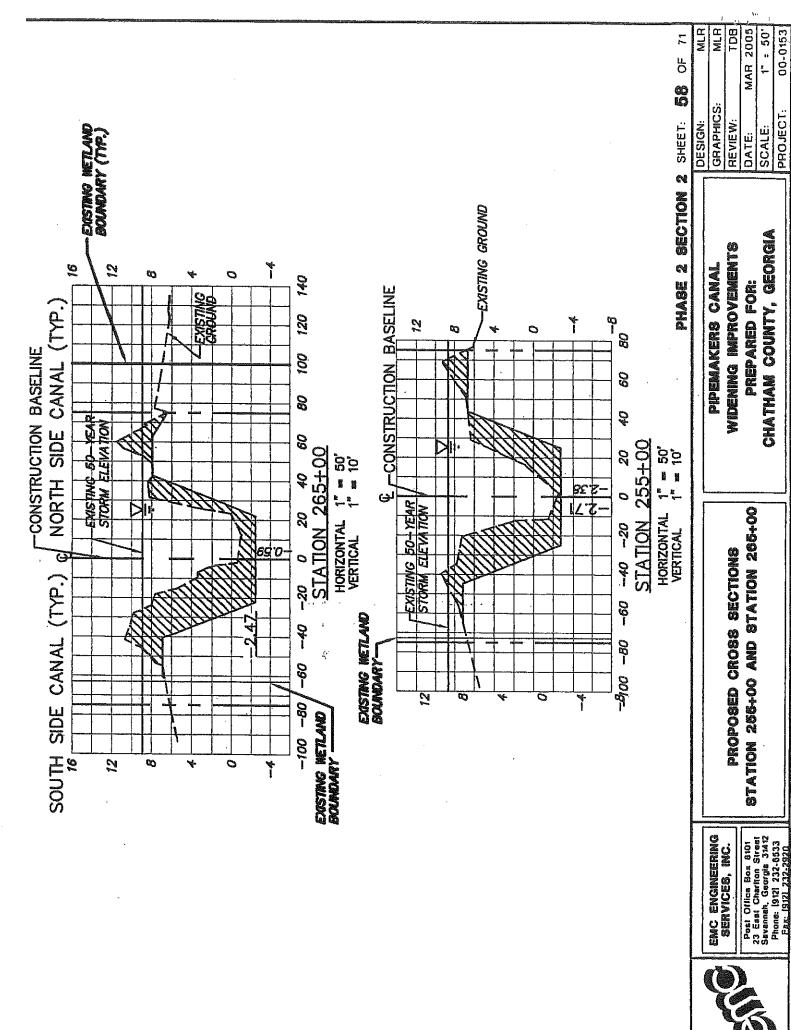
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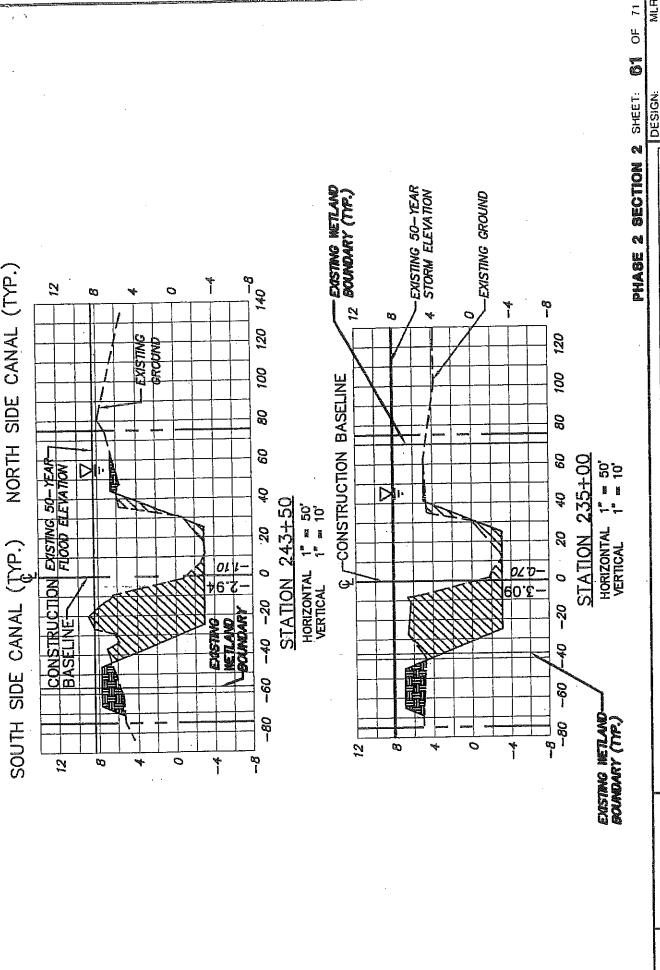
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Savannah, Georgis 31412
Phone: 1912 232-2920

STATION 243+76 AND STATION 246+00 PROPOSED CROSS SECTIONS



PROPOSED CROSS SECTIONS STATION 236+00 AND STATION 243+50

PIPEMAKERS CANAL
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PREPARED FOR:
CHATHAM COUNTY, GEORGIA

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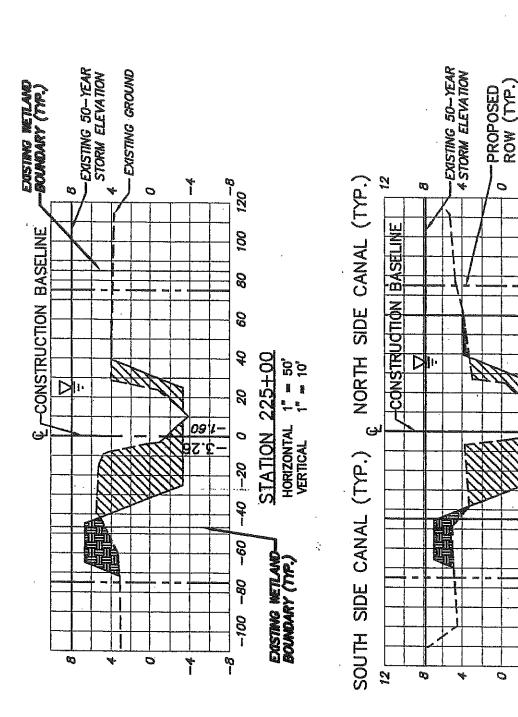
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23 East Charlton Street
Savannah, Georgia 31412
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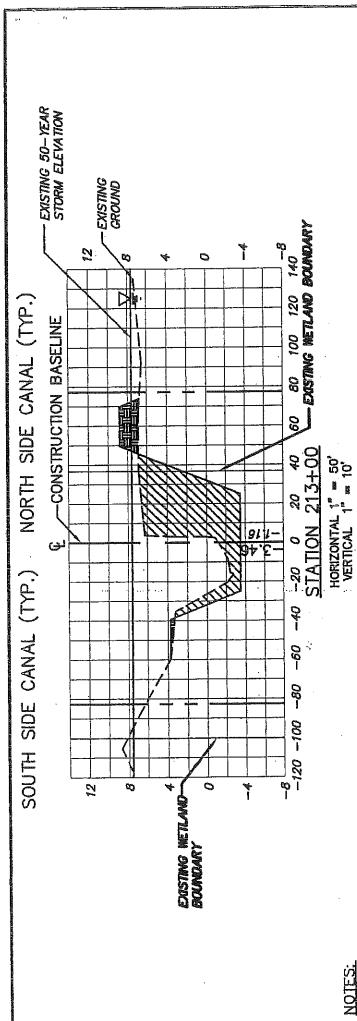
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CHATHAM COUNTY, GEORGIA STATION 218+00 AND STATION 225+00

EMC ENGINEERING SERVICES, INC.

PROPOSED CROSS SECTIONS

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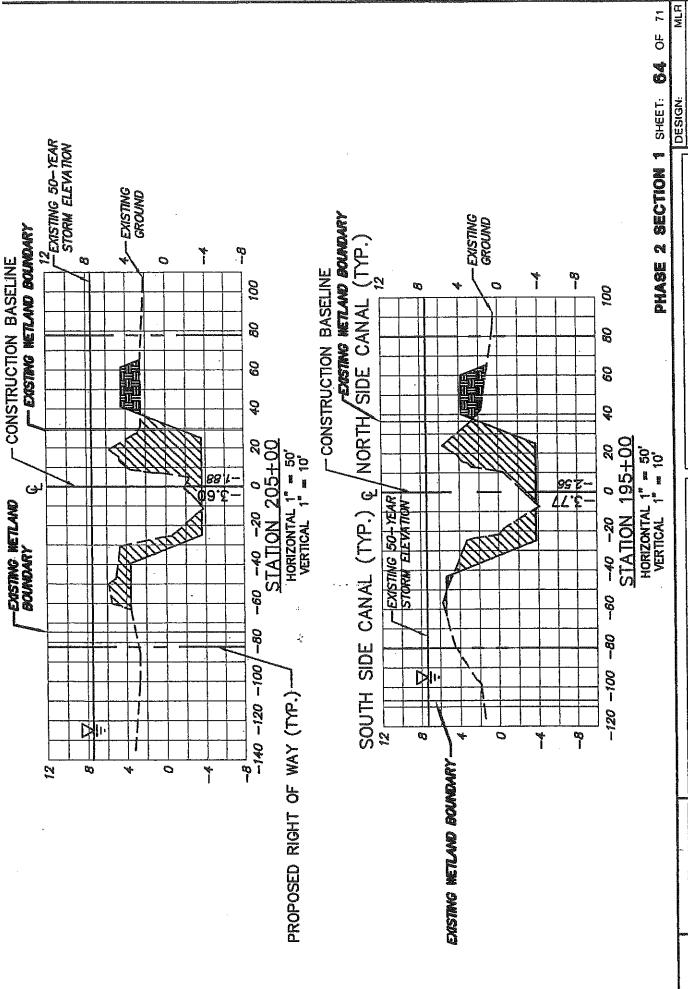
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Phone: 1912 233-6853
Fax. 1912 1232-2920 emc engineering Bervices, inc.

PROPOSED CROSS SECTIONS STATION 213-90



PHOPOSED CROSS SECTIONS
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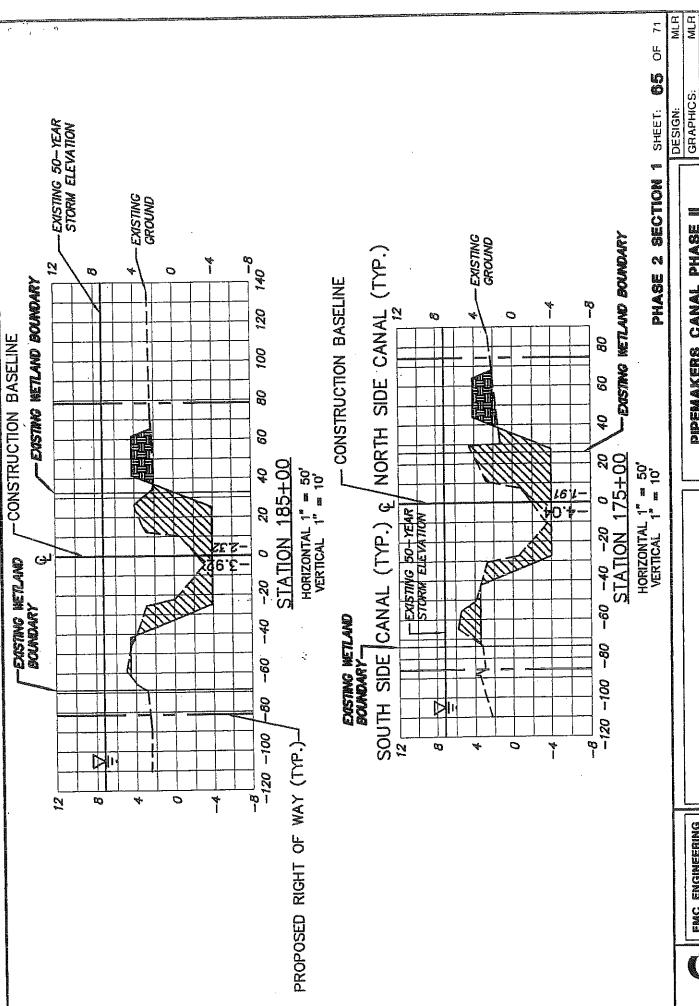
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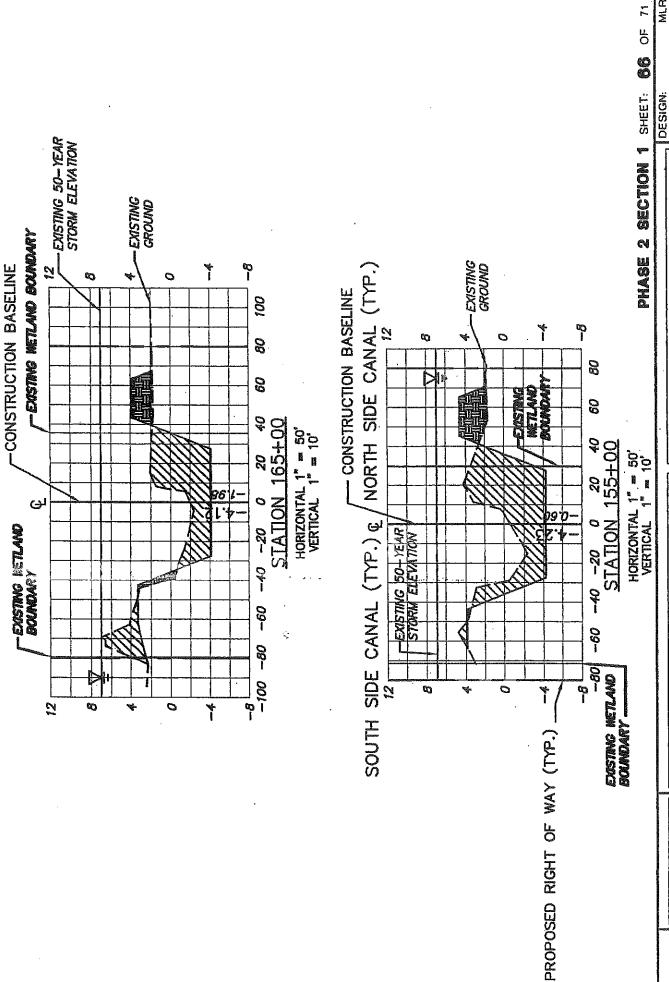


STATION 185+00 AND STATION 175+00

PIPEMAKERS CANAL PHASE II WIDENING IMPROVEMENTS PREPARED FOR: CHATHAM COUNTY, GEORGIA

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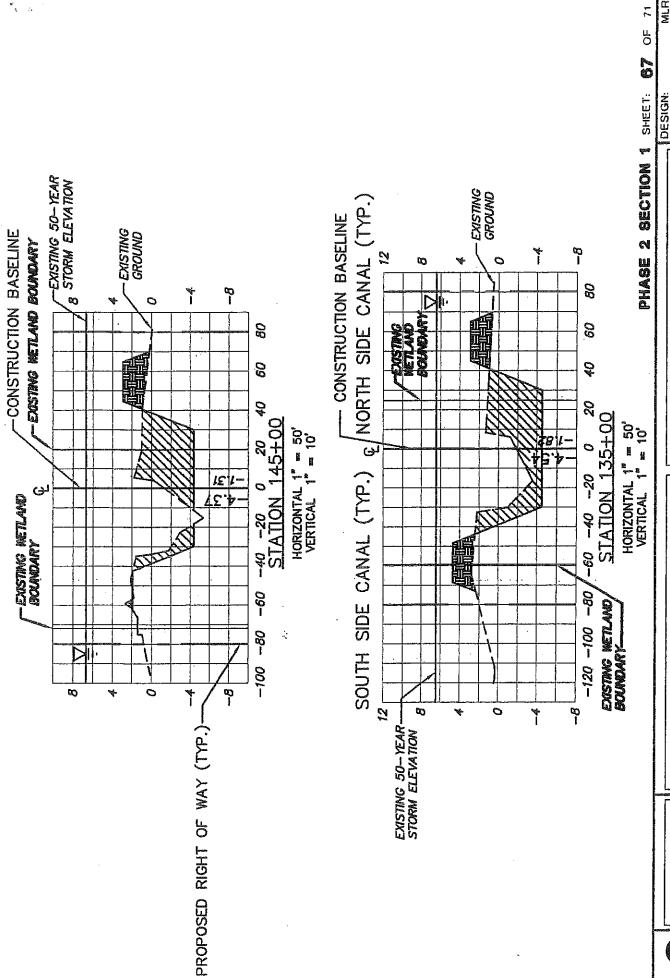
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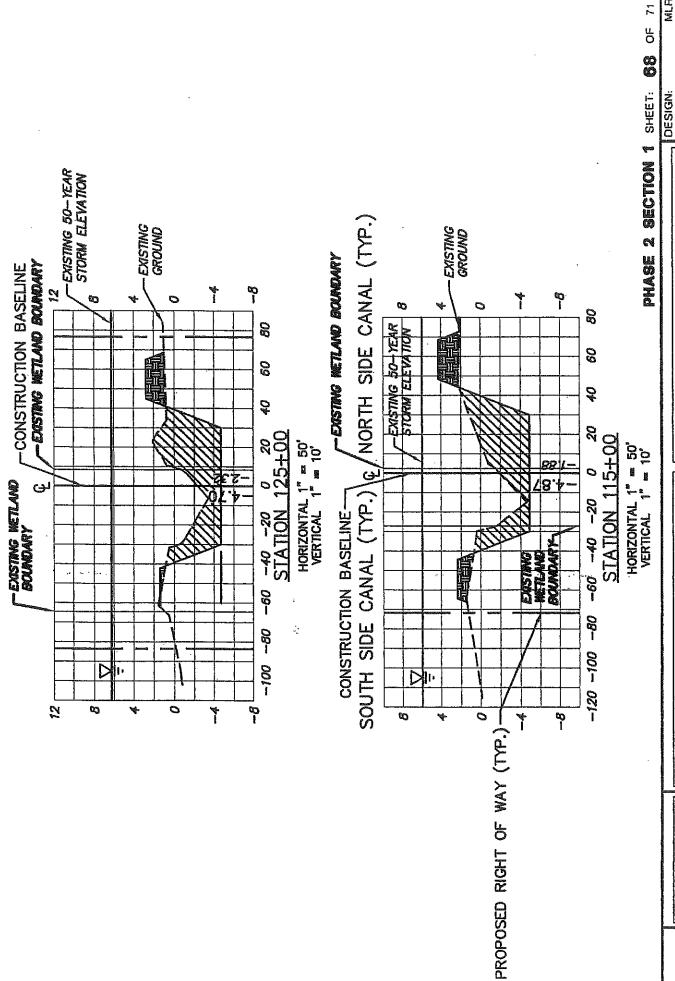


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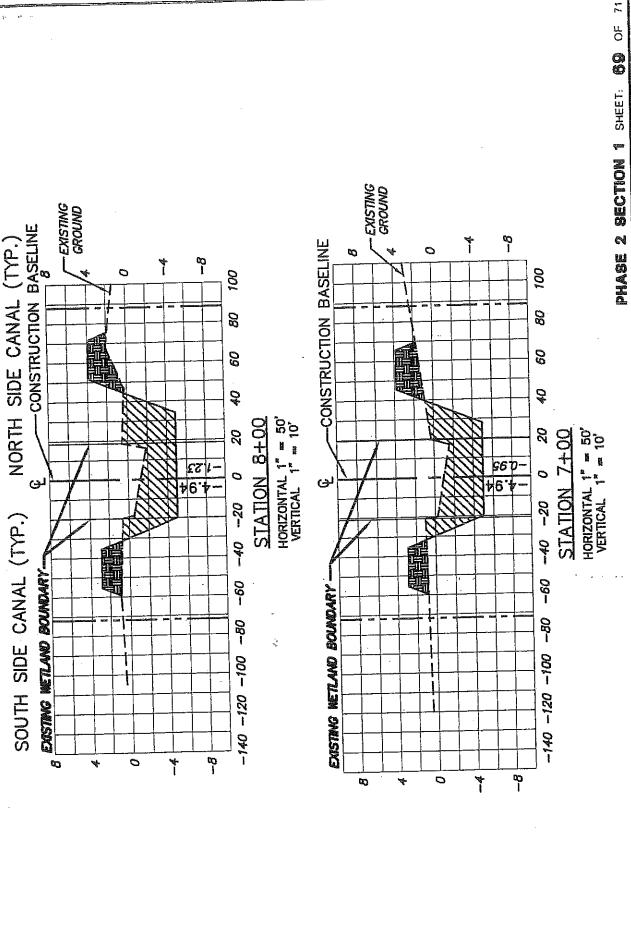
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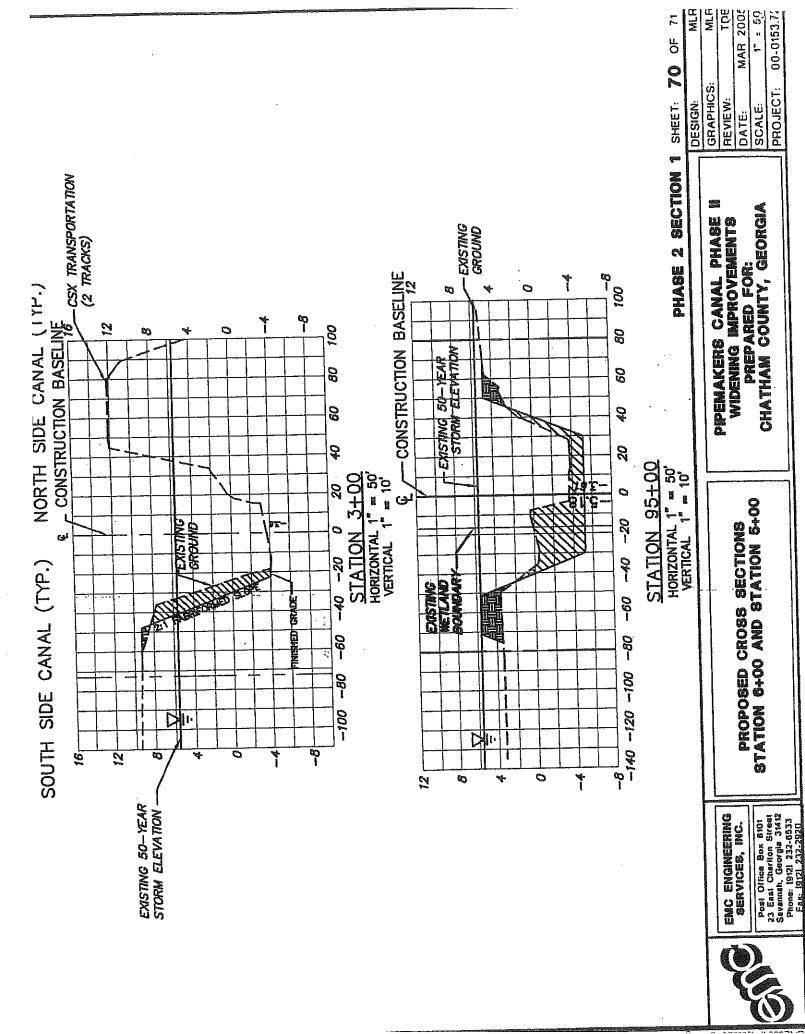
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STATION 8+00 AND STATION 7+00 PROPOSED CROSS SECTIONS

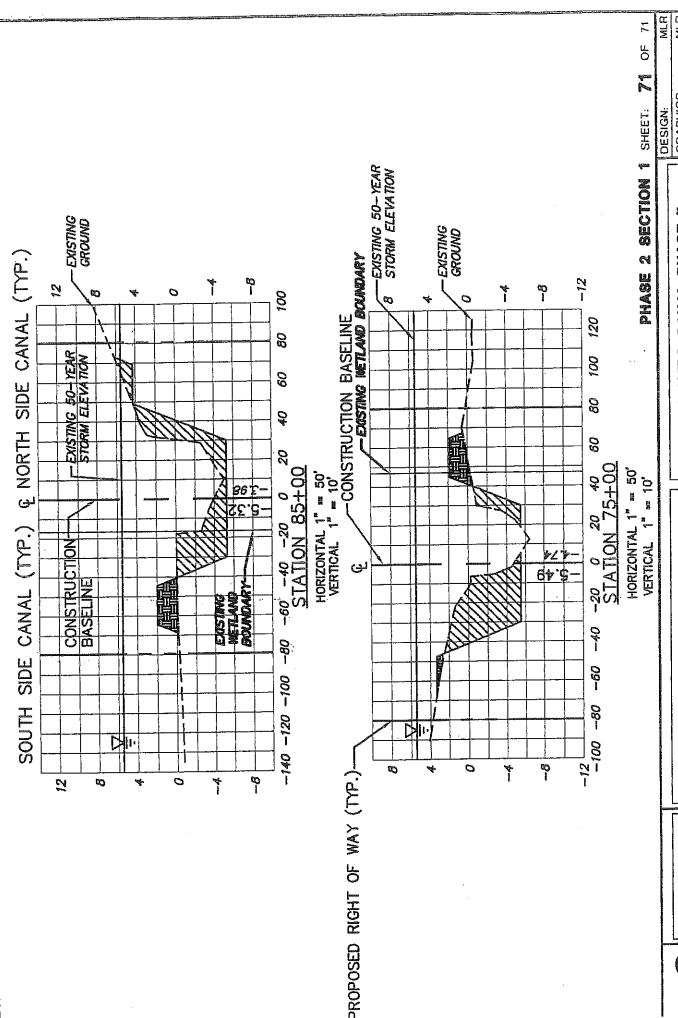
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emc engineering Services, inc.



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PROJECT:



Proposed Cross Sections Station 4+00 and Station 2+00

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EMC ENGINEERING
SERVICES, INC.
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Savannah, Georgia 31412
Phone: [92] 232-6533

SECTION 01700 MEASUREMENT AND PAYMENT

PART 1 - MEASUREMENT

1.01 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.

PART 2 - PAYMENT

2.01 MOBILIZATION

Mobilization of equipment, set up of office trailer, and commencement of project. This will be paid as a lump sum fee, not to exceed 2% of the bid price.

2.02 EARTHWORK:

A. Payment will be made at the contract unit price, which includes furnishing all products, materials, equipment, labor and supervision to complete all excavation and disposal for the canal widening, water diversion and construction of the access road. The cost of providing access as outlined in Section 01500 shall also be included.

2.03 CLEARING:

Clearing and Grubbing to widen the canal will be included in the unit price per acre for "Clearing". The removal of fence, piping, and other miscellaneous items will be part of the contractors clearing price.

2.04 EROSION AND SEDIMENTATION CONTROL:

Payment for erosion and sedimentation control shall be based on the unit prices as shown on the bid proposal. The cost of erosion control shall include all equipment, labor and materials necessary to comply with the State of Georgia Erosion and Sediment Control Manual.

2.05 STORM DRAINAGE:

A. Pipe Culverts and Storm Drains - 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 will constitute full compensation for all pipe, joints, filter fabric, bedding, trenching, excavation, backfill, compaction, and all incidental labor and material necessary to complete the construction of pipe as required by this section of the specifications.

SECTION 01700 MEASUREMENT AND PAYMENT

- B. Headwalls Payment will be made on a contract unit price of each type. Payment will constitute full compensation for the excavation, formwork, all materials and incidentals necessary to complete the construction.
- C. Removal and replacement of unsuitable material will be paid on a per cubic yard basis. Removal and replacement of unsuitable material shall be at the direction of the Engineer or owner.
- D. Inlets Payment will be made on a contract unit price for each type of inlet. Payment will constitute full compensation for the excavation, materials, and incidentals necessary to complete the construction.
- E. Flared End Sections Payment will be made on a contract unit price for each type. Payment will constitute full compensation for all materials and incidentals necessary to complete the construction.
- 2.06 REMOVE AND RELOCATE POWER POLES NEAR STATION 99+00 AND STATION 3+00:

Payment will be made at the contract lump sum price which includes furnishing all products, materials, and equipment and performing all labor work shown on the plans.

2.07 CHAIN LINK FENCE AND GATES:

- A. The installation of chain link fence will be paid for on a linear foot basis. Payment will constitute full compensation for all labor and materials as outlined on the plans and specifications. Removal of existing fence will be paid for as a lump sum.
- B. Gates: Gates will be paid for on a unit price basis. Payment will constitute full compensation for all labor and materials as outlined on the plans and specifications.

2.08 CSX BRIDGE STATION 122+50:

Payment will be made at the contract lump sum price which includes furnishing all products, materials, and equipment and performing all labor and supervision necessary to excavate the canal and place rip rap with in the CSX right-of-way as shown on the plans.

2.09 RIP RAP AT UTILITY LOCATIONS:

Payment will be made at the contract unit price which includes furnishing all products, materials, and equipment and performing all labor and supervision necessary to place rip rap over the utility crossings as shown on the plans.

SECTION 01700 MEASUREMENT AND PAYMENT

2.10 NORFOLK AND SOUTHERN R/W STATION 139+00:

Payment will be made at the contract lump sum price which includes furnishing all products, materials and equipment and performing all labor and supervision necessary to construct the canal access roads in the railroad right of way.

2.11 ESTABLISH FIRST ORDER CONTROL MARKER:

Payment will be made at the contract lump sum price which includes all labor, materials and supervision necessary to establish a first order control marker. The control marker must be established and certified by a surveyor that is registered in the State of Georgia.

2.12 6" ACCESS ROAD STONE BASE WITH FILTER FABRIC:

Payment will be made on a per square yard basis. Payment will constitute full compensation for all materials, labor, and supervision needed to complete the work as shown on the plans.

2.13 GEOGRID:

The installation of geogrid will be paid on a per square yard basis. Payment will constitute full compensation for all materials, labor, and supervision needed to complete the work as shown on the plans. Geogrid will only be installed at the direction of the owner.

2.14 FILTER FABRIC UNDER ACCESS ROAD EMBANKMENT:

The installation of filter fabric under the road embankment will be paid on a per square yard basis. Payment will constitute all materials, labor, and supervision needed to complete the work.

2.15 DEMUCKING:

Demucking of unsuitable material will be paid on a per cubic yard basis. Demucking shall be at the direction of the Engineer or Owner.

2.16 6" REVETMENT LINER FOR SLOPE PROTECTION:

Payment will be made on a per square yard basis. Payment will constitute full compensation for all materials, labor, and supervision to complete the work as shown on the plans. The cost to install the revetment liner shall include any dressing and preparation of the canal side slopes and bottom.

2.17 8" AGGREGATE BASE:

Payment for 8" aggregate base under asphalt pavement will be made on a per square yard basis. Payment will constitute full compensation for all materials, labor, and supervision to complete the work.

SECTION 01700 MEASUREMENT AND PAYMENT

2.18 ASPHALT PAVEMENT:

Payment for asphalt will be made on a per square yard basis. Payment will constitute full compensation for all materials, labor, and supervision to complete the work.

2.19 WIRE FENCE AND FARM GATES:

- A. The installation of wire fence will be paid on a linear foot basis, payment will constitute full compensation for all labor and materials to complete the work.
- B. Gates: Gates will be paid for on a unit price basis. Payment will constitute full compensation for all labor and materials to complete the work.

2.20 CONSTRUCTION STAKING:

Payment for construction staking will be made at the contract lump sum price which includes furnishing all materials, labor, and supervision. All construction staking shall be performed under the direction of a Land surveyor that is registered in the State of Georgia.

2.21 FORCEMAIN RELOCATION:

Payment will be made at the contract lump sum price which includes furnishing all labor material and supervision necessary to relocate the existing force main if needed.

END OF SECTION

SECTION 02010 SUBSURFACE EXPLORATION

PART I - GENERAL

RELATED DOCUMENTS:

Drawings and General Provisions of Contract, including General and Special Conditions, apply to this section.

DESCRIPTION OF WORK:

<u>No work</u> is involved in this section. This section is offered for Contractor's information only, with no responsibility by Owner or Engineer for variation in subsoil quality or conditions at boring location, for conditions at locations other than those shown or at times than when borings were made.

SITE CONDITIONS:

The Contractor's attention is directed to the Instructions to Bidders relating to Site Examination.

SUBSURFACE INVESTIGATION REPORT:

Following and included in this section are reports prepared by :

Engineering Consulting Services, Ltd. 1800 Sandy Plains Parkway, Suite 208 Marietta, GA 30066

Recommendations for site preparation shall be followed unless specified elsewhere.

END OF SECTION



ENGINEERING CONSULTING SERVICES, LTD. Geotechnical * Construction Materials * Environmental

December 26, 2001

Mr. Tim Baumgartner EMC Engineering Services 23 East Charlton Street Savannah, GA 31412

ECS Project No. 10:1411

Reference:

Report of Subsurface Exploration

Pipemakers Canal Widening Project (Station 412+13 to 60+00)

Savannah, Georgia

Dear Mr. Baumgartner:

Thank you for selecting Engineering Consulting Services, Ltd. (ECS) to explore the subsurface conditions at the Pipemakers Canal Widening Project. This phase of the proposed construction starts east of Interstate 95 (Station 410+00) and ends at the Norfolk Southern Railroad (Station 60+00). This study was conducted in accordance with our proposal PAG-0511 dated April 10, 2000.

For evaluation of the subsurface conditions in the area of the proposed construction a total of fifteen (15) test borings were performed. The borings were extended to depths ranging from 35 to 50 feet below existing site grades. A number of the borings found extremely soft/loose subsoil conditions. Laboratory testing was conducted on representative soil samples in order to determine pertinent engineering properties of the soils. The results of the test borings, laboratory analysis as well as our engineering evaluations are included in the attached report.

Based on the results of the borings and on our interpretation of the subsurface conditions at the site, we are of the opinion that the project can be developed as planned from a geotechnical standpoint. However, because of extremely soft/loose soil conditions along the canal alignment and at roadway/railway crossings, careful construction methods and close monitoring of the construction will be needed.

We appreciate this opportunity to be of service to you on this project. Once final structural plans have been completed for the bridge replacements, additional geotechnical exploration and design may be needed to finalize our recommendations. If you have any questions with regard to the information contained in the attached report, or if we can be of further assistance, please do not hesitate to contact us.

Respectfully,

ENGINEERING CONSULTING SERVICES, LTD.

John C. Harpring, E.I.T.

Project Engineer

Robert L. Goehring, P.E.

Principal Engineer

Georgia Registration No. 16733

REPORT

PROJECT Subsurface Exploration Pipemakers Canal Widening Project Savannah, Georgia CLIENT EMC Engineering Services 23 East Charlton Street Savannah, Georgia 31412 PROJECT NO. 10:1411 DATE December 26, 2001

SUBSURFACE EXPLORATION PIPEMAKERS CANAL WIDENING PROJECT SAVANNAH, GEORGIA

ECS PROJECT NO. 10:1411

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APPI	ENDIX	
I.	Site Vicinity Map - Figure 1 Boring Location Plan - Figures 2 - 11	
II.	Unified Soil Classification System Reference Notes for Boring Logs Boring Logs B-4 Through B-18	
ΠI .	Laboratory Testing Summary	

PROJECT OVERVIEW

Introduction

This report presents the results of our subsurface exploration program and geotechnical engineering analysis for the proposed Pipemakers Canal Improvements Project. The site is located in Savannah, Georgia as shown on the Site Vicinity Map (Figure 1) in the Appendix. This study was conducted in general accordance with our proposal No. PAG-0511, dated April 10, 2000 as authorized by Mr. Tim Baumgartner of EMC Engineering Services, Inc. (EMC).

Scope of Work

Evaluation of the site soils included drilling a total of fifteen (15) soil test borings on the site between September 4 and 12, 2001. EMC and ECS personnel prior to field exploration initially staked boring locations in the field and walked the canal alignment. Following field exploration, EMC confirmed the actual locations drilled and ground surface elevations using GPS survey equipment. The borings were drilled at the locations depicted on the Boring Location Plans included as Figure 2 through Figure 11 in the Appendix of this report.

We understand that the final construction plans are actively being prepared at the time of this report. If the planned construction presented in this report is altered significantly, we request the opportunity to re-evaluate the conclusions and recommendations presented in this report.

Site Description/Project Information

The site of the proposed canal improvements is located in the Garden City area of Savannah. Based on information provided by EMC, we understand the project is to consist of deepening/widening the existing Pipemakers Canal (Station 412+13 to 60+00), replacing inadequate culverts (4 locations), and replacing two railroad bridges. In general, the deepened/widened canal bottom width is planned to range from 32 to 60 feet going east from Interstate 95. The following table 1 lists the summary of proposed construction:

Summary of Planned Construction

Approximate Station	Planned Construction
60+00	Norfolk Southern RR – Replace Bridge
100+00	GA Highway 21 – 2 New 12' x 10' Culverts
2+50	CSX RR – Replace Bridge
122+50	CSX RR – 2 New 10' x 5' Culverts
139+00	Norfolk Southern RR – 2 New 10' x 5' Culverts
215+50	Dean Forrest Rd. – 3 New 10' x 10' Culverts

The existing Pipemakers Canal extends southeast from Interstate 95 to immediately south of the Savannah Municipal Airport & Travis Field to Dean Forrest Road. The canal then extends northeast and generally parallels Dean Forrest Road to the south. The end of this phase of construction ends at the Norfolk Southern Railroad (Station 60+00).

From observations made during site visits in August 2001, the project corridor was generally developed and accessible along its entire length. Access along the canal required use of an All-Terrain Vehicle (ATV) drill rig. Access constraints prevented us from completing a few of the planned borings or required us to move them to nearby locations that were accessible.

From topographic information provided, it appears that site elevations range from about -0.33 feet to about +12 feet. From drawings provided, we expect the proposed canal bottom elevations to vary from +1.96 feet at Station 412+13 to -5.49 feet at Station 75+00. Information beyond (to the east) Station 75+00 had not been provided at the time of this report.

The description of the proposed project given above is based on information provided by personnel at EMC. If any of this information is in error either due to design changes or our misunderstanding of the project, we request that ECS be provided an opportunity to provide additional comments/recommendations or possibly revise this report.

Purposes of Exploration

The purposes of this exploration were to explore the soil and groundwater conditions along the canal alignment and to develop engineering recommendations to guide design and construction of the project. We accomplished these purposes by:

- 1. Drilling borings to explore the subsurface and groundwater conditions;
- 2. Performing laboratory test on selected representative soil samples from the borings to evaluate pertinent engineering properties;
- 3. Conducting field reconnaissance to view the alignment and help anticipate construction related issues; and
- 4. Analyzing the field and laboratory data to develop appropriate engineering recommendations.

Subsurface Exploration

Soil test borings were performed with an ATV drill rig, which used an auger and/or mud rotary technique to advance the boreholes. Drilling fluid was used once the boring was advanced below the prevailing groundwater table. Representative soil samples were obtained by means of the split-barrel sampling procedure in accordance with ASTM Specification D-1586. In this

procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. A manual drive hammer was used for this test procedure.

The number of blows required to drive the sampler through a 12-inch interval is termed the Standard Penetration Test (SPT) "N" value and is indicated for each sample on the boring logs. In isolated cases where the soil was extremely loose/soft, the sampler was advanced by its own weight and the weight of the hammer (WOH) or one blow advanced the sampler more than a sixinch distance. Both of these events are noted on the boring logs.

The "N" value can be used as a qualitative indication of the in-place relative density of cohesionless soils. In a less reliable way, it also indicates the consistency of cohesive soils. This indication is qualitative, since many factors can significantly affect the Standard Penetration resistance value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies.

The drill crew maintained a field log of the soils encountered in the borings. After recovery, each sample was removed from the sampler and visually classified. Representative portions of each sample were then sealed and brought to our laboratory in Atlanta for further visual examination by a geotechnical engineer and subsequent laboratory testing.

Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to check field classifications and to determine pertinent engineering properties. The laboratory testing program included visual classifications, moisture content, grain size testing and Atterberg Limits tests. Data obtained from the laboratory tests are included in the Appendix.

An experienced geotechnical engineer classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. A brief explanation of the Unified System is included with this report. The Geotechnical Engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs and profiles are approximate; in-situ, the transitions may be gradual rather than distinct.

The soil samples will be retained in our laboratory for a period of 90 days, after which, they will be discarded unless other instructions are received as to their disposition.

SUBSURFACE CONDITIONS

General

Data from the soil test borings and laboratory testing are included in the Appendix. The subsurface conditions discussed in the following paragraphs and those shown on the boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data using normally accepted geotechnical engineering judgments. We note that the transition between different soil strata is usually less distinct than those shown on the boring logs.

Soil Conditions

Borings performed along this phase of the canal alignment (B-4 through B-18) encountered highly variable conditions in the upper 35 to 50 feet. The approximate locations of these borings are shown on Figure 2 through 11 in the Appendix. The table below presents a summary of the borings completed and includes surface elevation, station number, groundwater elevation, bottom of canal elevation, and depth of boring.

Boring Locations and Groundwater Conditions

Boring Number	Surface Elevation*(ft)	Station Number	Groundwater Elevation (ft)	Bottom Canal Elevation (ft)	Boring Depth (ft)
B-4	33	61+50	-2.1	NA	50
B-5	.85	80+75	-3.0	-6.0	35
B-6	1.22	98+00	-1.1	-5.1	50
B-7	9.63	100+50	4.8	-5.1	50
B-8	10.72	Closest 3+00	3.6	-5.0	50
B-9	11.22	Closest 4+00	9.0	-5.0	50
B-10	6.5	122+00	3.4	-4.7	50
B-10	9.3	122+50	6.7	-4.7	50
B-12	2.15	138+50	-1.6	-4.5	50
B-12	2.74	139+50	-0.2	-4.5	50
B-13	3.41	170+25	0.3	-4.1	35
B-14 B-15	6.35	214+50	0.5	-3.4	50
B-15	5.90	216+50	0.0	-3.4	50
	9,99	260+50	2.2	-2.6	35
B-17 B-18	8.71	314+00		-1.0	35

NA - not available at the time of this report.

Below are two tables describing the very loose Sand (SM, SP, SC) soils and the very soft Clay (CH, CL) and clayey Silt (MH) soils encountered in our widely spread borings. More detailed subsurface conditions are provided on the boring logs in the Appendix.

^{*}Based on information provided by EMC.

Location of Very Loose Sand*

	–n. r. === (N≤3 BPF) == r	
Boring	Approximate Depth	Classification
B-7	3-8	SC
B-10	0-8	SC
B-11	5-8	SC
B-13	8-18	SP
B-14	8-23	SC-SP
B-15	8-13	SP
B-16	12-18	SM
B-17	8-12	SP

Location of Very Soft Clay and Clayey Silt*

	(N≪2BPF)	
····· Boring	Approximate Depth	Classification —
B-4	3-18	MH
B-5	3-14	MH
B-6	5-13	MH
B-8	13-19	MH
B-12	3-6	CL
B-18	23-28	CL

^{*}Conditions will vary widely away from boring locations.

The following paragraphs discuss the soil conditions at the specific structures.

Norfolk Southern RR - Bridge Replacement (B-4)

The boring encountered very soft to soft clayey Silt (MH) to a depth approximately 18 feet below existing grade. Standard Penetration resistance ranged from 1 to 5 blows per foot (bpf). Underneath this layer a medium dense to very dense Sand with silt (SP) was encountered to boring termination depth. Standard Penetration resistance ranged from 25 to 79 bpf. Cemented layers of Marl were found below a depth of 37 feet below grade.

GA Highway 21 – Box Culverts (Borings B-6 and B-7)

Borings generally encountered very soft to soft clayey Silt (MH) and very loose to loose clayey Sand (SC) to an approximate depth ranging from 12 to 13 feet below existing grade. Standard Penetration resistance ranged from 1 to 9 bpf. Underneath this layer a dense to very dense Sand with silt (SP) and silty Sand (SM) was encountered to boring termination depths. Standard Penetration resistance ranged from 33 to +100 bpf. Cemented layers of Marl were found below depths ranging from 23 to 28 feet below grade.

CSX RR - Replacement Bridge (Borings B-8 and B-9)

Borings generally encountered fill material with variable consistency to an approximate depth ranging from 7.5 to 13 feet below existing grade. The fill material consisted of variable amounts of silt and sand with construction debris and organic material. Standard Penetration resistance ranged from 2 to 16 bpf. Underneath this layer borings typically encountered a dense to very dense Sand with silt (SP) and silty Sand (SM) to boring termination depth. Standard Penetration resistance typically ranged from 31 to +100 bpf. Shell fragments were encountered in this layer at different depths.

CSX RR - Box Culverts (Boring B-10 and B-11)

Borings generally encountered soft silty Clay (CH) and very loose to loose clayey Sand (SC) and silty Sand (SM) to an approximate depth of ranging from 12 to 13 feet below existing grade. Standard Penetration resistances ranged from 2 to 6 bpf. Underneath this layer a medium dense to very dense Sand with silt (SP) and silty Sand (SM) was encountered to boring termination depths. Standard Penetration resistances ranged from 23 to +100 bpf. Shell fragments were found at various depths in this layer.

Norfolk Southern - Box Culverts (Borings B-12 and B-13)

Borings generally encountered interbedded layers of loose Sand (SP), very soft to medium stiff Clay (CL), and loose clayey Sand (SC) to an approximate depth ranging from 18 to 23 feet below existing grade. Standard Penetration resistances ranged from 4 to 9 bpf. Underneath this layer a loose to very dense Sand with silt (SP) was encountered to boring termination depths. Standard Penetration resistances ranged from 27 to +100 bpf. Shell fragments and quartz pebbles were found at various depths in this layer.

Dean Forrest Road - Box Culverts (Borings B-15 and B-16)

Borings generally encountered soft to medium stiff Clay (CH) to an approximate depth of 8 feet below existing grade. Standard Penetration resistances ranged from 2 to 6 bpf. Underneath this layer a loose to medium dense Sand with silt and cemented layers (SP) was generally encountered to depths of 27 and 41 feet below existing grade in Borings B-15 and B-16, respectively. Standard Penetration resistances typically ranged from 2 to 27 bpf. Beneath this layer a stiff to hard Silt (MH) with variable amounts of sand was encountered to boring termination depths. Standard Penetration resistances ranged from 16 to 41 bpf.

Groundwater Conditions

Observations for groundwater were made during sampling and upon completion of the drilling operations at the boring locations. In mud rotary drilling operations, water and bentonite slurry is introduced into the borehole, and the groundwater position is often difficult to discern accurately. Visual observation of the soil samples retrieved during the drilling exploration can often be used in evaluating the groundwater conditions.

At the completion of the drilling operations, the groundwater level was generally observed at a depth of 1.8 to 7.8 feet below existing surface grade. The corresponding elevations ranged from 9.0 to -3.0. It is generally expected that a fluctuation of the groundwater table on the order of 2 to 3 feet can occur due to seasonal rainfall conditions and changes in nearby canal levels. Considering that the borings were completed in early September, we expect that the observed groundwater depths are below seasonal high elevations.

ANALYSIS AND RECOMMENDATIONS

General

The following table presents the planned construction and the borings used for evaluation.

Structure/Crossing Location	Closest Borings
Canal Deepening/Widening	B-4 through B-18
Norfolk Southern RR – Replace Bridge	B-4
GA Highway 21 – 2 New 12' x 10' Culverts	B-6, B-7
CSX RR – Replace Bridge	B-8, B-9
CSX RR – 2 New 10' x 5' Culverts	B-10, B-11
Norfolk Southern RR – 2 New 10' x 5' Culverts	B-12, B-13
Dean Forrest Rd. – 3 New 10' x 10' Culverts	B-15, B-16

The following sections discuss the canal deepening/widening, new culverts, and bridge replacements with respect to soil and groundwater conditions. Excavation and foundation support as well as construction considerations are provided.

Canal Widening

In general, the deepened/widened canal bottom width is planned to range from 32 to 60 feet going east of Interstate 95. The existing canal will widened in a trapezoidal shape and over excavation is expected to leave an earthen slope. To provide sufficient stability at the slope surface, we recommend that unreinforced slopes be built at 2H:1V or flatter. Protection of the slope is also recommended. The canal should be protected from erosion and scour with rock or fabriform up to the design flow limit. Above the normal flow line the slope should be grassed and/or sodded.

If steeper slopes are desired, geogrid reinforcement will be needed. Please refer to our previous reports for this project dated July 31, and September 22, 2000 for additional slope stability information.

Cut soil from widening or construction of the canal may be used as backfill in other areas of the project provided the material is suitable. Refer to the "Subgrade Preparation and Earthwork Operations" section of this report for suitable on-site materials. Borrow materials should be approved for use by the Geotechnical Engineer prior to transportation or use.

Box Culverts (GA Hwy 21, CSX RR, Norfolk Southern RR, Dean Forrest Road)

At this time it appears that new box culverts will be added or replaced along the canal alignment. The box culverts under consideration vary in size from 12' x 10' to 10' x 5'. We have assumed that construction of a new box culvert would be a cut and cover operation requiring temporary closing or detour of any perimeter roadway or railroad. Excavation to depths of 10 to 12 feet in a conventional manner appears feasible with proper shoring and de-watering.

Foundation Support

We anticipate shallow foundations sized for a net allowable bearing capacity of 2,000 psf or less will be suitable. Because the majority of these structures will likely weigh less than the current soil overburden, we anticipate minimal settlements. Should plans call for significant filling beyond existing roadway/railroad embankment limits or raising the roadway/railroad more than 1-foot, settlement expectations will need to be reviewed by ECS.

Construction Considerations

Because these structures will support a roadway/railroad with frequent and potentially heavy load, foundation bedding beneath the culvert and proper compaction of backfill is critical to reduce settlements. Upon excavation to initial invert or foundation level, the bottom of the excavation should be observed by an experienced Geotechnical Engineer or his authorized representative. After dewatering systems are installed and operating, any soft, "pumping" or unsuitable materials observed should be removed and replaced with an approved backfill material or crushed stone in accordance with the earthwork specifications presented below. Overexcavation of 1 to 2 feet of the very loose silt or soft clay and replacement with crushed stone will most likely be needed to provide a firm working platform on which to construct the structure.

Bridge Replacement Foundations (Norfolk Southern RR, CSX RR)

At this time we do not have structural loading information but we anticipate that the bridges will be subjected to compression, lateral, and uplift loads. We understand that Norfolk Southern and CSX would prefer to use a driven pile foundation system to support the bridges. It is our opinion that the subsurface soils on the Project Site are not suitable for use of shallow foundations at the bridge sites. We concur that use of a deep foundation system is advisable to limit settlement.

Typically, deep foundations in the coastal plain geology consist of driven closed end steel pipe piles, prestressed concrete piles, drilled shafts, or auger cast pile foundations. Due to the depth to competent end bearing material, the difficult access and overall economy, we evaluated only driven prestressed concrete and steel pipe pile foundations for the proposed bridges. At your request, other foundation options could be evaluated.

For your convenience, our engineering evaluations pertaining to recommended foundation types and design values are presented in the following tables. Estimated tip elevations are provided for both bridge replacements. Borings completed for both structures are located away from the planned bridges. Once better access is available, you may wish us to perform additional borings be completed in these area to confirm estimated tip elevations and soil/groundwater conditions.

Closed End Steel Pipe Pile Foundation

folk ern RR	Steel Pipe Pile Diameter*	Allowable Compressive Capacity**	Allowable Uplift Capacity	Estimated Tip Elevation***
Nor	14 inches	40 tons	20 tons	-35 feet
	16 inches	60 tons	30 tons	-35 feet
So	18 inches	80 tons	40 tons	-35 feet

RR	Steel Pipe Pile Diameter*	Allowable Compressive Capacity**	Allowable Uplift Capacity	Estimated Tip Elevation***
CSX	14 inches	40 tons	20 tons	-25 feet
	16 inches	60 tons	30 tons	-25 feet
	18 inches	80 tons	40 tons	-25 feet

^{*}Assumes a 3/8 inch pipe pile thickness and ¾ inch thick closure plate

^{**}Reduce above capacity by 10 tons to account for negative skin friction at end bents

^{***}Jetting and spudding may be needed to achieve 20 feet minimum embedment at interior bents

Prestressed Concrete Pile Foundation

orfolk	Prestressed Concrete Pile Width	Allowable Compressive Capacity**	Allowable Uplift Capacity	Estimated Tip Elevation***
Nor	14 inches	50 tons	25 tons	-30 feet
	18 inches	90 tons	45 tons	-30 feet

X R.R	Steel Pipe Pile Diameter*	Allowable Compressive Capacity**	Allowable Uplift Capacity	Estimated Tip Elevation***
	14 inches	50 tons	25 tons	-25 feet
	18 inches	90 tons	45 tons	-25 feet

^{*}Assumes a 3/8 inch pipe pile thickness and ¾ inch thick closure plate

Based on the depth of end bearing material and overall economy, we recommend prestressed concrete pile foundations may provide the best overall economy for the proposed bridges.

Negative Skin Friction

Please note that the above pile capacities need to be reduced by "negative skin friction" or downdrag at the end bents. As mentioned previously, we expect filling of the embankments to cause significant longer term settlement of deeper plastic clays and silts. Depending on timing and sequence of fill placement, the relative movement of the soil in relation to the piles at bridge end bents can cause a loss of support/increase in load on the foundations. To account for this potential negative skin friction, we recommend that the allowable design capacity of the piles be reduced by 10 tons at the end bents.

Because placement and compaction of abutment fill can create additional downdrag, we recommend any portion of each end bent pile above existing ground surface be provided with bituminous coating or double wrapped with plastic sheeting to reduce the downdrag force. These friction reducing measures should be in place prior to placement of embankment fill and construction of any abutment walls. No significant negative skin friction loads are expected to mobilize at the interior pier locations where fill is not placed.

Lateral Pile Resistance

Passive earth pressures should be used to determine lateral capacity for both pile caps and deep foundations. The passive condition represents the maximum possible pressure when a structure is pushed against the soil. For design purposes, we recommend the top 5 feet of soil below the theoretical scour line be ignored in this calculation.

^{**}Reduce above capacity by 10 tons to account for negative skin friction at end bents.

^{***}Jetting and spudding may be needed to achieve 20 feet minimum embedment at interior bents

Because significant deflection is required to develop the passive pressure, the total calculated passive pressure is usually reduced by one-half for design purposes. Therefore, we recommend a passive earth pressure coefficient (K_p) of 3.0 and an equivalent fluid unit weight of 150 pcf above the water table. Below the water table, the equivalent fluid unit weight should be reduced to 120 pcf. At your request, ECS would be pleased to perform lateral load analysis once anticipated load conditions are known.

Pile Load Tests/PDA

Whereas pile capacities can be estimated from the results of soil tests, actual capacities should be confirmed by use of dynamic pile driving analysis with a Pile Driving Analyzer (PDA) or by conventional load tests. Capacity of the piles should be confirmed by performing a minimum of one (1) pile load test or dynamic analysis with the PDA. It is recommended that these tests be performed under the supervision of an experienced Geotechnical Engineer from ECS. Please note that the pile load test should be performed for twice the design load (plus 10 tons to account for the potential negative skin friction at the end bents). If the PDA is used to confirm the capacity of the test pile, we would be pleased to provide "End of Driving" criteria.

Pile Driving

Minimum tip depths presented above are based on pile penetration into the underlying dense sand. In some cases, jetting and spudding may be needed to achieve a 20-foot minimum embedment at the pile bents. This is especially true at interior bents in the canal.

The structural capacity of the piles should be checked for downward loads, tension forces, and lateral forces. The spacing between the centers of the piles in a cluster should be equal to 2.5 to 3 times the nominal width of the piles to avoid capacity reductions for group effects.

Zones of granular soils will have a tendency to "freeze" the piles in place when the pile driving operations are halted. Therefore, each pile should be driven to the desired tip elevation and driving resistance without interruptions in the driving operations. If the pile must be spliced to reach the design depth, driving operations should be halted at least 10 feet above the estimated tip elevation. Driving the center piles of a cluster first will facilitate the driving operations. Accurate records of the final tip elevations and driving resistance should be obtained during the driving operations.

Ground Vibration

During the installation of piles, ground vibration may be excessive or sufficient enough to cause damage to nearby structures. We recommend a preconstruction survey be conducted on the existing railroad bridge and any structures to be left in-place that are within 300 feet of pile driving operations. It is recommended that extreme caution be taken with regard to these vibrations. If excessive vibrations are reported during the driving process, driving should be stopped immediately and any damage to nearby structures should be checked. Predrilling the upper 10 to 20 feet of the pile hole may be an option to reduce unwanted vibration effects.

Below Grade Walls

Below grade walls or retaining walls should be designed to withstand the lateral earth pressures exerted upon them. We recommend that the "At Rest" soil condition be used in the designs if the top of the walls are restrained and not allowed to move. For a horizontal backfill surface, a lateral earth pressure coefficient for the At Rest state of 0.50 can be employed. The increased lateral pressures generated by surcharge loads (from construction equipment, stockpiles, vehicles or railrods) should be considered in the design. Compacted moist unit weight for soil backfill of 125 pcf is considered compatible with on-site or similar off-site borrow soils.

Drainage behind the wall is considered essential towards relieving hydrostatic pressures. We recommend installation of a synthetic drainage media or 6 inches of free draining backfill behind below grade walls. Drainage collection and relief can be established by providing a perforated pipe in a filter fabric sock located just above the retaining wall footings which discharges by gravity flow to a suitable outlet or filter fabric protected weep holes. Where drainage is not desirable (e.g. at cofferdams or other temporary construction sheet pile walls) the effect of groundwater and/or tidal fluctuations should be considered.

In the design of below grade walls to restrain compacted on site borrow or in-situ natural soils, the following soil parameters can be utilized:

- Coefficient of earth Pressure at Rest (K_o) 0.50
- Coefficient of Passive Earth Pressure (Kp) 3.0
- Moist unit weight of soil 125 pcf
- Angle of Internal Friction 30 degrees
- Coefficient of Sliding Friction Resistance 0.45 (concrete on soil)

Retaining walls that are free to rotate at the top may be designed with the same parameters. However, if the top of the wall is allowed to rotate, the wall should be designed for an active earth pressure coefficient.

Coefficient of Active Earth Pressure (K_a) - 0.33

Please note, sloping backfill behind a wall greatly increases the lateral load on the wall. The appropriate design approach must be used if the backfill of the wall is sloping.

No retaining wall footings should be designed to be supported on slopes steeper than 3H:1V. Retaining wall footings near the canal must be protected from scour effects. A design bearing pressure of 2,000 psf may be used to size footings. The resultant of the over-turning moments must be within the central one-third of the footing.

Subgrade Preparation and Earthwork Operations

Initial preparation of the site should consist of stripping topsoil, vegetation, and removal of any loose sediment from the existing canal bottom. In foundation areas, further excavation to the foundation level should proceed. Some form of dewatering and shoring will be needed to maintain the trench sideslopes. Excavation should be performed in a safe manner consistent with OSHA guidelines.

Upon excavation to initial invert or foundation level, the bottom of the excavation should be observed by an experienced Geotechnical Engineer or his authorized representative. After dewatering systems have been operated, any soft, "pumping" or unsuitable materials observed should be removed and replaced with an approved backfill material or crushed stone in accordance with the earthwork specifications presented below.

Structural backfill placed at the proposed structures, or in confined spaces such as along the below grade walls, should consist of soils with a liquid limit less than 40, a plasticity index less than 20, and classified as SP, SM, or SC unless noted otherwise. Suitable materials should contain less than 3 percent organic content and be free of organic debris and foreign matter.

Note that due to a high water table on this site much of the excavated backfill material may be very wet and difficult to compact. Moving and drying the backfill material may be necessary prior to reuse. DOT or Norfolk Southern/CSX material or compaction requirements may be more stringent and may apply in some locations.

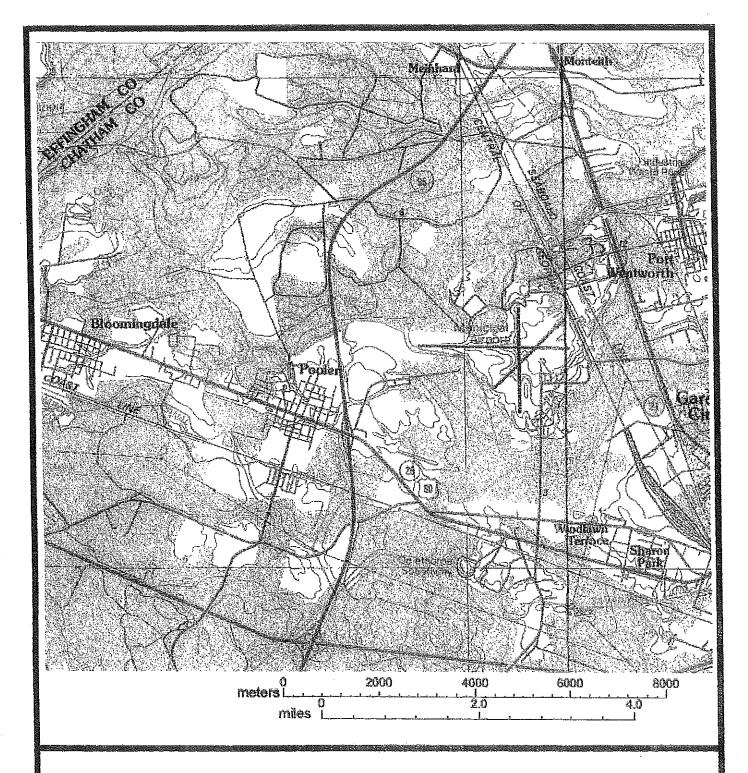
In non-structural areas, other non-organic sandy clay or silt soils (CL), (ML) may be used for backfill. We do not recommend reuse of highly plastic clays or silts (CH or MH) for backfill material. Suitability of backfill material should be determined by appropriate laboratory testing and visual classification during construction. Off-site backfill materials should be approved by the Geotechnical Engineer before use.

At the proposed structures, beneath roadways and beneath railroad tracks, materials placed as fill or backfill should be placed in loose lifts of 8 inches or less in thickness, moisture controlled to within 2 percent of optimum moisture content, and compacted to at least 95 percent of the maximum dry density determined in accordance with ASTM D-1557, Modified Proctor Method. In greenway areas and non-structural areas, backfill should be compacted to at least 90 percent of the maximum dry density of ASTM D-1557.

CLOSING

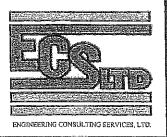
This report has been prepared for use by EMC in the design and construction of the project. Our professional services were performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied.

Any changes in the design, or additional information regarding design loads, should be brought to our attention in order that we may determine any affect on the recommendations presented in this report. ECS is not responsible for interpretations of this report or the attachments by others. Should you have any questions with regard to the information contained in this report, please do not hesitate to contact us.



SITE VICINITY MAP

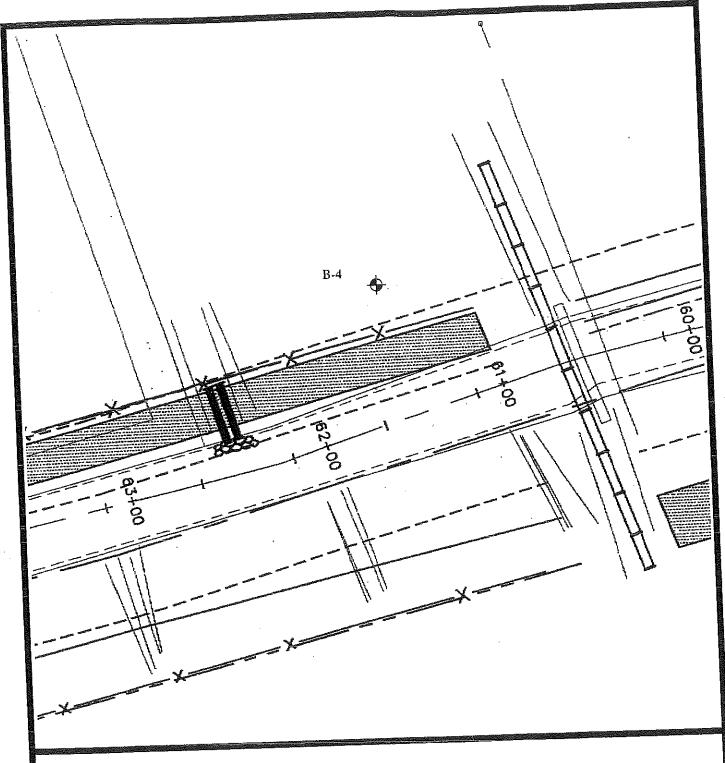
Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia



Reference: Port Wentworth, GA, USGS Map

Project No.: 10:1411

Date: 12/21/01
Figure No.: 1



BORING LOCATION PLAN (B-4)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia

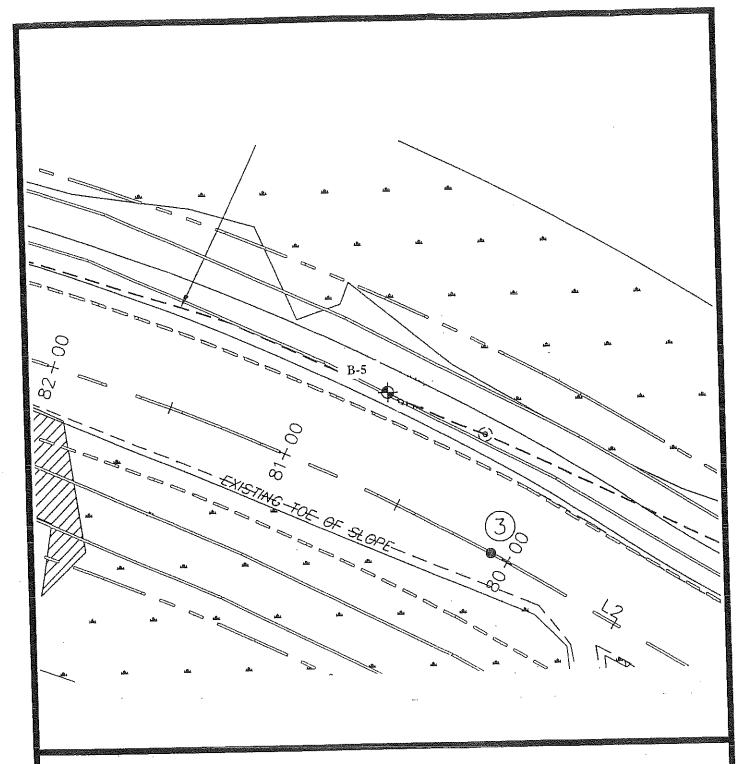


Reference: EMC Engineering

Services, Inc.

Project No.: 10:1411

Date: 12/21/01 Figure No.: 2



BORING LOCATION PLAN (B-5)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia



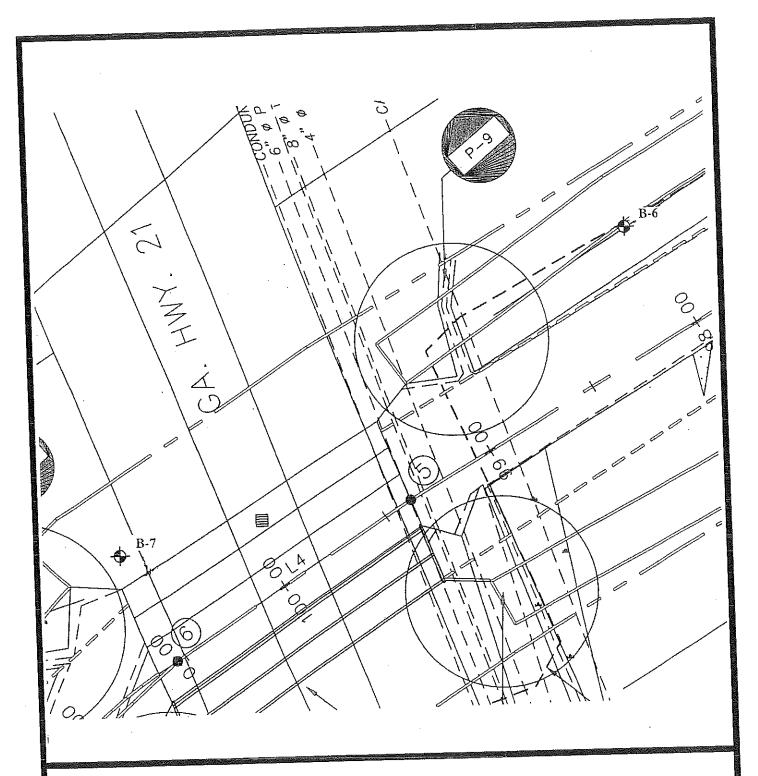
ENGINEERING CONSULTING SERVICES, LT.

Reference: EMC Engineering

Services, Inc.

Project No.: 10:1411

Date: 12/21/01 Figure No.: 3



BORING LOCATION PLAN (B-6, B-7)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia

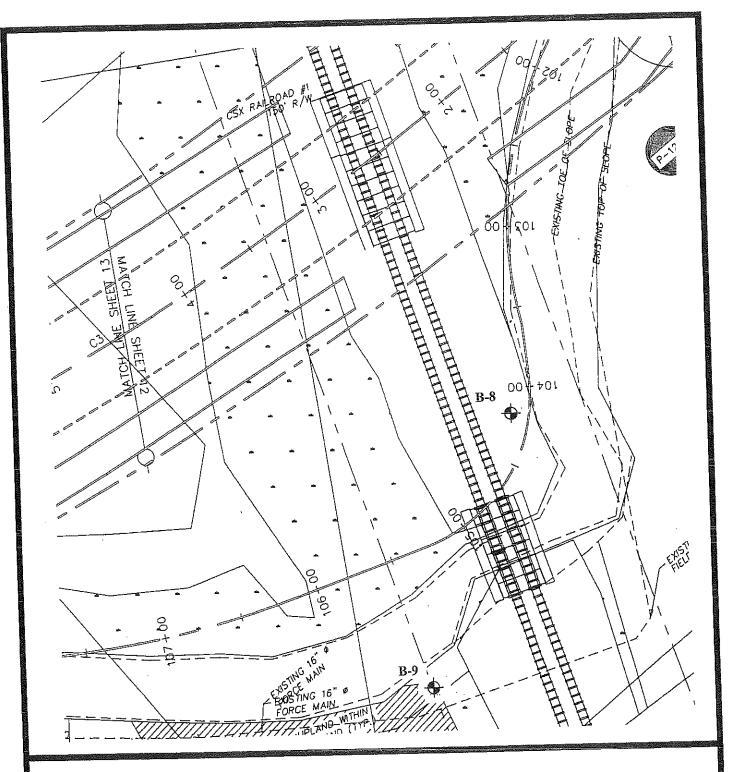


Reference: EMC Engineering

Services, Inc.

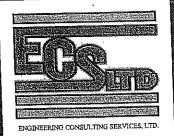
Project No.: 10:1411

Date: 12/21/01 Figure No.: 4



BORING LOCATION PLAN (B-8, B-9)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia

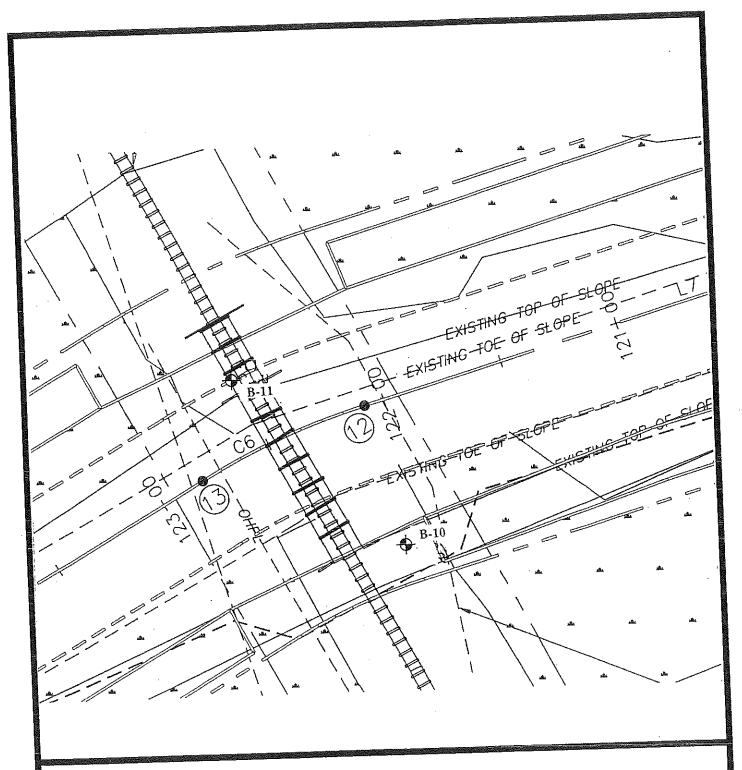


Reference: EMC Engineering

Services, Inc.

Project No.: 10:1411

Date: 12/21/01 Figure No.: 5



BORING LOCATION PLAN (B-10, B-11)

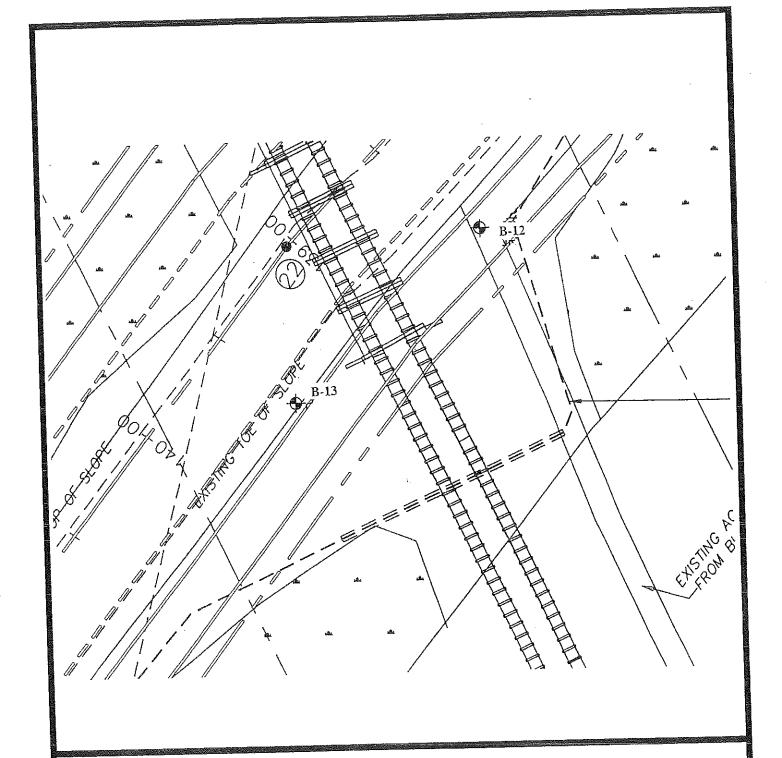
Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia



Reference: EMC Engineering Services, Inc.

Project No.: 10:1411

Date: 12/21/01 Figure No.: 6



BORING LOCATION PLAN (B-12, B-13)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia

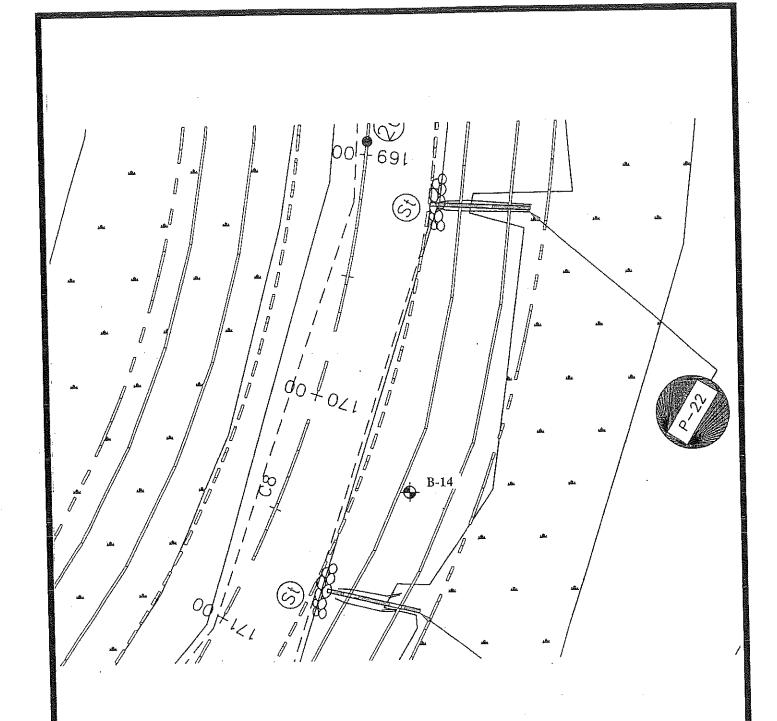


Reference: EMC Engineering

Services, Inc.

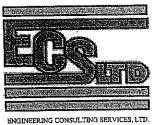
Project No.: 10:1411

Date: 12/21/01 Figure No.: 7



BORING LOCATION PLAN (B-14)

Report of **Subsurface Exploration** Pipemakers Canal Widening Project (Station 412+13 to 60+00) Savannah, Georgia

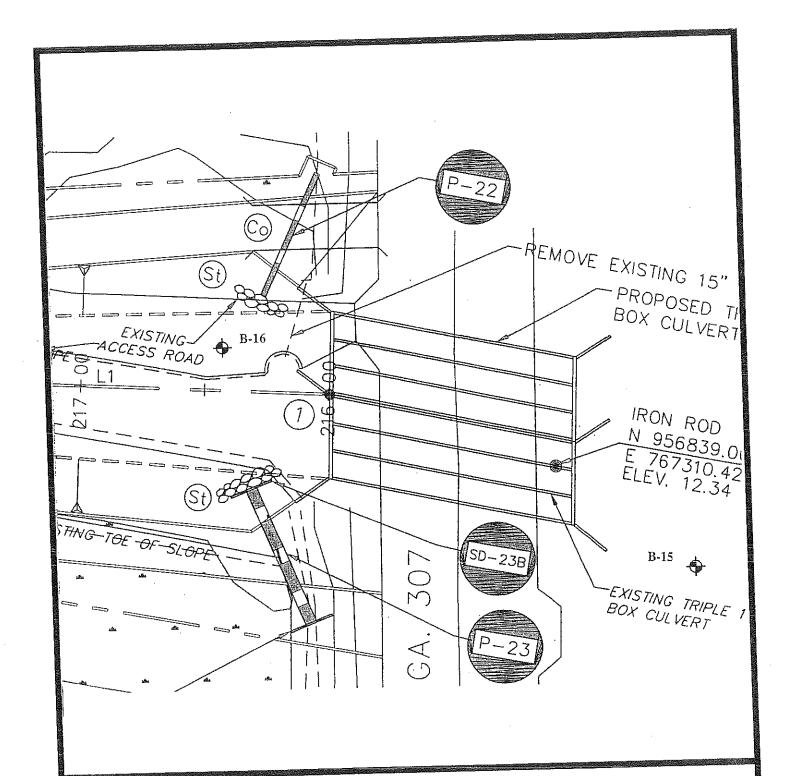


Date: 12/21/01

Figure No.: 8

Reference: EMC Engineering Services, Inc.

Project No.: 10:1411



BORING LOCATION PLAN (B-15, B-16)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia

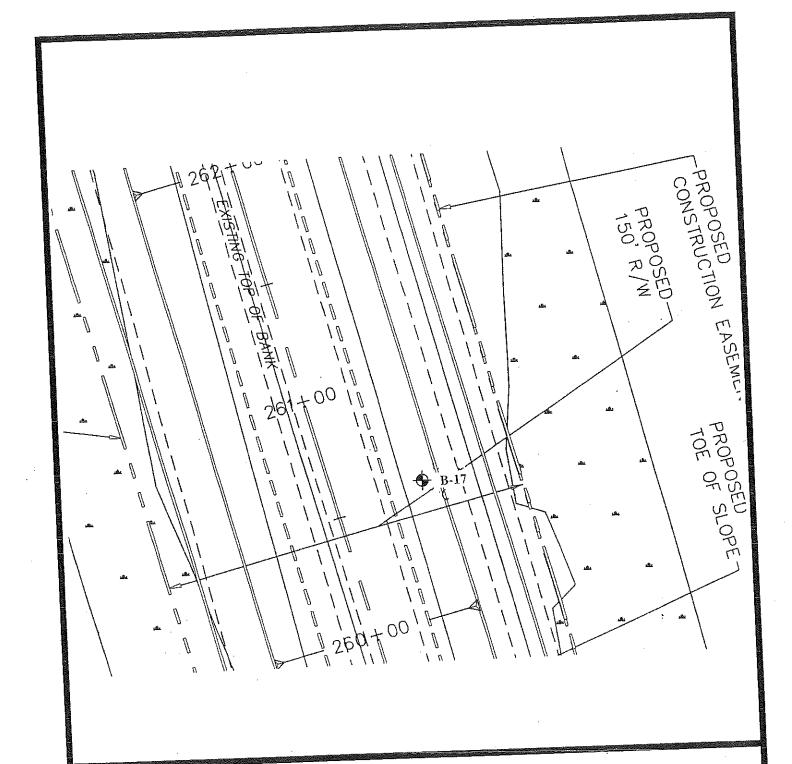


Reference: EMC Engineering

Services, Inc.

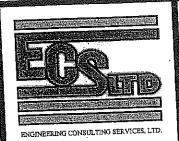
Project No.: 10:1411

Date: 12/21/01 Figure No.: 9



BORING LOCATION PLAN (B-17)

Report of Subsurface Exploration Pipemakers Canal Widening Project (Station 412+13 to 60+00) Savannah, Georgia

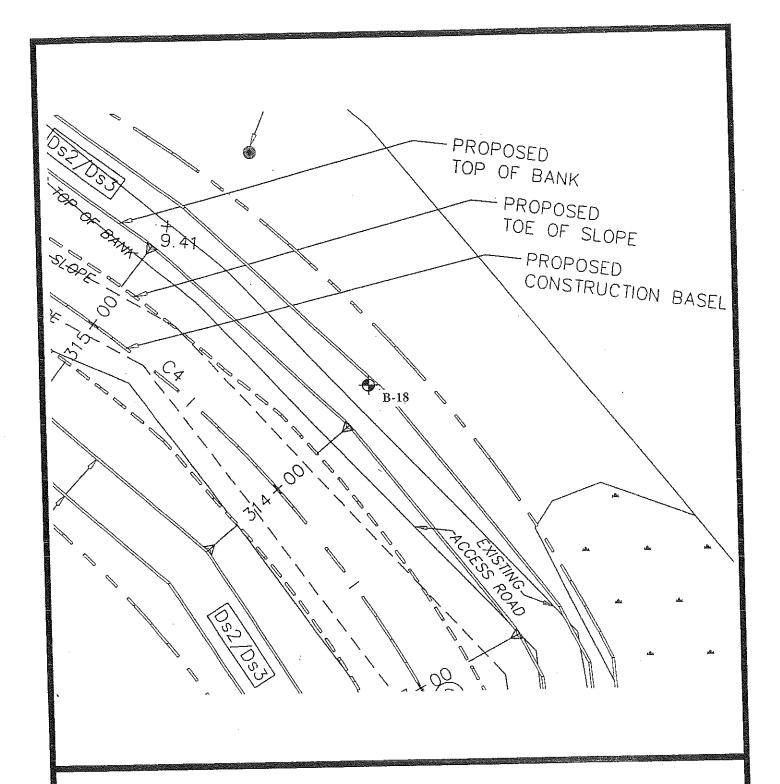


Reference: EMC Engineering

Services, Inc.

Project No.: 10:1411

Date: 12/21/01 Figure No.: 10



BORING LOCATION PLAN (B-18)

Report of
Subsurface Exploration
Pipemakers Canal Widening
Project (Station 412+13 to 60+00)
Savannah, Georgia



Reference: EMC Engineering

Services, Inc.

Project No.: 10:1411

Date: 12/21/01 Figure No.: 11

Unified Soil Classification System (ASTM Designation D-2487)

 _ Major	Division	Group Symbol	Typical Names		ssification Criteria
Coarse-grained soils More than 50% retained on No. 200 sieve		GW	Well-graded gravels and gravel- sand mixtures, little or no fines	$C_z = (D_{30})^2/($	OGreater than 4 D ₁₀ xD ₆₀) Between 1 and 3
	ls of coars in No. 4 s	GP	Poorly graded gravels and gravel- sand mixtures, little or no fines	v, SP A, SC Alassificat e of dual	y both criteria for GW
	Gravels More than 50% of coarse fraction retained on No. 4 sieve	GM	Silty gravels, gravel-sand-silt	of percentage of fines $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ Not meeting are of dual symbol blasticity in blasticity in $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ Atterberg $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_{x} = (D_{30})^{2/6}$ $C_$	mits plot below "A" line or dex less than 4
	More	GC	Clayey gravels, gravel-sand-clay	and plastic	imits plot above "A" line ity index greater than 7
Coarse-grained soils 50% retained on No.	arse ieve	W2	Well-graded sands and gravelly sands, little or no fines	Classification on bas Less than 5% Pass No. 200 sieve More than 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 5% to 12% Pass No. 200 sieve 6% to 12% Pass No. 200 sieve 6% to 12% Pass No. 200 sieve 7% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve 10% to 12% Pass No. 200 sieve	O ₁₀ Greater than 6 (D ₁₀ xD ₆₀) Between 1 and 3
Cor than 50%	Sands More than 50% of coarse fraction passes No. 4 sieve	SP	Poorly graded sands and gravelly sands, little or no fines	Classiffic Classiffic Not meeting Not meet	ng both criteria for SW
More	Sa c than 5 ion pass	SM	Silty sands, sand-silt mixtures	Harry plasticity	index less than 4 limits plot above "A" line
	Mor	sc	Clayey sands, sand-clay mixtures		city index greater than 7
Fine-grained soils 50% or more passing No. 200 sieve		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	Note: U-line represents approxime for natural soils (empirically	ate upper limit of LL and PI combinations of determined). ASTM-D2487.
	1	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		PAT INE
Fine-g or more p		OL	Organic silts and organic silty clays of low plasticity	PLASTICITY INDEX. PI	ИН ог ОН
50% 07		HM	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts	20 (CL or OL)	
	Silts and Clays Liquid limit preseter than 50%	CH	Inorganic clays of high plasticity fat clays		50 60 70 80 90 100 JID LIMIT, II.
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	OH.	Organic clays of medium to high plasticity	Tests made on fr	classification of fine-grained so action finer than No. 40 sieve
Highly organic soils		c soils Pt	Peat, muck and other highly organic soils		ous organic matter; will , burn, or glow



UNIFIED SOIL CLASSIFICATION SYSTEM

REFERENCE NOTES FOR BORING LOGS

I. Drilling and Sampling Symbols:

SS ST RC PM	Split Spoon Sampler Shelby Tube Sampler Rock Core: NX, BX, AX Pressuremeter	PA HSA	Rock Bit Drilling Bulk Sample of Cuttings Power Auger (no sample) Hollow Stem Auger Wash Sample
WOH	Sample Advanced w/Wt. Of Hammer & Rods	WS	Wash Sample

Standard Penetration Test Blow Count (Blows/Ft) refers to the blows per foot of a 140 lb. hammer falling 30 inches on a 2 inch O.D. split spoon sampler, as specified in ASTM D-1586. The blow count is commonly referred to as the N-value.

II. Correlation of Penetration Resistance to Soil Consistency:

	Sands & Silts		Cohesive Soils - Clays	
<u>SPT</u> N value	Consistency	<u>SPT</u> N value	Consistency	<u>Unconfined</u> <u>Compressive</u> <u>Strength, Op, tsf</u>
0 - 3 4 - 9 10 - 29 30 - 49 50 - 100 100+	Very Loose Loose Medium Dense Dense Very Dense Partially Weathered Rock	0 - 2 3 - 4 5 - 8 9 - 16 17 - 29 30 - 50 50 - 100 100+	Very Soft Soft Medium Stiff Stiff Very Stiff Hard Very Hard Partially Weathered Rock	0 - 0.25 0.25 - 0.5 0.5 - 1.0 1.0 - 2.0 2.0 - 4.0 4.0 - 8.0 > 8.00

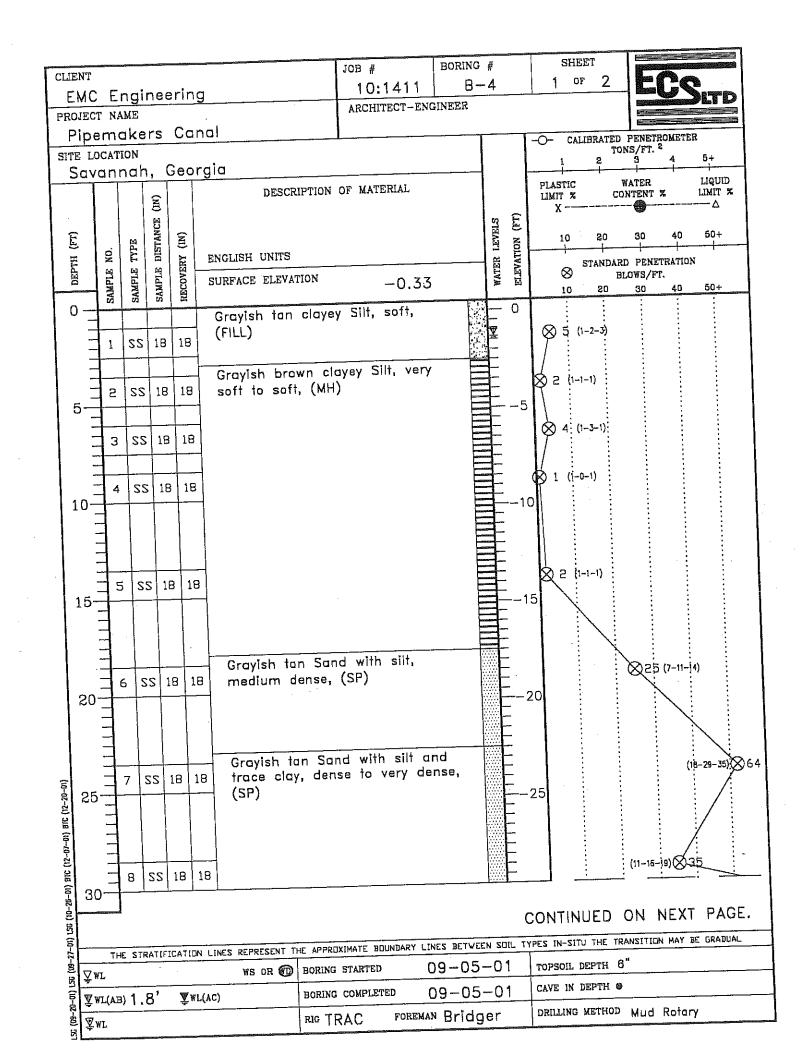
III. Unified Soil Classification Symbols:

Modifiers: "trace" = 0% to 10%, "with" = 15% to 25%, "clayey, silty or sandy" = 30% to 50%

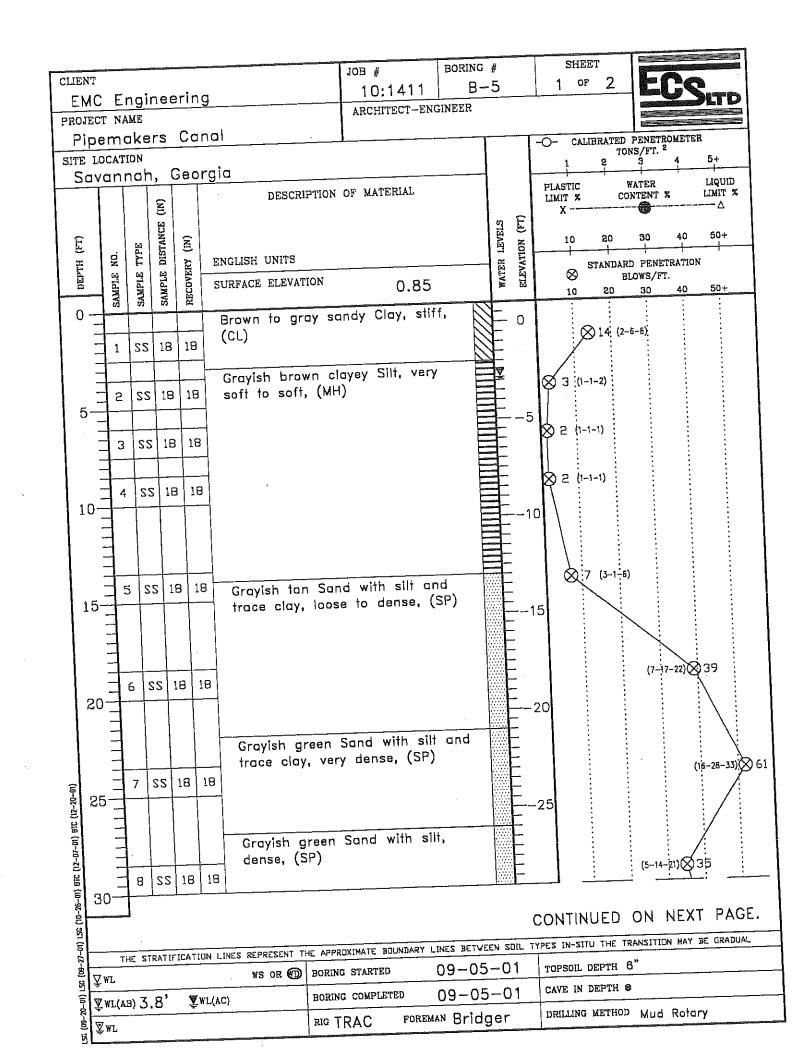
IV. Water Level Measurement Symbols:

WL	Water Level	BCR Before Casing Removal
	While Sampling	ACR After Casing Removal
		WCI Wet Cave In
,	,	DCI Dry Cave In

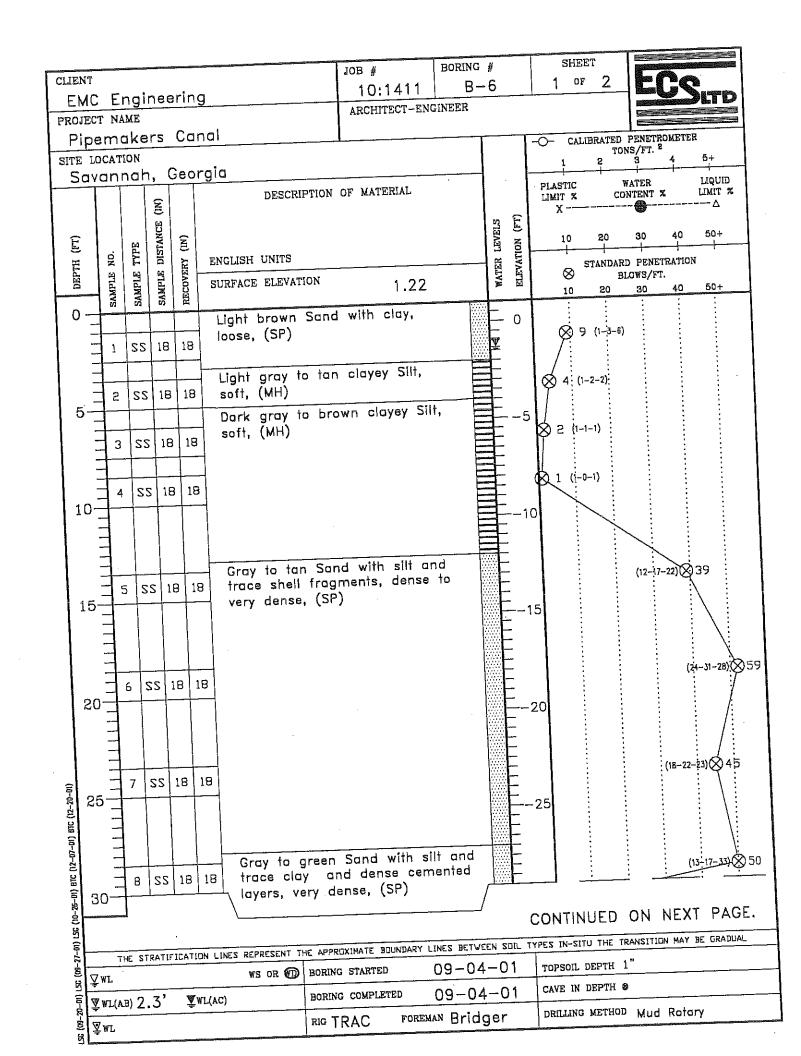
The water levels are those water levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in a granular soil. In clays and plastic silts, the accurate determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally applied.



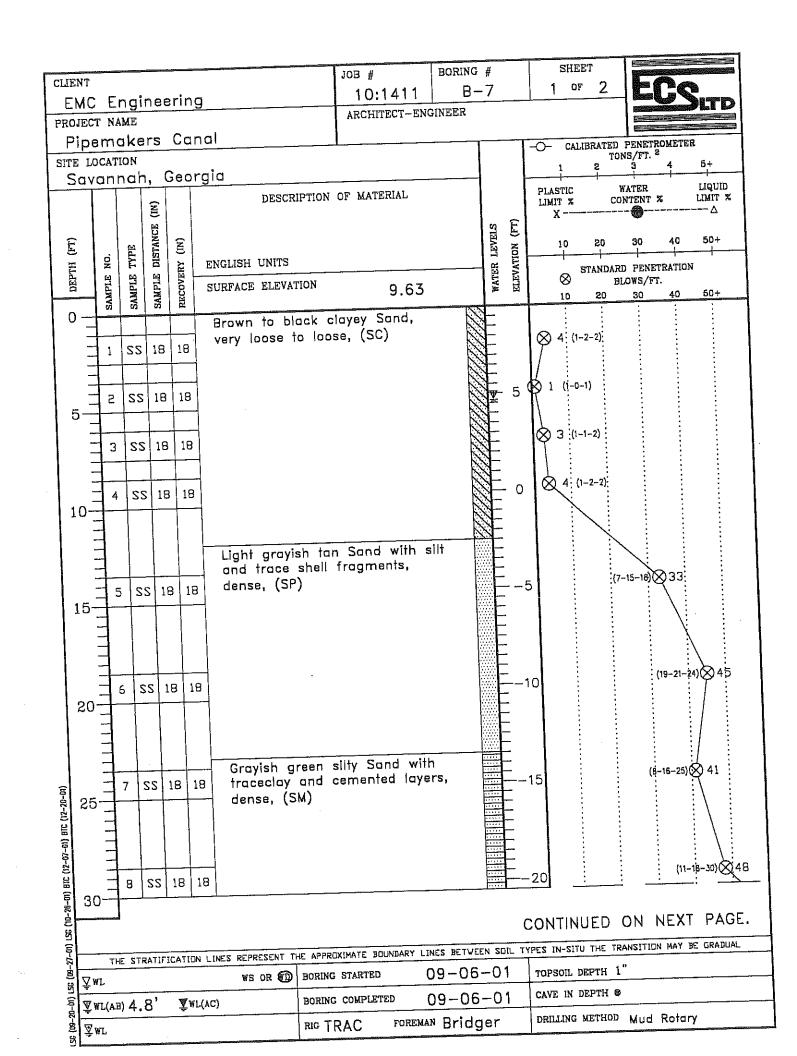
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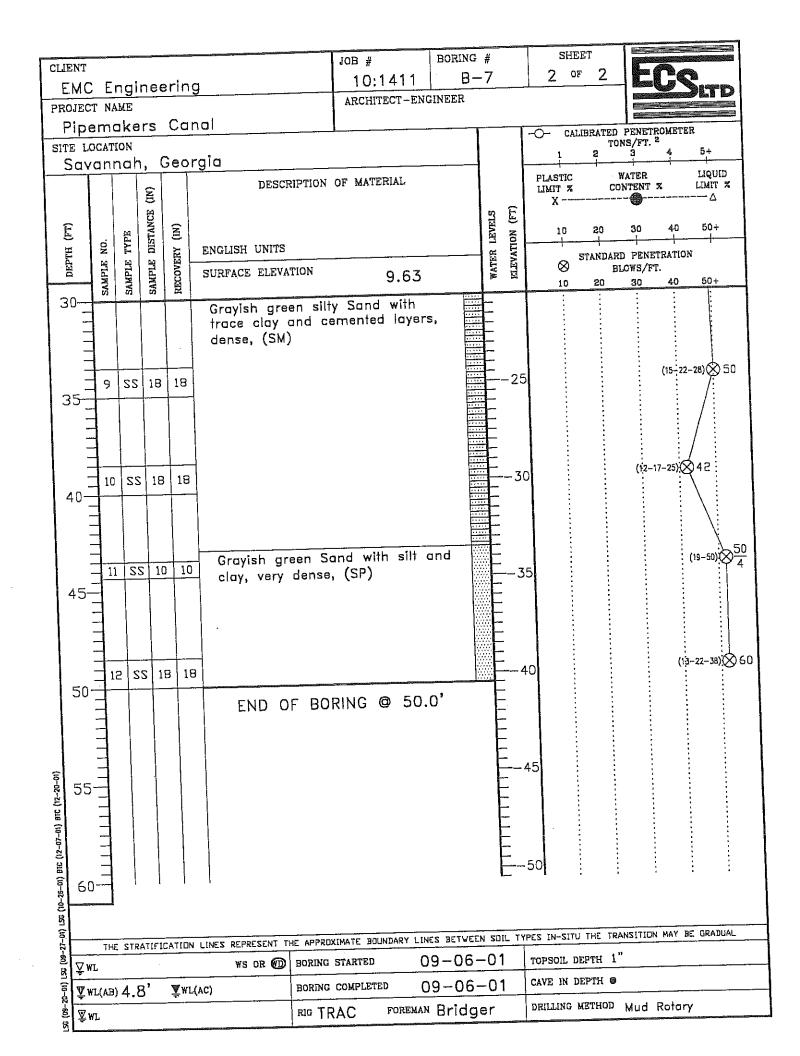


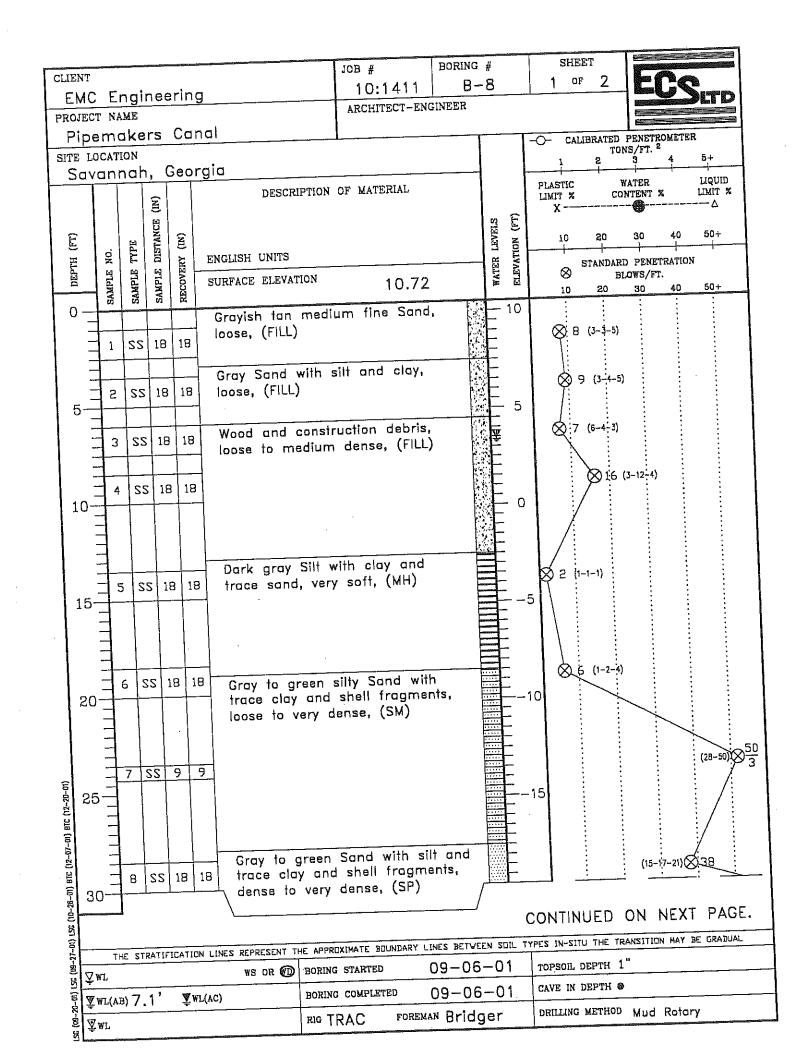
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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL
BORING STARTED 09-05-01 TOPSOIL DEPTH 6"
© WHL(AB) 3.8' WHL(AC) BORING COMPLETED 09-05-01 CAVE IN DEPTH ®
PIG TDAC FOREMAN Bridger DRILLING METHOD Mud Rotory



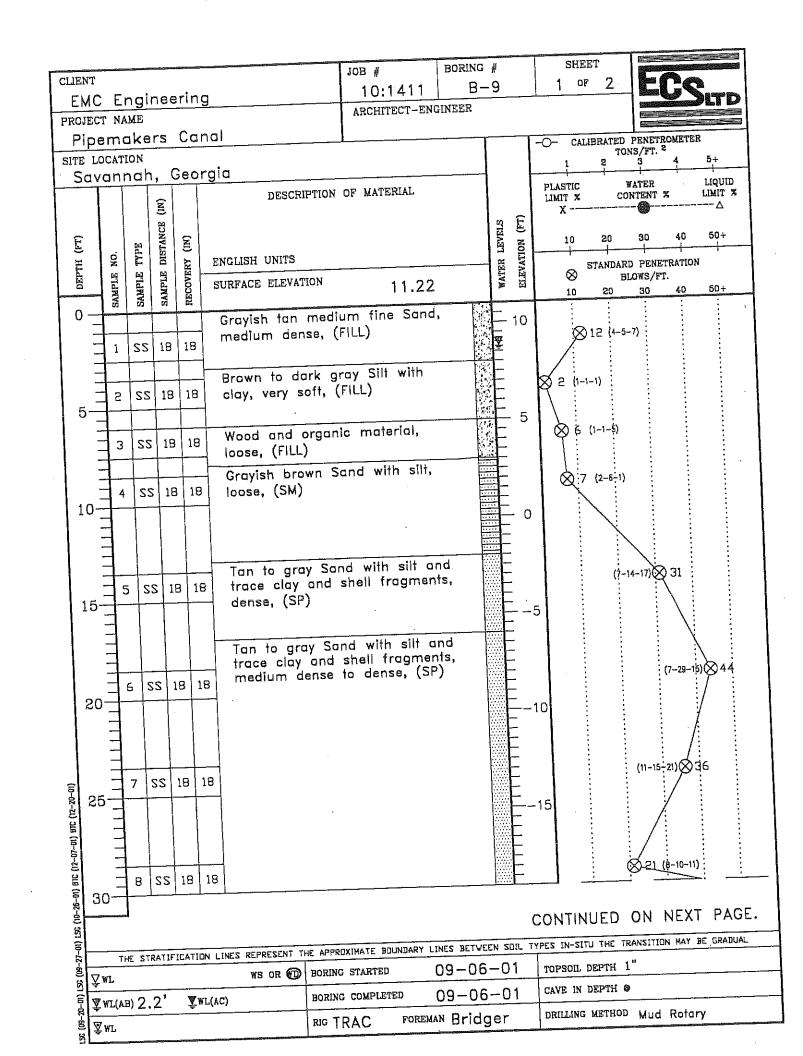
CLIENT	JOB #	BORING	#	SHEET	
EMC Engineering	10:1411	B-	-6	2 of 2	
PROJECT NAME	ARCHITECT-EN	GINEER			
Pipemakers Canal				autopina)	PENETROMETER
SITE LOCATION				CALIBRATED TO:	75/FT. 2 S 4 5+
Savannah, Georgia				-	
DESCRIPTION	OF MATERIAL				NTENT % LIMIT %
			ELS (FT)	X	Δ
(IN)				10 20	30 40 50+
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very dense ceme	nted layers,		<u> </u> -3	5	
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THE STRATIFICATION LINES REPRESENT THE APPROX				THES IN-STILL THE TRAIT	12411(D) 17(C) DC MINEDOCK
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E WL(AB) 2.3' WL(AC) BORING		9-04-		CAVE IN DEPTH @	
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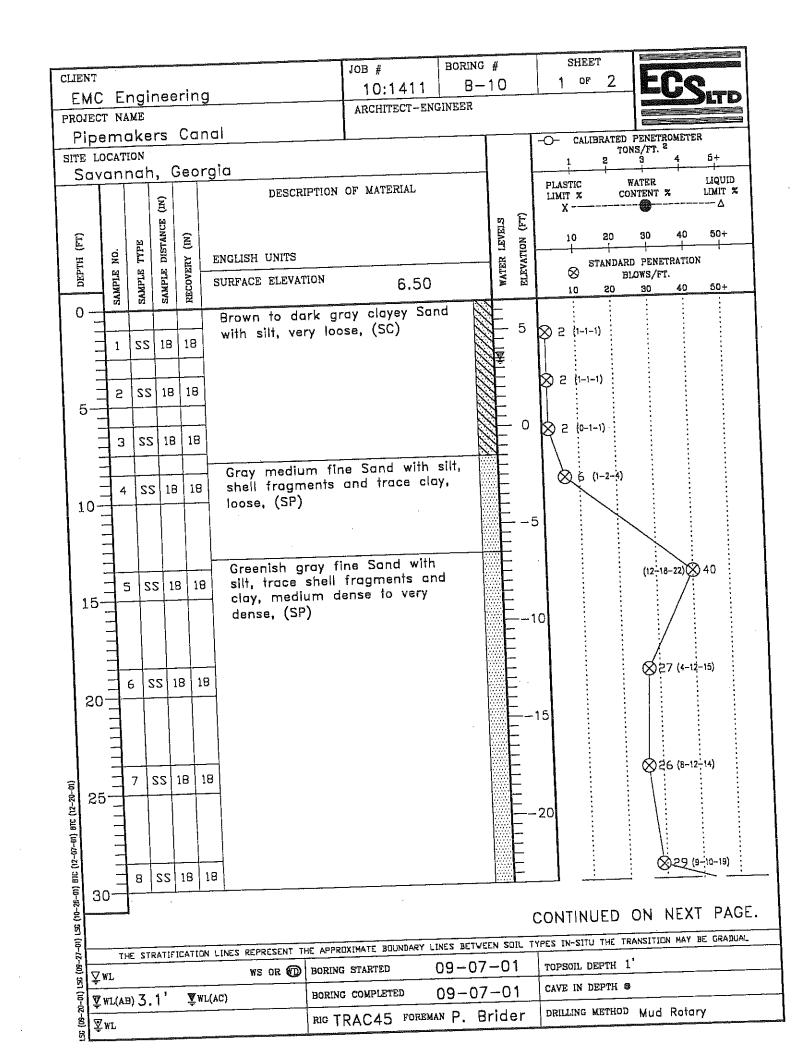


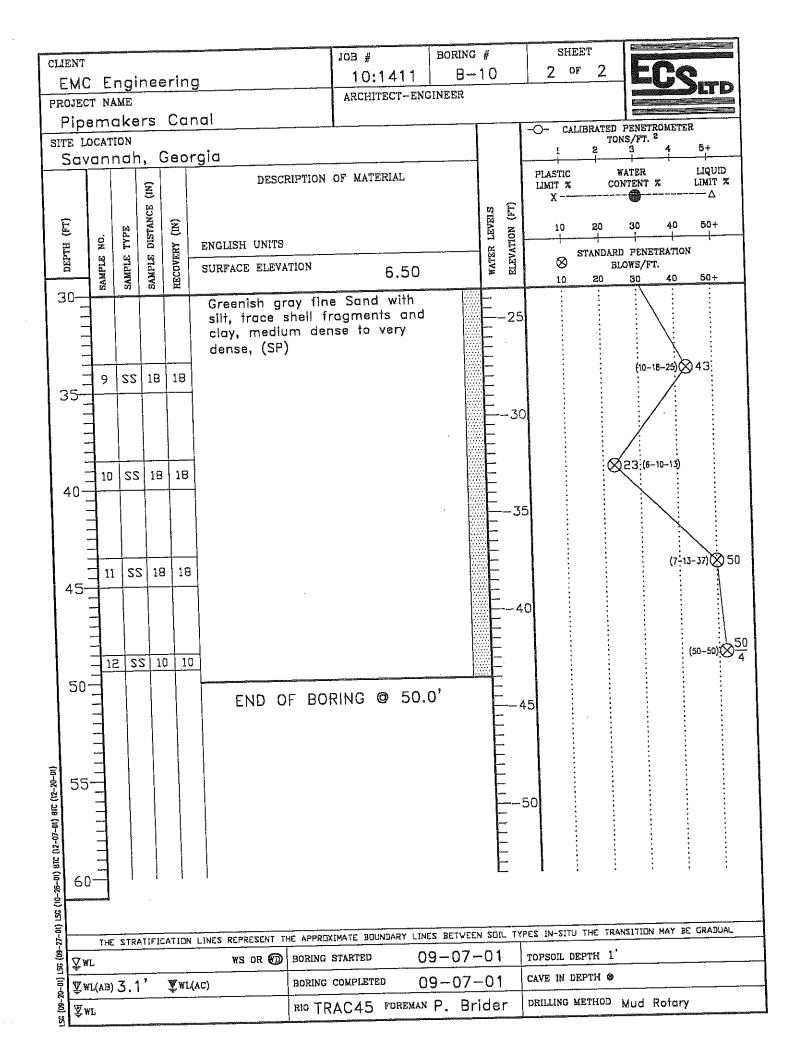


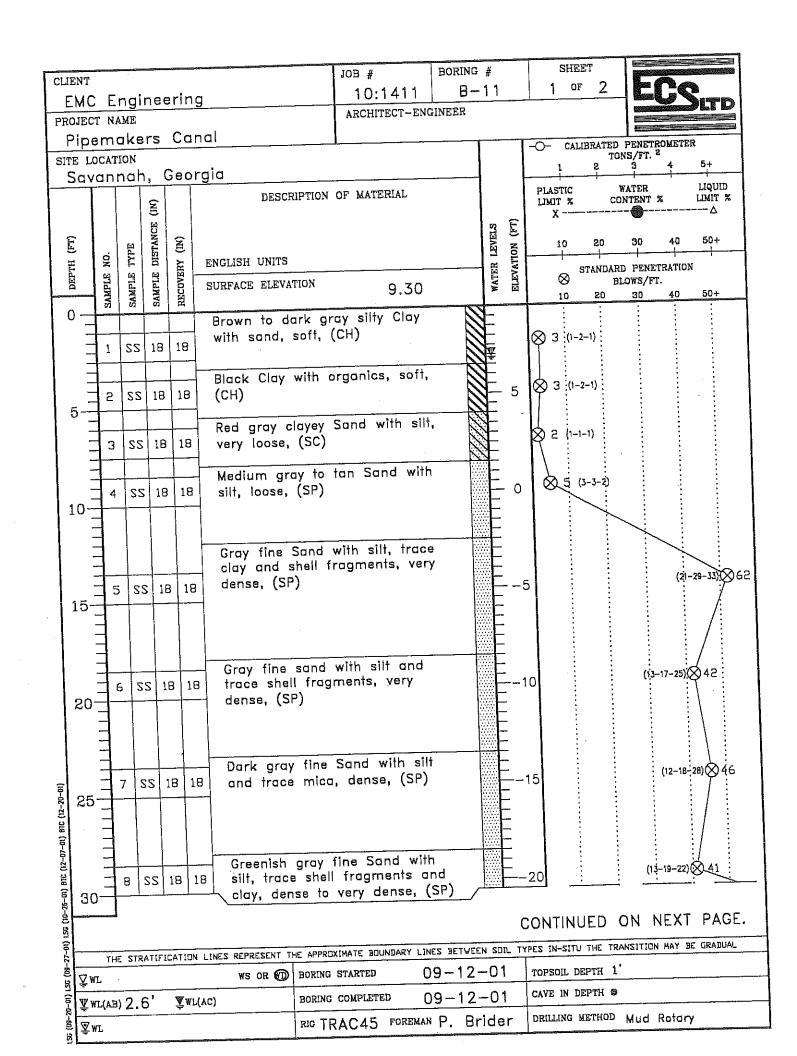
		JOB #	BORING	#	SHEET	
CLIENT		10:1411	B-		2 of 2	ECe
EMC Engineering PROJECT NAME		ARCHITECT-EN	SINEER		-	
Pipemakers Can						PENETROMETER
SITE LOCATION					-O- CALIBRATEI	ONS/FT. 2
Savannah, Georg					PLASTIC	WATER LIQUID
(NI)	DESCRIPTION	OF MATERIAL			LIMIT % C	ONTENT % LIMIT %
				ELS (FT)	X	
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	trace clay and st dense to very der	ieli tragmenis ise. (SP)	1 1000	F		
	delias to vary zer			E		50
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	Gray to green Sc and trace clay a	ind with silt	 			/ /
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			(%) (%)	E		
			33			
	Gray Sand with	silt, dense, (S	SP)	=		(6-12-29)⊗ 41
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	Green to gray S	and with silt	and			(13−38−50) <u>50</u>
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(16) SI	INES REPRESENT THE APPROX	THATE BOUNDARY I IN	ES BETVEE	N SOIL TY	PES IN-SITU THE TR	ANSITION MAY BE GRADUAL
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			9-06-		CAVE IN DEPTH &	
© ₩L(AB) 7.1' ¥WL(AC			Bridg		DRILLING METHOD	Mud Rotary
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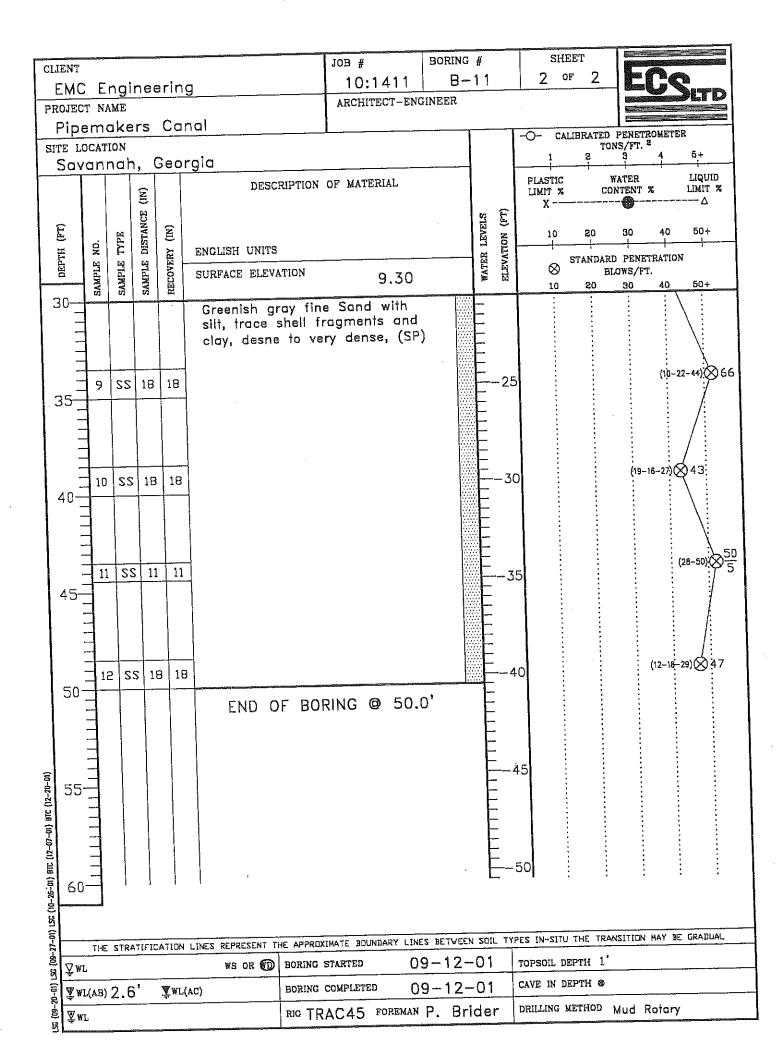


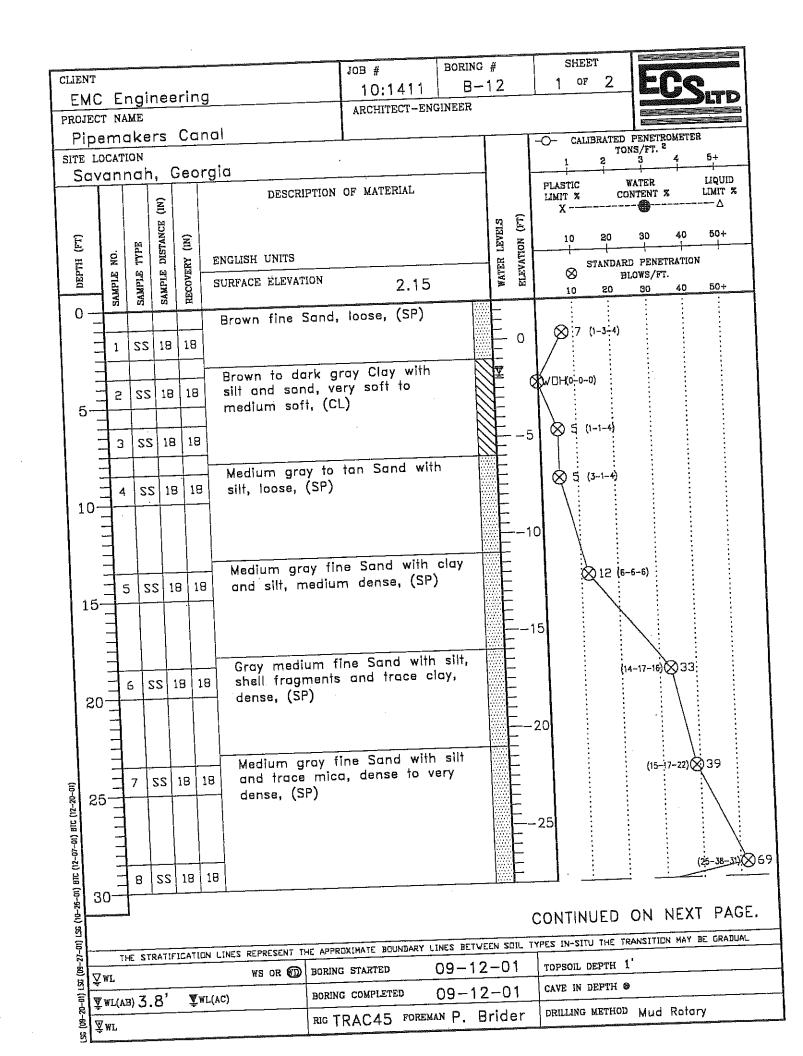
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PROJE			1100			ARCHITECT-EN	GINEER			
			re	Car	al	 				
SITE L						<u> </u>			CALIBRATED PENETROMETER TONS/FT. 2	
			. 0	Geor	raia				1 2 3 4 5+	
			(NE)		DESCRIPTION	OF MATERIAL			PLASTIC WATER LIQUID	
			- 1					ELS (FT)	χΔ	
оертн (гт)		TYPE	DISTANCE	(E)				MATER LEVELS RLEVATION (FT	10 20 30 40 50+	
H-H	DN 3	E 14	E DI	ERY	ENGLISH UNITS			WATER LEV	STANDARD PENETRATION	
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	-			Ì	medium dense to	dense, (SP)	937 937	T .		
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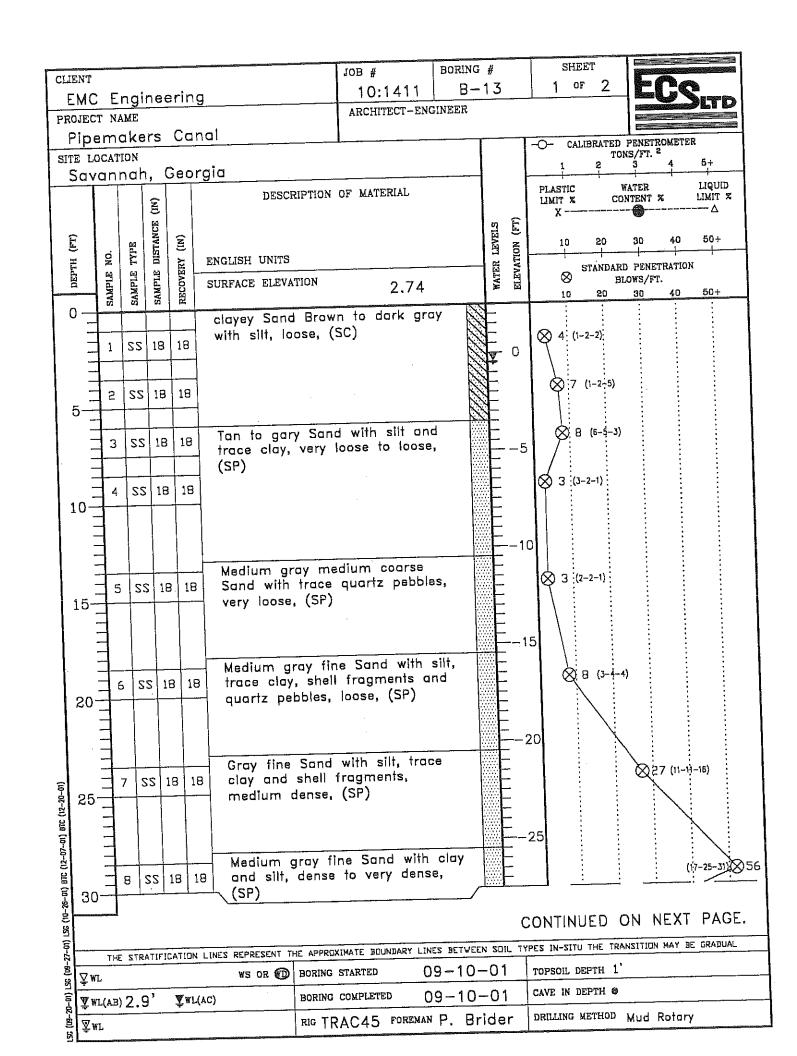




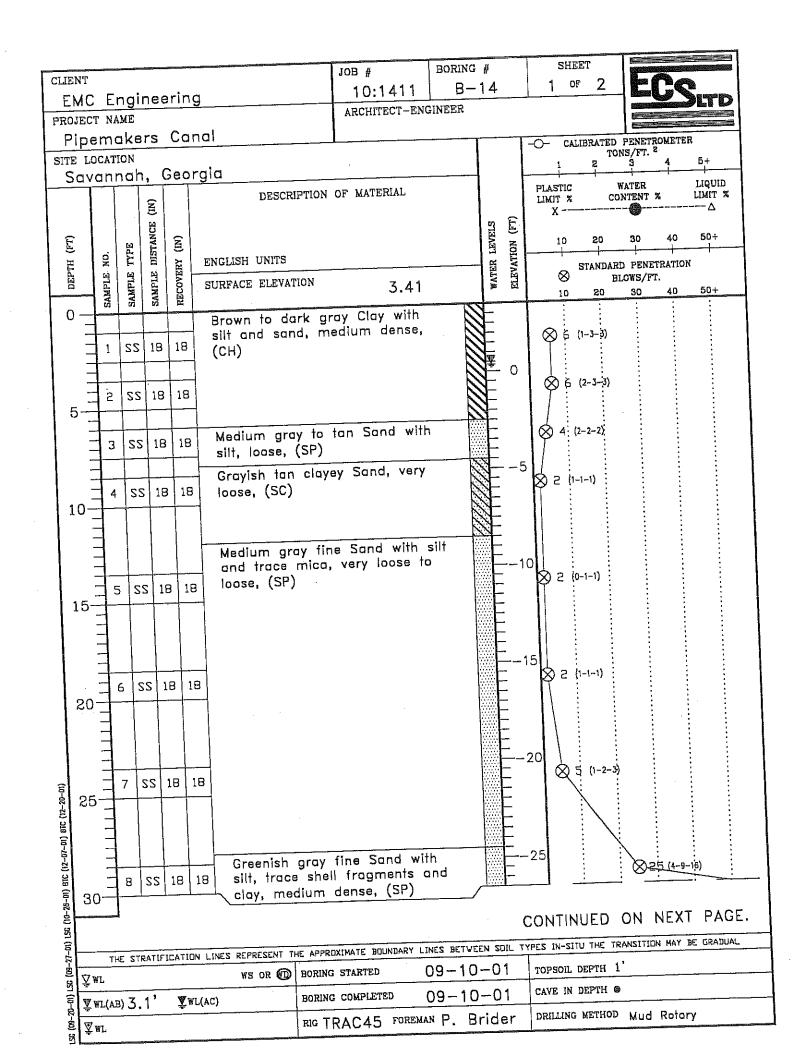


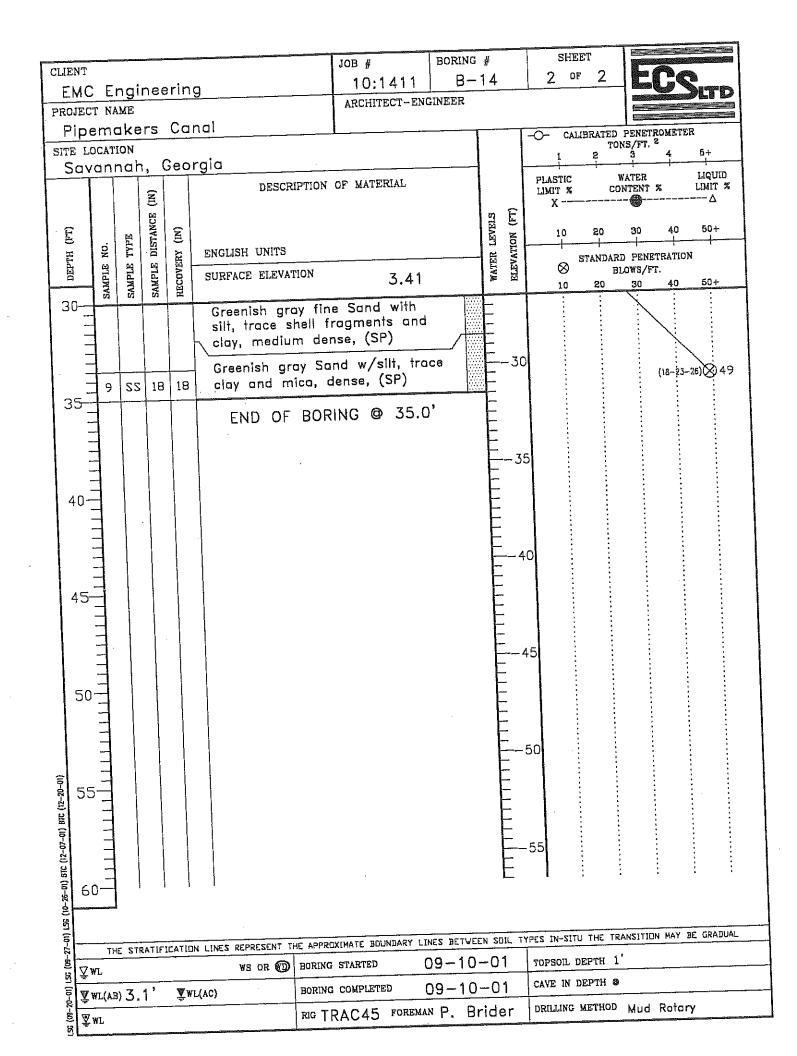


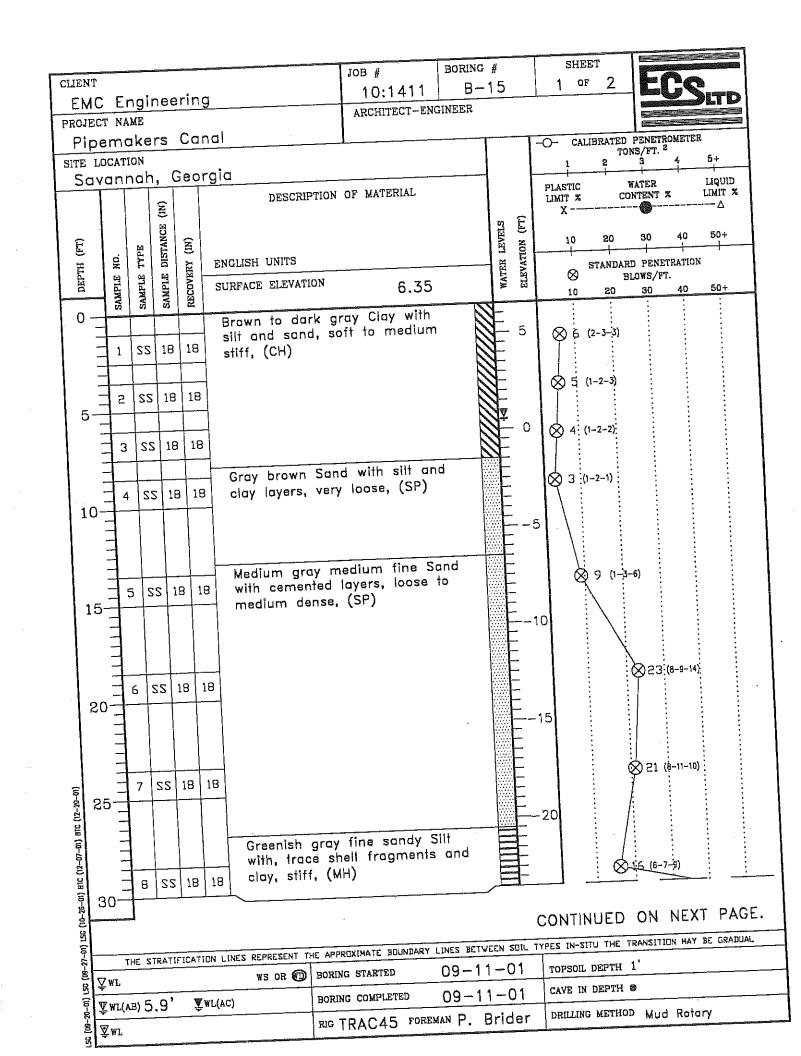
CLIENT	JOB # BORING	G # SHEET
EMC Engineering		-12 2 OF 2 - C
PROJECT NAME	ARCHITECT-ENGINEER	
Pipemakers Canal		-O- CALIBRATED PENETROMETER
SITE LOCATION		TONS/FT. 2 1 2 3 4 5+
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	ii V	——35 ——35
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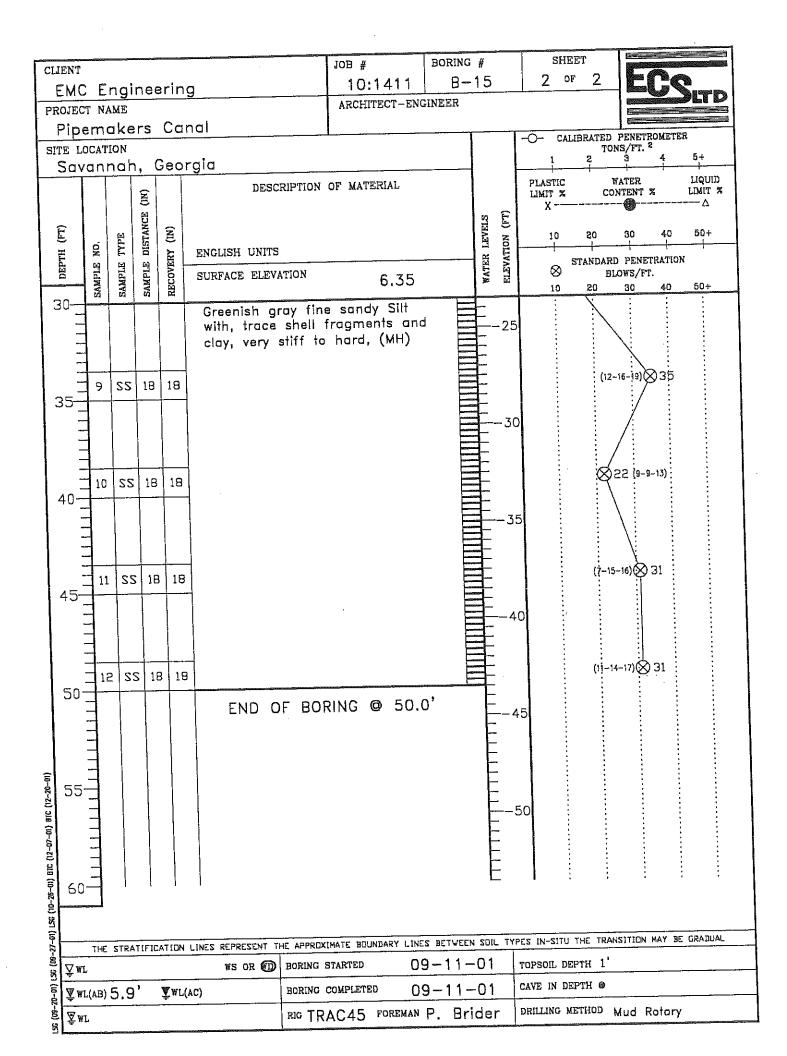


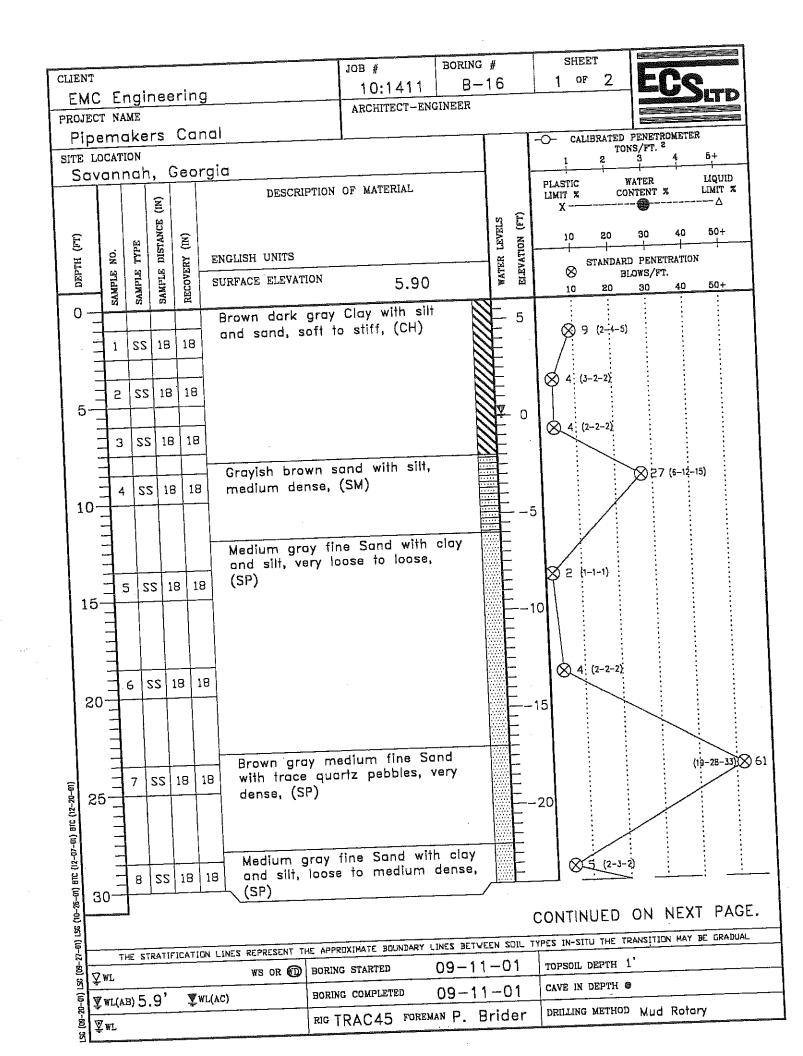
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EMC Engineering PROJECT NAME	ARCHITECT-ENG	INEER		
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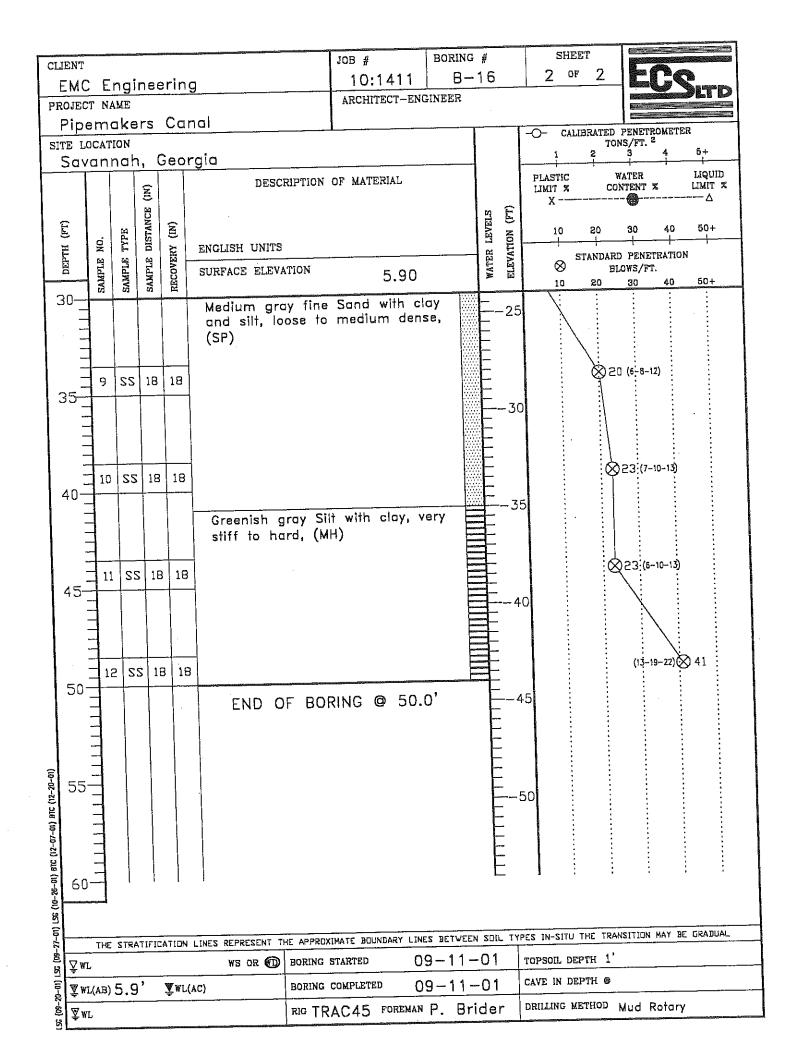


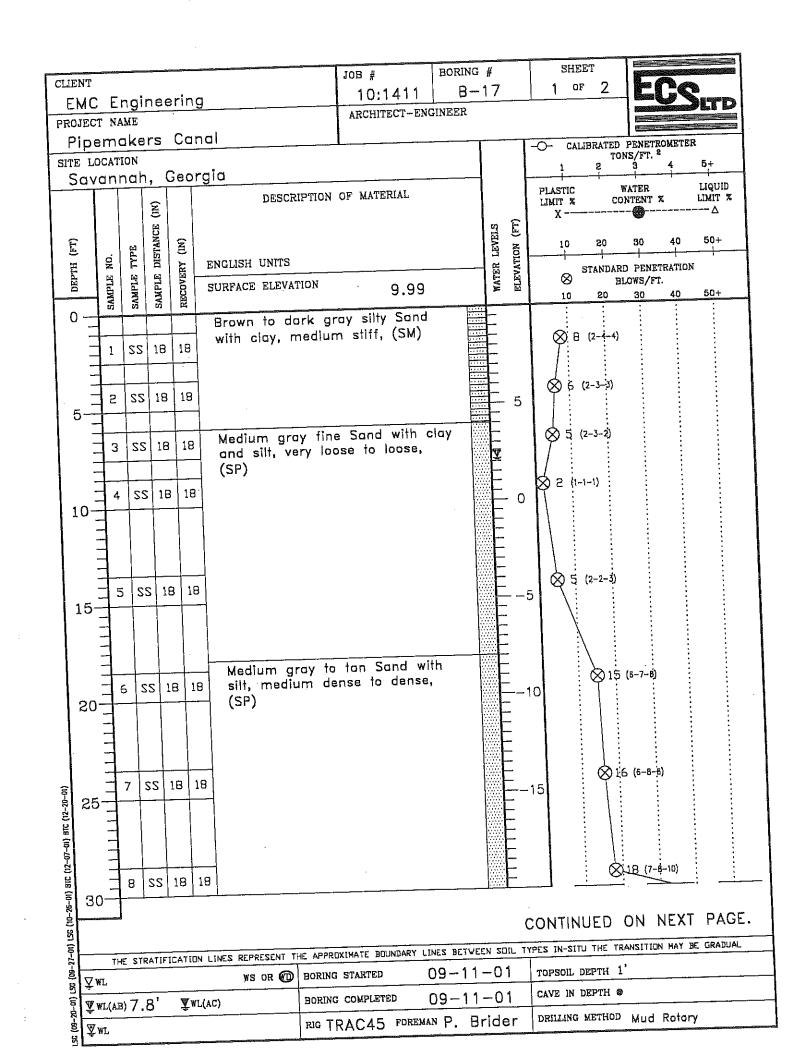




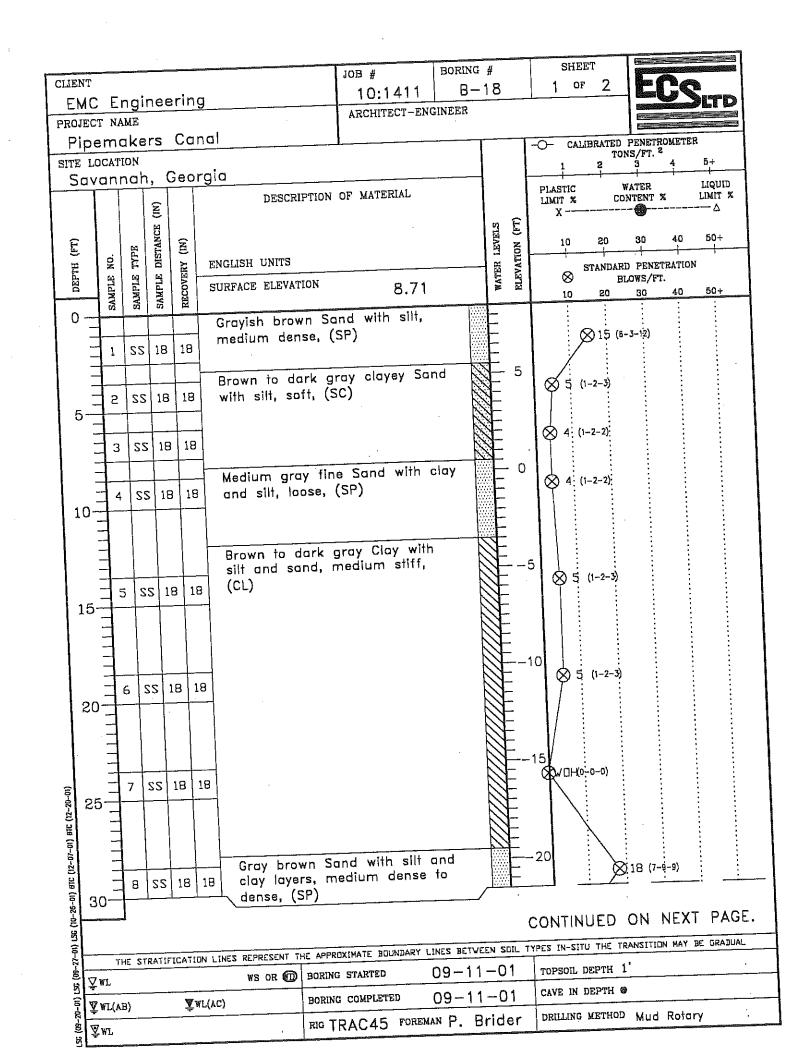








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Engineering Consulting Services, Ltd. Laboratory Testing Summary Atlanta, Georgia

Date: 12/20/01

1411 Project Number:

Project Name: Pipemaker's Canal

Summary By: REH

틸 Project Engineer:

Principal Engineer: RLG

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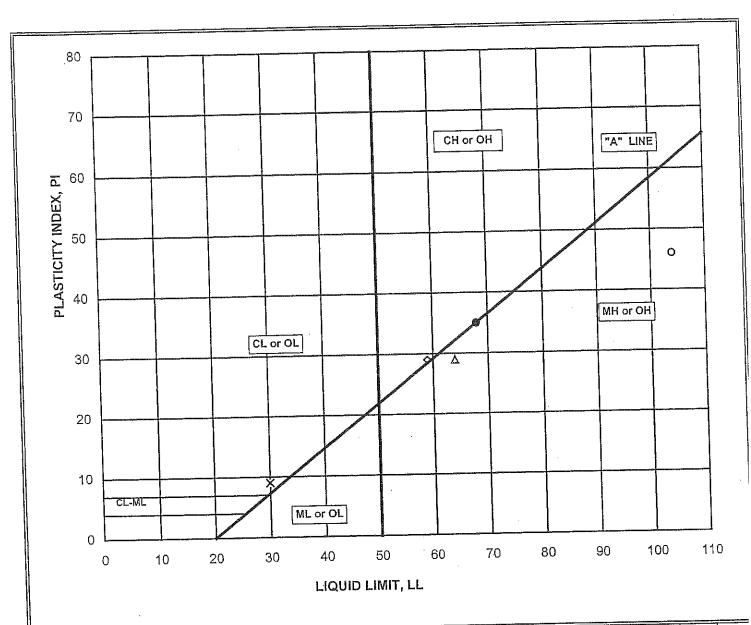
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V = Virginia Test Method

GS = Specific Gravity Con ≒ Consolidation DS = Direct Shear Hyd = Hydrometer

UCR = Unconfined Compression Rock UCS = Unconfined Compression Soil

CS = Cement Staibilization LS = Lime Stabilization



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Project: Pipemaker's Canal Engineering Consulting Services Ltd.

Project No.: 1411 Atlanta, Georgia

Date: Oct 8,2001 Plasticity Chart

Engineering Consulting Services, Ltd. Laboratory Testing Summary Atlanta, Georgia

1411 Project Number:

Project Name: Pipemaker's Canal

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Project Engineer:

Principal Engineer: RLG

Summary By: REH

Date: 12/20/01

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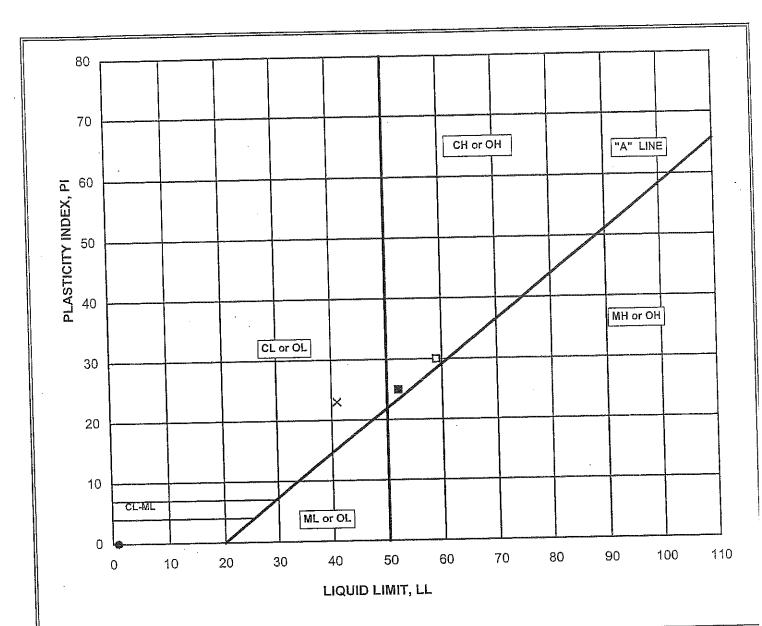
V = Virginia Test MethodS = Standard Proctor M= Modified Proctor SA = See Attached

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Project: Pipemaker's Canal Engineering Consulting Services Ltd.

Project No.: 1411 Atlanta, Georgia

Date: Oct 8,2001 Plasticity Chart

SECTION 02100 CLEARING

PART 1 - PRODUCTS

NONE IN THIS SECTION.

PART 2 - EXECUTION

2.01 CLEARING:

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

2.02 GRUBBING:

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

2.03 DISPOSAL:

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

2.04 EXISTING TREE PROTECTION:

A. All trees on the site will be retained except those with the clearing limits. No trees may be removed from the site prior to the preconstruction conference. All trees not to be removed will be protected from injury to their roots and to their tops to a distance three (3') beyond the drip-line and no grading, trenching, pruning, or storage of materials may

be located in this area except as provided by a stakeout acceptable to the Engineer. The Contractor will pay a penalty for any tree removed from the site which has not been marked specifically for removal. The Contractor also will pay a penalty for any tree which is damaged during construction. This applies to all trees on the site and the approach to the site whether or not they are shown on the plans.

- B. The Contractor shall not be held accountable for damages to trees resulting from placement of fill or removal of soil where such action is required by the contract documents. Any tree, the trunk of which is within 10 feet of any footing or trench, shall be exempt from these penalties except that the Contractor shall exercise all precautions to preserve even these trees as described in the General Conditions. The Contractor agrees to pay penalties as established below in the event that he or any of his subcontractors causes the damage, loss, or removal of trees designated to be retained under the provisions of the Contract.
- C. Additional requirements for tree protection are included in Section 02200 of these specifications.

2.05 REMOVE AND REPLACE FENCE:

A. Where existing fences must be removed, the materials shall be removed neatly and stored carefully. Reinstallation of the fence shall match the line and height of the existing fence, except as directed by the Engineer, when fences are to be replaced. The existing materials may be used, provided they are not damaged. Any damaged materials shall be replaced with new material equal to and matching in appearance the existing material. Fences that are required for security of private or public property shall be reinstalled before the end of the workday in which they were removed.

2.06 REMOVE AND REPLACE SHRUBS AND GROUNDCOVERS:

A. Existing shrubs and groundcovers that are outside the clearing limits shall be preserved and protected. Items that must be disturbed or relocated shall be carefully removed so as to prevent damage to the root systems, stored, and replanted as soon as possible after construction in the area is completed. Heeling in, mulching and regular watering are minimum preservation treatments.

2.07 REMOVE AND REPLACE SIGNS:

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

END OF SECTION

SECTION 02200 EARTHWORK

PART 1 - PRODUCTS

1.01 MATERIALS:

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

PART 2 - EXECUTION

2 01 TOP SOIL

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

2.02 EXCAVATION

- A. Excavation is unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
- B. All excavation shall be in conformity with the lines, grades and cross sections shown on the Plans or established by the Engineer. All suitable material removed in the excavation shall be used as far as practicable in formation of embankment, subgrades and shoulders and at such other places as may be indicated on the drawings or directed by the Engineer.
- C. Unauthorized Excavation consists of removal or loosening of materials beyond indicated subgrade elevations or dimensions without specific directions of the

Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, and as specified herein shall be at Contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavations by extending indicated bottom elevation of footing or base to the bottom of the excavation, without altering required top elevation.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.

D. Additional Excavation: When excavation has reached required subgrade elevations and unsuitable materials exist, carry excavations deeper and replace excavated materials as directed by the Engineer. Dispose of unsuitable material as directed by the Engineer.

The Contractor shall dispose of unsuitable and surplus materials except where the Engineer permits the use of such fill slopes, or unless specific disposal areas are shown on the Plans.

E. Dewatering: Prevent surface water and subsurface or ground water flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of roadway subgrades and foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

The Contractor will be responsible for all damage incurred in handling water conditions

- F. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage and to minimize erosion. Locate and retain soil materials away from edge of excavations. Do not store within drip-line of trees indicated to remain.
- G. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending of sufficient distance from footings and foundations to permit placing and removal of concrete framework, installations to permit placing and removal of concrete framework, installation of services, other constructions, and for inspection.

In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

H. Proper drainage shall be maintained at all times.

Perform excavation within drip-line of large trees to remain by hand or by other means which will result in (1) cleanly twisting, tearing, breakage or other injury to roots remaining on the tree. Protect existing trees and shrubs that are outside the clearing limits at all times during earthwork operations. No trees beyond the clearing limits shall be removed without prior approval of the Owner.

2.03 BORROW

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

2.04 GROUND SURFACE PREPARATION FOR FILL

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

2.05 BACKFILL/FILL PLACEMENT OPERATIONS:

A. During the placement and compaction of backfill, the contractor shall take all necessary measures to place backfill and compact it at the proper moisture content so that there will be no pumping of the backfill during placement. No fill shall be placed on top of any fill material that is found to be pumping even if the fill that is being placed is meeting and passing the compaction requirements. If any fill is found to be pumping, it shall be stabilized by the contractor at no additional cost or time to the Owner before placing the next lift. Any backfill lifts shall be no more than 12" but shall not exceed the capacity of compaction equipment.

2.06 FINISH GRADING

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

D. Ditches shall be finished smooth to reduce erosion and permit adequate drainage.

2.07 DISPOSAL OF WASTE MATERIAL

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

2.08 PROTECTION

- A. The Contractor shall be responsible for protection of low grade utilities shown on the drawings or indicated to him by the Owner at all times during earthwork operations.
- B. Graded areas shall be protected from traffic, erosion, settlement, or any washing away that may occur from any cause prior to acceptance.
- C. Any repair or reestablishment of grades prior to final acceptance shall be at the Contractors expense.

PART 3 - TESTING

3.01 COMPACTION TESTING

- A. General: Compaction of earth fill and all pavement subgrades shall be performed to the percentage of maximum standard of modified dry densities and to the depths as indicated below:
- B. Roadway Subgrades: 100% Standard (ASTM Test D-698) Compact top 12" in Parking areas and top 15" in Driveways.
- C. Subgrades under pavement removed and replaced for utility installations: 100% Standard (ASTM Test D-698) to 12 inch depth.
- D. Fill under all structures, slabs, and backfill behind walls: 98% Standard (ASTM Test D-698).
 - 1. Subgrade below Sidewalks and Curb and Gutters: 97% Standard (ASTM Test D-698) Compact top 6 inches.
 - 2. Unpaved Areas to be grassed, sodded or landscaped: 90% Standard (ASTM Test D-698) full depth.

All other areas not described above: as directed by the Engineer.

E. Moisture Control: All compaction shall be performed at material moisture contents within 3 percentage points, plus or minus, of optimum. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove, and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing until moisture content to a satisfactory value.

- F. Field Density Tests: Tests shall be made in accordance with ASTM Method D-1556 and/or ASTM 2922. Minimum testing frequency shall be based on the most stringent of the following requirements (as applicable). Additional tests may be required by the Engineer in areas he deems critical.
 - One every layer of fill,
 - One every 200 cubic yards of fill,
 - One every 250 square yards of roadway subgrade of fill,
 - One every building subgrade
 - Areas where degree of compaction is in question

If in opinion of Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, additional compaction and testing will be required.

SECTION 02270

EROSION AND SEDIMENTATION CONTROL

PART 1 - PRODUCTS

1.01 CHEMICALS FOR DUST CONTROL:

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

1.02 SILT FENCE FABRIC:

A. Silt fence fabric shall be a woven fabric certified to meet FHWA's Task Force 25 minimum roll average per ASTM-D-4354. The geotextile fabric shall be a woven sheet of plastic yarn, of a long chain synthetic polymer composed of at least 85% by weight propylene, ethylene, amide, ester, or vinylidene chloride, and shall contain stabilizer and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultra-violet and/or heat exposure. The fabric should be finished so that the filaments will retain their relative position with respect to each other. The fabric shall be free of defects, rips, holes, or flaws.

The fabric shall meet the following requirements:

Woven Fabrics

Grab Strength 90 lbs.

Mullen Burst Strength 250 lbs.

UV Resistance 90%

Permittivity 15 gal/min/sf.

Product shall be equivalent to EXXON GTF-180 Fabric or AMOCO Woven Construction Fabric No. 1380.

Silt fencing shall not be placed in waterways or areas of concentrated flow. Type "C" wire-reinforced silt fence shall be used where fill slopes exceed 3:1.

1.03 HAY BALES:

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

1.04 PLASTIC FILTER FABRIC:

A. Plastic filter fabric shall be a pervious sheet of plastic yarn, of a long chain synthetic polymer composed of at least 85% by weight propylene, ethylene, amide, ester, or vinylidene chloride, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultra-violet and/or heat exposure. The cloth should be finished so that the filaments will retain their relative

position with respect to each other. The cloth shall be free of defects, rips, holes, or flaws. During shipment and storage, the filter fabric shall be wrapped in a protective material. The fabric shall meet the following requirements.

Woven Fabrics:

Tensile Strength (any direction)

Bursting Strength

Elongation Before Breaking

Permittiviy

200 lbs.

400 psi

15%

4 gal/min/sf

Product shall be equivalent to EXXON GTF-400E or AMOCO Woven Construction Fabric No. 2002.

B. Seams - Fabric may be sewn together with thread of a material having the same chemical requirements as the material forming the fabric or shall be bonded by cementing or by heat. The strength of the seams shall be equal to that of the unaged fabric. Fabrics to be used under Rip-Rap are allowed to be bonded or sewn together forming sections not less than six feet wide.

1.05 STONE:

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

1.06 RIP-RAP:

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

PART 2 - EXECUTION

2.01 GENERAL:

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

2.02 BUFFER ZONE:

A. Buffer zone is an undisturbed zone or "green belt" surrounding the site, bordering streams or environmentally sensitive areas. Contractors shall not trespass on or in these areas unless he has prior acceptance by the Owner. Trespass in these areas will not be permitted unless there is no alternative method to accomplish the task. Cost shall not come into consideration in the evaluation of this type of request.

2.03 CONSTRUCTION EXIT:

A. Construction exits shall be located at the exits of the project to remove mud from the tires of all vehicles leaving the site. The construction exit shall consist of a minimum of six (6) inch thick pad of washed stone meeting Section AASHTO M288-96, Section 7.4, Stabilization Requirements. The aggregate size shall be in accordance with National Stone Association R-2 (1 ½"-3 ½" diameter in size and of the necessary length to accomplish the task for which it is intended. The pad may require periodic top dressing with 2" of similar stone. Geotextiles are required and a Separation/Stabilization fabric to keep the aggregate stone from becoming contaminated with sub grade soils. The geotextile shall be based on AASHTO M288-96 Specifications. The entrance area must be excavated to a depth of 3 inches and be cleaned of all vegetation and roots. Geotextile underliner must be placed the full length and width of the entrance.

2.04 DISTURBED AREA STABILIZATION:

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

Conventional Seeding Equipment - Grade, shape and smooth where needed to provide for safe equipment operation at seeding time and for maintenance purposes. The lime and fertilizer in dry form will be spread uniformly over the area immediately before seedbed preparation. A seedbed will be prepared by scarifying to a depth of 1 to 4 inches as determined on site. The seedbed must be well pulverized, smoothed and firmed. Seeding will be by either a cultipacker-seeder, drill, rotary seeder, mechanical seeder, hand seeder or hydro-seeding. Seed will be distributed uniformly over a freshly prepared seedbed and covered lightly. Within 24 hours after seeding, with exception to hydro-seeding, straw or hay mulch will be spread uniformly over the area, leaving about 25 percent of the ground surface exposed. Mulch will be spread with blower-type mulch equipment or by hand and anchored immediately after it is spread. A disk harrow with the disk set straight or a special packer disk may be used to press the mulch into the soil.

Temporary and permanent seeding shall be in accordance with the seeding schedule shown on the construction plans.

2.05 DUST CONTROL ON DISTURBED AREAS:

A. Dust raised from vehicular traffic will be controlled by wetting down the access road with water or by the use of a deliquescent chemical, such as calcium chloride, if the relative humidity is over 30%. Chemicals shall be applied in accordance with the manufacturer's

recommendations. Calcium chloride, anionic asphalt emulsion, latex emulsion or resinin-water emulsion may be used for dust control.

2.06 SEDIMENT BARRIER:

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

Bales shall be placed in a single row, lengthwise, on the contour and embedded in the soil to a depth of four (4) inches. Bales must be securely anchored in place by stakes or bars driven through the bales.

2.07 SILT FENCE:

A. Silt fence shall be placed at the approximate location shown on the plans and installed in accordance with the Georgia Erosion and Sediment Control Manual recommendations. Type "C" wire-reinforced silt fence shall be used where fill slopes exceeds 3:1. Silt fence shall not placed in waterways or areas of concentrated flow.

2.08 STONE PLACEMENT:

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

2.09 RIP-RAP:

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

2.10 STORM DRAIN OUTLET PROTECTION:

A. Storm drain outlets shall have a rock or other energy dispersion device associated with it, as called for on the drawings.

To prevent undermining of the rip-rap apron a separation geotextile shall be used beneath the entire length of apron. The geotextile shall be specified in accordance with AASHTO M288-96, Section 7.5, "Permanent Erosion Control Requirements".

2.11 INLET SEDIMENT TRAP:

A. The Contractor shall erect silt fence at and around inlets under construction. Sufficient quantities of selected devices shall be utilized to completely protect the entire length of the inlet.

2.12 SITE RESTORATION:

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

2.13 TOPSOIL:

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

2.14 SITE SAFETY:

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

END OF SECTION

SECTION 02400 STORM DRAINAGE

PART 1 - PRODUCTS

1.01 PIPE:

- A. Concrete Pipe Shall be reinforced Class III and shall conform to ASTM Specification C-76.
 - Joints Shall be water tight flexible rubber gasket and shall meet ASTM Specification C-443 and AASHTO M-198.
 - Filter Fabric Mirafi 140N or equivalent.
 - a. Concrete pipe shall be designed with no lifting holes. The lifting holes will jeopardize the structural integrity and hydraulic capacity of the pipe once installed.
 - b. A minimum depth of 12 inches cover is required for RCP Class III.

1.02 DRAINAGE STRUCTURES:

A. Details - See plans.

Drainage structures include headwalls and inlets.

- B. Concrete Reinforced and non-reinforced.
 - 1. Shall have a minimum compressive strength of 3,000 PSI in 28 days. Concrete shall be ready mixed conforming to ASTM C-94.
 - 2. Reinforcing steel shall conform to ASTM A-615, Grade 60. Mesh reinforcing shall conform to ASTM A-185. Reinforcing shall be covered by a minimum 1" of concrete for covers and 1-1/2" for walls and flooring and 3" where concrete is deposited directly against the ground.
 - 3. Expansion joint filler materials shall conform to ASTM Specification D-1751, to AASHTO M-90 or shall be resin impregnated fiberboard conforming to the physical requirements of ASTM Specification D-1752.

C. Mortar:

- 1. Mortar used at connections of pipe and drainage structures shall be composed of one part by volume of portland cement and two parts of sand. The portland cement shall conform to ASTM C-150, Type I or II. The sand shall conform to AASHTO Standard M-45 and shall be of an accepted gradation. Hydrated lime may be added to the mixture of sand and cement in an amount equal to 25% of the volume of cement used. Hydrated lime shall conform to ASTM C-141, Type A. The quantity of water in the mixture shall be sufficient to produce a workable mortar, but shall in no case exceed 7 gallons of water per sack of cement. Water shall be clean and free of harmful acids, alkalies and organic impurities. The mortar shall be used within 30 minutes from the time the ingredients are mixed with water.
- D. Brick Masonry Brick shall conform to ASTM Specification C-62, Grade SW or C-55, Grade P-I or P-II. Mortar for jointing and plastering shall consist of one part portland cement and two parts fine sand. Lime may be added to the mortar in the amount not more than 25% of the volume of cement. The joints shall be completely filled and shall be smooth and free from surplus mortar on the inside of the structure. Brick structures shall be plastered with ½-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

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course every sixth course, and for round structures, brick shall be laid radially with every sixth course a stretcher course.

- E. Precast Shall be constructed in accordance with ASTM C-478 and conform to the details on the project drawings.
 - 1. Joints Shall be tongue and groove sealed with flexible gaskets or mastic sealant. Gaskets shall be O-Ring or Type A or B "Tylox" conforming to A.S.T.M. C-443 and mastic shall be "Ram-nek", or equivalent, with primer. The primer shall be applied to all contact surfaces of the manhole joint at the factory in accordance with the manufacturer's instructions.
 - 2. Steps Shall be aluminum alloy equivalent to Neenah R-1982-W or polypropylene equivalent to M.A. Industries, Type PS-1 or PS-1-PF. The steps shall be installed at the manhole factory and in accordance with the recommendations of the step manufacturer. Manholes will <u>not</u> be acceptable if steps are not installed accordingly, and property aligned vertically.
 - 3. Leaks No leaks in the manholes or inlets will be acceptable. All repairs made from inside the manhole shall be made with mortar composed of one part portland cement and two parts clean sand; the mixing liquid shall be straight bonding agent equivalent to "Acryl 60".
- F. Frames, Covers & Grates shall conform to the details shown on the project drawings. Grates in pavement and in other flush-mounted type surfaces shall be of a "bicycle-safe" configuration consisting of 45 degrees diagonal bars or slotted grates with a maximum clear opening of 1" and a maximum length of 4". In any case, the long dimension of the openings shall be located transverse to the direction of traffic.

1.03 STONE BACKFILL:

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

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

1.04 SAND BACKFILL:

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

1.05 BORROW:

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

PART 2 - EXECUTION & TESTING

2.01 LOCATION AND GRADE:

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

2.02 EXCAVATION FOR PIPE:

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

2.03 TRENCHING FOR PIPE:

- A. Trenching for Pipe Shall be as indicated on the drawings.
- B. Removal of Unstable Material Where wet or otherwise unstable soil, incapable of supporting the pipe, as determined by the Engineer, is encountered in the bottom of the trench, such material shall be removed to the depth required and replaced to the proper grade with select material, compacted as provided in the paragraph "BACKFILLING PIPE", hereinafter.

2.04 BRACING AND SHEETING:

A. The sides of all trenches shall be securely held by stay bracing, or by skeleton or solid sheeting and bracing, as required by the soil conditions encountered, to protect the adjoining property and for safety. Where shown on the drawings or where directed by the Engineer, the Contractor must install solid sheeting to protect adjacent property and utilities. The sheeting shall be steel or timber and the Contractor shall submit design data, including the section modules of the members and the arrangement for bracing at various depths, to the Engineer for review before installing the sheeting. It shall penetrate at least 3 feet below the pipe invert. Sheeting shall be removed in units when the backfilling has reached the elevation necessary to protect the pipe, adjoining property and utilities.

When sheeting or shoring above the elevation cannot be safely removed, it shall be left in place. Timber left in place shall be cut off at least 2 feet below the surface. No separate payment shall be made for bracing and sheeting except where shown on the drawings or authorized by the Owner.

2.05 BEDDING:

A. The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe. The trench bottom shall be dewatered before laying pipe by the use of well points. Where the nature of the soil is such that well points will not remove the water, the Contractor shall construct sumps and use sump pumps to remove all water from the bedding surface. The pipe shall be carefully bedded in a foundation that has been accurately shaped and rounded to conform to the lowest one-

fourth (1/4) of the outside portion of circular pipe, or to the lower curved portion of arch pipe for the entire length of the pipe. When necessary, the bedding shall be tamped to compact it to 98% of optimum density. Bell holes and depressions for joints shall be only of such length, depth and width as required for properly making the particular type joint.

B. Stone Backfill - Where, in the opinion of the Engineer, the subgrade of the pipe trench is unsuitable material, the Contractor shall remove the unsuitable material six inches (6") deep and furnish and place stone backfill in the trench to stabilize the subgrade. The stone shall be 3/4-inch graded but variations in the gradation will be permitted upon acceptance by the Engineer. Attention is invited to the fact that the presence of water does not necessarily mean that stone backfill is required. If well points or other types of dewatering will remove the water, the Contractor shall be required to completely dewater the trench in lieu of stone backfill. Stone backfill will be limited to areas where well pointing and other conventional methods of dewatering will not produce a dry bottom. Pipe shall be carefully bedded in the stone as specified above.

2.06 PLACING PIPE:

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

2.07 JOINTS IN PIPES:

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

2.08 BACKFILLING PIPE:

A. After the bedding has been prepared and the pipe installed, select material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of the pipe in layers not exceeding six-inches (6") in compacted depth. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to insure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compaction shall continue until the fill has reached an elevation of at least 12-inches above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical tampers or rammers in layers not to exceed 8-inches. Soil density relations tests and

moisture density relations tests may be performed by a testing firm or laboratory and shall be taken as directed in conformance with the compaction requirements specified in subparagraph "COMPACTION" hereinafter. Deficiencies shall be corrected by the Contractor without additional cost to the Owner. Where it is necessary in the opinion of the Owner, any sheeting and/or portions of bracing used shall be left in place. Untreated sheeting shall not be left in place beneath structures or pavements.

- B. For pipe placed in fill sections, the backfill material and the placement and compaction procedures shall be as specified above and in subparagraph "COMPACTION" hereinafter. The fill material shall be uniformly spread in layers longitudinal on both sides of the pipe, not exceeding six inches (6") in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12-inches above the top of the pipe shall extend a distance of not less than twice the outside diameter on each side of the pipe or 12 feet, which ever is less. After the backfill has reached at least 12-inches above the top of the pipe, the remainder of the fill shall be placed and thoroughly compacted in layers not exceeding 8-inches.
- C. In compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert at any stage of the construction shall be at the Contractor's risk. Any pipe damaged thereby shall be repaired or replaced at the expense of the Contractor.

2.09 COMPACTION:

A. Soil and compaction tests shall be made by a testing laboratory accepted by the Owner and shall be made at the Owner's direction and expense. Failed tests shall be rescheduled at the Engineer's direction and retesting shall be paid for by the Contractor. Laboratory tests of the soil shall be made in accordance with ASTM D-1556 or ASTM 2922. Results of the tests shall be furnished to the Owner, Engineer and Inspector by the testing laboratory.

The minimum number of tests required shall be:

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

Backfill over pipe in non-traffic areas . . 1 per 200 lf or less for each 6 feet of depth or portion thereof.

The minimum percent of compaction of the backfill material (in accordance to AASHTO T-99) shall be the following:

In traffic areas . . . 100%

In non-traffic areas . 95%

2.10 DRAINAGE STRUCTURES:

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

2.11 MANHOLES:

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

2.12 LEAKAGE:

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

2.13 CLEANING:

A. Before acceptance of the sewer system it shall be tested and cleaned to the satisfaction of the Owner. Where any obstruction is met, the Contractor will be required to clean the sewers by means of rods and swabs or other instruments. The pipe line shall be straight and show a uniform grade between the manholes.

2.14 CLOSING PIPE:

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

2.15 REGRADE EXISTING DITCH:

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

2.16 CONSTRUCT NEW DITCHES:

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

END OF SECTION

SECTION 02830 - CHAIN LINK FENCING AND GATES

PART I - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Special Conditions apply to work of this section.

DESCRIPTION OF WORK:

Extent of chain link fence and gates indicated on drawings.

QUALITY ASSURANCE:

<u>Provide</u> chain link fence and gates as complete units supplied by a single source including necessary erection accessories, fittings and fastenings.

SUBMITTALS:

<u>Product Data</u>: Submit manufacturer's technical data, and installation instructions for metal fencing, fabric, gates, and accessories.

PART II - PRODUCTS

GENERAL:

<u>Dimensions</u> indicated for pipe, roll-formed, and H-sections are outside dimensions, exclusive of coatings.

Steel Fabric:

<u>Fabric</u>: No. 9 ga. (0.148" + 0.005") size steel wires, 2" mesh with top selvages knuckled for fabric 60" high and under, and both top and bottom selvages twisted and barbed for fabric over 60" high.

Furnish one-piece fabric widths for fencing up to 12' high.

<u>Fabric Finish</u>: Galvanized, ASTM A 392, Class II, with not less than 2.0 oz. zinc per sq. ft. of surface.

Framing and Accessories:

Steel Framework, General: Galvanized steel, ASTM A 123, with not less than 1.8

CHAIN LINK FENCING AND GATES - 02830 - 1

oz zinc per sq. ft. of surface.

Fittings and Accessories: Galvanized, ASTM A 153, with zinc weights per Table

Fittings and Accessories: Galvanized steel.

End, Corner and Pull Posts: Minimum sizes and weights as follows:

Up to 6' fabric height, 2.375" OD steel pipe, 3.65 lbs. per lin. ft.

Over 6' fabric height, 2.5" OD steel pipe, 3.65 lbs. per lin. ft.

<u>Line Posts:</u> Space 10' o.c. maximum, unless otherwise indicated, of following minimum sizes and weights.

Up to 6' fabric height, 1.90" OD steel pipe, 2.70 lbs. per lin. ft.

6' to 8'fabric height, 2.375" OD steel pipe, 3.65 lbs. per lin. ft.

Over 8' fabric height, 2.875" OD steel pipe, 5.79 lbs. per lin. ft.

Leaf Width	Gate Post	lbs./lin. ft.
Up to 6'	3.5" x 3.5" rolled-formed section or 2.875" OD pipe	4.85 5.79
Over 6' to 13' Over 13' to 18' Over 18'	4.000" OD pipe 6.625" OD pipe 8.625" OD pipe	9.11 18.97 28.55

Top Rail: Manufacturer's longest lengths, with expansion type couplings, approximately 6" long, for each joint. Provide means for attaching top rail securely to each gate corner, pull and end post.

1.66" OD pipe, 2.27 lbs. per ft. or 1.625" \times 1.25" roll- formed sections. 1.35 lbs. per ft.

1.66" OD pipe, 0.86 lbs. per ft.

Tension Wire: 7-gage, coated coil spring wire, metal and finish to match fabric.

Locate at bottom of fabric.

Wire Ties: 11 ga. galvanized steel or 11 ga. aluminum wire, to match fabric core

CHAIN LINK FENCING AND GATES - 02830 - 2

material.

<u>Post Brace Assembly</u>: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric. Use same material as top rail for brace, and truss to line posts with 0.375" diameter rod and adjustable tightener.

<u>Post Tops</u>: Provide weathertight closure cap with loop to receive tension wire or top rail; one cap for each post.

Stretcher Bars: One-piece lengths equal to full height of fabric, with minimum cross-section of 3/16" to 3/4". Provide one stretcher bar for each gate and end post, and 2 for each corner and pull post, except where fabric is integrally woven into post.

Stretcher Bar Bands: Space not over 15' o.c., to secure stretcher bars to end, corner, pull and gate posts.

Barbed Wire Supporting Arms: Manufacturer's standard barbed wire supporting arms, metal and finish to match fence framework, with provision for anchorage to posts and attaching 3 rows of barbed wire to each arm. Supporting arms may be either attached to posts or integral with post top weather cap and must be capable of withstanding 250 lbs. downward pull at outermost end. Provide following type:

Single 45 deg. arm: for 3 strands barbed wire, one for each post.

Barbed Wire: 2 strand, 12-1/2 ga. wire with 14-ga. 4-point barbs spaced not more than 5" o.c.; metal and finish to match fabric.

GATES:

<u>Fabrication</u>: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding or with special fittings and rivets for rigid connections, providing security against removal or breakage connections. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware and accessories. Space frame members maximum of 8' apart unless otherwise indicated.

Provide same fabric as for fence, unless otherwise indicated. Install fabric with stretcher bars at vertical edges and at top and bottom edges. Attach stretcher bars to gate frame at not more than 15" o.c.

Install diagonal cross-bracing consisting of 3/8" diameter adjustable length truss

rods to gates to ensure frame rigidity without sag or twist.

Where barbed wire is indicated above gates, extend end members of gate frames 1'-0" above to member and prepare to receive 3 strands of wire. Provide necessary clips for securing wire to extensions.

Swing Gates: Fabricate perimeter frames of minimum 1.90" OD pipe.

<u>Gate Hardware</u>: Provide hardware and accessories for each gate, galvanized per ASTM A 153, and in accordance with the following:

<u>Hinges</u>: Size and material to suit gate size, non-lift-off type, offset to permit 180 deg. gate opening. Provide 1-1/2 pair of hinges for each leaf over 6' nominal height.

<u>Latch</u>: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as integral part of latch.

<u>Keeper</u>: Provide keeper for vehicular gates, which automatically engages gate leaf and holds it in open position until manually released.

<u>Double Gates</u>: Provide gate stops for double gates, consisting of mushroom type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.

Concrete: Provide concrete consisting of portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain with a minimum 28-day compressive strength of 2500 psi using at least 4 sacks of cement per cu. yard., 1" maximum size aggregate, maximum 3" slump, and 2% to 4% entrained air.

PART III - EXECUTION

INSTALLATION:

<u>Do not begin</u> installation and erection before final grading is completed, unless otherwise permitted.

<u>Excavation</u>: Drill or hand excavate (using post hole diggers) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.

If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest

cross-section of post.

Unless otherwise indicated, excavate hole depths approximately 3" lower than post bottom with bottom of posts set not less than 36" below finish grade surface.

Setting Posts: Center and align posts in holes 3" above bottom of excavation.

Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.

Unless otherwise indicated, extend concrete footings 2" above grade and trowel to a crown to shed water.

<u>Top Rails</u>: Run rail continuously through post caps, bending to radius for curved runs. Provide expansion couplings as recommended by fencing manufacturer.

Center Rails: Provide center rails where indicated. Install in one piece between posts and flush with post on fabric side, using special offset fittings where necessary.

Brace Assembles: Install braces so posts are plumb when diagonal rod is under proper tension.

<u>Tension Wire</u>: Install tension wires through post cap loops before stretching fabric and tie to each post cap with not less than 6 ga. galvanized wire. Fasten fabric to tension wire using 11 ga. galvanized steel hog rings spaced 24" o.c.

<u>Fabric</u>: Leave approximately 2" between finish grade and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.

Stretcher Bars: Thread through or clamp to fabric 4" o.c., and secure to posts with metal bands spaced 15" o.c.

<u>Barbed Wire</u>: Pull wire taut and install securely to extension arms and secure to end post or terminal arms in accordance with manufacturer's instructions.

<u>Gates</u>: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

Tie Wires: Use U-shaped wire, conforming to diameter of pipe to which attached,

clasping pipe and fabric firmly with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

Tie fabric to line posts, with wire ties spaced 12" o.c. Tie fabric to rails and braces, with wire ties spaced 24" o.c. Tie fabric to tension wires, with hog rings spaced 24" o.c.

<u>Fasteners</u>: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

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. 2.		e employees during the per Contractor shall secure the t	formance of the contract; and following written certification:
	((CONTRACTOR) certifies	to Chatham County that a Drug-Free
	Workplace will be provided for the employees during Canal - Phase II, Section I Drainage Improvement (PROJECT)		contract known as Pipemakers
ĥe	pursuant to paragraph (7) of subsection (B) of Code he/she will not engage in the unlawful manufacture, or marijuana during the performance of the contrac	, sale, distribution, possessi	e undersigned further certifies that ion, or use of a controlled substance
	CONTRACTOR	DATE	

NOTARY

DATE

ATTACHMENT B

PROMISE OF NON-DISCRIMINATION STATEMENT

Know All Men By These Presence, that I (We), $_$	Name
	(herein after
"Company"), Title Name of Bidder in consideration of the privilege to bid/or pro County project procurement <u>Pipemakers Canal - Phase I</u>	
hereby consent, covenant and agree as follows:	
(1) No person shall be excluded from participal or otherwise discriminated against on the basis origin or gender in connection with the bid subthe performance of the contract resulting there	s of race, color, national omitted to Chatham County or
(2) That it is and shall be the policy of this opportunity to all business persons seeking to interested with the Company, including those coby racial minorities, and women;	contract or otherwise
(3) In connection herewith, I (We) acknowledge has been made aware of, understands and agrees provide minority and women owned companies with opportunities to do business with this Company	to take affirmative action to h the maximum practicable
(4) That the promises of non-discrimination as shall be continuing throughout the duration of County;	s made and set forth herein this contract with Chatham
(5) That the promises of non-discrimination a shall be and are hereby deemed to be made a pareference in the contract which this Company m	rt of and incorporated by
(6) That the failure of this Company to satist promises of non-discrimination as made and set material breach of contract entitling the Coundefault and to exercise appropriate remedies itermination of the contract.	forth above may constitute a try to declare the contract in

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.
em	List any indictments or convictions of any person, subsidiary, or affiliate of this company for offenses such as bezzlement, theft, fraudulent schemes, etc. or any other offenses indicating a lack of business integrity or siness 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.

	, as
Name of individual	, as Title & Authority
of	, declare under oath that
Company Name	Approximation of the state of t
the above statement	s, including any supplemental responses attached hereto, are tru-
Signature	
State of	
County of	
Subscribed and swo	rn to before me on this day of
2008 by	representing him/herself to be
	of the company named herein.
No	tary Public
	My Commission expires:
	Resident State:

Attachment D

IMMIGRATION AND SECURITY FORM

SB529 (The Ga Security and Immigration and Compliance Act) requires contractors to file an affidavit that the contractor and its subcontractors have registered and participate in a federal work authorization program intended to insure that only lawful citizens or lawful immigrants are employed by the contractor or subcontractor. This requirement of SB529 is a phased-in affidavit filing requirement based on the size

or subcontractor. This requirement of SB529 is a phased-in anidavit filling requirement based on the size of the contractor. Contractors with 500 or more employees are required to file an affidavit of compliance beginning 7/1/07. However, because the requirement is set forth in OCGA 13-10-91 which is a part of Chapter 10 of Title 13 governing public works contracts, the affidavit filing requirements of SB529 therefore only apply to public works contracts.
A. In order to insure compliance with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99- 603 and the Georgia Security and Immigration Compliance Act OCGA 13-10-90 et.seq., Contractor must initial one of the sections below:
Contractor has 500 or more employees and Contractor warrants that Contractor has complied with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act by registering at https://www.vis-dhs.com/EmployerRegistration and verifying information of all new employees; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-101 et.seq .
Contractor has 100-499 employees and Contractor warrants that no later than July 1, 2008, Contractor will register at https://www.vis-dhs.com/EmployerRegistration to verify information of all new employees in order to comply with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-101 et.seq.
Contractor has 99 or fewer employees and Contractor warrants that no later than July 1, 2009, Contractor will register at https://www.vis-dhs.com/EmployerRegistration to verify information of all new employees in order to comply with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-101

Attachment E

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with (name of public employer) has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with (name of public employer), contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the (name of the public employer) at the time the subcontractor(s) is retained to perform such service.

EEV / Basic Pilot Program* User Identification Number	
BY: Authorized Officer or Agent (Contractor Name)	Date
Title of Authorized Officer or Agent of Contractor	
Printed Name of Authorized Officer or Agent	
SUBSCRIBED AND SWORN BEFORE ME ON THIS THE	
DAY OF, 200_	
Notary Public	
My Commission Expires:	

^{*} As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

SUBCONTRACTOR AFFIDAVIT

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 (name of public employer) has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

EEV / Basic Pilot Program* User Identification Nur	nber
BY: Authorized Officer or Agent (Subcontractor Name)	Date
Title of Authorized Officer or Agent of Subcontract	cor
Printed Name of Authorized Officer or Agent	
SUBSCRIBED AND SWORN BEFORE ME ON THIS THE DAY OF, 200	
Notary Public My Commission Expires:	

^{*} As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U. S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

ATTACHMENT F

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 voluntary excluded from participation in this transaction by any Federal department or agency, State of Georgia, City of Savannah, Board of Education of local municipality. Bidder agrees that by submitting this proposal that Bidder will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the Bidder or any lower tier participant is unable to certify to this statement, that participant shall attach an explanation to this document.

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

(Printed or typed Name of Signatory)

(Signature)

(Date)

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

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

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. YesNo 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.

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

LEGAL NOTICE

CC NO. <u>164193</u>

Invitation to Bid

Sealed Bids will be received until 2:00 P.M. on JUNE 29, 2010 and publicly opened in Chatham County Purchasing & Contracting Department, at The Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C. Savannah, Georgia, for: BID NO: 10-11-1-4 PIPEMAKERS CANAL - PHASE II, SECTION I, DRAINAGE IMPROVEMENTS.

MANDATORY PRE-BID CONFERENCE: 2:00 P.M., JUNE 8, 2010. A MANDATORY Conference will be held at the Chatham County Citizens Service Center, 1117 Eisenhower Drive, Suite C, Savannah, Georgia. Your firm must be represented at this conference to submit a bid for this project.

Bid Packages and Plan sheets are available from the office of the Chatham County Purchasing & Contracting Department, at the above address. There is a \$50 non-refundable charge for this package.

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

The Bid Package and Plans <u>must</u> still be picked up and purchased from the Purchasing & Contracting Office.

Bid Bond shall be 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"

WILLIAM R. PARSON, CPPO, PURCHASING AGENT

SAVANNAH NEWS/PRESS INSERT: May 19, Jun.1, 2010

Please send affidavit to: Chatham County Purchasing & Contracting Department P.O. Box 15180 Savannah, Georgia 31416 (912) 790-1622